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Award Number: DAMD17-01-1-0009

TITLE: New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes

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REPORT DATE: November 2003

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

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20040311 132

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	November 2003	Annual (1 Nov 2002 - 31 Oct 2003)

4. TITLE AND SUBTITLE
New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes

5. FUNDING NUMBERS
DAMD17-01-1-0009

6. AUTHOR(S)
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8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
Original contains color plates: All DTIC reproductions will be in black and white.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 Words)
Type 1 diabetes is considered an autoimmune disease characterized by the presence of inflammatory cells in the islets of Langerhas. These cells are T lymphocytes, considered responsible for the destruction of the insulin producing beta-cells present in the islets. When the majority of the beta cells are dead, the disease presents, frequently with an abrupt and clinically serious onset. Individuals are considered at high risk to develop the disease, based on their genetic susceptibility (as determined by the presence of susceptibility alleles at various HLA loci) and on the presence in serum of autoantibodies directed against islet specific autoantigens (e.g., GAD65, IA-2, and insulin). The aim of this program is to determine whom among the Army personnel is at high risk to develop the disease in order to prevent the unexpected onset of the disease that may be associated with tragic consequences, and to initiate an educational program aimed at reducing practical and psychological hurdles. Furthermore, different individuals develop disease complications (i.e., retinopathy, nephropathy, neuropathy) at different timepoints after the onset. The susceptibility to complications could also be genetic. The human genome will be scanned systematically to characterize these susceptibility genes. Proteomic analysis will be performed in tandem to confirm the genetic associations.

14. SUBJECT TERMS
Type 1 diabetes, HLA alleles, autoantibodies, T cells, DNA pyrosequencing, proteomic analysis

15. NUMBER OF PAGES
467

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

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INTRODUCTION TO THE OVERALL PROJECT

Type 1 diabetes is considered an autoimmune disease characterized by the presence of inflammatory cells in the islets of Langerhans. The majority of infiltrating cells are actually T lymphocytes that are considered responsible for the destruction of the insulin producing β-cells present in the islets. When the number of dead cells reach 85-90% of the originally existing β-cells, the disease presents, frequently with an abrupt and clinically serious onset. Individuals are considered at high risk to develop the disease, based on their genetic susceptibility (as determined by the presence of susceptibility alleles at various HLA loci) and on the presence in the serum of autoantibodies directed against islet specific autoantigens (the most indicative being GAD65, IA-2, and insulin). In individuals genetically at risk for the disease an environmental component is generally considered to be the triggering event.

The aim of this program is to determine whom among the Army personnel is at high risk to develop the disease in order to prevent the unexpected onset of the disease that may be associated with tragic consequences and to initiate an educational program aimed at reducing practical and psychological hurdles for people found to be at high risk. While molecular HLA typing, enterovirus presence and autoantibody testing are quite well established assays for susceptibility definition, the handling of this type of information (i.e., to be at risk) and the care that affected people need to receive is still an area that needs improvement. Website technology and telemedicine applications seem the correct answers to these needs (see section C). Furthermore, different patients develop disease complications (i.e., retinopathy, nephropathy, neuropathy) at different timepoints after the disease onset. The susceptibility to complications could also be genetic. The human genome will be scanned systematically to characterize these susceptibility genes (see Section A). Proteomic analysis will be performed in tandem to confirm the genetic associations (see Section B). To reach statistically meaningful results, it is critical to have a large population to study. To complement the Pittsburgh and Philadelphia patient populations, we obtained the collaboration of colleagues in Hawaii and at Walter Reed Hospital in Washington. Together we are confident to quickly reach sound and useful data.

A. Diabetic Nephropathy susceptibility genes.

A.1. Association data

INTRODUCTION: Diabetic nephropathy (DN) is the most serious long-term complication of diabetes, accounting for about 40% of new cases of end-stage renal disease in the U.S. Several lines of evidence, including familial clustering, suggest the existence of susceptibility genes that contribute to DN. In order to identify these genes, we are using the transmission/ disequilibrium test (TDT) to analyze candidate genes for linkage and association with DN.

BODY (RESULTS): Since the last Progress Report (2/06/03) we have been focusing on testing SNPs in a selected set of candidate genes. These studies are being carried

out on family material collected at University of Pittsburgh combined with families we have collected at the University of Pennsylvania. The list of candidate genes and the associated SNPs is continuing to grow as the project progresses.

To date, we have studied a total of 103 families all having at least one offspring with diabetes of long duration. (Forty-six of these families are part of the HBDI collection of T1DM multiplex families). Work presented in the last Progress Report concentrated on the large collection of microsatellite markers located in or near 65 candidate genes that were genotyped, and the data analyzed for linkage and association using the TDT. Since then, we have committed substantial effort to typing SNPs. We now report results for 115 SNPs in 25 gene regions (see Table 1). In some cases these are follow-up studies of gene associations that have been reported in the literature (e.g. ADBR3, AGTR1 region, AKR1B1, ENPP1, IL1 gene cluster, IL6, MTHFR, NOS3, NPPA, PRKCB1, SLC2A1). In other cases, such as APOC2, AQP1, COL1A1, COL4A1, IGF1, LAMB1, LAMC1 and TIMP3, they are an analysis of SNPs in genes chosen based on our previous studies with microsatellite markers.

KEY RESEARCH ACCOMPLISHMENTS: Nominally significant results have been found with SNPs in several genes that were tested:

- AGTR1 gene region: The SNP rs2293418 has a significant TDT result (c^2 =4.25, p=0.04) and is located 2.9kb from a microsatellite marker D3S1308 which is also shows significant evidence for association with diabetic nephropathy (c^2 =11.27, p=0.0008).
- COL4A1: Two SNPs (rs614282 and rs679062) near exon 2 of COL4A1 have significant TDT results (c^2 =9.3, p=0.002 and (c^2 =13.52, p=0.0002, respectively).
- LAMC1 gene region: Most of the 11 SNPs tested in the LAMC1 gene showed significant TDT c^2 values >3.84 ($p<0.05$). This suggests that although there appears to be considerable linkage disequilibrium across the gene, this gene may also be associated with diabetic nephropathy
- MMP9 gene: The SNP hCV1414746 has a significant TDT result (c^2 =4.79, p=0.029) and is located 8kb 5' of a microsatellite marker in the promoter region of MMP9 which is reported to be associated with diabetic nephropathy.
- TCF2 gene: The SNP rs2688 in the 3' UTR of TCF2 shows significant association (c^2=4.76, p=0.029).

REPORTABLE OUTCOMES:

Manuscript in preparation: Family-based association studies of candidate genes for diabetic nephropathy. K. Gogolin Ewens, R.A.V. George, L.K. Southworth, F.N. Ziyadeh, R.S. Spielman.

Abstract: Linkage and association analysis of candidate genes for diabetic nephropathy. K. Gogolin Ewens, R.A.V. George, L.K. Southworth, F.N. Ziyadeh, R.S. Spielman. Am J Hum Genet, 71 (supplement):1680, 2002.

CONCLUSIONS: Although the results shown above are nominally significant, they must be considered preliminary in view of the small sample size. In order to confirm and

expand these results, additional families are being collected by Dr. Trucco and additional SNPs in the regions of suggestive associations (identified from the Celera database and public databases such as NCBI SNPdb, as well as by sequencing of interesting candidate regions) are being tested in all available families.

TABLE1. Single nucleotide polymorphisms (SNPs) in or near candidate genes for diabetic nephropathy that have been analyzed for linkage and association with the TDT.

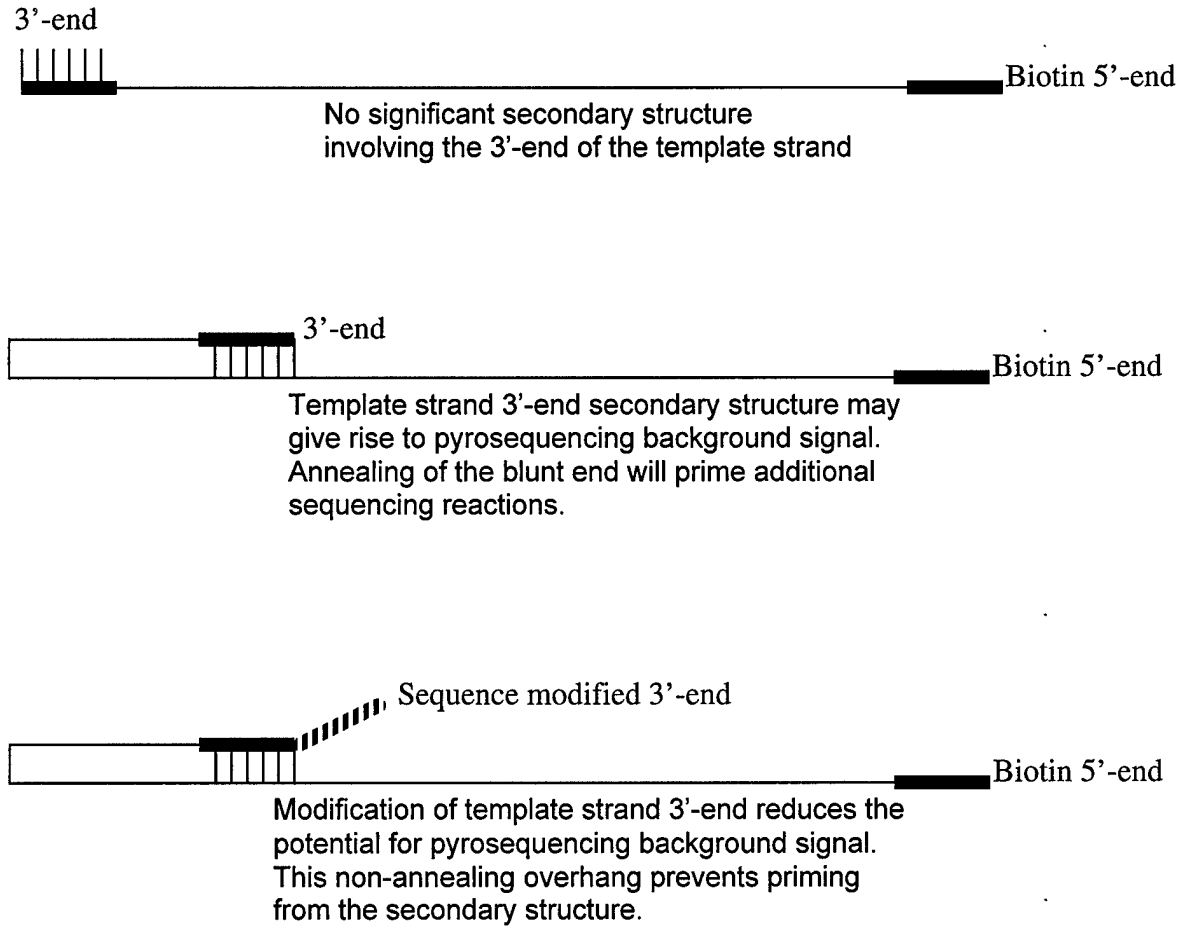
Gene Region	Gene ID	Gene Name	SNP I.D.	SNP Type	TDT - transmissions (T) to DN offspring				
					allele	total T	% T	chi-sq	p
ADRB3	ADRB3	adrenergic, beta-3-, receptor	ADRB3_rs4994	mis-sense mutation	T	5	1.000	5	0.0253
AGTR1 region	AGTR1	angiotensin II receptor, type 1	AGTR1_rs931490fp	intron	C	25	0.520	0.04	
	AGTR1	angiotensin II receptor, type 1	AGTR1_s1492103fp	intron	C	60	0.500	0	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs731252fp	intron	A	14	0.143	7.143	0.0075
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs1492099fp	intron	C	18	0.556	0.222	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs389566fp	intron	A	38	0.421	0.947	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs275649fp	intron	C	39	0.410	1.256	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs5182fp	exon	C	58	0.552	0.621	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs5183sq	exon	A	8	0.625	0.5	
	AGTR1	angiotensin II receptor, type 1	AGTR1_rs5186fp	3' UTR	G	48	0.604	2.083	
	intergenic	intergenic	AGTR1_rs427832fp	Intergenic	C	43	0.535	0.209	
	CPA3	carboxypeptidase A3	AGTR1_hCV9146233	Intron	A	51	0.549	0.49	
	CPA3	CPA3	CPA3_rs12962fp	3' UTR	T	39	0.462	0.231	
	intergenic	intergenic	AGTR1_hCV1665372	intergenic	C	33	0.576	0.758	
	GYG	glycogenin	GYG_rs3347fp	3' UTR	C	39	0.462	0.231	
	SMARCA3	SWI/SNF related subfamily a, member 3	AGTR1_hCV8759101	silent mutation	C	44	0.523	0.091	
	HPS3	Hermansky-Pudlak syndrome 3	AGTR1_hCV1732626	silent mutation	A	50	0.620	2.88	
		neruopilin-related	AGTR1_hCV1206462	intron	T	37	0.541	0.243	
		neruopilin-related	AGTR1_hCV3201931	5' UTR	T	28	0.571	0.571	
		neruopilin-related	AGTR1_hCV3201921	intron	A	31	0.516	0.032	
	intergenic	intergenic	LOC116441_rs2293418	Intergenic	T	53	0.642	**4.245**	**0.0394**
	LOC116441	hypothetical protein	LOC116441_hCV3201882	Intron	A	24	0.667	2.667	
	LOC116441	hypothetical protein	LOC116441_hCV8759413	Intron	T	49	0.571	1	
	intergenic	intergenic	AGTR1_hCV2041181	intergenic	G	19	0.526	0.053	
	intergenic	intergenic	AGTR1_hCV3201872	Intergenic	A	42	0.524	0.095	
	TM4SF4	transmembrane 4 superfamily member 4	AGTR1_hCV265602	Intron	A	60	0.583	1.667	
	TAZ	transcriptional co-activator	AGTR1_hCV2726141	Intron	G	46	0.587	1.391	
	TAZ	transcriptional co-activator	TAZ_rs1344816fp	Intron	G	52	0.596	1.923	
	TAZ	transcriptional co-activator	AGTR1_hCV9148272	Intron	A	48	0.500	0	
	intergenic	intergenic	AGTR1_hCV1794446	Intergenic	G	50	5.400	0.32	
AKR1B1	AKR1B1	aldose reductase	AKR1B1_rs759853	5' UTR region	C	48	0.500	0	
APOC2	APOC2	apolipoprotein C2	APOC2_hCV1841831	mis-sense mutation	T	56	0.518	0.071	
			APOC2_hCV7837381	Intron	T	58	0.552	0.621	
			APOC2_hCV7837357	intergenic	G	55	0.527	0.164	
AQP1	AQP1	aquaporin 1	AQP1_hCV2973378	intergenic	T	64	0.516	0.063	
			AQP1_hCV2973385	UTR 3	G	51	0.529	0.176	
CNOT4	CNOT4	CCR4-NOT transcription complex, subunit 4	CNOT4_hCV2860477	Intron	A	68	0.515	0.059	
			CNOT4_hCV16283682	Intron	C	67	0.507	0.015	
			CNOT4_hCV2860407	Intron	C	43	0.512	0.023	
COL1A1	COL1A1	collagen, type I, alpha 1	COL1A1_hCV1840244	Intron	A	59	0.559	0.831	
COL4A1/COL4A2 region	COL4A1	collagen, type IV, alpha 1	COL4A1_hCV1964948	3' UTR	A	55	0.527	0.164	
			COL4A1_hCV3147619	Intron	C	73	0.589	2.315	
			COL4A1_hCV3147628	silent mutation	A	58	0.569	1.103	
			COL4A1_hCV3147652	Intron	T	52	0.538	0.308	
			COL4A1_hCV8053894	Intron	T	39	0.641	3.103	
			COL4A1_hCV3147669	Intron	C	57	0.702	**9.281**	**0.0023**
			COL4A1_hCV3147671	Intron	T	58	0.741	**13.517**	**0.0002**
			COL4A1_hCV3147675	Intron	G	47	0.617	2.574	
			COL4A1_hCV3147696	Intron	A	73	0.603	3.082	
	COL4A1/COL4A2	collagen, type IV, alpha 1/alpha2	COL4A1_hCV1433329	Intron	C	61	0.557	0.803	
			COL4A2_hCV1433319	Intron	A	49	0.510	0.02	
	COL4A2	collagen, type IV, alpha 2	COL4A2_hCV1433253	Intron	A	68	0.500	0	
			COL4A2_hCV2018517	Intron	G	75	0.533	0.333	
			COL4A2_hCV7454753	Intron	G	60	0.567	1.067	
ENPP1	ENPP1	ectonucleotide pyrophosphatase/phosphodiesterase 1	ENPP1_rs1044498	mis-sense mutation	C	27	0.519	0.037	
IGF1	IGF1	insulin-like growth factor 1	IGF1_hCV2801121	Intergenic	A	46	0.522	0.087	
			IGF1_hCV2801103	Intron	C	56	0.500	0	
			IGF1_hCV346219	Intron	G	57	0.526	0.158	
IL1 gene cluster	IL1A	interleukin 1, alpha	IL1A_rs1800587	5'UTR	C	39	0.538	0.231	
	IL1B	interleukin 1, beta	IL1B_rs1143634	silent mutation	C	27	0.630	1.815	
	IL1R1	interleukin 1 receptor, type I	IL1R1_rs2234650	12 kb 5' of gene	T	48	0.521	0.083	
	IL1RN	interleukin 1 receptor antagonist	IL1RN_hCV3133518	intron	A	51	0.627451	3.314	
	IL1RN	interleukin 1 receptor antagonist	IL1RN_hCV948691	UTR 3	C	42	0.547619	0.381	
	IL1RN	interleukin 1 receptor antagonist	IL1RN_hCV1939887	intergenic	G	53	0.584906	1.528	
IL6	IL6	IL6	IL6_rs1800796	UTR 5	G	15	0.600	0.6	
LAMB1	LAMB1	laminin, beta 1	LAMB1_hCV2193686	Intron	G	68	0.559	0.941	
			LAMB1_hCV3268606	Intron	A	58	0.534	0.276	
			LAMB1_hCV1091265	Intron	G	62	0.532	0.258	
			LAMB1_hCV2631054	intergenic	C	56	0.518	0.071	
LAMC1 region	C1orf14	chromosome 1 open reading frame 14	LAMC1_hCV366127	intergenic 50 kb of LAMC1	C	32	0.813	**12.5**	**0.0004**
	LAMC1	laminin, gamma 1	LAMC1_hCV505167	intetgenic	T	75	0.600	3	
			LAMC1_hCV9066112	Intron	A	74	0.622	**4.378**	**0.0364**
			LAMC1_hCV1770066	Intron	A	74	0.608	3.459	
			LAMC1_hCV3127531	silent mutation	T	75	0.613	**3.853**	**0.0497**
			LAMC1_hCV11632431	mis-sense mutation	A	76	0.618	**4.263**	**0.0390**
			LAMC1_hCV3127590	silent mutation	A	73	0.616	**3.959**	**0.0466**
			LAMC1_hCV3127518	silent mutation	T	73	0.630	**4.945**	**0.0262**
			LAMC1_hCV3127512	mis-sense mutation	T	76	0.618	**4.263**	**0.0390**
			LAMC1_hCV3127470	silent mutation	C	70	0.600	2.8	
			LAMC1_hCV3127469	silent mutation	G	65	0.508	0.015	
			LAMC1_hCV3127459	UTR 3	A	77	0.610	3.753	
	LAMC2	laminin, gamma 2	LAMC2_hCV3127421	Intron	A	74	0.608	3.459	
MMP9	MMP9	matrix metalloproteinase 9	MMP9_hCV1414746	intergenic	A	47	0.660	**4.787**	**0.0287**
			MMP9_hCV11655953	mis-sense mutation	A	50	0.600	2	
			MMP9_hCV15954372	Intron	A	34	0.588	1.059	
			MMP9_hCV11655948	mis-sense mutation	G	34	0.588	1.059	

Gene Region	Gene ID	Gene Name	SNP I.D.	SNP Type	TDT - transmissions (T) to DN offspring				
					allele	total T	% T	chi-sq	p
MTHFR	MTHFR	5,10-methylenetetrahydrofolate reductase	MTHFR_rs1801133	mis-sense mutation	C	5	5.800	1.28	
NOS3	NOS3	nitric acid synthetase 3 (endothelial)	NOS3_rs1549758sq	silent mutation	3	43	0.465	0.209	
			NOS3_rs1007311sq	intron	2	54	0.481	0.074	
			NOS3_rs1799983	mis-sense mutation	2	44	0.477	0.091	
NPPA	NPPA	natriuretic peptide precursor A	NPPA_rs5065	silent mutation	A	63	0.524	0.143	
			NPPA_rs3170926	mis-sense mutation	T	9	0.667	1	
PRKCA	PRKCA	protein kinase C, alpha	PRKCA_hCV2866405	Intron	1	67	0.582	1.806	
			PRKCA_hCV2866336	Intron	3	54	0.481	0.074	
			PRKCA_hCV2654166	Intron	2	69	0.507	0.014	
			PRKCA_hCV2956764	Intron	4	71	0.521	0.127	
			PRKCA_hCV16181069	Intron	2	56	0.464	0.286	
			PRKCA_hCV150109	Intron	1	62	0.500	0	
PRKCB1	PRKCB1	protein kinase C, beta 1	PRKCB1_hCV2192055	Intron	2	55	0.582	1.473	
			PRKCB1_hCV11192725	Intron	1	64	0.500	0	
			PRKCB1_hCV9609158	Intron	2	69	0.420	1.754	
			PRKCB1_hCV1936029	Intron	1	46	0.630	3.13	
			PRKCB1_hCV583834	Intron	4	59	0.559	0.831	
SLC2A1	SLC2A1	glucose transporter 1	SLC2A1_rs841853	intron	T	46	0.565	0.783	
TCF2	TCF2	hepatic transcription factor 2	TCF2_hCV2559950	intergenic	T	40	0.600	1.6	
			TCF2_hCV11415601	UTR 3	C	68	0.632	**4.765**	**0.0290**
			TCF2_hCV2559930	Intron	A	46	0.609	2.174	
			TCF2_hCV2559920	Intron	T	65	0.508	0.015	
			TCF2_hCV2559889	Intron	T	51	0.510	0.02	
TGFB3	TGFB3	transforming growth factor, beta 3	TGFB3_hCV15874941	intron	4	50	0.460	0.32	
			TGFB3_hCV2774236	intron	2	47	0.532	0.191	
TIMP2	TIMP2	tissue inhibitor of metalloproteinase 2	TIMP2_hCV146576	Intron	1	62	0.548	0.581	
TIMP3/SYN3	TIMP3/SYN3	tissue inhibitor of metalloproteinase3/synapsin3	TIMP3_hCV8712827	Intron/Intron	A	64	0.594	2.25	
			TIMP3_hCV3294872	Intron/Intron	G	76	0.513	0.053	
			TIMP3_hCV8712964	3'UTR/intron	C	51	0.510	0.02	

A.2. Technical improvements.

INTRODUCTON/BODY: We also developed a Perl-based (www.perl.com) software program that helps design PCR and sequencing primers while incorporating the specific characteristics required by the Pyrosequencing® methodology. Although there are numerous commercially available sequence analysis and primer selection software packages, the methodology of Pyrosequencing dictates additional constraints during primer selection to avoid self-priming of the PCR product. The sequencing reaction takes place at a relatively low temperature making the formation of secondary structures more stable. If one of these secondary structures results in the last nucleotide on the 5' end of the amplicon folding over and annealing, this resulting template loop can now self prime the sequencing reaction and significantly interfere with sequence analysis (Figure 1). Currently there is no commercially available software package capable of selecting primers under the restraints dictated by the sequencing technology used. Our program additionally searches the publicly available database for all known SNP sites for the genes of interest, thus we are able to design our tests based on the most current SNP data.

Figure 1.



We are currently using primers designed by our software for the nucleotide sequence analysis of a subset of genes previously identified as "interesting" by other preliminary testing methods (microsatelite markers). This included optimizing the software algorithms, validating the primer suitability on control samples, adjusting the current protocols to be able to analyze/process many samples simultaneously.

Protocols are under development for use on the Biomek FX automated liquid handling robot to further streamline sample processing and prepare for increased sample throughput.

KEY RESEARCH ACCOMPLISHMENTS:

- Primer design software development incorporating specific requirements of pyrosequencing technology
- Validation of primer-selection software by sequence analysis
- DNA from HBDI samples was genotyped at various SNP locations in a subset of selected genes
- Streamlining of recruitment procedures for the addition of new families into the study
- Incorporation of automated liquid handling to increase sample throughput and accuracy

Manuscript in preparation (Ringquist et al.)

REPORTABLE OUTCOMES:

SNPs were selected at approximately 10kb intervals along each gene investigated. Genotyping results for these SNPs are available for the roughly 50 families obtained from the HBDI repository, and are in progress for 14 new families recruited from the Pittsburgh-based Thomas E.Starzl Transplant Institute. Table II shows, grouped by gene, each SNP identification number, physical position on the chromosome, and results of preliminary statistical analyses.

Table II

GENE	CHROM	SNP id	POSITION	Primers Tested	HBDI Genotyped	STATS
COL4A2	13	rs13260	109,638,761	yes	in progress	
23 SNPs chosen 11 primer sets tested 8 SNPs analyzed		rs2201392	109,794,394	yes	in progress	
		rs4773154	109,806,423	yes	yes	**P=0.0009**
		rs4771663	109,816,435			
		rs1556123	109,825,054	yes		
		rs4773161	109,833,832	yes		

		rs4771672	109,844,939	yes	in progress	
		rs913746	109,852,762	yes	yes	P=0.45
		rs952358	109,863,376	yes	yes	P=0.5
		rs952359	109,863,372		yes	P=0.212
		rs2391825	109,872,121	yes	in progress	
		rs4773175	109,883,210	yes		
		rs1927349	109,895,767	yes		
		rs1927355	109,904,631			
		rs4238272	109,913,835			
		rs4771679	109,925,508			
		rs1018643	109,933,563			
		rs4474567	109,943,700			
		rs4773188	109,954,048			
		rs4326915	109,964,503			
		rs1983930	109,973,805			
		rs912946	109,984,484			
		rs4771684	109,993,411			
COL4A5	X	rs3788922	105,718,509			
		rs5929126	105,723,963	yes		
SNPs chosen		rs5929099	105,739,815	yes	yes	pending
12 primer sets tested		rs2346076	105,762,771	yes		
3 SNPs analyzed		rs2143442	105,771,198	yes	yes	pending
		rs4829437	105,790,406			
		Rs5929129	105,802,750			
		Rs5973833	105,831,177	yes		
		Rs3788923	105,838,772			
		Rs5973835	105,855,907			
		Rs4308887	105,873,401	yes	yes	pending
		Rs3747408	105,883,043	yes		
		Rs5929138	105,892,318			
		Rs1028404	105,903,468			
		Rs5973883	105,943,812			
		Rs2272946	???	yes	yes	pending
ITGA2	5	Rs26679	28,489,185	yes	yes	P=0.134
		rs1421941	28,626,945			
7 SNPs chosen		Rs27890	28,907,915	yes		
5 primer sets tested		Rs3212478	29.083,045			
3 SNPs analyzed		Rs3212504	29,114,205	yes	yes	P=0.395
		Rs2056402	29,283,695	yes	yes	P=0.151
		Rs3212594	29,356,875	yes		
ITGB1	10	Rs17468	33,340,524	yes	yes	P=0.264
		Rs1316757	33,347,436	yes	yes	P=0.264
7 SNPs chosen		Rs2230396	33,359,505	yes		
7 primers tested		Rs2256455	33,369,247	yes	yes	P=0.144
3 SNPs analyzed		Rs2457707	33,377,752	yes		
		Rs1187069	33,389,247	yes		
		Rs1187077	33,399,107	yes		
TGFBR2	3	Rs4593064	30,495,879			
		Rs18355538	30,505,281			
		Rs1036095	30,512,128			

		Rs1431131	30,256,680			
		Rs1155705	30,536,214			
		Rs1019856	30,466,616			
		Rs934328	30,557,544			
		Rs4987232	30,565,408			
		Rs876687	30,575,445			
		Rs995686	30,585,524			
TGFB3	14	Primer selection in progress				
TIMP2	17	Primer selection in progress				

CONCLUSIONS:

We have been able to successfully design PCR and sequencing primers, under the stringent requirements of the Pyrosequencing technology, for a smaller subset of genes of interest. Final adjustments and fine-tuning of the computer algorithms will allow more efficient sequence selection. The genotypes obtained show that the primers were adequately designed. With the additional incorporation of the automated liquid handling robot, we are now ready to move forward with a high throughput genotyping effort that will be able to handle the recruitment of many

B. Diabetic Nephropathy Proteomic Analysis

KEY RESEARCH ACCOMPLISHMENTS: Identification and monitoring of selected gene products is being performed on proteins purified from islet preparations derived from human donors (Figure 2) as well as from a β-islet cell line (Figure 3).

Adult Human Islet Proteins

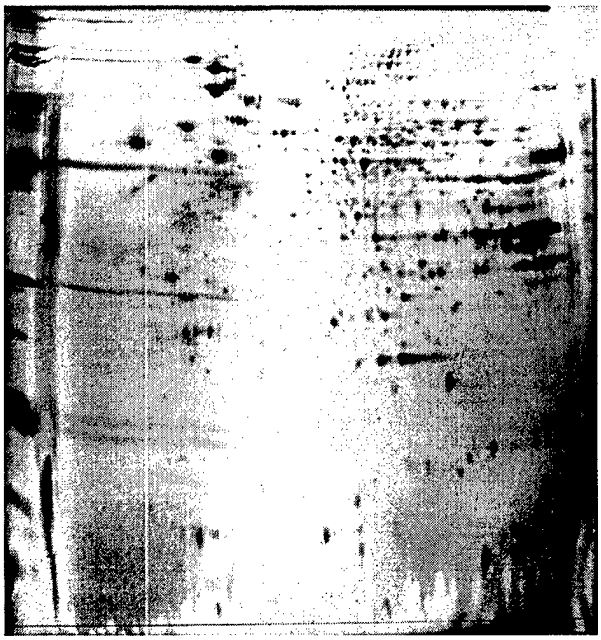


Figure 2. Separation of isolated proteins from human pancreatic islets by 2-dimensional gel electrophoresis. Islets were lysed in a solution containing protease inhibitors and precipitated with Acetone/ Trichloroacetic acid. Roughly 0.3 mg of islet protein was solubilized in rehydration buffer with ampholytes (pH 3-10), detergent (1% ASB-14 and 1% Triton x-100), and Tributyl phosphine and then underwent isoelectric focusing for 80,000 volt hours on Immobiline DryStrips (pH 3-10). Second dimension electrophoresis was into 15x15cm square 12.5% acrylamide gels (4 hours at 25 watts/gel). The gel was visualized by silver staining.

βTC3 Mouse Islet Proteins

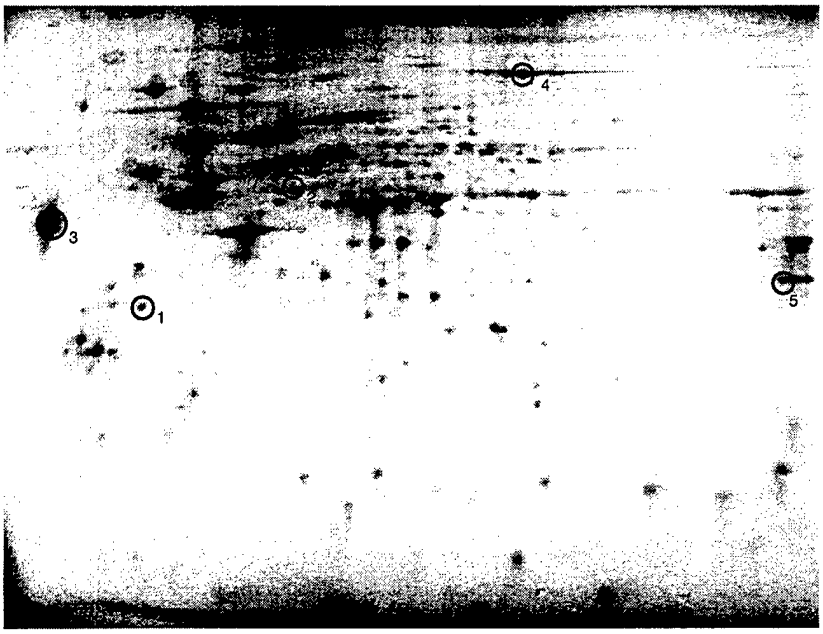


Figure 3. 2-dimensional gel electrophoresis of proteins isolated from the bTC3 mouse islet cell line. Selected proteins were excised and identified by mass spectrometry. Circled proteins were identified by mass spectrometry as: (spot 1) Anxa5; (spot 2) Atp5b; (spot 3) Calr; (spot 4) Eef2; (spot 5) Gapd; (spot 6) Grp58; and (spot 7) Hsc70. Cells were lysed in the presence of protease inhibitors and precipitated with Acetone/Trichloroacetic acid. Roughly 0.2 mg of protein was solubilized in rehydration buffer with ampholytes (pH 3-10), detergent (1% ASB-14 and 1% Triton x-100), and Tributyl phosphine. Isoelectric focusing was performed for 80,000 volt hours on Immobiline DryStrips (pH 3-10). Second dimension electrophoresis was into 15x15cm square 12.5% acrylamide gels (4 hours at 25 watts/gel). The gel was visualized by Coomassie Blue staining.

Tracking of changes in the expression of individual proteins using 2D-gel electrophoresis has been coupled with an effort to discover new molecular markers associated with islet suitability for transplantation. Protein identification has been performed by our proteomic facility consisting of an Amersham Biosciences brand MALDI-TOF Pro Mass Spectrometer, an Amersham Biosciences Ettan Robotic Spot Handling Workstation (consisting of all necessary automation for preparation of trypsin digested protein isolated by 2D polyacrylamide gel electrophoresis), an Amersham Biosciences Typhoon Fluorescent Gel Scanner, as well as various gel electrophoresis assemblies and power supplies. Throughput for the Ettan spot handling workstation is as many as twelve 2D gels, representing up to 1152 protein containing gel plugs, for generating trypsin digested fragments spotted onto our MALDI mass spectrometer target. We are routinely running 2D gels from human islets obtained from our Islet Isolation Core Laboratory as well as the bTC3 mouse islet-derived cell line (Efrat et al., 1988) and are actively engaged in identifying the proteins via MALDI mass spectrometry of trypsinized proteins from these gels (Figure 4).

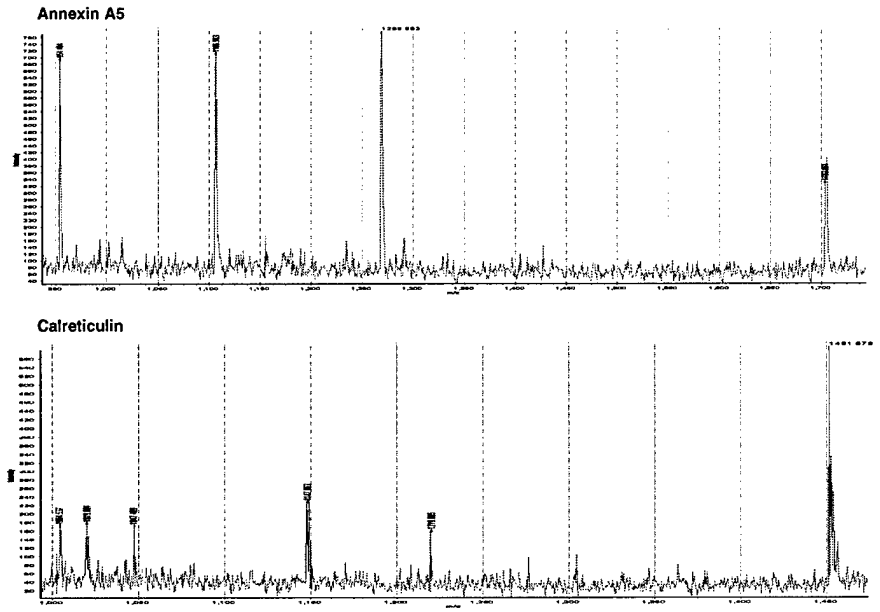


Figure 4. Mass spectra for Annexin A5 gi|13277612| and Calreticulin gi|6680836| isolated from the bTC3 mouse islet cell line. Mass spectrum were obtained using a MALDI-TOF mass spectrometer to analyze peptide fragments isolated from trypsin digested protein.

Our proteomic effort is focused on monitoring changes in protein expression associated with islet cell isolation and maintenance. Preliminary data, summarized in Table III, indicates that proteins involved in a variety of cellular processes (e.g., apoptosis, metabolism, signal transduction, and transcription) have already been identified.

Table III. Selected proteins identified by MALDI mass spectrometry of proteins isolated from βTC3.

Gene Name*	Identifier Mus musculus	Cellular Role	Description
Aldo1	gi|6671539|	metabolism	Aldolase
Anxa5	**gi|13277612|**	**calcium channel**	**Annexin A5**
Atp5b	gi|23272966|	metabolism	ATP synthase, H+ transporting F1 complex, beta subunit
Calr	**gi|6680836|**	**signal transduction**	**Calreticulin**
Eef2	gi|33859482|	translation	Eukaryotic translation elongation factor 2
Eno1	gi|13278412|	metabolism	Enolase
Gapd	gi|6679937|	metabolism	Glyceraldehyde-3-phosphate dehydrogenase
Grp58	gi|6679687|	chaperone/stress protein	Phospholipase C, alpha
G3bp	gi|7305075|	signal transduction	Ras-GTPase activating protein SH3-domain binding protein
Hsp65	gi|72957|	chaperone/stress protein	heat shock protein 65
Hsc70	gi|476850|	chaperone/stress protein	DnaK type molecular chaperone precursor, mitochondrial
Mdhm	gi|126897|	metabolism	Malate dehydrogenase
Neph1	gi|25137571|	transcription	Nephrin
Nme2	gi|6679078|	signal transduction	Nucleoside diphosphate kinase B
Oat	gi|8393866|	metabolism	Ornithine aminotransferase
P4hb	gi|20913929|	chaperone/stress protein	Protein disulfide isomerase precusor
Stip1	gi|14389431|	chaperone/stress protein	Stress induced phosphoprotein 1
Vcp	gi|400712|	protein trafficking	Valosin containing protein

*Gene names indicated in bold face are also implicated in apoptosis.

We will continue to exploit use of our mass spectrometer as well as rapid sample processing ability to explore protein based 2D gel electrophoretic patterns from islet

protein samples obtained from human organ donations as well as islet-derived cell lines. Monitoring of these samples by 2D gel electrophoresis has provided potentially hundreds of individual proteins which are available for mass spectrometry based identification as well as for correlation as markers for islet isolation and maintenance. For example, analysis of the mass accuracy associated with the spectra shown in Figure 4 indicated a mean accuracy of greater than 20 ppm, with the largest error being 50 ppm, when compared to the calculated masses for these peptides (Table IV). Association of protein to gene identifier has been performed by comparison against Amersham's protein database and confirmed using the Mascot search engine (http://www.matrixscience.com) using the publicly available SwissProt protein database. Thus far both analysis strategies have given identical molecular identifiers for our protein samples (data not shown).

Table IV. Summary of mass accuracy for identification of Annexin A5 gi|13277612| and Calreticulin gi|6680836| isolated from 2-dimensional gel electrophoresis of proteins from βTC3 cells.

Measured mass (m/z)	Calculated mass (m/z)	Error (ppm)	Peptide Sequence
Annexin A5			
953.486	953.533	-50	FITIFGTR
1105.555	1105.577	-19	SEIDLFNIR
1267.575	1267.583	-6	GTVTDFPGFDGR
1702.854	1702.874	-12	GLGTDEDSILNLLTSR
2914.176	2914.242	-23	QVYEEEYGSNLEDDVVGDTSGYYQR
Calreticulin			
1003.529	1003.534	-5	LFPSGLDQK
1018.594	1018.560	+33	VHVIFNYK
1046.481	1046.463	+17	DKQDEEQR
1146.655	1146.655	0	KVHVIHNYK
1218.688	1218.697	-7	GQTLVVQFTVK
1450.670	1450.648	+15	EQFLDGDAWTNR

REPORTABLE OUTCOMES: As the current isolation procedure used to purify islets from cadaveric donors seems to activate metabolic processes that promote the loss of islets by apoptosis and/or necrosis our study is focusing, at least initially, on gene products associated with the action of numerous toxic factors, such as oxygen radicals, present during islet isolation that further decrease the number of viable cells (Bottino et al., 2002; Bertera et al., 2003). Moreover, temporal profiling of changes in protein level is expected to indicate early markers for routine monitoring of the extent of islet cell damage. Preliminary results indicate that proteins associated with apoptotic cell death are identifiable, such as Annexin A5 and Calreticulin (Figure 4 and Table III). An important goal of our research will be to identify changes in protein levels to complement cellular assays for monitoring apoptotic and necrotic related markers such as nucleic acid and propidium iodide staining as well as enzymatic assays for annexin V, caspases-3, 7, and 8 activities, and mitochondrial function.

CONCLUSIONS: We will seek to identify early indicators of islet health prior to investment into our transplant models. An important milestone will be the identification of new molecular markers for assessing success of islet maintenance strategies. A

valuable outcome of this study, molecular markers will be identified through mining of protein expression profiles of islet populations after exposure to controlled mechanical stress or low oxygen culture conditions designed to mimic environmental stress associated with extransplantation.

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C. Educational Component

INTRODUCTION

Genetic Information for Testing –Diabetes (GIFT-D) is a current feasibility study, be conducted utilizing siblings of children with diabetes who are seen at the Children's Hospital of Pittsburgh (CHP) Diabetes Center, and if effective, could be applicable to the general population. *(This feasibility study will be referred to as Phase 1.)*

The major goals of this study are to:

1) improve our ability to characterize the risk of developing type 1 diabetes (T1D) (using a risk algorithm that has been validated);
2) develop, implement, and evaluate the process and outcome of an interactive internet-based educational/counseling program (for risk notification and genetic counseling) that will communicate information about genetics and T1D risk status to health care professionals (HCP), parents, and children. This program should enhance the understanding of genetic testing for T1D in children, thus enabling the

families to make a more informed decision regarding whether or not to receive the test. Three separate programs (HCP, parent, and child) are being specifically developed for the Internet;

3) evaluate the psychosocial and behavioral impact (outcomes) of receiving T1D risk information and notification of T1D risk status;
4) serve as a feasibility study for Phase 2 (general population clinical trial), which will be conducted on military bases on military dependants and their parents without T1D.

BODY (RESULTS)

1) Improve our ability to characterize the risk of developing type 1 diabetes (using a risk algorithm that has been validated).

Development of the Risk Algorithm has required several stages. The first stage involved development of the actual model for the proposed study. Data from 269 sibships (collected from families with at least one child with type 1 diabetes) were modeled using a Cox proportional hazards model. Variables which were included in the final model (these were either statistically significant, medically significant or both) were: gender, level of education, parental history of type 1 diabetes, socio-economic status and a combined variable which accounts for the number of previously defined high risk haplotypes and the number of haplotypes shared with the diabetic sibling. This risk variable has the highest value (=2) if the child shares both haplotypes with the type 1 proband, a value of 1 if one haplotype is shared with the proband and at least one of the haplotypes is high risk, and zero in all other cases. From this model, the estimated risk of developing type 1 diabetes for each year up to age 30 was determined and these risks were supplied to the group developing the online system. (See "Risk Algorithm Tables" in the Appendix.)

Validation of the risk algorithm involved examining the dependence, from a statistical perspective, of family members. Since individuals with type 1 diabetes and siblings are included in the model, dependence between family members may exist, which would violate assumption of the Cox model and could invalidate the results. A score test that was developed by Commenges and Andersen (1995) was applied to determine whether family members were dependent. A lack of statistical significance of the test indicates no dependence between family members, for the variable considered in the final model.

A manuscript describing the development and planned implementation of the risk algorithm is in draft form. It is entitled "Determining Disease Risk for Siblings of Children with Type 1 Diabetes" and will be submitted to the *American Journal of Epidemiology* for publication by mid-November. (See Appendix for manuscript.)

In addition, another model was developed for the pilot study, because data regarding the diabetic siblings' haplotypes will not be available. (See "Challenges and Solutions," Section 2.) The model has been run and the risks determined, based on the pilot study requirements. When the subjects are recruited and their HLA has been determined, the risk of type 1 diabetes for these individuals will be determined

independently by two statisticians in Dr. Dorman's group, from the model already developed specifically for the pilot study.

2) **Develop, implement, and evaluate the process and outcome of an interactive internet-based educational/counseling program (for risk notification and genetic counseling) that will communicate information about genetics and T1D risk status to health care professionals (HCP), parents, and children. This program should enhance the understanding of genetic testing for T1D in children, thus enabling the families to make a more informed decision regarding whether or not to receive the test. Three separate programs (HCP, parent, and child) will be specifically developed for the Internet.**

Diversified Services, Inc. (DSI), a Division of the University of Pittsburgh Medical Center, was chosen to develop the internet-based infrastructure that supports our educational/counseling programs, evaluational measures, and data-tracking/management/storage systems. DSI is in the final stages of completing this infrastructure. (See "ConOps Document" in the Appendix.)

The University Of Pittsburgh Center for Instructional Development and Distance Education (CIDDE) was chosen to provide assistance in the development of the educational materials and their transition to a computer-based methodology. CIDDE has an outstanding reputation in delivering developmentally appropriate educational materials. Since genetic education is a particularly sensitive topic, the CIDDE group was co-opted to provide expertise in translating this material for children and parents. Members of CIDDE are also working with the investigators and faculty specializing in genetic education on a web-based continuing education program for health professionals. The written education curricula (transcripts) for the child and parent have been completed. (See "Transcripts of Parent and Child Education Modules" and "Pilot PowerPoint Presentation" in the Appendix.) The counseling component is being finalized. (See "Counseling Outline" in the Appendix.) Modules for the health care professionals (HCP) are currently being designed with the assistance of Yvette Conley, PhD and are expected to be completed by January 2004. A "Collection Copyright" (through the Library of Congress) will be sought upon completion for the entire internet-based system, including all programs and both the new and modified measures.

To develop the content for the genetic education modules for families with type 1 diabetes and health professionals, we began with an extensive search of the Internet and the literature. The idea was not to 're-invent the wheel' as we developed our programs, but to glean from the observable strengths and avoid the weaknesses in existing genetic education materials. As a result, using the Miteretek Systems, Health Information Technology Institute's (HITI) criteria of accurate, relevant, and up-to-date information, we identified a number of web sites and journal articles that will serve as excellent Internet links for our genetic education programs. These listings themselves are a valuable resources for health professionals and the lay public who wish to learn more about genetics and type 1 diabetes. Thus, to share these materials with a broader audience, we are preparing two manuscripts to submit for publication in *Diabetes*

Educator in mid-November. These are entitled "Genetics and Type 1 Diabetes: Online Resources for Diabetes Educators" by Eric R. Manthei, B.S., et al and " A Review of Educationa; Genetics Resources for Type 1 Diabetes on the Internet: Where Can Diabetes Educators and the General Public Access Genetic Information Online?" by Angela Feathers, B.S. et al. Copies of both draft manuscripts are included in the Appendix.

Process evaluation will be measured by the "Satisfaction Questionnaires" as well as the "Time/Effort" computer generated log and the "Experience Questionnaire", all of which were developed or modified for this study. (See copies in the Appendix.) Paper-and-pencil logs and web-based measures for process evaluation will be used for data collection.

3) Evaluate the psychosocial, and behavioral impact (outcomes) of receiving T1D risk information and notification of T1D risk status.

The *major outcomes* of interest are: deciding to receive genetic testing, (behavior), changes in the level of anxiety and/or depression. Parent and child versions of all the measures have been selected. (See Appendix for the actual measures. The paper-and-pencil, both the teleform and the draft versions for the web are included.) All measures that evaluate the mediating or outcome effects of the education and counseling program are listed in ***Table 1***(see Appendix). *Table 1* lists the variables, their function, and measures; along with the number of items that will be used to collect the data. ***Table 2*** lists the data collection points of each measure to be collected for the child, and ***Table 3*** lists the data collection points of each measure for the parent. Children and parents will be asked to separately complete the internet-based program modules. To assess knowledge, attitudes, psychosocial parameters, and behaviors (as outlined in Table 1), each education module will be preceded by an internet-based short pre-test and followed by a short post-test that will take approximately ten minutes to complete. The Expanded Health Beliefs Model (EHBM) and models of stress and coping modified for type 1 diabetes will guide the assessments.

The mature, well validated measures to be used are: the State-Trait Anxiety Inventory (STAI) and State-Trait Anxiety Inventory for Children (STAI-C) (Spielberger); Children's Depression Inventory (CDI-s) (Kovacs); Center for Epidemiologic Studies Depression Scale (CESD-10) (Radloff); Life Orientation Test for Optimism Revised (LOT-r) and Life Orientation Test for Optimism Pediatric version (LOT-P) (Scheier); Child Health Outcomes (Young-Hyman); Family APGAR (Smilkstein).

Well validated measures that have been modified include: Risk Perception Survey for Developing Diabetes (Attitudes about Health), (child and parent version) (Walker); Child Health Outcome (child version)(Young-Hyman); Diabetes Health Belief for Genetic Testing Questionnaire (child and parent version) (Janz and Becker); Quality of Life Health Ladder (Andrews and Withey); Perceived Stigma (child and parent version) (Berger); and Monitoring Vigilance (Baughcum and Johnson et. al.) Measures have been modified for children, and/or genetic testing, and/or diabetes.

Other theoretically and empirically based measures have been developed for the purpose of this study: Demographic Questionnaire; Religiosity; Genetic/Diabetes

Knowledge Test (child and parent version); Intention; Self-Efficacy; Refusal (Exit Survey); Disclosure Questionnaire; Life Event Log; and Process Evaluation instruments.

Permission has been obtained for all of the existing measures. Permission has been sought for all the modified measures. (See **Table 1a** in the Appendix.) Psychometric analysis will be conducted on all modified and newly developed measures.

4) Serve as a feasibility study for Phase 2 (general population clinical trial) which will be conducted on military bases on military dependants and their parents without T1D.

In our original proposal, the genetic education/counseling program was to be implemented and evaluated in military populations on bases. As a result of the Iraq conflict, military personal were deployed and it was necessary to change the target population of the feasibility study. Rather than focusing on the "outcomes" of our program in a general military population, and given our shortened timeframe, we concentrated our efforts on the development of the internet-based programs and methods of evaluation. In addition, to expedite the preliminary trial phase, we selected a convenience sample of children and families who have a pre-existing understanding of type 1 diabetes. The Children's Hospital of Pittsburgh Diabetes Center supports an active clinic in the Johnstown community approximately 100 miles outside of Pittsburgh. Because of the distance, it offered the opportunities to provide a remote location to test telemedicine techniques, a study population with limited exposure to study recruitment and a staff ready to accommodate a research project. Families with children already diagnosed with diabetes also afforded the opportunity for quick access to facilitate the study and had the basic information on diabetes care so that the project content could be targeted specifically to genetics.

Although Phase 2 is beyond the scope of our current project, we are developing a 'product' for families that will be available to 'pilot' in the general population, such as in the military. Even though we will need to modify the education modules, the same measures and procedure methods used in out current study will be applied to evaluate the psychosocial and behavioral impact of receiving T1D risk information in a general military population. Therefore, the products that have already been developed can be modified for whatever target population necessary.

Challenges/Solutions:

1. Alternate site/population

Inability to access a military base in order to conduct the study.

The original proposal was modified to reflect the changes and an alternate site for Phase one was selected, the Children's Hospital of Pittsburgh (CHP) Diabetes Center in Johnstown, PA. Since it is located outside of the academic setting, it affords the opportunity for accessible space, an enthusiastic staff and potential for recruitments of subjects. Accessibility, parking, availability of space for evening and Saturdays makes this an ideal setting for participant teaching and recruitment. Approximately 100 children with type 1 diabetes receive their care at this CHP community site. The

program has been presented to the administration, an orientation of the staff has been done and the facility has been evaluated to implement the computer network.

We selected this alternate population (siblings of children already diagnosed with type 1 diabetes) because we felt they would be most valuable to program development and evaluation. These siblings and their family were already quite familiar with the disease and could provide insightful input.

2. Pilot

The Belmont Report states that a new intervention must be pilot tested in an adult population prior to conducting the study on children where the psychological risks of an intervention are unknown.

During our initial IRB review, the Children's Hospital of Pittsburgh Human Rights Committee (HRC) cited the Belmont Report and stated that before our study of children could be approved, it would be necessary to conduct a pilot study with young adults.

The Young Adult Pilot Study will be conducted with 20 young adult males and females, between the ages of 18-25 yrs old, who have a sibling with T1D. The major purpose of this pilot study will be to identify the potential for adverse psychological reactions (i.e., significant clinical scores on the depression and/or anxiety scales) in an adult population receiving information regarding one's own risk of DM. Predicated on both the successful completion and results of this Young Adult Pilot Study, we will proceed with conducting the Children's Study at CHP. The education/counseling programs and evaluation measures are available and awaiting final approval from the Children's Hospital of Pittsburgh Human Rights Committee. (See " HRC Protocol" in the Appendix)

3. Development/modification of measures

Although all of the measures for children, parents, and young adults have been selected, some required modification. Permissions from the original authors have been requested. (See the list of measures we intend to utilize under Goal 3 on page 2.)

In addition, since the Young Adult Pilot Study will be conducted prior to the completion of the web site, we had to convert the measures to a paper format utilizing Teleform. Most were modified from the parent version to the "first person" version, which is included in the Appendix.

4. External Contracts

Our original intent was to utilize the CHP Information Technology Group for the development of the web infrastructure. Due to various constraints, we had to seek an outside source for this work.

The Diversified Services Incorporated (DSI) of the University of Pittsburgh has been co-opted to facilitate the development of the internet-based program. This information technology group was chosen because of their extensive work and excellent reputation in facilitating many other telehealth projects with the University Of Pittsburgh

Medical Center. The DSI staff has developed the model for Internet connections for the education program delivery, the automatic collection and tracking of data, labeling samples, and implementing a genetic risk algorithm online. The children's educational component and the evaluation measures have already been integrated into the DSI system. The DSI group has been collaborating with the CHP Information Technology group in organizing a smooth transition to the CHP server in connection with the CHP website.

KEY RESEARCH ACCOMPLISHMENTS

- Abstracts:
  DiabetesWorld : Social Support for Adolescents on the Web Siminerio, L., Rosenthal, B., Charron-Prochownik, D., Burkett, A., Mertz, J., & Poole, C. Children's Hospital of Pittsburgh, Carnegie Mellon University and the University of Pittsburgh: Submitted: American Telemedicine Association Annual Meeting, May, 2004

  DiabetesWorld : A website for and about Teen-agers with Type 1 Diabetes Siminerio, L., Rosenthal, B., Burkett, A., Mertz, J.Children's Hospital of Pittsburgh, Carnegie Mellon University and the University of Pittsburgh Diabetes Technology and Theraputics Annual Meeting, November 2003

  National Institute of Nursing Research; Linking the Double Helix with Health: Genetics in Nursing Research Poster session: Designing an Interactive Website for Nurses to Meet the Genetic Education Needs of Patients and Their Families; Angela Feathers, Presenter

  National Institute of Nursing Research; Linking the Double Helix with Health: Genetics in Nursing Research Poster Session: Internet Based Education for Nurses; Eric Manthei, Presenter

- Manuscripts
  Bandos, H.A., Steenkiste, A.R., Costantino, J.P., Dorman, J.S. Determining Disease Risk for Siblings of Children with Type 1 Diabetes. To be submitted to: *American Journal of Epidemiology*

  Manthei, E.R., B.S., Siminerio, L., R.N., PhD., Conley, Y., M.S., PhD., Charron-Prochownik, D., R.N., PhD., Feathers, A., B.S., Dorman, J., PhD. Genetics and Type 1 Diabetes: Online Resources for Diabetes Educators. To be submitted to: *Diabetes Educator*

  Feathers, A., B.S., Manthei, E.R.B.S., Charron-Prochownik, D., R.N., PhD., Siminerio, L., R.N., PhD., Dorman, J., PhD. A Review of Educational Genetic Resources for Type 1 Diabetes on the Internet: Where Can Diabetes Educators and the General Public Access Genetic Information Online? To be submitted to: *Diabetes Educator*

- Poster Presentation – See abstracts above of Angela Feathers and Eric Manthei

- Letter to the editor:
  Dorman JS, Charron-Prochownik D, Siminerio L, Ryan C, Poole C, Becker D, Trucco M. Need for genetic education for type 1 diabetes. *Arch Pediatric Adolescent Med* 157:935-936, 2003.

- Development of the Education Programs – Child, Parent, and Pilot

- Development of the Counseling Programs

- Development of the Measures

- Modification of Measures

- Development of the Infrastructure of the Web Site

- Establishment of the alternate site at CHP Diabetes Center in Johnstown, PA

- Co-opted with Yvette Conley, PhD to assist with the development of the Genetic Education for the Health Care Professionals

- Copyright:
  In assuring a recognizable symbol for the project, the investigators have agreed to use the acronym GIFT-D (Genetic Information for Testing-Diabetes) for the project. The design has been developed in collaboration with Corporate Public Relations members at CHP and the CHP legal staff is investigating the copyright issues. This symbol will be used on the website, measures, brochures, and all supporting documents throughout the project.

REPORTABLE OUTCOMES:

Our statistician, (Susan Sereika, PhD) has developed a plan to manage the data, during our preparation for data collection. She has met with DSI regarding the structuring of the data, and has met with the team regarding the redesign (Pilot) of the study. She has also rewritten the analysis and sample size sections of the study protocol. (See "Protocol" in the Appendix)

CONCLUSIONS

In conclusion, much progress has been made, despite encountered obstacles. We are ready to conduct the pilot study, and baring any adverse psychological reactions, we will begin Phase One at the CHP Diabetes clinic early in 2004.

APPENDICES:

- Appendix 1: Risk Algorithm Tables (Age Specific Probability Estimates and Covariate Patterns)
- Appendix 2: ConOps Document (DSI)
- Appendix 3: Transcripts of Parent and Child Education Modules
- Appendix 4: Pilot PowerPoint Presentation
- Appendix 5: Counseling Outline
- Appendix 6: Abstracts and Manuscripts to be Submitted
- Appendix 7:
  - Table 1 "Variables/Measures"
  - Table 1a "Variable/Measures Copyrights and Permissions"
  - Table 2 "Child Measures Timeline"
  - Table 3 "Parent Measures Timeline"
  - Table 4 "Pilot Measures Timeline"
- Appendix 8: Measures (Modified and Developed)
- Appendix 9: Teleform Measures for the Pilot
- Appendix 10: HRC Protocol with pilot highlighted
- Appendix 11: Pilot Advertisement
- Appendix 12: Recruitment Brochure
- Appendix 13: Consent Forms (Pilot and Phase 1)
- Appendix 14: Journal Article
- Appendix 15: Reference List

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APPENDIX 1:

RISK ALGORITHM TABLES

(AGE SPECIFIC PROBABILITY ESTIMATE AND COVARIATE PATTERNS)

Age-specific probability estimates for GIFT-D

AGE:	*covariate pattern*					
	1	**2**	**3**	**4**	**5**	**6**
0	0.2652	0.5838	0.1453	0.0486	0.1321	0.0251
1	0.2616	0.5780	0.1431	0.0479	0.1302	0.0247
2	0.2580	0.5721	0.1410	0.0471	0.1283	0.0243
3	0.2355	0.5341	0.1278	0.0425	0.1162	0.0219
4	0.2114	0.4912	0.1140	0.0377	0.1035	0.0194
5	0.2031	0.4758	0.1092	0.0360	0.0992	0.0185
6	0.2003	0.4705	0.1076	0.0355	0.0977	0.0182
7	0.1974	0.4651	0.1060	0.0349	0.0962	0.0180
8	0.1945	0.4596	0.1043	0.0344	0.0947	0.0177
9	0.1902	0.4512	0.1019	0.0335	0.0925	0.0172
10	0.1857	0.4426	0.0994	0.0327	0.0902	0.0168
11	0.1585	0.3879	0.0841	0.0275	0.0763	0.0141
12	0.1538	0.3783	**0.0816**	0.0266	0.0740	0.0137
13	0.1491	0.3683	0.0790	0.0258	0.0716	0.0132
14	0.1396	0.3480	0.0737	0.0240	0.0668	0.0123
15	0.1364	0.3412	0.0720	0.0234	0.0652	0.0120
16	0.1332	0.3342	0.0702	0.0229	0.0636	0.0117
17	0.1300	0.3270	0.0685	0.0223	0.0620	0.0114
18	0.1103	0.2828	0.0578	0.0187	0.0523	0.0096
19	0.0693	0.1848	0.0359	0.0115	0.0325	0.0059
20	0.0667	0.1783	0.0345	0.0111	0.0312	0.0057
21	0.0640	0.1717	0.0331	0.0106	0.0300	0.0054
22	0.0614	0.1649	0.0317	0.0102	0.0287	0.0052
23	0.0587	0.1581	0.0303	0.0097	0.0274	0.0050
24	0.0533	0.1442	0.0275	0.0088	0.0249	0.0045
25	0.0477	0.1299	0.0246	0.0079	0.0223	0.0040
26	0.0365	0.1003	0.0187	0.0060	0.0169	0.0031
27	0.0326	0.0900	0.0167	0.0053	0.0151	0.0027
28	0.0287	0.0794	0.0147	0.0047	0.0133	0.0024
29	0.0247	0.0687	0.0127	0.0040	0.0114	0.0021
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

For example if an individual has a covariate pattern 3 and he is now 12 years old, his probability of getting type I diabetes by age of 30 is approximately 8% (0.0816), given that he is disease free at twelve years of age.

The Covariate patterns are determined by:

covariate pattern	***At least one parent with type 1 diabetes?***	***Risk Variable – combination of number of high risk (HR) haplotypes in non-diabetic child and number of haplotypes shared with type 1 sibling***
1	*yes*	*Share 1 haplotype and >= 1 HR haplotype*
2	*yes*	*Share 2 haplotypes (ignore # of HR)*
3	*yes*	*All other combinations*
4	*no*	*Share 1 haplotype and >= 1 HR haplotype*
5	*no*	*Share 2 haplotypes (ignore # of HR)*
6	*no*	*All other combinations*

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APPENDIX 2:

CONOPS DOCUMENT

(DIABETES GIFT PROJECT OPERATIONS CONCEPT)

Diabetes GIFT Project
Operations Concept

8/01/2003

Version 2

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Revision History

Date	Issue	Description	Author
04/08/2003	Draft	Initial Version of document distributed	Joyce Kepner, Bill Hudson, Teresa Jones
4/29/2003	Draft	Draft with investigators feedback & data elements	Cathy Poole
5/2/2003	Draft	Draft	
5/9/03	Draft	Updates via J. Kepner	Kepner/Danowski
5/23/03	Draft	Updates	Kepner/Jones
5/28/03	Draft	Updates	Cathy Poole
5/30/03	Draft	Updates	Kepner/Jones
6/06/03	Draft	Updates	Kepner/Jones
6/10/03	Draft	Updates	Kepner/Jones/Poole
6/17/03	Version 1	Version to be distributed for approval. Some holes still exist. The missing data is specified on page 1. The following changes were made: 1. Modified Complete On-line Questionnaire Process • Requirements modified to include decision on how to handle sessions that are not completed • Added Data Elements 2. Added status & password to the data elements required for participant user account 3. Modify Family Member User Accounts – Added status and reason for change. 4. Process Tracking Time & Work Log – Documented that the reason for a status change would be displayed here. 5. RSA Login Removed 6. Proband Interface Removed	Kepner
8/01/03	Version 2	Includes Changes Required by Children's Hosptal	Poole

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Customer and Diversified Services Management Signoff

I have reviewed the Diabetics GIFT Project Operations Concept and agree that the application defined in this document is acceptable and of benefit to the business unit.

Linda Siminerio
Executive Director, University of Pittsburgh Diabetes Institute

Date

Cathy Poole
Project Manager, GIFT Diabetes

Date

Carol Washburn
University of Pittsburgh
Center for Instructional Development & Distance Education

Date

Jerry Ryan
Manager, CIS, Children's Hospital of Pittsburgh

Date

DeAnn Marshall
Director, Public and Government Affairs
Children's Hospital of Pittsburgh

Date

Massimo Trucco
Principal Investigator
Children's Hospital of Pittsburgh

Date

J. Alan Lawson, Vice President/CTO
Diversified Services Executive Management

Date

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Diabetes GIFT Project Operations Concept

1. Scope

The purpose of this pilot project includes the following:

1. To provide education regarding diabetes, genetics and the genetics of diabetes to families with a child previously diagnosed with type I diabetes (proband) and a sibling (subject) at least 7 years of age who may be at risk for developing type I diabetes.
2. To provide education regarding genetics and the genetics of diabetes to health care professionals caring for children with diabetes.
3. To collect information from study participants such as demographic data, questionnaire instruments, feedback data.

The intended pilot audience is the population of families with a child with type I diabetes and a sibling at least 7 years of age at risk for developing type I diabetes. These families will be from the Johnstown area and attend the Pediatric Diabetes Clinic at UPMC Lee. Fifty families will be enrolled in this project. Content for the website will be developed and presented for two distinct audiences:

- Adults
- Children – Age 7 – 12

The intended pilot application for the proposed system is to function in a civilian environment. It is not within the scope of this application to meet Department of Defense security requirements or to function on a .mil network.

1.1 Document Overview

This document describes the concepts for the proposed system.

The intended audience of this document includes the following:

- The Customer:
  - Children's Hospital of Pittsburgh
- The Developer
  - UPMCHS Diversified Services IT Development
  - UPMCHS Diversified Services IT Operations

1.2 Responsible Parties

Responsible parties include:

1. The project sponsor is Children's Hospital of Pittsburgh, with research funding through the Department of Defense. Massimo Trucco is the Principal Investigator. Responsibilities include:
   a. Review, clarify and signoff on the Operations Concept to indicate that the application defined in this document is acceptable and of benefit to the business unit.

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2. Project Resources

   There are four Co-Investigators that serve as project resources:

   a. Linda Siminerio is responsible for the content for diabetes education and the web development and serves as primary customer contact to the development teams
   b. Jan Dorman and team will develop the risk algorithm and the genetic education content
   c. Denise Charron-Prochownik is responsible for the entire study and psychosocial testing/measures.
   d. Christopher Ryan is responsible for the psychosocial testing/measures.

   Other Key Personnel

   e. The project manager of the project is Cathy Poole. She is responsible for coordinating the efforts of team
   f. Patti Schmitt is the Study Coordinator for the project. She will manage all aspects of study design and implementation.
   g. Anne Steenkiste is the statistician responsible for risk notification.
   h. Susan Sereika is the statistician responsible for data analysis.

   All project resources are responsible for:

   a. Reviewing the Operations Concept Document.
   b. Working with Diversified Services and CIDDE and Children's Hospital Public and Government Affairs as needed throughout the project. This includes:
      i. Reviewing storyboards
      ii. Reviewing work in progress
      iii. Answering questions as needed by the project teams
   c. Participating in the Acceptance Test at the end of the project to verify that the application matches the requirements in this document.

3. Children's Hospital Public and Government Affairs Department is responsible for:
   a. Design and development of the public portion of the website. (Welcome Page, Project Description, Resource Center, etc.) Requirements for these pages will be developed separately with Public and Government Affairs.
   b. Providing oversight of the overall website design and graphics.

4. Children's Hospital CIS (Computer Information Systems) group is responsible for:
   a. Hosting the application after its initial transition period.
   b. Working with Diversified Services as needed throughout the project.

5. University of Pittsburgh Center for Instructional Development & Distance Education (CIDDE) is responsible for:
   a. Developing web-based educational components of application working with customer.
      i. Educational Intervention Module

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ii. Web-based Genetic Pre-Counseling

b. Working with DSI to integrate the developed educational components into the application website.

6. UPMC DS-IT is responsible for project implementation with input from the customer. This includes:
   a. Quality Assurance (QA)
      i. Operations Concept Development – QA will work with DS-IT Development and the customer to define the requirements for the project
      ii. Test Plan (QA Team)
      iii. Test Execution
      iv. Facilitate Acceptance Test
   c. Development
      i. Determine production server needs
      ii. Security Plan -- Security Plan will be provided according to ISD standards
      iii. Review, clarify and signoff on the Operations Concept to indicate that the application defined in this document is technically feasible
      iv. Project Plan –Project Plan with milestone dates will be provided
      v. Design, develop and unit test the product as specified in the Operations Concept according to the DS-IT development process
      vi. Train project manager & overall study coordinator on the application
   d. Operations
      i. Initial hosting of application.
      ii. Work with Development and QA Team as needed
      iii. Determine production server needs

2. Referenced Documents

1. IEEE Std 1362-1998 – IEEE Guide for Information System Definition – Concept of Operations (OpsCon) Document
2. Poole, Cathy – Diabetes Genetics Preliminary Web Design Specifications
3. Poole, Cathy – Screening for Diabetes in the General Population: Translating Results from the Laboratory to the Community.

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3. Concepts for the Proposed System

3.1 Background, objectives and scope

The initial pilot study begins Nov. 2003 – Nov. 2004, although an August time frame is preferred. Fifty families are targeted to participate. Participants will be from Children's Hospital of Pittsburgh Diabetes Clinic At UPMC Lee Regional in Johnstown.

The intended pilot application for the proposed system is to function in a civilian environment. It is not within the scope of this application to meet Department of Defense security requirements or to function on a .mil network.

Phase 2 will roll out to the United States Army and will potentially be available to greater than 2500 participants targeted for October 2003 timeframe. Phase 3 will be to roll out to the general population in mid to late 2004. The initial system must be built with this in mind.

The proposed system will be accessed via the Internet from the Children's Hospital main page. From the main page there will be a link to the public portion of the GIFT website, which will be developed and maintained by Children's Hospital. On the public website will be a link to the GIFT application login screen.

3.2 User classes and other involved personnel

The user classes are listed below. Interactions are shown on the cross-functional workflows that follow.

1. Proband – The first child diagnosed with Type 1 diabetes.
    a. Can access Frequently Asked Questions only from the Children's Hospital webpage. They will not have an interface into the application.
2. Subject – The sibling of a proband who is at least seven (7) years of age to undergo genetic testing. There may be multiple subjects in one family.
    a. Can access Educational Modules and Questionnaires.
3. Parent – The birth parent of both proband and subject.
    a. Can access Parental Educational Modules and Questionnaires.
    b. Can access subject educational modules and questionnaires in read-only mode
4. Site Coordinator – Coordinator at the location directly responsible for administering the study and works closely with the parent and subject.
    a. Can only access data for their site.
5. Overall Study Coordinator – Responsible for making certain all Site Coordinators administer the study consistently and appropriately. Trains Site Coordinators. This is a super user role.
    a. Can access data for all sites.
6. Management – Selects Overall Study Coordinator – No application interface
7. Dr. Trucco's Lab – Responsible for providing the lab results to the Site Coordinator.
8. Statistician – The statistician needs to access data for analysis. The statistician will be responsible for giving data to the principle investigators.

3.3 General Requirements

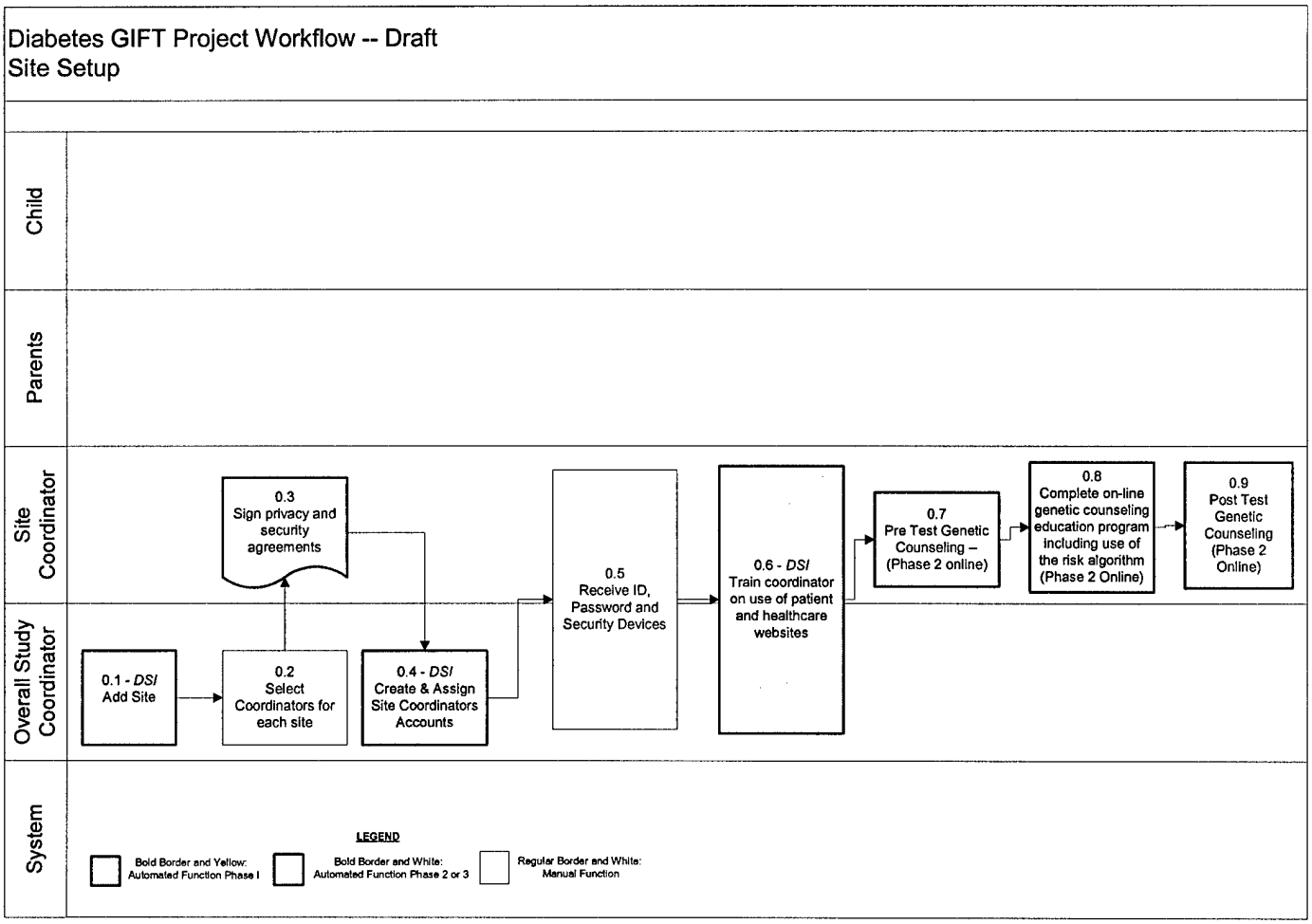
Req #	Requirement	Workflow	Priority	Phase
A-1.	The website will be accessed from the GIFT public website accessible from the Children's Hospital home page.	2.4	High	1
A-2.	The application will be Internet Accessible: Phase I –The application will be developed &	2.4	High	1

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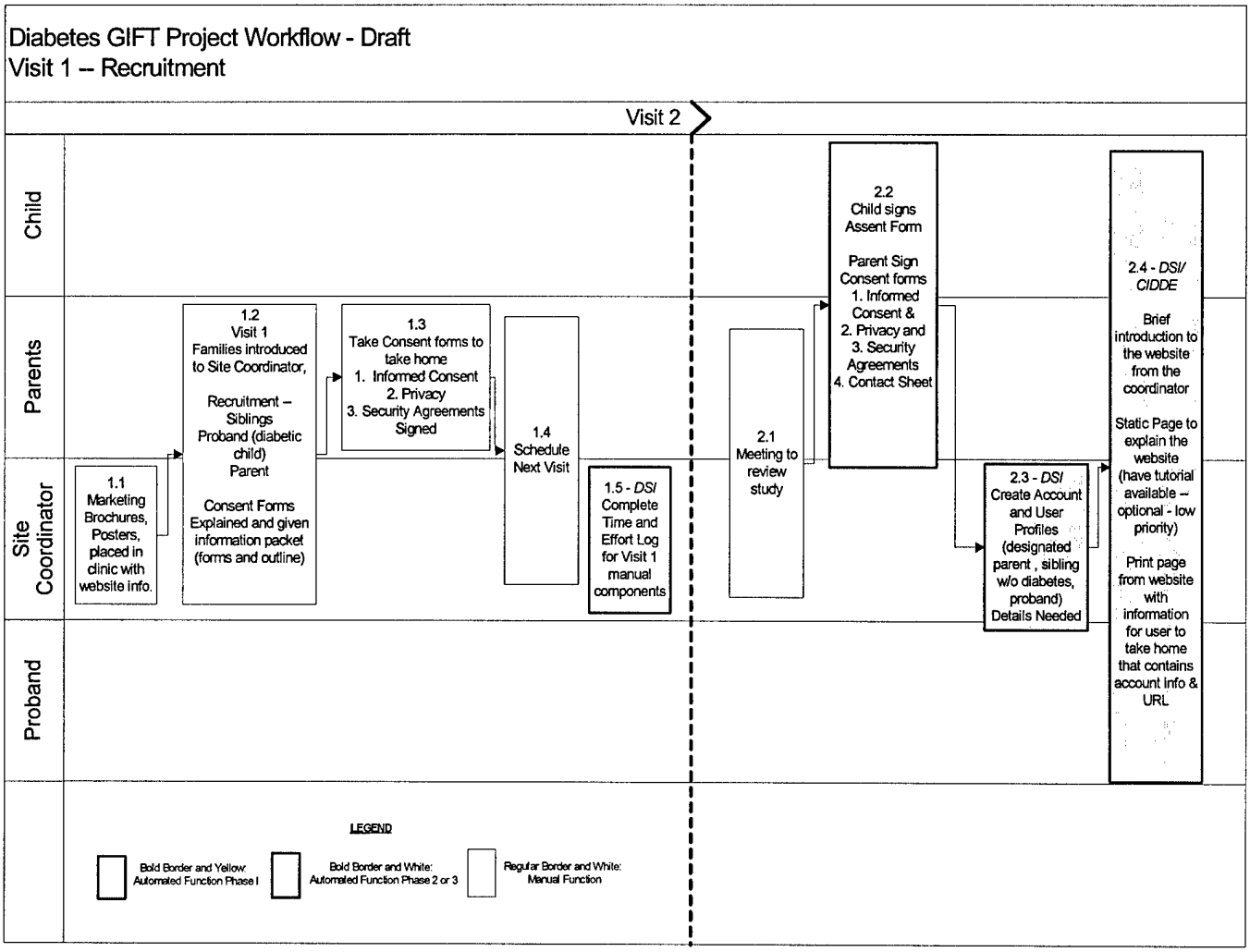
	tested on IE 5.5 & IE 6.0. Phase II – The application will be tested on an expanded set of web browsers to accommodate the general population.			
A-3.	Upon logging into the application, the system will detect the browser in use. If does not the standard (IE 5.5 or above), then a link will be provided to download and install the appropriate browser.	2.4	High	1
A-4.	SSL will be used.	2.4	High	1
A-5.	Application initially hosted by DSI but eventually moving to Children's. Children's requires: • Apache Webserver • Unix OS (Solaris 8) • Latest version Oracle database	2.4	High	1
A-6.	Any page that sits outside of the password-protected area ("public" pages) should follow Children's template. Pages after the login area can be customized for the GIFT project incorporating the colors, fonts and style guidelines provided by Children's Hospital where possible.	2.4	High	1
A-7.	The content of the public page(s) should be built and then sent to Children's PR. They will then fold the page(s) into the site architecture and add the navigation.	2.4	High	1
A-8.	The internet browser back button shall be disabled.	2.4	High	1
A-9.	A training environment will be created. This will be a replication of the production application and will be used to train users on the system.	2.4	High	1
A-10.	Screen size will be 800x600.	2.4	High	1
A-11.	All questionnaires (except those embedded in the educational interface) shall be created with dynamic pages. The customer will have the ability to add, modify, and delete questions once the application moves to Children's server.	2.4	High	1

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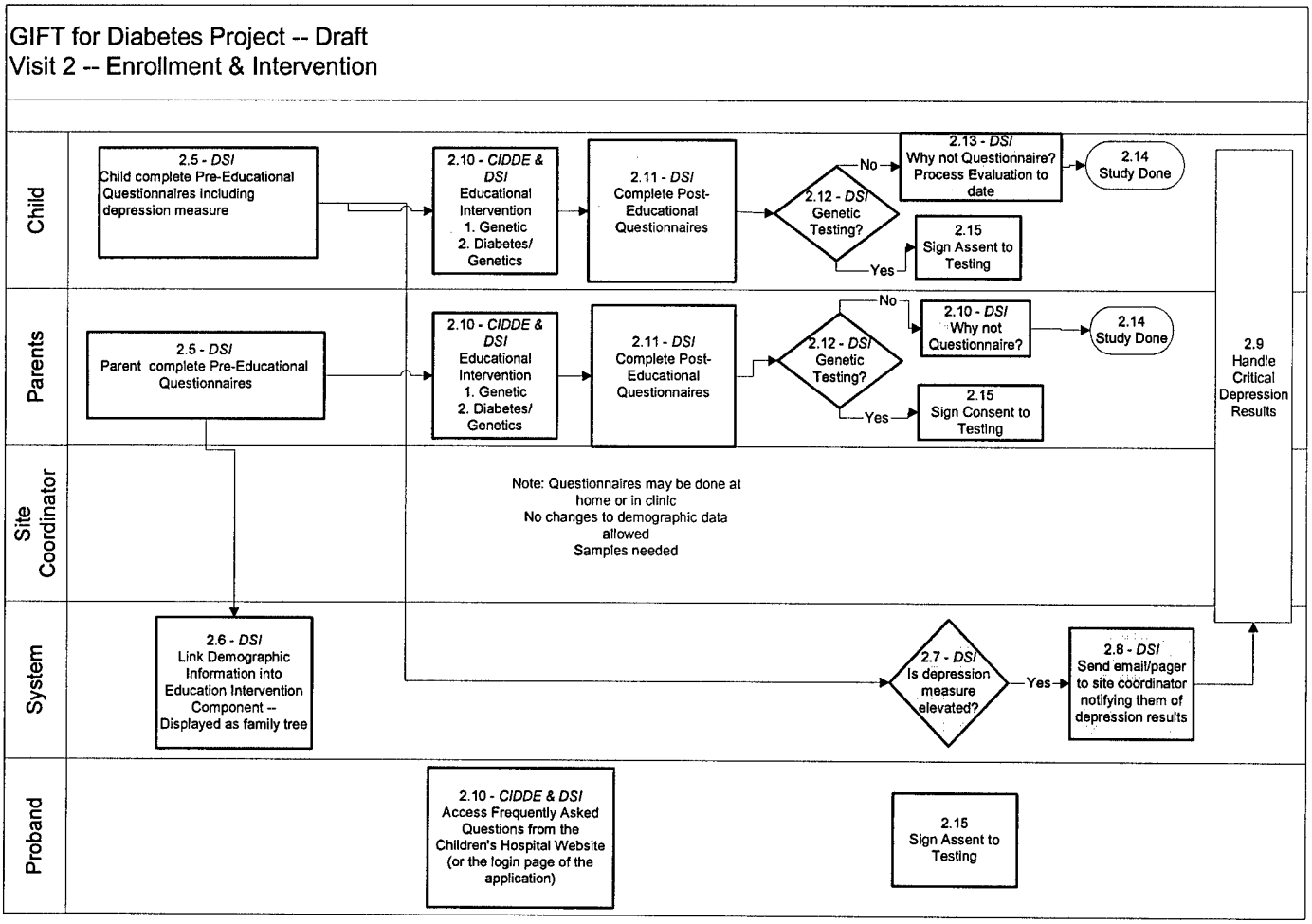
3.4 Overview of All Proposed Workflows



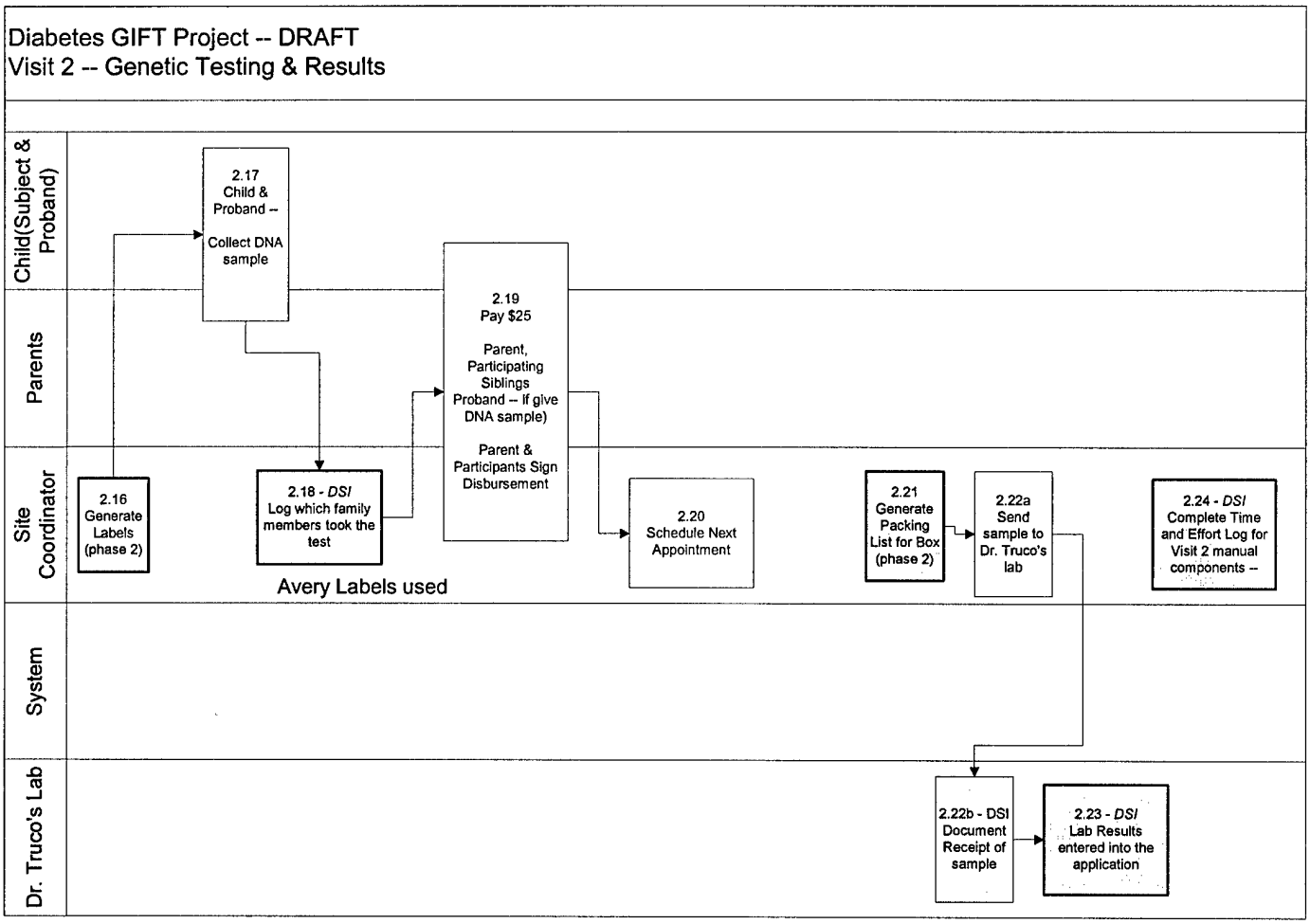
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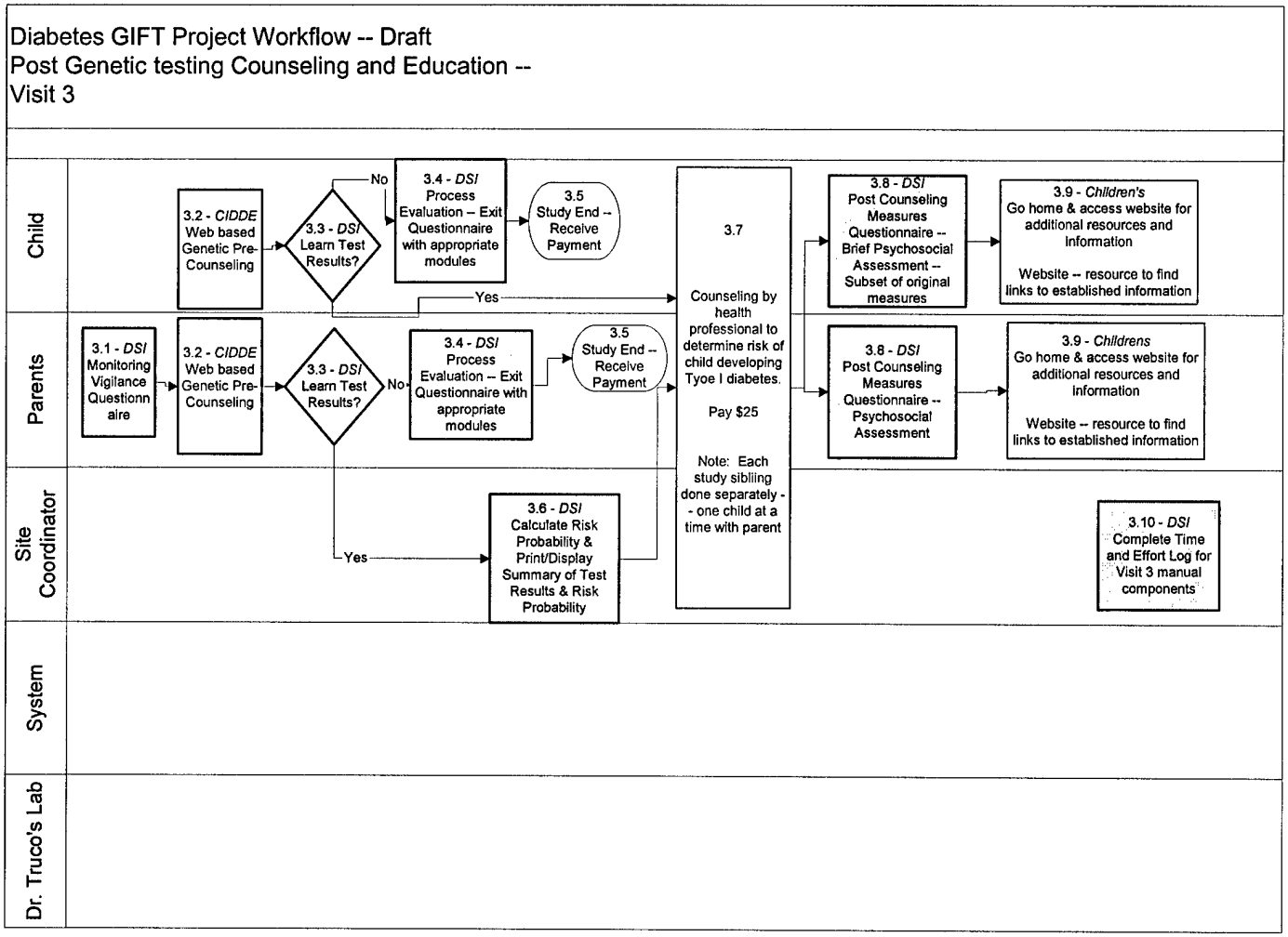
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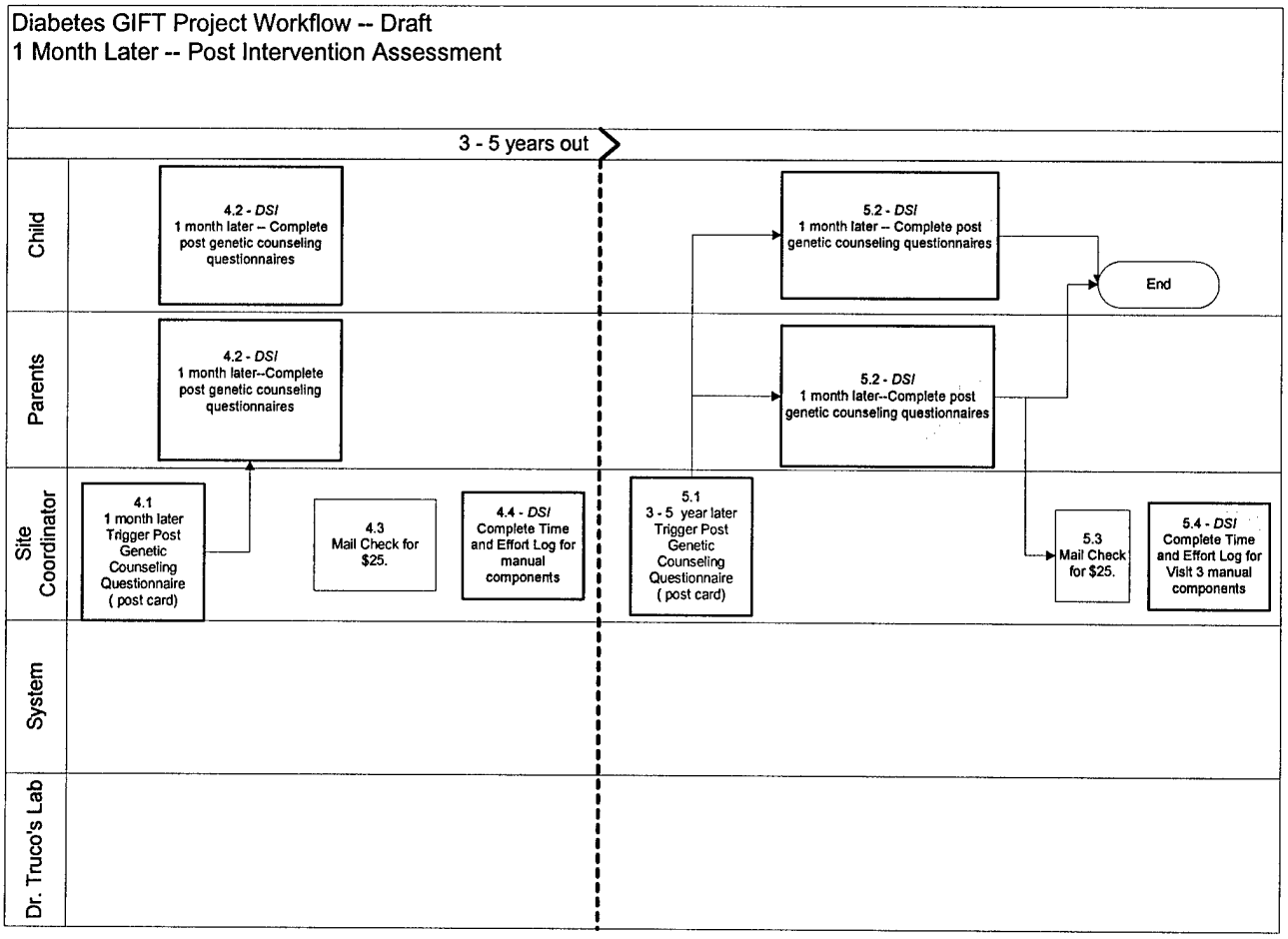
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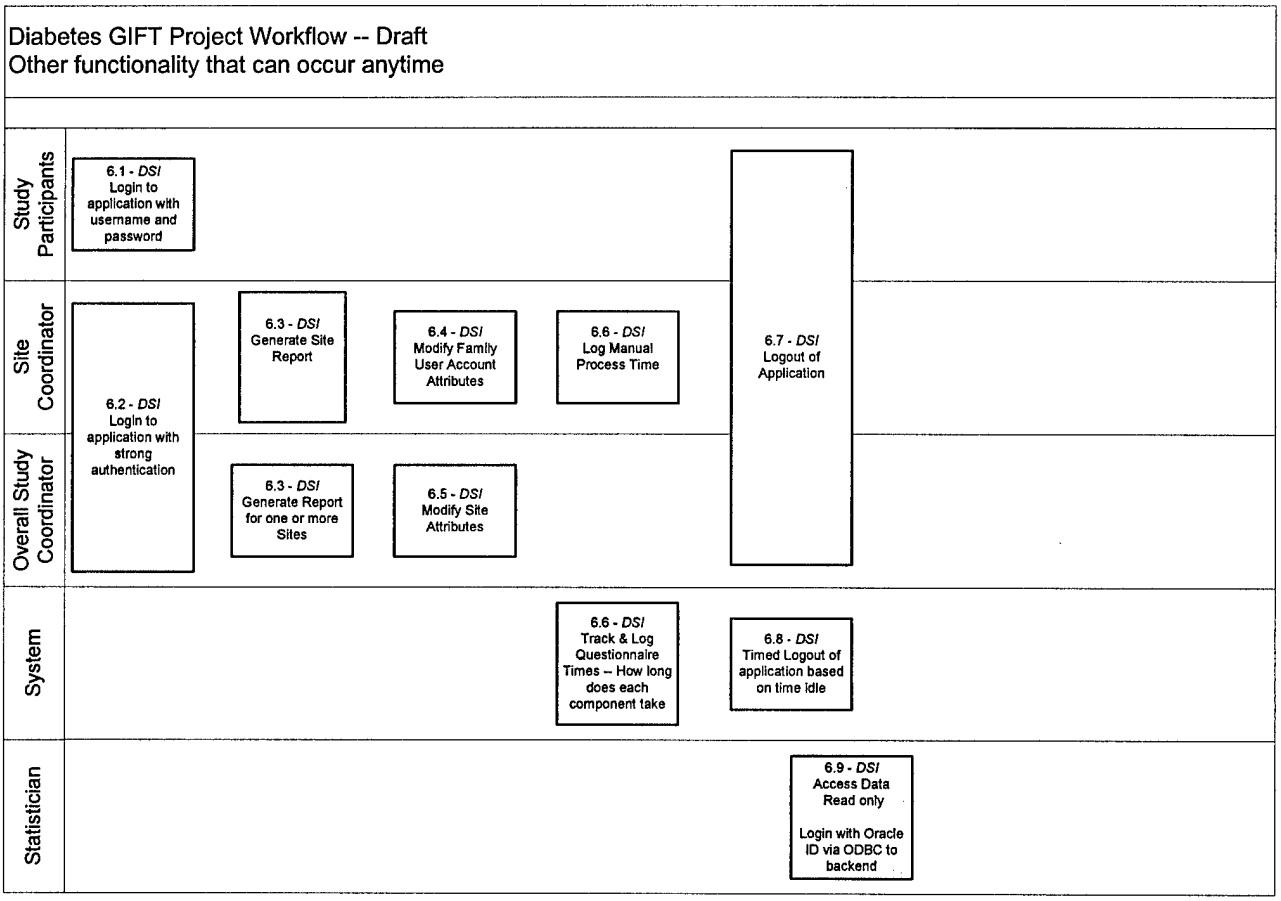
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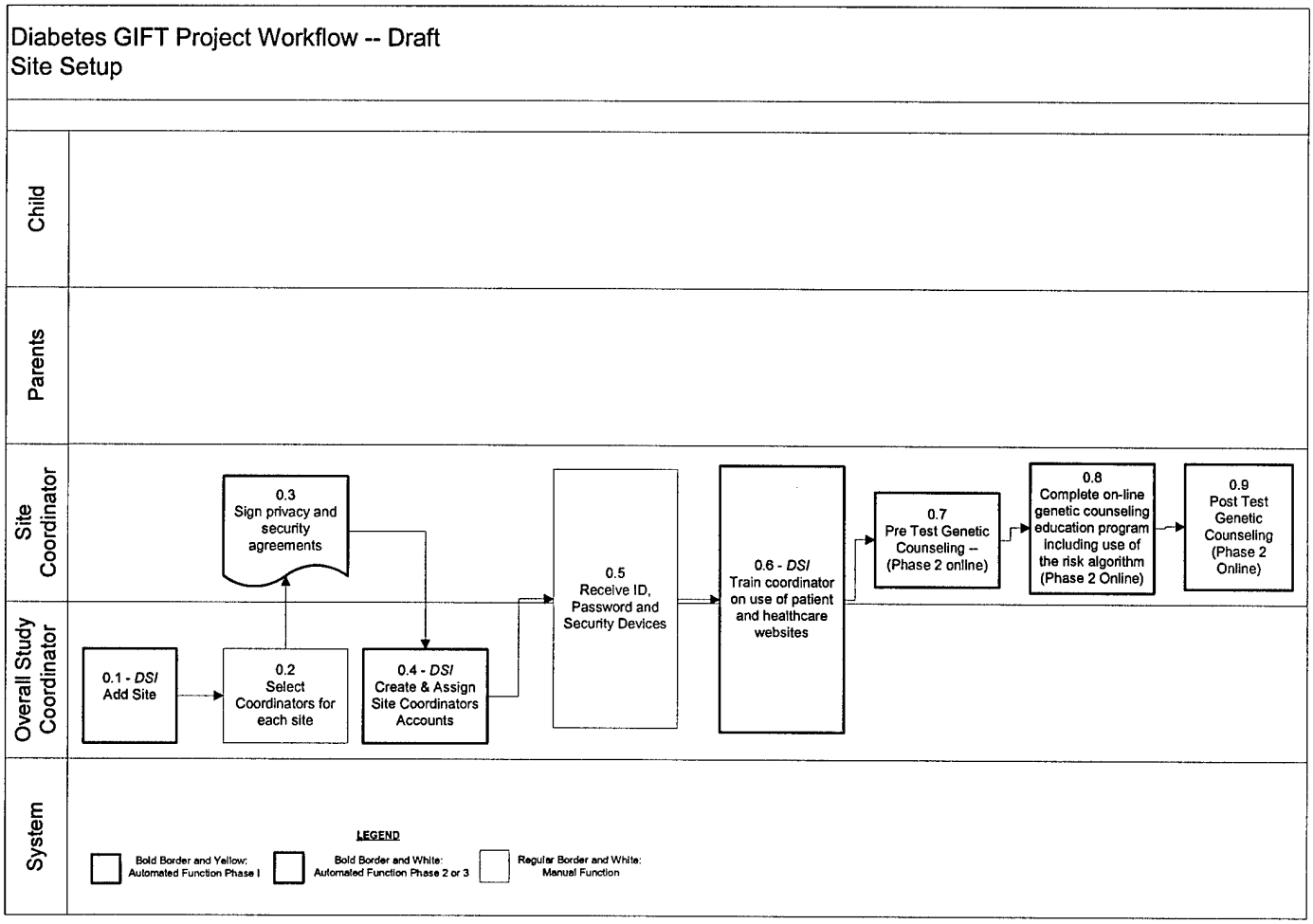
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3.5 Proposed Workflows and Functional Requirements

3.5.1 Site Setup Phase 1 High & Medium Priority Use Cases



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3.5.1.1 Add Site – (Workflow Map 0.1)

Actor: Overall Study Coordinator
Description: Setup of new study site
Prerequisite:
Inputs:
Outputs: New study site created

Requirements

Req #	Requirement	Workflow	Priority	Phase
B-1.	The Overall Study Coordinator shall add sites.	0.1	High	1
B-2.	International addresses & phone numbers must be allowed	0.1	Low	2

Basic Course of Events

Action	Result
1. Overall Study Coordinator indicates that a new site is to be added.	The Site Coordinator is prompted for the appropriate information
2. The user enters the data and submits the data.	If the data is correct and acceptable then data entered into the database. If the data is not validated then an error message is displayed on the screen.

Alternate Paths: N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Site Name	FreeText(64)	All characters	Must be unique.	Y
Site ID	Number(3)	System generated		Y
Address Line 1	FreeText(128)			Y
Address Line 2	FreeText(128)			N
City	FreeText(25)			
State	FreeText(25)	List of States		Y
Country	FreeText(25)	USA or FreeText field		Y
Zip Code	Number(5+4)		USA – First 5 digits mandatory	Y

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			Last 4 digits are optional International – no validation	
Telephone #	Number(10)		USA – validate phone format International – no validation	Y
Fax #	Number		USA – validate phone format International – no validation	Y
Status		Active(default) Inactive		Y
Contact Name (Other than site coordinator)	FreeText(25)		.	Y
Contact Email	FreeText(40)		Email address format checked for characters@characters.ext	Y
Site Sponsor (Physician or MD sponsoring the location's research	FreeText(25)			Y

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3.5.1.3 Train Coordinator on Use of Patient & Healthcare Website – (Workflow Map 0.6)

Actor: Overall Study Coordinator
Description: Training provided for Site Coordinator
Prerequisite:
Inputs: static web page supports user training
Outputs:

Req #	Requirement	Workflow	Priority	Phase
D-1.	The Overall Study Coordinator will train the Site Coordinator on the application. Training will be supported with the development of a static web page giving information on how to use the application.	0.6	Med	1

Basic Course of Events

Action	Result
1. Study Coordinator selects link for static informational web page.	The static informational web page is displayed.

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note

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3.5.2 Later Phase Use Case Stubs

3.5.2.1 HCP Sign Privacy & Security Agreements – (Workflow Map 0.3)

Req #	Requirement	Workflow	Priority	Phase
E-1.	Site Coordinator shall sign privacy and security agreements online in Phase 3. Phase 1 will be signed off-line. The Overall Study Coordinator will maintain phase 1 documents.	0.3	Low	4

3.5.2.2 Pre-Test Genetic Education – (Workflow Map 0.7)

Req #	Requirement	Workflow	Priority	Phase
E-2.	The Site Coordinator will complete the Pre-Test Genetic Education module.	0.7	Low	2

3.5.2.3 Complete On-line Genetic Counseling Education Program including use of Risk Algorithm – (Workflow Map 0.8)

Req #	Requirement	Workflow	Priority	Phase
E-3.	The Site Coordinator will complete the Genetic Counseling module.	0.8	Low	2

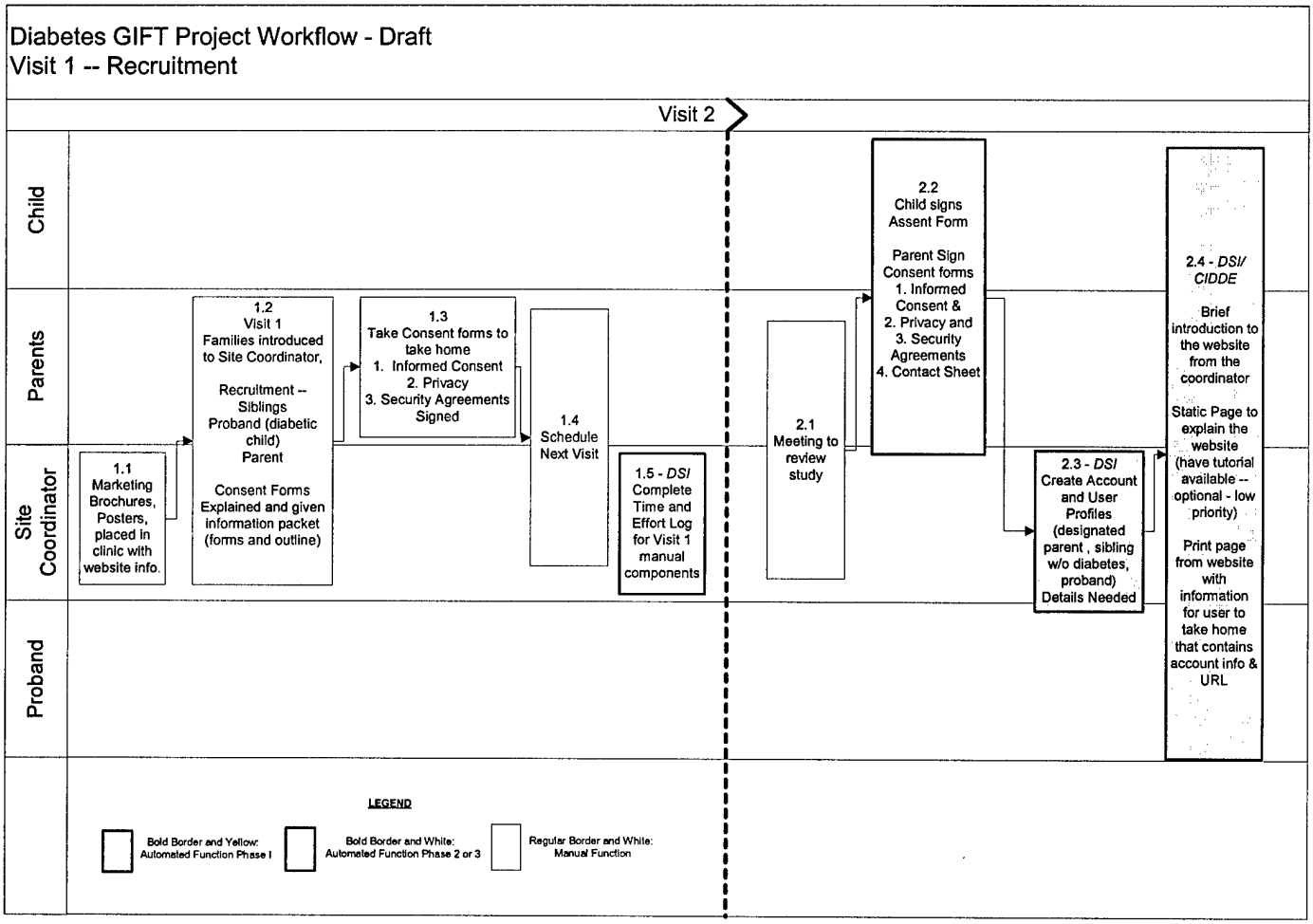
3.5.2.4 Complete On-line Post-Test Genetic Counseling – (Workflow Map 0.9)

Req #	Requirement	Workflow	Priority	Phase
E-4.	The Site Coordinator will complete the Pre-Test Genetic Education module, the Genetic Counseling module, and the Post-Test Genetic Counseling module. These modules will be available on-line in future phase.	0.9	Low	2

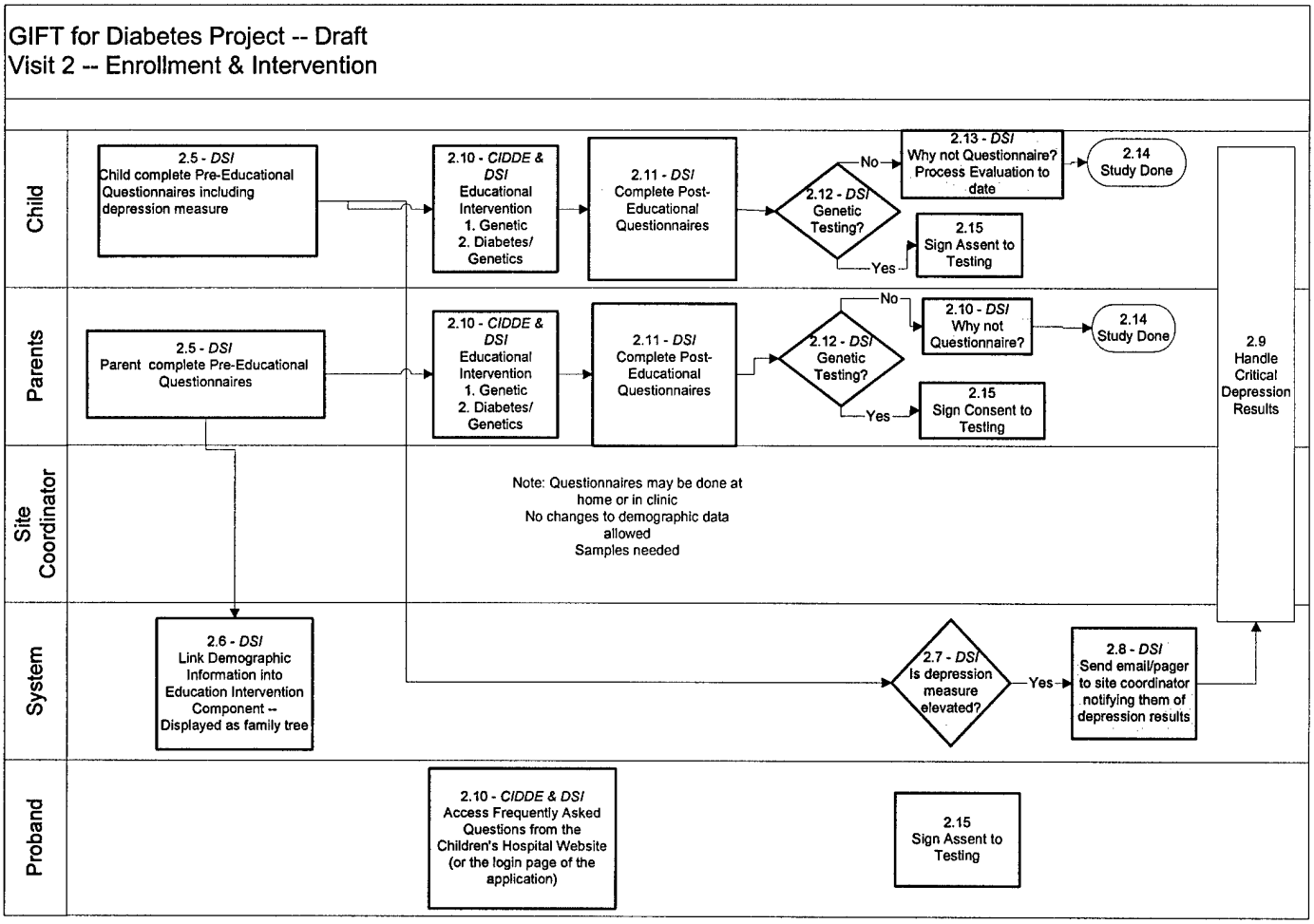
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3.5.3 Enrollment Process – Visit 1 & 2 High & Medium Priority Use Cases

Note: Visit 1 Recruitment workflow is a manual process with no system interaction. The workflow is shown below but not elaborated on in the system requirements.



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3.5.3.1 Create Family Member User Accounts – (Workflow Map 2.3)

Actor: Site Coordinator / Overall Study Coordinator
Description: Setup of new user accounts
Prerequisite: Administrative Login
Inputs:
Outputs: New user account created

Req #	Requirement	Workflow	Priority	Phase
F-1.	The Site Coordinator shall create user accounts for the family members. This includes an account for one parent, proband, and subject(s).	2.3	High	1
F-2.	Accounts shall be anonymous with Study ID # as the identifier.	2.3	High	1
F-3.	Accounts for the parent and subject are mandatory. Account for the proband is contingent on his/her participation.	2.3	High	1
F-4.	The Overall Study Coordinator shall create user accounts for all roles, can perform all application functionality.	2.3	High	1
F-5.	The Site Coordinator can access parent and subject functionality for their site. (read-only view)	2.3	High	1
F-6.	The Parent Role can access parent functionality. They can view subject sections in read-only mode at any time throughout application. They cannot view any of the answers from any subjects. They cannot submit any data in the subject role.	2.3	High	1
F-7.	The Subject Role can access only subject functionality.	2.3	High	1
F-8.	The Proband Role can access only proband functionality.	2.3	High	1

Basic Course of Events

Action	Result
1. Site Coordinator indicates that a new account is to be added.	The Site Coordinator is prompted for the appropriate information.
2. The user enters the data and submits the data.	If the data is correct and acceptable, then data entered into the database. If the data is not validated, then an error message is displayed on the screen.

Alternate Paths

N/A

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Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Study ID #	Number	10 characters: XXX-XXXX-XXXX --first three-Site ID --second four-Family ID --last four-Family Member ID The system will complete the three digit Site ID that was created in site setup. The system will generate the four digit Family ID in sequential order. The Site Coordinator will manually assign the Family Member ID. The possible values of Family Member ID are: 0101 = Biological Mom 0102 = Biological Dad 0103 = First Born Biological Child 0104 = Second Born Biological Child 010N = All rest of Biological Children in order of birth 1101 = Step-Mom 1102 = Step-Dad 2101 = Maternal Guardian 2102 = Paternal Guardian	# of characters	Y

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		3101 = Other Female Relative 3102 = Other Male Relative		
Child Age Category		7-12, 13-18, >18		Y
Role:		Parent/Proband/ Subject/Lab/		Y
Password	Text			Y
Status	Default Active	• Active (default) • Suspended due to Time Out • Suspended due to Depression • Inactive		Y

Notes

Note #	Note

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3.5.3.2 Print Web Site and Family Member Account & Site Access Information – (Workflow Map 2.4)

Actor: Site Coordinator / Overall Study Coordinator
Description: Print account information for future reference by study participant
Prerequisite: Account created for participant
Inputs:
Outputs: Page with family account information

Req #	Requirement	Workflow	Priority	Phase
G-1.	The Site Coordinator shall print a page from the website to give participants information. This page includes: • URL • Username • Line for Password Instructions for accessing account	2.4	Medium	1

Basic Course of Events

Action	Result
1. Site Coordinator indicates that information needs to be printed.	Information is printed.

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note

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3.5.3.3 Access Website Instructional Page – (Workflow Map 2.4)

Actor: Site Coordinator
Description: Display site instructional information
Prerequisite: User login
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
H-1.	A static page of instructions will be provided on the website to explain to family members how to access account.	2.4	Medium	1

Basic Course of Events

Action	Result
1. The user selects the link to the static web page of instructions	The instructions are displayed

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note

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3.5.3.4 Complete On-line Questionnaire (Parent/Subject) – (Workflow Map 2.5, 2.10, 2.11, 2.13, 3.1, 3.4, 3.8, 4.2, 5.2)

Actor: Parent and Subject(s)
Description: Completion of On-Line Questionnaires
Prerequisite: User is in appropriate state in workflow to access set of questionnaires
Inputs:
Outputs: Data saved to database

Req #	Requirement	Workflow	Priority	Phase
I-1.	Parent shall complete Battery A: Pre-Education Questionnaires on-line either in office or at home: Demographic (#17) Genetic/Diabetes Knowledge (#18) CESD-s (#19) STAI (#20) Attitudes about Health (#21) Child Health Outcomes (#22) Diabetes Health Beliefs (#23) Intention (#24) Self Efficacy (#25) Quality of Life Ladder (#26) LOT-r (#27) Religiosity (#28) Stigma/Discrimination (#29) Family Dysfunction (#30) Monitoring Vigilance (#34)	2.5	High	1
I-2.	Subject(s) shall complete Battery A: Pre-Education Questionnaires on-line either in office or at home: Genetic/Diabetes Knowledge-C (#1) CDI-s (#2) STAI-C (#3) Attitudes about Health-C (#4) Child Health Outcomes-C (#5) Diabetes Health Beliefs-C (#6) Intention-C (#7) Self-Efficacy-C (#8) Quality of Life Ladder-C (#9) LOT-p (#10)	2.5	High	1

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	Stigma/Discrimination-C (#11)			
I-3.	Parent shall complete the education intervention questionnaire within the educational component: Genetic/Diabetes Knowledge (#18)	2.10	High	1
I-4.	Subject(s) shall complete the education intervention questionnaire within the educational component: Genetic/Diabetes Knowledge-C (#1)	2.10	High	1
I-5.	Parent shall complete Battery B: Post-Education Assessment Questionnaire on-line: Attitudes about Health (#21) Child Health Outcomes (#22) Diabetes Health Beliefs (#23) Intention questions 2&3 (#24) Self-Efficacy (#25) Satisfaction with Education (#35a)	2.11	High	1
I-6.	Subject(s) shall complete Battery B: Post-Education Questionnaires on-line: Attitudes about Health-C (#4) Child Health Outcomes-C (#5) Diabetes Health Beliefs-C (#6) Intention-C questions 2&3 (#7) Self-Efficacy-C (#8) Satisfaction with Education-C (#13a)	2.11	High	1
I-7.	Parent shall complete Battery C: Pre-Counseling Questionnaire on-line: Monitoring Vigilance (#34)	3.1	High	1
I-8.	Parent shall complete Battery D: Post-Counseling Questionnaires on-line: CESD-s (#19) STAI (#20) Attitudes about Health (#21) Quality of Life Ladder (#26) Satisfaction with Counseling (#35b)	3.8	High	1
I-9.	Subject(s) shall complete Battery D: Post-Counseling Questionnaires on-line: CDI-s (#2) STAI-C (#3) Attitudes About Health-C (#4)	3.8	High	1

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	Quality of Life Ladder-C (#9) Satisfaction with Counseling-C (#13b)			
I-10.	Parent and Subject(s) shall complete an exit questionnaire with appropriate modules and questions, depending on which steps in the overall study the participant completed: Why Not (test) Questionnaire (#31, ?) Why Not (counsel) Questionnaire (#32, ?) Others??	2.10, 2.13, 3.4, 4.2, 5.2	High	1
I-11.	One month after counseling, Parent shall complete Battery E: Post-Study Questionnaires on-line. Genetic/Diabetes Knowledge (#18) CESD-s (#19) STAI (#20) Attitudes About Health (#21) Diabetes Health Beliefs (#23) Quality of Life Ladder (#26) Sigma/Discrimination (#29) Family Dysfunction (#30) Who Have You Told? (#33) Monitoring Vigilance (#34)	4.2	High	1
I-12.	One month after counseling, the Subject(s) shall complete Battery E: Post-Study Questionnaires on-line: Genetic/Diabetes Knowledge (#1) CDI-s (#2) STAI-C (#3) Attitudes About Health-C (#4) Diabetes Health Beliefs-C (#6) Quality of Life Ladder-C (#9) Stigma/Discrimination-C (#11) Who Have You Told?-C (#12)	4.2	High	1
I-13.	Three years after counseling, Parent shall complete Battery F: Post-Study Questionnaire on-line. Demographic (#17) Genetic/Diabetes Knowledge (#18) CESD-s (#19) STAI (#20)	5.2	Low	2

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	Attitudes About Health (#21) Child Health Outcomes (#22) Diabetes Health Beliefs (#23) Quality of Life Ladder (#26) Stigma/Discrimination (#29) Family Dysfunction (#30) Who Have You Told (#33) Monitoring Vigilance (#34)			
I-14.	Three years after counseling, the Subject(s) shall complete Battery F: Post-Study Questionnaires on-line: Genetic/Diabetes Knowledge-C (#1) CDI-s (#2) STAI-C (#3) Attitudes About Health-C (#4) Child Health Outcomes-C (#5) Diabetes Health Beliefs-C (#6) Quality of Life Ladder-C (#9) Stigma/Discrimination-C (#11) Who Have You Told?-C (#12)	5.2	Low	2
I-15.	Questionnaires shall be written for two different roles: Children Parent	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1
	When the user completes each survey it is saved in the database			
I-16.	All questionnaires in each battery must be completed during one 24-hour session. If the user logs out and returns within 24 hours, he is returned to the beginning of the last survey that was not completed. If the user logs out and does not return within 24 hours, the data is saved but will be considered incomplete. If the entire battery is not completed within 24 hours, a message will displayed that the user account is "suspended" and the user must contact Site Coordinator to continue. The system should allow the user account to be reset after 24 hours at the discretion of the study coordinator. (In the event that return to the surveys	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1

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	was not possible within 24 hours.) The Site Coordinator resets the user account status from "suspended" to "active". When the user logs back in he will be returned to the last survey that was not completed and resume. Previously saved data will be used. Note: In order to track the variables the site coordinator will manually log information regarding the elapsed time between beginning the set of surveys and when the account is reset.			
I-17	All questionnaires submitted to database will be flagged as incomplete if user account is "suspended".	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1
I-18.	While completing a questionnaire the participant can skip a question. When it is submitted the participant will be asked to answer any skipped questions. Each skipped question will have the additional option of "I do not want to answer"	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1
I-19.	Each questionnaire will be viewed as one page. The user will use the scroll feature to view entire questionnaire.	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1
I-20.	The amount of time spent with each web-page open shall be collected.	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1
I-21.	Questionnaires will be presented for completion in a pre-determined order in each group (no "pick-list"), as numbered in the tables below (from #1-#13c for children and from #18-#35c for parents). Each column in the table represents a battery of questionnaires. The questionnaires will all be presented in order of the batteries (A to F). The user cannot get to another questionnaire in that battery until each questionnaire is completed.	2.5, 2.10, 2.11, 2.13, 3.1, 3.2, 3.4, 3.8, 4.2, 5.2	High	1

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The following tables indicate when each questionnaire is to be used:

TABLE 1: Child Measures

Num & Order	Child Measures	Battery A: Pre-education Second visit	Battery B: Post-education Second visit	Battery C: Pre-Counseling Third Visit	Battery D: Post-Counseling Third visit	Battery E: One month follow-up	Battery F: 3-5 years out
1.	Genetic/Diabetes Knowledge –C	X	X (embedded)			X	X
2.	CDI –s	X			X	X	X
3.	STAI – C	X			X	X	X
4.	Attitudes about Health – C	X	X		X	X	X
5.	Child Health Outcomes – C	X	X				X
6.	Diabetes Health Beliefs – C	X	X			X	X
7.	Intention – C	X	X Questions 2&3 only				
8.	Self-Efficacy – C	X	X				
9.	Quality of Life Ladder – C	X			X	X	X
10.	LOT-p	X					
11.	Stigma/ Discrimination –C	X				X	X
12.	Who have you told – C					X	X
13a. 13b. 13c.	Evaluation Questionnaires-C Satisfaction/Education-C Satisfaction/Counseling-C Offensive/Exp-C		X Education / X (exit) Off/Exp	X (exit) Off/Exp	X counseling	X Web – based measures	
14.	Other Child Documents						
15.	Phase 1 Consent/Assent	X					
16.	Phase 2 Consent/Assent		X				

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TABLE 2: Parent Measures

Num & Order	Parent Measures	Battery A: Pre-education Second visit	Battery B: Post-education Second visit	Battery C: Pre-Counseling Third Visit	Battery D: Post-Counseling Third visit	Battery E: One month follow-up	Battery F: 3-5 years out
17.	Demographic Questionnaire	X					X
18.	Genetic/Diabetes Knowledge	X	X (embedded)			X	X
19.	CESD-s Center for Epidemiologic Studies Depression Scale	X			X	X	X
20.	STAI State-Trait Anxiety Inventory	X			X	X	X
21.	Attitudes about Health	X	X		X	X	X
22.	Child Health Outcomes	X	X				X
23.	Diabetes Health Beliefs	X	X			X	X
24.	Intention	X	X Questions 2&3 only				
25.	Self-Efficacy	X	X				
26.	Quality of Life Ladder	X			X	X	X
27.	LOT-r	X					
28.	Religiosity	X					
29.	Stigma/ Discrimination	X				X	X
30.	Family Dysfunction	X				X	X
31.	Why Not (test) Questionnaire		X (exit)				
32.	Why Not (couns) Questionnaire			X (exit)			
33.	Who have you told					X	X
34.	Monitoring Vigilance	X		X		X	X
	Evaluation Questionnaires		X Education	X (exit)	X Counseling	X Web-	

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35a. 35b. 35c.	Satisfaction/Education Satisfaction/Counseling Offensive/Exp		X (exit) Off/Exp	Off/Exp		based measure	
36.	Other Parent Documents	Pre-education Second visit	Post-education Second visit	Pre-Counseling Third Visit	Post-Counseling Third visit	One month follow-up	3-5 years out
37.	Phase 1 Consent/Assent	X					
38.	Phase 2 Consent/Assent		X				
39.	Contact sheet	X					

NOTE: Blue ones are manual, not part of the application

Basic Course of Events

Action	Result
1. User indicates questionnaire to complete.	a. Questionnaire is displayed. b. Start time is logged.
2. User answers questions and submits answers.	a. Validation check is run. If validation is successful (all answers completed) then answers are saved to database. b. Confirm to user that questionnaire has been successfully completed. c. Completion Time is logged.

Alternate Paths

Action	Result
1. User indicates questionnaire to complete.	7. Questionnaire is displayed.
2. User answers questions and submits answers.	a. Validation check is run. If all answers have not been completed then prompt for answers to skipped questions with the additional option of "I do not want to answer".
3. User answers questions.	a. Validation check is run. If validation is successful (all answers completed), then answers are saved to database. If not successful return to step 2. b. Confirm to user that questionnaire has been successfully completed.

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Data Elements – Session 1 (Parent Pre-education Questionnaires)

Field	**Data Type: Boolean, Number, FreeText (Length), Date**	**Possible Values & Default**	**Special Validation**	**Required (Y, N)**
Session Start Time	Date/Time	System Generated		Y
Session End Time	Date/Time	System Generated		Y
Demographic (#17)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Genetic/Diabetes Knowledge (#18)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
CESD-s (#19)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
STAI (#20)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Attitudes about Health (#21)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y

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Complete Time	Date/Time	System Generated		Y
Child Health Outcomes (#22)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Diabetes Health Beliefs (#23)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Intention (#24)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Self Efficacy (#25)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Quality of Life Ladder (#26)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
LOT-r (#27)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Religiosity (#28)				
Status		Complete		Y

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		Incomplete		
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Stigma/Discrimination (#29)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Family Dysfunction (#30)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y
Monitoring Vigilance (#34)				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y

Data Elements – Educational Intervention (Parent & Child)

Field	**Data Type:** **Boolean, Number,** **FreeText (Length),** **Date**	**Possible Values & Default**	**Special Validation**	**Required (Y, N)**
Session Start Time	Date/Time	System Generated		Y
Session End Time	Date/Time	System Generated		Y
Knowledge Questionnaire Completion Status		Complete Incomplete		Y

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Data Elements –

- *Child Pre-education Questionnaires*
- *Parent Post-Education Assessment Questionnaires*
- *Child Post-Education Assessment Questionnaires*
- *Parent – Pre-Counseling Questionnaire*
- *Parent Post- Counseling Questionnaires*
- *Child Post-Counseling Questionnaires*
- *Parent & Subject Exit Questionnaires*
- *Parent One Month Post Study Questionnaire*
- *Subject One Month Post Study Questionnaire*
- *Parent Three Year Post Study Questionnaire*
- *Subject Three Year Post Study Questionnaire*

Field	**Data Type:** **Boolean, Number,** **FreeText (Length),** **Date**	**Possible Values & Default**	**Special Validation**	**Required** **(Y, N)**
Session Start Time	Date/Time	System Generated		Y
Session End Time	Date/Time	System Generated		Y
Questionnaire 1..n				
Status		Complete Incomplete		Y
Start Time	Date/Time	System Generated		Y
Complete Time	Date/Time	System Generated		Y

Questionnaire Content:

The following pages contain the actual questionnaires, as listed in Tables 1 and 2. These questionnaires numbered 1-13 and 17-35 will all be included in the application. Those numbered 14-16 and 36-39 will be manual questionnaires and not included in the application.

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Questionnaire 1 – Genetic/Diabetes Knowledge – C

This will be embedded in the education component—responses will be True/False. Should receive questions 30 May.

Also, these are the FAQs
Answers will be True/False/I Don't Know

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Questionnaire 2 – CDI – s (Depression)

CDI-S

Kids sometimes have different feelings and ideas.
The following sentences list the feelings and ideas in groups. From each group of three sentences, pick the one sentence that describes you best for the **past two weeks.** After you pick a sentence from the first group, go on to the next group.
There are no right or wrong answers. Just pick the sentence that best describes the way you have been recently. Put the mark in the box next to the answer you pick
Here is an example of how this works. Try it. Mark the box next to the sentence that describes you best.

- ❑ I read books all the time
- ❑ I read books once in a while
- ❑ I never read books

Remember, pick the sentences that describe you best in the ***PAST TWO WEEKS***

Item 1
- ❑ I am sad once in a while
- ❑ I am sad many times
- ❑ I am sad all the time

Item 2
- ❑ Nothing will ever work out for me
- ❑ I am not sure if things will work out for me
- ❑ Things will work out for me O.K.

Item 3
- ❑ I do most things O.K.
- ❑ I do many things wrong
- ❑ I do everything wrong

Item 4
- ❑ I hate myself
- ❑ I do not like myself
- ❑ I like myself

Item 5
- ❑ I feel like crying every day
- ❑ I feel like crying most days
- ❑ I feel like crying once in a while

Item 6
- ❑ Things bother me all the time
- ❑ Things bother me many times

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- Things bother me once in a while

Item 7
- I look ok
- There are some bad things about my looks
- I look ugly

Item 8
- I do not feel alone
- I feel alone many times
- I feel alone all of the time

Item 9
- I have plenty of friends
- I have some friends but I wish I had more
- I do not have any friends

Item 10
- Nobody really loves me
- I am not sure if anybody loves me
- I am sure that somebody loves me

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Questionnaire 3 – STAI – C

HOW I FEEL QUESTIONNAIRE (STAIC)

A NUMBER OF STATEMENTS WHICH BOYS AND GIRLS USE TO DESCRIBE THEMSELVES ARE GIVEN BELOW. READ EACH OF THE 20 STATEMENTS AND THEN DECIDE HOW YOU FEEL **RIGHT NOW**; THEN MARK THE ANSWER THAT BEST DESCRIBES HOW YOU FEEL. There are no right or wrong answers. Do not spend too much time on any one statement. Remember, find the word or phrase which best describes how you feel right now, *at this very moment*.

1.	I FEEL …	Very calm	Calm	Not Calm
2.	I FEEL…	Very upset	Upset	Not upset
3.	I FEEL .	Very pleasant	Pleasant	Not pleasant
4.	I FEEL …	Very nervous	Nervous	Not nervous
5.	I FEEL …	Very jittery	Jittery	Not jittery
6.	I FEEL …	Very rested	Rested	Not rested
7.	I FEEL …	Very scared	Scared	Not scared
8.	I FEEL …	Very relaxed	Relaxed	Not relaxed
9.	I FEEL …	Very worried	Worried	Not worried
10.	I FEEL …	Very satisfied	Satisfied	Not satisfied
11.	I FEEL …	Very frightened	Frightened	Not frightened
12.	I FEEL …	Very happy	Happy	Not happy
13.	I FEEL …	Very sure	Sure	Not sure
14.	I FEEL …	Very good	Good	Not good
15.	I FEEL …	Very troubled	Troubled	Not troubled
16.	I FEEL …	Very bothered	Bothered	Not bothered
17.	I FEEL …	Very nice	Nice	Not nice

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18.	I FEEL …	Very terrified	Terrified	Not terrified
19.	I FEEL …	Very mixed-up	Mixed-up	Not mixed-up

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Questionnaire 4 – Attitudes about Health – C

Attitudes about Health-C

Read each of the 6 sentences below. After each one, please mark **1** if it's "Really True"; or **2** if it is "Somewhat True"; or **3** if it is "Not True".

	Really True	**Somewhat True**	**Not True**
1. I have no control over getting sick.	1	2	3
2. If I am going to get diabetes, there is not much I can do about it.	1	2	3
3. I can do things that will stop me from getting diabetes.	1	2	3
4. I have a smaller chance of getting diabetes than my friends do.	1	2	3
1. I worry about getting diabetes			
6. I have a big chance of getting diabetes.	1	2	3

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Questionnaire 5 – Child Health Outcomes – C

Child Health Outcomes Measure: Child

This is a list of 18 things that can happen to people's health. Tell us if you think this will happen to you. Mark number 1 for "It will never happen", or number 2 for "Maybe happen", or number 3 for "It will happen".

	It will never happen	Maybe happen	It will happen
High blood pressure	1	2	3
Become weaker	1	2	3
Catch a cold	1	2	3
Get Diabetes	1	2	3
Start smoking cigarettes	1	2	3
Get the flu	1	2	3
Get Cancer	1	2	3
Can't walk	1	2	3
Lose Weight	1	2	3
Become stronger	1	2	3
Have a headache	1	2	3
Get hurt in a car accident	1	2	3
Have a heart attack	1	2	3
Gain weight	1	2	3
Get shot by a gun	1	2	3
Take drugs	1	2	3
Get HIV (AIDS)	1	2	3
Get drunk	1	2	3

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Questionnaire 6 – Diabetes Health Beliefs –C

Diabetes Health Beliefs –C

Read each of the 12sentences below. After each one, please mark **1** if it's "Not True"; or **2** if it is "Somewhat True"; or **3** if it is "Really True".

	Not True	**Somewhat True**	**Really True**
1. Diabetes would be bad for my health	1	2	3
2. Diabetes would cause me to be sick a lot	1	2	3
3. Diabetes would be serious	1	2	3
1. The mouthwash (genetic) test helps me to know my chances of getting diabetes	1	2	3
2. I want to know what my chances are of getting diabetes	1	2	3
3. The computer program helps me to know about genes	1	2	3
4. It is hard to have the mouthwash (genetic) test done	1	2	3
5. It is hard to get the results of this mouthwash (genetic) test	1	2	3
6. It is hard to talk to the nurse about my chances of getting diabetes	1	2	3
7. I don't know what the computer said about my chances of getting diabetes	1	2	3
8. It is hard to come to doctor visits	1	2	3
9. If I had diabetes, it could be hard to get a job	1	2	3

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Questionnaire 7 – Intention – C

Intention –C

Read each of the 3 sentences below. After each sentence, tell us what you are going to do by putting a mark next to number **1** for "I will not do it at all"; or number **2** for "Maybe do it"; or number **3** for "I really will do it".

	I will not do it at all	**Maybe do it**	**I really will do it**
10. I will see the computer program on genes	1	2	3
11. I will have the mouthwash test for diabetes	1	2	3
12. I will come back to clinic with my parents to find out my chances of getting diabetes.	1	2	3

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Questionnaire 8 – Self-Efficacy – C

Self Efficacy – C

Read each of the 3 questions below. After each one, mark **1** if you are "Not Sure"; or
2. for "Somewhat Sure"; or **3** for "Really Sure"

	Not Sure	**Somewhat Sure**	**Really Sure**
1. How sure are you that you can have the mouthwash test done for diabetes?	1	2	3
2. How sure are you that you will come to the clinic to find out what your chances are of getting diabetes?	1	2	3
3. How sure are you that you can do something to not get diabetes?	1	2	3

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Questionnaire 9 – Quality of Life Ladder – C



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Questionnaire 10 – LOT-p

Waiting from Patti, will be similar to LOT-r, Questionnaire #27

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Questionnaire 11 – Stigma/Discrimination – C

Perceived Stigma of Diabetes-C

Each sentence below asks about how you might feel if you had diabetes. After each sentence, mark **1** if it is "Not True"; or **2** if it is "Somewhat True"; or **3** if it is "Really True"

	If I had diabetes:	Not True	Somewhat True	Really True
1.	I'd feel scared to tell someone that I had diabetes.	1	2	3
2.	Telling someone I had diabetes would be risky.	1	2	3
3.	I would work hard to keep my diabetes a secret.	1	2	3
4.	I would be very careful whom I told about my diabetes.	1	2	3
5.	I would worry that kids who knew I had diabetes would tell others.	1	2	3
6.	I would tell my friends to keep my diabetes a secret.	1	2	3
7.	Some kids who knew I had diabetes would not want to hang out with me.	1	2	3
8.	Some friends would stop coming over when they found out I had diabetes.	1	2	3
9.	I would lose friends if I told them I had diabetes.	1	2	3
10.	It would be harder getting some jobs if I had diabetes.	1	2	3
11.	People with diabetes feel left out.	1	2	3

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Questionnaire 12 – Who Have You Told (Disclosure) – C

Disclosure-C

For the following 4 statements, mark the answer that best describes your feelings.

		YES	NO
1.	I have told other family members about my chances of getting diabetes (other than parents).	1	2
2.	I have told my friends about my chances of getting diabetes	1	2
3.	I have talked to my doctor about my chances of getting diabetes.	1	2
4.	I have <u>not</u> told anyone about my chances of getting diabetes.	1	2

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Questionnaire 13a – Satisfaction with Education – C

Satisfaction with Genetic Education Program and Questionnaires-C

Read each of the 8 sentences below. After each one, please mark **1** for "Not at All"; or 2 for "Somewhat"; or **3** for "I"

		A Lot	Somewhat	Not At All
1.	This web program helped me to learn more about diabetes and my genes.	3	2	1
2.	This web program was easy to read.	3	2	1
3.	The web program was easy to use.	3	2	1
4.	I liked this web program.	3	2	1
5.	I still want to learn more about genes and/or diabetes.	3	2	1
6.	After seeing this program, I want to get the mouthwash (gene test) done.	3	2	1
7.	The questions on the web were easy to read.	3	2	1
8.	Using the web to answer questions was easy.	3	2	1

9. I would like <u>more</u>:
   a. cartoons
   b. voice
   c. music
   d. examples
   e. video
   f. questions
   g. pictures

10. I would like <u>less</u>:
   a. cartoons
   b. voice
   c. music
   d. examples
   e. videos
   f. questions
   g. pictures

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h. words

h. words

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Questionnaire 13b – Satisfaction with Counseling – C

Satisfaction with Genetic Counseling –C

Read each of the 4 sentences below. After each one, please mark **1** for "Not at All"; or 2 for "Somewhat"; or **3** for "I"

	A lot	Somewhat	Not At All
10. This web program told me about my chances of getting diabetes.	3	2	1
11. This web program was easy to use.	3	2	1
12. I liked learning by the web program.	3	2	1
13. Talking with the nurse helped me to understand a lot about my chances of getting diabetes.	3	2	1

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Questionnaire 13c – Offensive/Exp – C

Still waiting for questionnaire from Denise

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Questionnaire 17 – Demographic

Demographic Questionnaire

Who is completing this form
Biological Mother
Biological Father
Step Mother
Step Father
Other relative Specify: _____

Your age:

Your race: Please choose all that apply:
African American/Black
Alaska Native
American Indian
Asian
Caucasian/White
Latino/Hispanic
Native Hawaiian or other Pacific Islander
Unknown
Other Please specify:

All children: List in order of birth from oldest to youngest.

	Name	Age	Gender	Race	Grade in School	Diabetes status	Relationship to child with diabetes
1.							
2.							
3.							
4.							
5.							

Your education:
Some High School
High School diploma
Some College
College Degree
Beyond College

Your annual family household income?
Under $20,000
$20,000 – $60,000
Over $60,000

How many people live in your household? Adults? _____ Children?_____

Does biological mother have type1 diabetes? Yes No

Does biological father have type1 diabetes? Yes No

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Questionnaire 18 – Genetic/Diabetes Knowledge

(this will be embedded in the education component—)
also, these are the FAQs
Answers will be True/False/I Don't Know

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Questionnaire 19 – CESD-s (Depression)

CESD-S

Instructions:
Please read the list of ways you may have felt or behaved recently. For each question, circle the number to indicate how often you have felt this way in the **PAST 2 WEEKS**

During the past two weeks...

	Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of	Most or all of the time
1. I was bothered by things that usually don't bother me.	0	1	2	3
2. I had trouble keeping my mind on what I was doing.	0	1	2	3
3. I felt depressed.	0	1	2	3
4. I felt that every-thing I did was an effort.	0	1	2	3
5. I felt hopeful about the future	0	1	2	3
6. I felt fearful.	0	1	2	3
7. My sleep was restless.	0	1	2	3
1. I was happy.	0	1	2	3
9. I felt lonely.	0	1	2	3
10. I could not get going.	0	1	2	3

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Questionnaire 20 – STAI

STAI-SELF EVALUATION QUESTIONNAIRE

A NUMBER OF STATEMENTS WHICH PEOPLE HAVE USED TO DESCRIBE THEMSELVES ARE GIVEN BELOW. READ EACH STATEMENT AND THEN MARK THE APPROPRIATE NUMBER TO TH ERIGHT OF THE STATEMENT TO INDICATE HOW YOU FEEL **RIGHT NOW;** THAT IS, **AT THIS MOMENT.**
There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to describe your present feelings best

		NOT AT ALL	SOME WHAT	MODER-ATELY SO	VERY MUCH SO
1.	I FEEL CALM	1	2	3	4
2.	I FEEL SECURE	1	2	3	4
3.	I AM TENSE	1	2	3	4
4.	I AM REGRETFUL	1	2	3	4
5.	I FEEL AT EASE	1	2	3	4
6.	I FEEL UPSET	1	2	3	4
7.	I AM PRESENTLY WORRYING OVER POSSIBLE MISFORTUNES	1	2	3	4
8.	I FEEL RESTED	1	2	3	4
9.	I FEEL ANXIOUS	1	2	3	4
10.	I FEEL COMFORTABLE	1	2	3	4
11.	I FEEL SELF-CONFIDENT	1	2	3	4
12.	I FEEL NERVOUS	1	2	3	4
13.	I AM JITTERY	1	2	3	4
14.	I FEEL "HIGH STRUNG"	1	2	3	4
15.	I AM RELAXED	1	2	3	4

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16.	I FEEL CONTENT	1	2	3	4
17.	I AM WORRIED	1	2	3	4
18.	I FEEL OVER-EXCITED AND "RATTLED"	1	2	3	4
19.	I FEEL JOYFUL	1	2	3	4
20.	I FEEL PLEASANT	1	2	3	4

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Questionnaire 21 – Attitudes about Health

Attitudes about Health

This survey will provide important information about how people feel about the risk of getting a chronic disease like diabetes. There are no right or wrong answers. We are interested in *your* opinions and attitudes. Please answer each question as best as you can.

General Attitudes

For each item, please select the response that BEST DESCRIBES YOUR OPINION.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
5. I feel I have little control over risks to my child's health.	1	2	3	4
6. If my child is going to get diabetes, there is not much I can do about it.	1	2	3	4
7. I think that my personal efforts will help control my child's risk of getting diabetes.	1	2	3	4
8. People who make a good effort to control the risks of getting diabetes are much less likely to get diabetes.	1	2	3	4
9. I worry about my child getting diabetes.	1	2	3	4
10. Compared to other children of my child's same age and sex (gender), s/he is *less* likely than they are to get diabetes.	1	2	3	4
11. Compared to other children of my child's same age and sex (gender), s/he is *less* likely than they are to get a serious disease.	1	2	3	4
12. Worrying about my child's getting diabetes is very upsetting.	1	2	3	4

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13. My child has a high risk of developing diabetes.	1	2	3	4

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Questionnaire 22 – Child Health Outcomes

Child Health Outcomes Measure: Parent

Name _____ Date _____ ID# _____

Everyone who is a parent or who takes care of a child sometimes thinks about what will happen to that child in the future. We would like you to answer some questions about _____'s future.

Part I - Health Outcome Likelihood

This is a list of things that can happen to people's health. For each item, rate how likely it is that this will happen to your child sometime in the future. For each one, check the box in the column that describes what you think the chances are that this will happen to your child some time in the future.

Conditions	Will never happen	Unlikely	Likely	Very Likely	Will definitely happen
High blood pressure	❑	❑	❑	❑	❑
Become less physically fit	❑	❑	❑	❑	❑
Catch a cold	❑	❑	❑	❑	❑
Get Diabetes	❑	❑	❑	❑	❑
Start smoking cigarettes	❑	❑	❑	❑	❑
Get the flu	❑	❑	❑	❑	❑
Get Cancer	❑	❑	❑	❑	❑
Become paralyzed	❑	❑	❑	❑	❑
Lose Weight	❑	❑	❑	❑	❑
Become more physically fit	❑	❑	❑	❑	❑
Have a headache	❑	❑	❑	❑	❑
Injured in a car accident	❑	❑	❑	❑	❑
Get heart disease	❑	❑	❑	❑	❑
Gain a lot of weight	❑	❑	❑	❑	❑
High cholesterol	❑	❑	❑	❑	❑
Shot	❑	❑	❑	❑	❑

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Conditions	Will never happen	Unlikely	Likely	Very Likely	Will definitely happen
Drug or alcohol abuse	❑	❑	❑	❑	❑
Get HIV (AIDS)	❑	❑	❑	❑	❑
Have a stroke	❑	❑	❑	❑	❑

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Part II – Seriousness of Health Outcomes

In this section, we want you to look at the items and tell us how serious you think each of these conditions is. A serious condition is something that would be very bad to have happen to your child.

Conditions	Very Bad	Bad	Kind of Bad	Not a Problem	A Good Thing
High blood pressure	❑	❑	❑	❑	❑
Become less physically fit	❑	❑	❑	❑	❑
Catch a cold	❑	❑	❑	❑	❑
Have Diabetes	❑	❑	❑	❑	❑
Start smoking cigarettes	❑	❑	❑	❑	❑
Get the flu	❑	❑	❑	❑	❑
Get Cancer	❑	❑	❑	❑	❑
Become paralyzed	❑	❑	❑	❑	❑
Lose Weight	❑	❑	❑	❑	❑
Become more physically fit	❑	❑	❑	❑	❑
Have a headache	❑	❑	❑	❑	❑
Injured in a car accident	❑	❑	❑	❑	❑
Get heart disease	❑	❑	❑	❑	❑
Gain a lot of weight	❑	❑	❑	❑	❑
High cholesterol	❑	❑	❑	❑	❑
Shot	❑	❑	❑	❑	❑
Drug or alcohol abuse	❑	❑	❑	❑	❑
Get HIV (AIDS)	❑	❑	❑	❑	❑
Have a stroke	❑	❑	❑	❑	❑

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Part III – Likelihood of Life Events

This is a list of things that can happen to people. For each item, rate how likely it is that this will happen to your child sometime in the future. For each one, check the box in the column that describes what you think the chances are that this will happen to your child some time in the future.

Events	Will never happen	Unlikely	Likely	Very Likely	Will definitely happen
Get married or have long-term stable relationship	❑	❑	❑	❑	❑
Go to college	❑	❑	❑	❑	❑
Have enough money to pay bills	❑	❑	❑	❑	❑
Win the lottery	❑	❑	❑	❑	❑
Serve time in jail	❑	❑	❑	❑	❑
Unplanned pregnancy	❑	❑	❑	❑	❑
Finish high school	❑	❑	❑	❑	❑
Get a good paying job	❑	❑	❑	❑	❑
Get fired or layed off from a job	❑	❑	❑	❑	❑
Planned pregnancy or adoption	❑	❑	❑	❑	❑
Buy a car	❑	❑	❑	❑	❑
Get divorced or breakup of long-term relationship	❑	❑	❑	❑	❑
Buy a house	❑	❑	❑	❑	❑

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Part IV – Seriousness of Life Events

In this section, we want you to look at the items and tell us how serious you think each of these conditions is. A serious condition is something that would be very bad to have happen to your child.

Events	Will never happen	Unlikely	Likely	Very Likely	Will definitely happen
Get married or have long-term stable relationship	❑	❑	❑	❑	❑
Go to college	❑	❑	❑	❑	❑
Have enough money to pay bills	❑	❑	❑	❑	❑
Win the lottery	❑	❑	❑	❑	❑
Serve time in jail	❑	❑	❑	❑	❑
Unplanned pregnancy	❑	❑	❑	❑	❑
Finish high school	❑	❑	❑	❑	❑
Get a good paying job	❑	❑	❑	❑	❑
Get fired or layed off from a job	❑	❑	❑	❑	❑
Planned pregnancy or adoption	❑	❑	❑	❑	❑
Buy a car	❑	❑	❑	❑	❑
Get divorced or breakup of long-term relationship	❑	❑	❑	❑	❑
Buy a house	❑	❑	❑	❑	❑

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Part V – Your Health History

We are interested in your health history. For each item, check the box that tells us if you now have or have ever had that condition.

Conditions	Very Bad	Bad	Kind of Bad	Not a Problem	A Good Thing
High blood pressure	❑	❑	❑	❑	❑
Become less physically fit	❑	❑	❑	❑	❑
Catch a cold	❑	❑	❑	❑	❑
Have Diabetes	❑	❑	❑	❑	❑
Start smoking cigarettes	❑	❑	❑	❑	❑
Get the flu	❑	❑	❑	❑	❑
Get Cancer	❑	❑	❑	❑	❑
Become paralyzed	❑	❑	❑	❑	❑
Lose Weight	❑	❑	❑	❑	❑
Become more physically fit	❑	❑	❑	❑	❑
Have a headache	❑	❑	❑	❑	❑
Injured in a car accident	❑	❑	❑	❑	❑
Get heart disease	❑	❑	❑	❑	❑
Gain a lot of weight	❑	❑	❑	❑	❑
High cholesterol	❑	❑	❑	❑	❑
Shot	❑	❑	❑	❑	❑
Drug or alcohol abuse	❑	❑	❑	❑	❑
Get HIV (AIDS)	❑	❑	❑	❑	❑
Have a stroke	❑	❑	❑	❑	❑

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Questionnaire 23 – Diabetes Health Beliefs

Diabetes Health Beliefs

Please read the following 13 statements. After each statement, please **mark the response that represents your beliefs and attitudes.**

	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**
1. Type 1 diabetes would have a bad effect on my child's future health	1	2	3	4
2. Type 1 diabetes would cause my child to be sick a lot	1	2	3	4
3. Type 1 diabetes would be a serious health problem	1	2	3	4
4. Genetic testing helps me to know my child's chances of getting type 1 diabetes	1	2	3	4
5. Knowing the results of my child's genetic test for type 1 diabetes helps me to cope better	1	2	3	4
6. Genetic counseling helps me to better understand the results of my child's risk	1	2	3	4
7. It is a problem to have my child's saliva tested for genetic risk type 1 diabetes	1	2	3	4
8. It is a problem to get the results of this genetic test	1	2	3	4
9. It is a problem to get genetic counseling	1	2	3	4
10. Having a moderate genetic risk of developing type 1 diabetes is a problem	1	2	3	4

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	Strongly Disagree	Disagree	Agree	Strongly Agree
11. I could not understand the web program about genetic risk and testing	1	2	3	4
12. It is difficult to come in for clinic/ doctor visits	1	2	3	4
13. Having a high risk of developing type 1 diabetes could cause problems like getting a job or health insurance	1	2	3	4

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Questionnaire 24 – Intention

Intention

On a scale from 1 to 7 with number 1 as "Unlikely" and number 7 as "Likely" please rate your answer from 1-7 for the following 3 statements.

		Unikely						**Likely**
1.	I intend to view the educational material on genetic testing.	1	2	3	4	5	6	7
2.	I intend to have my child's saliva tested for type 1 diabetes.	1	2	3	4	5	6	7
3.	I intend to return to the clinic to receive the results of the genetic test for type 1 diabetes.	1	2	3	4	5	6	7

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Questionnaire 25 – Self-Efficacy

Self Efficacy

The following 3 questions are regarding your feelings of confidence about doing things. On a scale of 0 – 10 where 0 is "Not at all Confident" and 10 is "Very Confident" please mark the number on the scale that best represents your feelings.

	Not at all Confident										**Very Confident**
1. How confident (certain) are you that you can have your child's saliva tested for genetic risk of type 1 diabetes?	0	1	2	3	4	5	6	7	8	9	10
2. How confident are you that you will come to the clinic to receive the results?	0	1	2	3	4	5	6	7	8	9	10
3. How confident are you that you can do something to prevent your child from getting type 1 diabetes?	0	1	2	3	4	5	6	7	8	9	10

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Questionnaire 26 – Quality of Life Ladder



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Questionnaire 27 – LOT-r

LOT-R

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your response to other statements. There are no correct or incorrect answers. Answer according to your own feelings, rather than how you think "most people" would answer.

		I agree a lot	I agree a little	I neither agree or disagree	I disagree a little	I disagree a lot
1.	In uncertain times, I usually expect the best.	1	2	3	4	5
2.	If something can go wrong for me, it will.	1	2	3	4	5
3.	I am always optimistic about my future.	1	2	3	4	5
4.	I hardly ever expect things to go my way.	1	2	3	4	5
5.	I rarely count on good things happening to me.	1	2	3	4	5
6.	Overall, I expect more good things to happen to me than bad.	1	2	3	4	5

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Questionnaire 28 – Religiosity

Religiosity

Please read the following 6 statements. After each statement, mark the answer that best represents your beliefs or behavior.

		Very Much	Somewhat	Not At All
1.	How religious do you consider yourself to be?	3	2	1
2.	How spiritual do you consider yourself to be?	3	2	1
3.	How important is it to you to attend religious services/meetings?	3	2	1
4.	How much does your religion influence your behavior?	3	2	1
5.	How important is your religion to you?	3	2	1
6.	Do your religious beliefs influence your medical treatment(eg., taking medication or getting tests)?	3	2	1

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Questionnaire 29 – Stigma/Discrimination

Perceived Stigma of Diabetes

This questionnaire asks about some of the social and emotional aspects of having a child with diabetes. After each statement, please mark the answer that corresponds to how much you agree or disagree with that statement.

If my child had diabetes:		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	I'd feel anxious when thinking about telling someone that my child has diabetes.	1	2	3	4
2.	Telling someone my child has diabetes would be risky.	1	2	3	4
3.	I would work hard to keep my child's diabetes a secret.	1	2	3	4
4.	I would be very careful whom I told about my child's diabetes.	1	2	3	4
5.	I would worry that people who knew my child had diabetes would tell others.	1	2	3	4
6.	I would tell people close to me to keep the fact that my child has diabetes a secret.	1	2	3	4
7.	Some people who knew my child had diabetes would grow distant.	1	2	3	4
8.	I would be hurt if people reacted negatively to learning my child had diabetes.	1	2	3	4
9.	People we care about would stop calling after learning my child has diabetes.	1	2	3	4
10.	We would stop socializing with some people because of their reaction to my child having diabetes.	1	2	3	4
11.	My child would lose friends by telling them s/he has diabetes.	1	2	3	4
12.	Children wouldn't want my child around once they knew s/he has diabetes.	1	2	3	4

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If my child had diabetes:		Strongly Disagree	Disagree	Agree	Strongly Agree
13.	Most people with diabetes feel left out.	1	2	3	4
14.	Being honest about having diabetes would hurt my child's chances of getting a job.	1	2	3	4
15.	Being honest about having diabetes would hurt my child chances of getting health insurance.	1	2	3	4
16.	Most people are uncomfortable around someone with diabetes.	1	2	3	4

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Questionnaire 30 – Family Dysfunction

Family APGAR

The following 5 questions have been designed to help us better understand you and your family. "Family" is the individual(s) with whom you usually live. Mark the answer that best describes your feelings.

		Always	Almost Always	Some Of The Time	Hardly Ever	Never
1.	I am satisfied that I can turn to my family for help when something is troubling me.	4	3	2	1	0
2.	I am satisfied with the way my family talks over things with me and shares problems with me.	4	3	2	1	0
3.	I am satisfied that my family accepts and supports my wishes to take on new activities or direction.	4	3	2	1	0
4.	I am satisfied with the way my family expresses affection, and responds to my emotions, such as anger, sorrow, or love.	4	3	2	1	0
5.	I am satisfied with the way my family and I share time together.	4	3	2	1	0

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Questionnaire 31 – Why Not (test) EXIT

WHY NOT (Testing) QUESTIONNAIRE

For each of these 8 statement below, please mark the answer that best describes your feelings.

		True	False
1.	This project isn't at all what I thought it was going to be.	1	2
2.	This project involves too much time and effort.	1	2
3.	I really don't see any reason to have my child/ren tested to learn his/her risk of developing diabetes	1	2
4.	After viewing the educational material on the web, I have decided there are more reasons not to test than there are to test.	1	2
5.	I don't want to know.	1	2
6.	I don't want to put my child/ren through the testing	1	2
7.	Getting a genetic test could do more harm than good. (eg. No insurance)	1	2
8.	My child doesn't want to be tested.	1	2

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Questionnaire 32 – Why Not (couns) EXIT

WHY NOT (Counseling) QUESTIONNAIRE

For each of the 6 statements below, please mark the answer that best represents your feelings.

		True	False
1.	This project involves too much time and effort to proceed.	1	2
2.	I have decided I really don't want to know my non-diabetic child/ren risk of developing diabetes.	1	2
3.	After viewing the counseling educational material on the web, I have now decided there are more reasons not find out my child/ren's risk of developing diabetes than there are to find out.	1	2
4.	After obtaining additional information, I have decided I don't want to learn my child/ren's risk of developing diabetes.	1	2
5.	Getting the test results could do more harm than good. (eg. No insurance)	1	2
6.	My child/ren doesn't want to know the results of the test.	1	2

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Questionnaire 33 – Who Have You Told (Disclosure)

Disclosure

For the following 4 statements, mark the answer that best describes your feelings.

		YES	NO
1.	I have discussed my child/ren's risk of getting diabetes with other family members (other than spouse).	1	2
2.	I have discussed my child/ren's risk of getting diabetes with friends.	1	2
3.	I have discussed my child/ren's risk of getting diabetes with their pediatrician.	1	2
4.	I have <u>not</u> discussed my child/ren's risk of getting diabetes with anyone. (other than spouse)	1	2

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Questionnaire 34 – Monitoring Vigilance

Monitoring Vigilance

For each of these 16 items, please choose the answer that best describes your behavior that you believe may prevent or delay the onset of diabetes in your child.

		Never	Some of the Time	Most of the Time	All of the Time
1	I watch my child for signs of diabetes	1	2	3	4
2	I check my child's blood sugar level	1	2	3	4
3	I check my child's urine sugar	1	2	3	4
4	I changed my child's diet	1	2	3	4
5	I increased my child's exercise activity	1	2	3	4
6	I decreased my child's stress level	1	2	3	4
7	I increased the number of hours my child sleeps	1	2	3	4
8	I increased the number of hours my child gets fresh air	1	2	3	4
9	I decreased my child's contact with other children to protect from germs	1	2	3	4
10	I gave my child medicine that will reduce the risk of diabetes	1	2	3	4
11	I entered my child in a study to prevent type 1 diabetes	1	2	3	4
12	I took my child to the doctor/clinic to check for diabetes	1	2	3	4
13	I looked at web sites about diabetes	1	2	3	4
14	I talked to my friends/ family about diabetes	1	2	3	4
15	I spoke to other doctors, nurses, etc… about the risks of diabetes	1	2	3	4

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16	I read journals and/or books about the risks of diabetes	1	2	3	4

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Questionnaire 35a – Satisfaction with Education

Satisfaction with Genetic Education Program and Questionnaires

Please choose the response that most correctly matches your opinion.

	Strongly Agree	Agree	Disagree	Strongly Disagree
14. This web-based computer program helped me to learn more about diabetes and genetics.	4	3	2	1
15. The computer program was easy to read and understand.	4	3	2	1
16. The computer program was easy to use.	4	3	2	1
17. I enjoyed this computer program.	4	3	2	1
18. After seeing the program, I want to get more information about genetics and/or type 1 diabetes.	4	3	2	1
19. After seeing the program, I want my child to get genetic testing.	4	3	2	1
20. The questionnaires on the web were easy to read.	4	3	2	1
21. Using the web to answer questions was easy.	4	3	2	1

22. I would like to see <u>more</u>:
    a. animation
    b. sound
    c. examples
    d. video
    e. review questions
    f. pictures

10. I would like to see <u>less</u>:
    a. animation
    b. sound
    c. examples
    d. videos
    e. review questions
    f. pictures

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g. text (words)

g. text (words)

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Questionnaire 35b – Satisfaction with Counseling

Satisfaction with Genetic Counseling

Please choose the response that most correctly matches your opinion.

	Strongly Agree	Agree	Disagree	Strongly Disagree
23. This web-counseling helped me to understand about my child's risk of type 1 diabetes.	4	3	2	1
24. The web counseling was easy to use.	4	3	2	1
25. I enjoyed getting information by the web-counseling program.	4	3	2	1
26. This web-counseling gave me helpful information.	4	3	2	1
27. I am satisfied with the way in which information was transmitted to me.	4	3	2	1
28. The face-to-face counseling I got helped me to cope better with the information I received.	4	3	2	1
29. I am satisfied with the information I got in the face-to-face counseling.	4	3	2	1

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Questionnaire 35c – Offensive/Exp

Still waiting for questionnaire from Denise

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3.5.3.5 On-Line Depression Questionnaire with Possible Email Message and Page – (Workflow Map 2.5, 2.7, 2.8)

Actor: Parent and Subject
Description: Complete Depression questionnaire resulting in possible email message and page
Prerequisite: User in appropriate workflow state to access depression questionnaire
Inputs:
Outputs: Data submitted into application, possible email and page

Req #	Requirement	Workflow	Priority	Phase
J-1.	Parent and Subject shall complete Depression Psychosocial Questionnaire on-line.	2.5	High	1
J-2	Scoring of Depression Questionnaire #2 (CDI-S): Action: Still waiting for scoring from Patty			
J-3.	Scoring of Depression Questionnaire #19 (CES-D): Step 1: Reverse the scale for items 4, 8, 12, and 16 so that 0=3, 1=2, 2=1, and 3=0. Step 2: Add the scores for the 20 questions. The score will be in the range of 0-60. Step 3: If the score is 16 or greater, the depression metric is elevated.	2.7-2.8	High	1
J-4.	If the depression metric is elevated, the system shall • Display a message stating "Please contact your Site Coordinator to continue." • Suspend the user's account. The user will be unable to continue until the Site Coordinator changes the account status from "suspended" to "active". • The user view the message above if they try to log back in while their account is "suspended". Note: The site coordinator can reset the account through the modify account functionality and document the intervention taken.	2.7-2.8	High	1

Basic Course of Events

Action	Result
1. User indicates questionnaire to complete.	1. Questionnaire is displayed. b. Start time is logged.
2. User answers questions and submits answers.	2. Validation check is run. If

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	validation is successful (all answers completed) then answers are saved to database. 3. Data is compared against elevation metric. If results are within acceptable range, data is saved to database. c. Confirm to user that questionnaire has been successfully completed. d. Completion Time is logged.

Alternate Paths

Action	Result
1. User indicates questionnaire to complete	a. Questionnaire is displayed
2. User answers questions and submits answers	a. Validation check is run. If all answers have not been completed then prompt for answers to skipped questions with the additional option of "I do not want to answer"
3. User answers questions	a. Validation check is run. If validation is successful (all answers completed) then answers are saved to database. If not successful return to step 2. b. Confirm to user that questionnaire has been successfully completed. c. Data is compared against elevation metric. If the depression metric is elevated, the system shall generate a message to be sent to both the email account and the pager of the Site Coordinator & Overall Study Coordinator. d. The system will display a message stating "Please contact your Site Coordinator to continue." The user's account will be "suspended" until changed to "active" by the Site Coordinator. e. The system will display a message stating "Please contact your Site Coordinator to continue if they try to login while their account is "suspended." f. Data is saved to database.

Data Elements

Questionnaire 2 – CDI – s (Child)

CDI-S

Kids sometimes have different feelings and ideas.

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The following sentences list the feelings and ideas in groups. From each group of three sentences, pick the one sentence that describes you best for the **past two weeks.** After you pick a sentence from the first group, go on to the next group.
There are no right or wrong answers. Just pick the sentence that best describes the way you have been recently. Put the mark in the box next to the answer you pick
Here is an example of how this works. Try it. Mark the box next to the sentence that describes you best.

- ❑ I read books all the time
- ❑ I read books once in a while
- ❑ I never read books

Remember, pick the sentences that describe you best in the ***PAST TWO WEEKS***

Item 1
- ❑ I am sad once in a while
- ❑ I am sad many times
- ❑ I am sad all the time

Item 2
- ❑ Nothing will ever work out for me
- ❑ I am not sure if things will work out for me
- ❑ Things will work out for me O.K.

Item 3
- ❑ I do most things O.K.
- ❑ I do many things wrong
- ❑ I do everything wrong

Item 4
- ❑ I hate myself
- ❑ I do not like myself
- ❑ I like myself

Item 5
- ❑ I feel like crying every day
- ❑ I feel like crying most days
- ❑ I feel like crying once in a while

Item 6
- ❑ Things bother me all the time
- ❑ Things bother me many times
- ❑ Things bother me once in a while

Item 7
- ❑ I look ok
- ❑ There are some bad things about my looks
- ❑ I look ugly

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Item 8

- ❑ I do not feel alone
- ❑ I feel alone many times
- ❑ I feel alone all of the time

Item 9

- ❑ I have plenty of friends
- ❑ I have some friends but I wish I had more
- ❑ I do not have any friends

Item 10

- ❑ Nobody really loves me
- ❑ I am not sure if anybody loves me
- ❑ I am sure that somebody loves me

Questionnaire 19 – CESD-s (Adult)

CESD-S

Instructions:
Please read the list of ways you may have felt or behaved recently. For each question, circle the number to indicate how often you have felt this way in the **PAST 2 WEEKS**

During the past two weeks…

	Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of	Most or all of the time
5. I was bothered by things that usually don't bother me.	0	1	2	3
6. I had trouble keeping my mind on what I was doing.	0	1	2	3
7. I felt depressed.	0	1	2	3
8. I felt that every-thing I did was an effort.	0	1	2	3

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5. I felt hopeful about the future	0	1	2	3
7. I felt fearful.	0	1	2	3
7. My sleep was restless.	0	1	2	3
2. I was happy.	0	1	2	3
9. I felt lonely.	0	1	2	3
10. I could not get going.	0	1	2	3

Automatic Message Alert

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Acceptable Range				
Text Alert Message				
Site Coordinator Email Address				
Site Coordinator Pager #				

Notes

Note #	Note

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3.5.3.6 On-Line Educational Intervention Modules (Workflow Map 2.6, 2.10)

Note: This module will be designed to specifications by the CIDDE group and developed by Diversified Services.

Actor: Parent, Subject
Description: Complete Educational Intervention Modules
Prerequisite: User is in appropriate workflow state to access educational intervention module. Parent must complete the Demographic Questionnaire before child accesses the educational module.
Inputs:
Outputs: Data submitted and stored in application

Req #	Requirement	Workflow	Priority	Phase
K-1.	Educational Intervention Modules for Genetic and Diabetes shall be completed on-line by Parent and Subject(s). The Proband will not have access to the Educational Intervention Module (except for the FAQs).	2.10	High	1
K-2.	The subject and parent education intervention module shall have embedded the following questionnaire: Genetic/Diabetes Knowledge (#1 and #18 in Tables 1 and 2: Child and Parent Measures) Answers will be *True/False/I Don't Know*	2.10	High	1
K-3.	After each user response, the system will provide a feedback message. If the user answers the question incorrectly, there will be a short remedial answer. If the user answers correctly, there will be a reinforcement message. The application will continue with the next topic.	2.10	High	1
K-4.	The application will only allow the user to continue forward. There will not be any 'back button' capability.			
K-5.	The system shall collect the amount of time spent on each page of the education intervention module.	2.10	High	1
K-6.	Demographic data (first name, age, gender) will be imported into the Education Intervention Module. Program needs to produce family tree/pedigree information.	2.6	High	1
K-7.	A summary of the embedded Genetic/Diabetes questions and answers will be available as FAQs. The FAQs will be available for proband at any time and for the parent and subject(s) only after completion of the educational module.	2.10	High	1

Basic Course of Events

Action	Result:

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1. User selects Module to be completed	Educational Intervention Module initiated.

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note

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3.5.3.7 Genetic Testing Prompt – (Workflow Map 2.12-2.13)

Actor: Study Participants
Description: System prompts participants for genetic testing
Prerequisite:
Inputs:
Outputs: Answer submitted into application

Req #	Requirement	Workflow	Priority	Phase
L-1.	The application prompts participants to decide if they wish to participate in Genetic Testing.	2.12-2.13	High	1
L-2	If subject states they do not want to continue they are presented with the Exit Questionnaire – Why not Test	2.12-2.13	High	1

Basic Course of Events

Action	Result
1. System asks user if they wish to continue in the study and proceed with Genetic Testing.	User makes decision.
2. User accepts Genetic Testing.	User completes Assent/Consent Forms and continues in study.

Alternate Paths

Action	Result
1. System asks user if they wish to continue in the study and proceed with Genetic Testing.	User makes decision.
2. User denies Genetic Testing.	User will complete appropriate Exit Questionnaire – Why not Test?

Data Elements – Genetic Testing Prompt

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Testing Decision	Boolean			Y

Notes

Note #	Note

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3.5.4 Later Phase Use Case Stubs

3.5.4.1 Complete On-line Assent/Consent Forms – (Workflow Map 2.15)

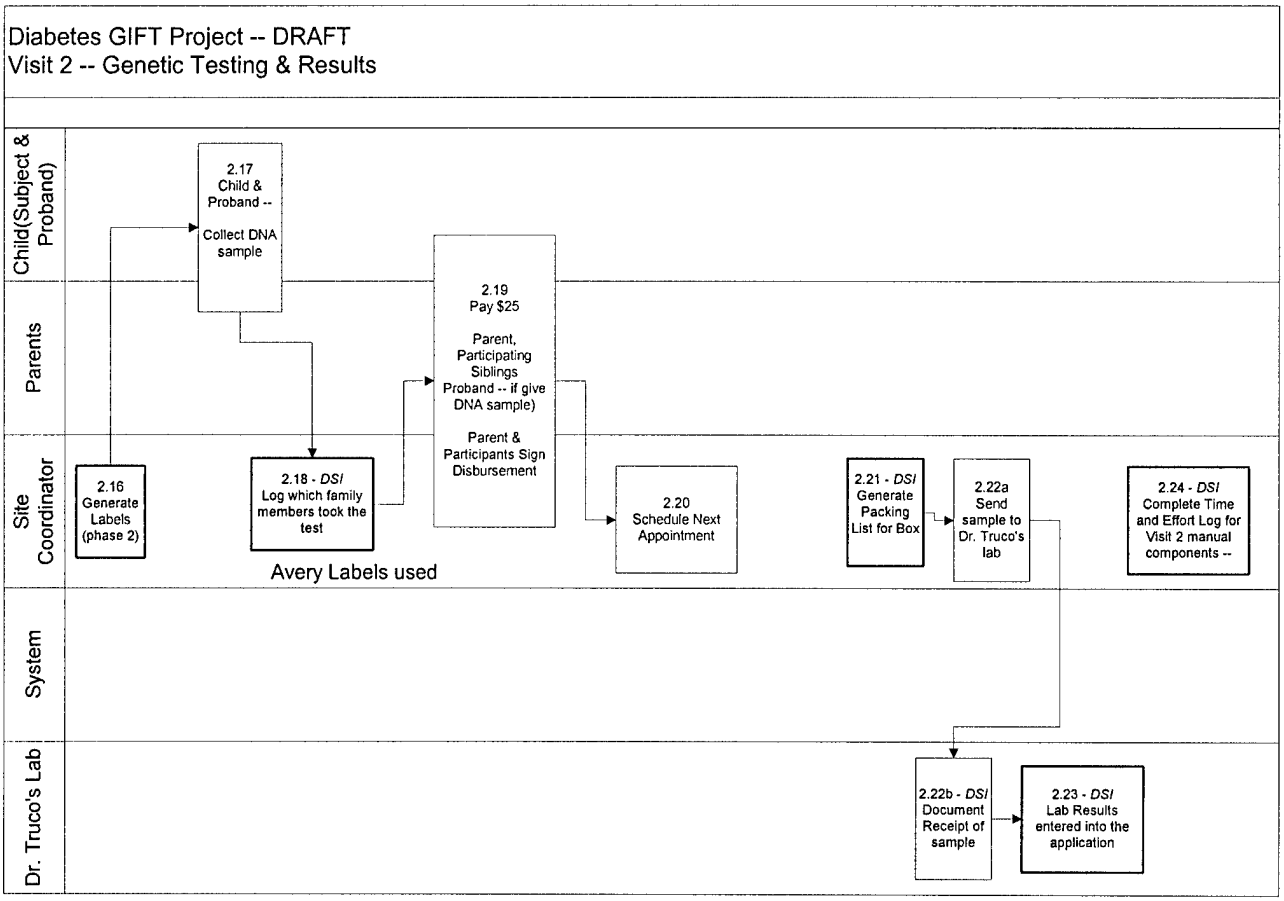
Req #	Requirement	Workflow	Priority	Phase
M-1.	If participants agree to Genetic Testing, they will sign on-line assent/consent forms.	2.15	Low	3

3.5.4.2 Web Site Tutorial – (Workflow Map 2.4)

Req #	Requirement	Workflow	Priority	Phase
M-2.	A tutorial will be provided to aid web site instruction	2.4	Low	1

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3.5.5 Genetic Testing and Results Phase 1 High & Medium Priority Use Cases



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3.5.5.1 Packing List for DNA Samples – (Workflow Map 2.21)

Actor: Site Coordinator / Overall Study Coordinator
Description: Print Packing List for DNA Samples
Prerequisite:
Inputs: Data entered for workflow 2.18 indicating which family members provided DNA samples
Outputs: Packing List for DNA Samples

Req #	Requirement	Workflow	Priority	Phase
N-1.	System shall generate packing list for DNA samples.	2.21	High	1
N-2.	The box shall contain all samples from one family.	2.22a	High	1

Basic Course of Events

Action	Result
1. Site Coordinator indicates that DNA samples are ready for shipment.	The Site Coordinator is prompted for the appropriate information.
2. The user enters the data and submits the data.	If the data is correct and acceptable then data entered into the database. If the data is not validated then an error message is displayed on the screen.

Alternate Paths

N/A

Data Elements – Packing List Contents (pull from tracking log input)

The Packing list contains the following information:

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Box Number		Site ID and Family ID		Y
Site				Y
Date of Sample Collection				Y
Date Sample Sent				Y
Sample 1 to n				
Study ID #				Y
Specimen Type		Pull data from tracking log		Y

Notes

Note #	Note
	Study ID will identify family members

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3.5.5.2 Track Lab Receipt of DNA Sample

Actor: Dr. Trucco's Lab
Description: Track receipt of DNA Samples
Prerequisite: DNA samples arrive in lab
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
O-1.	The user shall indicate when the box of DNA Samples was received.	2.21b	High	1

Basic Course of Events

Action	Result
1. Lab member indicates that DNA samples have been received.	The lab member is prompted for the appropriate information.
2. The user enters the data and submits the data.	If the data is correct and acceptable then data entered into the database. If the data is not validated then an error message is displayed on the screen.

Alternate Paths

N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Box Number		Site ID and Family ID		Y
Date box received	Date	Default: Current date		Y
UserID		Default: user name		Y

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3.5.5.3 Entering Lab Results – (Workflow Map 2.23)

Actor: Dr. Trucco's Lab
Description: Enter Lab Results
Prerequisite: Results are ready for entry
Inputs:
Outputs: Lab Results are available in system

Req #	Requirement	Workflow	Priority	Phase
P-1.	Dr. Trucco's Lab will enter results via web interface. They will determine the Haplotype and Heredity value. This is the only functionality the lab staff will have. They will not be allowed to view any of the study data.	2.23	High	1

Basic Course of Events

Action	Result:
1. Lab personnel indicate that lab results are ready.	The lab personnel is prompted for the appropriate information.
2. The user enters the data and submits the data.	If the data is correct and acceptable then data entered into the database. If the data is not validated then an error message is displayed on the screen.

Alternate Paths

N/A

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Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Study ID #				Y
Date Results Entered (system generated)	Date			Y
Specimen Validity		Valid Invalid		Y
Haplotype 1 DQA1_1 DQB1_1	16 Characters	DQA1 #### DQB1 ####		Y, if Specimen Validity = Valid
Haplotype 2 DQA1_2 DQB2_2	16 Characters	DQA1 #### DQB1 ####		Y, if Specimen Validity = Valid
Heredity: (How many Haplotypes subject shares with proband?)		0, 1, 2		Y, if Specimen Validity = Valid

Notes

Note #	Note

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3.5.6 Later Phase Use Case Stubs – (Workflow Map 2.16)

3.5.6.1 DNA Sample Labels

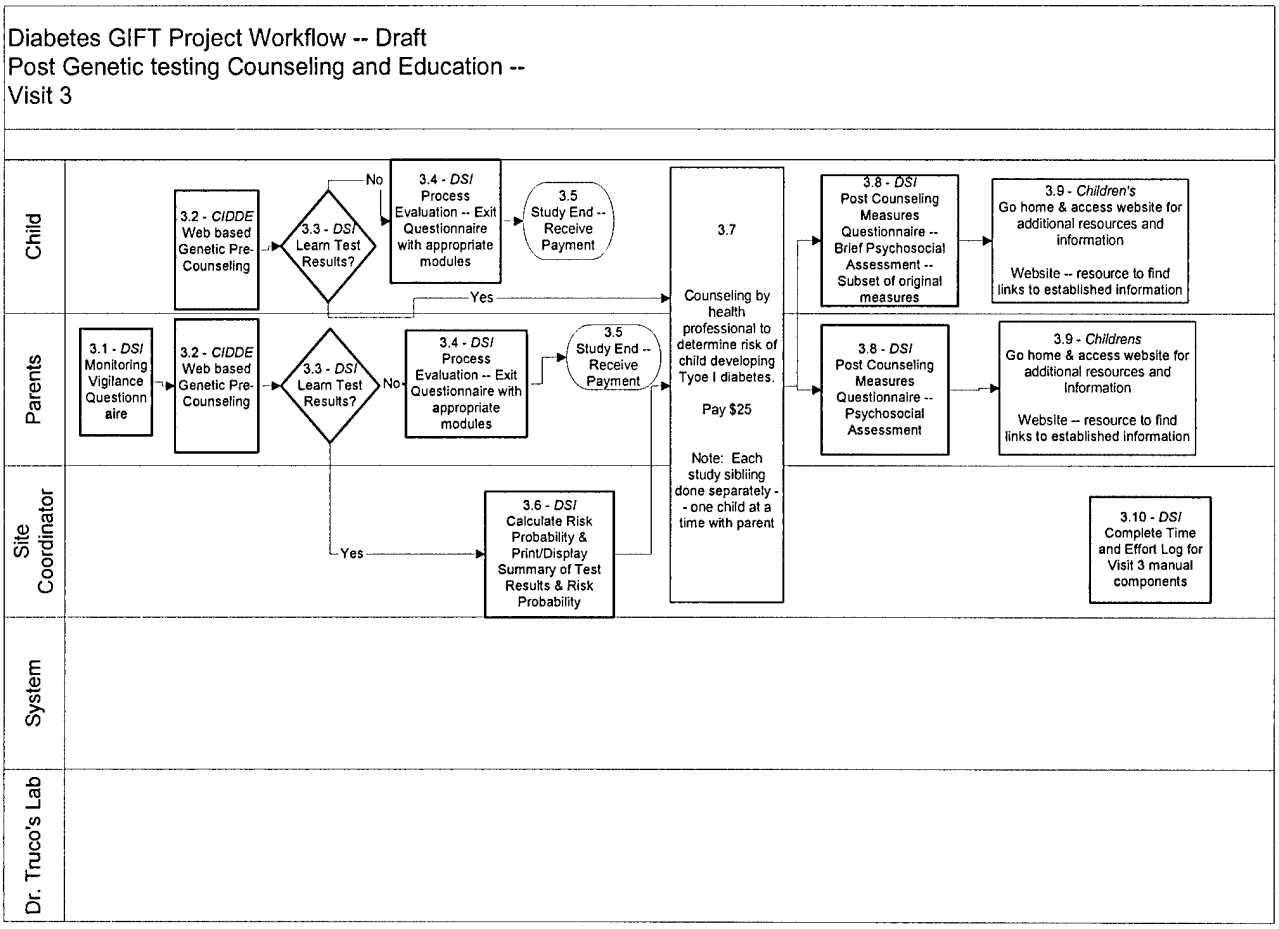
Req #	Requirement	Workflow	Priority	Phase
Q-1.	Site Coordinator shall generate labels for DNA samples. Phase 1 – Labels will be handwritten. Phase 3 – Labels will be system generated. Investigators indicated they wanted labels now. Question out to investigators	2.16	Low	3

3.5.6.2 Interface from Lab System to Application – (Workflow Map 2.23)

Req #	Requirement	Workflow	Priority	Phase
Q-2.	The system will interface to Dr. Trucco's Lab system to directly transfer test results.	2.23	Low	?

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3.5.7 *Post Genetic Testing Counseling and Education – Visit 3*



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3.5.7.1 Web Based Genetic Pre-Counseling – (Workflow Map 3.2)

Actor: Parent and Subject(s)
Description: Access Web Based Genetic Pre-Counseling Program
Prerequisite: User is in required workflow state to access module
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
R-1.	The parent and subject(s) shall access a web-based genetic pre-counseling program.	3.2	High	1
R-2.	The application will only allow the user to continue forward. There will not be any 'back button' capability.	3.2	High	1
R-3.	The system shall collect the amount of time spent on each page of the education intervention module.	3.2	High	1
R-4.	Demographic data (first name, age, gender) will be imported into the Genetic Pre-Counseling Module. Program needs to produce family tree/pedigree information.	3.2	High	1

Basic Course of Events

Action	Result
1. The participant indicates they would like to take the web based genetic counseling program.	The program is initiated.
2. The program is completed.	Completion of the module is indicated in the database.

Alternate Paths

Action	Result
1. The participant indicates they would like to take the web based genetic counseling program.	The program is initiated.
2. The program is not completed and the program exited.	No action (note: the system will behave on the next entry as though the user never initiated the module.

Data Elements: N/A

Notes

Note #	Note
1.	This Genetic Pre-Counseling is a shortened version of the Educational Intervention Module (2.6, 2.10), but will be text only. There will be no embedded questions.

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3.5.7.2 System Prompt for DNA Test Results – (Workflow Map 3.3)

Actor: Parent, Subject
Description: System Prompt for DNA Test Results
Prerequisite: Participant has taken genetic test. The test results are available in the system.
Inputs:
Outputs: Decision submitted to application

Req #	Requirement	Workflow	Priority	Phase
S-1.	Following the completion of the web based genetic counseling, participants are asked if they would like to review their DNA test results.	3.3	High	1

Basic Course of Events

Action	Result

Alternate Paths

N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Decision	Boolean			Y

Notes

Note #	Note

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3.5.7.3 Calculate Risk Probability & Print Genetic Test Results with Risk Probability – (Workflow Map 3.6)

Actor: Site Coordinator / Overall Study Coordinator
Description: Print Genetic Test Results & Risk Probability
Prerequisite: Test Results are available in system
Inputs:
Outputs: Print out of Genetic Test Results & Risk Probability

Req #	Requirement	Workflow	Priority	Phase
T-1.	A summary of each participant's genetic test results (2 – 16 character strings received from lab results) and risk probability percentage shall be printed. The site coordinator shall generate the report.	3.6	High	1
T-2.	The algorithm for determining the risk probability follows: **Step 1:** Determine HAPLO Input: Lab results Calculation: Count how many high risk strings are in the lab report A high risk string is defined as follows: DQA1*0301 – DQB1*0302 or DQA1*0501 – DQB1*0201 Output: HAPLO Variable: Number of high risk strings in lab report (0, 1 or 2) **Step 2**: Determine RiskVar Input: Heredity Value from lab results & Haplo Value from step 1 Calculation: RiskVar = 2 if Heredity = 2 and Haplo = anything RiskVar = 1 if Heredity = 1 and Haplo = 1 or 2 RiskVar = 0 if ((Heredity = 0 and Haplo = anything) or (Heredity = 1 and Haplo = 0)) Output: RiskVar (0, 1 or 2) **Step 3**: Determine FAMH Input: Data from demographic questionnaire FAMH = 1 if 1 or 2 parents with Type 1 diabetes (T1D)	3.6	High	1

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FAMH = 0 if neither parent with T1D

Output: FAMH (0, 1)

Step 4: Determine PATTERN Value

Input: FAMH Value & RISKVAR Value

Calculation:

PATTERN	FAMH	RISKVAR
1	1	1
2	1	2
3	1	0
4	0	1
5	0	2
6	0	0

Output: PATTERN Value (1, 2, 3, 4, 5, 6)

Step 5: Determine Risk Probability

Input: PATTERN Value, Age from demographic Questionnaire

Calculation: Refer to following chart

Output: Number between <1 – 99%

- Results will be printed as a %
- Multiply by 100 & truncate (not round)
- Anything less then 1% should be reported as < 1% rather then 0

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Table 3: Risk Probability Calculation

Age	*pattern*					
	1	2	3	4	5	6
0	0.2652	0.5838	0.1453	0.0486	0.1321	0.0251
1	0.2616	0.5780	0.1431	0.0479	0.1302	0.0247
2	0.2580	0.5721	0.1410	0.0471	0.1283	0.0243
3	0.2355	0.5341	0.1278	0.0425	0.1162	0.0219
4	0.2114	0.4912	0.1140	0.0377	0.1035	0.0194
5	0.2031	0.4758	0.1092	0.0360	0.0992	0.0185
6	0.2003	0.4705	0.1076	0.0355	0.0977	0.0182
7	0.1974	0.4651	0.1060	0.0349	0.0962	0.0180
8	0.1945	0.4596	0.1043	0.0344	0.0947	0.0177
9	0.1902	0.4512	0.1019	0.0335	0.0925	0.0172
10	0.1857	0.4426	0.0994	0.0327	0.0902	0.0168
11	0.1585	0.3879	0.0841	0.0275	0.0763	0.0141
12	0.1538	0.3783	0.0816	0.0266	0.0740	0.0137
13	0.1491	0.3683	0.0790	0.0258	0.0716	0.0132
14	0.1396	0.3480	0.0737	0.0240	0.0668	0.0123
15	0.1364	0.3412	0.0720	0.0234	0.0652	0.0120
16	0.1332	0.3342	0.0702	0.0229	0.0636	0.0117
17	0.1300	0.3270	0.0685	0.0223	0.0620	0.0114
18	0.1103	0.2828	0.0578	0.0187	0.0523	0.0096
19	0.0693	0.1848	0.0359	0.0115	0.0325	0.0059
20	0.0667	0.1783	0.0345	0.0111	0.0312	0.0057
21	0.0640	0.1717	0.0331	0.0106	0.0300	0.0054
22	0.0614	0.1649	0.0317	0.0102	0.0287	0.0052
23	0.0587	0.1581	0.0303	0.0097	0.0274	0.0050
24	0.0533	0.1442	0.0275	0.0088	0.0249	0.0045
25	0.0477	0.1299	0.0246	0.0079	0.0223	0.0040
26	0.0365	0.1003	0.0187	0.0060	0.0169	0.0031
27	0.0326	0.0900	0.0167	0.0053	0.0151	0.0027
28	0.0287	0.0794	0.0147	0.0047	0.0133	0.0024
29	0.0247	0.0687	0.0127	0.0040	0.0114	0.0021
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Basic Course of Events – Batch Print

Action	Result
Site Coordinator indicates action to print test results.	System prompts for list of study id results to be printed.
Site Coordinator enters data.	System prints standard report.

Alternate Paths – Display Results

Action	Result
Site Coordinator indicates action display test results	System prompts for study id

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test results.	
Site Coordinator enters data.	System displays lab results & risk probability for study id.

Data Elements

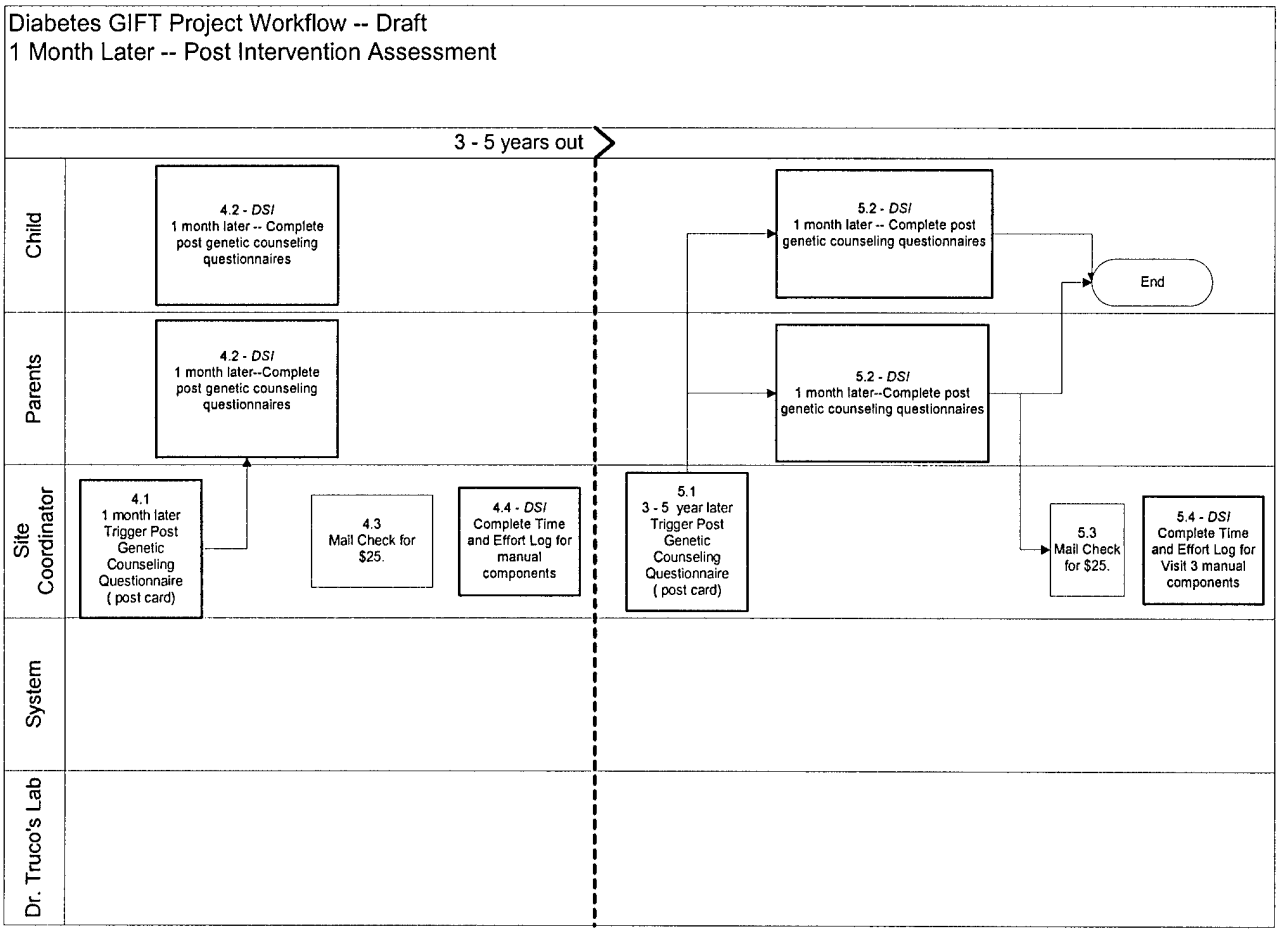
Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Study ID List				

Notes

Note #	Note
1.	The 2 – 8 digit character strings are printed per study participant.
2	No need to integrate to SAS in this version, but we need to investigate this for later versions.
3	Note that the algorithm will change when we move from the pilot family study to the general population study. Algorithm must be able to handle missing data (if the proband does not take genetic testing, for example)

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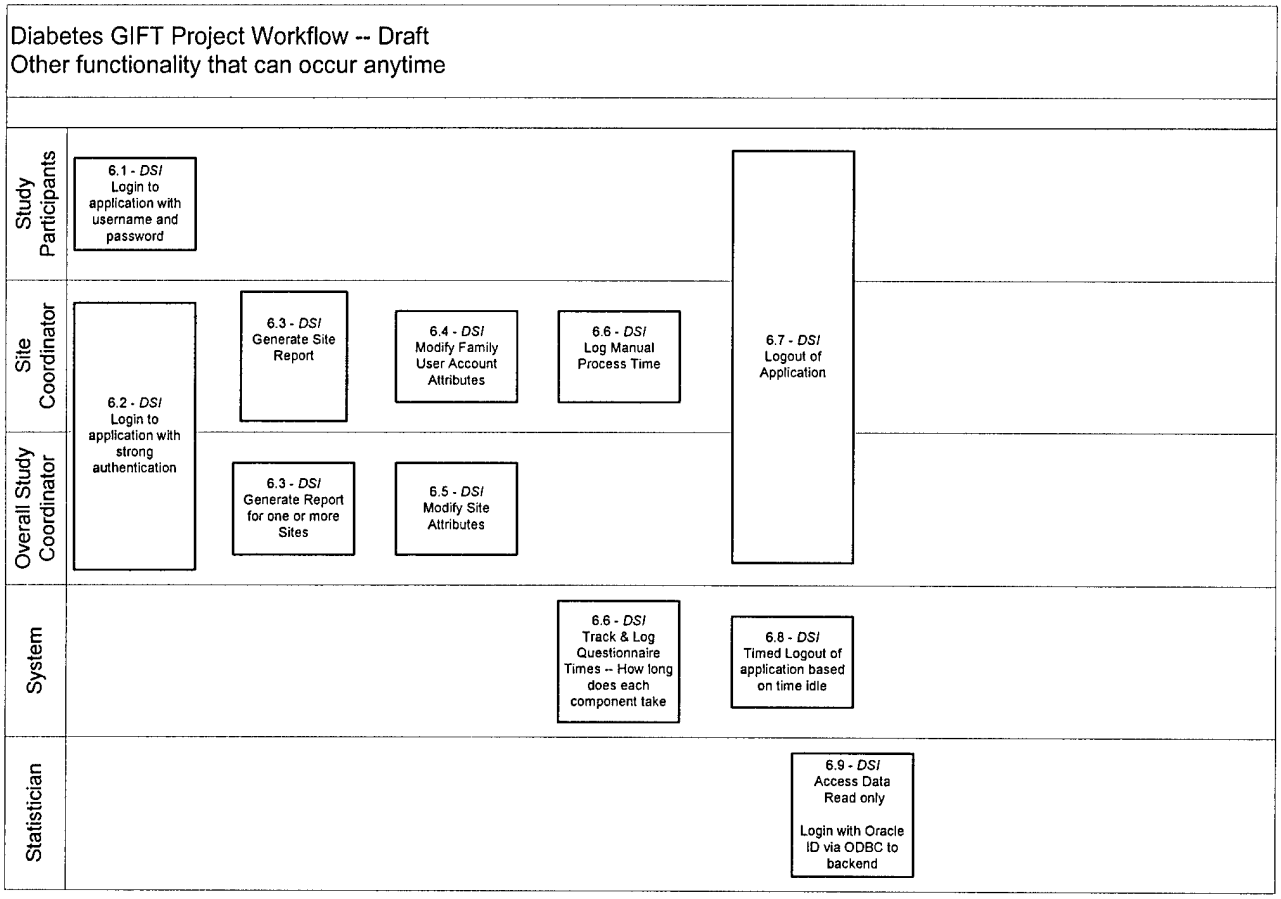
3.5.8 Post Intervention Assessment



Note: All automated processes contained in this workflow are captured as part of other use cases.

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3.5.9 Other Functionality



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3.5.9.1 Study Participant Login – (Workflow Map 6.1)

Actor: Study Participant
Description: Login to Application
Prerequisite: Username and Password
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
U-1.	The study participant logs into the application with username and password.	6.1	High	1

Basic Course of Events

Action	Result:
1. User selects Login.	User is prompted for Username.
2. User enters Username and Password	Username validated and user logged into application. a. If Username and Password do not match, or are not acceptable, then access is denied b. If Username and Password do match then access is accepted.

Alternate Paths
N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Study ID	Free Text			Y
Password				Y

Notes

Note #	Note
	How is the password changed for the user (password make last 4 digits of ss#)??? Password Hint?

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3.5.9.2 Health Care Professional Login – (Workflow Map 6.2)

Actor: Health Care Professional
Description: Login to Application
Prerequisite: Username and Password
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
V-1.	The Health Care Professional logs into the application with username and password	6.2	High	1

Basic Course of Events

Action	Result:
1. User selects Login	User is prompted for • Username • Password
2. User enters username and PIN	Username and Password is validated and if match found the user logged into application.

Alternate Paths
N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Username				Y
Password				Y

Notes

Note #	Note

3.5.9.3 Generate Site Reports – (Workflow Map 6.3)

Actor: Site Coordinator and Overall Study Coordinator
Description: Generate Site Reports
Prerequisite: Username and Password
Inputs:

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Outputs:

Req #	Requirement	Workflow	Priority	Phase
W-1.	The site coordinator shall display reports for their site only.	6.3	High	1
W-2.	The overall study coordinator shall display reports for one or more sites.	6.3	High	1
W-3.	The Participant Status Report includes the following components: • Questionnaire Completed – List of families completing initial Questionnaire (2.5-2.11) • Questionnaire Pending – List of families with Questionnaire still to be completed (2.5-2.11) • Genetic Testing Requests – List of participants requesting genetic testing • Genetic Testing Refused – List of participants refusing genetic testing • Completed Lab Results – list of families with completed lab results (2.23) • Post Genetic Counseling Questionnaire Trigger – List of families to receive postcard for one month post counseling. • Genetic Counseling Requests – list pf participants requesting genetic counseling • Genetic Counseling Refused – list of participants refusing genetic counseling • Post Genetic Counseling Questionnaire Trigger – List of families to receive postcard for 3 years post counseling	6.3	High	1
W-4.	The Component Completion Report displays data gathered on completion times for various portions of the application.	6.3	High	1

Basic Course of Events

Action	Result
1. User indicates a report is to be displayed.	Prompt for report parameters.
2. User enters parameters and submits.	Report is displayed.

Alternate Paths

N/A

Participant Status Report Parameters

Field	Data Type: Boolean, Number, FreeText (Length),	Possible Values & Default	Special Validation	Required (Y, N)

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	Date			
Date Range (From To)	Date	?		Y
Site		List of Locations user is allowed access.	Dependent on role. Site Coordinators can only access their own site. Overall Study Coordinators can access one or more sites.	Y
Component		-Questionnaire Completed -Questionnaire Pending -Genetic Testing Requests -Genetic Testing Refused -Completed Lab Results -Genetic Counseling Requested -Genetic Counseling Refused -Post Genetic Counseling Questionnaire Trigger – 1 Month - Post Genetic Counseling Questionnaire Trigger – 3 Year		

Notes

Note #	Note

Component Completion Report Parameters – Report Design Needed

Field	**Data Type: Boolean, Number,**	**Possible Values &**	**Special Validation**	**Required (Y, N)**

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	FreeText (Length), Date	**Default**		
Date Range (From To)	Date	?		Y
Site		List of Locations user is allowed access	Dependent on role. Site Coordinators can only access their own site. Overall Study Coordinators can access one or more sites.	Y

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3.5.9.4 Modify Family Member User Accounts – (Workflow Map 6.4)

Actor: Site Coordinator / Overall Study Coordinator
Description: Modify Family Member Accounts
Prerequisite: Accounts have been created and modification is required
Inputs:
Outputs: Modified participant account

Req #	Requirement	Workflow	Priority	Phase
X-1.	The Site Coordinator shall modify family member user accounts. Status field & Password Reset is the only modification allowed	6.4	High	1
X-2	If a status field is modified the reason for the modification is required to be entered by the user.	6.4	High	1

Basic Course of Events

Action	Result:
1. The user indicates a user account is to be modified	The system prompts for the study id to be modified
2. The user enters the study id.	The system displays the account data in edit mode.
3. The user modifies the appropriate fields	The system prompts for the reason the modification is needed

Alternate Paths
N/A

Data Elements –

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Account Status		• Active • Suspended due to Time Out • Suspended due to Depression • Inactive		
Timestamp of Status Reset	Date/Time			Y if Status is modified
Reason for Reset	Text			Y if Status is modified
Password	Text			

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Notes

Note #	Note

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3.5.9.5 Modify Site – (Workflow Map 6.5)

Actor: Overall Study Coordinator
Description: Modify Site Attributes
Prerequisite: Site has been created and modification is required.
Inputs:
Outputs: Site data is modified as required

Req #	Requirement	Workflow	Priority	Phase
Y-1.	The Overall Study Coordinator shall modify site attributes.	6.5	High	1

Basic Course of Events

Action	Result
1. Study Coordinator indicates that an existing site's data elements need to be modified.	The Study Coordinator is prompted for the site to be modified.
2. The user specifies the site and submits the data.	The data for the specified site is displayed. The fields have the capability to be edited.
3. The user modifies the data and submits.	If the data is correct and acceptable then data entered into the database. If the data is not validated then an error message is displayed on the screen.

Alternate Paths

N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Site Name		All characters Default empty		Y
Address Line 1				
Address Line 2				
City				
State				
Zip Code				
Status		Active (default) Inactive		
Contact Name				
Contact Email				

Notes

Note #	Note

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3.5.9.6 Process Tracking Time & Work Log – (Workflow Map 1.5, 2.18, 2.24, 3.10, 4.4, 5.4, 6.6)

Actor: Site Coordinator / Overall Study Coordinator
Description: Process Tracking Time and Work Log
Prerequisite:
Inputs:
Outputs: Work log displayed

Req #	Requirement	Workflow	Priority	Phase
Z-1.	Site Coordinator shall log the time it takes to complete manual components. This includes: Visit 1 (1.2) Introduction to families and packet explained Visit 2 (2.1 & 2.2) Meeting to review study & sign forms (2.4) Website training (2.9) Time to handle critical depression results Visit 3 (3.1-3.7) Face to face counseling by HCP Follow-Up (4.1) Timestamp postcard sent (4.3) Timestamp of check being mailed (5.1) Timestamp postcard sent (5.3) Timestamp of check being mailed	1.5, 2.24, 3.10, 4.4, 5.4, 6.6	High	1
Z-2.	Visit 2 – The Site Coordinator shall log into system which family members provided DNA samples and the time it took to retrieve the sample. the sample type (mouthwash, blood, buccal)	2.18	High	1
Z-3.	The site coordinator must be able to modify previously entered data.	1.5, 2.24, 3.10, 4.4, 5.4, 6.6	High	1
Z-4	The system shall enter into the tracking log each time the account status is changed from suspended to active by the Site Coordinator and the reason for that change.		High	1
Z-5.	The system will track and log begin and end times for questionnaire times for each module. Each step in the patient process shall be logged with a date and time	6.6	High	1

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	This includes time to Visit 1 Create account and user profiles Complete each questionnaire Complete educational modules			

Basic Course of Events – Site Coordinator Data Entry for Manual Tracking

Action	Result
1. User indicates they are ready to provide data for tracking of manual processes	Prompt for visit selection
2. Select visit	Prompt for visit manual processes time entry. Display previously entered data in a modifiable state.
3. Enter data and submit	Validate data and store in database – partial entry of fields is allowed.

Alternate Paths

N/A

Data Elements

Field	Data Type: Boolean, Number, FreeText (Length), Date	Possible Values & Default	Special Validation	Required (Y, N)
Visit 1 – Introduction to families & packet explained	Time ?	?		N
Visit 2 – Meeting to review study and sign forms				N
Visit 2 – Website training				N
Visit 2 – Time to handle critical depression results				N
Visit 2 –Genetic Sample Retrieval				N
Study ID				

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Time to retrieve genetic sample				
Date of Sample Collection				
Date Sample Sent				
Specimen Type		Specimen Type: Defined List: Mouthwash, Buccal Swab		
Visit 3 – Face to face counseling by HCP				N
1 month Follow-up – Timestamp postcard sent				N
1 month Follow-up – Timestamp of check being mailed				N
3 year Follow-up – Timestamp postcard sent				N
3 year Follow-up – Timestamp of check being mailed				N
Account Reset				
Timestamp	Date & Time			
Reason for Reset				

Notes

Note #	Note
	The data for the Account Reset is captured at the time of reset in the Modify Account functionality. The data is displayed in the tracking log.

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3.5.9.7 User Logs off Application – (Workflow Map 6.7)

Actor: User
Description: Log off application
Prerequisite: Username and Password
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
AA-1.	User shall log off application. All processes shall be terminated.	6.7	High	1

Basic Course of Events

Action	Result
1. User indicates to log off.	Confirm user wants to log out.
2. User confirms to log off.	System logs out terminating processes.

Alternate Paths

Action	Result
1. User indicates to log off.	Confirm user wants to log out.
2. User does not confirm log off.	User returns to application.

Data Elements

N/A

Notes

Note #	Note

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3.5.9.8 Timed Logout of Application (Workflow Map 6.8)

Actor: Application
Description: Application times out after specified time period
Prerequisite:
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
BB-1.	System shall log off application after specified amount (15 minutes) of idle time has been reached. All processes shall be terminated.	6.8	High	1

Basic Course of Events

Action	Result
1. System tracks application idle time and reaches maximum idle time allowed.	System logs out, terminating processes.

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note
1.	The default idle time is 20 minutes but can be set to customer specs. When setting the default time we need to consider the server impact of keeping a high volume of users logged on. Load Testing is needed.

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3.5.9.9 Statistician Data Access – (Workflow Map 6.9)

Actor: Statistician
Description: Access to Application
Prerequisite: Username and Password
Inputs:
Outputs:

Req #	Requirement	Workflow	Priority	Phase
CC-1.	Statistician accesses raw application data in a read only mode to the database via ODBC. They will download data to their local Oracle db for analysis. They may have input on data design. We need to provide them with data dictionary and ERD.	6.9	High	1
CC-2.	A data dictionary and Entity Relationship Diagram (ERD) will be delivered	6.9	High	1

Basic Course of Events
N/A

Alternate Paths
N/A

Data Elements
N/A

Notes

Note #	Note

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3.5.10 Operational Environment

The server-side components will be initially housed in a DSI facility, with backups, redundant power supply, and redundant network connectivity. The support environment will be 5 x 12 coverage unless other needs are specified. Eventually the server component will be moved to Children's Hospital.

3.5.11 Major System Components

The major system components will be:

1. Oracle Database
2. Application Server – includes any support required for J2EE based solution (Servlet/JSP/RMI/EJB).
3. Web Server – includes any support required for HTTP based solution
4. Client – includes any thick client or web client support.

3.5.12 Interfaces to external systems or procedures

1. None

3.5.12.1 Non-Functional Requirements

1. Availability: Low rate of hardware and software component failure. The system must be available 24 x 7, with a limited maintenance window during pre-determined after-hours times.

2. Capacity: The system must demonstrate acceptable performance with a load of ? simultaneous users at peak times. For the first phase of the project no more then 10 users will be logged in at the same time. The system should be able to handle 100 simultaneous processes.

   The application should be "Simple, look nice and not take 15 minutes to load."

3. Maintainability: Use of standard components from recognized industry vendors. Audit documents, build documents, and restart procedures will be supplied.

4. Extensibility: Design will be documented to allow other developers to be able to work on the application for future changes, fixes, and releases.

5. Flexibility: Hardware is interchangeable with standard servers. Software written in standard industry language (current revisions).

6. Data Integrity: Nightly backups of data, hourly transaction dump logs, security controls on the database, security controls on the application, machine room that stores physical devices is locked, fireproofed, and backed up with fail-over UPS systems in case of power outage. The application will be transitioned to Children's Hospital where they will assume responsibility for nightly backups and an appropriate machine room.

7. Leveragability/Reuse: System builds on component software to allow for reusability.

8. Operability: System will function as a standard NT service, will use standard Health System web browser (IE 5.5 and up). Ease of use, accessibility, and operations are paramount to success.

9. Portability: Application can execute in any Health System supported browser (IE 5.5 and up).

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10. Quality: Quality is defined as conformance to requirements and the degree to which the application is fit for use. Extensive testing (functional and load) will be done by Diversified QA to verify that the application conforms to the requirements stated in this document. It is up to the customers to perform acceptance testing of the application. including:

11. Scalability: Enterprise system built on J2EE compliant application servers to allow for scalability. Scalability for the database requires the database to be both mirrored and fault tolerant.

12. Security: A security plan is required which will outline the approach. It includes the following:
    - Secure ID tokens will be utilized for the Health Care Professionals
    - All other users will have system assigned username/password to access application.

13. Human Factors:
    - The system shall be mouse driven. Pages are described in the use cases.
    - Error messages shall be clearly worded and understandable to the user.
    - Online help will be provided for each window.
    - User training documentation will be provided.

3.5.13 Operational Risk Factors

Risk Factors include the following:

- Inaccessibility to access various parts of the web portions of the system due to UPMC network problems
- Users who wish to access browser based portions that do not possess the appropriate web browser type

3.5.14 Performance Characteristics

The system will be dependent on the speed of the Internet and the UPMC network.

3.5.15 Quality Attributes

The Quality and Analysis team of Diversified Services IT is present throughout the entire development process. The system of checks and balances for the delivery of a product that meets the requirements and exceeds the customers expectations begins at the project's inception with the thorough completion of the Operations Concept document, and carries throughout the development to delivery process via unit tests, load test, completeness test, and finally, user acceptance tests.

Quality Attributes Specific to this application:

- Data entry checks to be in place for users to review their work before submission to the database
- Elimination of duplicates records via unique ID assignment for each individual in the database
- Maintainability:
- Ease-of-learning: The potential user needs to only have limited computer knowledge.
- The administrator should be familiar with computers but does not need to have low-level computer experience and knowledge.

3.5.16 Provisions for safety, security, privacy, integrity and continuity of operations in emergencies

- All web-based clients that interact with the system will be protected via a Secure Socket Layer (SSL) connection.
- Data security logs are kept for all sessions for all classes of actors.

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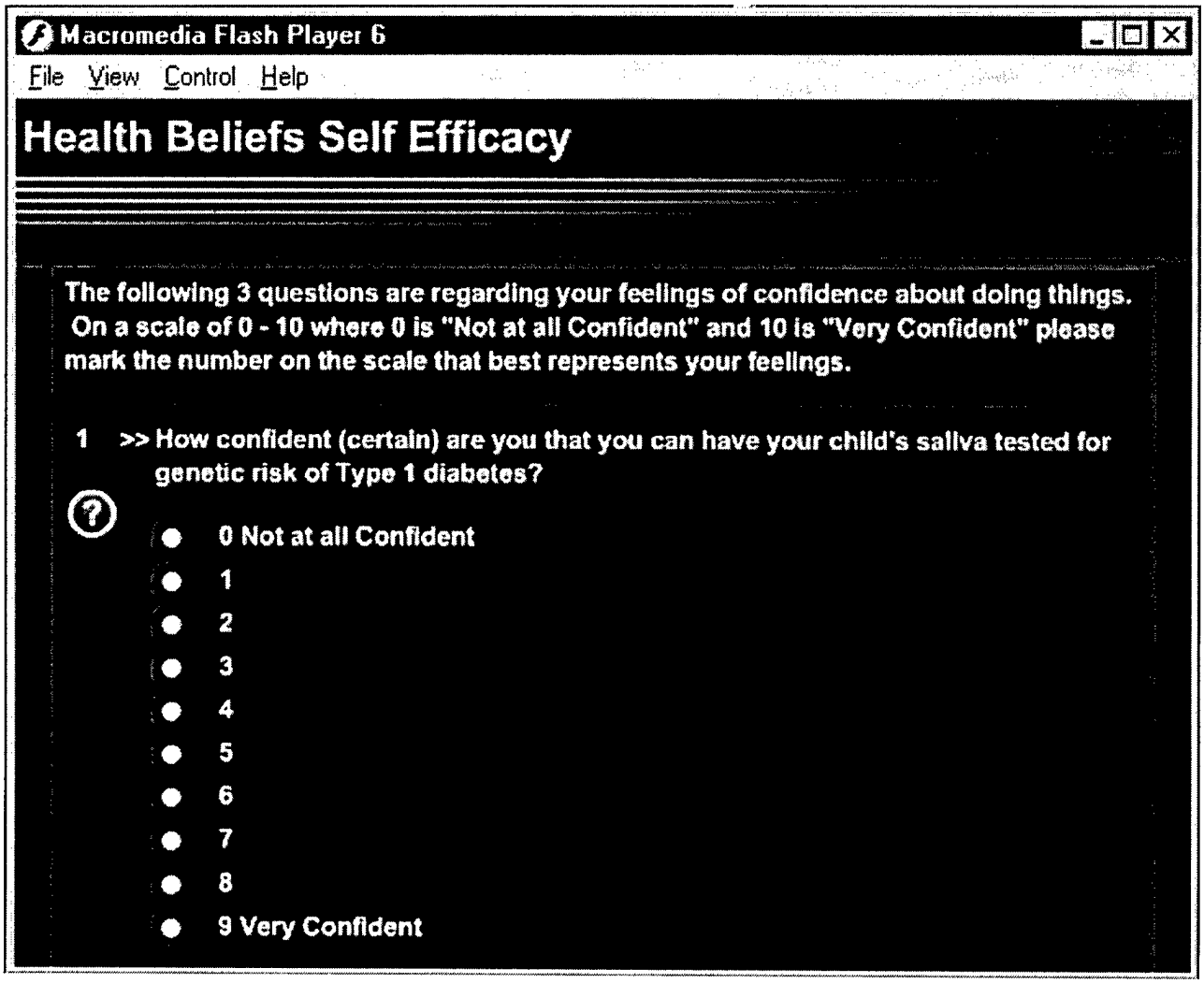
- All Database processes will employ hot backup, so that data recovery exposure is very small for transactions in process, and there is zero exposure for transactions successfully completed.

3.6 Support Environment

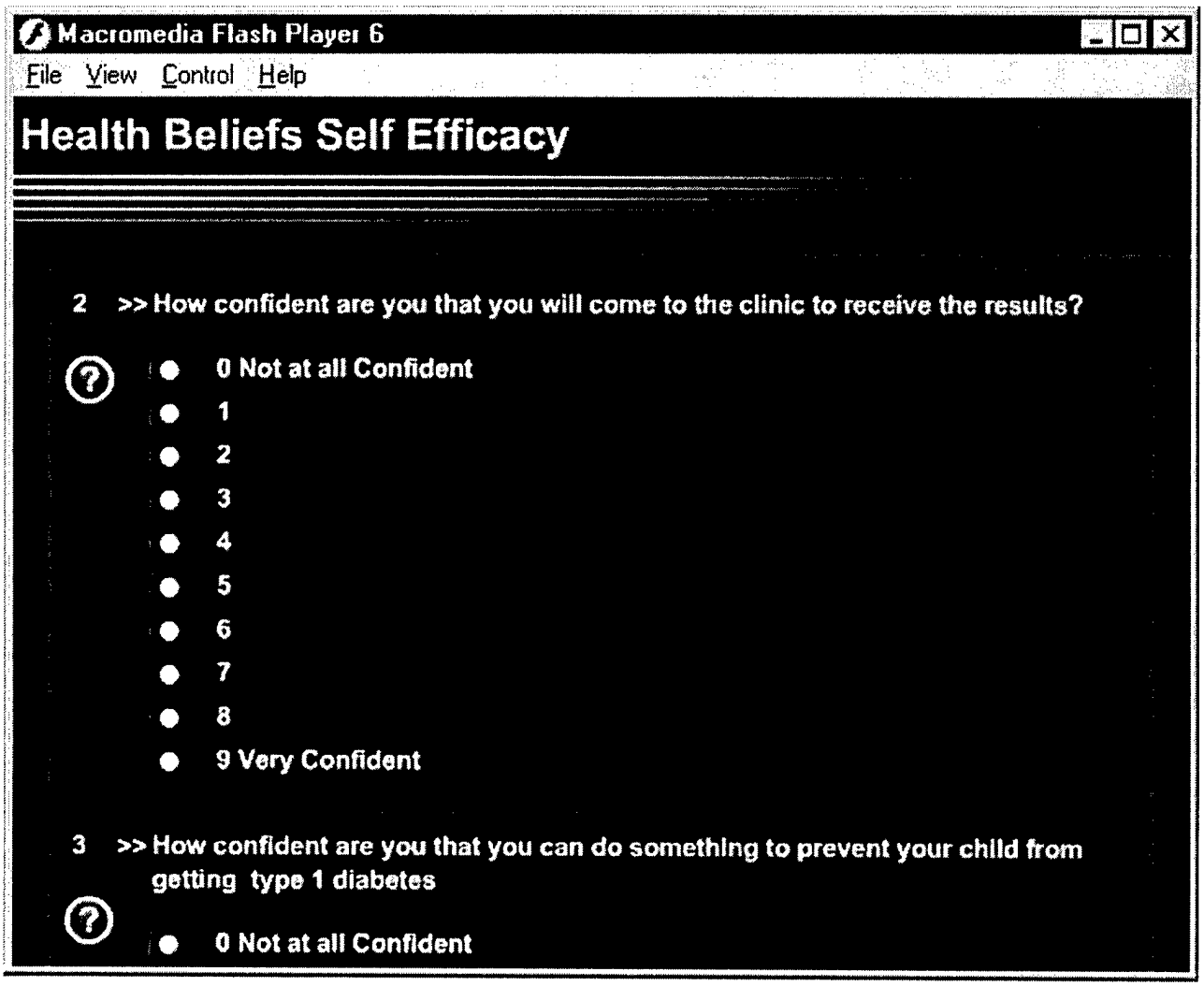
Diversified Services IT will be responsible for application support.

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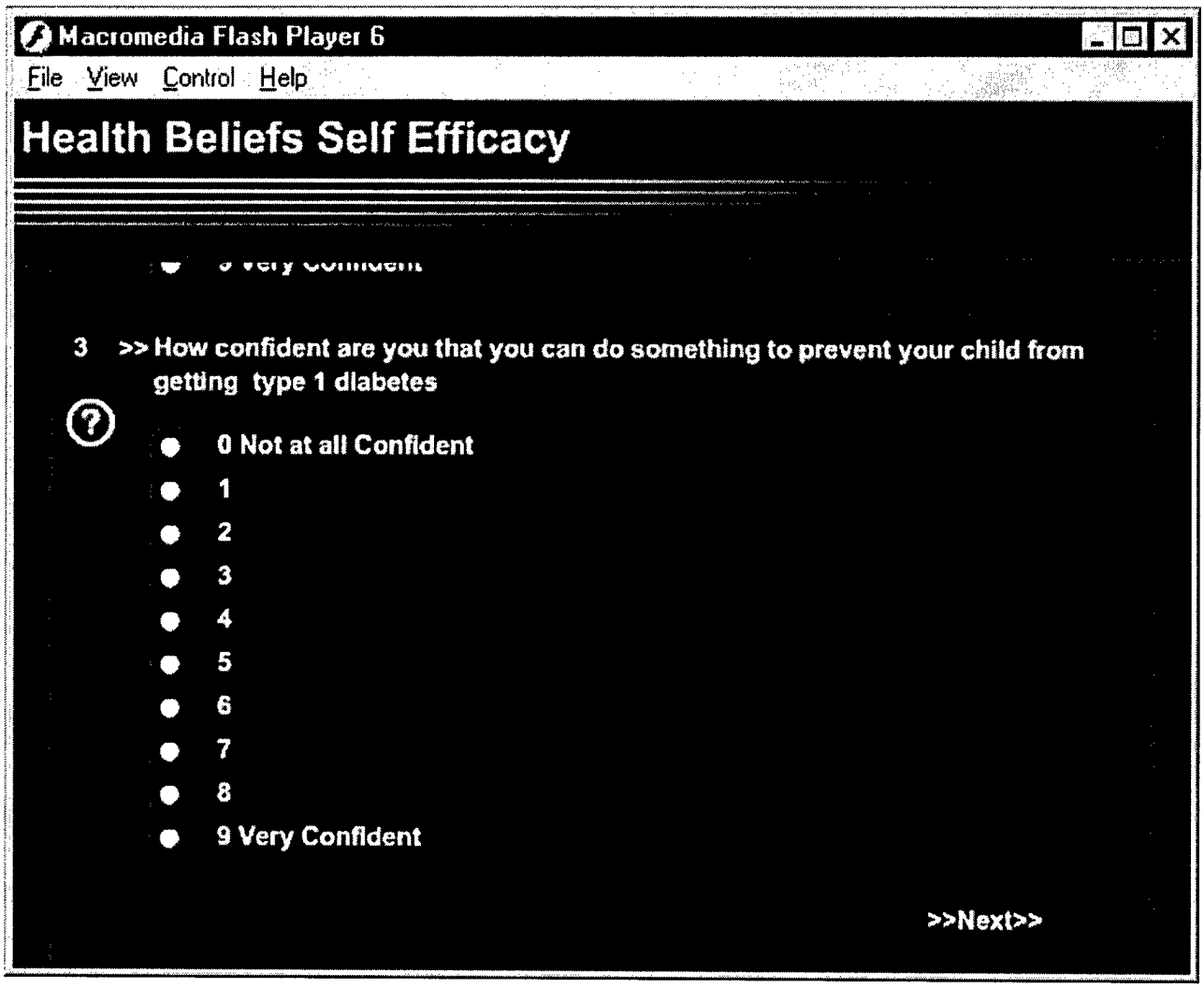
4. Notes



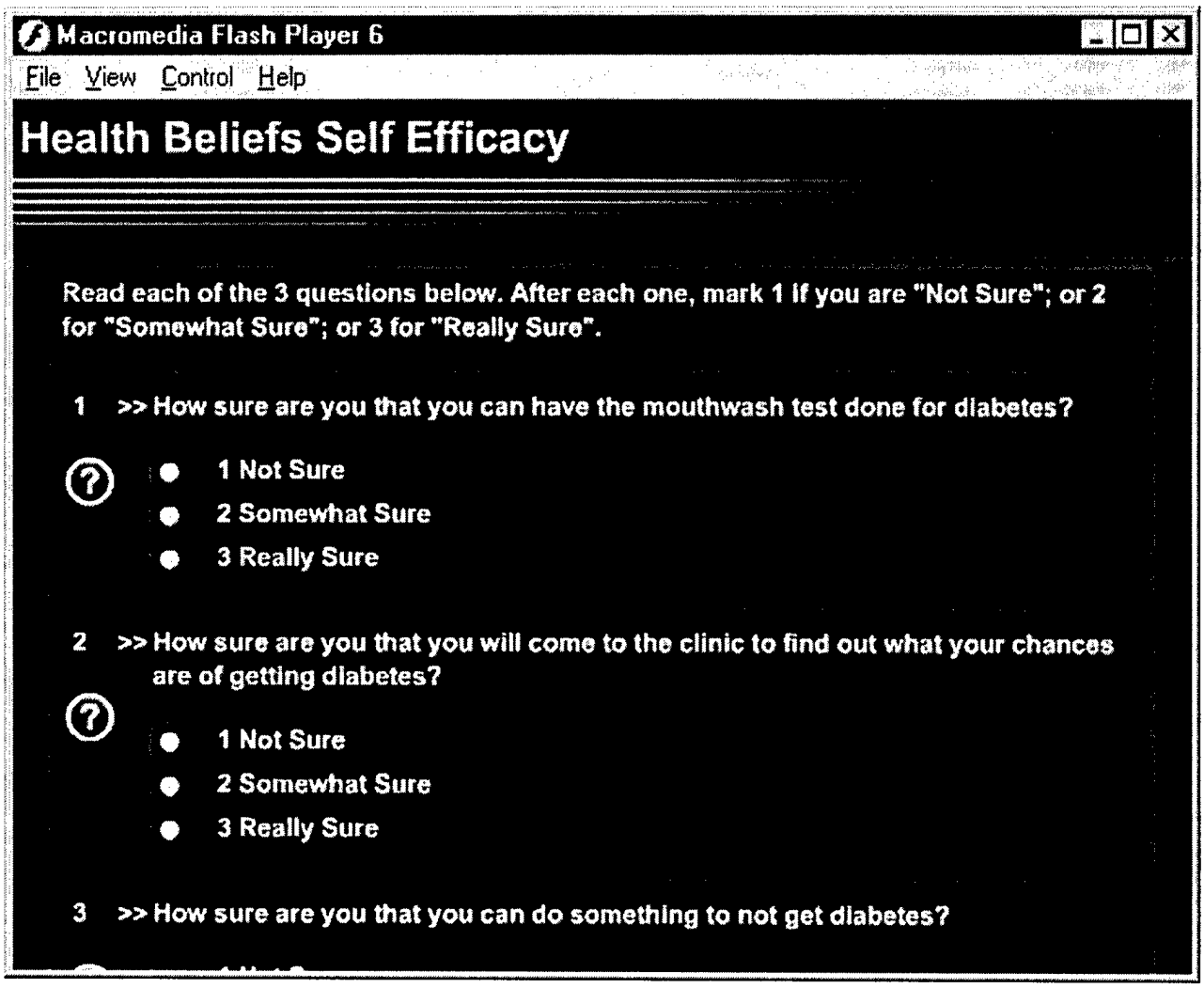
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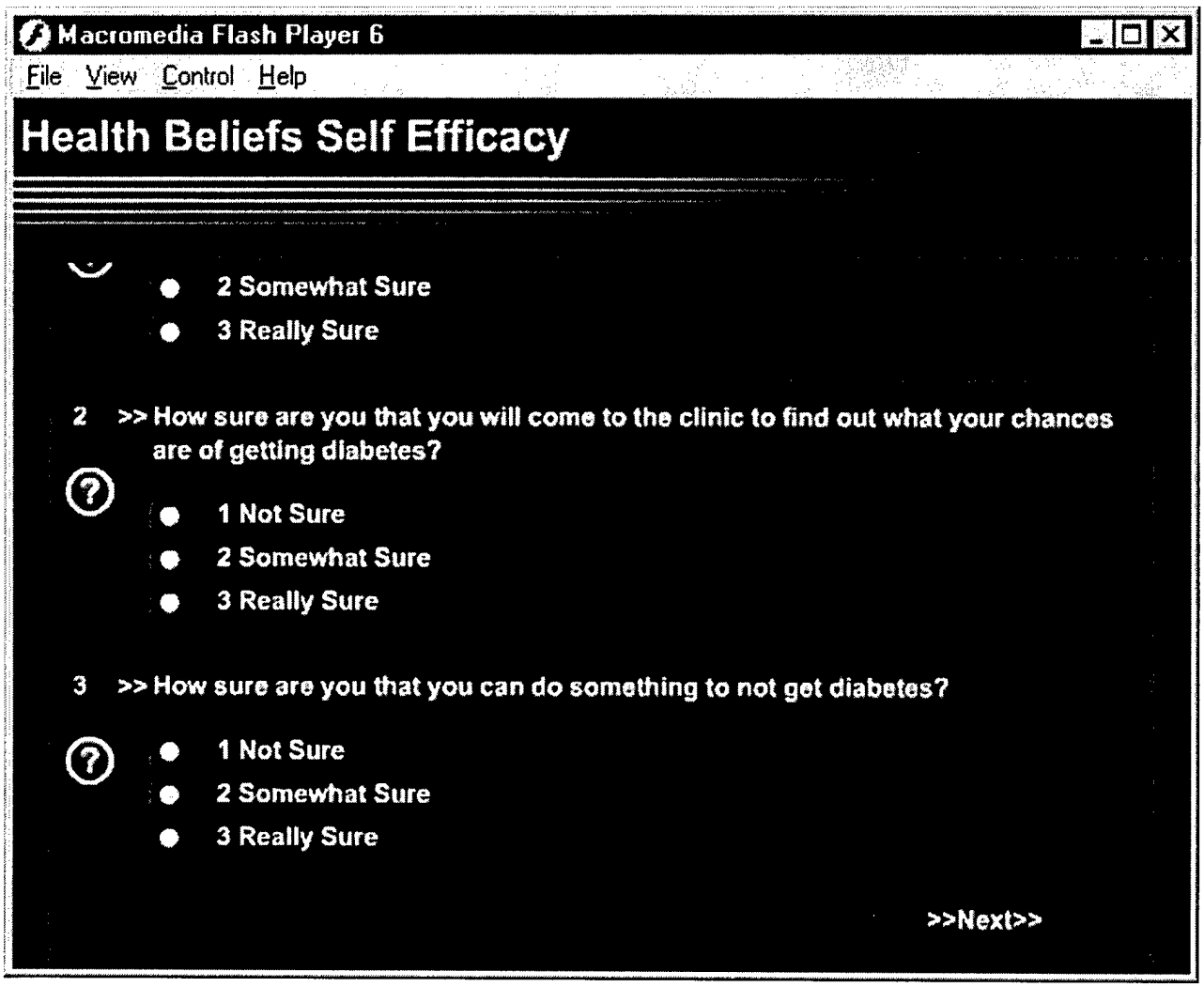
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measures: first number child version second number adult
Attitudes about health child 6 adult 9
CDI 10
CESD 20
STAI 20 20
Child health outcomes 18 18
dem 16
Diabetes health beliefs 12 13
Intention 3 3
Self efficacy 3 3
Lot 6
lot-p ?
Monitoring vigilance 16
religiosity 6
STAI 20 20

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DAMD17-01-1-0009

ANNUAL REPORT

1 NOV 02 - 31 OCT 03

APPENDIX 3:

TRANSCRIPTS OF PARENT AND CHILD EDUCATION MODULES

DOD PROJECT
PARENT'S EDUCATIONAL SCRIPT

Main Text	Question	True Answer	False Answer	I Don't Know
We want our children to grow up to be healthy. Knowing some types of information can help us to be better prepared as parents.				
The facts presented in this part of the program will help you make an informed choice about having your child participate in this study. As you work through this lesson, you will be given information and then asked questions. Your answers will be recorded to make sure that you understand the information just presented. Let's practice with the following question.	First, I will be presented with some information. Then I will be asked a question.	**True. Correct** That is exactly right. The questions will be short and related to the information you just read.	**False. Incorrect.** The questions will be short and related to the information you just read.	**The answer is True.** The questions will be short and related to the information you just read.
What is Diabetes? Diabetes is one of the more common diseases in children. In people with diabetes, the body either does not make any or enough insulin or it cannot use the insulin properly. As a result, the body cannot use and store food as it should.	When a child has diabetes, the body cannot properly use the food that is eaten.	**True. Correct** If a child has diabetes, food that is eaten cannot be used and stored properly.	**False. Incorrect** If a child has diabetes, food that is eaten cannot be used and stored properly.	**The answer is True.** If a child has diabetes, food that is eaten cannot be used and stored properly.
What is Insulin? Insulin is a chemical that is made in the **pancreas** and helps the food get into the cells of the body.	Without insulin, the food that your child eats cannot enter the cells.	**True. Correct** Insulin acts as the "key" to allow food get into the cells.	**False. Incorrect** Insulin acts as the "key" to allow food to get into the cells.	**The answer is True.** Insulin acts as the "key" to allow food to get into the cells.
How does type 1 diabetes differ from type 2 diabetes? The two types of diabetes are type 1 and type 2 diabetes. Most children have type 1 diabetes. In type 1 diabetes, the body doesn't make insulin. People with this type of diabetes must take daily insulin injections to survive. Type 2 diabetes happens mostly in adults, but it is becoming more common in children. In type 2 diabetes, the body makes insulin but doesn't use it properly. People with type 2 diabetes often can manage their diabetes by watching what they eat and staying active. Some also need to take a pill which helps them make better use of the insulin they have, or, they may need to take insulin.	If a child has type 1 diabetes, insulin injections are required because the pancreas is not making any insulin. In *type 1* ***and*** *type 2* diabetes, the pancreas completely stops making insulin.	**True. Correct** In type 1 diabetes, the pancreas does not make the insulin the body needs. **True. Incorrect** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.	**False. Incorrect** In type 1 diabetes, the pancreas does not make the insulin the body needs. **False. Correct** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.	**The answer is True.** In Type 1 diabetes, the pancreas does not make the insulin the body needs. **The answer is False.** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.

Main Text	Question	True Answer	False Answer	I Don't Know
What are the major risk factors for type 1 diabetes? There are several risk factors for type 1 diabetes. Having a risk factor means that you have a higher chance of getting the disease. People with a certain **genetic** makeup are more likely to get type 1 diabetes. Things in the environment such as diet or viruses also appear to be risk factors for type 1 diabetes.	If I have one child with diabetes, my other children have a greater chance of getting diabetes if they share the same risk factors.	**True. Correct** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.	**False. Incorrect** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.	**The answer is True.** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.
Is type 1 diabetes inherited? We believe the risk to develop type 1 diabetes is in part inherited. That means that the genes that increase risk are passed down from parents to children. Genes are like instructions that tell the body how to work. Parents without diabetes can also pass these genes on to their children. We can chart the inheritance of a disease through a family tree called a **pedigree chart**.	The genes that increase risk for type 1 diabetes are passed down from parents to children.	**True. Correct** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.	**False. Incorrect** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.	**The answer is True.** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.
What does my family tree look like? Here is your pedigree chart based on the information that you gave earlier.				
If type 1 diabetes is partly genetic, why doesn't everyone in a family get the disease? Everyone in a family has a *special* **genetic** make-up. We look like some of our relatives because we carry some of the same genes. But sometimes we don't look like our relatives because we also have different genes. No relatives have exactly the same genes. That's why people in the same family have different risks for type 1 diabetes.	Our special genetic makeup leads to differences in risk for type 1 diabetes.	**True. Correct** Our special genetic makeup makes us both similar and different from others in our families.	**False. Incorrect** Our special genetic makeup makes us both similar and different from others in our families.	**The answer is True.** Our special genetic makeup makes us both similar and different from others in our families.
Can type 1 diabetes be prevented? Right now, we don't know how to prevent type 1 diabetes. We cannot change our genes and we don't know which things in our environment lead to type 1 diabetes. That's why we need your help – to learn more.	We know enough now to prevent type 1 diabetes.	**True. Incorrect** We don't know enough about genes and the environment to prevent type 1 diabetes.	**False. Correct** We don't know enough about genes and the environment to prevent type 1 diabetes.	**The answer is False.** We don't know enough about genes and the environment to prevent type 1 diabetes. who in turn, passed it on to their children

Main Text	Question	True Answer	False Answer	I Don't Know
How do genes get their instructions? Genes get their instructions from a chemical language called DNA. Genes are made of DNA. DNA works like an alphabet with four letters. Different letter combinations spell out different instructions.	The following picture shows how genetic instructions are passed on to my child: Mom's DNA Dad's DNA ↓ ↓ Mom's + Dad's Genes ↓ Child's DNA ↓ Child's Genes ↓ Child's Cells ↓ Child's Body	**True** **Correct.** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.	**False** **Incorrect** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.	**The answer is True.** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.
How are differences in genetics important when learning about diabetes? Differences in genetics are important because they result in different risk for type 1 diabetes. Each cell in our body has a specific job. About 30,000 genes make up each cell. These genes are different for each person. That's why different people have different risks.	Genes give cells instructions that may lead to type 1 diabetes.	**True. Correct** The genetic instructions for each cell are special to that person.	**False. Incorrect** The genetic instructions for each cell are special to that person.	**The answer is False.** The genetic instructions for each cell are special to that person.
How do we know which genes our children will have? Differences in the gene combinations make each of our children different. There are different forms of **genes**. Genes come in pairs. We get one copy of each gene from our mom and one from our dad.	If a mother has brown hair and a father has black hair, their children could have brown or black hair.	**True. Correct** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.	**False. Incorrect** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.	**The answer is True.** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.
How are genes related to type 1 diabetes? We are just learning about it and you are helping us. Scientists have found that genes called **HLA** relate to type 1 diabetes. Different combinations of HLA genes lead to differences in risk for diseases like type 1 diabetes.	A child can have specific forms of the HLA gene related to risk for type 1 diabetes.	**True. Correct** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.	**False. Incorrect** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.	**The answer is True.** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.
If my child has a gene for type 1 diabetes, won't they get the disease for sure? Not necessarily. If you carry forms of HLA genes that increase risk for type 1 diabetes, you may be more likely to develop the disease. But, other risk factors such as things in the **environment** also play a role.	If my child has a gene for type 1 diabetes then my child will develop the disease.	**True** **Incorrect** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.	**False** **Correct** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.	**The answer is False.** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.

Main Text	Question	True Answer	False Answer	I Don't Know
How do you find out about your child's risk for type 1 diabetes? One way of finding out about your child's risk is through this study. We know some of the **risk** factors for type 1 diabetes. By identifying these risk factors, we can predict risk. This is called a risk estimate. A risk estimate predicts the chance for getting type 1 diabetes, but we can't know for sure. The risk estimate for this study is based on your family history of type 1 diabetes and the combination of HLA genes. The risk estimate will ***not*** be based on things in the environment because we are still learning about those factors.	If a child has a high risk estimate, that means that he or she has a greater chance to develop type 1 diabetes than a child with a low risk estimate.	**True. Correct** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.	**False. Incorrect** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.	**The answer is True.** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.
What test is needed to determine risk for type 1 diabetes? We need to test the DNA inside your cells. The test is safe, painless, quick and easy. We will get cells from inside the mouth using a little **mouthwash**, or by rubbing a soft brush along the inside of the cheek. A lab will test this sample to see if you have the HLA genes linked to type 1 diabetes.	Taking some cells from inside the mouth with mouthwash or a soft brush should *not* cause discomfort.	**True. Correct** Mouthwash or a soft brush should not cause discomfort for either you or your children.	**False. Incorrect** Mouthwash or a soft brush should not cause discomfort for either you or your children.	**The answer is True.** Mouthwash or a soft brush should not cause discomfort for either you or your children.
What are the benefits in getting tested? The benefit in getting tested comes in knowing the genetic risk for your family members for developing type 1 diabetes. If you find that the risk is high, then you can get information and be better prepared.	If risk for getting type 1 diabetes is high, then you can be prepared.	**True. Correct** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professsionals and others to get the support you need.	**False. Incorrect** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professionals and others to get the support you need.	**The answer is True.** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professionals and others to get the support you need.
Could there be any problems in getting tested? Of course. Knowing the risk for getting type 1 diabetes does not tell you for sure that the disease will or will not happen. Once you know your child's genetic risk for type 1 diabetes, you or your child may have certain feelings or worries about it.	A very low genetic risk for getting type 1 diabetes means that I will not get the disease.	**True. Incorrect** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.	**False. Correct** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.	**The answer is False.** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.

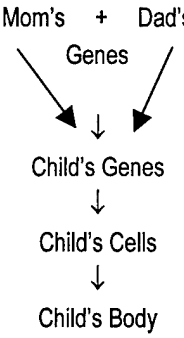
Main Text	Question	True Answer	False Answer	I Don't Know
Will other people know about the results? Only you, your child, and a health professional will know the genetic risk unless you choose to tell people. We are just learning how genes work, and people may think differently about genetic risk. You may want to keep this information private. It's up to you.	If my children are in this study, their genetic risk estimate will be kept confidential.	**True. Correct** Each child's genetic risk estimate will be kept private.	**False. Incorrect** Each child's genetic risk estimate will be kept private.	**The answer is True.** Each child's genetic risk estimate will be kept private.
Will the tests need to be repeated? Probably not. But, if the first sample does not contain enough DNA, then another sample would need to be collected. This is highly unlikely.	I can plan on having only one sample taken.	**True. Correct** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.	**False. Incorrect** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.	**The answer is True.** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.
What will happen to the sample of cells after it is tested? The sample will not be saved or tested for anything else.	After testing for type 1 diabetes, no other tests will be done because the cells will not be saved.	**True. Correct** Your sample will not be saved.	**False. Incorrect** Your sample will not be saved.	The answer is True. Your sample will not be saved.
How accurate is the genetic risk estimate? The risk estimate predicts the *chance* of developing the disease. A risk estimate is based on a group of people, and cannot state exactly who will get type 1 diabetes. A risk estimate of 50%, means that for every 100 people, 50 will get the disease and 50 will *not* get the disease.	A risk estimate of 30% means that for every 100 people, 30 will get the disease and 70 will *not* develop the disease.	**True. Correct** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.	**False. Incorrect** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.	**The answer is True.** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.
Who will tell us what the risk is? A specially trained nurse or genetic counselor will talk to you about the risk estimate and provide you with other information, support and resources that you may need.	Genetic counselors are specialists in explaining risk estimates to families.	**True. Correct** Genetic counselors and some nurses are specifically trained to answer your questions.	**False.** Genetic counselors and some nurses are specifically trained to answer your questions.	**The answer is True.** Genetic counselors and some nurses are specifically trained to answer your questions.
Can risk for developing type 1 diabetes change over time? Your genetic risk does not change over time. But, your environment is constantly changing and this can affect the chances of getting a disease.	Even after my child grows up, he or she will still have the same genetic risk for type 1 diabetes.	**True. Correct** You cannot change your child's genetic risk.	**False. Incorrect** You cannot change your child's genetic risk.	**The answer is True** You cannot change your child's genetic risk.
Thank-you! This completes the educational section. Remember, this study only looks at risk for type 1 diabetes. It does not test your risk for getting type 2 diabetes.				

Main Text	Question	True Answer	False Answer	I Don't Know
Your participation means that we can learn more about the genetics leading up to type 1 diabetes. We hope that you know what a great contribution you are making!				

DOD PROJECT
CHILDREN'S EDUCATIONAL SCRIPT

Main Text	Question	True Answer	False Answer	I Don't Know
Hi! When you look in the mirror what do you see? Do you see a girl or a boy? Do you see eyes like your mom or dad? Do you have hair like a brother or sister? We see something different. We see a person who might be a *pioneer* You may have learned about pioneers in school who explore new lands. You may have heard about space pioneers who go into outer space. We are going to tell you about becoming a *health* pioneer. Just answer the questions as we go along.	A *pioneer* is someone who leads the way into the future.	**Absolutely right** Are **you** ready to be a pioneer?	**Nope** Remember, a pioneer is someone who does something before other people begin doing it. A pioneer is a leader	**The answer is true** Remember, a pioneer is someone who does something before other people begin doing it. A pioneer is a leader
Let's try something. Look at these pictures of two families. Each family looks very different. But, can you also tell how they look the same?	There is *nothing* the same about these families.	**True.** **Wait a minute! Look again.** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?	**False.** **You are a very good observer!** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?	**I Don't Know.** **Wait a minute! Look again.** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?
That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body. Look at this picture of grandparents and parents.	Here are three children. Can you tell which child looks like the family? a. b c.	a. **Yes** they all have red hair, but there is something else that is special about the family and the child that is the same. (Hint: look at the bony knees).	b. Look again. The correct answer is **"c"**. Look at the hair color and the bony knees, just like the grandparents and parents.	c. That is right! What gave it away? Grandparents and parents have red hair and bony knees, just like the child.
We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters. That's how you can become a health *pioneer.* We want to look inside you and your parents to see how you might be the same.	There is a new way of looking into our bodies that can tell how we are like our families.	**True. Right!** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*	**False. Wrong!** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*	**I Don't Know.** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*

Main Text	Question	True Answer	False Answer	I Don't Know
You might be thinking, "How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!" In the future this might be one way, but we already have a way to see inside of you. We might ask you to swish a little mouthwash to get a little spit. Do your parents use mouthwash for fresh breath? Or, we will take a soft brush and rub it on the inside of your cheek. It is safe, easy, quick, and should not hurt at all! You should only have to do it once.	Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.	**Exactly right!** Are you surprised that it is so simple?	**Not so!** We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt! Are you surprised that it is so simple?	**The answer is true.** We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt! Are you surprised that it is so simple?
Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your genetic chance is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing. A *genetic chance* - do you know what that means? To find out, let's follow the trail of the spit!	I will be tested to see what my chance is for getting all kinds of diseases.	**Wait a minute – not right!** We are only interested in your chance for getting *one* disease – type 1 diabetes.	**False. You are right!** We are only interested in your chance for getting *one* disease – type 1 diabetes.	**The answer is false.** We are only interested in your chance for getting *one* disease – type 1 diabetes.
First, your spit goes to the lab where it will be studied. Your spit is made up of very tiny cells. Cells are the building blocks of your body. The cell's job is to tell the body what to do.	Cells are to your body like bricks are to a house.	**Yes!** Cells form your body like a brick forms a house.	**Not quite!** Cells form your body like a brick forms a house.	**The answer is true.** Cells form your body like a brick forms a house.
Each cell is made up of thousands of genes. Genes give instructions to the cells to tell them what to do. When we look at your spit, we want to look inside the cells to see what kinds of genes you have. We want to see what the genes are saying to the cells.	Genes give our cells instructions on what to do.	**Correct!** Genes tell our cells what to do!	**Not right!** Genes tell our cells what to do!	**The answer is true.** Genes tell our cells what to do!
And it still gets even smaller. Genes get *their* instructions from a special language called *DNA*. It works like an alphabet with four letters. Different letter combinations spell out different instructions. Just think- the teeniest thing in your spit, DNA, makes everything else happen!	DNA gives our genes instructions.	**Excellent!** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.	**No, remember:** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.	**The answer is true.** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.

Main Text	Question	True Answer	False Answer	I Don't Know
Look at each kid in this picture. Some things are like the mom's family, and some things are like the dad's family. Each child is different based on the instructions the genes give the cells. Can you see which parent the children got their curly hair from?	If I don't look like my mom, then I don't have her genes.	**No, not correct.** Remember, some genes are passed on that are not easy to see.	**Very good!** This was a hard question. You remembered that some genes are passed on that are not easy to see.	**The answer is false.** This was a hard question. Some genes are passed on that are not easy to see.
Half of your genes come from your mom, and half from your dad.		**Yes, this is true!** You get genes from both your mom and dad.	**No, this is true.** You get genes from both your mom and dad.	**The answer is true.** You get genes from both your mom and dad.
It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.	Your brother or sister's genes will be different from your genes.	**Very good!** You are different from a brother or sister, because they have a different combination of genes.	**No, remember** You are different from a brother or sister, because they have a different combination of genes.	**The answer is true.** You are different from a brother or sister, because they have a different combination of genes.
Once we know your combination of genes, we will compare it to your family tree. Here is a family tree:				
After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.	A chance means the possibility that something will happen.	**Yes!** And a *genetic* chance is based on your combination of genes.	**This is true.** And a *genetic* chance is based on your combination of genes.	**The answer is true.** And a *genetic* chance is based on your combination of genes
Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chance too – like germs, or diet or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.	If you say that I have a big chance of getting type 1 diabetes, then I will get it.	**True** **That's not right.** Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.	**False** **Exactly!** A chance doesn't mean anything is definite. Genes are only part of the puzzle.	**The answer is False.** Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.
We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.	You will save my spit and study it again in the future.	**No.** We won't save your spit.	**That's right.** We won't save your spit.	**The answer is False.** We won't save your spit.

Main Text	Question	True Answer	False Answer	I Don't Know
It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.	In kids with type 1 diabetes, the pancreas has stopped working the way it should.	**Yes.** Type 1 diabetes means that the pancreas does not work right.	**No, this is true.** Type 1 diabetes means that the pancreas does not work right.	**The answer is true.** Type 1 diabetes means that the pancreas does not work right.
One way to think of diabetes is to think about a car. Our body is like a car that needs gas. The food that we eat turns to sugar which is the fuel. But, the fuel cannot get into our cells to make our bodies run without a key. That key is insulin. The pancreas makes the insulin.	In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.	**Absolutely!** Without insulin as the key, the food cannot enter the cells and make our body run.	**No, this is true.** Without insulin as the key, the food cannot enter the cells and make our body run.	**The answer is true.** Without insulin as the key, the food cannot enter the cells and make our body run.
In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You will help us learn about type 1 diabetes.	Genetic tests are a new way to learn about your chance of getting type 1 diabetes.	**Yes!** This is the type of tests that everyone could be getting in the future so we can learn even more!	**No...** This is the type of tests that everyone could be getting in the future so we can learn even more!	**The answer is true.** This is the type of tests that everyone could be getting in the future so we can learn even more!
Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to a parent first.	I should run and tell my best friend!. True False I Don't Know	**True** Maybe – but only *after* you talk with a parent.	**False** **That is right!** You should talk to your parent first.	**The answer is False.** You should talk to a parent first.
Are you ready to be a health pioneer? If so, tell the nurse and get ready to give up some spit!				
Soon, everyone will be tested for lots of different things. But for now, *you* would be one of the first! Because of pioneers like you, we are going to learn more about what causes type 1 diabetes. Our goal is to learn as much as we can, so that no one gets this disease in the future! Thank-you! You have been great!				

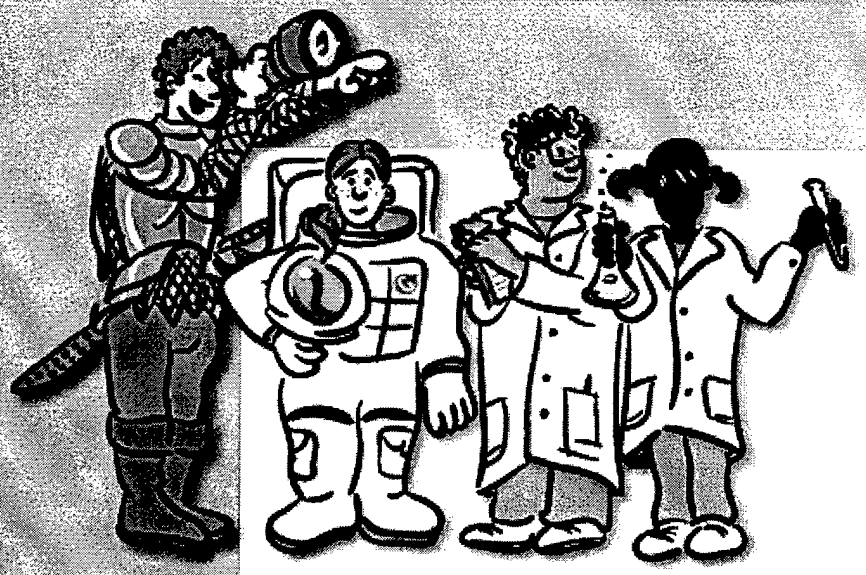
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ANNUAL REPORT

1 NOV 02 - 31 OCT 03

APPENDIX 4:

PILOT (POWERPOINT PRESENTATION)



Hi! When you look in the mirror what do you see?

Do you see a girl or a boy?
Do you see eyes like your mom or dad?
Do you have hair like a brother or sister?

We see something different.
We see a person who might be a ***pioneer***.
You may have learned about pioneers in school who explore new lands.
You may have heard about space pioneers who go into outer space.
We are going to tell you about becoming a ***health pioneer***.

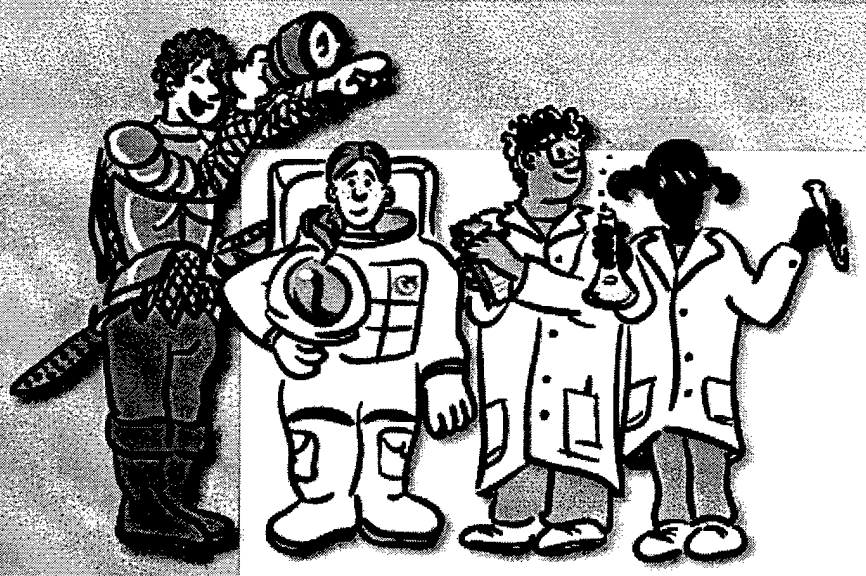
Just answer the questions as we go along!

Q: A *pioneer* is someone who leads the way into the future.

Choose One:

- True
- False
- Don't Know

A:



Hi! When you look in the mirror what do you see?

Do you see a girl or a boy?
Do you see eyes like your mom or dad?
Do you have hair like a brother or sister?

We see something different.
We see a person who might be a ***pioneer***.
You may have learned about pioneers in school who explore new lands.
You may have heard about space pioneers who go into outer space.
We are going to tell you about becoming a ***health pioneer***.

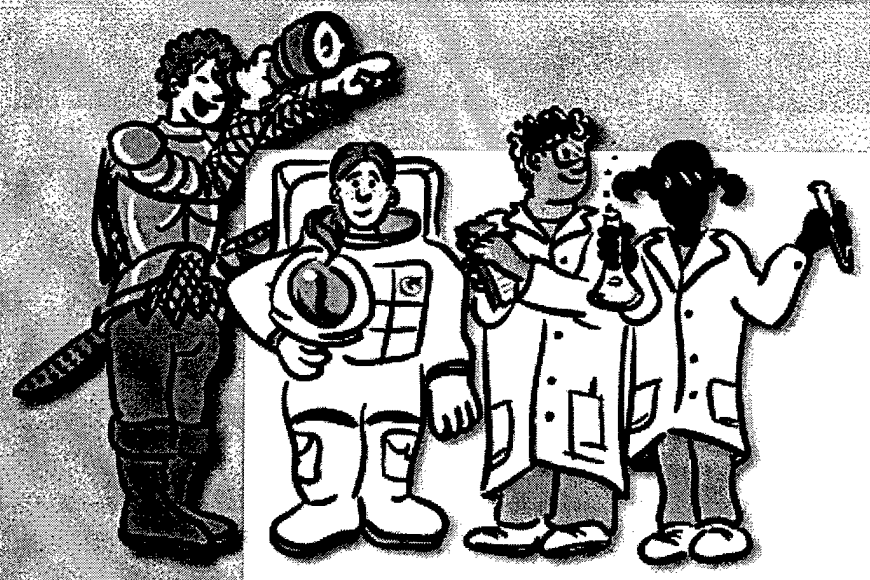
Just answer the questions as we go along!

Q: A *pioneer* is someone who leads the way into the future.

You Chose:
True

A: **Absolutely right!**
Are **you** ready to be a pioneer?

Next Question



Hi! When you look in the mirror what do you see?

Do you see a girl or a boy?
Do you see eyes like your mom or dad?
Do you have hair like a brother or sister?

We see something different.
We see a person who might be a ***pioneer***.
You may have learned about pioneers in school who explore new lands.
You may have heard about space pioneers who go into outer space.
We are going to tell you about becoming a ***health pioneer***.

Just answer the questions as we go along!

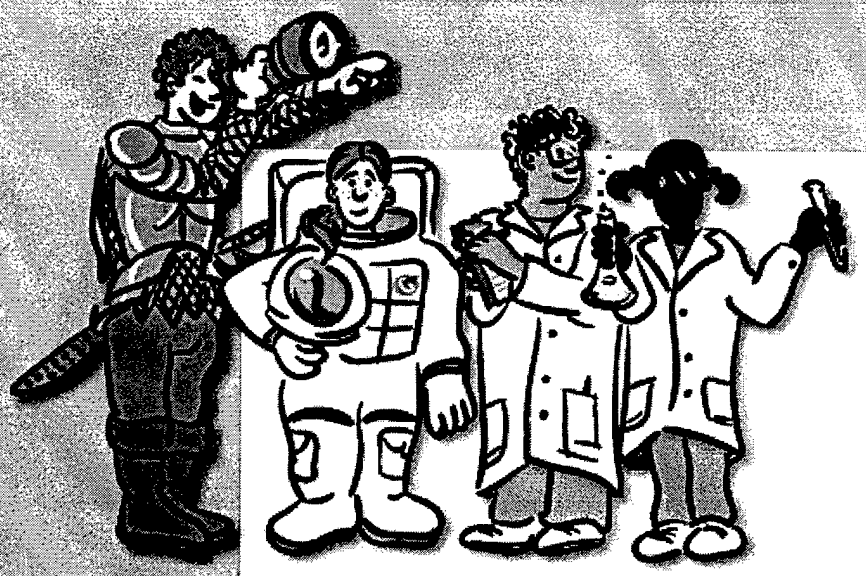
Q: A *pioneer* is someone who leads the way into the future.

You Chose:

● *False*

A: **Nope**
Remember, a pioneer is someone who does something before other people begin doing it. A pioneer is a leader.

Next Question ▶



Hi! When you look in the mirror what do you see?

Do you see a girl or a boy?
Do you see eyes like your mom or dad?
Do you have hair like a brother or sister?

We see something different.
We see a person who might be a ***pioneer***.
You may have learned about pioneers in school who explore new lands.
You may have heard about space pioneers who go into outer space.
We are going to tell you about becoming a ***health pioneer***.

Just answer the questions as we go along!

Q: A *pioneer* is someone who leads the way into the future.

You Chose:

Don't Know

A: **The answer is true.**
Remember, a pioneer is someone is does something before other people begin doing it. A pioneer is a leader.

Next Question







Let's try something.

Look at these drawings of two families.
Each family looks very different.
But, can you also tell how they look the same?

Q: There is *nothing* the same about these families.

You Chose:

- *True*
- *False*
- *Don't Know*

A:





Let's try something.

Look at these drawings of two families.
Each family looks very different.
But, can you also tell how they look the same?

Q: There is *nothing* the same about these families.

You Chose:
True

A: **Wait a minute! Look again.**
Even though the families are different, the kids look the same as their parents.
They have some of the same hair color. What else is the same?

Next Question





Let's try something.

Look at these drawings of two families.
Each family looks very different.
But, can you also tell how they look the same?

Q: There is *nothing* the same about these families.

You Chose:

- False

A: **You are a very good observer!**
Even though the families are different, the kids look the same as their parents.
They have some of the same hair color. What else is the same?

Next Question







Let's try something.

Look at these drawings of two families.
Each family looks very different.
But, can you also tell how they look the same?

Q: There is *nothing* the same about these families.

You Chose:

Don't Know

A: **Wait a minute! Look again.**
Even though the families are different, the kids look the same as their parents.
They have some of the same hair color. What else is the same?

Next Question



Children's Hospital of Pittsburgh

That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body.

Look at this drawing of parents, grandparents and children.

GIFT

Q: Here are three children [A, B, C]. Can you tell which child looks like the parents and grandparents?

Choose One:

A

B

C

A:



That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body.

Look at this drawing of parents, grandparents and children.

GIFT

Q: Here are three children [A, B, C]. Can you tell which child looks like the parents and grandparents?

You Chose:

A

A: Look again. There is something else that is special about the family and the child that is the same. [Hint: look at the bony knees.]

Next Question



That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body.

Look at this drawing of parents, grandparents and children.

GIFT

Q: Here are three children [A, B, C]. Can you tell which child looks like the parents and grandparents?

You Chose:

B

A: **That is right!** What gave it away?
Grandparents and parents have red hair and bony knees, just like the child.

Next Question



That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body.

Look at this drawing of parents, grandparents and children.



Q: Here are three children [A, B, C]. Can you tell which child looks like the parents and grandparents?

You Chose:

A: Look again. **The correct answer is "B".**
Look at the hair color and the bony knees, just like the grandparents and parents.

Next Question



We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters.

That's how you can become a health *pioneer*. We want to look inside you and your parents to see how you might be the same.



Q: There is a new way of looking into our bodies that can tell how we are like our families.

Choose One:

- True
- False
- Don't Know

A:



We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters.

That's how you can become a health *pioneer*. We want to look inside you and your parents to see how you might be the same.

Q: There is a new way of looking into our bodies that can tell how we are like our families.

You Chose:

True

A: **Right!**
This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer*.

Next Question



We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters.

That's how you can become a health *pioneer.* We want to look inside you and your parents to see how you might be the same.

Q: There is a new way of looking into our bodies that can tell how we are like our families.

You Chose:

● *False*

A: **Wrong!**
This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer*.

Next Question ▶



We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters.

That's how you can become a health *pioneer.* We want to look inside you and your parents to see how you might be the same.



Q: There is a new way of looking into our bodies that can tell how we are like our families.

You Chose:

Don't Know

A: This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer*.

Next Question



You might be thinking,
"How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!"

In the future this might be one way, but we already have a way to see inside of you.

We might ask you to swish a little mouthwash to get a little spit. Do your parents use mouthwash for fresh breath? Or, we will take a soft brush and rub it on the inside of your cheek. It is safe, easy, quick and should not hurt at all! You should only have to do it once.

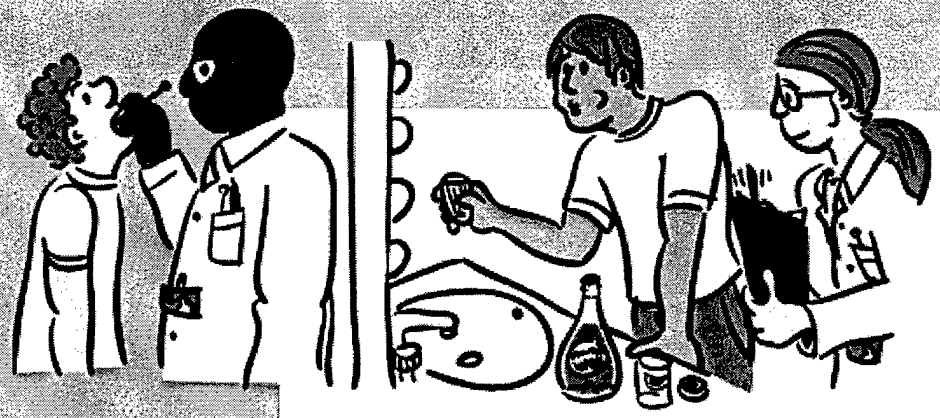


Q: Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.

Choose One:

- True
- False
- Don't Know

A:



You might be thinking,
"How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!"

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Q: Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.

You Chose:
True

A: **Exactly right!**
Are you surprised that it is so simple?

Next Question



You might be thinking,
"How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!"

In the future this might be one way, but we already have a way to see inside of you.

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GIFT

Q: Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.

You Chose:

● *False*

A: **Not so!**
We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt!
Are you surprised that it is so simple?

Next Question ▶



You might be thinking,
"How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!"

In the future this might be one way, but we already have a way to see inside of you.

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Q: Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.

You Chose:

Don't Know

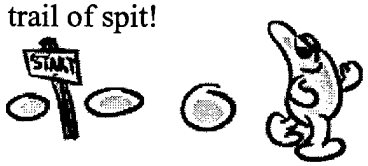
A: **The answer is true.**
We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt!
Are you surprised that it is so simple?

Next Question



Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your ***genetic chance*** is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing.

A genetic chance – do you know what that means? To find out, let's follow the trail of spit!





Q: I will be tested to see what my chance is for getting all kinds of diseases.

Choose One:

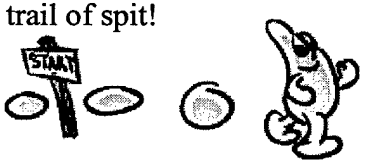
- True
- False
- Don't Know

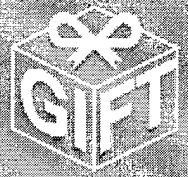
A:



Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your ***genetic chance*** is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing.

A genetic chance – do you know what that means? To find out, let's follow the trail of spit!





Q: I will be tested to see what my chance is for getting all kinds of diseases.

You Chose:

True

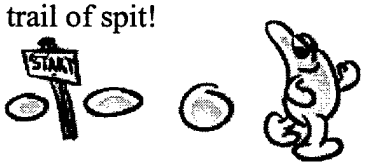
A: **Wait a minute – not right!**
We are only interested in your chance for getting *one* disease – type 1 diabetes.

Next Question



Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your ***genetic chance*** is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing.

A genetic chance – do you know what that means? To find out, let's follow the trail of spit!





Q: I will be tested to see what my chance is for getting all kinds of diseases.

You Chose:

● *False*

A: **You are right!**
We are only interested in your chance for getting *one* disease – type 1 diabetes.

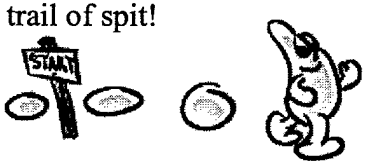
Next Question ▶





Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your ***genetic chance*** is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing.

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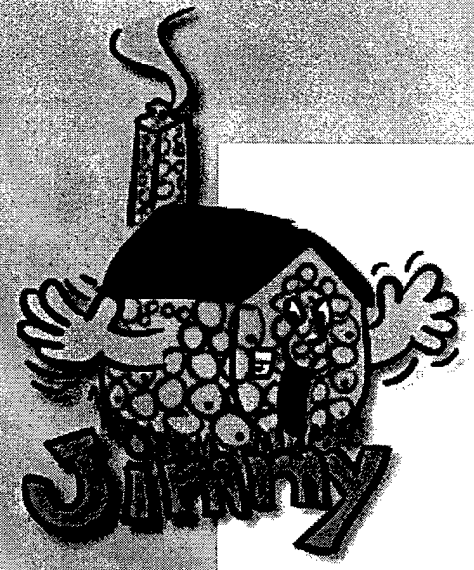
Q: I will be tested to see what my chance is for getting all kinds of diseases.

You Chose:

Don't Know

A: **The answer is false.**
We are only interested in your chance for getting *one* disease – type 1 diabetes.

Next Question





First, your spit goes to the lab where it will be studied.
Your spit is made up of very tiny cells. **Cells** are the building blocks of your body. The cell's job is to tell the body what to do.



Q: Cells are to your body like bricks are to a house.

Choose One:

- True
- False
- Don't Know

A:





First, your spit goes to the lab where it will be studied.
Your spit is made up of very tiny cells. **Cells** are the building blocks of your body. The cell's job is to tell the body what to do.



Q: Cells are to your body like bricks are to a house.

You Chose:

True

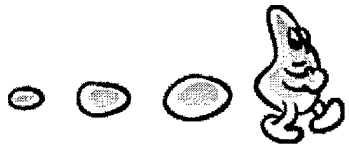
A: **Yes!**
Cells form your body like a brick forms a house.

Next Question





First, your spit goes to the lab where it will be studied.
Your spit is made up of very tiny cells. **Cells** are the building blocks of your body. The cell's job is to tell the body what to do.



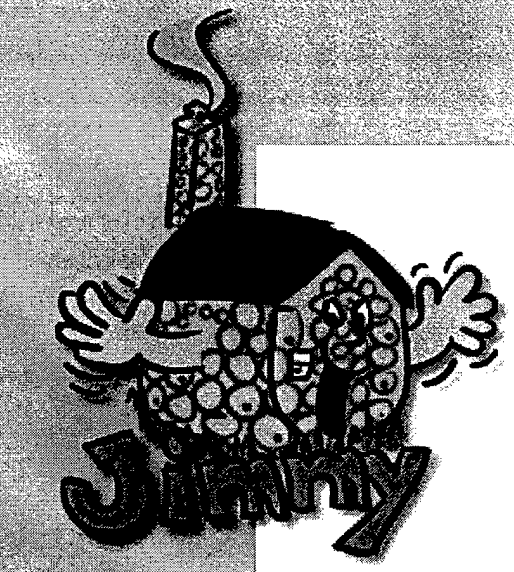
Q: Cells are to your body like bricks are to a house.

You Chose:

● *False*

A: **Not quite!**
Cells form your body like a brick forms a house.

Next Question ▶





First, your spit goes to the lab where it will be studied.
Your spit is made up of very tiny cells. **Cells** are the building blocks of your body. The cell's job is to tell the body what to do.



Q: Cells are to your body like bricks are to a house.

You Chose:

Don't Know

A: **The answer is true.**
Cells form your body like a brick forms a house.

Next Question





Each cell is made up of thousands of genes.

Genes give instructions to the cells to tell them what to do. When we look at your spit, we want to look inside the cells to see what kinds of genes you have. We want to see what the genes are saying to the cells.



Q: Genes give our cells instructions on what to do.

Choose One:

- True
- False
- Don't Know

A:



Each cell is made up of thousands of genes.

Genes give instructions to the cells to tell them what to do. When we look at your spit, we want to look inside the cells to see what kinds of genes you have. We want to see what the genes are saying to the cells.



Q: Genes give our cells instructions on what to do.

You Chose:

True

A: **Correct!**
Genes tell our cells what to do!

Next Question



Each cell is made up of thousands of genes.

Genes give instructions to the cells to tell them what to do. When we look at your spit, we want to look inside the cells to see what kinds of genes you have. We want to see what the genes are saying to the cells.



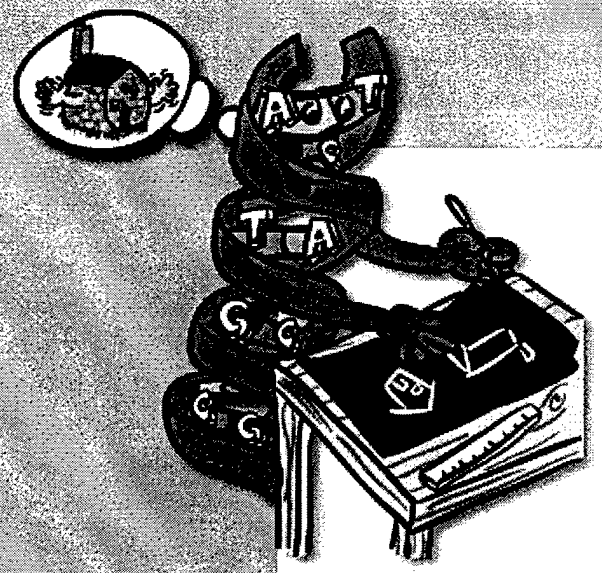
Q: Genes give our cells instructions on what to do.

You Chose:

● *False*

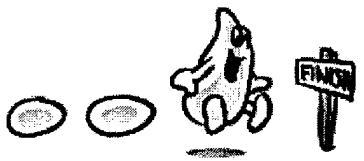
A: **Not right!**
Genes tell our cells what to do!

Next Question ▶



And it still gets even smaller.

Genes get *their* instructions from a special language called ***DNA***. It works like an alphabet with four letters. Different letter combinations spell out different instructions. Just think- the teeniest thing in your spit, DNA, makes everything else happen!



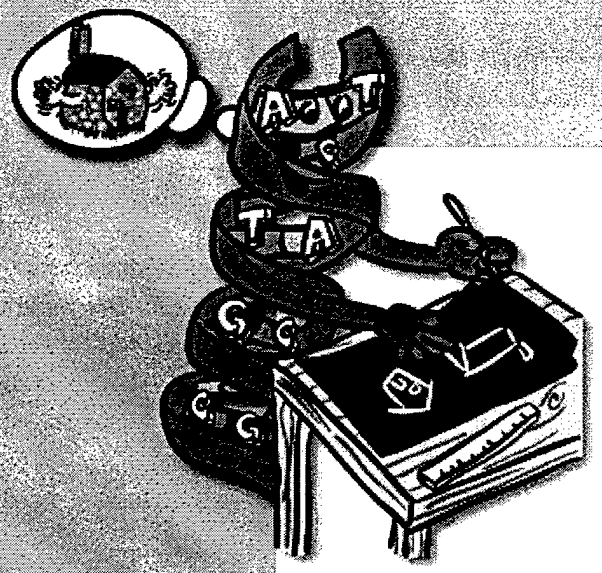


Q: DNA gives our genes instructions.

Choose One:

- True
- False
- Don't Know

A:



And it still gets even smaller.

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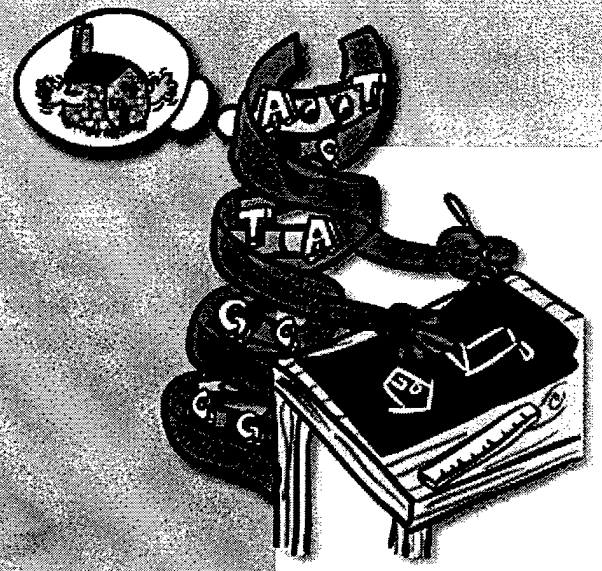
Q: DNA gives our genes instructions.

You Chose:

True

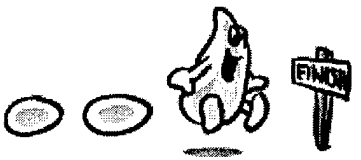
A: **Excellent!**
DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.

Next Question



And it still gets even smaller.

Genes get *their* instructions from a special language called ***DNA***. It works like an alphabet with four letters. Different letter combinations spell out different instructions. Just think- the teeniest thing in your spit, DNA, makes everything else happen!



You Chose:

● *False*

Q: DNA gives our genes instructions.

A: **No, remember:**
DNA gives instructions to genes.
Genes give instructions to cells.
Cells instruct the body.

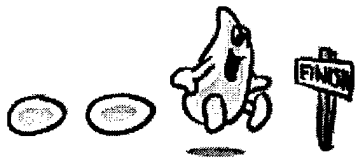
Next Question ▶





And it still gets even smaller.

Genes get *their* instructions from a special language called ***DNA***. It works like an alphabet with four letters. Different letter combinations spell out different instructions. Just think- the teeniest thing in your spit, DNA, makes everything else happen!



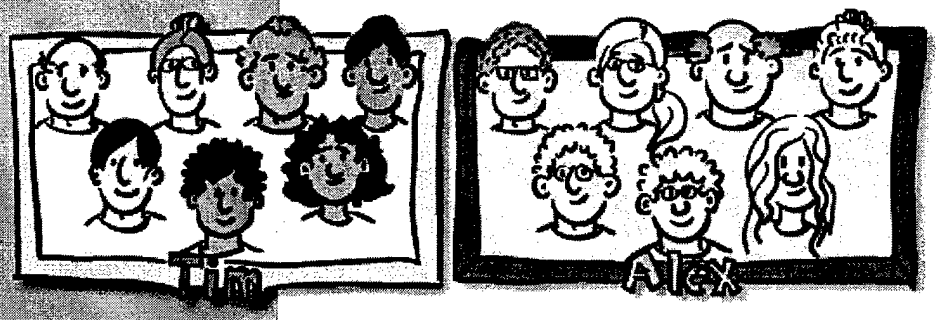
You Chose:

Q: DNA gives our genes instructions.

Don't Know

A: **The answer is true.**
DNA gives instructions to genes.
Genes give instructions to cells.
Cells instruct the body.

Next Question



Look at each kid in this drawing. Some things are like the mom's family, and some things are like the dad's family. Each child is different based on the instructions the genes give the cells. Can you see which parent the children got their curly hair from?

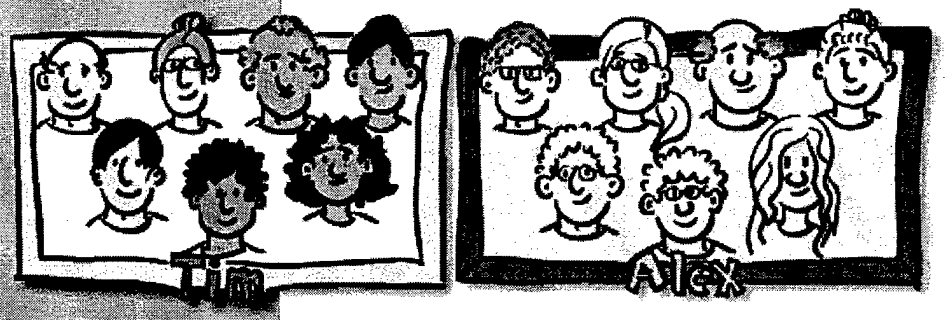


Q: If I don't look like my mom, then I don't have her genes.

Choose One:

- True
- False
- Don't Know

A:



Look at each kid in this drawing. Some things are like the mom's family, and some things are like the dad's family. Each child is different based on the instructions the genes give the cells. Can you see which parent the children got their curly hair from?

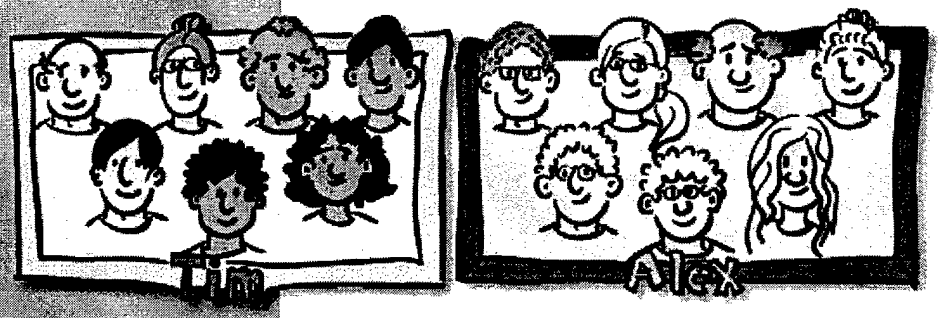
Q: If I don't look like my mom, then I don't have her genes.

You Chose:

True

A: **No, not correct.**
Remember, some genes are passed on that are not easy to see.

Next Question



Look at each kid in this drawing. Some things are like the mom's family, and some things are like the dad's family. Each child is different based on the instructions the genes give the cells. Can you see which parent the children got their curly hair from?



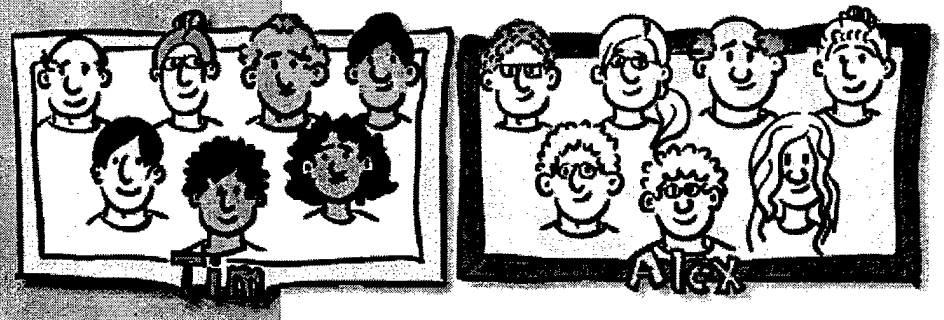
Q: If I don't look like my mom, then I don't have her genes.

You Chose:

- False

A: **Very good!**
This was a hard question. You remembered that some genes are passed on that are not easy to see.

Next Question



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Q: If I don't look like my mom, then I don't have her genes.

You Chose:

Don't Know

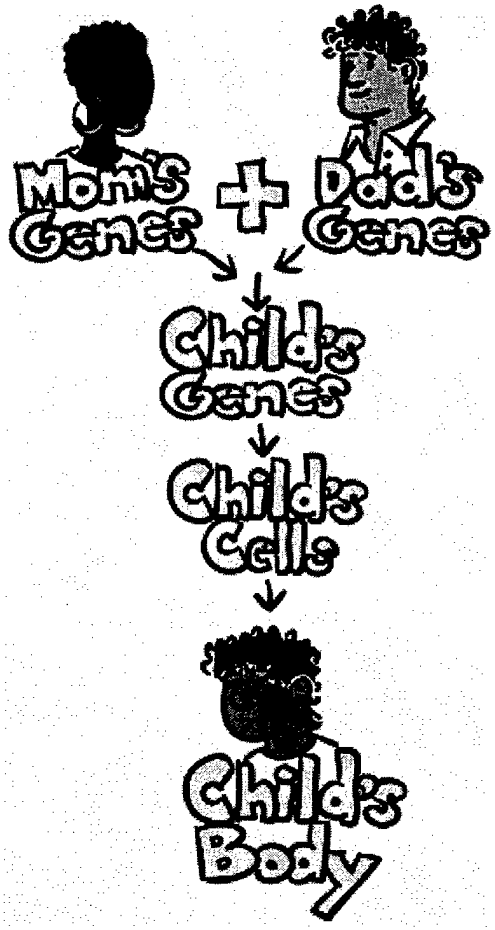
A: **The answer is false.**
This was a hard question. Some genes are passed on that are not easy to see.

Next Question

Children's

Half of your genes come from your mom, and half from your dad.

Q:



Choose One:

- True
- False
- Don't Know

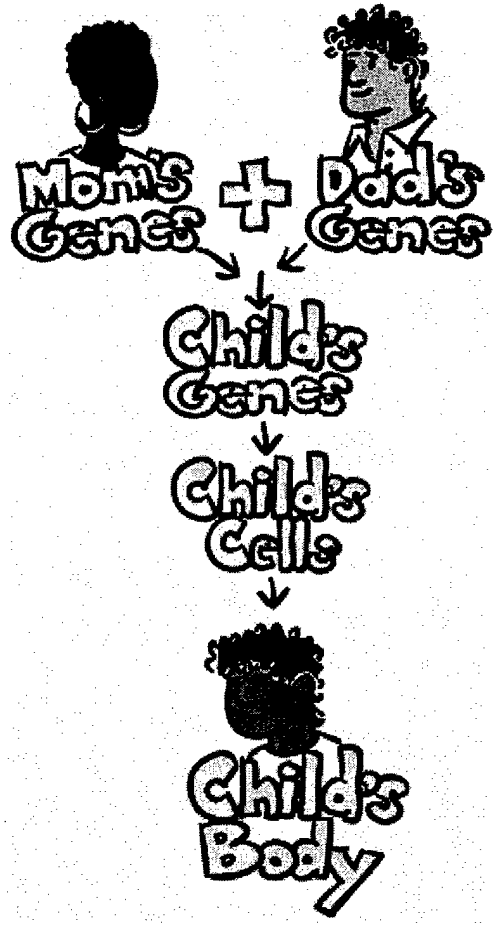
GIFT

A:

Children's Hospital of Pittsburgh

Half of your genes come from your mom, and half from your dad.

Q:



You Chose:

True

GIFT

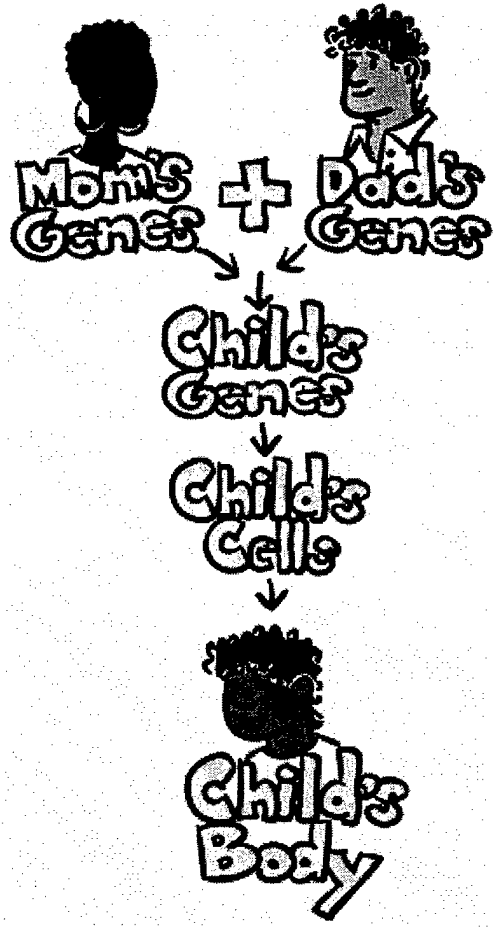
A: **Yes, this is true!**
You get genes from both your mom and dad.

Next Question

Children's Hospital of Pittsburgh

Half of your genes come from your mom, and half from your dad.

Q:



You Chose:

● *False*

A:

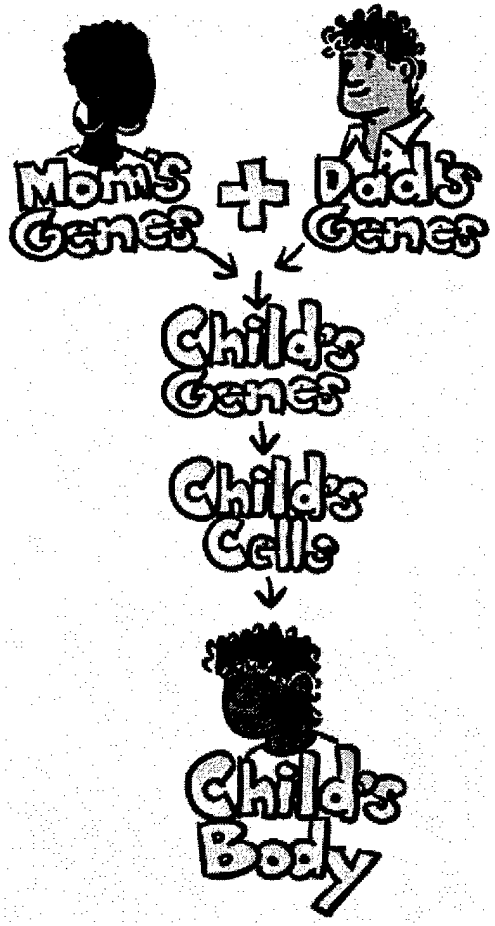
No, this is true.
You get genes from both your mom and dad.

Next Question

Children's Hospital of Pittsburgh

Half of your genes come from your mom, and half from your dad.

Q:

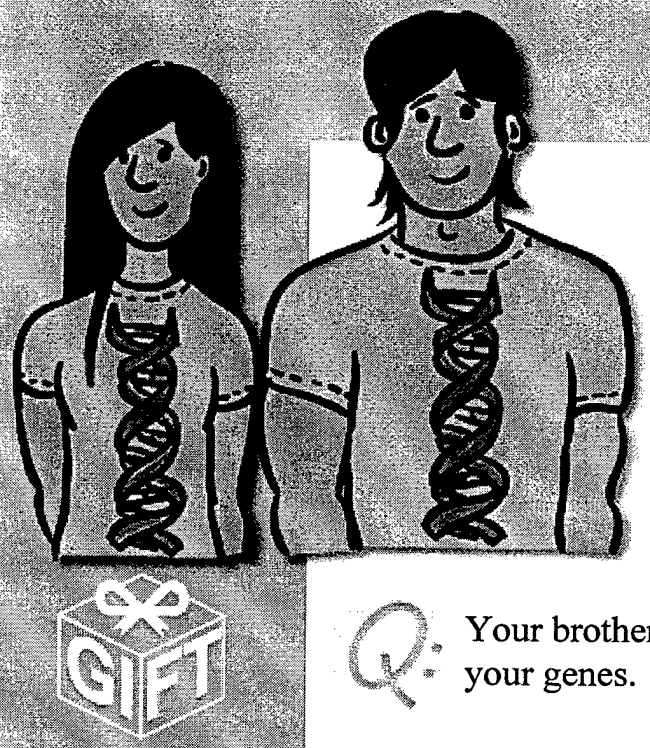


You Chose:

Don't Know

A: **The answer is true.**
You get genes from both your mom and dad.

Next Question



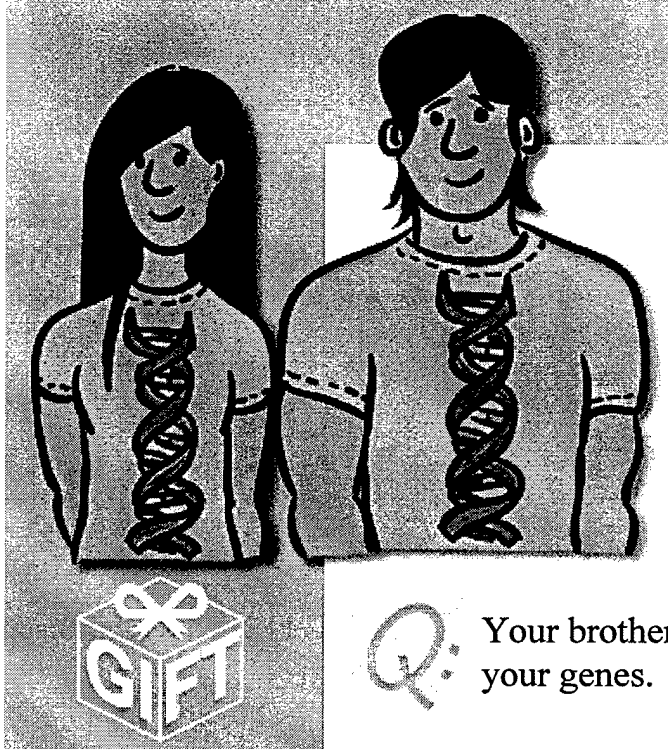
It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.

Q: Your brother or sister's genes will be different from your genes.

Choose One:

- True
- False
- Don't Know

A:



It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.

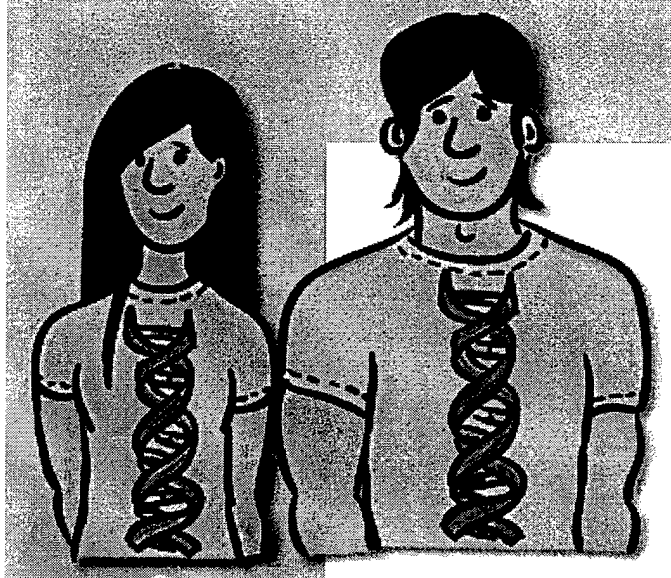
Q: Your brother or sister's genes will be different from your genes.

You Chose:

True

A: **Very good!**
You are different from a brother or sister, because they have a different combination of genes.

Next Question



It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.

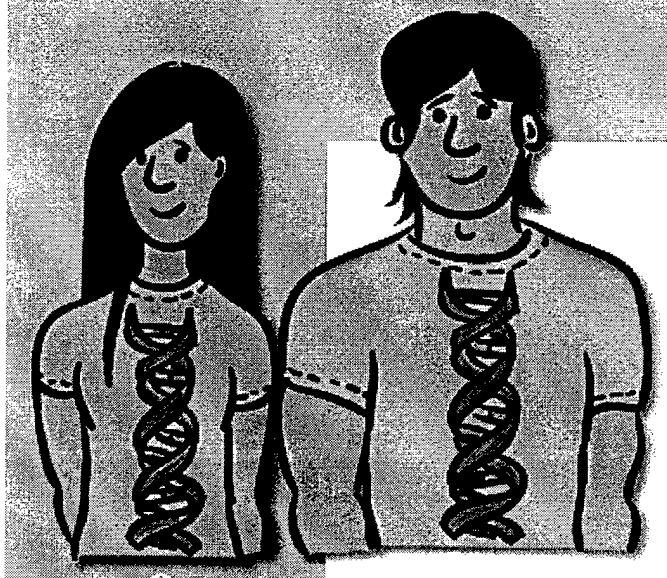
Q: Your brother or sister's genes will be different from your genes.

You Chose:

● *False*

A: **No, remember**
You are different from a brother or sister, because they have a different combination of genes.

Next Question ▶



Children's Hospital of Pittsburgh

It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.

Q: Your brother or sister's genes will be different from your genes.

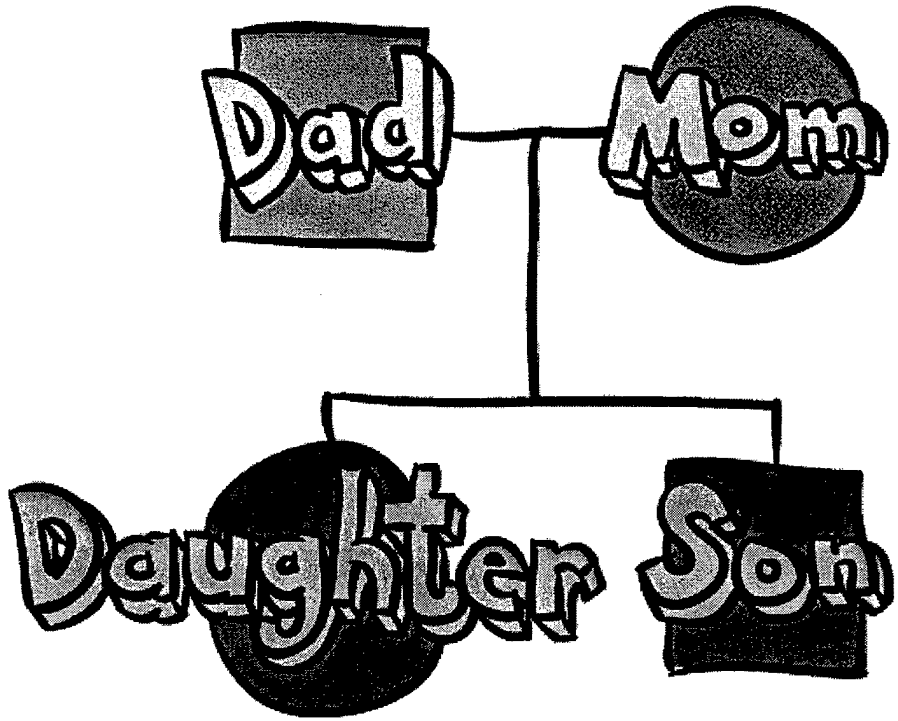
You Chose:

Don't Know

A: **The answer is true.**
You are different from a brother or sister, because they have a different combination of genes.

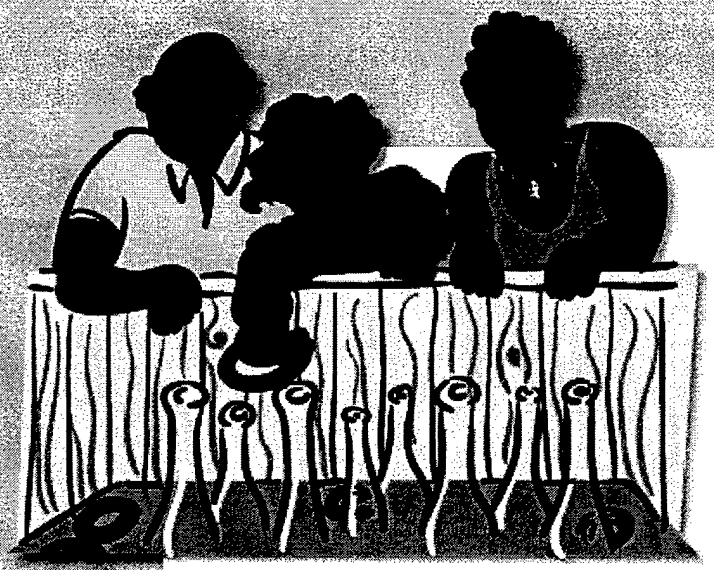
Next Question

Once we know your combination of genes, we will compare it to your family tree. Here is a family tree:





Next Question



After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.



Q: A chance means the possibility that something will happen.

Choose One:

- True
- False
- Don't Know

A:



Children's Hospital of Pittsburgh

After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.

GIFT

Q: A chance means the possibility that something will happen.

You Chose:

True

A: **Yes!**
And a *genetic* chance is based on your combination of genes.

Next Question



After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.



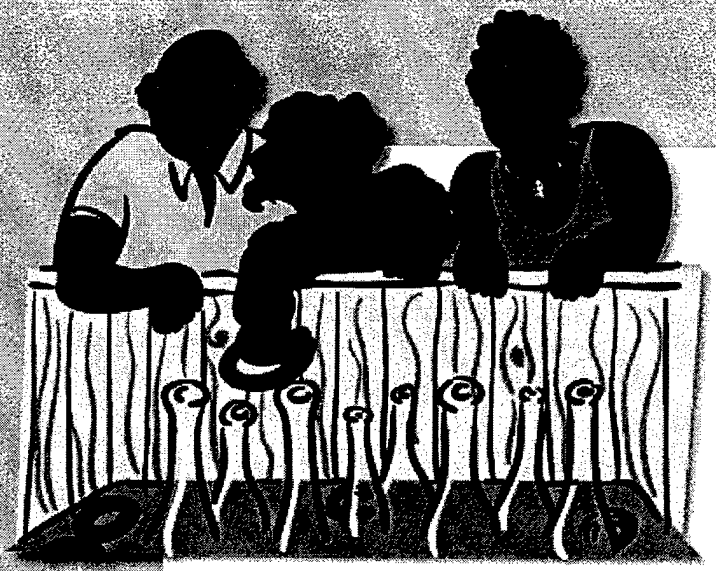
Q: A chance means the possibility that something will happen.

You Chose:

False

A: **This is true.**
And a *genetic* chance is based on your combination of genes.

Next Question



After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.



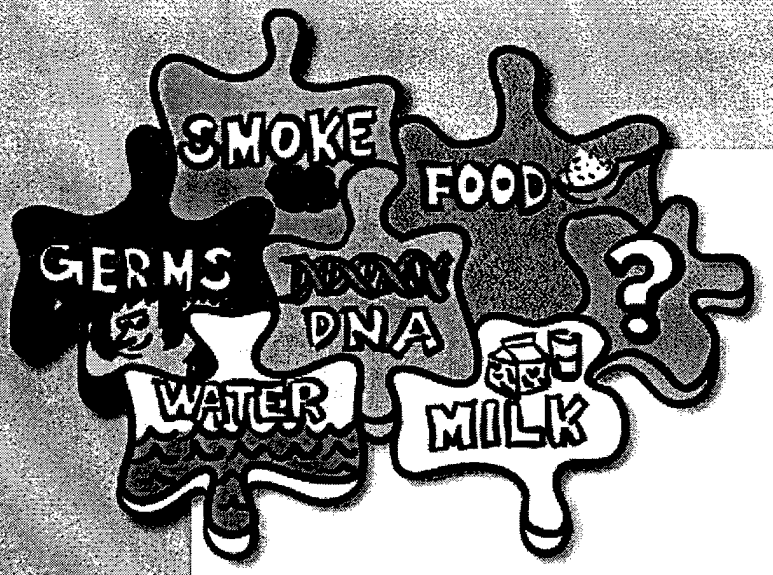
Q: A chance means the possibility that something will happen.

You Chose:

Don't Know

A: **The answer is true.**
And a *genetic* chance is based on your combination of genes

Next Question



Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chances too, like germs, or diet, or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.

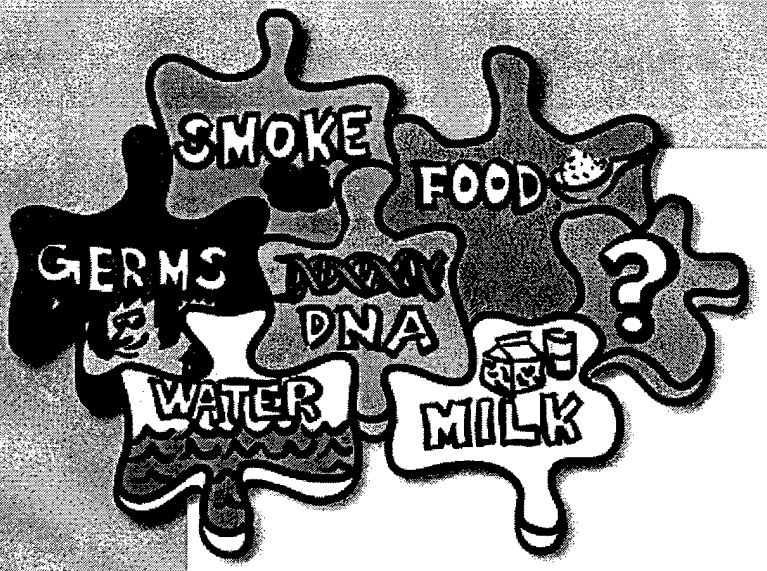


Q: If you say that I have a big chance of getting type 1 diabetes, then I will get it.

Choose One:

- True
- False
- Don't Know

A:



Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chances too, like germs, or diet, or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.



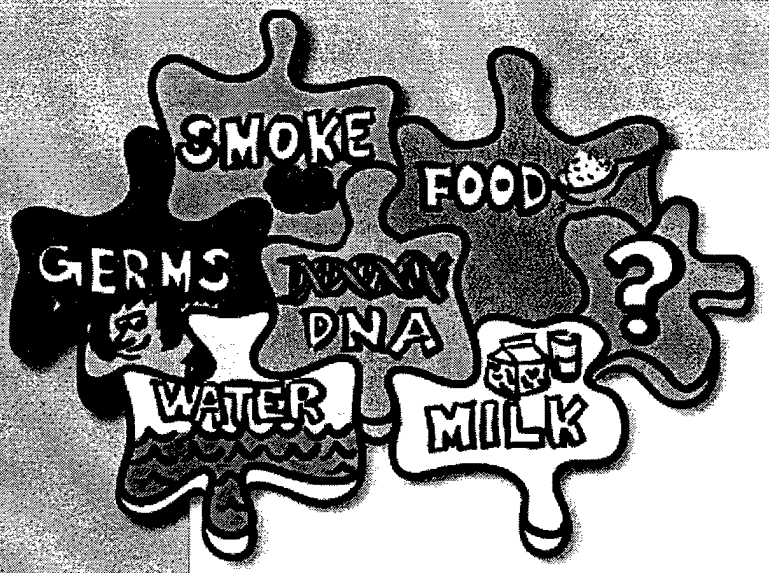
Q: If you say that I have a big chance of getting type 1 diabetes, then I will get it.

You Chose:

True

A: **That's not right.**
Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.

Next Question





Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chances too, like germs, or diet, or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.

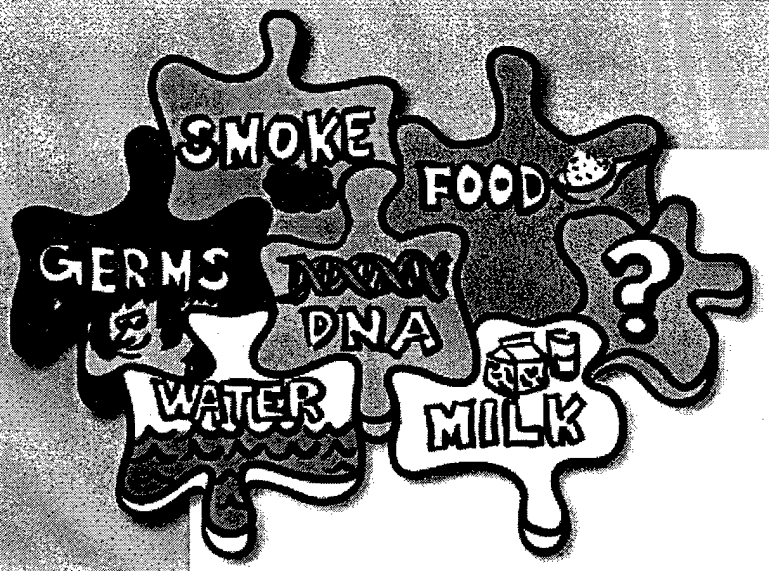
Q: If you say that I have a big chance of getting type 1 diabetes, then I will get it.

You Chose:

- False

A: **Exactly!**
A chance doesn't mean anything is definite. Genes are only part of the puzzle.

Next Question



Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chances too, like germs, or diet, or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.



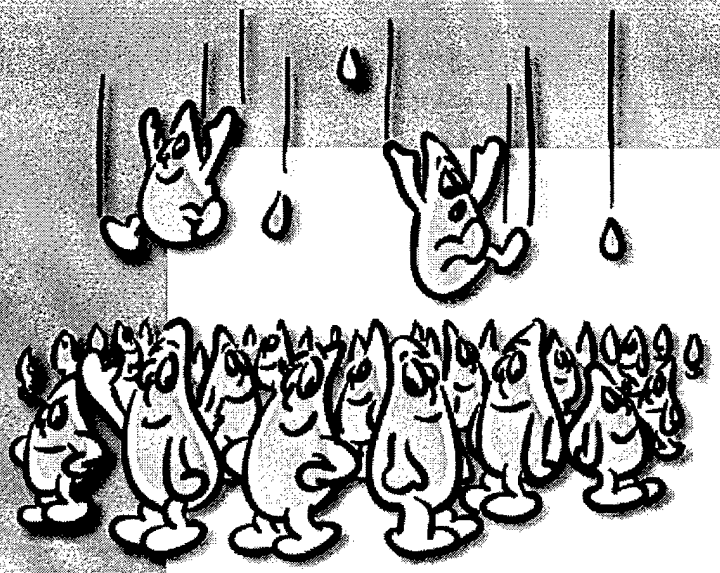
Q: If you say that I have a big chance of getting type 1 diabetes, then I will get it.

You Chose:

Don't Know

A: **The answer is False.**
Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.

Next Question



We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.

GIFT

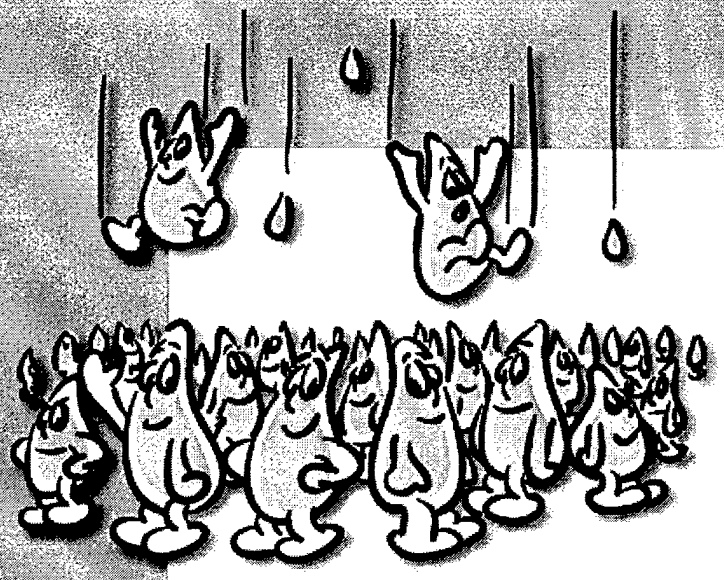
Q: You will save my spit and study it again in the future.

Choose One:

- True
- False
- Don't Know

A:

Children's Hospital of Pittsburgh



We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.

GIFT

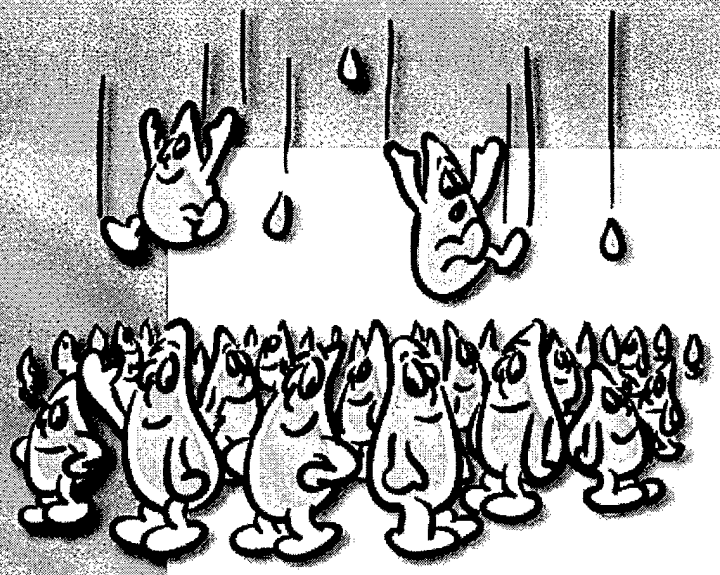
Q: You will save my spit and study it again in the future.

You Chose:

True

A: **No.**
We won't save your spit.

Next Question



We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.

GIFT

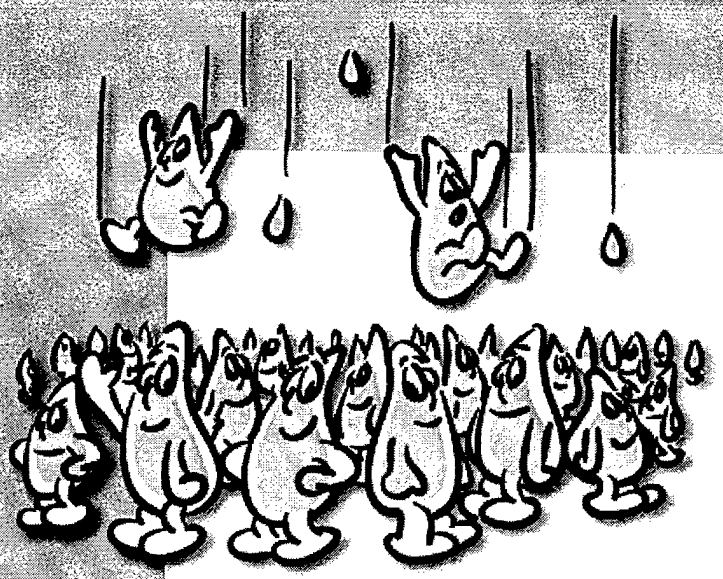
Q: You will save my spit and study it again in the future.

You Chose:

● *False*

A: **That's right.**
We won't save your spit.

Next Question



We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.

GIFT

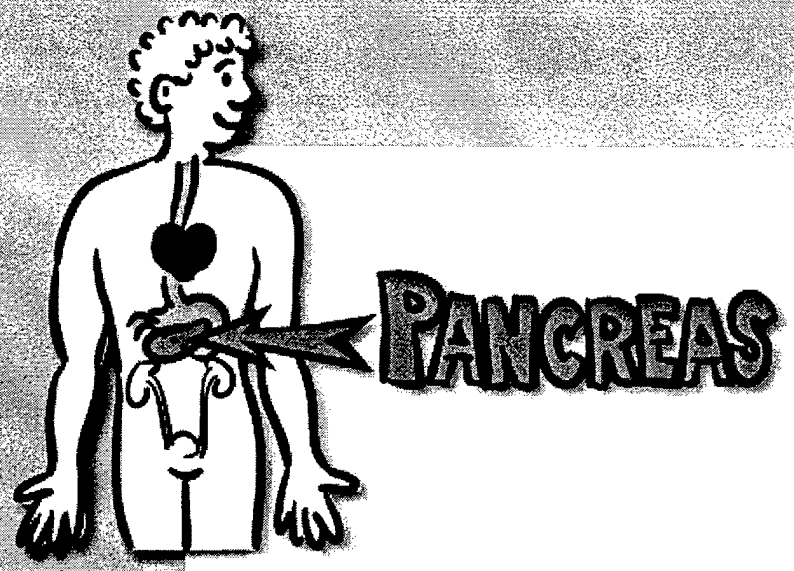
Q: You will save my spit and study it again in the future.

You Chose:

Don't Know

A: **The answer is False.**
We won't save your spit.

Next Question



It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.

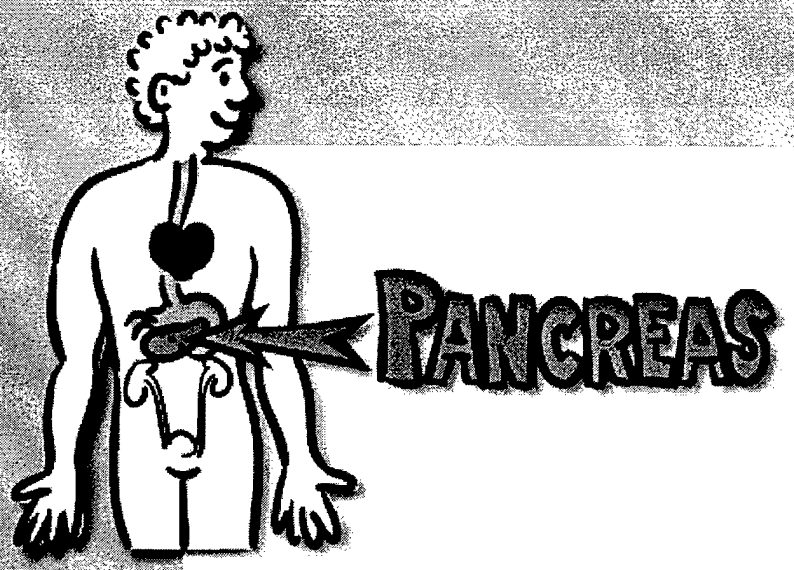


Q: In kids with type 1 diabetes, the pancreas has stopped working the way it should.

Choose One:

- True
- False
- Don't Know

A:



It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.



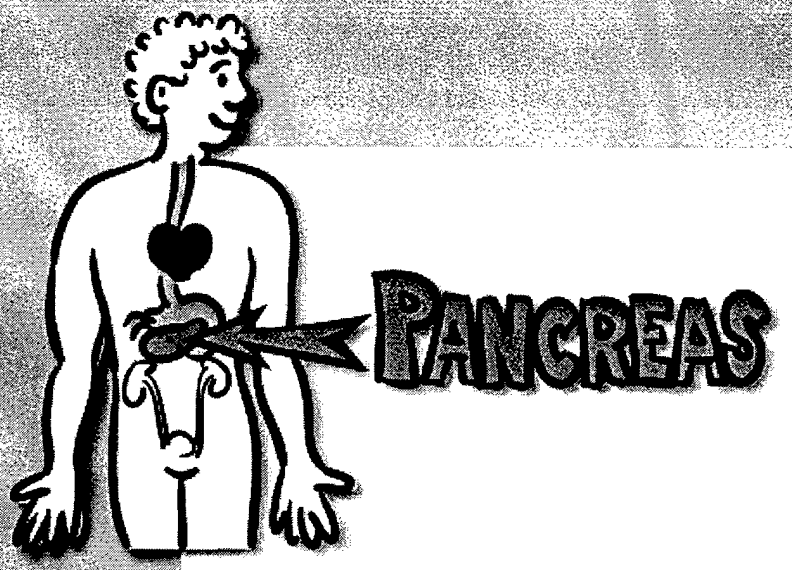
Q: In kids with type 1 diabetes, the pancreas has stopped working the way it should.

You Chose:

True

A: **Yes.**
Type 1 diabetes means that the pancreas does not work right.

Next Question



It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.



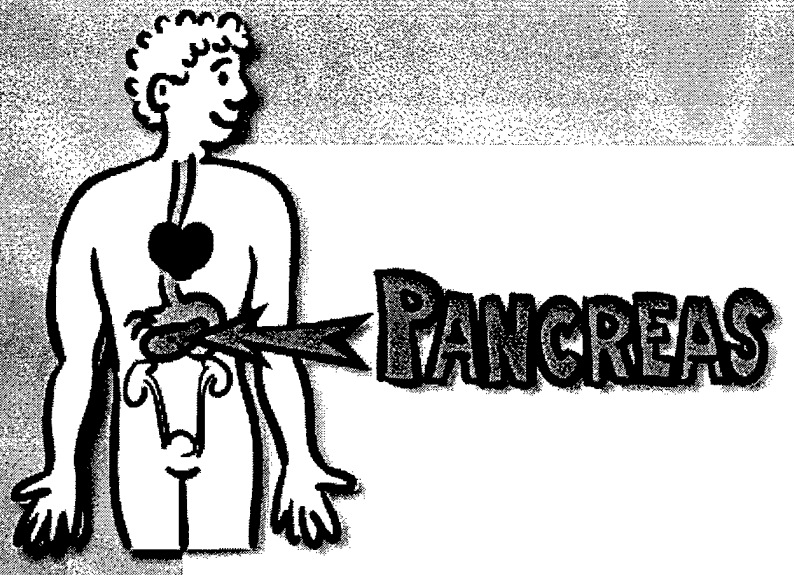
Q: In kids with type 1 diabetes, the pancreas has stopped working the way it should.

You Chose:

● *False*

A: **No, this is true.**
Type 1 diabetes means that the pancreas does not work right.

Next Question ▶



It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.



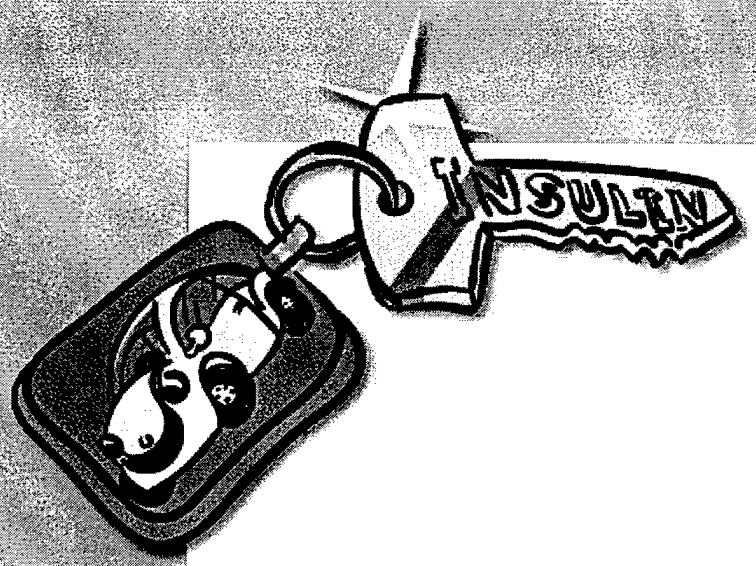
Q: In kids with type 1 diabetes, the pancreas has stopped working the way it should.

You Chose:

Don't Know

A: **The answer is true.**
Type 1 diabetes means that the pancreas does not work right.

Next Question



One way to think of diabetes is to think about a car.
Our body is like a car that needs gas.
The food that we eat turns to sugar which is the fuel.
But, the fuel cannot get into our cells to make our bodies run without a key.
That key is insulin. The pancreas makes the insulin.

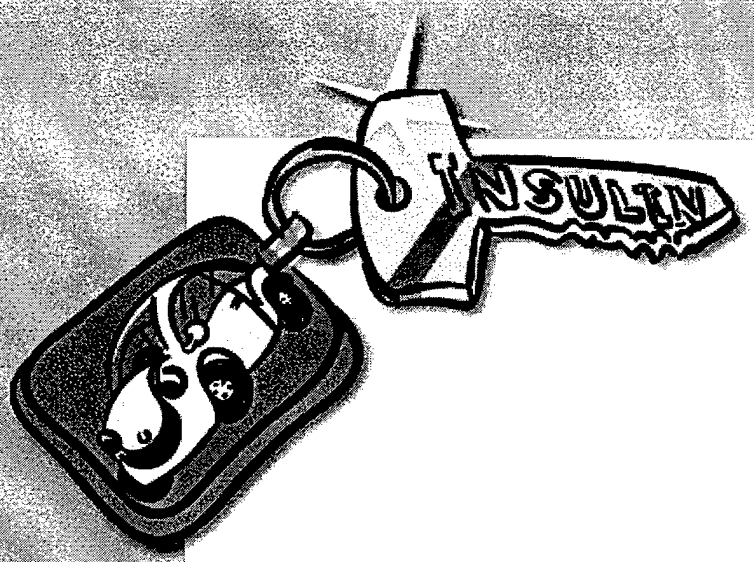


Q: In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.

Choose One:

- True
- False
- Don't Know

A:



One way to think of diabetes is to think about a car.
Our body is like a car that needs gas.
The food that we eat turns to sugar which is the fuel.
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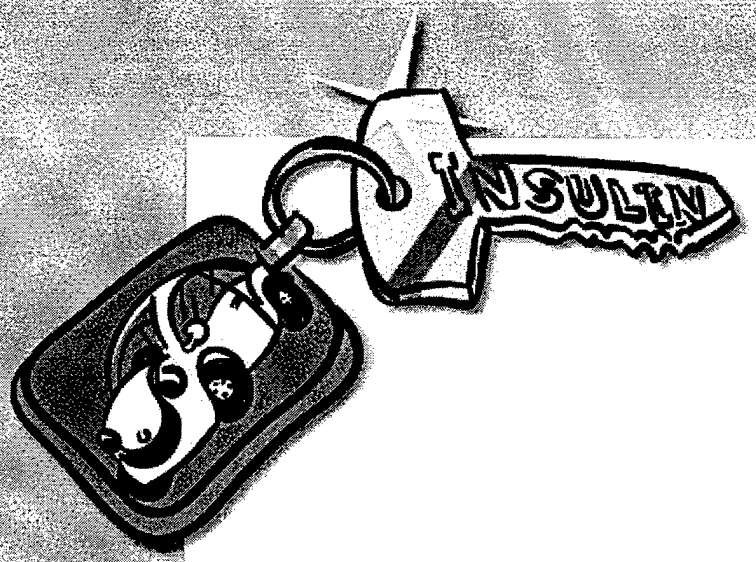
Q: In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.

You Chose:

True

A: **Absolutely!**
Without insulin as the key, the food cannot enter the cells and make our body run.

Next Question



One way to think of diabetes is to think about a car.
Our body is like a car that needs gas.
The food that we eat turns to sugar which is the fuel.
But, the fuel cannot get into our cells to make our bodies run without a key.
That key is insulin. The pancreas makes the insulin.



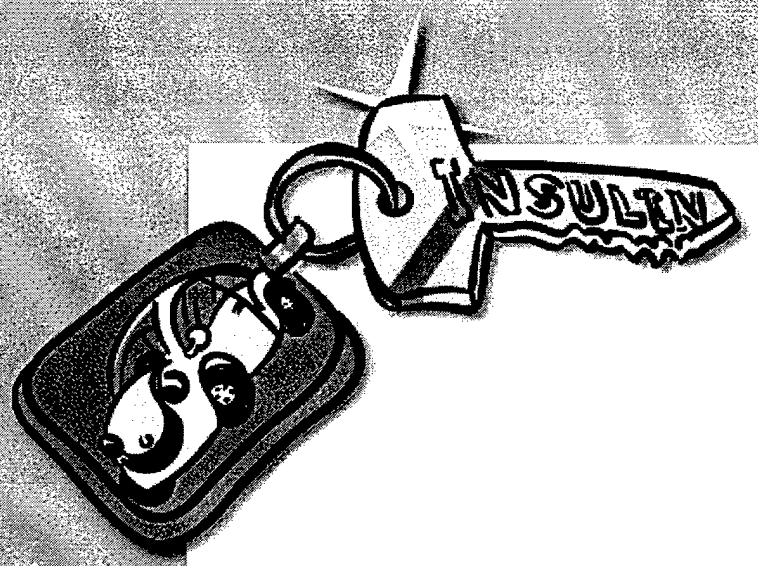
Q: In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.

You Chose:

● *False*

A: **No, this is true.**
Without insulin as the key, the food cannot enter the cells and make our body run.

Next Question ▶



One way to think of diabetes is to think about a car.
Our body is like a car that needs gas.
The food that we eat turns to sugar which is the fuel.
But, the fuel cannot get into our cells to make our bodies run without a key.
That key is insulin. The pancreas makes the insulin.



Q: In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.

You Chose:

Don't Know

A: **The answer is true.**
Without insulin as the key, the food cannot enter the cells and make our body run.

Next Question



In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You would help us learn about type 1 diabetes.



Q: Genetic tests are a new way to learn about type 1 diabetes.

Choose One:

- True
- False
- Don't Know

A:



In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You would help us learn about type 1 diabetes.

Q: Genetic tests are a new way to learn about type 1 diabetes.

You Chose:

True

A: **Yes!**
This is the type of tests that everyone could be getting in the future so we can learn even more!

Next Question



In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You would help us learn about type 1 diabetes.

GIFT

Q: Genetic tests are a new way to learn about type 1 diabetes.

You Chose:

● *False*

A: **No…**
This is the type of tests that everyone could be getting in the future so we can learn even more!

Next Question ▶



In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You would help us learn about type 1 diabetes.



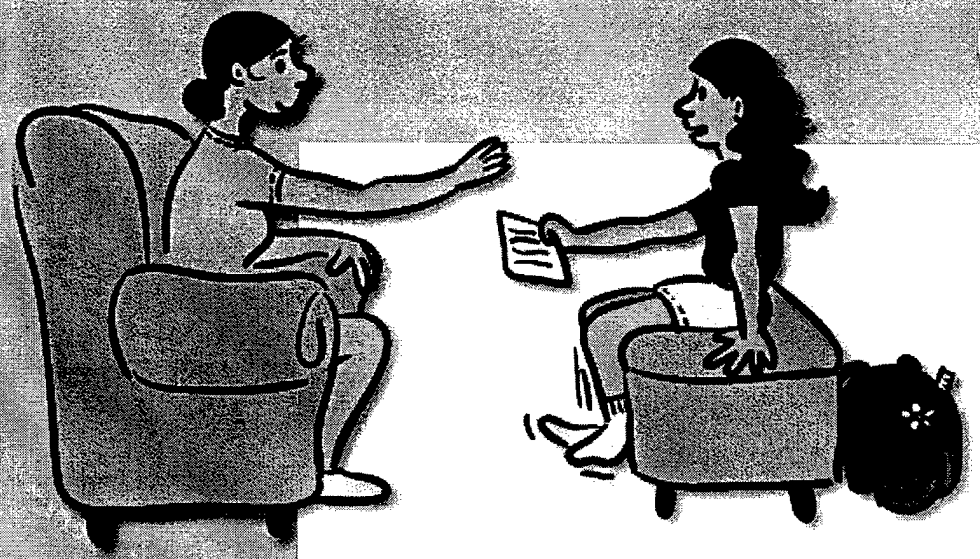
Q: Genetic tests are a new way to learn about type 1 diabetes.

You Chose:

Don't Know

A: **The answer is true.**
This is the type of tests that everyone could be getting in the future so we can learn even more!

Next Question



Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to your parents first.

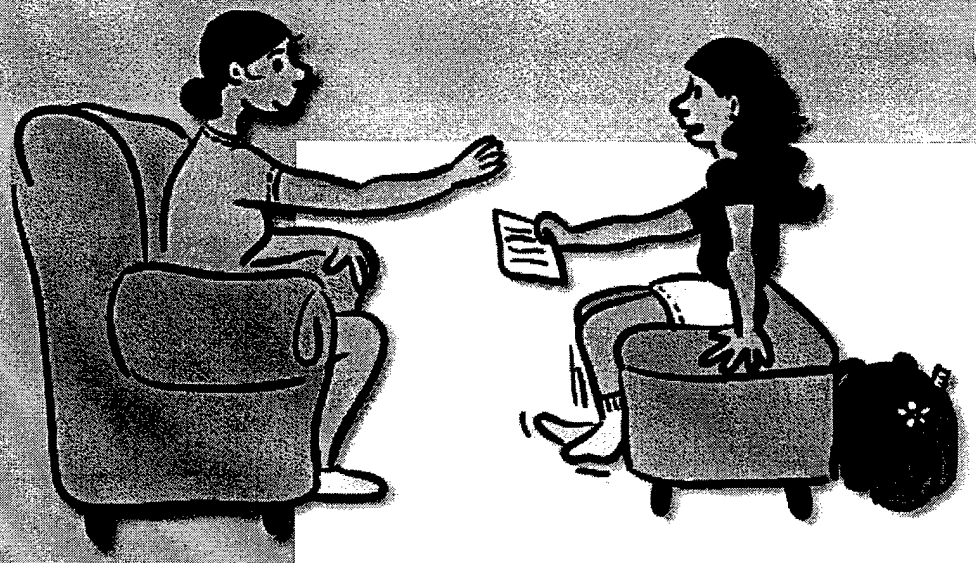


Q: I should run and tell my best friend!

Choose One:

- True
- False
- Don't Know

A:



Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to your parents first.



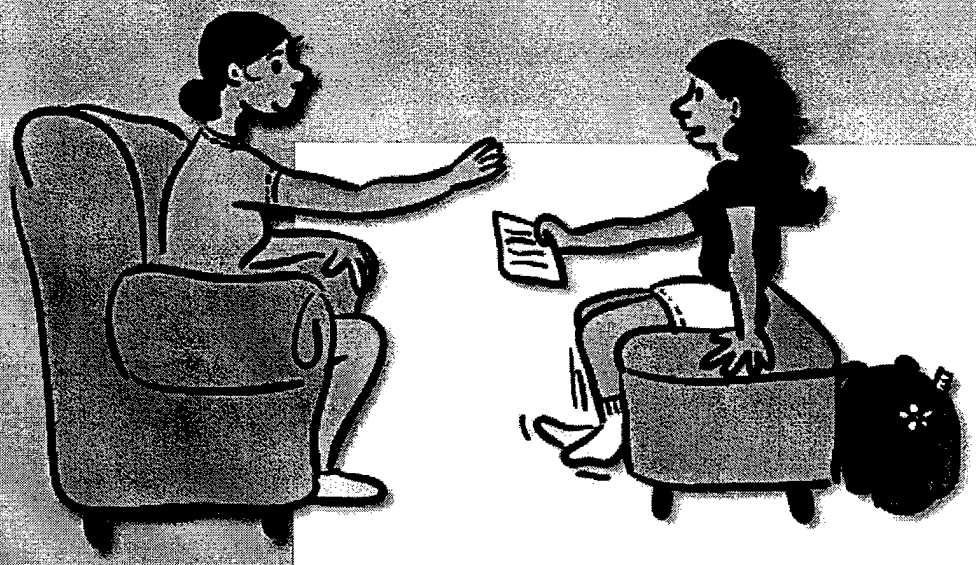
Q: I should run and tell my best friend!

You Chose:

True

A: Maybe – but only *after* you talk with a parent.

Next Question



Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to your parents first.

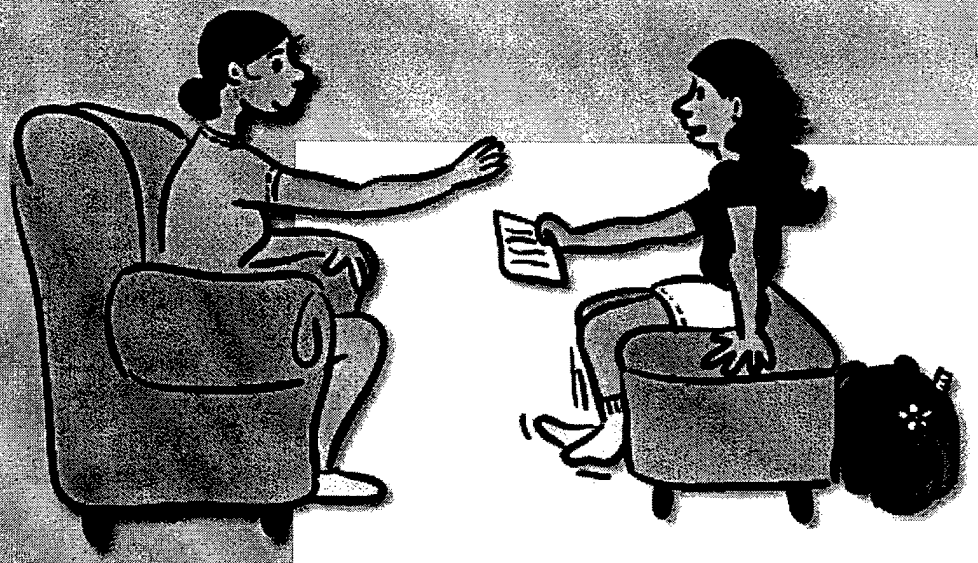
Q: I should run and tell my best friend!

You Chose:

False

A: **That is right!**
You should talk to your parent first.

Next Question



Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to your parents first.



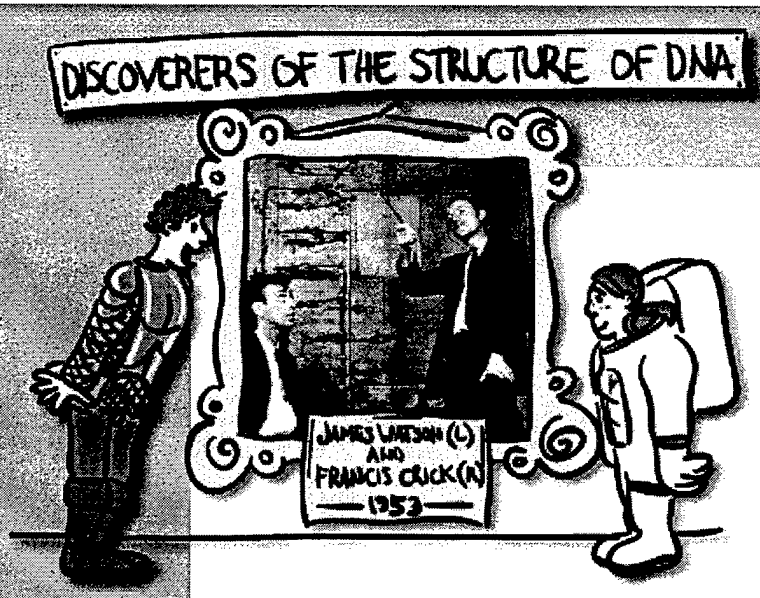
Q: I should run and tell my best friend!

You Chose:

Don't Know

A: **The answer is False.**
You should talk to a parent first.

Next Question





Are you ready to be a health pioneer? If so, tell the nurse and get ready to give up some spit!

Soon, everyone will be tested for lots of different things. But for now, *you* would be one of the first!

Because of pioneers like you, we are going to learn more about what causes type 1 diabetes. Our goal is to learn as much as we can, so that no one gets this disease in the future!

Thank-you! You have been great!

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APPENDIX 5:

COUNSELING OUTLINE

***Are you ready to receive your test results*?**

You are at the point in this study where you must make an informed decision about whether or not to receive the results of your tests. An informed decision means that you are aware of things that might happen.

Knowing your risk estimate does not give you a definite answer; it cannot tell with certainty that you will get type 1 diabetes. A high risk estimate does *not* mean that you will get the disease. A low risk does *not* mean that you will *not* get the disease. Another word for a *risk estimate* is a *chance.*

Some people choose to get their results while others decide not to get them. In order to make an informed decision, let's look at the benefits and risks of learning your results.

►I have read and understand that I need to make *an informed choice* about receiving the results of my genetic tests for type 1 diabetes.

What are the benefits of knowing the results of the test on your spit?

Knowing your test results may relieve any uncertainty about the chances of developing type 1 diabetes.

Knowing your test results may give you a sense of relief.

Once you know your test results, you may want to

- talk to a health professional
- consider participating in a type 1 diabetes intervention trial
- be on the lookout for symptoms of diabetes for early detection and early treatment
- begin to prepare emotionally that something might happen in the future
- seek out resources for education and support

►I have read and understand the *benefits* of receiving the results of my genetic tests for type 1 diabetes.

What are the risks of knowing the results of the test on your spit?

Once you know your test results, you may

- become worried, angry, or depressed
- experience anxiety about getting a disease that never develops
- decide to participate in experimental treatments that have unproven value
- be frustrated to know that you are at high risk for a disease that cannot be prevented or cured

In rare cases, some people have been denied insurance or experienced job discrimination based on the results of genetic testing.

►I have read and understand the *risks* of receiving the results of my genetic tests for type 1 diabetes.

Choosing to receive your results is an important personal decision. You should agree to receive the results only if you feel ready to know your risk estimate.

____Yes, I want to receive the results of my tests

____No, I do not want to receive the results of my tests

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APPENDIX 6:

ABSTRACTS AND MANUSCRIPTS TO BE SUBMITTED

For DOD Progress Report: GIFT for Type 1 Diabetes

Angela Feathers, B.S.

Our work to date has primarily focused on the development of web-based education modules for the general population which explain the genetics of type 1 diabetes. Based on our initial literature review and evaluations of existing internet resources for genetics education, we defined a list of topics for the educational programs which provide a solid foundation for understanding genetics in the context of type 1 diabetes. Topics included the following: basic genetics (cells, genes, alleles, DNA, multifactorial inheritance) and risk factors, susceptibility genes, genetic risk, genetic testing, and related ethical/psychosocial issues for type 1 diabetes. Interactive educational modules for both parents and children/adolescents which address these topics have been developed in a programmed response format which utilizes imbedded questions and interactive components to facilitate comprehension and retention of the information. Graphics are being designed to complement the text portion of the modules. The content and format of both the parent and child modules has been refined through successive rounds of feedback and revision by a multidisciplinary group of professionals. These programs which address the multifaceted informational needs of patients with type 1 diabetes, their family members and the general public will be further evaluated through a pilot study in young adults who have siblings with type 1 diabetes and ultimately placed online for use by the general population. As part of this ongoing project, we are currently preparing a manuscript for publication which summarizes the available internet resources for genetics education and genetic information for type 1 diabetes identified through our previous web-based searches which are appropriate for the lay community. In addition, to raise awareness about the development of our web-based educational programs, we presented a poster at the National Institute of Nursing Research conference in April 2003. The abstract for this poster presentation as well as the text versions of the child and parent modules are attached as an Appendix.

DiabetesWorld : Social Support for Adolescents on the Web

Siminerio, L., Rosenthal, B., Charron-Prochownik, D., Burkett, A., Mertz, J., & Poole, C.
Children's Hospital of Pittsburgh, Carnegie Mellon University and the University of Pittsburgh

Submitted: American Telemedicine Association Annual Meeting, May, 2004

Type 1 diabetes is a chronic disease whose prognosis relies on a demanding, complex regimen. Acceptance and adherence remain a challenge. Social support has been shown to be a strong predictor of outcomes and is critical for adolescents.

Objective: To investigate social support and determine if computerized methodologies have potential for support.

Methods: Fifty-one adolescents engaged in development and/or use of a website entitled *DiabetesWorld* at Children's Hospital of Pittsburgh. The website consisted of autobiographical sketches, discussions of diabetes issues, a message board and chatroom. The adolescents either served in editorial and design roles or visited the website over 1 year. The Social Support and Stressors of Youth with Diabetes instrument was adapted to include web questions and was administered at baseline, 6 and 12 months.

Results: Adolescents reported on people who provided the most support (mother: 98%; father; 76%; friend: 57%). There was no significant difference between levels of support received from usual sources versus the website. Participants found the website to be a useful resource for information (53%; very; 37%: somewhat useful). Adolescents also reported a high degree of satisfaction.

Conclusions: This project demonstrates that an interactive website has potential to provide additional support for adolescents with diabetes.

DiabetesWorld : A Website for and about Teen-agers with Type 1 Diabetes

Siminerio, L., Rosenthal, B., Burkett, A., & Mertz, J.
Children's Hospital of Pittsburgh, Carnegie Mellon University and the University of Pittsburgh
Diabetes Technology and Therapeutics Annual Meeting, Nov. 2003

Adolescents with diabetes face challenges living with a chronic illness. Moreover caregivers must understand psychosocial dimensions of chronic illness. Interactive computerized methodologies have the potential to provide education and support.

The principal aim of this one year demonstration project was to evaluate quality of life and social support in adolescents with diabetes who engaged in the development and/or use of a Website entitled ***DiabetesWorld***. This project was also intended to provide pre-health students with an opportunity to enhance their attitudes through interaction with these patients. The quasi-experimental design employed a time series approach with participants serving as their own controls. We planned to enroll 75 patients who self-selected into those who actively participated in building this website about teenagers with diabetes ("Builders"), and those who intended to visit the website only ("Viewers"). Pre-health students were recruited based on interest and served as "web coaches".

The features of ***DiabetesWorld*** were created by the Builders, who served in editorial, design, and production roles. The Website consisted of autobiographical sketches, discussions of diabetes-related issues, a multiple message board and a supervised chatroom.

Participation by the builders was maintained, although, use of the site by the "visitors" was lower than expected, despite measures to stimulate use. The ability to demonstrate improvements in quality of life and social support was limited by the final sample size.

DiabetesWorld demonstrates the ability to engage adolescents with diabetes in a support group environment over a sustained period of time through participation in a web-building activity. Pre-health students gained knowledge and reported gaining insight into chronic disease issues.

National Institute of Nursing Research

Linking The Double Helix With Health: Genetics in Nursing Research

POSTER SESSION ABSTRACTS

April 13th, 2003
Georgetown University School of Nursing and Health Studies

DRAFT

October 25, 2003

Determining Disease Risk for Siblings of Children with Type 1 Diabetes

Hanna A. Bandos, Ann R. Steenkiste, Joseph P. Costantino, Janice S. Dorman

Abstract.

Introduction.

Family members of children with Type 1 diabetes are at higher risk for Type 1 diabetes than the general population. A study funded by the Department of Defense has been undertaken to educate families about the risk of diabetes for the siblings of type 1 diabetics. In the study, these siblings and their parents can learn the risk each non-diabetic child has of developing type 1 diabetes before the age of 30. They will receive genetic counseling to assure they understand the context of the risk assessment. This report describes the development of the estimate of the probability of developing type I diabetes to the age of 30 for the disease free sibling of an affected individual.

Methods.

Families were participants in the Familial Autoimmune Diseases (FAD) Study, a case-control family study in which families with offspring with type 1 diabetes and control families were recruited and assessed. Data collected included family and personal medical history, the presence of autoimmune diseases, determination of two HLA alleles and clinical assessments. The HLA region of the short arm of chromosome six has been strongly implicated as a location of high risk alleles or haplotypes for Type 1 diabetes. Two alleles, DQA1 and DQB1 were assessed in FAD. Based on knowledge of the linkage disequilibrium between these two sites, haplotypes were constructed. Two haplotypes, DQA1*0301-DQB1*0302 and DQA1*0501- DQB1*0201, were designated "high risk", based on results from a number of studies (ref). Data were available for 269 Type 1 diabetes families, with a total of 637 offspring, both diabetic and non-diabetic. We use term the proband to define the child in a family who was first diagnosed with type I diabetes. Our analysis was conditioned on the fact that each family has a proband, therefore we modeled the probability of getting type I diabetes for all members of the family except the proband. Variables considered during the model building were: number of high risk DQA1-DQB1 haplotypes the child has – 0, 1 or 2 (*haplo*), number of haplotypes the child shares with the proband – 0, 1 or 2 (*heredity*), family history of type 1 diabetes of the given sibship (*family history* equals 1, if at least one parent is affected with diabetes and equals 0, if none of the parents is affected), *sex*, socio-economic status and level of education. The variables *haplo* and *heredity* were both highly significant univariately, but were positively correlated (spearman rank correlation coefficient is 0.624, p-value < .0001), therefore a new variable *riskvar* that was a composition of the variables haplo and heredity (Table1) was developed based on experience with similar genetic data. Sharing of two haplotypes with the diabetic proband has been hypothesized to confer the greatest risk due to the potential for imprinting which cannot otherwise be quantitatively captured (ref).

Table1. Definition of the variable riskvar.

Riskvar			
	number of high risk haplotypes		
number of shared haplotypes	zero	one	two
zero	0	0	0
one	0	1	1
two	2	2	2

Riskvar=2 if share 2 haplotypes,
Riskvar=1 if share 1 haplotype and the child has at least one high risk haplotype),
Riskvar=0 if everything else.

A Cox proportional hazards model was used to identify variables significantly associated with subsequent development of type I diabetes. Those individuals who remained diabetes-free at the end of the study are censored at age of their clinic visit. Three individuals affected by type II diabetes were censored at age of onset. The event time is age of the individual at the onset of type I diabetes. The analysis was based on the families with deleted probands and on individuals for whom all information was known for the variables in the final model, therefore our final data consisted of 342 individuals from 175 families, of whom 28 developed type 1 diabetes and 314 were censored. The distribution of the size of the families, defined as children other than the proband, is presented in Table 2.

Table2. Distribution of the size of the families.

Number of children in the family (excluding proband)	Frequency	Percent
1	86	49.14
2	43	24.57
3	24	13.71
4	14	8.00
5	7	4.00
7	1	0.57

Variables that showed significant effect on development of type I diabetes were *family history* and *riskvar*. The coding for these two variables – the variable riskvar was presented by the two dummy variables rv1 and rv2 (riskvar=0 is a baseline) and *family history* was coded as 0 or 1. Variables *sex, socio-economic status, level of education* did not show significant effect on getting type I diabetes neither univariately nor after adjustment for the main variables, therefore these variables were not included in the final model. Variable *diab* – censoring indicator variable: 0 if censored (given individual was not diagnosed with type I diabetes), 1 if not (given individual was diagnosed with type I diabetes), variable *time* – the survival time in years.
There were no significant interactions presented in the model.

As our data consists of the families, individuals in each family are related to each other (all members of the family have the same history of type I diabetes , they also share a common genetic makeup). Therefore survival times of distinct individuals within each family could be dependent. After we had fitted our model ignoring the fact of possible dependence we conducted a score test developed by Commenges and Andersen (1995) to test for association between individuals survival times within subgroups. Our test statistic equals T/sqrt(V)= 2.447/sqrt(11.059)=0.736, p-value=0.462, which is a statistically non-significant result.

Results.

Non-significance of the test above suggests that there is no evidence of dependence within each family and we can use the following model as our final:

$$h(t) = h_0(t) * \exp(1.82 * familyhistory + 0.67 * rv1 + 1.72 * rv2)$$

In table 3 the coefficients, corresponding hazard ratios, p-values and confidence intervals are presented.

Table 3. Final Cox proportional hazards model.

Variable	Parameter estimates	p-value	Hazard ratio	LCB	UCB
family history	1.8220	0.0002	6.184	2.338	16.354
rv1	0.6746	0.0045	1.963	0.422	9.132
rv2	1.7200		5.585	1.286	24.251

Based on our final model we define 6 covariate patterns, that will be used to tabulate the estimates of the probability. The patterns are the combination of family history and riskvar. Not all ages between birth and 30 were represented in our data. We calculated the values of the estimates of the survival function for the missing ages in our data using linear interpolation:

If t1 – any time event, t2 – next after t1 available time event,
S(t1) – estimate of the survival function at t1,
S(t2) – estimate of the survival function at t2,
Then

$$S(t_1+i)=S(t_1)-i*\frac{S(t_1)-S(t_2)}{t2-t1},\ i=\overline{1,t2-t1}$$

Probabilities are easier for the layperson to understand and since the ultimate goal of the analysis was to provide type 1 families with an idea of the risk that their non-diabetic children have of developing type 1 diabetes, the investigators determined and will report the probabilities of developing type 1 diabetes by age 30, rather than survival or hazard functions. The probability estimates that individuals with the given variable patterns will develop diabetes by age 30 given each is diabetes-free at age t were calculated using the formula: $p=\frac{S(t)-S(30)}{S(t)}$, where S(t) – is the estimate of the survival function for a given covariate pattern at time t and S(30) is the estimate of the survival function for a given covariate pattern at age 30. These probabilities are shown in the table 4:

Table 4. Probability estimates for a person with a given covariate pattern to get type I diabetes to the age of 30.

	Positive Family History			Negative Family History		
riskvar:	2	1	0	2	1	0
	pattern					
time	**1**	**2**	**3**	**4**	**5**	**6**
0	0.5838	0.2652	0.1453	0.1321	0.0486	0.0251
1	0.5780	0.2616	0.1431	0.1302	0.0479	0.0247
2	0.5721	0.2580	0.1410	0.1283	0.0471	0.0243
3	0.5341	0.2355	0.1278	0.1162	0.0425	0.0219
4	0.4912	0.2114	0.1140	0.1035	0.0377	0.0194
5	0.4758	0.2031	0.1092	0.0992	0.0360	0.0185
6	0.4705	0.2003	0.1076	0.0977	0.0355	0.0182
7	0.4651	0.1974	0.1060	0.0962	0.0349	0.0180
8	0.4596	0.1945	0.1043	0.0947	0.0344	0.0177
9	0.4512	0.1902	0.1019	0.0925	0.0335	0.0172
10	0.4426	0.1857	0.0994	0.0902	0.0327	0.0168
11	0.3879	0.1585	0.0841	0.0763	0.0275	0.0141
12	0.3783	0.1538	**0.0816**	0.0740	0.0266	0.0137
13	0.3683	0.1491	0.0790	0.0716	0.0258	0.0132
14	0.3480	0.1396	0.0737	0.0668	0.0240	0.0123
15	0.3412	0.1364	0.0720	0.0652	0.0234	0.0120

16	0.3342	0.1332	0.0702	0.0636	0.0229	0.0117
17	0.3270	0.1300	0.0685	0.0620	0.0223	0.0114
18	0.2828	0.1103	0.0578	0.0523	0.0187	0.0096
19	0.1848	0.0693	0.0359	0.0325	0.0115	0.0059
20	0.1783	0.0667	0.0345	0.0312	0.0111	0.0057
21	0.1717	0.0640	0.0331	0.0300	0.0106	0.0054
22	0.1649	0.0614	0.0317	0.0287	0.0102	0.0052
23	0.1581	0.0587	0.0303	0.0274	0.0097	0.0050
24	0.1442	0.0533	0.0275	0.0249	0.0088	0.0045
25	0.1299	0.0477	0.0246	0.0223	0.0079	0.0040
26	0.1003	0.0365	0.0187	0.0169	0.0060	0.0031
27	0.0900	0.0326	0.0167	0.0151	0.0053	0.0027
28	0.0794	0.0287	0.0147	0.0133	0.0047	0.0024
29	0.0687	0.0247	0.0127	0.0114	0.0040	0.0021
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

For example if an individual has a covariate pattern 3 and he is now 12 years old, his probability of getting type I diabetes to the age of 30 is approximately 8% (0.0816), given that he is disease free at twelve years of age.

Discussion.

As genetic information becomes more available to the general public, responsible reporting of the risk of disease associated with the presence of high risk alleles or haplotypes becomes essential. The study for which the above analysis was performed was designed specifically to address the issues of educating families with one type 1 diabetic about the potential risk of type 1 diabetes for the other children in the family. Families will be recruited, use on-line education modules to learn about type 1 diabetes, including the genetics, and will be offered genetic testing. These families will be given counseling by trained genetic counselors at the time they learn of the risk of type 1 diabetes for the non-diabetic siblings. With complex diseases such as type 1 diabetes, genetic risk must be put into perspective.

The results of the analysis show interesting trends. Sharing two haplotypes, regardless of whether they are high risk or not, is associated with the greatest probability of developing type 1 diabetes, within ages groups, compared to sharing one haplotype and having at least 1 high risk haplotype or the remaining categories of risk. Family history of type 1 diabetes, here defined as one or both parents having type 1, is associated with a higher probability of subsequent development of type 1 in the non-diabetic children. Combining the two variables of overall risk and family history preserves both relationships and provides in interesting monotonically decreasing trend in the probabilities as riskvar and family history decrease.

Genetics and Type 1 Diabetes: Online Resources for Diabetes Educators

Running Title: Online Resources for Diabetes Educators

Eric R. Manthei, B.S., Linda Siminerio, R.N., Ph.D., Yvette Conley, M.S., Ph.D., Denise Charron-Prochownik, R.N., Ph.D., Angela Feathers, B.S., Janice Dorman, Ph.D.

Abstract

Purpose: Health professionals who provide care for families with type 1 diabetes (T1D) may be responsible for providing information and answering questions regarding genetics for concerned families. Many diabetes health care professionals have never received training in human genetics and are unaware of the genetics of T1D. The World Wide Web and peer-reviewed literature can provide useful information. The Web provides too much information and the literature provides information that is disease-specific and related to research findings. We have reviewed and critiqued genetic education internet sites and peer-reviewed literature that would be most appropriate for diabetes health care professionals. In this manuscript we summarize the resources that are likely to be of greatest benefit to diabetes health care professionals.

Methods: Internet search engines were used search for websites. Each website identified was ranked according to the following criteria: 1) credibility of organization maintaining the website, 2) ease of navigation to information, and 3) provision of continuing education credits. PubMed was used to find journal articles using the same criteria for assessing websites.

Results: The search for websites on genetic education for diabetes health professionals identified many sites that met our criteria. The search of the literature identified articles regarding the importance of genetic education of nurses and other health professionals, as well as those providing genetic education, and those including information regarding genetics and diabetes.

Conclusions: There is a need for the education of health care professionals in genetics as well as in the genetics of T1D.

Introduction

Type 1 diabetes (T1D) is an autoimmune disease that occurs in genetically predisposed individuals. Although the disease typically manifests during childhood and adolescence, it can develop at later ages as well. Several studies are currently examining the natural history of diabetes beginning at birth (e.g., DAISY – Diabetes Autoimmunity Study in the Young in Colorado,[1, 2] PANDA – Prospective Assessment in Newborns of Diabetes Autoimmunity in Florida[3]). These investigations focus on infants from the general population who screen positive for HLA-DQ allele(s) that are known to increase risk for T1D. The TRIGR study[4] (Trial to Reduce IDDM in the Genetically at Risk, http://www.trigr.org), is also enrolling infants identified by genetic testing of newborns in families where there is already an affected first degree relative. Parents of babies who have a first degree relative with T1D and who also carry high risk HLA-DQ alleles are invited to participate in this primary prevention trial that involves nutritional intervention. Infants are randomized to cow's milk or hydrolyzed casein formula at birth to test the hypothesis that those on the hydrolyzed casein formula will have a lower risk of developing beta cell autoimmunity and ultimately T1D than those on cow's milk formula.

Nurses and other health professionals who provide care for families with T1D and/or recruit families for investigations may be responsible for providing information and answering questions regarding genetics for concerned families and obtaining informed consent. As genetic studies can have many implications that can impact study participants as well as family members, it is crucial that accurate information and informed consent be conveyed in a meaningful way. However, many of the health professionals involved in these studies have never received formal training in human genetics and are unaware of the state-of-the-art

regarding the genetics of T1D. Thus, they may not be able to adequately answer the patients' or the parents' questions on the concept of genetic screening or what it means to have a newborn at high (or low) risk for T1D. This is particularly important given that there is currently no medical approach to prevent the disease. While knowledge of the genetics of this multifactorial disorder is incomplete and is in constant evolution, there is considerable information currently available that can be utilized by health professionals and potential study subjects to improve their understanding of genetic susceptibility to T1D and the implications of genetic testing for T1D. If properly presented, this information could serve as a decision aid to improve the informed consent process.

A recent NIH-sponsored Conference on Behavioral Science Research in Diabetes[5] also emphasized the need to provide accurate risk information, maximize the benefits of determining risk status, minimize distress during risk notification, and educate children, families and health professionals regarding genetic testing for T1D. These recommendations echoed the recommendations from the final report of the Task Force on Genetic Testing,[6] which underscored the importance of developing of genetics curricula for schools of nursing, public health and social work, medical schools, and residency training programs. These recommendations directly relate to genetic testing for T1D, which is currently being conducted in a research environment, as recommended by the American Diabetes Association (ADA).[7] However, it also applies to health professionals who care for families with T1D and need access to up-to-date information regarding the genetics of T1D.

Although a plethora of genetic information is available on the World Wide Web (WWW), it can be difficult to find sites that provide accurate and appropriate information for health professionals. For example, the use of internet search engines such as Google

(http://www.google.com), Yahoo (http://www.yahoo.com), and MSN (http://www.msn.com) revealed over 6 million sites from a search using the word "genetics". Peer-reviewed literature can also provide useful information on genetics for health professionals. PubMed (http://www.ncbi.nlm.nih.gov/) is an excellent resource for finding journal articles pertaining to genetics. However, many of these are disease-specific and relate to research findings rather than genetic education.

Thus, we have reviewed and critiqued genetic education internet sites and peer-reviewed literature that would be most appropriate for health professionals working with families with T1D n a research or clinical setting. In this manuscript we summarize the resources that are likely to be of greatest benefit to diabetes health care professionals.

A companion paper in this issue of Diabetes Educator summarizes web-based resources that are available to the lay public, including patients of diabetes health care professionals.

Methods

On the internet, Google, MSN, and Yahoo were used as search engines to search for sites using the keywords "health professionals", "genetics", "diabetes", and "education". Each website identified by the search was ranked according to the following criteria: 1) credibility of organization maintaining the website, 2) ease of navigation to information, and 3) provision of continuing education credits. These were based on criteria for assessing information quality on the internet that has been developed by Mitretek Systems: Health Information Technology Institute (HITI).[8] These can be accessed at http://hitiweb.mitretek.org/docs/criteria.html, and pertain to issues such as credibility, content, disclosure of purpose of site, usefulness of links, website design ensuring effectiveness of delivery, and interactivity in the form of a route for user

feedback. The general HITI site (http://hitiweb.mitretek.org/info/index.asp) also contains the Information Quality (IQ) Tool. The IQ Tool considers a website's content and layout through questions answered by the person using the site in question. Once completed the IQ Tool provides a report that contains a review of answers, a score, and information on the importance of what was missing from the site. The score only indicates how well the website answered the IQ Tool questions; it is not a measure of quality. The portion of the score that is most informative is the detailed report on what was missing from the website; this section tells why the answers to the questions are important. In this way, an individual is given a way of assessing the quality of a website.

A review of the literature on genetic education for health professionals was also conducted, with a special emphasis on articles describing web-based education. The online journal library, PubMed (http://www.ncbi.nlm.nih.gov/), was used to find these journal articles. The same search terms and criteria for assessing information quality used for the websites were applied to journal articles.

Results

WWW Review

The search for websites on genetic education for diabetes health professionals identified 32 comprehensive sites that met our criteria. These are listed in Table 1, which includes the URL, a brief description of the site, and whether information regarding diabetes or continuing education (CE) credits was provided.

Based on the above-mentioned criteria, the search of the literature identified 22 articles regarding the importance of genetic education of nurses and other health professionals (Tables 2 and 3), as well as three articles that provided genetic education (Table 4), and nine articles that included information regarding genetics and diabetes (Table 5).

Discussion

The Human Genome Project has recently announced the sequencing of the entire human genome. This advance in current knowledge will bring about many new discoveries in the field of genetics, of which the health professional can keep abreast through available information on the web and in published literature. As the field of genetics expands due to new discoveries and the technology and assays available for genetic testing become more reliable, faster, and more easily used, the genetic knowledge that nurses and other health care professionals need will increase. Obtaining the knowledge necessary to accomplish proper patient care can be a challenge. Ease and convenience can be achieved through use of the internet. By making general genetics information available online, those accessing the information can use it whenever they want and this information is available for quick reference at a later date.

Health care providers who understand basic genetics can conduct a more thorough assessment of family health. The ability to take a detailed family history and to identify inheritance patterns of disease-associated symptoms is critical. The recognition of genetic disorders provides an opportunity for the health care providers to refer the individual or family for specialized services such as genetic counseling and testing. An understanding of genetics should include the ability to explain the procedures and implications of genetic testing. The health care provider must have

an understanding of genetics in order to facilitate communication to the patient on genetics and risk. This is important so that patients and families can make informed choices about testing, treatment, and other genetic services. Equally important is the ability of the health care provider to identify resources that will aid in personal education as well as aid in patient education. These abilities can be attained through use of the WWW.

The need for educating health professionals on the genetics of type 1 diabetes could be accomplished through additional training and continuing education programs obtained post-graduation. The internet also provides an economical and effective method for on-line education and training. The convenience and reduced cost of such web-based programs include the reduced need for administering training to individuals in remote locations (i.e. satellite clinics in small towns participating in large studies), to individuals who are hired to recruit subjects into a study at any point in time after the initiation of the study, and the ability to easily update the web-site if new information becomes available.

The School of Nursing at the University of Pittsburgh in Pittsburgh, PA, is utilizing a web-based approach by making an introductory genetics course available online. The online course follows the classroom course in content and is available to registered students. The course contains six modules that increase in complexity to build a framework for a basic understanding in genetics. This online course is an example of how the internet can be used to help educate nurses and health professionals about the field of genetics and its connections to health care.

This manuscript is meant as a resource for health professionals who wish to gain more information about genetics and the genetics of T1D. The tables are meant to provide quick access to the available information. As the amount of information available about the genetics of

disorders increases, the amount of knowledge needed by the health professionals caring for these patients will increase. This manuscript can serve as a quick reference to access necessary genetic information, saving time and energy that can be better spent on patient care.

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Table 1. Websites Providing Genetic Information for Health Professionals

Organization	CE	Site	Description
Genome News Network		http://www.genomenewsnetwork.org/whats_a_genome/Chp1_1_1.shtml	What's a Genome? An online book about genetics in a simple, easy to understand format.
American Nurses Association	✓	http://www.nursingworld.org/mods/mod170/cegntoc.htm	Continuing Education: Genetic Care-An Historical Perspective on Genetic Care – This site is meant for nurses to learn about the history of genetic care, the role of nurses in genetic care, and explain the implications of genetic care for nursing practice. This site contains continuing education credits (2 contact hours) for a small fee.
National Human Genome Research Institute		http://www.genome.gov/	Contains information for teachers of K-12 as well as Professional Training and Career Development.
March of Dimes	✓	http://www.marchofdimes.com/professionals/682.asp	Continuing Education for Professionals and Researchers – Offers online education modules, lecture series, and online curricula in genetics for physicians. Opportunities exist within the site for continuing education credits, but these can be difficult to find.
Genetic Education Materials Database		http://www.gemdatabase.org/GEMDatabase/index.asp	Lists public health genetics policy documents and clinical genetics educational materials. Theses documents and materials are listed as hyperlinks which route the user to pages that will say if the material is available. Some of the material is not free. A detailed search of the database can be performed to find specific sites of interest.
University of Iowa Virtual Children's Hospital		http://www.vh.org/Providers/Textbooks/ClinicalGenetics/Contents.html	Virtual Hospital: Clinical Genetics: A Self Study for Health Care Providers – contains lessons: Lesson 1-Genetic Concepts and Genetic Tests, Lesson 2-Assessment Strategies-How to Identify Families Who Might Benefit from Genetic Services, Lesson 3-Genetic Services-What are they?, Lesson 4-Making a Referral; Appendices: A-Reasons for Referral, B-Glossary of Terms and Abbreviations, C-Annotated Bibliography of Resources, D-Educational Tools and Resources, E-State Services.
University of Iowa Health Care: Virtual Hospital		http://www.vh.org/	Contains search engine to find informational documents within site.
University of Kansas Medical Center		http://www.kumc.edu/gec/geneinfo.html	Information for Genetic Professionals – With clinical, research, and educational resources for genetic counselors, clinical geneticists, and medical geneticists.
Centers for Disease Control		http://www.cdc.gov/genomics/trainin	Office of Genomics and Disease Prevention: Training and Education – Contains

and Prevention	g.htm	quite a long list of on-line presentations including slide shows, videos, lectures, and audio clips geared toward K-12 children to health professionals. There is also a list of training opportunities in the field of genetics. A list of core competencies in genetics essential for all health-care professionals is included. Also included is a public health workforce genomic competencies list.
Cold Spring Harbor Laboratory: Dolan DNA Learning Center	http://www.eugenicsarchive.org/eugenics/	Image Archive on the American Eugenics Movement – This site has reports, articles, charts, and pedigrees considered scientific fact in their day. Also includes recently written historic articles detailing the events leading up to legislation condoning eugenic practices and events after this legislation leading to the banning of eugenic practices.
International Society of Nurses in Genetics	http://www.globalreferrals.com/isong.html	ISONG's mission statement: To foster the scientific, professional, and personal development of members in the management of genetic information. This site has information geared specifically for nurses working in the field of genetics.
GlaxoSmithCline: Genetic	http://genetics.gsk.com/edu.htm	Contains links to professional meetings, courses, workshops, and conferences. There is not much content for genetic education.
National Society of Genetic Counselors	http://www.nsgc.org	Contains information about genetic counseling. Site has information that can lead to genetic education.
National Newborn Screening and Genetics Resource Center	http://genes-r-us.uthscsa.edu/resources/genetics/primary_care.htm	Contains PDF documents of materials for training of primary care workers in genetics.
American Society of Human Genetics	http://www.faseb.org/genetics/ashg/educ/002.shtml	Educational Resources: Contains links to informational sites on genetics.
U.S. Department of Energy	http://public.ornl.gov/hgmis/external/category.cfm?category=Education	Contains links to a variety of genetic topics.
Freising-Weihenstephen	http://www.weihenstephan.de/~schlind//genglos.html	This is a hypermedia glossary of genetic terms. The number of terms is relatively short, but it can be useful for a quick search for basic genetics terminology.
Overlake Medical Library	http://www.overlakehospital.org/library/medical.htm#Genetics	Contains links to other informational sites.
University of Washington School of Medicine – Gene	http://www.geneclinics.org	Contains reviews about genetic conditions and laboratories that do genetic testing. Excellent source of information for clinical health professionals.

Clinics

John Hopkins University		http://www.ncbi.nlm.nih.gov/omim/	Online Mendelian Inheritance in Man (OMIM) – This is an excellent resource for information on genetic conditions. Text, graphics, and pertinent links are provided on almost all known human genetic disorders.
National Institutes of Health Office of Rare Diseases		http://rarediseases.info.nih.gov/	Links for resources pertaining to over 7000 rare diseases.
Association of Professors of Human or Medical Genetics: National Coalition for Health Professionals Education in Genetics		http://www.faseb.org/genetics/aphmg/guidelines.htm	Contains a list of information that health professionals should know about genetics for better care for patients
National Coalition for Health Professional Education in Genetics	✓	http://www.nchpeg.org/	This site contains presentations from annual meetings, educational resources (some of which include CE's), core competencies in genetics for health care providers, and other useful resources.
American Academy of Family Physicians		http://www.aafp.org/afp/990700ap/core.html	This is a list of what a family practice resident should know about medical genetics.
University of Kansas Medical Center		http://www.kumc.edu/gec/prof/soclist.html	This site contains a list of professional societies and links to their websites.
Columbus Networks		http://dirs.educationworld.net/cat/5860705	This site contains links to websites of professional organizations.
Genetics Education and Counseling Program University of Pittsburgh		http://www.pitt.edu/AFShome/e/d/edugene/public/html/resource/index2.html	This site contains *many* links to sites of interest to genetic counselors, medical geneticists, and clinical geneticists.
National Institutes of Health		http://search.info.nih.gov/grow/	This search engine is set up by the NIH. Using search terms, the user is provided with a ranked listing of useful web resources.
Oncology Nursing Society		http://www.ons.org/xp6/ONS/Clinical.xml/GeneticsToolkit.xml	This site is contains a genetics in cancer tool kit for the education of nurses in the genetics of cancer.
Children with Diabetes		http://www.childrenwithdiabetes.com/d_0n_500.htm	This site contains information about studies being conducted into type 1 diabetes. Links to study web pages are provided.

Type 1 Diabetes Genetics Consortium	http://www.t1dgc.org/	This organization's purpose is to organize international efforts to identify genes that determine an individual's risk of type 1 diabetes.

CE = continuing education credits included

A Review of Educational Genetics Resources for Type 1 Diabetes on the Internet: Where Can Diabetes Educators and the General Public Access Genetic Information Online?

Running Head: Genetics Education for Type 1 Diabetes on the Internet

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Financial Support

Abstract

Purpose:

Methods:

Results:

Conclusions:

The vast amount of knowledge provided by the Human Genome Project has accelerated efforts to elucidate the hereditary components of complex diseases including type 1 diabetes mellitus. These endeavors are highly anticipated based on their potential to revolutionize standard approaches to the diagnosis, treatment, and prevention of common diseases. In particular, there is substantial evidence that specific alleles of genes located in the HLA region of chromosome 6 as well as other regions of the human genome increase susceptibility for type 1 diabetes.[1-4]

Recent developments in high throughput approaches for genotyping for high risk HLA-DQ alleles have already allowed researchers to identify individuals with a genetic predisposition for type 1 diabetes. In fact, several ongoing natural history studies and clinical trials for type 1 diabetes are now using the information provided by genetic testing to recruit the genetically at-risk. For example, the Diabetes Autoimmunity Study in the Young (DAISY) in Colorado and the Prospective Assessment in Newborns for Diabetes Autoimmunity (PANDA) in Florida and Georgia represent two current prospective natural history studies investigating the genetic and environmental precipitants of autoimmunity associated with type 1 diabetes.[5-7] The focus of both these research initiatives involves identifying those with a genetic susceptibility to type 1 diabetes by screening children and newborns for high-risk HLA alleles. Through ascertainment and follow-up of children with a high genetic propensity for type 1 diabetes, researchers hope to determine precisely how the complex interrelationships among genes, environmental agents, and the immune system work to promote disease progression.

The Trial to Reduce Insulin-Dependent Diabetes in the Genetically at Risk (TRIGR) is a multinational prediction-prevention study examining whether delayed exposure to intact food proteins contained in cow's milk formula reduces the likelihood for developing type 1 diabetes

among genetically predisposed infants.[8,9] Infants who have a first degree relative with type 1 diabetes and who also have inherited high-risk HLA alleles are eligible for enrollment in TRIGR. Infants of mothers who cannot exclusively breastfeed their child prior to 8 months of age will be randomized into one of two intervention groups. One group of mothers will receive breastfeeding supplements of an extensively hydrolyzed trial formula lacking intact cow's milk protein while the other group will receive a non-hydrolyzed cow's milk formula. (More information is available at www.trigr.org).

As the lay public is further exposed to the accumulating body of information regarding genetics and type 1 diabetes, diabetes educators will become the primary sources of genetic information for their patients eager to learn more about the putative link between genetic factors and risk for the disease. The internet presents a unique opportunity to distribute educational materials about basic genetics to a large and diverse audience. It can therefore serve as a valuable gateway for diabetes educators to introduce genetics concepts and new genetic discoveries.

A companion paper in this issue of Diabetes Educator summarizes the web-based resources that could lead to continuing education credits for health professionals interested in the genetics of type 1 diabetes. Although numerous online resources for genetics education are also geared toward the general public, there is a relative paucity of information on the internet dedicated to the genetics of complex diseases such as type 1 diabetes. In addition, the lay community may not be able to assess the quality and accuracy of resources for genetics education which they find through web-based searches. Thus, the purpose of this review is to highlight the existing internet resources for genetics education which provide helpful and reliable

information for the lay public as well as those which specifically address the genetics of type 1 diabetes.

Methods

To locate the currently available internet resources for genetics education, extensive keyword searches were performed. The keyword phrases "genetic education" and "genetic education for the public" were entered into popular search engines, including Yahoo and Google. Additional sites were located by browsing the links for genetics information included in these websites. Websites geared specifically toward genetics education for children/young adults were also identified through these comprehensive searches. The main sites elicited by these keyword searches were then evaluated according to the criteria suggested by the Mitretek Systems, Health Information Technology Institute (HITI) which relate to the quality of web-based health information[10]. For the purpose of this article, website assessment primarily focused on the criteria of credibility, content, design, and interactivity outlined by HITI. Specifically, the identified web resources were reviewed to determine whether they provide accurate, relevant, and up-to-date genetic information and explain basic genetics in an easy-to-follow format supplemented with graphics, animation, or interactive components to maintain user interest.

Similarly, internet resources describing the genetic components of type 1 diabetes were located by exploring general diabetes websites and by performing keyword searches for the phrase "genetics and type 1 diabetes" in several popular search engines including Yahoo and Google. Criteria for including these sites were based on whether they present accurate and current information about the association between genetics and risk for type 1 diabetes involving the inheritance of high-risk HLA alleles.

Results

The internet sites for genetics information considered to most effectively educate users about general genetic concepts are illustrated in Table 1. Websites providing quality learning opportunities for children/young adults with regard to genetics are displayed in Table 2. All the sites listed in Tables 1 and 2 communicate information about basic genetics concepts within an educational framework, while many also contain unique features such as glossaries and interactive modules. However, few sites explain genetic risk for complex diseases, the interaction between genes and the environment as causal factors for multifactorial diseases, or the ethical and psychological issues associated with genetic testing and disclosure of personal genetic information. Moreover, only one of these websites discusses genetics in relation to type 1 diabetes in the form of a fact sheet. Although the existing web-based resources for genetics education satisfy the need for genetic knowledge among the lay public, at-risk families, and individuals with type 1 diabetes, overall they do not address the link between genetic factors and disease susceptibility. The select few websites which provide a more thorough coverage of the relationship between genetics and risk for type 1 diabetes associated with high-risk HLA alleles are presented in Table 3.

Conclusions

Advancements in understanding the genetic components of complex diseases such as type 1 diabetes and the emerging use of genetic technologies in medicine raise important societal issues such as the potential ethical, legal, and psychosocial impact of personal genetic information revealed through genetic testing. Therefore, as prominent discoveries in the genetics of type 1 diabetes are used in research and applied to standard medical and public health practice, providing genetic information, becomes a paramount consideration for health care

providers. In this genomic era, it is now imperative for the lay community to have access to educational programs which promote awareness of the genetics of type 1 diabetes. In particular, the public needs to be knowledgeable about basic genetic concepts including genes, DNA, alleles, and multifactorial inheritance. Information about genetic susceptibility of type 1 diabetes, genetic and environmental risk factors, interpretation of personalized risk estimates, and the psychological impact of knowing one's genetic risk status should also be key elements of these programs. Beyond the scope of their benefit to participants in research studies, educational tools which explain the genetics of type 1 diabetes will encourage the public to become informed health consumers in today's rapidly evolving medical world.

The internet can serve as an instrumental modality for transmitting genetics education programs on a population-wide scale. The benefits of disseminating information about genetics and type 1 diabetes via the World Wide Web are multidimensional (See Table 4). These resources could also be utilized by diabetes educators to promote a more comprehensive understanding of the disease. When children are initially diagnosed with type 1 diabetes or identified as having a high genetic risk, their parents are often interested in finding all the available information. At the same time, they may be approached by researchers eager to recruit study participants. By fostering genetic literacy about type 1 diabetes, web-based educational tools devoted to the genetics of type 1 diabetes can function as decision aides for the informed consent process for genetic testing and research participation. More generally, these resources can be incorporated into standard medical care and made accessible to the lay public. Additional advantages of web-based approaches to genetics education for type 1 diabetes include the ability to convey information in an expedient manner, cost-effectiveness, ease of updating and

modifying informational content, and opportunities for self-paced learning and immediate user feedback.

Although numerous genetics education resources for the public are available online, very few sites concentrate specifically on genetics education for type 1 diabetes. Likewise, many general diabetes websites are easily accessed, yet only briefly mention the relationship between genetics and risk for the disease. Overall, websites providing genetic information that is both beneficial and meaningful to families dealing with type 1 diabetes and the general public remain virtually inaccessible on the internet. Therefore, educational programs which address the genetic basis of type 1 diabetes are urgently needed in order to fill these current information gaps on the web.

To meet the critical need for genetic literacy in relation to type 1 diabetes, our research group is currently developing an interactive website consisting of genetic education modules for type 1 diabetes. These modules seek to address the multifaceted informational needs of patients and their family members as well as those at increased risk and members of the general public who wish to learn more about type 1 diabetes. Separate modules are being designed for different age groups and will ultimately be implemented for use by the general public via the internet.

The overall objectives of this ongoing project include educating the target audience about general genetic concepts and genetic risks in order to promote a more comprehensive understanding of type 1 diabetes, its multifactorial characteristics, and susceptibility testing for the disease. The knowledge gained from completion of the modules will hopefully empower individuals to make informed personal decisions about genetic testing and experimental interventions for type 1 diabetes. This novel educational initiative for type 1 diabetes will serve as a model for creating, implementing, and evaluating future educational resources aimed at

increasing awareness of the genetic and environmental determinants of risk for other complex diseases.

Acknowledgements

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Available at: http://hitiweb.mitretek.org/docs/criteria.html. Accessed October 31, 2002.

Table 4: Genetics Education for Type 1 Diabetes

Educating patients/families about the genetics of type 1 diabetes will help them:

- Understand basic genetics (genes, chromosomes, DNA, alleles, inheritance)
- Understand the concept of genetic risk for the disease
- Comprehend how both genetic and environmental factors influence disease development
- Assess the benefits/risks/limitations of genetic testing
- Consider ethical, legal, and psychosocial issues related to genetic advances
- Make informed personal decisions regarding genetic testing and participating in natural history or experimental interventions for the disease

TABLE 1: Educational Genetics Sites for the Public

Site	*URL*	*Authority*	*Special Features*	*Comments*
Genetics @ GlaxoSmithKline	http://genetics.gsk.com/generalpublic_flash.htm	GlaxoSmithKline	Flash interactive modules explaining basic genetics, glossary, self-test of knowledge, FAQs, teacher resources	Modules capture user interest through great use of graphics and voiceovers , excellent animations, easy to understand information
Genetic Science Learning Center	http://gslc.genetics.utah.edu/	Eccles Institute of Human Genetics at the University of Utah	Flash interactive modules covering basic genetics, genetic disease corner, sections on stem cell research and cloning, Spanish version available	Great graphics! Easy to navigate, Flash modules take a while to load, material is simple and easy to follow
Gene CRC Learning Center	http://www.genecrc.org/site/lc/index_lc.htm	The Cooperative Research Centre for Discovery of Genes for Common Human Diseases	Printable fact pages with a more detailed look at specific genetic topics, glossary, educational resources	Not interactive but easy-to-follow, simple overview of basic genetics
Dolan DNA Learning Center	http://www.dnalc.org/	Cold Spring Harbor Laboratory	Online textbook *DNA From the Beginning* with animation, image gallery, video interviews, problems, and links for many basic genetic concept; genetic disease information	Comprehensive, detailed examination of genetics supplemented with great interactive tools
Genetics Education Program	http://www.genetics.com.au/	A statewide program of New South Wales Health based at the Royal North Shore Hospital (Sydney, Australia)	Printable PDF fact sheets for basic genetics, genetic disorders, inheritance patterns, and genetic technologies; guide to drawing a family health tree; glossary	Not interactive, good quality basic information on genetic concepts, text supported with simple graphics
Genomic News Network	http://gnn.tigr.org/whats_a_genome/Chp1_1_1.shtml.	Center for the Advancement of Genomics	Online book with explanations of basic genetic concepts from a genomics perspective	Not interactive, text-rich format supported with some graphics
Access Excellence Resource Center—Understanding Gene Testing	http://www.accessexcellence.org/AE/AEPC/NIH/index.html	US Dept. of Health and Human Services, Public Health Service, NIH, National Cancer Institute	Covers basic genetics with a focus on genetic testing and its associated risks and benefits, glossary	Not interactive, mainly text-based with several graphics, thorough coverage of genetic testing
The Tech—DNA: The Instruction Manual for All Life	http://thetech.org/exhibits_events/online/genome/overview.html	The Tech Museum of Innovation (San Jose, CA)	Interactive look at information about DNA and chromosomes, presents different ethical scenarios which place you in the position of a parent, doctor, judge, patient, and voter	Text supplemented with nice interactive images but no mention of genes
Cracking the Code of Life	http://www.pbs.org/wgbh/nova/genome/	Nova Online	Online viewing of the Nova program, "Cracking the Code of Life" (4/01), interviews/articles about genetic topics, interactive modules, glossary, educational resources	Online video viewing is a great idea! Nice interactive components, minimal information about basic genetics
Blazing a Genetic Trail	http://www.hhmi.org/genetictrail/	Howard Hughes Medical Institute	Series of professionally written articles on human genetics concepts, glossary, Spanish version available	Not interactive; detailed, text-based examination of genetic concepts with little focus on the basics

Your genome.org	http://www.yourgenome.org/	Wellcome Trust Sanger Institute	Genetic information presented at beginner, intermediate, and advanced levels; FAQs; news and discussion	Not interactive, easy-to-follow text-based explanations with many colorful graphics, ability to select level of difficulty is ideal
Gene Stories . . . The Basics of Being	http://www.bbc.co.uk/health/genes/	BBCi	In depth look at basic genetics and related topics with some interactive features; information about genetic disorders, genetic testing, ethical issues, and the role of genes in development	Wonderful variety of genetic information presented in a non-technical manner, several outstanding interactive components
DNA: Heredity and Beyond	http://library.thinkquest.org/20830/main.htm?tqskip1=1&tqtime=0712	Created for the 1998 ThinkQuest Competition	Textbook format covering basic genetics with sections about genetic technologies and ethics; glossary; interactive forum to exchange opinions	Mainly text-based with some graphics, good information about new genetic technologies
A Revolution in Progress: Human Genetics and Medical Research	http://history.nih.gov/exhibits/genetics/	National Institutes of Health, Online Exhibit of the DeWitt Stetten, Jr., Museum of Medical Research	Introduction to genetics with details about diagnosis/treatment of selected genetic disorders; use of genetics in medicine, Human Genome Project, and ethical topics; glossary	Not interactive except for one imbedded question, nice mix of text and excellent graphics to facilitate learning without losing user interest
Genomics and Its Impact on Science and Society: A 2003 Primer	http://www.ornl.gov/TechResources/Human_Genome/publicat/primer2001/index.html	US Dept. of Energy, Human Genome Program	Online publication with discussions of basic genetics, the Human Genome Project, and the benefits, societal concerns, and future of new genetics; genetic dictionary	Not interactive, text complemented by graphical displays, only a brief description of basic genetic terms

TABLE 2: Educational Genetics Sites for Children/Adolescents

Site	*URL*	*Authority*	*Special Features*	*Comments*
Kids Genetics @ GlaxoSmithKline	http://genetics.gsk.com/kids/index_kids.htm	GlaxoSmithKline	Professor U.Gene helps you learn about basic genetic concepts, interactive learning activities with different levels	Interactive learning activities are very engaging and make learning fun
Kids Health—What is a gene?	http://www.kidshealth.org/kid/talk/qa/what_is_gene.html	The Nemours Foundation	Presents information on basic genetics and gene therapy, Spanish version available	Not interactive; Simple, concise test-based explanations of genetic concepts without graphics
I Can Do That!	http://eurekascience.com/ICanDoThat/index.htm	Eureka! Science, Corp.	Cartoon characters (Gene, Polly, RayNA) take you on an informational tour of basic genetics, cells, and genetic methods	Not interactive, text supported with graphics, narrative format captures user interest but information is very detailed
A Science Odyssey—DNA Workshop	http://www.pbs.org/wgbh/aso/tryit/dna/	WGBH Boston	Interactive learning activities for DNA replication and protein synthesis, glossary	Not much focus on basic genetics
Gene CRC—Kids Only	http://www.genecrc.org/site/ko/index_ko.htm	The Cooperative Research Centre for Discovery of Genes for Common Human Diseases	Learn about basic genetics from GoGo Gene, Lucy, and Pip, interactive gene games with different difficulty levels, glossary	Easy-to-understand text-based explanations supplemented with graphics, interactive games for all ages
Designer Genes	http://library.thinkquest.org/18258/noframes/intro.htm	Created for the 1998 ThinkQuest Competition	Comprehensive coverage of both basic and advanced genetics concepts, homework help, self quizzes, Polish version available	Not interactive, text supported with graphics, very detail oriented, geared toward more advanced students
Just For Kids! A Cartoon Guide to Genetics	http://history/nih.gov/exhibits/genetics/kidsf.htm	National Institutes of Health, Online Exhibit of the DeWitt Stetten, Jr., Museum of Medical Research	Slide show explaining key genetic concepts, links to other genetic resources	Not interactive, moving screen with graphics and simple text presented in kid-friendly language, slide show may require a long time to download

TABLE 3: Sites Describing the Genetics of Type 1 Diabetes

Site	*URL*	*Authority*	*Description*	*Comments*
Genetics Education Program—Diabetes Fact Sheet	http://www.genetics.com.au/Genetics2003/factsheets/34.asp	A statewide program of New South Wales Health based at the Royal North Shore Hospital (Sydney, Australia)	Printable PDF fact sheet covering the genetics of type 1 and type 2 diabetes	Easy-to-follow text-based format with graphics of family trees (pedigrees)
Genetics of Type 1 (Autoimmune) Diabetes	http://joslin.org/research/genetics_type1.shtml	Joslin Diabetes Center	Section in a diabetes site providing information about the genetic basis of type 1 diabetes	Brief text-based discussion without graphics
Causes of Type 1 Diabetes	http://www.intelihealth.com/IH/ihtIH/WHIHW000/35132/35250/363533.html?d=dmtContent	Aetna InteliHealth (Content Reviewed by the Faculty of Harvard Medical School)	Focuses on putative genetic and environmental triggers of type 1 diabetes	Brief text-based discussion without graphics
Genetics of Diabetes	http://www.diabetes.org/main/info/diagnosed/genetics/genetic.jsp	American Diabetes Association	Mentions genetic predisposition and environmental triggers for type 1 diabetes	Brief text-based discussion without graphics, no mention of HLA genes
Children Have Diabetes Too (Chapter 3)	http://www.diabetic.com/children/chapter3page1.htm	Diabetic.com	Online book covering general diabetes information and genetic susceptibility to type 1 diabetes	Easy-to-follow explanation geared toward families, supplemented with graphics

DAMD17-01-1-0009

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APPENDIX 7:
TABLE 1: "VARIABLES/MEASURES"
TABLE 1A: "VARIABLES/MEASURES COPYRIGHTS AND PERMISSIONS"
TABLE 2: "CHILD MEASURES TIMELINE"
TABLE 3: "PARENT MEASURE TIMELINE"
TABLE 4: "PILOT MEASURES TIMELINE"

Table 1

VARIABLES	CHILD MEASURES	PARENT MEASURES
DEMOGRAPHIC		DEMOGRAPHIC QUESTIONNAIRE (9) [6.5]
DEPRESSION (OUTCOME)	CDI-S (10)	CESD-S (10)
ANXIETY (OUTCOME)	STAI –C (20)	STAI (20)
COPING (MODERATING)		
DISTRESS (MEDIATING)		
PERCEIVED RISK (MEDIATING)	ATTITUDES ABOUT HEALTH-C (6) [4.4] CHILD HEALTH OUTCOME –C (36) [4.8]	ATTITUDES ABOUT HEALTH (9) [6.0] CHILD HEALTH OUTCOME (38) [6.7]
HEALTH BELIEF (MEDIATING)	INTENTION-C (2) SELF EFFICACY-C (3) GENETIC TEST HEALTH BELIEFS-C (13) [3.0]	INTENTION (3) SELF EFFICACY (3) GENETIC TEST HEALTH BELIEFS (20) [5.6]
OPTIMISM (MODERATING)	LOT-r (6)	LOT-R (6)
HEALTH QUALITY OF LIFE (OUTCOME)	HEALTH LADDER –C (1)	HEALTH LADDER (1)
STIGMA/DISCRIMINATION (MEDIATING)	PERCEIVED STIGMA-C (11) [4.8]	PERCEIVED STIGMA (16) [7.1]
RELIGIOSITY (MODERATING)		RELIGIOSITY (7) [7.6]
FAMILY DYSFUNCTION (MODERATING)		FAMILY APGAR (5) [8.2]

Table 1
Page2

VARIABLES	CHILD MEASURES	PARENT MEASURES
KNOWLEDGE (MEDIATING)	GENETIC/DIABETES KNOWLEDGE TEST -C (10)	GENETIC/DIABETES KNOWLEDGE TEST (10)
REFUSAL (EXIT SURVEY) (GENETIC TESTING) (OUTCOME)		WHY NOT (TEST) QUESTIONNAIRE (9) [4.5]
REFUSAL (EXIT SURVEY) (RECEIVING RESULTS) (OUTCOME)		WHY NOT (COUNSEL) QUESTIONNAIRE (6) [8.0]
PREVENTION BEHAVIOR (OUTCOME)		MONITORING VIGILANCE QUESTIONNAIRE (16) [4.6]
DISCLOSURE (OUTCOME)	DISCLOSURE-C QUESTIONNAIRE (4) [7.4]	DISCLOSURE QUESTIONNAIRE (4) [7.2]
PREVENTION BEHAVIOR CHANGE		MONITORING VIGILANCE (17) [8.0]
PROCESS EVALUATION (3 PART) (FORMATIVE OUTCOME)	PROCESS SURVEY -C Time/effort (LOG) Satisfaction Education, (10) Satisfaction Counseling (4) Offensive/Expectations (log, open-ended)	PROCESS SURVEY Time/effort (log) Satisfaction Education, (10) Satisfaction Counseling (7) Offensive/Expectations (log, open-ended)

(#) denotes number of questions in each measure
[#] denotes readability score

Table 1a

VARIABLES	CHILD MEASURES	PARENT MEASURES
DEMOGRAPHIC		DEMOGRAPHIC QUESTIONNAIRE (9) Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
DEPRESSION (OUTCOME)	CDI-S Copyright 1992 by Multi-health Systems Inc. Maria Kovacs	CESD-S Author: L. Radloff Public Domain
ANXIETY (OUTCOME)	STAI –C (20) Copyright 1973 by Consulting Psychologist Press, Inc. Mind Garden Dr. Charles Spielberger	STAI (20) Copyright 1977 by Consulting Psychologist Press, Inc. Mind Garden Dr. Charles Spielberger
COPING (MODERATING)		
DISTRESS (MEDIATING)		
PERCEIVED RISK (MEDIATING)	RISK PERCEPTION SURVEY FOR DEVELOPING DIABETES (ATTITUDES ABOUT HEALTH)-C (6) Adapted from: Walker, A.E. (1998) Attitudes About Health. Reference: Given et al, (1983). Development of Scales to Measure Beliefs of Diabetic Patients. Res. Nurs Health, 6: 127-41. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D CHILD HEALTH OUTCOME –C (18) Adapted from: Young-Hymen , D.& Schlundt, D.G. (2000). Parent Perception of Child's Risk for Diabetes Compared to	RISK PERCEPTION SURVEY FOR DEVELOPING DIABETES (ATTITUDES ABOUT HEALTH)-P (9) Copyright 1998 Walker, A.E. Attitudes About Health. Reference: Given et al, (1983). Development of Scales to Measure Beliefs of Diabetic Patients. Res. Nurs Health, 6: 127-41. CHILD HEALTH OUTCOME (19) Scales selected from: Young-Hymen , D. & Schlundt, D.G. (2000). Parent Perception of Child's Risk for Diabetes Compared to Other Health Outcomes and Life Events.

	Other Health Outcomes and Life Events. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	
HEALTH BELIEF (MEDIATING)	INTENTION OF GENETIC TESTING FOR DIABETES-C (3) Adapted from:"Diabetes and Pregnancy Study" questionnaire, University of Michigan, DRTC, 1989. Janz, Charron-Prochownik, Herman, and Funnell. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D SELF EFFICACY-C (3) Adapted from:"Diabetes and Pregnancy Study" questionnaire, University of Michigan, DRTC, 1989. Janz, Charron-Prochownik, Herman, and Funnell. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D DIABETES HEALTH BELIEFS OF GENETIC TESTING FOR DIABETES-C (12) Adapted from: Charron-Prochownik, Becker, and Alvera (1992). The Diabetes Health Belief Pictorial Instrument for School –Age Children. Wang, C. (2003). HBM Genetic Testing for Breast CA Reference: Given et al, (1983). Development of Scales to Measure Beliefs of Diabetic Patients. Res. Nurs Health, 6: 127-41. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	INTENTION OF GENETIC TESTING FOR DIABETES-P (3) Adapted from:"Diabetes and Pregnancy Study" questionnaire, University of Michigan, DRTC, 1989. Janz, Charron-Prochownik, Herman, and Funnell. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D SELF EFFICACY (3) Adapted from: "Diabetes and Pregnancy Study" questionnaire, University of Michigan, DRTC, 1989. Janz, Charron-Prochownik, Herman, and Funnell. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D DIABETES HEALTH BELIEFS OF GENETIC TESTING FOR DIABETES (13) Adapted from: Wang, C. (2003). HBM Genetic Testing for Breast CA. Reference: Given et al, (1983). Development of Scales to Measure Beliefs of Diabetic Patients. Res. Nurs Health, 6: 127-41 Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
OPTIMISM (MODERATING)	LOT-R (CHILD) Adapted from: Scheier, M.F. (1994) Validity, Reliability and Scoring. (LOT-R) Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh	LOT-R (6) Copyright 1994 American Psychological Association Michael F. Scheier

	GIFT-D	
HEALTH QUALITY OF LIFE (OUTCOME)	HEALTH LADDER –C (1) Adapted from: Andrews, F.M. and Withey S.B. (1976). Social Indicators of Well Being: Americans' Perceptions of Life Quality. Copyright 1990 University of Michigan Charron-Prochownik, White, & Garden	HEALTH LADDER (1) Adapted from: Andrews, F.M. and Withey S.B. (1976). Social Indicators of Well Being: Americans' Perceptions of Life Quality. Copyright 1990 University of Michigan Charron-Prochownik, White, & Garden
STIGMA/DISCRIMINATION (MEDIATING)	PERCEIVED STIGMA OF DIABETES-C (12) Adapted from: Berger, B.E. (1995). Perceived Stigma of HIV Scale. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	PERCEIVED STIGMA OF DIABETES-P (21) Adapted from: Berger, B.E. (1995). Perceived Stigma of HIV Scale. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
RELIGIOSITY (MODERATING)		RELIGIOSITY (6) Reference: Sherman & Plante, (1999) Assessing Religious Faith in Medical Patients: Cross-Validation of the Santa Clara Strength of Religious Faith Questionnaire, Pastoral Psychology, 48, 129-141. Card, J.J., (1993). Handbook of Adolescent Sexuality and Pregnancy: Research and Evaluation Instruments. Department of Health and Human Services. Public Health Service, National Center for Health Statistics, "National Survey of Family Growth Cycle IV". Public Domain. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
FAMILY DYSFUNCTION (MODERATING)		FAMILY APGAR (5) Copyright 1982 by Dowden Health Media Gabriel Smilkstein, MD. Clark Ashworth, Phd, and Dan Montano, MA. The Family APGAR: A Proposal for a Family Function Test and Its Use by Physician's Journal of Family Practice Vol 15, (2).

KNOWLEDGE (MEDIATING)	GENETIC/DIABETES KNOWLEDGE TEST –C ( ) Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	GENETIC/DIABETES KNOWLEDGE TEST (10) Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
REFUSAL (EXIT SURVEY) (GENETIC TESTING) (OUTCOME)		WHY NOT (TEST) QUESTIONNAIRE Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
REFUSAL (EXIT SURVEY) (RECEIVING RESULTS) (OUTCOME)		WHY NOT (COUNSEL) QUESTIONNAIRE Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
PREVENTION BEHAVIOR (OUTCOME)		MONITORING VIGILANCE FOR DIABETES QUESTIONNAIRE (16) Adapted from: Baughcum et al, (2003). High Rates of Maternal Behavior Changes Resulting From Newborn Genetic Screening for risk of Type 1Diabetes. Diabetes, 52 (1). Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
DISCLOSURE (OUTCOME)	DISCLOSURE -C QUESTIONNAIRE Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	DISCLOSURE QUESTIONNAIRE Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D
PROCESS EVALUATION (3 PART) (FORMATIVE OUTCOME)	PROCESS SURVEY - C Time/effort Satisfaction (education, counseling, web measures) – C Adapted from: Shiloh, S., Avdor, O., and Goodman, R.M., (1990) Satisfaction with Genetic	PROCESS SURVEY- P Time/effort Satisfaction (education, counseling, web measures) - P Adapted from: Shiloh, S., Avdor, O., and Goodman, R.M., (1990) Satisfaction with Genetic

	Counseling: Dimensions and Measurement. American Journal of Medical Genetics, 37, 522-529. Castaldini, M., Saltmarch, M., Luck, S., & Sacher, K. (1998). The Development and Pilot Testing of a Multimedia CD-ROM for Diabetes Education. Diabetes Educator, 24,(3), 285-296. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D Offensive/Expectations - C Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D	Counseling: Dimensions and Measurement. American Journal of Medical Genetics, 37, 522-529. Castaldini, M., Saltmarch, M., Luck, S., & Sacher, K. (1998). The Development and Pilot Testing of a Multimedia CD-ROM for Diabetes Education. Diabetes Educator, 24,(3), 285-296. Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D Offensive/Expectations - P Copyright 2003 by Children's Hospital of Pittsburgh and the University of Pittsburgh GIFT-D

(#) denotes number of questions in each measure
revised: 10/29/03 bc

Table 2

Child Measures	Pre-education Second visit	Post-education Second visit	Pre-Counseling Third Visit	Post-Counseling Third visit	One month follow-up	3-5 years out
Genetic/Diabetes Knowledge -C	X	X			X	X
CDI -s	X			X	X	X
STAI - C	X			X	X	X
Attitudes about Health - C	X	X		X	X	X
Child Health Outcomes - C	X	X				X
Health Beliefs - C	X	X			X	X
Intention - C	X	X				
Self-Efficacy - C	X	X				
Quality of Life Ladder - C	X			X	X	X
LOT-r (child)	X					
Perceived Stigma -C	X				X	X
Disclosure - C					X	X
Evaluation-C Survey Time/effort (web tracked) Satisfaction Offensive/Exp (log)		X Education X (exit) Off/Exp	X (exit) Off/Exp	X counseling	X Web – based measures	
Other Child Documents						
Part 1 Consent/Assent	X					
Part 2 Consent/Assent		X				

Table 3

Parent Measures	Initial Clinic Visit	Pre-education Second visit	Post-education Second visit	Pre-Counseling Third Visit	Post-Counseling Third visit	One month follow-up	3-5 years out
Demographic Questionnaire		X					X
Genetic/Diabetes Knowledge		X	X			X	X
CESD-s		X			X	X	X
STAI		X			X	X	X
Attitudes about Health		X	X		X	X	X
Child Health Outcomes		X	X				X
Health Beliefs		X	X				X
Intention		X	X				
Self-Efficacy		X	X				
Quality of Life Ladder		X			X	X	X
LOT-r		X					
Religiosity		X					
Perceived Stigma		X				X	X
Family APGAR		X				X	X
Why Not (test) Questionnaire			X (exit)				
Why Not (couns) Questionnaire				X (exit)			
Disclosure						X	X
Monitoring Vigilance		X		X		X	X
Evaluation Survey Time/effort (web tracked) Satisfaction Offensive/Exp (log)			X Education X (exit) Off/Exp	X (exit) Off/Exp	X Counseling	X Web-based measure	
Adverse Reaction Other Life Events log					X (if warranted)	X (if warranted)	X (if warranted)

Table 3
Page2

Other Parent Documents	Initial Clinic Visit	Pre-education Second visit	Post-education Second visit	Pre-Counseling Third Visit	Post-Counseling Third visit	One month follow-up	3-5 years out
Consent To Contact	X						
Part 1 Consent/Assent Assessment and education		X					
Part 2 Consent/Assent Testing and Counseling			X				
Contact sheet		X					

Table 4

Pilot Measures	Initial Phone Call	Pre-education First visit	Post-education First visit	Pre-Counseling Second visit	Post-Counseling Second visit	One Month Follow-up
Telephone Screening Form	X					
Demographic Questionnaire		X				
Genetic/Diabetes Knowledge		X	X			
CESD-s		X			X	X
STAI*		X			X	X
Attitudes about Health		X	X		X	
Child Health Outcomes		X	X			
Health Beliefs		X	X			
Intention		X	X			
Self-Efficacy		X	X			
Quality of Life Ladder		X			X	
LOT-r		X				
Religiosity		X				
Perceived Stigma		X				
Monitoring Vigilance		X			X	X
Why Not (test) Questionnaire			X (exit)			
Why Not (couns) Questionnaire				X (exit)		
Evaluation Survey Time/effort (web tracked) Satisfaction Offensive/Exp (log)			X Education / X (exit) Off/Exp	X (exit) Off/Exp	X Counseling	
Adverse Reaction (Other Life Events)					X (if warranted)	X (if warranted)

Table 4
Page2

Other Pilot Documents	Initial Clinic Visit	Pre-education Second visit	Post-education Second visit	Pre-Counseling Third Visit	Post-Counseling Third visit	One Month Follow-up
Part 1 Consent Assessment and education for an Adult Subject		X				
Part 2 Consent Testing and Counseling for Adult Subject			X			
Contact sheet		X				

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APPENDIX 8:

MEASURES (MODIFIED AND DEVELOPED)

Attitudes about Health-P

This survey will provide important information about how people feel about the risk of getting a chronic disease like diabetes. There are no right or wrong answers. We are interested in *your* opinions and attitudes. Please answer each question as best as you can.

General Attitudes

For each of the 9 items, please select the response that BEST DESCRIBES YOUR OPINION.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel I have little control over risks to my child's health.	1	2	3	4
2. If my child is going to get diabetes, there is not much I can do about it.	1	2	3	4
3. I think that my personal efforts will help control my child's risk of getting diabetes.	1	2	3	4
4. People who make a good effort to control the risks of getting diabetes are much less likely to get diabetes.	1	2	3	4
5. I worry about my child getting diabetes.	1	2	3	4
6. Compared to other children of my child's same age and sex (gender), s/he is *less* likely than they are to get diabetes.	1	2	3	4
7. Compared to other children of my child's same age and sex (gender), s/he is *less* likely than they are to get a serious disease.	1	2	3	4
8. Worrying about my child's getting diabetes is very upsetting.	1	2	3	4
9. My child has a high risk of developing diabetes.	1	2	3	4

Attitudes about Health-C

Read each of the 6 sentences below. After each one, please mark **1** if it's "Really True"; or **2** if it is "Somewhat True"; or **3** if it is "Not True"

.

	Really True	Somewhat True	Not True
1. I have no control over getting sick.	1	2	3
2. If I am going to get diabetes, there is not much I can do about it.	1	2	3
3. I can do things that will stop me from getting diabetes.	1	2	3
4. I have a smaller chance of getting diabetes than my friends do.	1	2	3
5. I worry about getting diabetes	1	2	3
6. I have a big chance of getting diabetes.	1	2	3

Child Health Outcomes Measure: Parent

Everyone who is a parent or who takes care of a child sometimes thinks about what will happen to that child in the future. We would like you to answer some questions about your child's future.

Part I - Health Outcome Likelihood

This is a list of things that can happen to people's health. For each of the 19 items, rate how likely it is that this will happen to your child sometime in the future. For each one, check the box in the column that describes what you think the chances are that this will happen to your child some time in the future.

Conditions	**Will never happen**	**Unlikely**	**Likely**	**Very Likely**	**Will definitely happen**
High blood pressure	1	2	3	4	5
Become less physically fit	1	2	3	4	5
Catch a cold	1	2	3	4	5
Get Diabetes	1	2	3	4	5
Start smoking cigarettes	1	2	3	4	5
Get the flu	1	2	3	4	5
Get Cancer	1	2	3	4	5
Become paralyzed	1	2	3	4	5
Lose Weight	1	2	3	4	5
Become more physically fit	1	2	3	4	5
Have a headache	1	2	3	4	5
Injured in a car accident	1	2	3	4	5
Get heart disease	1	2	3	4	5
Gain a lot of weight	1	2	3	4	5
High cholesterol	1	2	3	4	5
Shot	1	2	3	4	5
Drug or alcohol abuse	1	2	3	4	5
Get HIV (AIDS)	1	2	3	4	5
Have a stroke	1	2	3	4	5

Part II - Seriousness of Health Outcomes

In this section, we want you to look at the 19 items and tell us how serious you think each of these conditions is. A serious condition is something that would be very bad to have happen to your child.

Conditions	Very Bad	Bad	Kind of Bad	Not a Problem	A Good Thing
High blood pressure	5	4	3	2	1
Become less physically fit	5	4	3	2	1
Catch a cold	5	4	3	2	1
Have Diabetes	5	4	3	2	1
Start smoking cigarettes	5	4	3	2	1
Get the flu	5	4	3	2	1
Get Cancer	5	4	3	2	1
Become paralyzed	5	4	3	2	1
Lose Weight	5	4	3	2	1
Become more physically fit	5	4	3	2	1
Have a headache	5	4	3	2	1
Injured in a car accident	5	4	3	2	1
Get heart disease	5	4	3	2	1
Gain a lot of weight	5	4	3	2	1
High cholesterol	5	4	3	2	1
Shot	5	4	3	2	1
Drug or alcohol abuse	5	4	3	2	1
Get HIV (AIDS)	5	4	3	2	1
Have a stroke	5	4	3	2	1

Child Health Outcomes Measure: Child Likelihood

This is a list of 19 things that can happen to people's health. Tell us if you think this will happen to you. Mark number 1 for "It will never happen", or number 2 for "Maybe happen", or number 3 for "It will happen".

	It will never happen	**Maybe happen**	**It will happen**
High blood pressure	1	2	3
Become weaker	1	2	3
Catch a cold	1	2	3
Get Diabetes	1	2	3
Start smoking cigarettes	1	2	3
Get the flu	1	2	3
Get Cancer	1	2	3
Can't walk	1	2	3
Lose Weight	1	2	3
Become stronger	1	2	3
Have a headache	1	2	3
Get hurt in a car accident	1	2	3
Have a heart attack	1	2	3
Gain weight	1	2	3
High Cholesterol	1	2	3
Get shot by a gun	1	2	3
Take drugs	1	2	3
Get HIV (AIDS)	1	2	3
Get drunk	1	2	3

Child Health Outcomes Measure: Child Seriousness

This is a list of 19 things that can happen to people's health. Tell us how bad or good each of these are. Mark number 1 for "A Good Thing", or number 2 for "Kind of Bad", or number 3 for "Very Bad".

	A Good Thing	Kind Of Bad	Very Bad
High blood pressure	1	2	3
Become weaker	1	2	3
Catch a cold	1	2	3
Get Diabetes	1	2	3
Start smoking cigarettes	1	2	3
Get the flu	1	2	3
Get Cancer	1	2	3
Can't walk	1	2	3
Lose Weight	1	2	3
Become stronger	1	2	3
Have a headache	1	2	3
Get hurt in a car accident	1	2	3
Have a heart attack	1	2	3
Gain weight	1	2	3
High Cholesterol	1	2	3
Get shot by a gun	1	2	3
Take drugs	1	2	3
Get HIV (AIDS)	1	2	3
Get drunk	1	2	3

Health Beliefs of
Genetic Testing for Type 1 Diabetes-P

Please read the following 20 statements. After each statement, please **mark the response that represents your beliefs and attitudes.**

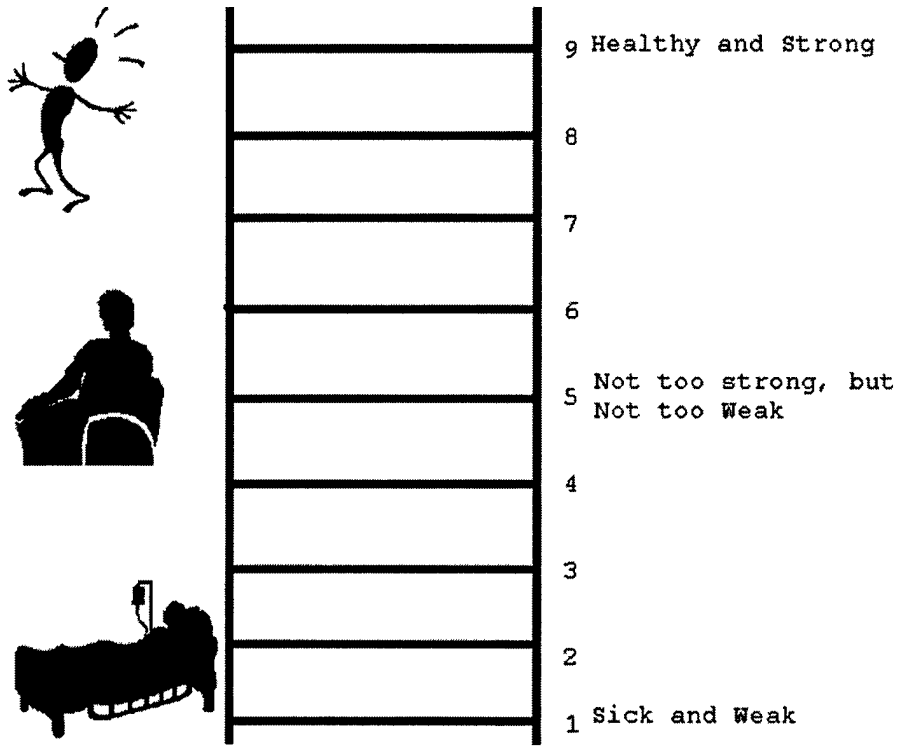
	Strongly Disagree	Disagree	Agree	Strongly Agree
1. The chance that the gene for type 1 diabetes runs in my family is great.	1	2	3	4
2. It is likely that my child carries the gene for type 1 diabetes.	1	2	3	4
3. If my child carried the gene for type 1 diabetes, I would worry about his/her developing the disease.	1	2	3	4
4. If I found out that my child carries the gene for type 1 diabetes, it would be very difficult.	1	2	3	4
5. A high risk for type 1 diabetes would be a serious problem.	1	2	3	4
6. Genetic testing helps me to know my child's chances of getting type 1 diabetes.	1	2	3	4
8. Genetic testing would ease my mind.	1	2	3	4
9. Genetic testing for type 1 diabetes will help us to reduce uncertainty about the future.	1	2	3	4
10. Genetic testing to learn about my child's risk of developing type 1 diabetes will give us a sense of control.	1	2	3	4
11. It is a problem to have my child's saliva tested for genetic risk of type 1diabetes.	1	2	3	4

	Strongly Disagree	Disagree	Agree	Strongly Agree
12. Genetic testing would have a negative impact on my family.	1	2	3	4
13. It would be hard to cope with knowing my child has a higher risk of developing type 1 diabetes.	1	2	3	4
14. I don't have enough information about genetic risk and testing.	1	2	3	4
15. It is a problem to take the time to come in for genetic testing and counseling.	1	2	3	4
16. Having a high risk of developing type 1 diabetes would cause problems like getting a job.	1	2	3	4
17. Having a high risk of developing type 1 diabetes would cause problems like getting insurance.	1	2	3	4
18. Genetic testing is expensive.	1	2	3	4
19. Genetic testing in inconvenient.	1	2	3	4
20. Genetic testing won't help us because we won't do anything different to manage the risk of developing type 1 diabetes.	1	2	3	4

Health Beliefs of Genetic Testing for Diabetes-C

Read each of the 13 sentences below. After each one, please mark **1** if it's "Not True"; or 2 if it is "Somewhat True"; or **3** if it is "Really True"

	Not True	Somewhat True	Really True
1. My family probably has the gene for diabetes.	1	2	3
2. I probably have the gene for diabetes.	1	2	3
3. If I had the gene for diabetes, I would worry that I would get the disease.	1	2	3
4. I would be upset if I found out I had the gene for getting diabetes.	1	2	3
5. Having the gene for diabetes would be bad.	1	2	3
6. The mouthwash (genetic) test helps me to know my chances of getting diabetes.	1	2	3
7. I want to know what my chances are of getting diabetes	1	2	3
8. It is hard to have the mouthwash (genetic) test done	1	2	3
9. It would be scary to hear the results of this mouthwash (genetic) test.	1	2	3
10. I don't know what the computer said about my chances of getting diabetes	1	2	3
11. I am too busy to come in to get the mouthwash test done.	1	2	3
12. If I had diabetes, it would be harder to get a job.	1	2	3
13. My parents don't want me to get the genetic test.	1	2	3



Here is a picture of a ladder. At the bottom of this ladder is a person who is weak and sick in bed. In the middle is a person who feels okay, not weak but not too strong. At the top is a person who feels strong and healthy. How well do you feel? Which step are you on? Color in the space that represents how you feel.

Perceived Stigma of Diabetes-P

This questionnaire asks about some of the social and emotional aspects of having a child with diabetes. After each statement, please mark the answer that corresponds to how much you agree or disagree with that statement.

If my child had diabetes:		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	I'd feel anxious when thinking about telling someone that my child has diabetes.	1	2	3	4
2.	Telling someone my child has diabetes would be risky.	1	2	3	4
3.	I would work hard to keep my child's diabetes a secret.	1	2	3	4
4.	I would be very careful whom I told about my child's diabetes.	1	2	3	4
5.	I would worry that people who knew my child had diabetes would tell others.	1	2	3	4
6.	I would tell people close to me to keep the fact that my child has diabetes a secret.	1	2	3	4
7.	Some people who knew my child had diabetes would grow distant.	1	2	3	4
8.	I would be hurt if people reacted negatively to learning my child had diabetes.	1	2	3	4
9.	People we care about would stop calling after learning my child has diabetes.	1	2	3	4
10.	We would stop socializing with some people because of their reaction to my child having diabetes.	1	2	3	4
11.	My child would lose friends by telling them s/he has diabetes.	1	2	3	4
12.	Children wouldn't want my child around once they knew s/he has diabetes.	1	2	3	4

If my child had diabetes:		Strongly Disagree	Disagree	Agree	Strongly Agree
13.	Most people with diabetes feel left out.	1	2	3	4
14.	Being honest about having diabetes would hurt my child's chances of getting a job.	1	2	3	4
15.	Being honest about having diabetes would hurt my child chances of getting health insurance.	1	2	3	4
16.	Most people are uncomfortable around someone with diabetes.	1	2	3	4

Perceived Stigma of Diabetes-C

Each sentence below asks about how you might feel if you had diabetes. After each sentence, mark **1** if it is "Not True"; or **2** if it is "Somewhat True"; or **3** if it is "Really True"

	If I had diabetes:	Not True	Somewhat True	Really True
1.	I'd feel scared to tell someone that I had diabetes.	1	2	3
2.	Telling someone I had diabetes would be risky.	1	2	3
3.	I would work hard to keep my diabetes a secret.	1	2	3
4.	I would be very careful whom I told about my diabetes.	1	2	3
5.	I would worry that kids who knew I had diabetes would tell others.	1	2	3
6.	I would tell my friends to keep my diabetes a secret.	1	2	3
7.	Some kids who knew I had diabetes would not want to hang out with me.	1	2	3
8.	Some friends would stop coming over when they found out I had diabetes.	1	2	3
9.	I would lose friends if I told them I had diabetes.	1	2	3
10.	It would be harder getting some jobs if I had diabetes.	1	2	3
11.	People with diabetes feel left out.	1	2	3

Monitoring Vigilance For Diabetes

For each of these 17 items, please choose the answer that best describes your behavior that you believe may prevent or delay the onset of diabetes in your child.

		Never	Some of the Time	Most of the Time	All of the Time
1	I watch my child for signs of diabetes	1	2	3	4
2	I check my child's blood sugar level	1	2	3	4
3	I check my child's urine sugar	1	2	3	4
4	I changed my child's diet	1	2	3	4
5	I increased my child's exercise activity	1	2	3	4
6	I decreased my child's stress level	1	2	3	4
7	I increased the number of hours my child sleeps	1	2	3	4
8	I increased the number of hours my child gets fresh air	1	2	3	4
9	I decreased my child's contact with other children to protect from germs	1	2	3	4
10	I gave my child medicine that will reduce the risk of diabetes	1	2	3	4
11	I entered my child in a study to prevent type 1 diabetes	1	2	3	4
12	I took my child to the doctor/clinic to check for diabetes	1	2	3	4
13	I looked at web sites about diabetes	1	2	3	4
14	I talked to my friends/ family about diabetes	1	2	3	4
15	I spoke to other doctors, nurses, etc… about the risks of diabetes	1	2	3	4
16	I read journals and/or books about the risks of diabetes	1	2	3	4
17	I pray that my child will not get diabetes	1	2	3	4

GIFT-D Demographic Questionnaire

Who is completing this form
(1) Biological Mother
(2) Biological Father
(3) Step Mother
(4) Step Father
(5) Other relative Specify: _____

Your age:

Your race: Please choose all that apply:
(1) African American/Black
(2) Alaska Native
(3) American Indian
(4) Asian
(5) Caucasian/White
(6) Latino/Hispanic
(7) Native Hawaiian or other Pacific Islander
(8) Unknown
(9) Other Please specify: _____

All children: List in order of birth from oldest to youngest.

	Name	Age	Gender	Race	Grade in School	Diabetes status	Relationship to child with diabetes
1.							
2.							
3.							
4.							
5.							

(For Gender, record 1=Male or 2=Female; for diabetes status, record 1=Diabetic or 2=Non-diabetic; and for relationship to child with diabetes, 1=Brother, 2=Sister, 3=Half brother, 4=Half sister, 5=Step brother, 6=Step sister, 7=Other)

Your education:
(1) Some High School
(2) High School diploma
(3) Some College
(4) College Degree
(5) Beyond College

Your annual family household income?
(1) Under $20,000
(2) $20,000 – $60,000
(3) Over $60,000

How many people live in your household? Adults? _____ Children?_____

Does biological mother have type1 diabetes? (1) Yes (2) No

Does biological father have type1 diabetes? (1) Yes (2) No

Religiosity

Please read the following 7 statements. After each statement, mark the answer that best represents your beliefs or behavior.

		Very Much	Somewhat	Not At All
1.	How religious do you consider yourself to be?	3	2	1
2.	How spiritual do you consider yourself to be?	3	2	1
3.	How important is it to you to attend religious services/meetings?	3	2	1
4.	How much does your religion influence your behavior?	3	2	1
5.	How important is your religion to you?	3	2	1
6.	Do your religious beliefs influence your medical treatment(eg., taking medication or getting tests)?	3	2	1
7.	How much does the advice of your clergy influence your decisions regarding medical treatment?	3	2	1

Intention

On a scale from 1 to 7 with number 1 as "Unlikely" and number 7 as "Likely" please rate your answer from 1-7 for the following 3 statements.

		Unikely						**Likely**
1.	I intend to have my child's saliva tested for type 1 diabetes.	1	2	3	4	5	6	7
2.	I intend to return to the clinic to receive the results of the genetic test for type 1 diabetes.	1	2	3	4	5	6	7
3.	I intend to use the genetic information that I will learn in this project to help me make decisions.	1	2	3	4	5	6	7

Intention -C

Read each of the 2 sentences below. After each sentence, tell us what you are going to do by putting a mark next to number **1** for "I will not do it at all"; or number **2** for "Maybe do it"; or number **3** for "I really will do it".

		I will not do it at all	**Maybe do it**	**I really will do it**
1.	I will have the mouthwash test for diabetes	1	2	3
2.	I will come back to clinic with my parents to find out my chances of getting diabetes.	1	2	3

Self Efficacy

The following 3 questions are regarding your feelings of confidence about doing things. On a scale of 0 – 10 where 0 is "Not at all Confident" and 10 is "Very Confident" please mark the number on the scale that best represents your feelings.

	Not at all Confident										**Very Confident**
1. How confident (certain) are you that you can have your child's saliva tested for genetic risk of type 1 diabetes?	0	1	2	3	4	5	6	7	8	9	10
2. How confident are you that you will come to the clinic to receive the results?	0	1	2	3	4	5	6	7	8	9	10
3. How confident are you that you can do something to prevent your child from getting type 1 diabetes?	0	1	2	3	4	5	6	7	8	9	10

Self Efficacy - C

Read each of the 3 questions below. After each one, mark **1** if you are "Not Sure"; or **2** for "Somewhat Sure"; or **3** for "Really Sure"

	Not Sure	**Somewhat Sure**	**Really Sure**
1. How sure are you that you can have the mouthwash test done for diabetes?	1	2	3
2. How sure are you that you will come to the clinic to find out what your chances are of getting diabetes?	1	2	3
3. How sure are you that you can do something to not get diabetes?	1	2	3

WHY NOT (Testing) QUESTIONNAIRE

For each of these 8 statements below, please mark the answer that best describes your feelings.

		False	True
1.	This project isn't at all what I thought it was going to be.	1	2
2.	This project involves too much time and effort.	1	2
3.	I really don't see any reason to have my child/ren tested to learn his/her risk of developing diabetes	1	2
4.	After viewing the educational material on the web, I have decided there are more reasons not to test than there are to test.	1	2
5.	I don't want to know.	1	2
6.	I don't want to put my child/ren through the testing	1	2
7.	Getting a genetic test could do more harm than good. (eg. no insurance)	1	2
8.	My child doesn't want to be tested.	1	2
9	I am afraid that my child's genetic material could be used for things I wouldn't approve of.	1	2

WHY NOT (Counseling) QUESTIONNAIRE

For each of the 6 statements below, please mark the answer that best represents your feelings.

		False	True
1.	This project involves too much time and effort to proceed.	1	2
2.	I have decided I really don't want to know my non-diabetic child/ren risk of developing diabetes.	1	2
3.	After viewing the counseling educational material on the web, I have now decided there are more reasons not find out my child/ren's risk of developing diabetes than there are to find out.	1	2
4.	After obtaining additional information, I have decided I don't want to learn my child/ren's risk of developing diabetes.	1	2
5.	Getting the test results could do more harm than good. (eg. no insurance)	1	2
6.	My child/ren doesn't want to know the results of the test.	1	2

Disclosure-P

For the following 4 statements, mark the answer that best describes your feelings.

		NO	YES
1.	I have discussed my child/ren's risk of getting diabetes with other family members (other than spouse).	0	1
2.	I have discussed my child/ren's risk of getting diabetes with friends.	0	1
3.	I have discussed my child/ren's risk of getting diabetes with their pediatrician.	0	1
4.	I have <u>not</u> discussed my child/ren's risk of getting diabetes with anyone. (other than spouse)	0	1

Disclosure-C

For the following 4 statements, mark the answer that best describes your feelings.

		NO	YES
1.	I have told other family members about my chances of getting diabetes (other than parents).	1	2
2.	I have told my friends about my chances of getting diabetes	1	2
3.	I have talked to my doctor about my chances of getting diabetes.	1	2
4.	I have <u>not</u> told anyone about my chances of getting diabetes.	1	2

Satisfaction
with Genetic Education Program and Questionnaires-P

Please read the 10 statements below and choose the response that most correctly matches your opinion.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	This web-based computer program helped me to learn more about diabetes and genetics.	4	3	2	1
2.	The computer program was easy to read and understand.	4	3	2	1
3.	The computer program was easy to use.	4	3	2	1
4.	I enjoyed this computer program.	4	3	2	1
5.	After seeing the program, I want to get more information about genetics and/or type 1 diabetes.	4	3	2	1
6.	After seeing the program, I want my child to get genetic testing.	4	3	2	1
7.	The questionnaires on the web were easy to read.	4	3	2	1
8.	Using the web to answer questions was easy.	4	3	2	1

9. I would like to see <u>more</u>:
   a. animation
   b. sound
   c. examples
   d. video
   e. review questions
   f. pictures
   g. text (words)

10. I would like to see <u>less</u>:
   a. animation
   b. sound
   c. examples
   d. videos
   e. review questions
   f. pictures
   g. text (words)

Satisfaction
with Genetic Education Program and Questionnaires-C

Read each of the 8 sentences below. After each one, please mark **1** for "Not at All"; or 2 for "Somewhat"; or **3** for "Alot"

		A Lot	Somewhat	Not At All
1.	This web program helped me to learn more about diabetes and my genes.	3	2	1
2.	This web program was easy to read.	3	2	1
3.	The web program was easy to use.	3	2	1
4.	I liked this web program.	3	2	1
5.	I still want to learn more about genes and/or diabetes.	3	2	1
6.	After seeing this program, I want to get the mouthwash (gene test) done.	3	2	1
7.	The questions on the web were easy to read.	3	2	1
8.	Using the web to answer questions was easy.	3	2	1

9. I would like <u>more</u>:
   a. cartoons
   b. voice
   c. music
   d. examples
   e. video
   f. questions
   g. pictures
   h. words

10. I would like <u>less</u>:
   a. cartoons
   b. voice
   c. music
   d. examples
   e. videos
   f. questions
   g. pictures
   h. words

Satisfaction with Genetic Counseling-P

Please read the 7 statements below and choose the response that most correctly matches your opinion.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	This web-counseling helped me to understand about my child's risk of type 1 diabetes.	4	3	2	1
2.	The web counseling was easy to use.	4	3	2	1
3.	I enjoyed getting information by the web-counseling program.	4	3	2	1
4.	This web-counseling gave me helpful information.	4	3	2	1
5.	I am satisfied with the way in which information was transmitted to me.	4	3	2	1
6.	The face-to-face counseling I got helped me to cope better with the information I received.	4	3	2	1
7.	I am satisfied with the information I got in the face-to-face counseling.	4	3	2	1

Satisfaction with Genetic Counseling -C

Read each of the 4 sentences below. After each one, please mark **1** for "Not at All"; or 2 for "Somewhat"; or **3** for "Alot"

		A lot	Somewhat	Not At All
1.	This web program told me about my chances of getting diabetes.	3	2	1
2.	This web program was easy to use.	3	2	1
3.	I liked learning by the web program.	3	2	1
4.	Talking with the nurse helped me to understand a lot about my chances of getting diabetes.	3	2	1

DAMD17-01-1-0009

ANNUAL REPORT

1 NOV 02 - 31 OCT 03

APPENDIX 9:

TELEFORM MEASURES FOR THE PILOT

Instrument Number: 1 1 0
(For internal use only)

Study ID: 0 6 7

GIFT-D Pilot Demographic Questionnaire

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: | | / | | / | | | | |
(month) (day) (year)

(FOR STAFF USE ONLY)

Please keep these rules in mind when responding to the questions....

Shade circles like this: ●
Not like this: ⊗ ✓

For optimum accuracy, it is recommended that characters be written block style without touching the sides of the blocks, such as in the following examples. Place only one letter or one number in each box as shown....

0	1	2	3	4	5	6	7	8	9

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Section I

a. What is your first name? | | | | | | | | | | | | |

b. What is your age? | | | | (years) (months)

c. What is your race? *(Please choose ALL that apply.)*

- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

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Section II - Please list ALL siblings. List in order from ***oldest*** to ***youngest***.

1 ○ Fill in this circle if there are NO BROTHERS OR SISTERS.
Then, skip to Question 1 on page 4.

Sibling #1

a. First Name: | | | | | | | | | | | | | |

b. First Letter of Last Name: | |

c. Age: | | (years) | | | (months)

d. Male or Female:
- ○ 1 Male
- ○ 2 Female

e. Race: (Please choose ALL that apply.)
- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

f. Diabetes Status:
- ○ 1 Diabetic
- ○ 2 Non-diabetic

g. This Sibling is my:
- ○ 1 Brother
- ○ 2 Sister
- ○ 3 Half brother
- ○ 4 Half sister
- ○ 5 Step brother
- ○ 6 Step sister
- ○ 7 Other

Sibling #2

a. First Name: | | | | | | | | | | | | | |

b. First Letter of Last Name: | |

c. Age: | | (years) | | | (months)

d. Male or Female:
- ○ 1 Male
- ○ 2 Female

e. Race: (Please choose ALL that apply.)
- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

f. Diabetes Status:
- ○ 1 Diabetic
- ○ 2 Non-diabetic

g. This Sibling is my:
- ○ 1 Brother
- ○ 2 Sister
- ○ 3 Half brother
- ○ 4 Half sister
- ○ 5 Step brother
- ○ 6 Step sister
- ○ 7 Other

ID Number: _ _ _ _ _ _ _ _ _ _ _ _ (for internal use only)

Date: _ _ / _ _ / _ _ (for internal use only)

Study ID: 0 6 7

Sibling #3

a. First Name:

b. First Letter of Last Name:

c. Age: (years) (months)

d. Male or Female:
- ○ 1 Male
- ○ 2 Female

e. Race: (Please choose ALL that apply.)
- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

f. Diabetes Status:
- ○ 1 Diabetic
- ○ 2 Non-diabetic

g. This Sibling is my:
- ○ 1 Brother
- ○ 2 Sister
- ○ 3 Half brother
- ○ 4 Half sister
- ○ 5 Step brother
- ○ 6 Step sister
- ○ 7 Other

Sibling #4

a. First Name:

b. First Letter of Last Name:

c. Age: (years) (months)

d. Male or Female:
- ○ 1 Male
- ○ 2 Female

e. Race: (Please choose ALL that apply.)
- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

f. Diabetes Status:
- ○ 1 Diabetic
- ○ 2 Non-diabetic

g. This Sibling is my:
- ○ 1 Brother
- ○ 2 Sister
- ○ 3 Half brother
- ○ 4 Half sister
- ○ 5 Step brother
- ○ 6 Step sister
- ○ 7 Other

Sibling #5

a. First Name:

b. First Letter of Last Name:

c. Age: (years) (months)

d. Male or Female:
- ○ 1 Male
- ○ 2 Female

e. Race: (Please choose ALL that apply.)
- ○ 1 African American/Black
- ○ 2 Alaska Native
- ○ 3 American Indian
- ○ 4 Asian
- ○ 5 Caucasian/White
- ○ 6 Latino/Hispanic
- ○ 7 Native Hawaiian or other Pacific Islander
- ○ 8 Unknown
- ○ 9 Other; please specify: _____

f. Diabetes Status:
- ○ 1 Diabetic
- ○ 2 Non-diabetic

g. This Sibling is my:
- ○ 1 Brother
- ○ 2 Sister
- ○ 3 Half brother
- ○ 4 Half sister
- ○ 5 Step brother
- ○ 6 Step sister
- ○ 7 Other

Draft

Section III

1. What is your education?

   ○ 1 Some High School
   ○ 2 High School diploma
   ○ 3 Some college
   ○ 4 College degree
   ○ 5 Beyond college

2. What is your family's yearly household income?

   ○ 1 Under $20,000
   ○ 2 $20,000 - $60,000
   ○ 3 Over $60,000
   ○ 4 Do Not Know
   ○ 5 Refuse

3. How many people live in your household? *(including you)*

   a. Adults: ☐☐

   b. Children: ☐☐

4. Does your biological **mother** have type 1 diabetes?

   ○ 1 Yes
   ○ 2 No
   ○ 3 Do Not Know

5. Does your biological **father** have type 1 diabetes?

   ○ 1 Yes
   ○ 2 No
   ○ 3 Do Not Know

Instrument Number: 1 1 1
(For internal use only)

Study ID: 0 6 7

CESD-S

Center for Research in Chronic Disorders

ID Number:

Administration Date: ___ / ___ / ____ (month) (day) (year)

Test Number: 1 ○ 2 ○ 3 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

INSTRUCTIONS: Please read the list of ways you may have felt or behaved recently. For each of the 10 questions below, fill in the circle that corresponds to the response that indicates how often you have felt this way **IN THE PAST 2 WEEKS**.

During the past 2 weeks . . . .

	Rarely or None of the Time 0	Some or a Little of the Time 1	Occasionally or a Moderate Amount of the Time 2	Most or All of the Time 3
1. I was bothered by things that usually don't bother me.	○	○	○	○
2. I had trouble keeping my mind on what I was doing.	○	○	○	○
3. I felt depressed.	○	○	○	○
4. I felt that everything I did was an effort.	○	○	○	○
5. I felt hopeful about the future.	○	○	○	○
6. I felt fearful.	○	○	○	○
7. My sleep was restless.	○	○	○	○
8. I was happy.	○	○	○	○
9. I felt lonely.	○	○	○	○
10. I could not get going.	○	○	○	○

Instrument Number: 1 1 2

(For internal use only)

Study ID: 0 6 7

STAI - Self Evaluation Questionnaire

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( ) (month) (day) (year)

Test Number: 1 ○ 2 ○ 3 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

INSTRUCTIONS: 20 statements which people have used to describe themselves are given below. Please read each statement and for each one choose the response that indicates how you feel **RIGHT NOW**, that is, **AT THIS VERY MOMENT**.

There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to describe your present feelings best.

	Not At All 1	Somewhat 2	Moderately So 3	Very Much So 4
1. I feel calm.	○	○	○	○
2. I feel secure.	○	○	○	○
3. I am tense.	○	○	○	○
4. I am regretful.	○	○	○	○
5. I feel at ease.	○	○	○	○

(continued on next page)

Draft

	Not At All 1	Somewhat 2	Moderately So 3	Very Much So 4
6. I feel upset.	○	○	○	○
7. I am presently worrying over possible misfortunes.	○	○	○	○
8. I feel rested.	○	○	○	○
9. I feel anxious.	○	○	○	○
10. I feel comfortable.	○	○	○	○
11. I feel self-confident.	○	○	○	○
12. I feel nervous.	○	○	○	○
13. I am jittery.	○	○	○	○
14. I feel "high strung."	○	○	○	○
15. I am relaxed.	○	○	○	○
16. I feel confident.	○	○	○	○
17. I am worried.	○	○	○	○
18. I feel over-excited and "rattled."	○	○	○	○
19. I feel joyful.	○	○	○	○
20. I feel pleasant.	○	○	○	○

Instrument Number: 1 1 3
(For internal use only)

Study ID: 0 6 7

Attitudes About Health: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( )
(month) (day) (year)

Test Number: 1 ○ 2 ○ 3 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

This survey will provide important information about how people feel about the risk of getting a chronic disease like diabetes. There are no right or wrong answers. We are interested in *your* opinions and attitudes. Please answer each question as best as you can.

General Attitudes

For each of the 9 items, please select the response that **BEST DESCRIBES YOUR OPINION**.

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disgree 4
1. I feel I have little control over risks to my health.	○	○	○	○
2. If I am going to get diabetes, there is not much I can do about it.	○	○	○	○
3. I think that my personal efforts will help control my risk of getting diabetes.	○	○	○	○
4. People who make a good effort to control the risks of getting diabetes are much less likely to get diabetes.	○	○	○	○

(continued on next page)

Draft

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disgree 4
5. I worry about getting diabetes.	○	○	○	○
6. Compared to others of my same age and sex (gender), I am *less* likely than they are to get diabetes.	○	○	○	○
7. Compared to others of my same age and sex (gender), I am *less* likely than they are to get a serious disease.	○	○	○	○
8. Worrying about getting diabetes is very upsetting.	○	○	○	○
9. I have a high risk developing diabetes.	○	○	○	○

Instrument Number: 1 1 4
(For internal use only)

Study ID: 0 6 7

Health Outcomes Measure: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: (month) / (day) / (year)

Test Number: 1 ○ 2 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Everyone sometimes thinks about what will happen to them in the future. We would like you to answer some questions about your future.

Part A - Health Outcome Likelihood

This is a list of things that can happen to people's health. For each of the 19 items, rate how likely it is that this will happen to you sometime in the future. For each item, choose the response that best describes what you think the chances are that this will happen to you some time in the future.

Conditions	Will Never Happen 1	Unlikely 2	Likely 3	Very Likely 4	Will Definitely Happen 5
1. High blood pressure	○	○	○	○	○
2. Become less physically fit	○	○	○	○	○
3. Catch a cold	○	○	○	○	○
4. Get Diabetes	○	○	○	○	○
5. Start smoking cigatettes	○	○	○	○	○
6. Get the flu	○	○	○	○	○

(continued on next page)

Draft

Part A - Health Outcome Likelihood (continued)

Conditions	Will Never Happen 1	Unlikely 2	Likely 3	Very Likely 4	Will Definitely Happen 5
7. Get Cancer	○	○	○	○	○
8. Become paralyzed	○	○	○	○	○
9. Lose weight	○	○	○	○	○
10. Become more physically fit	○	○	○	○	○
11. Have a headache	○	○	○	○	○
12. Injured in a car accident	○	○	○	○	○
13. Get heart disease	○	○	○	○	○
14. Gain a lot of weight	○	○	○	○	○
15. High cholesterol	○	○	○	○	○
16. Shot	○	○	○	○	○
17. Drug or alcohol abuse	○	○	○	○	○
18. Get HIV (AIDS)	○	○	○	○	○
19. Have a stroke	○	○	○	○	○

Part B - Seriousness of Health Outcomes

In this section, we want you to look at the 19 items and tell us how serious you think each of these conditions is. A serious condition is something that would be very bad to have happen to you.

Conditions	Very Bad 1	Bad 2	Kind of Bad 3	Not a Problem 4	A Good Thing 5
1. High blood pressure	○	○	○	○	○
2. Become less physically fit	○	○	○	○	○

(continued on next page)

Part B - Seriousness of Health Outcomes (continued)

Conditions	Very Bad 1	Bad 2	Kind of Bad 3	Not a Problem 4	A Good Thing 5
3. Catch a cold	○	○	○	○	○
4. Have Diabetes	○	○	○	○	○
5. Start smoking cigatettes	○	○	○	○	○
6. Get the flu	○	○	○	○	○
7. Get Cancer	○	○	○	○	○
8. Become paralyzed	○	○	○	○	○
9. Lose weight	○	○	○	○	○
10. Become more physically fit	○	○	○	○	○
11. Have a headache	○	○	○	○	○
12. Injured in a car accident	○	○	○	○	○
13. Get heart disease	○	○	○	○	○
14. Gain a lot of weight	○	○	○	○	○
15. High cholesterol	○	○	○	○	○
16. Shot	○	○	○	○	○
17. Drug or alcohol abuse	○	○	○	○	○
18. Get HIV (AIDS)	○	○	○	○	○
19. Have a stroke	○	○	○	○	○

Instrument Number: 1 1 5
(For internal use only)

Study ID: 0 6 7

Health Benefits of Genetic Testing for Type 1 Diabetes: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( )
(month) (day) (year)

Test Number: 1 ○ 2 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Please read the following 19 statements. For each statement, **choose the one response that best represents your beliefs and attitudes.**

	Strongly Disgree 1	Disagree 2	Agree 3	Strongly Agree 4
1. The chance that the gene for type 1 diabetes runs in my family is great.	○	○	○	○
2. It is likely that I carry the gene for type 1 diabetes.	○	○	○	○
3. If I carried the gene for type 1 diabetes, I would worry about developing the disease.	○	○	○	○
4. If I found out that I carry the gene for type 1 diabetes, it would be very difficult.	○	○	○	○
5. A high risk for type 1 diabetes would be a serious problem.	○	○	○	○

(continued on next page)

Draft

	Strongly Disgree 1	Disagree 2	Agree 3	Strongly Agree 4
6. Genetic testing helps me to know my chances of getting type 1 diabetes.	○	○	○	○
7. Genetic testing would ease my mind.	○	○	○	○
8. Genetic testing for type 1 diabetes will help me to reduce uncertainty about the future.	○	○	○	○
9. Genetic testing to learn about my risk of developing type 1 diabetes will give me a sense of control.	○	○	○	○
10. It is a problem to have my saliva tested for genetic risk of type 1 diabetes.	○	○	○	○
11. Genetic testing would have a negative impact on my family.	○	○	○	○
12. It would be hard to cope with knowing I have a higher risk of developing type 1 diabetes.	○	○	○	○
13. I don't have enough information about genetic risk and testing.	○	○	○	○
14. It is a problem to take the time to come in for genetic testing and counseling.	○	○	○	○
15. Having a high risk of developing type 1 diabetes would cause problems like getting a job.	○	○	○	○
16. Having a high risk of developing type 1 diabetes would cause problems like getting insurance.	○	○	○	○
17. Genetic testing is expensive.	○	○	○	○
18. Genetic testing is inconvenient.	○	○	○	○
19. Genetic testing won't help me because I won't do anything different to manage the risk of developing type 1 diabetes.	○	○	○	○

Instrument Number: 118
(For internal use only)

Study ID: 067

Self Efficacy: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ___ / ___ / ____
(month) (day) (year)

Test Number: 1 ○ 2 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Directions:

The following 3 questions are regarding your feelings of confidence about doing things. On a scale of 0 - 10, where 0 is *"Not at all Confident"* and 10 is *"Very Confident,"* please fill in the circle on the scale that best represents your feelings.

	Not at all Confident										***Very Confident***
	0	1	2	3	4	5	6	7	8	9	10
1. How confident (certain) are you that you can have your saliva tested for genetic risk of type 1 diabetes?	○	○	○	○	○	○	○	○	○	○	○
2. How confident are you that you will come to the clinic to receive the results?	○	○	○	○	○	○	○	○	○	○	○
3. How confident are you that you can do something to prevent getting type 1 diabetes?	○	○	○	○	○	○	○	○	○	○	○

Draft

Instrument Number: 137
(For internal use only)

Study ID: 067

WHY NOT (Counseling) Questionnaire: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ___ / ___ / ____
(month) (day) (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

For each of the 5 statements below, please choose the one response that best represents your feelings.

	True 1	False 2
1. This project involves too much time and effort to proceed.	○	○
2. I have decided I really don't want to know my risk of developing diabetes.	○	○
3. After viewing the counseling educational material, I have now decided there are more reasons **not** to find out my risk of developing diabetes than there are to find out.	○	○
4. After obtaining additional information, I have decided I don't want to learn my risk of developing diabetes.	○	○
5. Getting the test results could do more harm than good (e.g., no insurance).	○	○

Draft

Instrument Number: 1 3 8
(For internal use only)

Study ID: 0 6 7

WHY NOT (Testing) Questionnaire: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( )
(month) (day) (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

For each of the 9 statements below, please choose the one response that best represents your feelings.

	True 1	False 2
1. This project isn't at all what I thought it was going to be.	○	○
2. This project involves too much time and effort.	○	○
3. I really don't see any reason to have my saliva tested to learn my risk of developing diabetes.	○	○
4. After viewing the educational material, I have decided there are more reasons **not** to test than there are to test.	○	○
5. I don't want to know.	○	○
6. I don't want to put myself through the testing.	○	○
7. Getting a genetic test could do more harm than good (e.g., no insurance).	○	○
8. My family doesn't want me to be tested.	○	○
9. I am afraid that my genetic material could be used for things I wouldn't approve of.	○	○

Draft

Instrument Number: 1 3 8
(For internal use only)

Study ID: 0 6 7

WHY NOT (Testing) Questionnaire: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: (month) / (day) / (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

For each of the 9 statements below, please choose the one response that best represents your feelings.

	True 1	False 2
1. This project isn't at all what I thought it was going to be.	○	○
2. This project involves too much time and effort.	○	○
3. I really don't see any reason to have my saliva tested to learn my risk of developing diabetes.	○	○
4. After viewing the educational material, I have decided there are more reasons **not** to test than there are to test.	○	○
5. I don't want to know.	○	○
6. I don't want to put myself through the testing.	○	○
7. Getting a genetic test could do more harm than good (e.g., no insurance).	○	○
8. My family doesn't want me to be tested.	○	○
9. I am afraid that my genetic material could be used for things I wouldn't approve of.	○	○

Draft

Instrument Number: 1 3 9
(For internal use only)

Study ID: 0 6 7

Satisfaction with Genetic Education Program and Questionnaires: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: (month) / (day) / (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Please read the 8 statements below and choose the response for each that most correctly matches your opinion.

	Strongly Agree 4	Agree 3	Disagree 2	Strongly Disgree 1
1. This computer program helped me to learn more about diabetes and genetics.	○	○	○	○
2. The computer program was easy to read and understand.	○	○	○	○
3. The computer program was easy to use.	○	○	○	○
4. I enjoyed this computer program.	○	○	○	○
5. After seeing the program, I want to get more information about genetics and/or type 1 diabetes.	○	○	○	○
6. After seeing the program, I want to get genetic testing.	○	○	○	○
7. The questionnaires were easy to read.	○	○	○	○
8. The questionnaires were easy to answer.	○	○	○	○

Instrument Number: 1 4 0
(For internal use only)

Study ID: 0 6 7

Satisfaction with Genetic Counseling: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( )
(month) (day) (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Please read the 7 statements below and choose the response for each that most correctly matches your opinion.

	Strongly Agree 4	Agree 3	Disagree 2	Strongly Disgree 1
1. This computer counseling helped me to understand about my risk of type 1 diabetes.	○	○	○	○
2. The computer counseling was easy to use.	○	○	○	○
3. I enjoyed getting information by the computer counseling program.	○	○	○	○
4. The computer counseling gave me helpful information.	○	○	○	○
5. I am satisfied with the way in which information was transmitted to me.	○	○	○	○
6. The face-to-face counseling I got helped me to cope better with the information I received.	○	○	○	○
7. I am satisfied with the information I got in the face-to-face counseling.	○	○	○	○

Instrument Number: 136
(For internal use only)

Study ID: 067

LOT-R

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ___ / ___ / ____
(month) (day) (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Please read the 6 statements below. Answer as honestly and accurately as you can throughout. Try not to let your response to one statement influence your response to other statements. There are no correct or incorrect answers. Answer according to your own feelings, rather than how you think "most people" would answer.

	I Agree a Lot	I Agree a Little	I Neither Agree nor Disagree	I Disagree a Little	I Disagree a Lot
	1	2	3	4	5
1. In uncertain times, I usually expect the best.	○	○	○	○	○
2. If something can go wrong for me, it will.	○	○	○	○	○
3. I'm always optimistic about my future.	○	○	○	○	○
4. I hardly ever expect things to go my way.	○	○	○	○	○
5. I rarely count on good things happening to me.	○	○	○	○	○
6. Overall, I expect more good things to happen to me than bad.	○	○	○	○	○

Instrument Number: 1 2 1
(For internal use only)

Study ID: 0 6 7

Religiosity

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: | | / | | / | | | | |
(month) (day) (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

Please read the following 7 statements. After each statement, choose the answer that best represents your beliefs or behavior.

	Very Much 3	Somewhat 2	Not At All 1
1. How religious do you consider yourself to be?	○	○	○
2. How spiritual do you consider yourself to be?	○	○	○
3. How important is it to you to attend religious services/meetings?	○	○	○
4. How much does your religion influence your behavior?	○	○	○
5. How important is your religion to you?	○	○	○
6. Do your religious beliefs influence your medical treatment? (e.g., taking medication or getting tests)	○	○	○
7. How much does the advice of your clergy influence your decisions regarding medical treatment?	○	○	○

Instrument Number: 1 3 5
(For internal use only)

Study ID: 0 6 7

Perceived Stigma of Diabetes: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: (month) / (day) / (year)

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

This questionnaire asks about some of the social and emotional aspects of having diabetes. After each statement, please choose the answer that corresponds to how much you agree or disagree with that statement.

If I had diabetes . .

	Strongly Disgree 1	Disagree 2	Agree 3	Strongly Agree 4
1. I'd feel anxious when thinking about telling someone that I had diabetes.	○	○	○	○
2. telling someone I have diabetes would be risky.	○	○	○	○
3. I would work hard to keep my diabetes a secret.	○	○	○	○
4. I would would be very careful whom I told about my diabetes.	○	○	○	○
5. I would worry that people who knew I had diabetes would tell others.	○	○	○	○

(continued on next page)

Draft

If I had diabetes . .

	Strongly Disgree 1	Disagree 2	Agree 3	Strongly Agree 4
6. I would tell people close to me to keep the fact that I had diabetes a secret.	○	○	○	○
7. some people who knew I had diabetes would grow distant.	○	○	○	○
8. I would be hurt if people reacted negatively to learning I had diabetes.	○	○	○	○
9. people I care about would stop calling after learning I had diabetes.	○	○	○	○
10. I would stop socializing with some people because of their reaction to my having diabetes.	○	○	○	○
11. I would lose friends by telling them I had diabetes.	○	○	○	○
12. others wouldn't want me around once they knew I had diabetes.	○	○	○	○

Please read the following 4 statements and indicate how much you agree or disagree with each statement.

	Strongly Disgree 1	Disagree 2	Agree 3	Strongly Agree 4
13. Most people with diabetes feel left out.	○	○	○	○
14. Being honest about having diabetes would hurt my chances of getting a job.	○	○	○	○
15. Being honest about having diabetes would hurt my chances of getting health insurance.	○	○	○	○
16. Most people are uncomfortable around someone with diabetes.	○	○	○	○

Instrument Number: 1 1 9
(For internal use only)

Study ID: 0 6 7

Quality of Life Ladder

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: (month) / (day) / (year)

Test Number: 1 ○ 2 ○

(FOR STAFF USE ONLY)

○ 9 *Healthy and Strong*

○ 8

○ 7

○ 6

○ 5 *Not Too Strong, but Not Too Weak*

○ 4

○ 3

○ 2

○ 1 *Sick and Weak*

Instrument Number: 1 2 0
(For internal use only)

Study ID: 0 6 7

Monitoring Vigilance: Pilot

Center for Research in Chronic Disorders

ID Number: | | | | | | | | | | |

Administration Date: ( ) / ( ) / ( )
(month) (day) (year)

Test Number: 1 ○ 2 ○ 3 ○

(FOR STAFF USE ONLY)

Please use the following example to answer all questions:

Shade circles like this: ●
Not like this: ⊗ ✓

For each of these 17 items, please choose the answer that ***best describes your behavior*** that you believe may prevent or delay the onset of diabetes.

	Never 1	Some of the Time 2	Most of the Time 3	All of the Time 4
1. I watch myself for signs of diabetes.	○	○	○	○
2. I check my blood sugar level.	○	○	○	○
3. I check my urine sugar.	○	○	○	○
4. I changed my diet.	○	○	○	○
5. I increased my exercise activity.	○	○	○	○

(continued on next page)

	Never 1	Some of the Time 2	Most of the Time 3	All of the Time 4
6. I decreased my stress level.	○	○	○	○
7. I increased the number of hours I sleep.	○	○	○	○
8. I increased the number of hours I get fresh air.	○	○	○	○
9. I decreased my contact with others to protect myself from germs.	○	○	○	○
10. I take medicine that will reduce the risk of diabetes.	○	○	○	○
11. I entered a study to prevent type 1 diabetes.	○	○	○	○
12. I went to the doctor/clinic to check for diabetes.	○	○	○	○
13. I looked at web sites about diabetes.	○	○	○	○
14. I talked to my friends/family about diabetes.	○	○	○	○
15. I spoke to other doctors, nurses, etc... about the risks of diabetes.	○	○	○	○
16. I read journals and/or books about the risks of diabetes.	○	○	○	○
17. I pray that I don't get diabetes.	○	○	○	○

DAMD17-01-1-0009

ANNUAL REPORT

1 NOV 02 - 31 OCT 03

APPENDIX 10:

HRC PROTOCOL WITH PILOT HIGHLIGHTED

PROTOCOL

Protocol Title: *Genetic Information for Testing Diabetes (GIFT-D)* the program component of the *New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes:* Pilot Study and Phase 1

Justification for Proposed Study

Molecular technology developed by Dr. Trucco, with previous funding from the Department of Defense, is now available to test individuals in the general population and estimate their risk of developing genetically linked diseases, such as type 1 diabetes mellitus (T1D). At present, several research groups in the US are using genetic screening to identify newborns who carry T1D susceptibility genes for natural history studies or clinical trials. This presents educational and information-dissemination challenges, such as the accurate delivery of information regarding genetic risk. Genetic testing also has the possibility of leading to significant distress in some family members with the magnitude of this distress varying as a function of factors such as test results, method of risk notification (e.g., genetic risk education /counseling), coping resources, perceived risk, optimism, health beliefs, and pre-existing depression/anxiety. Efforts must be taken to meet these challenges and minimize distress.

Therefore, the major goals of this study are to develop, implement, and evaluate a genetic educational/ counseling program targeted at T1D families that, if effective, could be applicable to the general population. (The purpose of this program is to enhance the understanding of genetic testing for T1D; thus, enabling the families to make a more informed decision regarding whether or not to receive the test.) While the long-term goal of the project is to implement the program in a general population, this current feasibility study will be conducted utilizing siblings of children with diabetes who are seen at the Children's Hospital of Pittsburgh Diabetes Center. *(This feasibility study will be referred to as Phase 1.)* These siblings and their parents have a pre-existing familiarity with the disease. Prior to obtaining genetic testing to determine the child's risk of developing T1D, children and their parent(s) will receive a web-based genetic educational/counseling program. Program effectiveness will be examined by changes in knowledge, health beliefs (e.g., risk perception), attitudes (e.g., perceived stigma), and behaviors (e.g., monitoring vigilance). Base-line variables along with demographic and personality characteristics, and life events will be examined in regard to their effects on the outcomes of interest.

Additionally, to minimize distress due to genetic testing results, further counseling support will be provided to the child and parent(s) as they receive face-to-face notification of the actual risk status by a trained health care professional. Follow-up contacts with the family will also identify any individuals who may benefit from additional counseling. Children, who are found to be at risk for T1D, will be subsequently invited to join other ongoing screening studies (e.g., Trialnet).

The Children's Study at CHP is significant because it will: 1) develop, implement, and evaluate the effectiveness of an interactive internet-based educational/counseling program (for risk notification and genetic counseling) that will communicate information about genetics and T1D risk status to Health Care Professionals (HCP's), parents and children. Three separate programs (HCP, parent and child) will be specifically developed for the Internet; 2) evaluate the psychosocial, and behavioral impact (outcomes) of receiving T1D risk information and notification of T1D risk status; and 3) serve as a feasibility study for Phase 2 (general population clinical trial) which will be conducted on

military bases on military dependants and their parents without T1D.

This proposed study will be conducted in two stages:

Stage One: Young Adult Pilot Study
- A. Part One (assessment and education)
- B. Part Two (testing and counseling)

Stage Two: Children's Hospital of Pittsburgh Diabetes Center (Phase 1)
- A. Part One (assessment and education)
- B. Part Two (testing and counseling)

In response to comments on a previous review by the HRC, we are now proposing to do a Young Adult Pilot Study. The committee previously raised the issue that it may be unethical to subject children to a study where the psychological risks are unknown. However, genetic screening, without genetic education and counseling, is currently being conducted to identify children at high risk for T1D for recruitment into natural history studies and clinical trials. We, therefore, believe that any potential familial distress related to genetic screening must be identified so appropriate interventions can be made.

It is for that reason, and on the direct advice from Dr. Ev Vogeley, that we now have incorporated a Young Adult Pilot Study. Prior to the implementation of the pediatric study, we will review the results of the Young Adult Pilot Study with Dr. Vogeley and other members of the HRC (if necessary), and if no evidence of psychological disturbance is found, we will ask the HRC to proceed with the rest of the study.

The Young Adult Pilot Study in Stage One will be conducted with 20 young adult males and females, between the ages of 18-25 yrs old, who have a sibling with T1D. The major purpose of this pilot study is to identify the potential for adverse psychological reactions (i.e., significant clinical scores on the depression and/or anxiety scales) in an adult population receiving information regarding one's own risk of DM. Predicated on both the successful completion and results of this Young Adult Pilot Study, we will proceed with conducting the Children's Study at CHP. The Young Adult Pilot Study will be discussed in its entirety under the section titled "Pilot Study".

This proposal represents The Young Adult Pilot Study and the Children's Study at CHP Phase 1. These studies have several consent forms, for the young adult, parent – child dyad, HCP, and a separate consent for the proband. They are: Consent to Contact (2), Consent to Contact a Collateral Informant (1), Consent for "Assessment and Education" (2), Consent for "Testing and Counseling" (2), Consent for HCP, and Consent for Proband (2).

Research Questions and Specific Aims (for the Children's Study at CHP)

1) To determine process evaluation of the internet-based educational/counseling program.
   a) How satisfied were the participants with the content and delivery of the program? How much time and effort did the program demand? Did it meet expectations?
   b) Did the program significantly increase the participant's [Health Care Professional (HCP), parent and child] level of knowledge of genetics and diabetes?
2) To determine outcome evaluation of the internet-based educational/counseling program.
   a) What is the effect of the education/counseling intervention on psychosocial outcomes (depression, anxiety, perceived risk, health beliefs, quality of life, and stigma) and behavioral outcomes (prevention behavior and disclosure) on child and parent?

b) What is the effect of receiving notification of T1D risk status on psychosocial outcomes (depression, anxiety, perceived risk, health beliefs, quality of life, and stigma) and behavioral outcomes (prevention behavior and disclosure) on child and parent?
c) Did the program change the individuals' perceptions of T1D risk?

3) To identify characteristics of subjects who agree to receive the genetic testing.
a) What percentage of the subjects who received the education intervention had the genetic test?
b) What percentage of the subjects who received the genetic testing had the counseling?
c) Which psychosocial factors (depression, anxiety, perceived risk, health beliefs, quality of life, stigma, optimism, religiosity, and family function) demographics, and cognitive factors (knowledge) are associated with subjects' receiving genetic testing for T1D?

Pilot Study

Young Adult Pilot Study
A. Part One (assessment and education)
B. Part Two (testing and counseling)

Justification
In accordance with the Belmont Report, preceding the study in a sample of children from CHP, a pilot study will be conducted with 20 young adult males and females, between the ages of 18-25 yrs old, who have a sibling with type 1diabetes. The major purpose of this pilot study is to identify the potential for adverse psychological reactions (i.e., significant clinical scores on the depression and/or anxiety scales) in an adult population receiving information regarding one's own risk of DM. Previous studies examine psychological distress in diabetic adolescents and adults have used T-scores ≥ 65 as indicative of clinically significant impairment (Diabetes Control and Complications Trial Research Group: Influence of intensive diabetes treatment on quality-of-life outcomes in the Diabetes Control and Complications Trial. *Diabetes Care* 19:195-203, 1996). We will use that same strategy in this study; a T score ≥ 65 is a score that is 1.5 standard deviation units higher than the mean for that study population.

Hypothesis
Out of 20 subjects, there will be no adverse reactions to receiving information regarding one's own risk of DM.

Subjects
Recruitment: Subjects will be recruited from the general population by means of advertisements placed in the local college newspapers and the *City Paper*, personal contacts of the researchers, and flyers posted at various campus locations. If interested, the advertisement will direct potential subjects to call the project office. (A "Waiver of Documentation of Consent" for this phone screening is being requested.) During this call, the potential subjects will be screened utilizing the GIFT-D Phone Screening Form (see attached) to insure they meet the eligibility criteria. Eligible candidates will be scheduled to come in for the first pre-education visit in Diabetes Institute, Suite 300 of the Keystone Building, 3520 Fifth Avenue.

Eligibility criteria: (1) males or females between the ages of 18 and 25; (2) have no diagnosis of type 1 diabetes; (3) have a brother or sister with type 1 diabetes; (4) no significant clinical score of depression or anxiety at baseline (significant scores will be referred to the clinician).

Sample Size: A total of 20 young adult subjects will be enrolled into this pilot study to collect preliminary information on the safety of the intervention that includes genetic testing related to type 1 diabetes. This sample size was not determined in order to have a certain level of statistical power when hypothesis testing but rather to explore the possible adverse psychological reactions in an young adult population receiving information regarding one's own risk of DM. However, with 20 subjects We anticipated that this sample size is feasible to enroll during a one month period of the time allocated for subject accrual.

Methods

This pilot study will be a one-group quasi-experimental, repeated measures design. It will entail 2 visits and one phone follow-up. The first visit will consist of a pre- and post-assessment and education intervention; the second visit will be a pre- and post-assessment and counseling intervention; and there will be a one-month follow-up phone assessment. The longest assessment period will take approximately 20 min. The educational/ counseling sessions will take less than one hour. The subjects will be reimbursed $50.00 at each visit to cover travel expenses and parking. They will also be compensated $10.00 for their time with the phone assessment.

Procedure:

At the first visit, potential subjects will sign the "Assessment and Education" consent form. Baseline pre-education program assessment (see Table 4) will be administered. This battery of questionnaires includes measures of depression and anxiety. All assessments (except "evaluation survey" and "life events") are self-administered paper-and-pencil format. Subjects who have a T score of 65 or greater will meet threshold for a potentially clinically significant depression and/or anxiety disorder at baseline, and will be given a referral to a mental health provider and excluded from continuing in the study. They will be given their exit check for $50. In the event that subjects actually endorse items indicative of suicidality risk (e.g., on the Child Depression Inventory, endorse either 'I think about killing myself but would not do it' or 'I want to kill myself'), this information will be immediately forwarded to our project clinician (Dr. Tad Gorske; a licensed clinical psychologist) who will speak with the subject further to determine whether an immediate referral to a local mental health facility is indicated. Subjects without acute psychological distress will then view the genetic and diabetes educational program (Child/ Adolescent version) on the computer, after which, they will complete the post-education program assessment (Table 4). It was decided that the young adults would view the adolescent version since this version has been developed in the first person and directly refers to the individual potentially being tested. The alternative parent application is designed specifically for parents to make a decision for their child. Subjects will then be asked whether or not they wish to provide a cheek cell sample for the genetic testing. Subjects who refuse, will be given the 'Why Not Test" questionnaire exploring reasons to discontinue the project. Subjects who agree to provide the sample, will sign the second consent "Testing and Counseling". The cheek cell sample will be collected and the subject scheduled for their second visit. All subjects will be given $50 at the end of this visit regardless of their level of participation.

At the second visit, subjects will complete the pre-counseling assessment (Table 4). They will view a genetic counseling program (Child/Adolescent version) on the computer. Subjects will decide whether or not to receive the results of their personal risk. Subjects who refuse will be given the 'Why Not Counsel" questionnaire exploring reasons for not

wanting to receive the results of the test. Subjects who agree will meet face-to-face with a Health Care Professional who will explain their personal risk and answer questions. (This Health Care Professional will have participated in the Health Care Professional genetic education module. They will also be personally trained by Ms. Betsy Gettig, a certified genetic counselor, regarding the appropriate strategies for communicating genetic risk information to relatives of individuals with type 1 diabetes.) At the conclusion of this counseling session, another assessment will be completed, including measures of depression and anxiety. Subjects who have a T score of 65 or greater and thus meet threshold for a potentially clinically significant current depression and/or anxiety disorder will be given a referral to a mental health provider for further evaluation. As part of the referral process, subjects will discuss their feelings with our project clinician, Dr. Tad Gorske, who will not only evaluate their level of psychological distress clinically, but will get information about events associated with this distress. This will allow us to determine the extent to which their depression is related to study procedures, or to other life events (e.g., death in the family). Referrals to mental health providers will be provided if warranted. All subjects will be given $50 at the end of this visit regardless of their level of participation.

At one month, over the phone, subjects will be contacted to complete the depression, anxiety, and monitoring vigilance measures. Subjects who have a T score of 65 or greater will meet threshold for a potentially clinically significant depression and/or anxiety disorder will be interviewed by our project clinician, Dr. Tad Gorske, and will be given a referral to a mental health provider for further evaluation, as described above. All subjects will receive a check for $10 in the mail for completing these measures.

Measures
The young adult assessments are modified versions of the parent questionnaires. For a description of the instruments, scales, score interpretation, and psychometric properties, see Measures section of the Children's Study at CHP protocol in this proposal.

Data Analyses and Interpretation
Appropriate descriptive statistics will be computed to characterize the safety profile with respect to depression and anxiety. Continuous type variables (e.g., anxiety, depression) will be summarized using means, standard deviations, and ranges, while categorical variables (e.g., dichotomized depression variables based on clinically meaning cutpoints) will be described using frequency counts and percentages. Change scores relative to baseline values will be computed to describe changes in psychological profile over time as subjects proceed through the study. Small sample confidence intervals will be computed for means and percentages, especially with respect to depression and anxiety.

Predicated on both the successful completion and results of this adult pilot study (i.e., out of 20 subjects, there will be no adverse reactions to receiving information regarding one's own risk of DM), we will proceed with conducting the Children's Study at CHP. If any type of distress is identified, the protocol will be modified accordingly and re-submitted for IRB review.

Research Design

Children's Study at Children's Hospital of Pittsburgh Diabetes Center (Phase 1)

A. Part One (assessment and education)
B. Part Two (testing and counseling)

The project entails a one-group quasi-experimental, longitudinal, repeated-measures design, embedded within an educational/ counseling intervention prior to and following genetic testing for type 1 diabetes. Subjects are evaluated pre- and post- education, pre-

and post- counseling; and at a one-month and three-year home follow-up.

Subjects of the Study

The sample will be parent – child dyad obtained from the CHP Diabetes Center utilizing the following inclusion/exclusion criteria:
The child must have a full biological sibling less than 21 years of age with T1D (proband), be between the ages of 7 and 18 yrs., be in a home with at least one biological parent who is willing to participate, and be able to speak and read English.
Subject must not be a Trialnet participant nor be adopted.

Sample Size Justification

We estimate approximately 250 siblings to be eligible for this Phase 1 study. However, for this exploratory study, we plan to recruit a feasible sample size of 50 families having a T1D child as a proband. Although this sample size was not determined on the basis of achieving specified level of statistical power, we would have sufficient power (.80) to detect time effects as small as f=.286 for 2 assessments and f=.258 for 3 assessments in time at a two-tailed significance level of .05.

Given the longitudinal design of the study, subject attrition is possible. To insure 50 families complete the program evaluation, 70 families will be enrolled, conservatively adjusting for about 28% attrition.

Recruitment Methods

Following the successful completion of the Young Adult Pilot Study, brochures (attached) will be distributed at the CHP Diabetes Center. These brochures contain a description of our research project for risk of T1D, eligibility criteria and contact information.

In Phase 1, siblings from families with one child already diagnosed with T1D will be recruited from the CHP Diabetes Center. Families will be recruited during a regularly scheduled clinic visit of the child with T1D (proband). During this visit, a health care professional (HCP) will ask the family if they are interested in talking to the study coordinator about our study. If they are interested, the HCP will have the parent sign the Consent to Contact and introduce them to the study coordinator. Should the proband be 18 yrs old or above, he/she will sign a Consent to Contact specifically designed for him/her. This coordinator will personally discuss the study with the family, determine their eligibility using non-identifiable characteristics and explain the informed consent (assent) to those families who are eligible and interested. A copy of the consent will be given to them to take home to review. We will ask that both parents sign the consent form. The proband will also be recruited to provide a sample for DNA testing at the next visit. This sample will be used to help determine the sibling's risk. An appointment will then be scheduled (separate from the regular diabetes clinic visit) where the parent and all eligible sibling/s (ages 7-18) and the proband will begin their participation in the study.

Procedure After Recruitment

At the 2nd visit, the participating parent and all eligible siblings will be asked to sign three copies of the Consent/Assent form(s). Contact sheets and the Consent to Contact a Collateral Informant (see after 3 year follow up) will be completed and a study number assigned. A unique ID and password (basic authentication scheme) will be issued for

parent and each child to restrict access to the website. Families will be given instructions on the use of the Internet-based application. They will complete the web-based baseline psychosocial assessments and the genetic pre-test questionnaire (knowledge, beliefs, etc.). Demographic characteristics (e.g., age, sex, race, ethnicity) and family history of diabetes will also be assessed. Some of this information will be included in the risk algorithm so that an estimate of T1D risk can be determined. The parent and participating sibling(s) will separately complete the web-based genetic and diabetes educational components. The proband may also view the educational program if desired. The site coordinator will be available for assistance. Developmentally appropriate programs will be shown. Following the program, a short post-test web based assessment will be conducted. The family's experience with the web-based education modules will be discussed and logged for formative (process) program evaluation. Any questions they have regarding genetics, genetic testing for T1D, etc. will also be answered at this time. The family will be again reminded about the validity and utility of genetic tests for T1D, and the risks and benefits associated with being tested. All participants will have the opportunity to decide if they wish to proceed with the genetic testing. If they decide not to continue, they will complete a short questionnaire exploring their reasons for not wanting to have the testing done, along with an exit survey.

For those who agree to the testing, the Consent/Assent for Genetic Testing and Counseling will be explained and signatures obtained. Additional consents will be explained and signatures obtained for the proband sample collection. (There are two consents, one for a proband under 18 and one for a proband over 18). Cheek cells will be collected using the mouthwash technique or soft brush from each assenting child and the proband. A third visit will be scheduled for the parent and sibling/s to return for the risk notification and counseling component. Each participant (parent, siblings and proband) in this 2nd visit will receive $25.

During Visit #3, the parent will complete a Monitoring Vigilance questionnaire. All participants will complete a developmentally appropriate web-based genetic counseling session. At the end of this session, participants will decide whether they will receive their risk status notification and post-test genetic counseling. Those deciding not to proceed will complete a questionnaire exploring their reasons for not continuing and an exit survey. Those deciding to proceed will meet the HCP to receive their risk estimate. The HCP will meet with each participating sibling and parent and while together, each child will be given his/her personal risk assessment. Personalized risk estimates have been calculated using the risk algorithm (Research Question 1) and the results of the mouthwash test (i.e., DQA1-DQB1 haplotypes), as well as family history and demographic information obtained during Visit #2. In addition to the information they receive from the trained HCP, participants will receive a written summary of the genetic information provided. Families will also receive information about possible T1D research and intervention studies. Parents and children will then complete a brief psychosocial assessment. All participants will be given $25 for this visit. Home computer access will be determined in preparation of the next data collection point.

One month later, each family will be contacted for a short battery of web-based questionnaires online. These will include: Psychological Status, Stigma/Discrimination, Behavior Changes and an Exit Survey. A check for $25 will be mailed to all participants completing these questionnaires.

In addition, after 3 years, each family will be contacted via telephone, letter or postcard to request that they complete an online battery of questionnaires as a follow-up to the study. (The Consent to Contact a Collateral Informant was signed during the second visit to allow us to contact other family members/friends in the event we are unable to reach participant families for follow-up.)

Measurement

Table 1 lists the variables and measures with the number of items that will be used to collect the data. ***Table 2*** lists the data collection points of each measure to be collected for the child, and ***Table 3*** lists the data collection points of each measure for the parent. These measures evaluate the mediating or outcome effects of the education and counseling program. Children and parents will be asked to separately complete modules to assess knowledge, psychosocial parameters and behaviors, as outlined in Table 1. Each education module will be preceded by a short pre-test and followed by a short post-test that will take approximately ten minutes to complete. The Expanded Health Beliefs Model (EHBM) and models of Stress and Coping modified for T1D will guide the assessments. The EHBM hypothesizes that, in addition to knowledge about disease prevention, an individual is more likely to engage in a recommended health behavior if he or she feels susceptible to a health problem, perceives its complications to be serious, considers the recommended behavior(s) to be beneficial in maintaining health or preventing complications, and believes that the benefits of following the recommendations outweigh the barriers. Thus, the dimension of the EHBM will be operationalized as: 1) perceived susceptibility for developing type 1 diabetes, 2) perceived severity of the disease, 3) perceived benefit of receiving genetic testing and genetic counseling, 4) perceived barriers to having the genetic testing, receiving genetic counseling or being identified as an individual at 'high risk' for the disease, and 5) intention to have the genetic testing and counseling performed.

Well validated/reliable, and newly developed instruments will be modified for the web-based interactive application as follows:

The mature, well validated measures to be used are: the State-Trait Anxiety Inventory (STAI) and State-Trait Anxiety Inventory for Children (STAI-C) (Spielberger); Children's Depression Inventory (CDI-s) (Kovacs); Center for Epidemiologic Studies Depression Scale (CESD-10) (Radloff); Life Orientation Test for Optimism Revised (LOT-r) and Life Orientation Test for Optimism Pediatric version (LOT-P) (Scheier); Child Health Outcomes (Young-Hyman); Family APGAR (Smilkstein).

Well validated measures that have been modified include: Risk Perception Survey for Developing Diabetes (Attitudes about Health), (child and parent version) (Walker); Child Health Outcome (child version)(Young-Hyman); Diabetes Health Belief for Genetic Testing Questionnaire (child and parent version) (Wang); Quality of Life Health Ladder (Andrews and Withey); Perceived Stigma (child and parent version) (Berger); Satisfaction With Genetic Education (Castaldini); Satisfaction with Genetic Counseling (Castaldini and Shiloh); and Monitoring Vigilance (Baughcum and Johnson et. al.).

Although theoretically and empirically based, measures that have been developed for the purpose of this study are: Demographic Questionnaire; Religiosity; Genetic/Diabetes Knowledge Test (child and parent version); Intention; Self-Efficacy; Refusal (Exit Survey); Disclosure Questionnaire; Life Event Log; and the Process Evaluation logs of Offensive/Expectations, Time/Effort and Assistance.

Changes in prevention behavior will be determined by conducting a post-intervention assessment (Monitoring Vigilance) at 1 month and 3 years on the proportion of participants who receives genetic testing to assess whether they perform self-initiated lifestyle behavioral changes to minimize risk of developing diabetes (e.g., diet), prescribe to health behavior changes to minimize risk (e.g., enrolls in prevention trial), or seeks other information on the internet-based resource. In addition, we will examine the factors that may influence such intentions and behaviors, such as age, gender, perception of risk, etc. It is important to emphasize that behavior changes will not be viewed as an indication of the program's success. Rather, they represent observations of interest that may be further explored in an extended follow-up of this cohort. Subjects will be asked to complete measures that evaluate decision-making processes (i.e., Monitoring Vigilance and Disclosure). In addition, a process evaluation will be conducted to determine time/effort expended, subject satisfaction, identification of offensive information, and

goal expectations. Psychometric analyses will be conducted on all measures to determine the validity and reliability for this population for both parent and child versions.

Table 1 Data to be collected

Knowledge
Diabetes
Complications (acute and long-term)
Genetics
Inheritance of type 1 diabetes
Environmental risks factors
Approaches for prevention
Psychosocial parameters
Perceived risk
Health beliefs/ intention
Anxiety
Depression
Optimism
Health quality of life
Stigma / discrimination (insurance, employment)
Religiosity
Family Function
Life Event Log
Behaviors
Receives genetic testing
Receives counseling
Prevention Behavior changes (health and/or lifestyle related)
(e.g., diet, seeks prevention tx) @ 1 month and 3 years
Seeks other information on the web-based resource
Disclosure
Process evaluation
Time/effort
Satisfaction
Offensive/expectations

Health Care Professionals Training

A second objective of our proposal is to increase the availability of genetic information to health care professionals, as well as improve their understanding of genetics so that they may provide this information to their patients who seek it.

We will identify one health professional from the CHP Diabetes Center to serve as the site coordinator. This individual will be responsible for recruiting families from his/her clinic. He/she will be oriented according to protocol by the study coordinator and will be provided with a procedure manual. He/she will receive a web-based training program, currently being developed, which will also be provided for any other clinic Health Care Professionals (HCP) interested in participating. Additionally, he/she will also be trained to provide the web-based genetic education/counseling program and assessments, conduct the genetic testing, and deliver both the face-to-face risk notification and the web-based post-counseling program to the families that complete all components of the study. This HCP program will include training in basic genetics, genetic testing, genetic counseling, and ethical, legal and social issues related to genetic testing. HCPs will receive extensive information about type 1 and type 2 diabetes, and the acute and long-term complications associated with these diseases. The study

coordinator and the co-investigators will be available to the HCP while he/she is functioning as the site coordinator for questions and support. He/she will also be updated regarding the status of the ongoing T1D intervention trials. In addition, HCP-client communication skills will be addressed. In this manner, HCPs will be able to fully participate in the risk notification and risk evaluation processes outlined in the current proposal.

Timetable for Completion of Each Phase of the Study: 11/01/02 to 10/31/04

During year 1: hiring and training personnel; purchasing equipment; finalizing and verifying questionnaires; developing three separate (one for parents, one for children, and one for health care professionals) web-based interactive educational/ counseling programs with CIDDE; developing questionnaires on-line, and an Internet data tracking program with DSI; generating data dictionaries; compiling manuals for intervention protocols; setting up study sites and orienting on-site health care professionals; recruiting conducting, and evaluating the *Young Adult Pilot Study* from 11/03 thru 2/04.

During year 2: recruiting and conducting the *Children's Study at Children's Hospital of Pittsburgh Diabetes Center (Phase 1)*; conducting the one-month telephone follow-ups on subjects, thus completing all the initial data collection; data management; conducting analyses; preparation and submission of final written reports; and begin planning preparations for program implementation of Phase 2 (general population clinical trial) which will be conducted on military bases in military dependants and their parents without T1D.

Data Analysis and Interpretation

Data entered on the web-based password-protected forms by the subjects will be captured and stored directly onto a secure web server. Data will be downloaded from the web server and analyses carried out on project computers.

Prior to conducting the major analyses, we will employ exploratory data analysis techniques to thoroughly describe each variable and, which will, in part, determine the actual analysis required to answer the stated objectives. When statistical assumptions are reasonably satisfied, the application of data transformations or non-parametric methods will be considered. In the event of missing data, multiple imputation techniques will be used. Those who do not complete the intervention will be analyzed separately to determine any differences from those who remained in the follow-up. However, dropouts will be included in the final analysis.

In regard to the risk algorithm, an algorithm based on data collected for the Familial Autoimmune and Diabetes Study (JS Dorman, PI) was developed early in Year 1. It was based on computationally intensive methods to obtain estimates of risk, as well as determine the error in such estimates. A table of group-specific absolute risks have been generated according to age, family history of T1D diabetes, and the families' DQA1-DQB1 haplotypes. See appendix for the "Age Specific Probability Estimates" and "Covariate Patterns" tables

For research question #1a, appropriate descriptive statistics (e.g., means, medians, standard deviations, and interquartile range for continuous variables and frequency counts and percentages for categorical variables) will be used to characterize participant satisfaction with the content and delivery of the education/counseling program. Expectations of the program and demands on the subjects in terms of time and effort will also be quantified and appropriately summarized.

Repeated measures modeling methods (e.g., covariance pattern models using mixed modeling methods) will be applied to explore the effects of an education/counseling program and received notification of T1D risk status on knowledge

(Research Question #1b) and psychosocial and behavioral outcomes (Research Questions #2a, #2b, #2c) over time. This analytic approach is fairly flexible, allowing for modeling of continuous, discrete, or count type response variables; unequally spacing repeated assessments; data that is missing at random; and fixed and time-varying covariates. Longitudinally measured psychosocial outcomes such as depression, anxiety, perceived risk, health beliefs, quality of life, and stigma; and prevention behaviors (behavioral outcomes) will be assessed longitudinally. The behavioral outcome of disclosure, assessed only at follow-up, will be examined using descriptive statistics. In addition, the relationships between longitudinal outcomes and potential covariates will be examined using the repeated measures modeling methods previously described. For the modeling of the behavioral outcome of disclosure as a function of covariates, logistic regression analysis will be used. Given the exploratory nature of this pilot study, emphasis will be placed on the estimation of effect sizes rather than on the testing of hypotheses.

Research questions #3a and #3b will be analyzed using appropriate descriptive statistics. Regarding Research Question #3c, appropriate correlational and multivariate analyses will be performed to determine a predictive model for receiving genetic testing.

Benefits and Risks

The primary benefit to subjects participating in this research project will be education about genetics and diabetes through an Internet-based application. This will enable them to identify the risks and benefits of genetic testing so they will be able to make an informed decision as to whether or not they want their child/ren to undergo genetic testing to determine each child's risk for developing type 1 diabetes. The primary benefit to participating in the second component of the research study will be to actually learn their child/ren's personal risk of developing type 1 diabetes. Information regarding T1D, family support, and research studies will also be provided. This will be done both face-to -face with a Health Care Professional and on an Internet-based application.

The primary risk associated with this study is that subjects may experience some psychological distress at having to be told about the results and risk of getting diabetes. To help ease this distress, we have added both an Internet based and a "face-to-face" counseling session to discuss what this risk really means. We will also provide referrals for both psychological and genetic issues if warranted.

Subjects might feel uncomfortable sharing personal information on questionnaires. To reduce this discomfort, we are using standard questionnaires in the Internet-based application and subjects will always have the option to not answer specific questions.

Subjects may also experience some feeling of discrimination, possibly in obtaining employment or insurance due to their knowledge of this risk information. However, since only the subject and study personnel know this information, this risk is minimal.

There is also a risk that unauthorized individuals might gain access to information contained within the website. However, since the site is user ID and password protected and only study number identifies the information contained therein, this too is a minimal risk.

The benefit for the HCP may be learning more information about type 1 diabetes and genetics. There are no risk associated with their participation.

Subject Protection and Privacy

In order to protect the safety of the subjects in the study, the depression survey for all subjects will be scored by the system in real-time. If the score is at or above the established threshold, the site coordinator and the study coordinator will immediately be

notified by pager and e-mail. The site coordinator will ensure that the patient is safe and if necessary, a referral will be made to a local mental health practitioner.

In compliance with the Health Insurance Portability and Accountability Act (HIPAA), none of the subject's private health care information will be used for the research purposes of this study without his/her consent. All parents will be informed of the specific uses and disclosures of their child's medical information for the purpose of this research study and who will have access to that health information. This research study will not involve the recording of existing medical information nor will any medical information that becomes available while the subjects are participating in this study be placed in their child's hospital and/or physician records. If the results of this study are published, information concerning their child/ren will be in a form such that s/he cannot be identified. The subject's participation in this study will **not** result in health information being placed in the Children's Hospital of Pittsburgh medical chart, outpatient chart, or research record. All Research records will be kept confidential. Paper records will be stored in locked cabinets.

The study coordinator will be responsible for creating a unique ID for each participant in the project. Data collection and storage will be based on the unique study ID. No patient identifying information will be stored in the database. The key linking the subject identity with the study ID will be stored in a double locked file cabinet by the study coordinator.

Study participants will access the website and answer questionnaires through the World Wide Web Secure Socket Layer encryption will be used to provide full 128-bit data encryption. Project staff will access the site through a thick Java-client application. All data transactions between the thick client and the database will be encrypted using the encryption module of Oracle 9i.

Data Safety Monitoring Plan

The Principal Investigator will be responsible for data and safety monitoring for this project. Regular reviews of the accrued research data and other relevant information will be conducted to ensure the validity and integrity of the data. In addition study procedures will be reviewed to ensure that the privacy of research subjects and the confidentiality of their research data have not been violated. The table below outlines the elements to be reviewed.

Element to be Monitored	Method	Frequency
Data quality and integrity	Review of system audit information	Monthly
Study progress	Review of system generated subject tracking reports	Monthly
Depression survey notification	Review of system generated reports of depression risk notification	Monthly
Adverse event data	Manual review of adverse event reports	Monthly

Summary results of monitoring activities will be reported to the HRC upon request for renewal and will include the following:

- Frequency of monitoring that occurred during the study period
- Summary of cumulative adverse event data
- Conclusions related to change in risk benefit

The P.I. will report to the HRC within 24 hrs. any serious adverse event occurring at CHP that is associated with this research intervention. Unexpected adverse reactions of moderate severity occurring at CHP in association with the research intervention will be reported to the HRC within 5 days. Sponsor-generated safety reports will be submitted to the HRC with 30 days of their receipt by the investigators. Reporting of adverse events to sponsors and federal agencies will be the responsibility of the P.I.

Qualifications of the Investigators

Dr. Dorothy J. Becker, is a Professor of Pediatrics, Director, Division of Endocrinology, Metabolism and Diabetes Mellitus in the Department of Pediatrics at the Children's Hospital of Pittsburgh, University of Pittsburgh, School of Medicine. Dr. Becker received her M.B.B.Ch. degree from the University of Witwaterstrand, Johannesburg, South Africa and arrived here in 1974 to begin her Fellowship in Endocrinology at the Children's Hospital of Pittsburgh, Pennsylvania.

Initially interested in nutrition and hormones, Dr. Becker contributed to the medical community's understanding of complications associated with diabetes in childhood; she's also pursuing ways to predict the onset of the disease in those at risk. She was recently awarded a NIH grant, a multi-center intervention study comparing standard vs hydrolyzed formulas as a weaning diet in infants with genetic risk for developing type 1 diabetes. Dr. Becker has been an invited lecturer, symposium speaker, and chairperson at numerous international congresses and symposia.

Dr. Denise Charron-Prochownik, Associate Professor School of Nursing and the Graduate School of Public Health at the University of Pittsburgh has both provided twenty years of service and has had an active program of research for thirteen years in diabetes. Her work has included national diabetes activities, such as editorial board member and associate editor of Diabetes Care, editorial board member of the Diabetes Spectrum, and selected as a member of both the Health Care and Education Advisory Group of the National ADA Executive Committee and the ADA's 2002 Scientific Session Meeting Committee. She is a pediatric diabetes clinical nurse specialist and a pediatric nurse practitioner. Her research emphasis is in theory-based studies identifying cognitive/ psychosocial predictors of health behavior change in children and adolescents with diabetes. She has conducted several funded projects in the area of instrumentation, program development and evaluation, and survey designs.

Dr. Janice S. Dorman, Professor of Epidemiology, Associate Dean for Research, Graduate School of Public Health, University of Pittsburgh, has research interests which include the molecular epidemiology of autoimmune disorders, and their impact on women's health. She teaches an introductory and a laboratory-based course in molecular epidemiology. She also co-directs the WHO Collaborating Center for Diabetes Registries, Research and Training.

Dr. Dorman has served as Principal Investigator of grants investigating: 1) the molecular epidemiology of type 1 diabetes diseases worldwide, 2) the familial clustering of autoimmune diseases, and 3) the menopause transition among women with type 1 diabetes.

Dr. Christopher Ryan is Professor of Psychiatry, Psychology, and Health & Community Systems, and is a Vice-Chair at the University of Pittsburgh Institutional Review Board. His research career has focused on the effects of medical disorders (like diabetes) on psychological and neuropsychological function, and he has recently completed several large scale community-based intervention studies.

Dr. Linda Siminerio is currently the Director of the Diabetes Institute at the University of Pittsburg and she has coordinated the pediatric diabetes program at Children's Hospital of Pittsburgh since 1976. She has been involved with pediatric diabetes research and is the author of numerous scientific and consumer publications on diabetes. She is the co-author of the American Diabetes Association's (ADA) guide for pediatric diabetes care Raising a Child with Diabetes and book Goals for Diabetes Education. She has served as an associate editor of Diabetes Care, Pediatric Diabetes, editor of the clinical and education journal Diabetes Spectrum and is the current editor-in-chief of Diabetes Forecast.

Currently, Dr. Siminerio has been involved in global efforts to promote diabetes education, nutrition and the psychosocial aspects of diabetes. With her work with the International Diabetes Federation (IDF), she has served as Chair of the Education and Behavioral Aspects of Diabetes Satellite Symposia for the past three IDF Congresses hosted in the U.S., Japan and Finland. Most recently, she chaired the first IDF Congress track dedicated to education and the psychosocial aspects of diabetes in Mexico. She has been an appointed member of the IDF Section on Diabetes Education and the Board of Management. At the IDF Congress in Mexico in November, 2000 she was elected as one of 12 Vice Presidents serving the international diabetes community

Dr. Massimo Trucco, Professor of Pediatrics, is the Principal Investigator of the DoD application. He conceptualized and wrote this application after having secured the collaboration of scientists, clinicians, and computer experts at the Children's Hospital of Pittsburgh, University of Pittsburgh, and the University of Pennsylvania.

Dr. Trucco's interest in the prevention and prediction of Type 1 diabetes, together with his goal of making pancreatic islet transplantation a suitable therapy for young diabetic patients attracted the attention of the community in Pittsburgh and, in particular, of administrators at Children's Hospital of Pittsburgh and at the University of Pittsburgh. On this basis, the idea of creating a new Diabetes Institute in Pittsburgh was not only formulated, but quickly implemented. Dr. Trucco, also serves as the Director of the Juvenile Diabetes Research Foundation (JDRF) Center for Gene Therapy Approaches to Type 1 Diabetes.

Appendix

- **Education Modules**
- **Pilot Powerpoint Presentation (attached to this submission)**
- **Table 1**
- **Table 2**
- **Table 3**
- **Table 4**
- **GIFT-D Telephone Screen**
- **Pilot Advertisement**
- **Recruitment Brochure**
- **Age Specific Probability Estimates and Covariate Patterns tables**

DOD PROJECT
PARENT'S EDUCATIONAL SCRIPT

Main Text	Question	True Answer	False Answer	I Don't Know
We want our children to grow up to be healthy. Knowing some types of information can help us to be better prepared as parents.				
The facts presented in this part of the program will help you make an informed choice about having your child participate in this study. As you work through this lesson, you will be given information and then asked questions. Your answers will be recorded to make sure that you understand the information just presented. Let's practice with the following question.	First, I will be presented with some information. Then I will be asked a question.	**True. Correct** That is exactly right. The questions will be short and related to the information you just read.	**False. Incorrect.** The questions will be short and related to the information you just read.	**The answer is True.** The questions will be short and related to the information you just read.
What is Diabetes? Diabetes is one of the more common diseases in children. In people with diabetes, the body either does not make any or enough insulin or it cannot use the insulin properly. As a result, the body cannot use and store food as it should.	When a child has diabetes, the body cannot properly use the food that is eaten.	**True. Correct** If a child has diabetes, food that is eaten cannot be used and stored properly.	**False. Incorrect** If a child has diabetes, food that is eaten cannot be used and stored properly.	**The answer is True.** If a child has diabetes, food that is eaten cannot be used and stored properly.
What is Insulin? Insulin is a chemical that is made in the **pancreas** and helps the food get into the cells of the body.	Without insulin, the food that your child eats cannot enter the cells.	**True. Correct** Insulin acts as the "key" to allow food get into the cells.	**False. Incorrect** Insulin acts as the "key" to allow food to get into the cells.	**The answer is True.** Insulin acts as the "key" to allow food to get into the cells.
How does type 1 diabetes differ from type 2 diabetes? The two types of diabetes are type 1 and type 2 diabetes. Most children have type 1 diabetes. In type 1 diabetes, the body doesn't make insulin. People with this type of diabetes must take daily insulin injections to survive. Type 2 diabetes happens mostly in adults, but it is becoming more common in children. In type 2 diabetes, the body makes insulin but doesn't use it properly. People with type 2 diabetes often can manage their diabetes by watching what they eat and staying active. Some also need to take a pill which helps them make better use of the insulin they have, or, they may need to take insulin.	If a child has type 1 diabetes, insulin injections are required because the pancreas is not making any insulin. In *type 1* ***and*** *type 2* diabetes, the pancreas completely stops making insulin.	**True. Correct** In type 1 diabetes, the pancreas does not make the insulin the body needs. **True. Incorrect** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.	**False. Incorrect** In type 1 diabetes, the pancreas does not make the insulin the body needs. **False. Correct** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.	**The answer is True.** In Type 1 diabetes, the pancreas does not make the insulin the body needs. **The answer is False.** In *type 1* diabetes the pancreas completely stops making insulin. In *type 2* diabetes, the body has a hard time using the insulin that the pancreas makes.

Main Text	Question	True Answer	False Answer	I Don't Know
What are the major risk factors for type 1 diabetes? There are several risk factors for type 1 diabetes. Having a risk factor means that you have a higher chance of getting the disease. People with a certain **genetic** makeup are more likely to get type 1 diabetes. Things in the environment such as diet or viruses also appear to be risk factors for type 1 diabetes.	If I have one child with diabetes, my other children have a greater chance of getting diabetes if they share the same risk factors.	**True. Correct** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.	**False. Incorrect** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.	**The answer is True.** Having a child with type 1 diabetes raises the risk for your other children with similar risk factors to get type 1 diabetes.
Is type 1 diabetes inherited? We believe the risk to develop type 1 diabetes is in part inherited. That means that the genes that increase risk are passed down from parents to children. Genes are like instructions that tell the body how to work. Parents without diabetes can also pass these genes on to their children. We can chart the inheritance of a disease through a family tree called a **pedigree chart**.	The genes that increase risk for type 1 diabetes are passed down from parents to children.	**True. Correct** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.	**False. Incorrect** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.	**The answer is True.** You could have passed the tendency to develop the disease on to your children. But, that is just one piece of the puzzle, lots of things have to come together.
What does my family tree look like? Here is your pedigree chart based on the information that you gave earlier.				
If type 1 diabetes is partly genetic, why doesn't everyone in a family get the disease? Everyone in a family has a *special* **genetic** make-up. We look like some of our relatives because we carry some of the same genes. But sometimes we don't look like our relatives because we also have different genes. No relatives have exactly the same genes. That's why people in the same family have different risks for type 1 diabetes.	Our special genetic makeup leads to differences in risk for type 1 diabetes.	**True. Correct** Our special genetic makeup makes us both similar and different from others in our families.	**False. Incorrect** Our special genetic makeup makes us both similar and different from others in our families.	**The answer is True.** Our special genetic makeup makes us both similar and different from others in our families.
Can type 1 diabetes be prevented? Right now, we don't know how to prevent type 1 diabetes. We cannot change our genes and we don't know which things in our environment lead to type 1 diabetes. That's why we need your help – to learn more.	We know enough now to prevent type 1 diabetes.	**True. Incorrect** We don't know enough about genes and the environment to prevent type 1 diabetes.	**False. Correct** We don't know enough about genes and the environment to prevent type 1 diabetes.	**The answer is False.** We don't know enough about genes and the environment to prevent type 1 diabetes. who in turn, passed it on to their children

Main Text	Question	True Answer	False Answer	I Don't Know
How do genes get their instructions? Genes get their instructions from a chemical language called DNA. Genes are made of DNA. DNA works like an alphabet with four letters. Different letter combinations spell out different instructions.	The following picture shows how genetic instructions are passed on to my child: Mom's DNA Dad's DNA ↓ ↓ Mom's + Dad's Genes ↓ Child's DNA ↓ Child's Genes ↓ Child's Cells ↓ Child's Body	**True** **Correct.** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.	**False** **Incorrect** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.	**The answer is True.** Parents' DNA in the genes are passed on to the child. Children get half of their genes from each parent. The combination of genes makes each child different.
How are differences in genetics important when learning about diabetes? Differences in genetics are important because they result in different risk for type 1 diabetes. Each cell in our body has a specific job. About 30,000 genes make up each cell. These genes are different for each person. That's why different people have different risks.	Genes give cells instructions that may lead to type 1 diabetes.	**True. Correct** The genetic instructions for each cell are special to that person.	**False. Incorrect** The genetic instructions for each cell are special to that person.	**The answer is False.** The genetic instructions for each cell are special to that person.
How do we know which genes our children will have? Differences in the gene combinations make each of our children different. There are different forms of **genes**. Genes come in pairs. We get one copy of each gene from our mom and one from our dad.	If a mother has brown hair and a father has black hair, their children could have brown or black hair.	**True. Correct** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.	**False. Incorrect** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.	**The answer is True.** We all have genes that control hair color. But some people have gene copies that code for brown hair and others for black hair.
How are genes related to type 1 diabetes? We are just learning about it and you are helping us. Scientists have found that genes called **HLA** relate to type 1 diabetes. Different combinations of HLA genes lead to differences in risk for diseases like type 1 diabetes.	A child can have specific forms of the HLA gene related to risk for type 1 diabetes.	**True. Correct** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.	**False. Incorrect** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.	**The answer is True.** If a child has specific forms of the HLA gene, the risk increases for type 1 diabetes.
If my child has a gene for type 1 diabetes, won't they get the disease for sure? Not necessarily. If you carry forms of HLA genes that increase risk for type 1 diabetes, you may be more likely to develop the disease. But, other risk factors such as things in the **environment** also play a role.	If my child has a gene for type 1 diabetes then my child will develop the disease.	**True** **Incorrect** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.	**False** **Correct** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.	**The answer is False.** Even if they have a gene for type 1 diabetes, they may not get the disease. Remember, there are other pieces to the puzzle.

Main Text	Question	True Answer	False Answer	I Don't Know
How do you find out about your child's risk for type 1 diabetes? One way of finding out about your child's risk is through this study. We know some of the **risk** factors for type 1 diabetes. By identifying these risk factors, we can predict risk. This is called a risk estimate. A risk estimate predicts the chance for getting type 1 diabetes, but we can't know for sure. The risk estimate for this study is based on your family history of type 1 diabetes and the combination of HLA genes. The risk estimate will ***not*** be based on things in the environment because we are still learning about those factors.	If a child has a high risk estimate, that means that he or she has a greater chance to develop type 1 diabetes than a child with a low risk estimate.	**True. Correct** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.	**False. Incorrect** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.	**The answer is True.** Children with a high risk estimate have a greater chance of getting type 1 diabetes than children with low risk estimates.
What test is needed to determine risk for type 1 diabetes? We need to test the DNA inside your cells. The test is safe, painless, quick and easy. We will get cells from inside the mouth using a little **mouthwash**, or by rubbing a soft brush along the inside of the cheek. A lab will test this sample to see if you have the HLA genes linked to type 1 diabetes.	Taking some cells from inside the mouth with mouthwash or a soft brush should *not* cause discomfort.	**True. Correct** Mouthwash or a soft brush should not cause discomfort for either you or your children.	**False. Incorrect** Mouthwash or a soft brush should not cause discomfort for either you or your children.	**The answer is True.** Mouthwash or a soft brush should not cause discomfort for either you or your children.
What are the benefits in getting tested? The benefit in getting tested comes in knowing the genetic risk for your family members for developing type 1 diabetes. If you find that the risk is high, then you can get information and be better prepared.	If risk for getting type 1 diabetes is high, then you can be prepared.	**True. Correct** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professsionals and others to get the support you need.	**False. Incorrect** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professionals and others to get the support you need.	**The answer is True.** If risk for type 1 diabetes is high, you can be prepared. You can learn more about type 1 diabetes by talking with professionals and others to get the support you need.
Could there be any problems in getting tested? Of course. Knowing the risk for getting type 1 diabetes does not tell you for sure that the disease will or will not happen. Once you know your child's genetic risk for type 1 diabetes, you or your child may have certain feelings or worries about it.	A very low genetic risk for getting type 1 diabetes means that I will not get the disease.	**True. Incorrect** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.	**False. Correct** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.	**The answer is False.** A low genetic risk cannot guarantee whether or not someone will get type 1 diabetes.

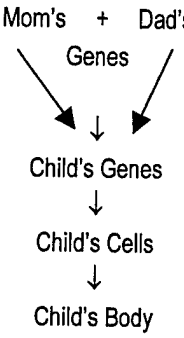
Main Text	Question	True Answer	False Answer	I Don't Know
Will other people know about the results? Only you, your child, and a health professional will know the genetic risk unless you choose to tell people. We are just learning how genes work, and people may think differently about genetic risk. You may want to keep this information private. It's up to you.	If my children are in this study, their genetic risk estimate will be kept confidential.	**True. Correct** Each child's genetic risk estimate will be kept private.	**False. Incorrect** Each child's genetic risk estimate will be kept private.	**The answer is True.** Each child's genetic risk estimate will be kept private.
Will the tests need to be repeated? Probably not. But, if the first sample does not contain enough DNA, then another sample would need to be collected. This is highly unlikely.	I can plan on having only one sample taken.	**True. Correct** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.	**False. Incorrect** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.	**The answer is True.** We expect to get enough DNA from one sample. Rarely do we have to ask for another sample.
What will happen to the sample of cells after it is tested? The sample will not be saved or tested for anything else.	After testing for type 1 diabetes, no other tests will be done because the cells will not be saved.	**True. Correct** Your sample will not be saved.	**False. Incorrect** Your sample will not be saved.	The answer is True. Your sample will not be saved.
How accurate is the genetic risk estimate? The risk estimate predicts the *chance* of developing the disease. A risk estimate is based on a group of people, and cannot state exactly who will get type 1 diabetes. A risk estimate of 50%, means that for every 100 people, 50 will get the disease and 50 will *not* get the disease.	A risk estimate of 30% means that for every 100 people, 30 will get the disease and 70 will *not* develop the disease.	**True. Correct** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.	**False. Incorrect** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.	**The answer is True.** A risk estimate of 30% means that for every 100 people, 30 will get the disease. We cannot know whether any specific child will definitely get type 1 diabetes.
Who will tell us what the risk is? A specially trained nurse or genetic counselor will talk to you about the risk estimate and provide you with other information, support and resources that you may need.	Genetic counselors are specialists in explaining risk estimates to families.	**True. Correct** Genetic counselors and some nurses are specifically trained to answer your questions.	**False.** Genetic counselors and some nurses are specifically trained to answer your questions.	**The answer is True.** Genetic counselors and some nurses are specifically trained to answer your questions.
Can risk for developing type 1 diabetes change over time? Your genetic risk does not change over time. But, your environment is constantly changing and this can affect the chances of getting a disease.	Even after my child grows up, he or she will still have the same genetic risk for type 1 diabetes.	**True. Correct** You cannot change your child's genetic risk.	**False. Incorrect** You cannot change your child's genetic risk.	**The answer is True** You cannot change your child's genetic risk.
Thank-you! This completes the educational section. Remember, this study only looks at risk for type 1 diabetes. It does not test your risk for getting type 2 diabetes.				

Main Text	Question	True Answer	False Answer	I Don't Know
Your participation means that we can learn more about the genetics leading up to type 1 diabetes. We hope that you know what a great contribution you are making!				

DOD PROJECT
CHILDREN'S EDUCATIONAL SCRIPT

Main Text	Question	True Answer	False Answer	I Don't Know
Hi! When you look in the mirror what do you see? Do you see a girl or a boy? Do you see eyes like your mom or dad? Do you have hair like a brother or sister? We see something different. We see a person who might be a *pioneer* You may have learned about pioneers in school who explore new lands. You may have heard about space pioneers who go into outer space. We are going to tell you about becoming a *health* pioneer. Just answer the questions as we go along.	A *pioneer* is someone who leads the way into the future.	**Absolutely right** Are **you** ready to be a pioneer?	**Nope** Remember, a pioneer is someone who does something before other people begin doing it. A pioneer is a leader	**The answer is true** Remember, a pioneer is someone who does something before other people begin doing it. A pioneer is a leader
Let's try something. Look at these pictures of two families. Each family looks very different. But, can you also tell how they look the same?	There is *nothing* the same about these families.	**True.** **Wait a minute! Look again.** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?	**False.** **You are a very good observer!** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?	**I Don't Know.** **Wait a minute! Look again.** Even though the families are different, the kids look the same as their parents. They have some of the same hair color. What else is the same?
That's what families do. Children look something like the parents. Parents look something like the grandparents. Some things you can see, like hair color, and some things you cannot see, like the things that happen inside your body. Look at this picture of grandparents and parents.	Here are three children. Can you tell which child looks like the family? a. b c.	a. **Yes** they all have red hair, but there is something else that is special about the family and the child that is the same. (Hint: look at the bony knees).	b. Look again. The correct answer is **"c"**. Look at the hair color and the bony knees, just like the grandparents and parents.	c. That is right! What gave it away? Grandparents and parents have red hair and bony knees, just like the child.
We know that kids look like their families from the outside of their bodies. But until now, we could not tell what the chances were of things happening inside their bodies that might be like their moms, dads, brothers or sisters. That's how you can become a health *pioneer.* We want to look inside you and your parents to see how you might be the same.	There is a new way of looking into our bodies that can tell how we are like our families.	**True. Right!** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*	**False. Wrong!** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*	**I Don't Know.** This is all *new* stuff. People in the future will be doing this all of the time. That is why you would be a *pioneer.*

Main Text	Question	True Answer	False Answer	I Don't Know
You might be thinking, "How will they look inside my body? Maybe they will use a super x-ray machine! Maybe they have see-through body glasses that they will wear!" In the future this might be one way, but we already have a way to see inside of you. We might ask you to swish a little mouthwash to get a little spit. Do your parents use mouthwash for fresh breath? Or, we will take a soft brush and rub it on the inside of your cheek. It is safe, easy, quick, and should not hurt at all! You should only have to do it once.	Rubbing a soft brush on the inside of my cheek is one way of getting information about how I am like my mom or dad.	**Exactly right!** Are you surprised that it is so simple?	**Not so!** We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt! Are you surprised that it is so simple?	**The answer is true.** We will either rub a soft brush, or ask you to swish a little mouthwash. It is easy, quick, and should not hurt! Are you surprised that it is so simple?
Believe it or not, your spit is amazing! We can tell all sorts of things from spit! Right now, we want to discover one thing only. We want to see what your genetic chance is of getting a disease called type 1 diabetes. You know what a disease is – it is a problem with your health, like some people have problems breathing. A *genetic chance* - do you know what that means? To find out, let's follow the trail of the spit!	I will be tested to see what my chance is for getting all kinds of diseases.	**Wait a minute – not right!** We are only interested in your chance for getting *one* disease – type 1 diabetes.	**False. You are right!** We are only interested in your chance for getting *one* disease – type 1 diabetes.	**The answer is false.** We are only interested in your chance for getting *one* disease – type 1 diabetes.
First, your spit goes to the lab where it will be studied. Your spit is made up of very tiny cells. Cells are the building blocks of your body. The cell's job is to tell the body what to do.	Cells are to your body like bricks are to a house.	**Yes!** Cells form your body like a brick forms a house.	**Not quite!** Cells form your body like a brick forms a house.	**The answer is true.** Cells form your body like a brick forms a house.
Each cell is made up of thousands of genes. Genes give instructions to the cells to tell them what to do. When we look at your spit, we want to look inside the cells to see what kinds of genes you have. We want to see what the genes are saying to the cells.	Genes give our cells instructions on what to do.	**Correct!** Genes tell our cells what to do!	**Not right!** Genes tell our cells what to do!	**The answer is true.** Genes tell our cells what to do!
And it still gets even smaller. Genes get *their* instructions from a special language called *DNA*. It works like an alphabet with four letters. Different letter combinations spell out different instructions. Just think- the teeniest thing in your spit, DNA, makes everything else happen!	DNA gives our genes instructions.	**Excellent!** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.	**No, remember:** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.	**The answer is true.** DNA gives instructions to genes. Genes give instructions to cells. Cells instruct the body.

Main Text	Question	True Answer	False Answer	I Don't Know
Look at each kid in this picture. Some things are like the mom's family, and some things are like the dad's family. Each child is different based on the instructions the genes give the cells. Can you see which parent the children got their curly hair from?	If I don't look like my mom, then I don't have her genes.	**No, not correct.** Remember, some genes are passed on that are not easy to see.	**Very good!** This was a hard question. You remembered that some genes are passed on that are not easy to see.	**The answer is false.** This was a hard question. Some genes are passed on that are not easy to see.
Half of your genes come from your mom, and half from your dad.		**Yes, this is true!** You get genes from both your mom and dad.	**No, this is true.** You get genes from both your mom and dad.	**The answer is true.** You get genes from both your mom and dad.
It is the *combination* of your mom's and dad's genes that you get that make you different from any brothers or sisters. If you have brothers or sisters, we will want to study their spit too – to see what their genes are telling their cells to do.	Your brother or sister's genes will be different from your genes.	**Very good!** You are different from a brother or sister, because they have a different combination of genes.	**No, remember** You are different from a brother or sister, because they have a different combination of genes.	**The answer is true.** You are different from a brother or sister, because they have a different combination of genes.
Once we know your combination of genes, we will compare it to your family tree. Here is a family tree:				
After we study your spit and look at your family tree, a nurse or counselor will tell you about your *genetic* chance of getting type 1 diabetes. A genetic chance is a chance based on the type of genes you have.	A chance means the possibility that something will happen.	**Yes!** And a *genetic* chance is based on your combination of genes.	**This is true.** And a *genetic* chance is based on your combination of genes.	**The answer is true.** And a *genetic* chance is based on your combination of genes
Even if you have a **big** chance, that doesn't mean that you **will** get it. Other things could change your chance too – like germs, or diet or even things that we don't know about yet. We cannot tell about *everything* from spit! We can only tell your genetic chance. We are just learning the different puzzle pieces.	If you say that I have a big chance of getting type 1 diabetes, then I will get it.	**True** **That's not right.** Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.	**False** **Exactly!** A chance doesn't mean anything is definite. Genes are only part of the puzzle.	**The answer is False.** Remember, a chance doesn't mean anything is definite. Genes are only part of the puzzle.
We will get spit from lots of kids! That's a lot of spit! After we study it, we won't save your spit. It has already told us the special information we need.	You will save my spit and study it again in the future.	**No.** We won't save your spit.	**That's right.** We won't save your spit.	**The answer is False.** We won't save your spit.

Main Text	Question	True Answer	False Answer	I Don't Know
It is interesting to learn about your ***genetic chance*** for getting type 1 diabetes. Kids who get type 1 diabetes can get sick. Their bodies cannot use the food they eat for energy. They need insulin to help their bodies get that energy. Their pancreas has stopped making insulin. The pancreas is an organ like your stomach.	In kids with type 1 diabetes, the pancreas has stopped working the way it should.	**Yes.** Type 1 diabetes means that the pancreas does not work right.	**No, this is true.** Type 1 diabetes means that the pancreas does not work right.	**The answer is true.** Type 1 diabetes means that the pancreas does not work right.
One way to think of diabetes is to think about a car. Our body is like a car that needs gas. The food that we eat turns to sugar which is the fuel. But, the fuel cannot get into our cells to make our bodies run without a key. That key is insulin. The pancreas makes the insulin.	In kids with type 1 diabetes, the insulin is missing. Insulin is important so that our bodies can get energy from the food we eat.	**Absolutely!** Without insulin as the key, the food cannot enter the cells and make our body run.	**No, this is true.** Without insulin as the key, the food cannot enter the cells and make our body run.	**The answer is true.** Without insulin as the key, the food cannot enter the cells and make our body run.
In the past, we didn't know what kind of a chance kids had of getting sick. That's why you will be a health pioneer. You will help us learn about type 1 diabetes.	Genetic tests are a new way to learn about your chance of getting type 1 diabetes.	**Yes!** This is the type of tests that everyone could be getting in the future so we can learn even more!	**No...** This is the type of tests that everyone could be getting in the future so we can learn even more!	**The answer is true.** This is the type of tests that everyone could be getting in the future so we can learn even more!
Only you, your parents, and a nurse or doctor will know your chance of getting type 1 diabetes. Before you share what you have learned about your chance with others, talk to a parent first.	I should run and tell my best friend!. True False I Don't Know	**True** Maybe – but only *after* you talk with a parent.	**False** **That is right!** You should talk to your parent first.	**The answer is False.** You should talk to a parent first.
Are you ready to be a health pioneer? If so, tell the nurse and get ready to give up some spit!				
Soon, everyone will be tested for lots of different things. But for now, *you* would be one of the first! Because of pioneers like you, we are going to learn more about what causes type 1 diabetes. Our goal is to learn as much as we can, so that no one gets this disease in the future! Thank-you! You have been great!				

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ANNUAL REPORT

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APPENDIX 11:

PILOT ADVERTISEMENT

Research Participants Needed

- Do you have a brother or sister with diabetes?
- Are you age 18 to 25?

If you answered "yes" to these questions, you may be eligible for a research study at Children's Hospital of Pittsburgh. For more information, call the project office at **412-624-7582.**

Research participants will be compensated for their time.

Children's
Hospital of Pittsburgh



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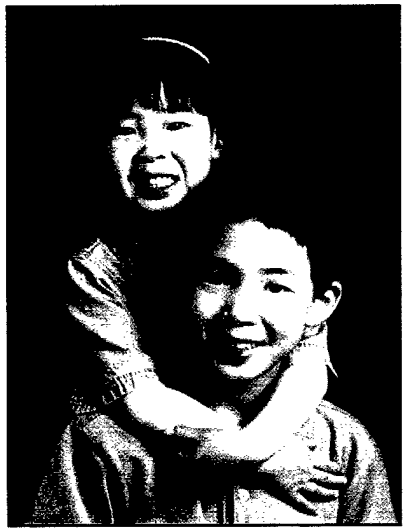
ANNUAL REPORT

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APPENDIX 12:

RECRUITMENT BROCHURE

GIFT
for
Diabetes





GIFT-D is a collaborative of researchers from

Children's Hospital of Pittsburgh and the **University of Pittsburgh.**

GIFT-D is supported by:
The U.S. Army Medical Research Acquisition Activity

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EM/JY 7/03 PS

Learning About Genetics and Diabetes

Genetic Information for Testing

GIFT
for
Diabetes

GIFT-D

Children's Hospital of Pittsburgh

Genetic Information for Testing

GIFT *for* Diabetes

GIFT-D

Parents and siblings of children with type 1 diabetes may want to know their risks for getting diabetes.

What is GIFT for diabetes?

GIFT-D is a project designed for parents and their children to learn about their genes and risk for getting type 1 diabetes.

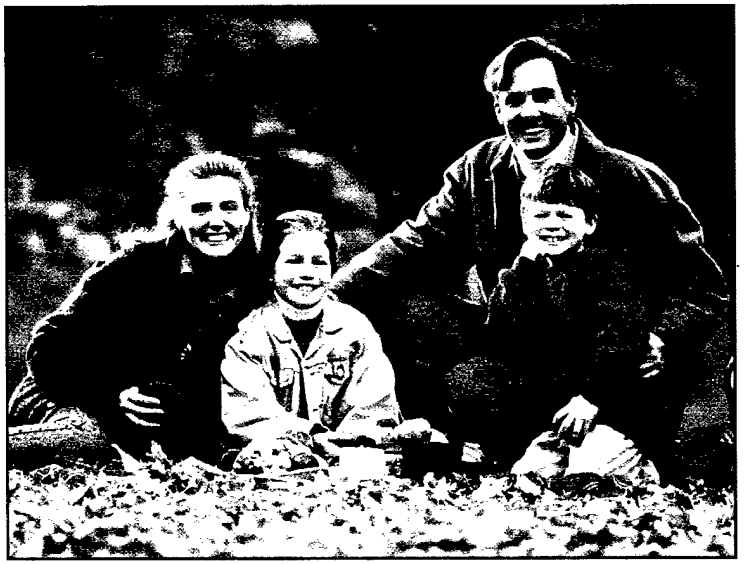
Parents and their children will be asked to participate in a short, computer-based educational program to learn about their genes and diabetes.

Then, their children can have their genes tested with saliva collected from a swab from inside a cheek or by swishing mouthwash.

Families will have the opportunity to have their personal risks explained.

Who can participate?

Brothers and/or sisters (7 to 18 years old) who have a sibling with type 1 diabetes.



In Johnstown call:	In Pittsburgh call:
Antonette Franke	Patricia L. Schmitt
814-536-5042	412-624-7582

You will be compensated for your time.

DAMD17-01-1-0009

ANNUAL REPORT

1 NOV 02 - 31 OCT 03

APPENDIX 13:

CONSENT FORMS
(PILOT AND PHASE 1)

CONSENT/AUTHORIZATION TO THE DISCLOSURE OF PROTECTED HEALTH INFORMATION FOR THE PURPOSE OF BEING CONTACTED ABOUT A RESEARCH STUDY

HRC PROTOCOL NUMBER: 03-131

TITLE: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Pilot Study and Phase 1

Proband (Over 18) Consent to be Contacted

PRINCIPAL INVESTIGATOR AND TELEPHONE NUMBER

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

CO-INVESTIGATORS AND TELEPHONE NUMBERS:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing
University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics
Children's Hospital of Pittsburgh
412-692-6570

SOURCE OF SUPPORT: Department of Defense

initials & date

Why is my authorization being requested?

You have been diagnosed with type1diabetes, a condition that may qualify your sibling/s for research project entitled, "Genetic Information for Testing Diabetes (GIFT-D)". In order for the researchers who are conducting this study to contact you, you must give your permission.

What uses of my identifiable medical information will this authorization involve?

By signing this form, you are agreeing to provide your name, # of sibling/s, your diagnosis, and contact information to the researchers conducting this study solely for the purposes of informing you about this research study. It may be that after discussion with researchers, it will be discovered that you and your sibling/s do not qualify for enrollment in the study; in this case, all of the information about you provided on this form will be destroyed. If after discussion with the researchers, you decide that you do not want to participate, the researchers will not include any information about you in the study, and this form will be destroyed. If you decide you and your sibling/s might be interested, you will be given information to provide to them on how they can contact the researchers of this project.

Who will have access to my health information pursuant to this authorization?

Only the investigators listed above will have access to this information.

May I have access to my medical information that will be disclosed if I sign this form?

The only information that will be disclosed is your family name, your diagnosis of diabetes, your number of siblings, and contact information. This information will be provided by you on this form. If you sign this form, a copy will be given to you.

May I refuse to provide my authorization to have my health information given to the researchers for the purposes of being contacted about this study?

Yes. Your agreement to have your health information disclosed to the researchers so that they may contact you about this study is completely voluntary. Whether or not you provide your authorization will have no effect on the care that you will receive at Children's Hospital of Pittsburgh or any UPMC Health System Hospital or affiliated health care provider. Additionally, whether or not you agree to have your health information disclosed to the researchers will have no effect on you or your current or future relationship with the University of Pittsburgh.

May I withdraw my authorization for the use of my identifiable medical information for the purpose of having the researchers contact me about my participation in this research study?

Yes. If you notify the person who obtained your permission before your name, diagnosis and contact information are given to the researchers for the purpose of informing you about the study, this information will not be shared. If after discussion with the researchers, you decide you do not want to participate in the research study, this information (including this authorization form) will be destroyed.

_____
initials & date

For how long will the researchers be permitted to use my identifiable health information?

The researchers may use your name, diagnosis, and contact information only until they have contacted you and you have had the opportunity to decide whether or not you want to participate in the research.

The following information that will be completed by you constitutes the health information that will be disclosed:

Family Name:

Number of siblings:

Diagnosis:

☐ I am willing to speak to the researcher about participation in this study during this clinic visit:

By signing this form, I agree to allow the use and disclosure of the above health information to the researchers listed above for the purpose of contacting me about possible participation in this research project.

Signature: _____

Date: _____

VERIFICATION OF EXPLANATION BY TREATING PHYSICIAN OR NURSE

I certify that I have explained to (_____) that his/her family name, diagnosis, and contact information as listed above will be provided to the researchers so that the researchers may speak to them about potential participation in this research study. He /she has had the opportunity to ask questions and has agreed to the disclosure of health information as described.

Treating Physician or Nurse Signature: _____ Date: _____

_____
initials & date

CONSENT/AUTHORIZATION TO THE DISCLOSURE OF PROTECTED HEALTH INFORMATION FOR THE PURPOSE OF BEING CONTACTED ABOUT A RESEARCH STUDY

HRC PROTOCOL NUMBER: 03-131

TITLE: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Phase 1

Consent to be Contacted

PRINCIPAL INVESTIGATOR AND TELEPHONE NUMBER

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

CO-INVESTIGATORS AND TELEPHONE NUMBERS:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
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Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing
University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics
Children's Hospital of Pittsburgh
412-692-6570

SOURCE OF SUPPORT: Department of Defense

initials & date

Why is my authorization being requested?

You have a child who has been diagnosed with type1diabetes, a condition that may qualify his/her sibling/s for research project entitled, "Genetic Information for Testing Diabetes (GIFT-D)". In order for the researchers who are conducting this study to contact you, you must give your permission.

What uses of my child's identifiable medical information will this authorization involve?

By signing this form, you are agreeing to provide your name, diagnosis, and contact information to the researchers conducting this study solely for the purposes of informing you about this research study. It may be that after discussion with researchers, it will be discovered that you and your child/ren do not qualify for enrollment in the study; in this case, all of the information about you provided on this form will be destroyed. If after discussion with the researchers, you decide that you do not want to participate, the researchers will not include any information about you in the study, and this form will be destroyed.

Who will have access to my child's health information pursuant to this authorization?

Only the investigators listed above will have access to this information.

May I have access to my medical information that will be disclosed if I sign this form?

The only information that will be disclosed is your family name, your child's diagnosis of diabetes, the number of children in your family and contact information. This information will be provided by you on this form. If you sign this form, a copy will be given to you.

May I refuse to provide my authorization to have my child's health information given to the researchers for the purposes of being contacted about this study?

Yes. Your agreement to have your child's health information disclosed to the researchers so that they may contact you about this study is completely voluntary. Whether or not you provide your authorization will have no effect on the care that your child will receive at Children's Hospital of Pittsburgh or any UPMC Health System Hospital or affiliated health care provider. Additionally, whether or not you agree to have your child's health information disclosed to the researchers will have no effect on your or your child's current or future relationship with the University of Pittsburgh.

May I withdraw my authorization for the use of my child's identifiable medical information for the purpose of having the researchers contact me about my child's participation in this research study?

Yes. If you notify the person who obtained your permission before your name, diagnosis and contact information are given to the researchers for the purpose of informing you about the study, this information will not be shared. If after discussion with the researchers, you decide you do not want to participate in the research study, this information (including this authorization form) will be destroyed.

initials & date

For how long will the researchers be permitted to use my child's identifiable health information?

The researchers may use your child's name, diagnosis, and contact information only until they have contacted you and you have had the opportunity to decide whether or not you want to participate in the research.

The materials that follow that will be completed by you constitute the health information that will be disclosed:

Family Name:

Number of siblings between 7 and 18 yrs old:

Diagnosis:

☐ I am willing to speak to the researcher about participation in this study during this clinic visit:

By signing this form, I agree to allow the use and disclosure of the above health information to the researchers listed above for the purpose of contacting me about possible participation in this research project.

Signature: _____

Date: _____

VERIFICATION OF EXPLANATION BY TREATING PHYSICIAN OR NURSE

I certify that I have explained to (_____) that his/her family name, child's diagnosis, and contact information as listed above will be provided to the researchers so that the researchers may speak to them about potential participation in this research study. He /she has had the opportunity to ask questions and has agreed to the disclosure of health information as described.

Treating Physician or Nurse Signature: _____ Date: _____

_____
initials & date

Consent To Contact A Collateral Informant For _____(family's last name)

Study Title: "Genetic Information for Testing Diabetes (GIFT-D)"

HRC Protocol Number: 03-131

Informant's name: _____

Relationship: _____

Address: _____

_____

Telephone number: _____ Alternate number: _____

Informant's name: _____

Relationship: _____

Address: _____

_____

Telephone number: _____ Alternate number: _____

:

Informant's name: _____

Relationship: _____

Address: _____

_____

Telephone number: _____ Alternate number: _____

Your signature indicates that you give the researchers of this study permission to contact the three people you have listed above for information on how you can be reached in the event we are unable to contact you for follow-up.

Date: _____ Signature: _____

Date: _____Signature of Witness: _____

CONSENT TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Pilot Study

Part 1 Pilot- Assessment and Education for Adult Subject

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and date

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. This project has two major goals. First, we would like to help you to better understand your chances of getting type 1diabetes, and so we will show you a computer education and counseling program about genes and the risk of developing diabetes. You will help us evaluate the program and tell us how you felt when learning about your risk of developing type 1diabetes. Second, we would like to obtain a genetic sample of cells from your cheek inside your mouth by using a mouthwash or soft brush. This information will help us determine what your chances are of developing type 1 diabetes.
While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with young adults who have a brother or sister with diabetes. These young adults are already familiar with the disease.

This study will be conducted in two parts. The first part will be "Assessment and Education" which will consist of one visit. The second part will be "Testing and Counseling" and it will consist of one additional visit and a telephone follow-up. There will be separate consent forms for each part. This consent is for the first part only.

What am I being asked to do?

During this first part, you will be asked to fill out several paper and pencil questionnaires and view a short educational program on genetics and diabetes. Assistance will be available should you need it. This visit should take no longer than 2 hours.

What are the benefits and risks of participating in this research study?

The primary benefit may be learning more about genetics and diabetes. This should enable you to identify the risks and benefits of genetic testing so you should be able to make an informed decision as to whether or not you want to be tested in the second part. This test will help us determine your risk for developing type 1 diabetes.

The primary risk associated with this study is that you may experience some psychological distress at receiving information about the risk of getting diabetes. To help ease this distress, we have added both a computer and a "face-to-face" counseling session to discuss what this risk really means to you personally. We will also provide a list of genetic counselors who you may contact in the future should you have additional concerns.

You might also feel uncomfortable sharing personal information on questionnaires. To reduce this discomfort, we are using standard questionnaires and you will always have the option to not answer questions.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

Initials and date

How will our privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of your medical information for the purpose of this research study and who will have access to your health information.

What uses of my medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while you participate in this study be placed in your hospital and/or physician records. If the results of this study are published, all the information will be pooled together. Information concerning you will be in a form such that you cannot be identified.

Will participation in this research result in medical information being placed in my medical records?

Your participation in this study will not result in health information being placed in any medical chart or outpatient chart. We will, however, maintain a research computer database record where your limited medical information will be stored.

Who will have access to my medical information relatedto my participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your identifiable private health information related to your participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.
- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.

Initials and date

- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.
- The Department of Defense, the funding source for this project, will have access to the pooled results of the study, not to individual participants' data.

In unusual cases, the investigators may be required to release your research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety. This could include results of the depression survey where the risk of suicide may be detected and intervention by a counselor would be warranted.

What alternatives are available to me if I don't give my OK to participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect your present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my participation in this study and may I withdraw my OK for the use of my medical information for the purposes of this research??

You have the right to stop your participation in this study at any time. Additionally, the Principal Investigator may remove you from the study at any time should you develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent your active participation in the study.

Additionally, you may withdraw, at any time, your OK for the use of your medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your health information, you may no longer participate in this research study. To the extent that researchers have already used your health information in data analysis and/or scientific publication, this information cannot be withdrawn (although any publication of information will be such that your information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your private health information for this research study will have no effect on your current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

Initials and date

May I have access to my medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including information resulting from your participation in this research study) contained within your medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your chart nor will it be provided to you in any other form.

For how long will the investigators be permitted to use my identifiable health information?

The investigators will be permitted to use your identifiable health information until the study and reporting is completed.

Can my private health information collected by this study be used for future studies?

You may choose how your private health information will be used in future studies by initialing one of the options below:

_____ My health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

____ My health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

____My health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

What if my doctor is one of the investigators for this research study?

If your doctor is an investigator in this research study, he/she will be interested both in your medical care and in the conduct of this research. Before entering in this study or at any time during this research you may discuss your care with another doctor (another physician at CHP, a physician who isn't at CHP, your family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your participation, call the Human Rights

Initials and date

Committee at (412) 692-5247. It is entirely up to you whether you participate in any research study offered by your doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What if there is new information while I am in this study?

If any information is learned that might affect your willingness to continue in this research, you will be informed.

What costs will be associated with participating in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. You will receive $50 during this visit.

Will there be any compensation if I am injured or become ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing this form. You may contact the investigator to obtain information about treatment if needed.

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my participation in this research, I am encouraged to ask any additional questions I may have about the research and use of my identifiable private health information. Dr. Charron-Prochownik (412-624-7582) will be available for questions about this research, my rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my rights as a research subject. Any questions I have about the research use of my health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate in this research and agree to allow the disclosure of my medical information for the purposes described above.

Printed Name Research Subject: _____

Date: _____ Signature_____

_____
Initials and date

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the medical information to the subject. He/she has had the opportunity to ask questions. Based on this conversation, I believe that he/she understands what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

_____
Initials and date

CONSENT FOR A PARENT AND CHILD TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Phase 1

Part 1- Assessment and Education

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and date

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. This project has two major goals. First, we would like to help you and your child/ren to better understand their chances of getting type 1diabetes, and so we will show you and your child/ren a web-based education and counseling program about genes and the risk of developing diabetes. You and your child/ren will help us evaluate the program and tell us how you both felt when learning about their risk of developing type 1 diabetes.
Second, we would like to obtain a genetic sample of cells from your child/ren's cheek inside their mouth by using a painless method of mouthwash or soft brush. This information will help us determine what your child/ren's chances are of developing type 1 diabetes.

While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with brothers and sisters of children with diabetes who are seen in the clinic at the Children's Hospital of Pittsburgh Diabetes Center. These siblings and their parents are already familiar with the disease.

Phase 1 of this research will be conducted in two parts. The first part will be "Assessment and Education" which will consist of one visit. The second part will be "Testing and Counseling" will consist of one additional visit and a one month follow-up session on a home (or clinic) computer. There will be separate consent forms for each. This consent is for the first part only.

What are my child and I being asked to do?

During this first part, you and your child will be asked to fill out several questionnaires on a computer. Assistance will be available should you need it. You will also view a short educational program on genetics and diabetes. This visit should take no longer than 2 hours.

What are the benefits and risks of participating in this research study?

The primary benefit may be learning more about genetics and diabetes. This should enable you and your child to identify the risks and benefits of genetic testing so you should both be able to make an informed decision as to whether or not you want your child tested in the second part. This test will help us determine your child's chance of developing type 1 diabetes.

The primary risk associated with this study is that you and/or your child may experience some psychological distress at receiving information about the chance of getting diabetes. To help ease this distress, we have added both a web-based and a "face-to-face" counseling session to discuss what this genetic risk really means to you personally. We will also provide a list of genetic counselors that you may contact in the future should you have additional concerns.

Initials and date

You and/or your child might also feel uncomfortable sharing personal information on questionnaires. To reduce this discomfort, we are using standard questionnaires on the computer and you will always have the option to not answer questions.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

How will our privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your (your child's) private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of your (your child's) medical information for the purpose of this research study and who will have access to your (your child's) health information.

What uses of our medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while you or your child participates in this study be placed in your (your child's) hospital and/or physician records. If the results of this study are published, all of the information is pooled together. Information concerning your child will be in a form such that he/she cannot be identified.

Will participation in this research result in medical information being placed in our medical records?

Your and your child's participation in this study will not result in health information being placed in the Children's Hospital of Pittsburgh medical chart or outpatient chart. We will, however, maintain a research computer database record where your child's limited medical information will be stored.

Who will have access to my child's medical information related to his/her participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your (your child's) research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your (your child's) identifiable private health information related to your child's participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

Initials and date

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.
- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.
- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your child's identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your child's identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.
- The Department of Defense, the funding source for this project, will have access to the pooledresults of the study, not to individual participants' data.

In unusual cases, the investigators may be required to release your child's research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety. This could include results of the depression survey where the risk of suicide may be detected and intervention by a counselor would be warranted.

What alternatives are available to my child if I don't give my OK for him/her to participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect you or your child's present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my child's participation in this study?

You have the right to stop your and your child's participation in this study at any time. Additionally, the Principal Investigator may remove you and your child from the study at any time should you or your child develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent you or your child's active participation in the study.

Initials and date

Additionally, you may withdraw, at any time, your OK for the use of your child's medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your child's health information, you may no longer participate in this research study. To the extent that researchers have already used your child's health information in data analysis and/or scientific publication, this information cannot be withdrawn (although any publication of information will be such that your information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your private health information for this research study will have no effect on your or your child's current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

May I have access to my (my child's) medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including information resulting from your child's participation in this research study) contained within your child's medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your (your child's) chart nor will it be provided to you in any other form.
- Medical information obtained through the minor's right to consent either through order of court or pursuant to Pennsylvania law shall not be accessible to the parent without authorization from the minor.

For how long will the investigators be permitted to use my child's identifiable health information?

The investigators will be permitted to use your child's identifiable health information until the study and reporting is completed. When your child reaches age 18, your permission is no longer valid. For the continued use of your child's health information, he/she would need to provide permission.

Can my child's private health information collected by this study be used for future studies?

You may choose how your child's private health information will be used in future studies by initialing one of the options below:

_____ My child's health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

Initials and date

____ My child's health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

____My child's health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

Once your child reaches age 18 years, your permission is no longer valid and he/she would need to provide permission for future use.

What if my child's doctor is one of the investigators for this research study?

If your child's doctor is an investigator in this research study, he/she will be interested both in your child's medical care and in the conduct of this research. Before entering your child in this study or at any time during this research you may discuss your child's care with another doctor (another physician at CHP, a physician who isn't at CHP, your child's pediatrician or family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your child's participation, call the Human Rights Committee at (412) 692-5247. It is entirely up to you whether to let you child participate in any research study offered by your child's doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What if there is new information while my child and I are in this study?

If any information is learned that might affect your willingness to have you or your child continue in this research, you will be informed.

What costs will be associated with permitting my child to participate in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. You and your child will each receive $25 during this visit.

Will there be any compensation if my child is injured or becomes ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing

Initials and date

this form. You may contact the investigator to obtain information about treatment if needed.

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my and my child's participation in this research, we are encouraged to ask any additional questions we may have about the research and use of our identifiable private health information. Dr. Charron-Prochownik (412-624-7582) will be available for questions about this research, my and my child's rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my and my child's rights as a research subject. Any questions we have about the research use of our health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate and to permit my child to participate in this research and agree to allow the disclosure of my and my child's medical information for the purposes described above.

Printed Name of Parent (Research Subject): _____

Printed Name of Child (Research Subject): _____

Signature(s) of Parents or
Legally Authorized Guardian(s): _____ Date: _____

_____ Date: _____

Printed names of Parents or
Legally Authorized Guardian(s): _____

_____

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the child's medical information to the parent(s) or legally authorized guardian(s). He/she/they have had the opportunity to ask questions. Based on this conversation, I believe that he/she/they understand what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

_____
Initials and date

Assent

I have explained the research to the child-subject in words and pictures that he/she understands. I believe that he/she understands the research and has assented to participation.

Signature of person explaining the research: _____

Printed name of person explaining research: _____

(For children who are developmentally able to sign name:)

This research has been explained to me, and I agree to participate.

Signature of child-subject: _____

Printed name of child-subject: _____

I believe that my child understands what this research involves and that he/she has given assent for his/her participation.

Signature of parent: _____

Investigator's Certification

I certify that this subject was not begun on any research component of this protocol until after this consent form was signed.

Date: _____ Investigator's signature: _____

_____
Initials and date

CONSENT FOR A CHILD TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Phase 1

Proband Genetic Testing Consent Form

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and date

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. We know that you may have some special concerns since you already have a child with diabetes. This project has two major goals. First, we would like to help you and your non diabetic child/ren to better understand their chances of getting type 1diabetes, and so we will show you and your child/ren a web-based education and counseling program about genes and the risk of developing diabetes. Your family will help us evaluate the program and tell us how they felt when learning about their risk of developing type 1diabetes. Second, we would like to obtain a genetic sample of cells from your child's cheek inside his/her mouth by using a painless method of mouthwash or soft brush. This information will help us determine what your child 's sibling's/s' chances are of developing type 1diabetes.

While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with brothers and sisters of children with diabetes who are seen in the clinic at the Children's Hospital of Pittsburgh Diabetes Center. These siblings and their parents are already familiar with the disease.

What are my child and I being asked to do?

Because you and the brothers and/or sisters of your child with diabetes have decided to go forward with this research project, we would like to collect a cheek cell sample from your child with diabetes for testing (using a mouthwash or soft brush for collection) to help us find out your non-diabetic child/ren's risk of developing type 1 diabetes. Your child will be asked to swish some mouthwash and spit into a cup. If your child is too young to use the mouthwash, we will gently swab the inside of his cheek for the sample. We will send your child's saliva (spit) to the lab for testing. Some of his or her cheek cells will be tested to see whether or not your child with diabetes carries a form of a gene that is common among individuals with type 1 diabetes. This sample collection should only take a few minutes to complete.

What are the benefits and risks of participating in this research study?

The benefit of your child with diabetes providing a cheek cell sample for testing is that this is an important factor in determining your non-diabetic child/ren's chance of type 1 diabetes. The genes of your diabetic child and non-diabetic will be compared. This makes our estimate of your non-diabetic child/ren's genetic risk more accurate.

There are virtually no risks associated with the sample collection.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

Initials and date

How will our privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your child's private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of your and (your child's) medical information for the purpose of this research study and who will have access to your child's health information.

What uses of our medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while your child participates in this study be placed in your child's hospital and/or physician records. If the results of this study are published, all information will be pooled. Information concerning your child will be in a form such that he/she cannot be identified.

Will participation in this research result in medical information being placed in our medical records?

Your child's participation in this study will not result in health information other than the initial "Consent to be Contacted" form you signed, being placed in the Children's Hospital of Pittsburgh medical chart or outpatient chart. We will, however, maintain a research computer database record where your child's limited medical information will be stored.

May I refuse to give my OK for the use of my and my child's medical information for the purpose of this research study?

Your OK to use and disclose your child's medical information for the purpose of this research study is completely up to you. Agreeing to have this testing and the subsequent disclosure of the results obtained from the testing of the child with diabetes is not required for your other children to continue in the project.

Who will have access to my child's medical information related to his/her participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your (your child's) research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your child's identifiable private health information related to your child's participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's

Initials and date

Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.

- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.
- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your child's identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your child's identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.
- The Department of Defense, the funding source for this project, will have access to the pooled results of the study, not to individual participants' data.

In unusual cases, the investigators may be required to release your child's research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety. This could include results of the depression survey where the risk of suicide may be detected and intervention by a counselor would be warranted.

What alternatives are available to my child if I don't give my OK for him/her to participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect you or your child's present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my child's participation in this study and may I withdraw my OK for the use of my child's medical information for the purpose of this research study?

You have the right to stop your child's participation in this study at any time. Additionally, the Principal Investigator may remove your child from the study at any time should they develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent their active participation in the study.

Additionally, you may withdraw, at any time, your OK for the use of your child's medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your child's health information, your child may no longer participate in this research study. To the extent that researchers have already used your child's health information in data analysis and/or scientific publication, this information

Initials and date

cannot be withdrawn (although any publication of information will be such that your child's information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your child's private health information for this research study will have no effect on your or your child's current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

May I have access to my child's medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including information resulting from your child's participation in this research study) contained within your child's medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your child's chart nor will it be provided to you in any other form.
- Medical information obtained through the minor's right to consent either through order of court or pursuant to Pennsylvania law shall not be accessible to the parent without authorization from the minor.

For how long will the investigators be permitted to use my child's identifiable health information?

The investigators will be permitted to use your child's identifiable health information until the study and reporting is completed. When your child reaches age 18, your permission is no longer valid. For the continued use of your child's health information, he/she would need to provide permission.

Can my child's private health information collected by this study be used for future studies?

You may choose how your child's private health information will be used in future studies by initialing one of the options below:

_____ My child's health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

____ My child's health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

Initials and date

____My child's health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

Once your child reaches age 18 years, your permission is no longer valid and he/she would need to provide permission for future use.

Will my child's tissue and specimens be used for future research?

You may choose how your child's specimens will be used in the future by initialing one of the options below:

____ My child's specimens may be used without restrictions for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliated. I need not be contacted to give additional permission for such future use. *(Initials and date)*

____ My child's specimens may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give my OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my permission for additional research. *(Initials and date)*

____ My child's specimens may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

Once your child reaches age 18 years, your permission is no longer valid and he/she would need to provide permission for future use.

What if my child's doctor is one of the investigators for this research study?

If your child's doctor is an investigator in this research study, he/she will be interested both in your child's medical care and in the conduct of this research. Before entering your child in this study or at any time during this research you may discuss your child's care with another doctor (another physician at CHP, a physician who isn't at CHP, your child's pediatrician or family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your child's participation, call the Human Rights Committee at (412) 692-5247. It is entirely up to you whether to let you child participate in any research study offered by your child's doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

Initials and date

What if there is new information while my child and I are in this study?

If any information is learned that might affect your willingness to have your child continue in this research, you will be informed.

What costs will be associated with permitting my child to participate in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. Your child will receive $25 for the collection of the cheek cell sample.

Will there be any compensation if my child is injured or becomes ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing this form. You may contact the investigator to obtain information about treatment if needed.

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my and my child's participation in this research, we are encouraged to ask any additional questions we may have about the research and use of our identifiable private health information. Dr. Charron-Prochownik, (412-624-7582) will be available for questions about this research, my and my child's rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my and my child's rights as a research subject. Any questions we have about the research use of our health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate and to permit my child to participate in this research and agree to allow the disclosure of my and my child's medical information for the purposes described above.

Printed Name of Child (Research Subject): _____

Signature(s) of Parents or
Legally Authorized Guardian(s): _____ Date: _____

_____ Date: _____

Printed names of Parents or
Legally Authorized Guardian(s): _____

_____

_____
Initials and date

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the child's medical information to the parent(s) or legally authorized guardian(s). He/she/they have had the opportunity to ask questions. Based on this conversation, I believe that he/she/they understand what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

Assent

I have explained the research to the child-subject in words and pictures that he/she understands. I believe that he/she understands the research and has assented to participation.

Signature of person explaining the research: _____

Printed name of person explaining research: _____

(For children who are developmentally able to sign name:)

This research has been explained to me, and I agree to participate.

Signature of child-subject: _____

Printed name of child-subject: _____

I believe that my child understands what this research involves and that he/she has given assent for his/her participation.

Signature of parent: _____

Investigator's Certification

I certify that this subject was not begun on any research component of this protocol until after this consent form was signed.

Date: _____ Investigator's signature: _____

_____
Initials and date

CONSENT TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Phase 1

Proband (over 18) Genetic Testing Consent Form

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and date

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. This project has two major goals. First, we would like to obtain a genetic sample of cells from your cheek inside your mouth by using a painless method of mouthwash or soft brush. This information will help us determine what your sibling/s chances are of developing type 1diabetes. Second, we would like to help your family members' to better understand their chances of getting type 1diabetes, and so we will show you and your family a web-based education and counseling program about genes and the risk of developing diabetes. Your family will help us evaluate the program and tell us how they felt when learning about their risk of developing type 1diabetes.

While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with brothers and sisters of children with diabetes who are seen in the clinic at the Children's Hospital of Pittsburgh Diabetes Center. These siblings and their parents are already familiar with the disease.

What am I being asked to do?

Because your brothers and/or sisters have decided to go forward with this research project, we would like to collect a cheek cell sample from you for testing (using a mouthwash or soft brush for collection) to help us find out your non-diabetic sibling's risk of getting type 1 diabetes. Some of your cheek cells will be tested to see whether or not you carry a form of a gene that is common among individuals with type 1 diabetes. This sample collection should only take a few minutes to complete.

What are the benefits and risks of participating in this research study?

The benefit of you providing a cheek cell sample for testing is that this is an important factor in determining your sibling's/siblings' chance for type 1 diabetes. Your genes and the genes of your non diabetic sibling will be compared. This makes our estimate of your sibling's genetic risk more accurate.

There are virtually no risks associated with the sample collection.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

How will my privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of your medical information for the purpose of this research study and who will have access to your health information.

Initials and date

What uses of my medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while you participate in this study be placed in your hospital and/or physician records. If the results of this study are published, all information will be pooled. Information concerning you will be in a form such that you cannot be identified.

Will participation in this research result in medical information being placed in my medical records?

Your participation in this study will not result in any information other than the initial "Consent to be Contacted" form, being placed in your Children's Hospital of Pittsburgh medical chart or outpatient chart. We will however, maintain a research computer database record where your limited medical information will be stored.

May I refuse to give my OK for the use of my medical information for the purpose of this research study?

Your OK to use and disclose your medical information for the purpose of this research study is completely up to you. Agreeing to have this testing and the subsequent disclosure of the results obtained from the testing is not required for your siblings to continue in the project.

Who will have access to my medical information related to my participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your identifiable private health information related to your participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.
- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.

Initials and date

- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your child's identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.

In unusual cases, the investigators may be required to release your research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety.

What alternatives are available to me if I don't participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect your present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my participation in this study and may I withdraw my OK for the use of my medical information for the purpose of this research study?

You have the right to stop your participation in this study at any time. Additionally, the Principal Investigator may remove you from the study at any time should you develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent your active participation in the study.

Additionally, you may withdraw, at any time, your OK for the use of your medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your health information, you may no longer participate in this research study. To the extent that researchers have already used your health information in data analysis and/or scientific publication, this information cannot be withdrawn (although any publication of information will be such that your information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your private health information for this research study will have no effect on your current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

May I have access to my medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including

Initials and date

information resulting from your participation in this research study) contained within your medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your chart nor will it be provided to you in any other form.

For how long will the investigators be permitted to use my identifiable health information?

The investigators will be permitted to use your identifiable health information until the study and reporting is completed.

Can my private health information collected by this study be used for future studies?

You may choose how your private health information will be used in future studies by initialing one of the options below:

_____ My health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

____ My health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

____My health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

Will my tissue and specimens be used for future research?

You may choose how your specimens will be used in the future by initialing one of the options below:

____ My specimens may be used without restrictions for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission for such future use. *(Initials and date)*

____ My specimens may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give my OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my permission for additional research. *(Initials and date)*

Initials and date

____ My specimens may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

What if my doctor is one of the investigators for this research study?

If your doctor is an investigator in this research study, he/she will be interested both in your medical care and in the conduct of this research. Before entering in this study or at any time during this research you may discuss your care with another doctor (another physician at CHP, a physician who isn't at CHP, your family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your participation, call the Human Rights Committee at (412) 692-5247. It is entirely up to you whether you participate in any research study offered by your doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What if there is new information while I am in this study?

If any information is learned that might affect your willingness to continue in this research, you will be informed.

What costs will be associated with participating in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. You will receive $25 for the collection of the cheek cell sample.

Will there be any compensation if I am injured or become ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing this form. You may contact the investigator to obtain information about treatment if needed.

Initials and date

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my participation in this research, I am encouraged to ask any additional questions I may have about the research and use my identifiable private health information. Dr. Charron-Prochownik (412-624-7582) will be available for questions about this research, my rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my rights as a research subject. Any questions I have about the research use of my health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate in this research and agree to allow the disclosure of my medical information for the purposes described above.

Printed Name of Research Subject: _____

Date: _____ Signature: _____

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the medical information to the research subject. He/she has had the opportunity to ask questions. Based on this conversation, I believe that he/she understands what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

_____
Initials and date

CONSENT FOR A PARENT AND CHILD TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Phase 1

Part 2- Testing and Counseling

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and Date: _____

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. This project has two major goals. First, we would like to help you and your child/ren to better understand their chances of getting type 1diabetes, and so we will show you and your child/ren a web-based education and counseling program about genes and the risk of developing diabetes. You and your child/ren will help us evaluate the program and tell us how you both felt when learning about their risk of developing type 1diabetes.
Second, we would like to obtain a genetic sample of cells from your child/ren's cheek inside their mouth by using a mouthwash or soft brush. This information will help us determine what your child/ren's chances are of developing type 1 diabetes. While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with brothers and sisters of children with diabetes who are seen in the clinic at the Children's Hospital of Pittsburgh Diabetes Center. These siblings and their parents are already familiar with the disease.

Phase 1 of this research will be conducted in two parts. The first part was "Assessment and Education" and this second part is "Testing and Counseling," which consists of one additional visit and a one month follow-up session on a home computer. There are separate consent forms for each. This consent is for the second part only.

What are my child and I being asked to do?

Because you and your child have decided to go forward with this research project, you will now begin the "Testing and Counseling" part. Before the end of this visit, your child will have his/her cheek cells collected for testing (using a painless method of mouthwash or soft brush for collection) to determine their risk of developing type 1 diabetes. Your child will be asked to swish some mouthwash and spit into a cup. If your child is too young to use the mouthwash, we will gently swab the inside of his cheek for the sample. We will send your child's saliva (spit) to the lab for testing. Some of his or her cheek cells will be tested to see whether or not your child carries a form of a gene that is common among individuals with type 1 diabetes. This sample collection should only take a few minutes. You and your child will then return for another visit to view a short program on the computer explaining genetic counseling. You will be given the opportunity at the end of this program to decide whether or not you and your child wish to receive the results of your child's genetic risk..

Should you decide to receive the results of the testing and your child's own risk (chance), a counselor will meet with you face-to-face to provide this information. S/he will also be able to answer your and your child's questions regarding diabetes and genetic risk. You will be given resources where you can obtain additional information should you wish to do so. You will also be informed about additional studies that are being conducted whose focus is the prevention type 1 diabetes.

Initials and Date: _____

Following this counseling session, you will again be asked to complete a brief series of web-based questionnaires, much the same as those you completed on your first visit. This entire visit should take less than 2 hours.

One month after this last visit, you will receive a postcard in the mail asking you to go online to complete additional questionnaires and an evaluation of your experiences with this research project. You can complete this at home, if you have access to a computer, or back in the clinic. Your input will help us to provide the best possible program for future studies.

It is also our intention to contact you either by phone, letter or postcard in approximately 3 (and possibly 5) years to request that you complete a series of questionnaires online as a follow up to the initial research.

What are the benefits and risks of participating in this research study?

The primary benefit may be continuing to learn more about diabetes, genetics and to actually learn your child/ren's personal chance of developing type 1 diabetes. We can compare the genes of your diabetic and non-diabetic children. This makes our estimate of your non-diabetic child/ren's risk more accurate. This will be done both face-to-face with a Health Care Professional and on a web-based computer program.

The primary risk associated with this study is that you and/or your child may also experience some psychological distress at receiving information about your child/ren's chance of getting diabetes. To help ease this distress, we have added both a web-based and a "face-to-face" counseling session to discuss what thisgenetic risk really means. We will also provide a list of genetic counselors that you may contact in the future should you have additional concerns.

You and/or your child might also feel uncomfortable sharing personal information on questionnaires. To reduce this discomfort, we are using standard questionnaires on the computer and you will always have the option to not answer questions. You may keep the information about your child's genetic risk private.

You and your child may also worry about discrimination, possibly in obtaining employment or insurance due to your knowledge of this genetic risk information. However, because no one will have access to the information other than you, your child, and the study staff, this is very unlikely to occur.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

Initials and Date: _____

How will our privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your (your child's) private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of and your (your child's) medical information for the purpose of this research study and who will have access to your (your child's) health information.

What uses of our medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while you or your child participates in this study be placed in your (your child's) hospital and/or physician records. If the results of this study are published, the information will be pooled. Information concerning your child will be in a form such that he/she cannot be identified.

Will participation in this research result in medical information being placed in my child's medical records?

Your and your child's participation in this study will not result in health information being placed in the Children's Hospital of Pittsburgh medical chart or outpatient chart. We will, however, maintain a research computer database record where your child's limited medical information will be stored.

May I refuse to give my OK for the use of my and my child's medical information for the purpose of this research study?

Your OK to use and disclose your and your child's medical information for the purpose of this research study is completely up to you. However, if you do not provide your OK, you and your child will not be allowed to participate in this study.

Who will have access to my child's medical information related to his/her participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your (your child's) research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your (your child's) identifiable private health information related to your child's participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in

Initials and Date: _____

this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.

- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.
- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your child's identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your child's identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.
- The Department of Defense, the fundng source for this project, will have access to the pooled results of the study, not to individual participants' data.

In unusual cases, the investigators may be required to release your child's research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety. This could include results of the depression survey where the risk of suicide may be detected and intervention by a counselor would be warranted.

What alternatives are available to my child if I don't give my OK for him/her to participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect you or your child's present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my child's participation in this study and may I withdraw my OK for the use of my child's medical information for the purpose of this research study?

You have the right to stop your and your child's participation in this study at any time. Additionally, the Principal Investigator may remove you and your child from the study at any time should you or your child develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent your or your child's active participation in the study.

Additionally, you may withdraw, at any time, your OK for the use of your child's medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your child's health information, you may no longer participate in this research study. To the extent that researchers have already used your child's health information in data analysis and/or scientific publication, this information cannot be

Initials and Date: _____

withdrawn (although any publication of information will be such that your information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your private health information for this research study will have no effect on your or your child's current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

May I have access to my (my child's) medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including information resulting from your child's participation in this research study) contained within your child's medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your (your child's) chart nor will it be provided to you in any other form.
- Medical information obtained through the minor's right to consent either through order of court or pursuant to Pennsylvania law shall not be accessible to the parent without authorization from the minor.

For how long will the investigators be permitted to use my child's identifiable health information?

The investigators will be permitted to use your child's identifiable health information until the study and reporting is completed. When your child reaches age 18, your permission is no longer valid. For the continued use of your child's health information, he/she would need to provide permission.

Can my child's private health information collected by this study be used for future studies?

You may choose how your child's private health information will be used in future studies by initialing one of the options below:

_____ My child's health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

____ My child's health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

Initials and Date: _____

____My child's health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

Once your child reaches age 18 years, your permission is no longer valid and he/she would need to provide permission for future use.

Will my child's tissue and specimens be used for future research?

You may choose how your child's specimens will be used in the future by initialing one of the options below:

____ My child's specimens may be used without restrictions for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliated. I need not be contacted to give additional permission for such future use. *(Initials and date)*

____ My child's specimens may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give my OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my permission for additional research. *(Initials and date)*

____ My child's specimens may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

Once your child reaches age 18 years, your permission is no longer valid and he/she would need to provide permission for future use.

What if my child's doctor is one of the investigators for this research study?

If your child's doctor is an investigator in this research study, he/she will be interested both in your child's medical care and in the conduct of this research. Before entering your child in this study or at any time during this research you may discuss your child's care with another doctor (another physician at CHP, a physician who isn't at CHP, your child's pediatrician or family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your child's participation, call the Human Rights Committee at (412) 692-5247. It is entirely up to you whether to let your child participate in any research study offered by your child's doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What if there is new information while my child and I are in this study?

If any information is learned that might affect your willingness to have you or your child continue in this research, you will be informed.

Initials and Date: _____

What costs will be associated with permitting my child to participate in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. You and your child will each receive $25 during the second visit and another $25 after completing the online evaluation at the end of the study.

Will there be any compensation if my child is injured or becomes ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing this form. You may contact the investigator to obtain information about treatment if needed.

Initials and Date: _____

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my and my child's participation in this research, we are encouraged to ask any additional questions we may have about the research and use of our identifiable private health information. Dr. Charron-Prochownik, (412-624-7582) will be available for questions about this research, my and my child's rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my and my child's rights as a research subject. Any questions we have about the research use of our health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate and to permit my child to participate in this research and agree to allow the disclosure of my and my child's medical information for the purposes described above.

Printed Name of Parent (Research Subject): _____

Printed Name of Child (Research Subject): _____

Signature(s) of Parents or
Legally Authorized Guardian(s): _____ Date: _____

_____ Date: _____

Printed names of Parents or
Legally Authorized Guardian(s): _____

_____

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the child's medical information to the parent(s) or legally authorized guardian(s). He/she/they have had the opportunity to ask questions. Based on this conversation, I believe that he/she/they understand what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

Assent

I have explained the research to the child-subject in words and pictures that he/she understands. I believe that he/she understands the research and has assented to participation.

Signature of person explaining the research: _____

Printed name of person explaining research: _____

(For children who are developmentally able to sign name:)

This research has been explained to me, and I agree to participate.

Signature of child-subject: _____

Printed name of child-subject: _____

I believe that my child understands what this research involves and that he/she has given assent for his/her participation.

Signature of parent: _____

Investigator's Certification

I certify that this subject was not begun on any research component of this protocol until after this consent form was signed.

Date: _____ Investigator's signature: _____

CONSENT TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Pilot Study

Part 2 Pilot- Testing and Counseling for Adult Subject

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
412-624-0762

Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

What is this study about and why is it being done?

Type 1 (also known as "insulin dependent") diabetes is one of the most common chronic diseases in children. Studies have shown that there may be a genetic link to diabetes. This project has two major goals. First, we would like to help you to better understand your chances of getting type 1diabetes, and so we will show you a computer education and counseling program about genes and the risk of developing diabetes. You will help us evaluate the program and tell us how you felt when learning about your risk of developing type 1diabetes. Second, we would like to obtain a genetic sample of cells from your cheek inside your mouth by using a mouthwash or soft brush. This information will help us determine what your chances are of developing type 1diabetes.
While the long-term goal of the project is to develop the program for use in a general population, the current study will be conducted with young adults who have a brother or sister with type 1 diabetes. These siblings are already familiar with the disease.

This study will be conducted in two parts. The first part was "Assessment and Education" and this second part is "Testing and Counseling" which consists of one additional visit and a telephone follow-up. There are separate consent forms for each. This consent is for the second part only.

What am I being asked to do?

Because you have decided to go forward with this research project, you will now begin Part 2, "Testing and Counseling". Before the end of this visit, you will have your cheek cells collected for testing (using a painless method of mouthwash or soft brush for collection) to determine your risk of developing type 1 diabetes. Some of your cheek cells will be tested to see whether or not you carry a form of a gene that is common among individuals with type 1 diabetes. This sample collection should only take a few minutes. You will then return for another visit to view a short program on the computer explaining genetic counseling. You will be given the opportunity at the end of this program to decide whether or not you wish to receive the results of your genetic risk.

Should you decide to receive the results of the testing and your personal risk (chance), a counselor will meet with you face-to-face to provide this information. S/he will also be able to answer your questions regarding diabetes and genetic risk. You will also be given resources where you can obtain additional information should you wish to do so. You will also be informed about additional studies that are being conducted whose focus is the prevention type 1 diabetes.

Following this counseling session, you will again be asked to complete a brief series of questionnaires, much the same as those you completed on your first visit. This entire visit should take less than 2 hours.

One month after this last visit, you will receive a telephone follow up call. The interviewer will ask you questions in order to complete 2 questionnaires and an evaluation of your experiences with this research project. Your input will help us to provide the best possible program for future studies.

What are the benefits and risks of participating in this research study?

The primary benefit may be continuing to learn more about diabetes and genetics and to actually learn your personal chance of developing type 1 diabetes. This will be done both face-to-face with a Health Care Professional and on a computer program.

The primary risk associated with this study is that you may experience some psychological distress at receiving information about your chance (genetic risk) of getting diabetes. To help ease this distress, we have added both a computer and a "face-to-face" counseling session to discuss what this genetic risk really means. We will also provide a list of genetic counselors that you may contact in the future should you have additional concerns.

You might also feel uncomfortable sharing personal information on questionnaires. To reduce this discomfort, we are using standard questionnaires and you will always have the option to not answer questions. You may keep the information about your genetic risk private.

You may also worry about discrimination, possibly in obtaining employment or insurance due to your knowledge of this genetic risk information. However, because no one will have access to the information other than you and the study staff, this is very unlikely to occur.

While we have taken every usual precaution (user ID's and Passwords) to assure that your family's information contained on the website will remain confidential, there is always the chance that the website security could be breached. Although your information is entered using only a number and never a family name, it remains possible that someone could recognize your family from the data found there.

How will my privacy rights be protected?

Under the Health Insurance Portability and Accountability Act (HIPAA), your private health care information cannot be used for the research purposes of this study without your OK. You will be informed of the specific uses and disclosures of your medical information for the purpose of this research study and who will have access to your health information.

What uses of my medical information will this research involve?

This research study will not involve the recording of existing medical information nor will any medical information that becomes available while you participate in this study be placed in your hospital and/or physician records. If the results of this study are published, information concerning you will be in a form such that you cannot be identified.

Will participation in this research result in medical information being placed in my medical records?

Your participation in this study will not result in health information being placed in your medical chart or outpatient chart. We will, however, maintain a research computer database record where your limited medical information will be stored.

May I refuse to give my OK for the use of my medical information for the purpose of this research study?

Your OK to use and disclose your medical information for the purpose of this research study is completely up to you. However, if you do not provide your OK, you will not be allowed to participate in this study.

Who will have access to my medical information related to my participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your research-related medical information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your identifiable private health information related to your participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.
- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.
- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your identifiable health information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.
- The Department of Defense, the fundng source for this project, will have access to the pooled results of the study, not to individual participants' data.

In unusual cases, the investigators may be required to release your research information in response to a court order. Research investigators may be required under Pennsylvania law to report any suspicion of child abuse to child protection services. If the investigators learn that you or someone with whom you are involved is in serious danger of potential severe harm, they may need to warn those who are in danger and contact other agencies to ensure safety. This could include results of the depression survey where the risk of suicide may be detected and intervention by a counselor would be warranted.

What alternatives are available to me if I don't give my OK for him/her to participate in this study?

Participation in this study is entirely up to you. Choosing not to participate in this study will not affect your present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or the University of Pittsburgh. There is no other alternative to participation except to not participate.

May I stop my participation in this study and may I withdraw my OK for the use of my medical information for the purpose of this research study?

You have the right to stop your participation in this study at any time. Additionally, the Principal Investigator may remove you from the study at any time should you develop any serious medical conditions or be diagnosed with any clinically significant psychiatric disorder that would prevent your active participation in the study.

Additionally, you may withdraw, at any time, your OK for the use of your medical information for the purpose of this research study. Of course, if you withdraw your OK for the use of your health information, you may no longer participate in this research study. To the extent that researchers have already used your health information in data analysis and/or scientific publication, this information cannot be withdrawn (although any publication of information will be such that your information will not be identifiable). If you decide to withdraw your OK, you should notify the Principal Investigator (Denise Charron-Prochownik) in writing along with the date of your decision. Your decision to withdraw your OK for the use of your private health information for this research study will have no effect on your current or future medical care at Children's Hospital of Pittsburgh, a UPMC hospital or affiliated health provider or the University of Pittsburgh.

May I have access to my medical information resulting from participation in this research study?

In accordance with the Children's Hospital of Pittsburgh's Notice of Privacy Practices document that you have been provided, you are allowed to look at information (including information resulting from your participation in this research study) contained within your medical records unless otherwise specifically stated below:

- If the research involves an experimental test that has not yet proven to be valid, this information will not be recorded in your chart nor will it be provided to you in any other form.

For how long will the investigators be permitted to use my identifiable health information?

The investigators will be permitted to use your identifiable health information until the study and reporting is completed.

Can my private health information collected by this study be used for future studies?

You may choose how your private health information will be used in future studies by initialing one of the options below:

_____ My health information from this study may be used without restriction for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliates. I need not be contacted to give additional permission or authorization for such future use. *(Initials and date)*

____ My health information from this study may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my OK for additional research. *(Initials and date)*

____My health information from this study may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

___ I agree to be contacted by Children's Hospital of Pittsburgh or UPMC and it's affiliates for follow-up studies or information that may be needed as a result of this study.

Will my tissue and specimens be used for future research?

You may choose how your specimens will be used in the future by initialing one of the options below:

____My specimens may be used without restrictions for future research at Children's Hospital of Pittsburgh, UPMC's Hospitals and affiliated. I need not be contacted to give additional permission for such future use. *(Initials and date)*

____ My specimens may be used for additional research purposes at Children's Hospital of Pittsburgh, UPMC's hospitals and affiliates only if I specifically give my OK for such use. I may be contacted by telephone, fax, e-mail, or regular mail for the purposes of obtaining my permission for additional research. *(Initials and date)*

____My specimens may be used only for the purposes of this study. I do not want to be contacted about future studies. *(Initials and date)*

What if my doctor is one of the investigators for this research study?

If your doctor is an investigator in this research study, he/she will be interested both in your medical care and in the conduct of this research. Before entering in this study or at any time during this research you may discuss your care with another doctor (another physician at CHP, a physician who isn't at CHP, your family doctor, or a doctor from the Human Rights Committee) who is in no way associated with this research project. If you need help in identifying a doctor to discuss your participation, call the Human Rights Committee at (412) 692-5247. It is entirely up to you whether to participate in any research study offered by your doctor.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What if there is new information while I am in this study?

If any information is learned that might affect your willingness to continue in this research, you will be informed.

What costs will be associated with participating in this research?

You will not have to pay any costs in order to participate in this study. All laboratory, physician, or hospital costs not related to the research will be charged to you just as though you were not part of the study. You will receive $50 during at the next visit and another $10 after completing the telephone follow-up evaluation at the end of the study.

Will there be any compensation if I am injured or become ill as a result of participating in this study?

In the unlikely event of an injury or illness resulting from this research, any immediate emergency treatment that may be necessary will be provided without charge. There is no plan for monetary compensation. You do not, however, waive any legal rights by signing this form. You may contact the investigator to obtain information about treatment if needed.

Voluntary Consent and Authorization

I have read this form or it has been read to me. All of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my participation in this research, I am encouraged to ask any additional questions I may have about the research and use of my identifiable private health information. Dr. Charron-Prochownik, (412-624-7582) will be available for questions about this research, my rights, and any possible research-related injury. I may also call the Patient Representative (412-692-5489) or the Human Rights Committee (412-692-5247) concerning questions about my rights as a research subject. Any questions I have about the research use of my health care information will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate in this research and agree to allow the disclosure of my medical information for the purposes described above.

Printed Name Research Subject: _____

Date: _____ Signature: _____

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the medical information to the subject. He/she has had the opportunity to ask questions. Based on this conversation, I believe that he/she understands what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

CONSENT TO BE A SUBJECT IN A RESEARCH STUDY AND AUTHORIZATION TO PERMIT THE USE AND DISCLOSURE OF IDENTIFIABLE MEDICAL INFORMATION (PROTECTED HEALTH INFORMATION) FOR RESEARCH PURPOSES

HRC Protocol Number: 03-131

Title: "Genetic Information for Testing Diabetes (GIFT-D)" the program component of the "New Advanced Technology to Improve Prediction and Prevention of Type 1 Diabetes", Pilot Study

Health Care Provider Consent

Principal Investigator and Telephone Number:

Denise Charron-Prochownik, Ph.D., RN
Associate Professor, School of Nursing, University of Pittsburgh
412-624-7582

Co- Investigators with Telephone Numbers:

Dorothy Becker, M.B.B.Ch.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-492-5179

Janice S. Dorman, Ph.D.
Associate Dean for Research, University of Pittsburgh Graduate School of Public Health
412-383-1268

Christopher M. Ryan, Ph.D.
Professor of Psychiatry, University of Pittsburgh School of Medicine
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Linda M. Siminerio, RN, Ph.D., CDE
Assistant Professor, School of Medicine and Nursing, University of Pittsburgh Diabetes Institute
412-383-1407

Massimo Trucco, M.D.
Professor of Pediatrics, Children's Hospital of Pittsburgh
412-692-6570

Source of Support: Department of Defense

Initials and date

What is this study about and why is it being done?

The primary goal of this study is to implement a diabetes and genetics education program for Health Care Professionals. Our aim is to enhance Health Care Professionals' knowledge of genetics as it applies to type 1 diabetes.

What am I being asked to do?

You will be asked complete a genetics/diabetes pretest, view and educational program, and complete a post test. All of this will be provided to you in a web-based format

What are the benefits and risks of participating in this research study?

The primary benefit may be learning more about genetics and diabetes.

There is no risk associated with this education

What alternatives are available to me if I don't give my OK to participate in this study?

Participation in this study is entirely up to you. There is no other alternative to participation except to not participate.

Is my participation in this study voluntary and may I stop my participation at any time?

Yes! Your participation in this study is completely voluntary. You may refuse to take part in it, or you may stop participating at any time, even after signing this form. Your decision will not affect your present or future relationship with the Children's Hospital of Pittsburgh or any UPMC hospital or affiliated health care provider or with the University of Pittsburgh., nor will you lose any benefits that you might be eligible for because of your decision. You may be withdrawn from the study at any time by the investigators.

Who will have access to my personal information related to my participation in this research study?

Research records are kept **confidential**. Paper records are stored in locked cabinets in the study office at the University of Pittsburgh School of Nursing and computerized records are password protected. There are, however, some disclosures of your research-related l information that may occur.

In addition to the investigators listed on the first page of this authorization form and their research staff, the following persons may have access to your identifiable private information related to your participation in this research study (Some of the investigators may not be at Children's Hospital of Pittsburgh or may still see your information if they go somewhere else):

- Authorized representatives of the Human Rights Committee. The Human Rights Committee is responsible for assuring the ethical conduct of research at Children's Hospital of Pittsburgh. The Human Rights Committee sometimes asks for names and addresses and telephone numbers of research subjects. By agreeing to participate in

Initials and date

this study, you also agree that representatives of the Human Rights Committee can contact you. Of course, you don't have to answer the committee's questions if you don't want to.

- Authorized representatives from the Children's Hospital of Pittsburgh Office of Corporate Compliance for the purpose of monitoring the appropriate conduct of this research study.
- Authorized representatives of the Office for Human Research Protections (OHRP) may review and/or obtain your identifiable information for the purpose of ensuring that the research is being conducted according to the Department of Health and Human Services Guidelines. While the OHRP has provided its assurance that it will not release your identifiable medical information to anyone else, the Children's Hospital of Pittsburgh cannot guarantee this.

Do any of the investigators on this project have any other conflicts of interest?

None of the investigators on this study have any conflicts of interest.

What costs will be associated with participating in this research?

You will not have to pay any costs in order to participate in this study.

Voluntary Consent and Authorization

I have read this form and all of my current questions have been answered. I will be given a copy of this form for future reference. I understand that throughout my participation in this research, I am encouraged to ask any additional questions I may have about the research. Dr. Charron-Prochownik (412-624-7582) will be available for questions about this research and my rights. I may also call the Human Rights Committee (412-692-5247) concerning questions about my rights as a research subject. Any questions I have about the research will be answered by the Human Protections Coordinator at Children's Hospital of Pittsburgh (412-692-8289), by the Children's Hospital of Pittsburgh Privacy Board (412-692-5247) or by the Children's Hospital of Pittsburgh Corporate Compliance and Privacy Officer (412-692-7842.) By signing this form, I agree to participate in this research.

Printed Name Research Subject: _____

Date: _____ Signature_____

_____
Initials and date

Certification of Person Explaining the Research

I have explained the nature and the purpose of this research and the disclosure of the medical information to the subject. He/she has had the opportunity to ask questions. Based on this conversation, I believe that he/she understands what this research project involves.

Signature of person explaining the research: _____

Printed name of person explaining the research: _____

_____
Initials and date

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APPENDIX 14:

JOURNAL ARTICLE

5. Murphy DJ, Sellers S, MacKenzie IZ, Yudkin PL, Johnson AM. Case-control study of antenatal and intrapartum risk factors for cerebral palsy in very preterm singleton babies. *Lancet*. 1995;346:1449-1454.
6. Gny PH, Jones P, O'Callaghan MJ. Maternal antecedents for cerebral palsy in extremely preterm babies: a case-control study. *Dev Med Child Neurol*. 2001; 43580-585.
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13. Allan SM, Rothwell NJ. Cytokines and acute neurodegeneration. *Nat Rev Neurosci*. 2001;2:734-744.

In reply

I thank Dr Willoughby for his comments and careful reading of our article.[1] We did our best to control for multiple confounding variables. However, we concur with Dr Willoughby that there may have been other variables, such as precipitous delivery, that could not be controlled for and thus may have accounted for some of the variability in cystic periventricular leukomalacia (PVL). We agree that longer-term follow-up, looking for outcomes such as cerebral palsy, would be ideal. However, we disagree with Dr Willoughby's sentiment that cystic echolucencies are clinically unimportant. Cystic PVL has been associated with a substantial risk of later CP or motor delay.[2-4] Thus, although some infants with cystic PVL may ultimately be free of later motor disability, cystic PVL remains a clinically significant marker of early brain injury. We would like to reemphasize that our data show an association between antenatal antibiotics and reduced risk of later cystic PVL, and not proof of protection. We agree with Dr Willoughby that our data do not provide for an expanded indication for antimicrobial use in pregnancy and that randomized trials are needed prior to any initiation of antenatal antibiotic treatment strategies to decrease the occurrence of neonatal brain injury.

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John L. Stefano, MD
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David Paul, MD
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1. Paul DA, Coleman MM, Leef KH, Tuttle D, Stefano JL. Maternal antibiotics and decreased periventricular leukomalacia in very low-birth-weight infants. *Arch Pediatr Adolesc Med*. 2003;157:145-149.
2. Resch B, Vollaard E, Maurer U, Haas J, Rosegger J, Muller W. Risk factors and determinants of neurodevelopmental outcome in cystic periventricular leukomalacia. *Eur J Pediatr*. 2000;159:663-670.
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Need for Genetic Education for Type 1 Diabetes

We read with interest a recent article that appeared in the ARCHIVES regarding the ethics of predictive genetic screening for type 1 diabetes (T1D).[1] Dr Ross nicely reviewed the status of newborn genetic screening for T1D, which is beginning to be offered at a statewide level in the United States. The primary purpose of newborn genetic screening is the identification of high-risk infants. Currently, more than 90% of parents consent. Babies at high risk (~2%-10%) are recruited into natural history studies. The American Diabetes Association Position Statement indicates that genetic screening for T1D outside the context of research is not warranted.[2] Dr Ross addressed the ethics of newborn genetic screening for a nonpreventable disorder, such as T1D. Her concerns included the psychosocial risks of predictive testing, the false assurance for children not considered to be at high risk, and proper informed consent.

We share Dr Ross' concerns, and describe here our approach for addressing these issues, which were discussed at a National Institutes of Health–Sponsored Conference on Behavioral Science Research in Diabetes (November 18-19, 1999; Bethesda, Md). This meeting emphasized the need to provide accurate risk information, maximize the benefits of determining risk status, minimize the distress during risk notification, and educate children, families, and health professionals regarding genetic testing for T1D.

To begin to address these needs, we are developing Internet-based programs titled Genetic Information for Testing (GIFT) for T1D to serve as "decision aids" to improve the consent process.[1] Programs are targeted for families who are considering genetic testing for T1D. These contain modules on genetics, treatment, risks and benefits of testing, and genetic counseling for T1D. A personalized risk algorithm based on genetic/environmental risk factors is also included. Psychosocial measures related to the Health Belief Model[3] have been incorporated for evaluation purposes. A separate program is intended for health professionals who offer genetic testing for T1D. This program is for educational purposes (with continuing education credits), and will enhance the provision of "more active parental consent."[1]

Although our focus is on T1D, genetic testing is fast becoming a significant part of life and medical practice. Thus, knowledge of genetic and environmental determinants of disease must be available to consumers and practitioners, and is it essential for developing prevention strategies and establishing appropriate health policy. It is anticipated that our programs will assist with the trans-

lation of scientific information for T1D and possibly other disorders, from the laboratory to the community.

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Massimo Trucco, MD
Pittsburgh

This research is supported by grant DAMD17-01-1-009 from the US Army Medical Research Acquisition Activity, Fort Detrick, Md.

1. Ross LF. Minimizing risks: the ethics of predictive diabetes mellitus screening research in newborns. *Arch Pediatr Adolesc Med.* 2003;157:89-95.
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3. Strecher V, Rosenstock I. The health belief model. In: Glanz K, Lewis FM, Rimer BK, eds. *Health Behavior and Health Education.* San Francisco, Calif: Jossey-Base Publishers; 1997:41-59.

In reply

I thank Dr Dorman and colleagues for sharing their thoughtful project to educate families and clinicians about genetic testing for type 1 diabetes. It is important that the project will focus on families with an affected biological relative, as their "high-risk" status changes the risk-benefit of genetic testing at this time when no preventive measures exist.

I agree with Dr Dorman and colleagues that the development of decision aids will be important for the translation of scientific information on type 1 diabetes from the bench to the community. Policy guidelines must be developed to ensure that the introduction of testing, both for research and clinical purposes, minimizes risks.[1] One consideration must be the appropriate community for such testing when no therapies exist. Children are a vulnerable population; infants, more so.[2-4] Type 1 diabetes is the most common metabolic condition of childhood and, therefore, the inclusion of children in this research is important. In my article, however, I questioned whether the general newborn population is the appropriate community for study if there are plans to disclose risk information to families. I concluded that it was not.[1] In another article, I examine the ethics of prediction and prevention research in type 1 diabetes beyond the newborn period and how such research should be evaluated by institutional review boards given current federal regulations.[5] The tools being developed by Dr Dorman and colleagues will help make type 1 diabetes research in high-risk families pass ethical review.

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1. Ross LF. Minimizing risks: the ethics of predictive diabetes screening research in newborns. *Arch Pediatr Adolesc Med.* 2003;157:89-95.
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APPENDIX 15:

REFERENCE LIST

Reference List for GIFT for Type 1 Diabetes

Reference List for Development of Our Web-based Education Modules

Educational Genetics Websites for the General Public (Adults)

Genetics @ GlaxoSmith Kline—http://genetics.gsk.com/generalpublic_flash.htm
Genetic Science Learning Center—http://gslc.genetics.utah.edu/
Gene CRC Learning Center—http://www.genecrc.org/site/lc/index_lc.htm
Dolan DNA Learning Center—http://www.dnalc.org/
Genetics Education Program—http://www.genetics.com.au/
Genomic News Network—http://gnn.tigr.org/whats_a_genome/Chp1_1_1.shtml
Access Excellence Resource Center—
http://www.accessexcellence.org/AE/AEPC/NIH/index.html
The Tech—http://thetech.org/exhibits_events/online/genome/overview.html
Cracking the Code of Life—http://www.pbs.org/whbh/nova/genome/
Blazing a Genetic Trail—http://www.hhmi.org/genetictiral/
Your genome.org—http://www.yourgenome.org/
Gene Stories (BBCi)—http://www.bbc.co.uk/health/genes/
DNA: Heredity and Beyond—
http://library.thinkquest.org/20830/main.htm?tqskip1=1&
tqtime=0712
A Revolution in Progress: Human Genetics and Medical Research—
http://history.nih.gov/exhibits/genetics/
Genomics and its Impact on Science and Society: A 2003 Primer—
http://www.ornl.gov/TechResources/Human_Genome/publicat/primer2001
/index.html

Educational Genetics Websites for the General Public (Children/Adolescents)

Kids Genetics @ GlaxoSmithKline—http://genetics.gsk.com/kids/index_kids.htm
Kids Health-What is a gene?—
http://www.kidshealth.org/kid/talk/qa/what_is_gene.html
I Can Do That!—http://eurekascience.com/ICanDoThat/index.htm
A Science Odyssey-DNA Workshop—http://www.pbs.org/wgbh/aso/tryit/dna/
Gene CRC-Kids Only—http://www.genecrc/site/ko/index_ko.htm
Designer Genes—http://library.thinkquest.org/18258/noframes/intro.htm
Just For Kids!-ACartoon Guide to Genetics—
http://history/nih.gov/exhibits/genetics/kidsf.htm

Websites Describing the Genetics of Type 1 Diabetes

Genetics Education Program-Diabetes Fact Sheet—
http://www.genetics.com.au/Genetics2003/factsheets/34.asp

Genetics of Type 1 (Autoimmune Diabetes)—
http://joslin.org/research/genetics_type1.shtml
Causes of Type 1 Diabetes—
http://www.intelihealth.com/IH/ihtIH/WHIHW000/35132/35250/363533.html
?d=dmtContent
Genetics of Diabetes—
http://www.diabetes.org/main/info/diagnosed/genetics/genetic.jsp
Children Have Diabetes Too (Chp. 3)—
http://www.diabetic.com/children/chapter3page1.htm

Reference List for the Manuscript to be Submitted for Publication

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2. Undlien DE, Lie BA, Thorsby E. HLA complex genes in type 1 diabetes and other autoimmune diseases. Which genes are involved? Trends Genet. 2001; 17(2): 93-100.
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about.html. Accessed August 15, 2003.
10. White paper: criteria for assessing the quality of health information on the Internet. Available at: http://hitiweb.mitretek.org/docs/criteria.html. Accessed October 31, 2002.