

# Air Education and Training Command

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20031126 070



## Occupational Survey Report

### AFSC 4T0X1 MEDICAL LABORATORY

1Lt Luis A. Berrios  
28 Oct 02

**U.S. AIR FORCE**

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*Integrity - Service - Excellence*

# Air Force Occupational Measurement SQ

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## AFOMS/OMYO

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# Overview



- Survey background
- Survey results
- Implications and way ahead



# Work Performed

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- Test and analyze specimens of human origin and other substances
- Aid physicians in diagnosing, treating, and preventing disease
- Support in medical research and analysis of environmental samples
- Supervise medical laboratory activities



# Survey Background

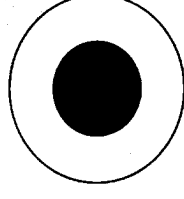


- Survey initiated to obtain data to:
  - Evaluate current classification and training documents
  - Support promotion test development
- Last Occupational Survey Report (OSR) - September 1999
- Current survey data collected- February 2002 – May 2002
- Active Duty
  - 3-, 5-, 7-, and 9-Skill Levels

**UNCLASSIFIED**

**Air Force**

**Occupational Measurement Squadron  
Occupational Analysis Products**



**Contents:**  
Occupational  
Survey Report,  
Training and  
Analysis Extracts,  
and OSR Briefing.

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drive for autorun or  
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**MEDICAL LABORATORY**

**4T0X1**

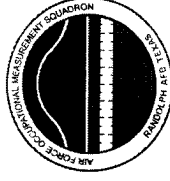
**SEPTEMBER 2002**

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# Survey Sample Characteristics



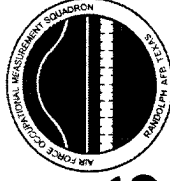
Assigned*	<u>AD</u> 1,060
Mailed Out	880
Sample	667
Usable Returns	76%

- Average time in career field: 9 years, 10 months
- Average TAFMS: 10 years, 8 months
- Percent in first enlistment: 20%

\* Assigned as of December 2001



# Skill & Paygrade Characteristics



## Skill Level Distribution

	Assigned**	Sample
3-Level -	21%	19%
5-Level -	56%	60%
7-Level -	22%	20%
9-Level -	1%	*

## Paygrade Distribution

	Assigned**	Sample
E-1 - E-3 -	12%	9%
E-4 -	17%	18%
E-5 -	42%	46%
E-6 -	18%	19%
E-7 -	9%	7%
E-8 -	2%	1%

\* Indicates less than one percent

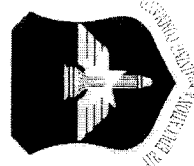
\*\* Assigned as of December 2001



# Command Representation



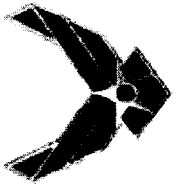
10/20/2001 10:00 AM



Command	Assigned %**	Sample %
AETC	26	22
AMC	18	19
ACC	18	19
AFMC	16	18
USAFE	6	5
PACAF	7	8
AFSPC	3	3
OTHER*	6	6

\* Highest percentages in "Other" include USAFA, AFSOC, and ELM

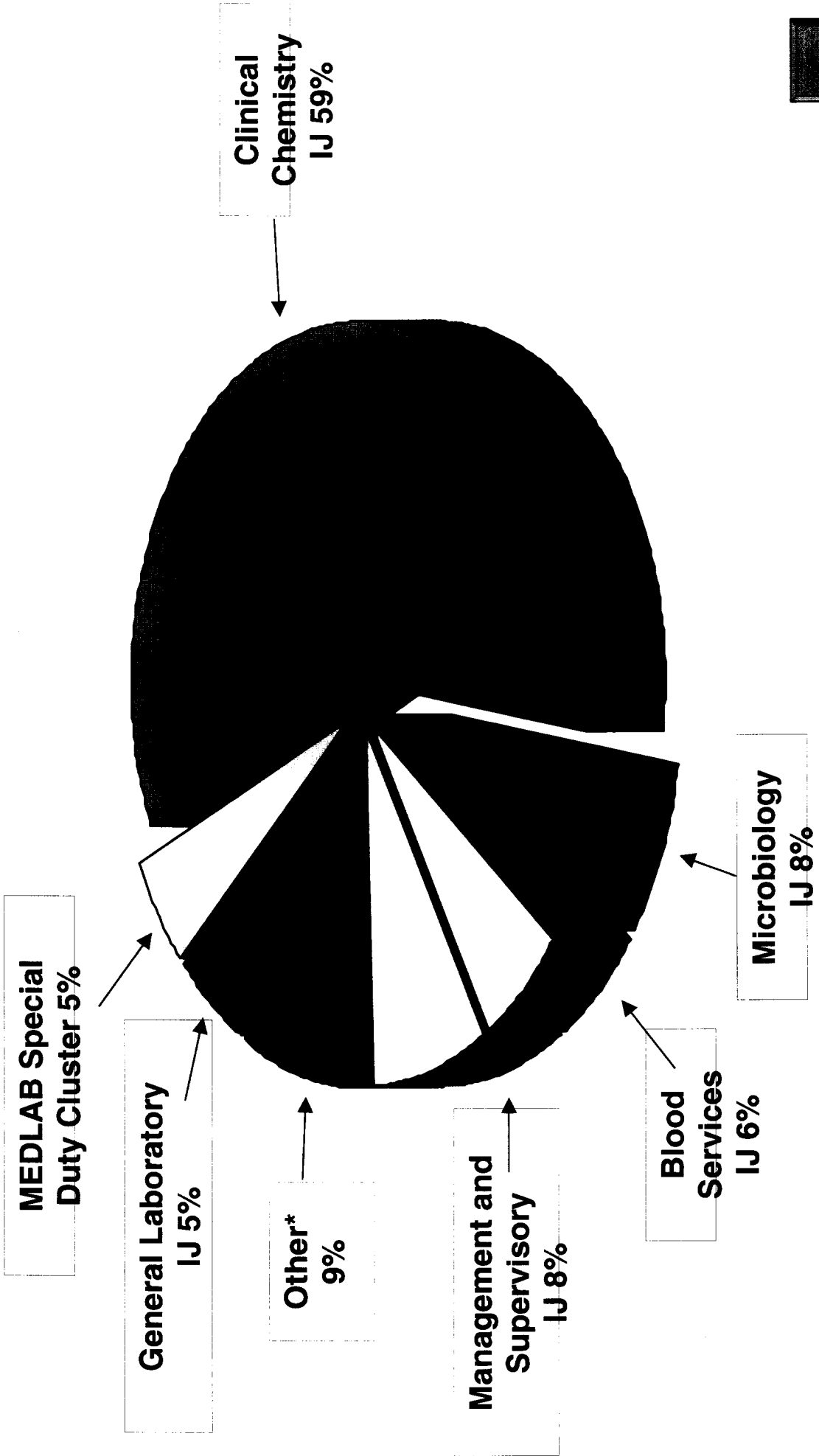
\*\* Assigned as of December 2001



# Job Structure



Sample size: 667



4T0X1 \*Other Includes Lab Admin and Supply IJ – 1%, Instructor IJ – 3%, Lab Systems – 1%, and Ungrouped – 4%.

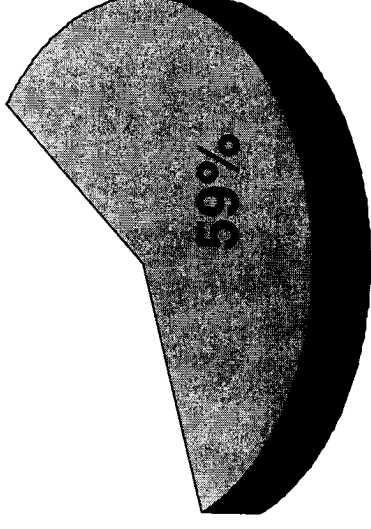


# Independent Jobs



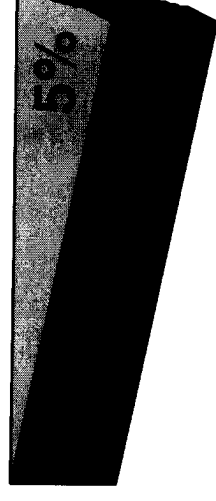
- Clinical Chemistry IJ (N=393)

- Process specimens
- Operate centrifuges
- Perform specialized tests such as bilirubin, cholesterol, calcium, blood urea nitrogen, and electrolyte tests



- General Laboratory IJ (N=31)

- Collect venous blood samples from outpatients
- Instruct patients on collections or submissions of biological specimens
- Retrieve medical laboratory test results

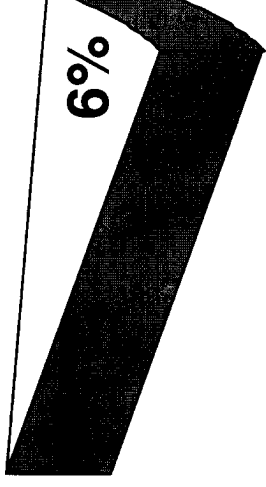




# Independent Jobs



- Microbiology IJ (N=55)
  - Isolate aerobic bacteria
  - Perform Gram stains
  - Perform rapid biochemical spot tests, such as indole or catalase
- Blood Services IJ (N=38)
  - Store blood or blood components
  - Ship or receive blood or blood components
  - Maintain blood inventories





# Special Duty Cluster (N=32)



- Store reagents, standards, or controls, other than hazardous chemicals
- Process specimens
- Remove or dispose of hazardous or infectious waste
- Store hazardous chemicals, such as acids or carcinogens
- Clean or disinfect laboratory work areas
- Operate centrifuges

Environmental Chemistry
Epidemiology Surveillance
Research



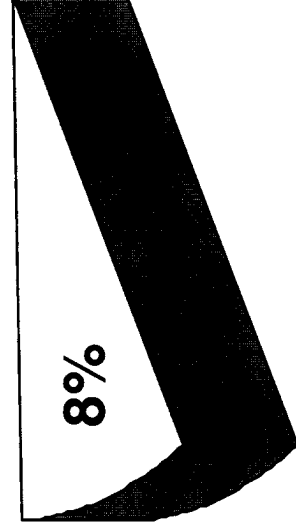


# Independent Jobs



- Management and Supervisory IJ (N=55)
  - Counsel subordinates concerning personal matters
  - Write recommendations for awards or decorations
  - Write or indorse military performance reports

1%



8%



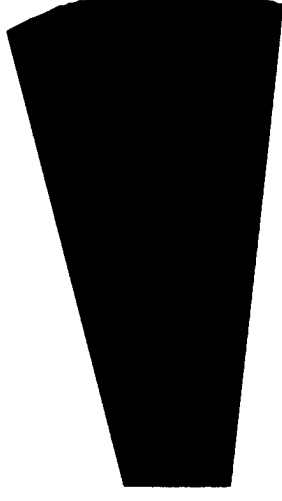
# Other



- Instructor IJ (N=20)

- Conduct formal course classroom training
- Administer or score tests
- Evaluate progress of trainees

5%



- Laboratory Systems IJ (N=6)

- Initiate or update computer-based instructions
- Troubleshoot data management or information systems
- Test new computer hardware or software products

1%



# Other (cont.)



- Lab Administration and Supply IJ (N=6)
  - Maintain supply stock levels
  - Maintain equipment or supply inventory programs
  - Issue or log turn-ins of equipment or supplies

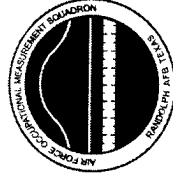
1%

8%



# Career Ladder Progression

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- 3- and 5-skill-level personnel
  - Work in the most technical jobs in the career field
  - Spend most of their time on technical tasks
- 7-skill-level personnel
  - Some continue to perform technical tasks
  - Most perform supervisory, training, and administrative duties







# Career Ladder Progression Percent Time Spent on Duties



	DAFSC 4T031 (N=125)	DAFSC 4T051 (N=403)	DAFSC 4T071 (N=131)
Performing Lab Administrative or Supply Activities	5	7	10
Performing General Laboratory Activities	24	24	17
Performing Laboratory Computer Activities	3	5	4
Performing Research, Environmental, or Occupational Analytical Procedures	*	*	*
Performing Clinical Chemistry Procedures	19	16	7
Performing Special Chemistry Procedures	4	3	*
Performing Immunology Procedures	1	1	*
Performing Transfusion Services Procedures	9	6	5
Performing Hematological Procedures	10	8	4
Performing Coagulation Procedures	3	2	*
Performing Bacteriological Procedures	10	9	6
Performing Mycology Procedures	*	*	*
Performing Parasitological Procedures	3	2	1
Performing Urine Testing Procedures	5	3	2
Performing Medical Readiness Activities	1	2	3
Performing Training Activities	1	4	9
Performing Management and Supervisory Activities	*	7	30

4T0X1 \* Less than 1 percent

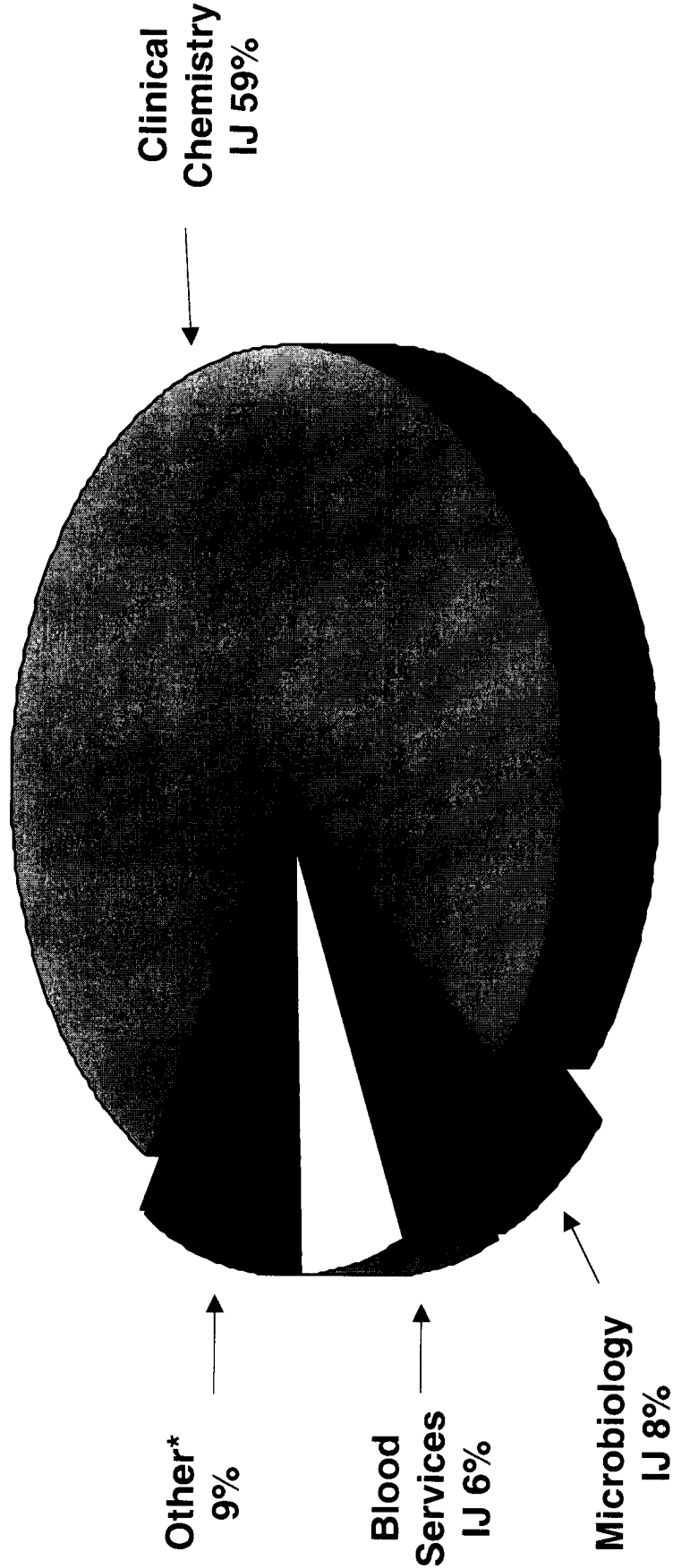
Note: Columns may not add to 100 due to rounding error



# First-Enlistment Job Structure



**Sample size: 136**



\* Other Includes General Laboratory IJ – 4%, MEDLAB Special Duty Cluster – 2%, and Not Grouped – 3%

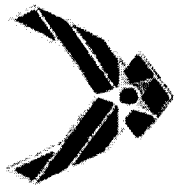


# First-Enlistment Personnel Representative Tasks

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	Percent Members Performing <u>(N=136)</u>
<u>Tasks</u>	
Clean or disinfect laboratory work areas	96
Process specimens	94
Operate centrifuges	93
Maintain or operate microscopes	91
Collect venous blood samples from outpatients	88
Generate workload reports, pending lists, and work documents	85
Prepare reagents, standards, or controls	84
Perform maintenance on laboratory equipment	82
Inform medical professionals of test results or testing delays	82
Retrieve medical laboratory test results	80
Instruct patients on collections or submissions of biological specimens	80
Input or update data using CHCS	79
Prepare patients for glucose tolerance tests	76
Prepare patients for blood culture collections	76



# Specialty Training Standard (STS) Analysis

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- STS is generally supported by survey data
  - Three STS items were unsupported
- One task performed by 20 percent or more of members was not referenced to STS
  - Should be reviewed for possible inclusion in STS





# Unsupported STS Elements



Unit	Learning Objective	Prof Code	Percent Members Performing			Tng Emp	Tsk Dif	ATI
			1st Job	1st Enl				
18.1	Chemistry analyzer	2b	0	7	5.22	5.20	7	
Task	00422. Operate EMEDS equipment							
18.3	Hematology analyzer	2b	0	7	5.22	5.20	7	
Task	00422. Operate EMEDS equipment							
18.4	Coagulation analyzer	2b	0	7	5.22	5.20	7	
Task	00422. Operate EMEDS equipment							

Mean TE Rating is 3.68, Standard Deviation is 1.99 (HIGH TE= 5.67)  
 Mean TD Rating is 5.00, Standard Deviation is 1.00 (HIGH TD= 6.00)





# Task not Referenced to STS



## Percent Members Performing

<u>Task</u>	<u>1st</u>	<u>Job</u>	<u>Enl</u>	<u>Emp</u>	<u>Tng</u>	<u>1st</u>	<u>Tsk</u>	<u>ATI</u>
K0326 Identify microaerophilic bacteria	21	29	6.00	5.94	11			

Mean TE Rating is 3.68, Standard Deviation is 1.99 (HIGH TE= 5.67)  
 Mean TD Rating is 5.00, Standard Deviation is 1.00 (HIGH TD= 6.00)



# Plan of Instruction (POI) Analysis

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- POI is generally well supported by survey data
- Tasks not referenced to any POI learning objective should be reviewed for possible inclusion in POI





# Tasks not Referenced to POI



## Examples

<u>Tasks</u>	Percent Members Performing			
	<u>1<sup>st</sup></u>	<u>1<sup>st</sup></u>	<u>Tng</u>	<u>Tsk</u>
	<u>Job</u>	<u>Enl</u>	<u>Emp</u>	<u>Dif</u>
B0032 Collect infant PKU screen specimens	71	75	6.30	4.02
B0043 Perform maintenance on laboratory equipment	79	82	6.15	4.66
B0045 Perform proficiency survey procedures	46	65	6.35	5.60
B0063 Test commercial assayed or unassayed controls	67	58	6.04	4.06
I0286 Operate automated hematology analyzers	71	66	6.31	4.78
				<u>ATI</u>
				18
				18
				18

Mean TE Rating is 3.68, Standard Deviation is 1.99 (HIGH TE= 5.67)  
 Mean TD Rating is 5.00, Standard Deviation is 1.00 (HIGH TD= 6.00)



# Job Satisfaction Indicators (AFSC 4T0X1 vs. Comparative Sample)



	1-48 Months 2002 4T0X1 (N=136)	Comp Sample* (N=444)	49-96 Months 2002 4T0X1 (N=138)	Comp Sample* (N=306)	97+ Months 2002 4T0X1 (N=393)	Comp Sample* (N=661)
Job interesting	81	80	70	76	75	82
Talents well utilized	84	80	84	83	82	88
Training well utilized	93	85	83	84	84	85
Sense of accomplishment	70	72	60	72	71	79
Plan to reenlist	52	50	64	62	66	60

\* Comparative sample of AFSCs surveyed in the last 12 months includes: 4C0X1, 4M0X1, 4N1X1, 4V0X1, 4Y0X1



# Job Satisfaction Indicators (Current vs. Previous Study)



	1-48 Months (N=136) 1999 (N=166)		49-96 Months (N=138) 1999 (N=308)		97+ Months (N=393) 1999 (N=398)	
Job interesting	81	75	70	73	75	81
Talents well utilized	84	84	84	80	82	85
Training well utilized	83	86	83	83	84	83
Sense of accomplishment	70	71	60	66	71	73
Plan to reenlist	52	43	64	52	66	66



# Job Satisfaction Indicators (Across Specialty Jobs)



	MEDLAB Special Duty Cluster (N=32)	General Laboratory IJ (N=31)	Clinical Chemistry IJ (N=393)	Micro- biology IJ (N=55)
Job interesting	84	65	74	89
Talents well utilized	80	58	82	94
Training well utilized	68	65	91	96
Sense of accomplishment	84	58	65	78
Plan to reenlist	69	58	63	73



# Job Satisfaction Indicators (Across Specialty Jobs cont.)



	Blood Services IJ (N=38)	Lab Admin And Supply IJ (N=6)	Mgt and Supervisory IJ (N=55)	Instructor IJ (N=20)	Lab Systems IJ (N=6)
Job interesting	68	67	84	100	67
Talents well utilized	82	83	93	100	50
Training well utilized	82	100	76	90	50
Sense of accomplishment	63	67	85	100	50
Plan to reenlist	68	100	47	70	67

Job interesting

Talents well utilized

Training well utilized

Sense of accomplishment

Plan to reenlist



# Retention Dimensions First-Term Airmen (N=135)



	Percent Responding	Average
<b>Planning to Reenlist (N=71)</b>		
Job security	69	2.49
Military lifestyle	58	1.93
Pay and allowances	54	2.26
Off-duty education or training opportunities	51	2.69
Medical/dental care for family members	49	2.71
<b>Planning to Separate (N=64)</b>		
Military lifestyle	64	2.02
Civilian job opportunities	56	2.42
Pay and allowances	56	2.08
Recognition of efforts	45	2.48
Work schedule	41	2.46

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence





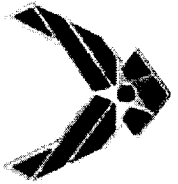
# Retention Dimensions Second-Term Airmen (N=136)



	Percent Responding	Average
<b>Planning to Reenlist (N=89)</b>		
Job security	75	2.58
Pay and allowances	69	2.21
Off-duty education or training opportunities	62	2.51
Retirement benefits	56	2.56
Military lifestyle	56	2.12
<b>Planning to Separate (N=47)</b>		
Civilian job opportunities	55	2.38
Pay and allowances	51	2.46
Esprit de corps/morale	49	2.87
Recognition of efforts	49	2.61
Military lifestyle	45	2.24

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence





# Retention Dimensions Career Airmen (N=306)



	Percent Responding	Average
<b>Planning to Reenlist (N=258)</b>		
Retirement benefits	78	2.64
Job security	67	2.63
Pay and allowances	55	2.42
Medical/dental care for AD member	55	2.55
Medical/dental care for family member	54	2.68
<b>Planning to Separate (N=48)</b>		
Recognition of efforts	56	2.56
Pay and allowances	56	2.30
Leadership at unit level	54	2.58
Esprit de corps/morale	50	2.62
Enlisted evaluation system	46	2.59

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence





# Summary of Results

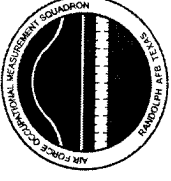


- Career ladder progression typical
  - Highly technical at 3-skill level progressing to more managerial at 7-skill level and beyond
- Career ladder documents well supported by survey data
  - STS and POI provide comprehensive coverage of work performed by career ladder
  - Review of some items warranted
- Job satisfaction indicators
  - Similar when compared to previous study across all TAFMS groups



# Questions?

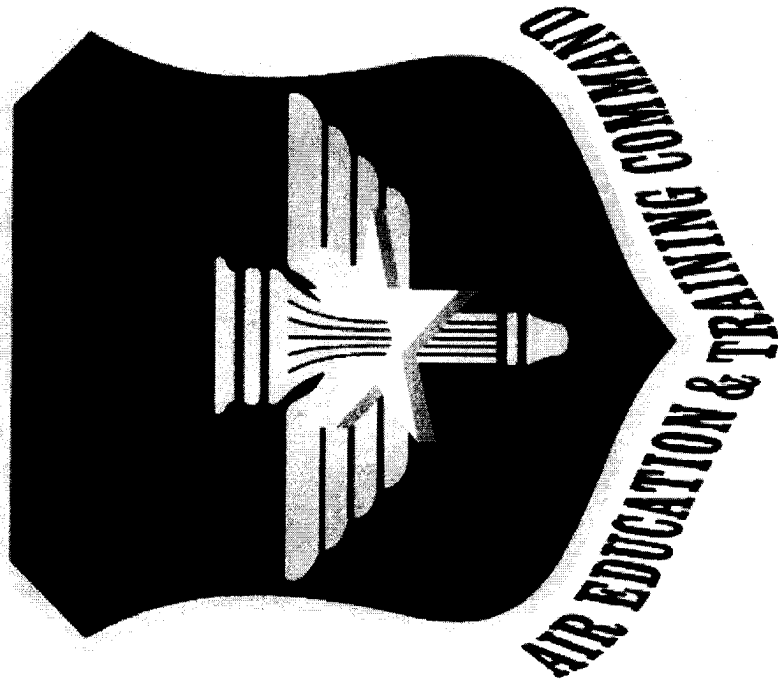
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E-Mail: [luis.berrios@randolph.af.mil](mailto:luis.berrios@randolph.af.mil)



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# Back-Up Slides



# Job Survey Background



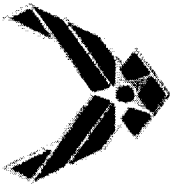
- Previous JI and OSR
  - JI: 4T0X1-Oct 98, Mr. Brosnan
  - OSR: 4T0X1-Sep 99, Capt Cain
  - Programming Support- Ms. Tilghman
- Issues from Last Post-Analysis Review
  - None



# Bases Visited during JI Development (# Interviewed)



- Sheppard AFB, TX (Tech School) (9) 31 Oct
- Lackland AFB, TX (4) 15 Nov
- Wright-Patterson AFB, OH (5) 29 Nov
- Travis AFB, CA (5) 13 Dec



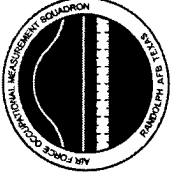
# Job Structure Glossary



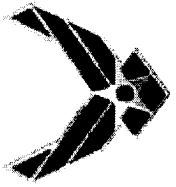
- **Job:** A group of similar *positions* where incumbents perform many of the same tasks and spend relatively the same amount of time performing these tasks
- **Cluster:** A series or group of related *jobs* which are distinguishable from each other on some variable (weapon system maintained, ratio of supervisory to technical tasks, etc.)
- **Independent Job:** A job that does not fall within any cluster
- **N:** Number in sample



# Career Ladder Progression



- “Typical” career ladder progression
  - **3-Skill-Level** apprentices perform a very technical job which include very few administrative/supervisory tasks
  - **5-Skill-Level** journeymen still primarily perform a technical job, but acquire a mix of administrative/supervisory tasks
  - **7-Skill-Level** managers, and above, primarily perform supervisory, managerial, and administrative tasks, with relatively few technical tasks
- “Atypical” career ladder progression
  - **7-Skill-Level** personnel are still spending a significant amount of their total job time performing technical duties, with relatively few administrative/supervisory tasks



# Training Document Analysis



- Tasks from job inventory are matched to items in the STS and POI
  - Match is usually conducted with technical school personnel
- Final product provides technical school with data indicating applicability of training documents to work performed in the field in terms of:
  - Percent members performing (PMP) from AETCI 36-2601
    - » 20% PMP for STS
    - » 30% PMP for POI
  - TE and TD ratings
- Listing of tasks not referenced to training document also provided
  - May indicate areas where training coverage is lacking





# Task Factor Definitions

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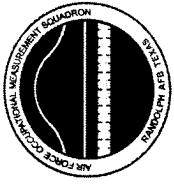


- **Training Emphasis (TE):** Task list completed by senior NCOs identifying those tasks that should be emphasized for structured training of first-term airmen
- **Task Difficulty (TD):** Task list completed by senior NCOs which rates the relative difficulty of each task to learn
- **Automated Training Indicators (ATI):** Indicators derived from comparing percent performing data with TE and TD data to assist in making training decisions





# Predictive Retention Indicators



- Military lifestyle
- Pay and allowances
- Bonus or special pay
- Retirement Benefits
- Military related education/Training opportunities
- Off-duty education and training opportunities
- Medical or dental care for active duty member
- Medical or dental care for family members
- Base housing
- Base services
- Childcare needs
- Spouse's career
- Civilian job opportunities
- Equal employment opportunities
- Number of PCS moves
- Location of present assignment
- Number/Duration of TDY's or deployments
- Work schedule
- Additional duties
- Job security
- Enlisted Evaluation System
- Promotion opportunities
- Training/Experience of unit personnel
- Unit manning
- Unit resources
- Unit readiness
- Recognition of efforts
- Esprit de corps/Morale
- Leadership of immediate supervisor
- Senior Air Force leadership

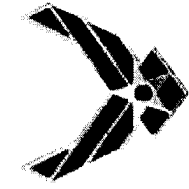


# Retention Dimensions First-Term Airmen (N=135)

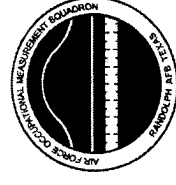


	Percent		
	Responding	Average	S.D.
<b>Planning to Reenlist (N=71)</b>			
Job security	69	2.49	.73
Military lifestyle	58	1.93	.81
Pay and allowances	54	2.26	.59
Off-duty education or training opportunities	51	2.69	.62
Medical/dental care for family members	49	2.71	.56
<b>Planning to Separate (N=64)</b>			
Military lifestyle	64	2.02	.68
Civilian job opportunities	56	2.42	.72
Pay and allowances	56	2.08	.76
Recognition of efforts	45	2.48	.72
Work schedule	41	2.46	.69

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence



# Retention Dimensions Second-Term Airmen (N=136)



	Percent		
	Responding	Average	S.D.
<b>Planning to Reenlist (N=89)</b>			
Job security	75	2.58	.73
Pay and allowances	69	2.21	.59
Off-duty education or training opportunities	62	2.51	.62
Retirement benefits	56	2.56	.70
Military lifestyle	56	2.12	.81
<b>Planning to Separate (N=47)</b>			
Civilian job opportunities	55	2.38	.72
Pay and allowances	51	2.46	.76
Esprit de corps/morale	49	2.87	.60
Recognition of efforts	49	2.61	.72
Military lifestyle	45	2.24	.68

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence



# Retention Dimensions Career Airmen (N=306)



	Percent Responding	Average	S.D.
<b>Planning to Reenlist (N=258)</b>			
Retirement benefits	78	2.64	.70
Job security	67	2.63	.73
Pay and allowances	55	2.42	.59
Medical/dental care for AD member	55	2.55	.61
Medical/dental care for family member	54	2.68	.56
<b>Planning to Separate (N=48)</b>			
Recognition of efforts	56	2.56	.72
Pay and allowances	56	2.30	.76
Leadership at unit level	54	2.58	.64
Esprit de corps/morale	50	2.62	.60
Enlisted evaluation system	46	2.59	.49

Scale: 1 = slight influence, 2 = moderate influence, 3 = strong influence