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WILLIAM BEAUMONT ARMY MEDICAL CENTER

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MEDICAL RESEARCH AND DEVELOPMENT SERVICE

ANNUAL PROGRESS REPORT FISCAL YEAR 1975

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Dermatology	Hematology	Nephrology															
Drug Efficacy Studies	Hepatitis																
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)																	
<p>This report serves to detail the progress, status, and funding of approved projects conducted under protocol by staff members, interns and residents at William Beaumont Army Medical Center. The varying projects as reported are classified according to the service or department to which the principal investigator belongs. Research conducted at WBAMC is categorized as either basic experimental medicine or trials and testing of clinical medicine procedures using the indigenous population for which this medical facility provides support.</p>																	

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REGISTRY

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4/B

Nuclear Medicine

Orthopedics

Pediatrics

Psychology

Respiratory Distress Syndrome

Trauma

Ob-Gyn

Otology

Pregnancy

Radioimmunoassay

Oncology

Pain

Prostodontics

RH Sensitization

Oral Surgery

Pathology

Psychiatry

Surgery

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MEDICAL RESEARCH & DEVELOPMENT SERVICE
WILLIAM DEAMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

REPORT NO. 10

30 June 1975

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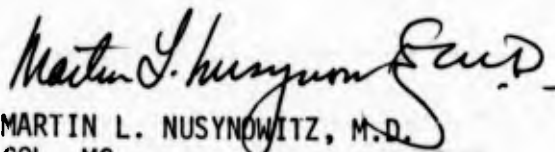
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CLINICAL INVESTIGATIONS (U)
ANNUAL PROGRESS REPORT

FOREWORD

The Medical Research and Development Service is entering into its 11th year of operation. Throughout this period the personnel utilizing this service have endeavored to conduct and utilize the best research principles and techniques available for the production of the most sophisticated and reliable results. Through technological advances in the state of the art, the development of more specific and reproducible instrumentation and the greater comprehension of existing research problems, the results of the efforts of the Medical Research and Development Service have far surpassed the goals or expectations assumed possible at the inception of the program.

The investigators for each work unit are identified in their respective reporting sections. Appreciation is expressed to the many nurses, technicians, corpsmen, and administrative personnel whose contributions are vital to the successful implementation of clinical research projects.



MARTIN L. NUSYNOWITZ, M.D.
COL, MC

Chief, Dept Medical Research & Development

TABLE OF CONTENTS

REPORT NO. 10	PAGE
Foreword.....	2
Table of Publications and Presentations FY75.....	10
Unit Summary Sheet.....	13
Detail Sheets:	
<u>Department of Dentistry</u>	
Work Unit No. 71/29 (FY71, 0) Holographic Nondestructive Testing of Metallic Dental Framework.....	16
Work Unit No. 74/24 (FY74, 0) Spectrophotometric Measurement of Natural Tooth Enamel and Dental Porcelain.....	17
Work Unit No. 74/51 (FY74,1) Cardiac Arrhythmias in Patients under Valium, Brevital and Nitrous Oxide + Oxygen Anesthesia for Tooth Extraction	18
Work Unit No. 75/34 (FY75,0) Serum Hexachlorophene Levels After Surgical Preparation of the Oral Cavity.....	19
<u>Department of Medical Research & Development</u>	
Work Unit No. 66/115 (FY66,0) Immunoassay for Antidiuretic Hormone.....	20
Work Unit No. 72/01 (FY72, 0) Gas Chromatography of Thyroid Hormones.....	21
Work Unit No. 74/11 (FY74,0) Further Characterization of the DNA of <u>Cryptococcus neoformans</u>	22
Work Unit No. 74/12 (FY74, 0) Elucidation of Events Occurring During Hypha Formation of Some <u>Cryptococcus neoformans</u> strains.....	23
Work Unit No. 75/27 (FY75, 0) Assessment of Mediation Factors Involved in Chemical Pain Responses.....	24
Work Unit No. 75/30 (FY75, 0) Isolation and Purification of Choline Phosphotransferase.	25

<u>Department of Medicine</u>	PAGE
Work Unit No. 69/338 (FY69, O) Regional Myocardial Blood Flow.....	26
Work Unit No. 71/16 (FY71,T) Pollen and Mold Survey of El Paso.....	27
Work Unit No. 73/24 (FY73,O) Antibody Detection in Hepatitis Type B.....	28
Work Unit No. 73/32 (FY73,C) ^{99m} Tc Polyphosphate in the Diagnosis of Bone Disease in Patients.....	29
Work Unit No. 74/14 (FY74,T) Effect of Potassium-Glucose-Insulin (KGI) Infusion on Left Ventricular Contractility After Experimental Myocardial Infarct in Dogs.....	30
Work Unit No. 74/17 (FY74,C) Blood Pool Imaging with Indium 111 Chloride.....	31
Work Unit No. 74/18 (FY74,O) Gallium-67 Citrate in the Diagnosis of Soft Tissue Tumors.	32
Work Unit No. 74/19 (FY74,C) Clinical Evaluation of Cisternography Utilizing Indium- 111 DIPA.....	33
Work Unit No. 74/29 (FY74,C) Small Airway Obstruction in Allergic Rhinitis.....	34
Work Unit No. 74/33 (FY74,O) Comparison of Clindamycin & Penicillin in the Treatment of Bacterial Lung Abscesses.....	35
Work Unit No. 74/34 (FY74,O) Mechanisms of <u>Brucella</u> Endotoxin Effects in Experimental Animals.....	36
Work Unit No. 74/44 (FY74,T) Induction of the Choline Phosphotransferase (CPT) Enzyme System by Corticosteroids in Patients with Adult Respira- tory Distress Syndrome.....	37

	PAGE
Work Unit No. 74/45 (FY74,T) Hypoxemia Associated with Chronic Hemodialysis.....	38
Work Unit No. 74/52 (FY74,0) Steroid Metabolism Oligospermia.....	39
Work Unit No. 74/50 (FY74,0) Chemotherapy of Cancer.....	40
Work Unit No. 75/07 (FY75,0) Normal Values of Serum T3 as Determined by Radioimmunoassay in Various Clinical Euthyroid States.....	41
Work Unit No. 75/10 (FY75,0) Incidence of Splenomegaly in the Patient with Primary Carcinoma of the Colon.....	42
Work Unit No. 75/11 (FY75,0) ¹²⁵ I Bone Densitometry in the Hyperthyroid State.....	43
Work Unit No. 75/12 (FY75,T) Assay for Bacteremia During Fiberoptic Bronchoscopy....	44
Work Unit No. 75/13 (FY75,0) Vascular Complications of Percutaneous Femoral Arterial Catheterization using System Heparinization. Prospective Evaluation with the Doppler Ultrasonic Velocity Detector..	45
Work Unit No. 75/16 (FY75, C) Hyperthyroidism and Chronic Lymphocytic Thyroiditis.....	46
Work Unit No. 75/20 (FY75, 0) Search for Bone Marrow Granulomas in Infectious Mononucleosis	47
Work Unit No. 75/23 (FY75,0) Diagnostic Adrenal Scanning with ¹³¹ I-Iodocholesterol...	48
Work Unit No. 75/24 (FY75,0) ^{99m} Tc-Sn-DPTA Chelate in the Detection of Vesicoureteral Reflux.....	49
Work Unit No. 75/28 (FY75,C) Spectinomycin in the Treatment of Gonorrhoea.....	50
Work Unit No. 75/32 (FY75,0) Parathyroid Gland Function in Hyperthyroidism.....	51

Department of Obstetrics-Gynecology

Work Unit No. 74/01 (FY74,0) Umbilical Cord Lactate, Pyruvate, Betahydroxy-Butyrate, pCO ₂ , pO ₂ , and pH Value in Normal and Abnormal Pregnancies	52
Work Unit No. 74/10 (FY74,0) Inhibition of the Vascular Effect of Estrogen with Actinomycin D.....	53
Work Unit No. 74/16 (FY74,C) Maternal and Fetal Plasma Levels of Steroid Hormones in Normal and Pathological Pregnancies During Labor.....	54
Work Unit No. 74/23 (FY74;0) Primate Lung Maturation.....	55
Work Unit No. 74/41 (FY74,C) A Comparison of 24-Hour Urinary Estrogen, Blood HPL and Plasma Estriol Determination in High Risk Pregnancies...	56
Work Unit No. 75/09 (FY75,0) Prostaglandin E-2 Efficacy Study for Termination of Pregnancy with Fetal Intrauterine Death, Missed Abortion, or Hydatidiform Mole.....	57
Work Unit No. 75/35 (FY74,0) Prenatal Instruction for Adolescents.....	58

Department of Pathology

Work Unit No. 70/111 (FY70,0) Molecular Etching.....	59
Work Unit No. 71/38 (FY71,0) Injected Marihuana: Effects of Cannabinol?.....	60

Department of Pediatrics

Work Unit No. 73/27 (FY73,T) Normal Values of ADH in Children.....	61
Work Unit No. 74/05 (FY74,C) Pacifiers, Thumbsuckers and Childhood Poisoning.....	62
Work Unit No. 74/22 (FY74,T) Effect of Blood in Amniotic Fluid on the Shake Test or L/S Ratio.....	63
Work Unit No. 74/26 (FY74,0) An Evaluation of Rh Sensitization of Rh. Negative Infants Born to Rh Positive Mothers.....	64

	PAGE
Work Unit No. 74/43 (FY74,0) An Evaluation of Choline Phosphotransferase (CPT) In Newborn Cord Blood, Amniotic Fluid and Pharyngeal Secretions.....	65
Work Unit No. 74/47 (FY74,0) A Single Blind Study to Determine the Effects of Cortico- steroids on Subsequent Developments of Infants Subjected to Severe Intrapartum Asphyxia.....	66
Work Unit No. 74/49 (FY74,0) Measuring the Number and Size of Coagulase Positive Staphylococcal Microcolonies on Infant Skin.....	67
Work Unit No. 75/01 (FY75,0) Indomethicin Effects on Labor and the Fetus.....	68
Work Unit No. 75/02 (FY75,0) Arterial-Venous Amino Acid Gradients in Rhesus Monkey Infants Receiving Total Intravenous Alimentation.....	69
Work Unit No. 75/03 (FY75,0) Effects of Bicarbonate Therapy and Hypoxia on CNS Hemorrhage in Cats.....	70
Work Unit No. 75/06 (FY75,0) Identification of Group B <u>Streptococcus</u> Antigen in Amniotic Fluid by Counterimmunoelectrophoresis.....	71
Work Unit No. 75/08 (FY75,1) Intrauterine Immunization with DPT and BCG.....	72
Work Unit No. 75/14 (FY75,0) Comparison of Betamethasone and SoluCortef in Fetal Pulmonary Maturity.....	73
Work Unit No. 75/26 (FY75,0) Complement Levels in Newborns with Elevated Cord Blood IgM	74
 <u>Department of Psychiatry</u>	
Work Unit No 74/38 (FY74,C) Evaluation of the Communication Skills of the Instructors and Advisors of the Sergeants Major Academy FBT.....	75

	PAGE
Work Unit No. 75/17 (FY75,0) Logoanalysis and Guided Imagery with Adolescents as Group Treatments for Existential Vacuum.....	76
Work Unit No. 75/29 (FY75,0) Assessment of Psychological Involvement in Patients Presenting with Back Problems.....	77
<u>Department of Surgery</u>	
Work Unit No. 71/07 (FY71, T) Use of Polylactic Acid Implants in Orthopaedic Surgery...	78
Work Unit No. 74/07 (FY74,T) Measurement of Red Cell Mass in Ambulatory and Nonambulatory Patients with Fractures.....	79
Work Unit No. 74/09 (FY74,C) Nerve Conduction Velocity Determinations in Traumatized Patients.....	80
Work Unit No. 74/21 (FY74,T) Determination of Viability of the Femoral Head in Elderly Patients with Hip Fractures Using Either Radioactive Fluoride or ^{99m} Tc Polyphosphate.....	81
Work Unit No. 74/31 (FY74,T) Osmolar and Free Water Clearance in the Management of the Acutely Injured.....	82
Work Unit No. 74/37 (FY74,T) Histologic Changes in the Inner Ear and Perilymphatic Fistulae in Guinea Pigs.....	83
Work Unit No. 75/05 (FY75,T) Contralateral Masking of Pure Tones with Narrow Band Noise	84
Work Unit No. 75/15 (FY75,0) Use of Proplast in Osteoplastic Surgery of the Frontal Sinus	85
Work Unit No. 75/19 (FY75,0) A Prospective Study of Serum Gastrin in Fifty Trauma Patients	86
Work Unit No. 75/21 (FY75,0) Effect of Peripheral Vasoconstriction on Thrombin Activation in Intravascular Clotting.....	87
Work Unit No. 75/31 (FY75,0) Measurement of Antibiotic Levels in the Ventricular Fluid of Patients with Indwelling Ventricular Catheters.....	88

Veterinary Medicine Service

Work Unit No. 74/42 (FY74,C)
Diethylstilbestrol in Utero and Vaginal Adenosis and
Adenocarcinoma..... 89

Work Unit No. 75/18 (FY75,0)
Abomasal Parasite Counts as an Index of Herd Health in
Mule Deer.....

Health & Environment Svc

Work Unit No. 74/48 (FY74,0)
Evaluation of Applicability of the Wet Bulb Globe
Temperature (WBGT) Index to Armored Vehicle Operators... 91

Index..... 92

TABLE OF PUBLICATIONS AND PRESENTATIONS
FY 1975

Department of Dentistry

Edmonds P, Porter W, Pick R: A Clinical Comparison of General Anesthesia of Neuroleptanalgesia on Ambulatory Oral Surgery Patients (Submitted for publication).

Department of Medical Research & Development

Benedetto AR: Accurate Determination of Generator Eluate Volume Submitted for publication.

Pick RO. Structure Activity Studies of a Series of Antimalarial Compounds in Five Different Test Systems (Presented to the American Chemical Society, SW Chapter Meeting, Houston, TX Dec 74).

Pick RO: Comparison of Three Commercial Kits for Determination of Triiodothyronine (T_3) by Radioassay (Presented at the Annual Meeting, Society of Nuclear Medicine, Philadelphia, 1975) Submitted for publication.

Department of Medicine

Grossman J: Occurrence of Arrhythmias in Hospitalized Asthmatics. J. Allergy & Clin Immunol, in press; Presented at the American Academy of Allergy Meeting, Feb 1975.

Grossman J: The Effect of Aging and Acute Illness on Delayed Hypersensitivity. J Allergy & Clin Immunol, Apr 1975.

Nusynowitz ML: Pulmonary Scintiphotography in Fat Embolism Syndrome. Exhibit for the Radiological Society of North America, Chicago, Ill, Dec 1974; SE Chapter Society of Nuclear Medicine, St Petersburg, Fla, Nov 1974.

Tannone LA, McCarty RJ: Slow Ventricular Tachycardia Documented by His Bundle. Texas Medicine 70:63, 1974.

Van Stone JC.: Hemodialysis of Chloroquine Poisoning. Amer Society of Nephrology, 1974 (Abstract).

Nusynowitz, ML, Benedetto AR. Simplified Determination of Radioactive Decay Factors. J Nuc Med Techn 2:99, 1974.

Nusynowitz ML. Radionuclide Imaging and Acute Abdominal Disorders. JAMA 229:1909, 1974.

Milstein D, Nusynowitz ML, Lull RJ: Radionuclide Diagnosis in Chest Disease Resulting from Trauma. Seminars in Nuclear Medicine 4:339, 1974.

- Van Stone J. The Effect of Rigid Control of Phosphorus and Calcium in Patients on Chronic Hemodialysis. Submitted for publication.
- Van Stone J. Hemodialysis in Chloroquine Poisoning. Submitted for publication.
- Nusynowitz ML, Benedetto A: Calculation of an Estimate of TBG Capacity. J Nucl Med, in press.
- Gluck FB, Nusynowitz ML, Plymate S: Hyperthyroidism in Chronic Lymphocytic Thyroiditis. New Eng J Med in press (Abstract in Clinical Research)
- McCartney W: The Value of the Carcinogenic Antigen (CEA) Assay as an Adjunct to the Liver Scan in the Detection of Hepatic Metastasis. JAMA in press.
- Nusynowitz ML: The Spectrum of the Hypoparathyroid States. Submitted for publication.
- Nusynowitz ML, Benedetto A: A Simplified Method for Determination of MTF for the Scintillation Camera. J Nucl Med, in press.
- Nusynowitz ML. Chapter 12, "Modulation Transfer Function" in Textbook for Nuclear Medicine Technology.
- Nusynowitz ML: Free Thyroxine Index. JAMA 232:1050, Jun 75.
- Plymate SR, Gluck FB, Nusynowitz ML: Prolactin Response to Water Loading in Hypothyroidism (Submitted for publication).
- Plymate SR: Endocrine Evaluation of the Testes (Submitted for publication).
- Nusynowitz ML, Strader WJ. Regulation of Gonadotropin Response in Testicular Feminization Syndrome. Amer J Med Sci, (in press).
- Putnam, J. Small Airway Obstruction in Allergic Rhinitis. J Allergy & Clin Immunol 55:49, 1975.

Dept OB-GYN

- Killam AP. The Ultrastructure of Human Decidua in Relation to Labor. (Submitted for publication).
- Killam AP, Dillard SH, Patton RC. Pregnancy Induced Hypertension Complicated by Acute Liver Disease and Disseminated Intravascular Coagulation: Five Case Reports. Amer J Ob-Gyn, in press.

Dept Pediatrics

Turbeville DF, Killam AP, et al: Nonimmunologic Hydrops Fetalis: Report of two Cases. Obst & Gynec 34:567, 1974.

Turbeville DF, Fearnow RG: Comparison of Oral Gratification Habits in Ingestors and Controls. (Submitted for publication).

Dept Surgery

Cobb CR, deVries HA, Urban RT, Luekens CA: Electrical Activity in Muscle Pain. Amer J Phys Med 54:80, 1975.

JNIT SUMMARY

OBJECTIVES

The Medical Research and Development Service of William Beaumont Army Medical Center was established 2 February 1965. The mission, as stated in OISG Reg 10-2, is to promote and coordinate clinical research within hospitals designated as teaching hospitals. With this mission, the Medical Research and Development Service supports in-house research projects by AMEDD staff members, residents, and interns, assisting in the formulation, preparation, and promulgation of research protocols and final research publications. The service furnishes experimental design and statistical and technical expertise, develops and carries out special laboratory procedures, and provides general support in terms of equipment, supplies, and animal resources when necessary. The creative and inspirational environment and technical knowledge available serve to stimulate the undertaking of basic and clinical medical and paramedical research at William Beaumont Army Medical Center by staff members, and interns and residents in training, as well as provide a basic instructional facility to elucidate the principles and conduct of research.

TECHNICAL APPROACH

The Medical Research and Development Service provides support for staff research projects under the guidelines of the Declaration of Helsinki, Clinical Investigation Program (AR 40-38), and the Use of Investigational Drugs in Humans and the Use of Schedule I Controlled Drug Substances (AR 40-7). Research is conducted under protocols approved by the Research Committee (WBAMC HR 70-4), the Human Use Committee (WBAMC HR 40-38) and the Radioisotope Committee (WBAMC HR 40-37) where applicable. In those research protocols utilizing laboratory animals, the investigators follow guidelines set forth in "Guide for Laboratory Animal Facilities and Care," published by the Committee on the Guide for Laboratory Animal Facilities and Care of the Institute of Laboratory Animal Resources, National Academy of Sciences-National Research Council, and to the criteria established by the American Association for Accreditation of Laboratory Animal Care.

MANPOWER

<u>Title</u>	<u>MOS</u>	<u>Auth</u>	<u>Assigned</u>	<u>Name</u>
Chief	03139	0-5	0-6	Nusynowitz, Martin L.,MC
Nuc Med Sci/ Admin Off	03308	0-3	0-3	Benedetto, Anthony R,MS
Biochemist/ Asst Chief	03309	0-3	0-3	Sass, Neil L, MS(PhD)
Med Lab Spec	92B20	E-5	--	-----
Phys Sci Tech	01311	GS-11	GS-11	Combs, Harold F
Microbiologist	00403	GS-11	GS-11	Erke, Keith H(PhD)
Chemist	01320	GS-9	---	-----
Med Lab Technl	00644	GS-11	GS-11	Banez, Rafael J
Med Lab tech	00645	GS-7	GS-5	Manna, Brigitta S
Med Lab tech	00645	GS-7	----	-----
Editorial Asst	01087	GS-7	GS-7	Casteel, Peggy J

FUNDING (Excluding Military Salaries)

EXPENDITURES	FY74	FY75
Personnel (Civilian, O&MA)	78867	90922
Minor Equipment and Consumable Supplies (O&MA)	15475	19338
Capital Equipment (OPA)	58293	59921
TOTAL	152635	170181

PROGRESS

The Medical Research and Development Service entered FY75 with 44 research protocols carried over from FY74 in an ongoing status. Thirty-two new protocols were added during the year for a total of 76 research projects. As of 30 Jun 75, 49 remain in an ongoing status, 12 were completed, and 15 were terminated short of completion. Twenty-nine papers have been published or accepted for publication, three papers are in final preparation stages prior to submission, and six papers have been presented or accepted for presentation prior to submission for publication.

Some selected publications are mentioned as examples of the diversification of the research efforts at William Beaumont Army Medical Center.

Gluck, et al (Hyperthyroidism in Chronic Lymphocytic Thyroiditis New Eng J Med, in press) found that there are two distinct and documented instances in which hyperthyroidism and chronic lymphocytic thyroiditis occur simultaneously. A group of clinically hyperthyroid patients has been defined in whom the radioactive iodine uptake level (RAIU) is low, whereas in classic cases the RAIU is elevated. Biopsy of the thyroid of these patients showed chronic lymphocytic thyroiditis without evidence of Graves' thyrotoxicosis. The hyperthyroidism was found to subside without surgical, medical, or radiation intervention, and is felt to be due to the release of thyroid hormone by the inflammatory thyroiditis.

Killam et al (Founders Award Winner of the Armed Forces District of the American College of Obstetrics and Gynecology) presented results on the "Ultrastructure of Human Decidua in Relation to Labor." Electron microscopical investigations were conducted on three cell types decidua obtained from women delivered by Caesarian section either prior to the onset of labor or following two hours of spontaneous labor. The purpose of this study was to determine morphologic differences in the cell types of the decidua as a result of labor. There was no histologic evidence of morphologic differences in the decidua from the women who were in labor compared to those women who had not started into labor. There was a decreased acid phosphatase level in the decidua of the women who had entered labor but this was not felt to be a good index of the integrity of the placental lysosomal membranes. There were no differences noted in the structure of smooth muscle cells of trophoblastic origin.

Grossman and Putnam ("Small Airway Obstruction in Allergic Rhinitis" J Allergy & Clin Immunol 55(1):49, 1975) related increased bronchial activity following treatment with methacholine to asthma in patients presenting with allergic rhinitis. Thirty-two patients with allergic rhinitis and ten normal volunteers were studied. Sixty-six percent of the patients with allergic rhinitis responded to methacholine by developing obstruction of the small airways. Since a large number of patients suffering from allergic rhinitis develop asthma at a later date, it is felt that testing with methacholine will serve to diagnose subclinical cases of asthma. These patients also possess a greater risk for the development of pulmonary disease and the use of this test may provide warning or prehistory baselines.

Bowen and Renfield (The Detection of Anti D in Rho(D) negative infants born of Rho(D) positive mothers, (Pediatric Res, in press) attempted to determine whether Rho(D) negative infants born of Rho(D) positive mothers are sensitized during gestation or parturition. Cord blood of 68 Rho(D) negative infants whose mothers were Rho(D) positive was collected and tested at parturition. Sixty-three of these were retested six to nine months later using the Coombs test and an automated antibody test. Rho(D) negative infants do not have detectible antibody at birth, but may develop this Anti D during the first few months post partum. Thus the Rho(D) antigen sensitizes at parturition rather than during gestation.

Nusynowitz (Free Thyroxine Index, JAMA 232(10):1050, 1975) pointed out that the serum concentration of total thyroxine (TT4) seldom reflects the physiologic status of the patient since T4 is found bound to a protein fraction. A change in the TBG concentration does not affect the FT4. The same protein binding changes produce an opposite effect on the triiodothyronine uptake test. Since $T3 \text{ uptake} \propto 1/TBP$ and $T4-TBP \propto TT4$ then $FT4 \propto (TT4)(T3 \text{ uptake})$. Thus, the product of TT4 and T3 uptake can be used as a representation of FT4. This FT4 index more accurately reflects hypo-, eu-, or hyperthyroidism than either component test (T3 uptake or TT4) alone, since the product of these indicates more marked deviation from the normal value.

Cobb et al (Electrical Activity in Muscle Pain, Amer J Phys Med 54(2):80, 1975) induced muscle pain in the wrist extensor and paravertebral muscle groups of seven normal subjects by injection of hypertonic saline. The time course of integrated muscle action potential was found to coincide with the time course of induced pain. Electromyogram tracings were made and clearly showed that even mild muscular spasm is accompanied by muscular hyperactivity which can be evaluated using EMG techniques.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Holographic Nondestructive Testing of Metallic Dental Framework

WORK UNIT NO: 71,29

PRINCIPAL INVESTIGATOR: COL R C Sproull, DC

ASSOCIATE INVESTIGATORS: CPT NL SASS, PhD

OBJECTIVES

To determine if holographic tests can be employed as a means of nondestructive determination of strain in prosthetic dental materials.

TECHNICAL APPROACH

Dental frameworks are secured to a rigid base and known forces are applied to various areas of the framework. Stress lines resulting from these forces are studied and photographed using both real time and double exposure photography.

MANPOWER: 0.25 Man yrs

FUNDING: Civ Sal

FY74 \$1720

FY75 \$2728

Equip, Supp

\$390

\$ 86

OPA

-

-

Total

\$2110

\$2815

PROGRESS

The ability to employ laser holographic interferometry as a means of obtaining data from irregularly shaped surfaces has not yet been perfected. Until this breakthrough occurs, this project will be deferred.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE Spectrophotometric Measurement of Natural Tooth Enamel and
Dental Porcelain

WORK UNIT NO: 74/24

PRINCIPAL INVESTIGATOR: LTC Thomas, DDS

ASSOCIATE INVESTIGATORS: COL R Sproull (Ret)

OBJECTIVES

To measure spectrophotometrically small color samples of porcelain chips and natural tooth structure.

TECHNICAL APPROACH

Measure 1000 teeth and establish spectrophotometric standard for dental porcelain.

MANPOWER:	0.03 Man yrs			
FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1720	\$390	-	\$2110
FY75	327	-	-	\$ 327

PROGRESS

Due to the shortage of time and lack of scheduling ability on the part of the principal investigator, no work has been done on this project. Work is anticipated to begin in FY76.

STATUS Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Cardiac Arrhythmias in Patients Under Valium, Brevital and Nitrous Oxide + Oxygen Anesthesia for Tooth Extraction

WORK UNIT NO 74/5 1

PRINCIPAL INVESTIGATOR: LTC R L Wilson, DDS

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the frequency with which cardiac arrhythmias occur in patients with clinically regular heart rhythms under VBN anesthesia for tooth extraction.

TECHNICAL APPROACH

The basic plan for the study will be to electrocardiographically monitor (Standard limb lead II) patients undergoing VBN anesthesia to tooth extraction in the Dental Clinic as outpatients. Sample EKG tracings will be run for each patient 5 minutes prior to the induction of anesthesia. During the procedure the oscilloscope screen will be constantly visually monitored. Arrhythmias will be traced from beginning to end.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$2728	\$209	-	\$2937

PROGRESS

The breakdown of the cardiac monitor system coupled with the lack of time the principal investigator was able to donate to this project, due to normal rotation schedules caused the oral surgery staff to determine that this project should be terminated.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Serum Hexachlorophine (HCP) Levels After Surgical Preparation
of the Oral Cavity

WORK UNIT NO: 75/3A

PRINCIPAL INVESTIGATOR: LTC R L Wilson, DDS

ASSOCIATE INVESTIGATORS: CPT N L Sass, MSC

OBJECTIVES

To quantitatively measure serum HCP levels following preparation of the oral mucous membranes for 3 minutes with a 3% HCP solution.

TECHNICAL APPROACH

HCP is routinely used in oral surgery under general anesthesia to prepare the mouth preoperatively. Serum samples by venipuncture will be taken on these patients immediately prior to and at intervals of 1/2, 1, 2, 4, and 8 hours postpreparation time. These samples will be quantitatively assayed for HCP levels and would reflect rates of absorption of HCP through the oral mucosa.

MANPOWER:	0.35 Man yrs			
FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$3820	-	-	\$3820

PROGRESS

Samples have been collected from eighteen patients and are currently being analyzed for HCP levels. Completion of this project with publication of a preliminary communication is expected to occur in Sept 75.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Immunoassay for Antidiuretic Hormone

WORK UNIT NO: 66/115

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS: CPT N L Sass, PhD

OBJECTIVES

To develop a radioimmunoassay for antidiuretic hormone.

TECHNICAL APPROACH

Antidiuretic hormone will be coupled onto a larger protein molecule and efforts will be made to develop antibody to this complex in rabbits. The antibody will be reacted with known amounts of radioactive antidiuretic hormone and unknown amounts of "cold" hormone. Measurement of amount of labelled hormone reacting gives a measure of the amount of unlabelled hormone present.

MANPOWER: 0.35 Man yrs

FUNDING: Civ Sal

FY74 \$3540

FY75 \$3820

Equip, Supp

\$ 775

\$847

OPA

-

-

Total

\$4315

\$4667

PROGRESS

Carbodiimide coupling of lysine vasopressin to thyroglobulin has resulted in antibody production. Cross reactivity with arginine vasopressin has not yet developed. At the present time 3 rabbits are being immunized with LVP conjugate and two with AVP conjugate.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Gas Chromatography of Thyroid Hormones

WORK UNIT NO: 72/01

PRINCIPAL INVESTIGATOR: CPT N L Sass, PhD

ASSOCIATE INVESTIGATORS: B. Manna, DAC

OBJECTIVES

To develop GLC methods for MIT, DIT, T3, T4

TECHNICAL APPROACH

Silylation reaction derivatives of amino acids will be prepared to facilitate detection by gas chromatographic techniques of separate iodoamino acids from serum.

MANPOWER: 0.35 Man yrs

<u>FUNDING:</u>	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$4140	\$ 775	-	\$4915
FY75	\$3820	\$ 1137	\$2945	\$7902

PROGRESS

Gas chromatography of the TMS and BSTFA derivatives of MIT and DIT has resulted in the detection of these two compounds at the 25 ng/ml level. Further work on more sensitive (5-10ng) detection is being conducted prior to the attempts at quantitating levels in human serum.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Further Characterization of the DNA of Cryptococcus neoformans.

WORK UNIT NO: 74/11

PRINCIPAL INVESTIGATOR: Keith Erke, PhD (DAC)

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The object of this study is to characterize the DNA isolated from C. neoformans with regard to purity, molecular weight and type, i.e., to determine the relative amounts of nuclear and mitochondrial DNA present.

TECHNICAL APPROACH

The purity of DNA isolated from C. neoformans will be determined by establishing ratios of U.V. absorption at 230, 260 and 280 nm and by assaying for protein, RNA, and heteropolysaccharide directly. Polyacrylamide gel electrophoresis, poly-l-lysine kieselguhr chromatography and hydroxylapatite columns will be used to further purify and/or assess the purity of the DNA preparations. The molecular weights of the DNA fragments will be established by determining sedimentation rates on sucrose gradients. Equilibrium density centrifugation will be carried out on CsCl gradients to determine the relative amounts of mitochondrial and nuclear DNA present.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civil Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$3540	\$ 755	\$18960	\$23,255
FY75	\$3820	\$ 434		\$ 4,254

PROGRESS

C. neoformans cells have been grown and harvested. The DNA has been extracted and quantitated. Sucrose gradients and hydroxyapatite columns are currently being set up. DNA has also been extracted from E. coli, to use as a control in density gradient centrifugation, chromatography and polyacrylamide gel electrophoresis.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Elucidation of Events Occurring During Hyphal Formation of Some Cryptococcus neoformans strains.

WORK UNIT NO: 74/12

PRINCIPAL INVESTIGATOR: Keith Erke, PhD (DAC)

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this study is to determine if structures resembling basidia and basidio-spores seen in two unusual hypha-forming strains of C. neoformans actually represent a perfect stage in this pathogenic yeast.

TECHNICAL APPROACH

The morphological development of the hyphae and related structures are being recorded with the photomicroscope. Attempts are being made to confirm the presumed sexual stage genetically. Auxotrophic mutants obtained by U.V. irradiation are being mated and recombinant types looked for among the resulting progeny.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$3540	\$ 755	\$1986	\$6281
FY75	\$3820	-	-	\$3820

PROGRESS

Four auxotrophic mutants representing both hypha-forming strains of C. neoformans and requiring either lysine, arginine, choline, or inositol were crossed in all possible combinations. Results of each mating experiment were determined by replica plating. In some experiments wild type colonies were recovered in large numbers. These results, however, were inconclusive since (1) no double mutants were recovered, and (2) the wild type colonies may have resulted from back-mutation. Experiments are in progress in which the matings are between double auxotrophic mutants, one requiring choline and pantothenate and the other arginine and thio-sulfate. Cultures derived from single basidiospores are presently being tested to determine their ability to sporulate, thereby, indicating these organisms are either homo- or heterothallic.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Assessment of Mediation Factors Involved in Chemical Pain Responses

WORK UNIT NO: 75/27

PRINCIPAL INVESTIGATOR: CPT N. Sass, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the endogenous chemical mediators for the production of a chemical pain response and delineate parameters of chemoreceptor foci involved in the formation of a chemical pain response.

TECHNICAL APPROACH

Various chemical irritants will be topically applied to test animal skin to elicit the formation of blisters. The fluid contained in these blisters will be withdrawn and analyzed using various instrumental and chromatographic techniques to determine:

- (1) Basic patterns of fluid contents withdrawn from blisters formed as a result of using varying classes of chemical irritant compounds.
- (2) Determine differences in these patterns compared to those produced by capsaicin (N-(4-hydroxy-3-methanybegyl)non-trans-6-eniamide) an irritant extracted from species of chili peppers which is known to induce resistance or immunity from further applications of chemical irritants.
- (3) Differential structures and/or affinities for chemoreceptor binding sites based on the structures or compositions of mediators found in the blister fluids.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
	\$3820	PROGRESS \$322	\$5407	\$9549

Small quantities of capsaicin have been isolated from red chili peppers in a semipurified form. Other chemical irritants are being and have been obtained. A search for suitable, sensitive, test animals is underway.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Isolation and Purification of Choline Phosphotransferase

WORK UNIT NO: 75/30

PRINCIPAL INVESTIGATOR: CPT N. Sass, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To develop a method for the isolation of choline phosphotransferase from lung tissue and correlate respiratory distress with the presence and specific activity of this enzyme.

TECHNICAL APPROACH

Basic standardized techniques will be carried out to isolate the microsomal and lysosomal fractions of lung tissue. These fractions will then be subjected to high pressure extrusion and various chromatographic and electrophoretic techniques necessary to obtain the enzyme in a purified state. The effects of steroids and various ions and possible cofactors upon the isolated enzyme will be assessed to determine possible means of prophylaxis in cases of respiratory distress.

MANPOWER: 0.35 Man yrs

FUNDING: Civ Sal
FY75 \$3820

Equip, Supp
\$1162

OPA
\$4055

Total
\$9036

PROGRESS

Initial isolation of CPT from beef lung has provided the enzyme in a semipurified state. This purification has resulted in an increase of enzyme specific activity of 7X.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Regional Myocardial Blood Flow

WORK UNIT NO: 69/338

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To devise a method for determination of regional changes in the blood supply to the myocardium.

TECHNICAL APPROACH

Selective catheterization of coronary arteries will be performed on anesthetized, well ventilated, mongrel dogs using preformed coronary catheters. After confirmation of the position of the catheter, ¹³³Xenon will be rapidly injected into the coronary artery. The animal's heart will be centered beneath a ten inch scintillation camera. The image produced by this camera will be photographed at appropriate intervals to produce both visualization of the coronary arterial tree and washout of the xenon.

MANPOWER: 0.03 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$1060	\$ 240	\$23,036	\$24,336
FY75	\$ 327	\$ 442	\$28,895	\$29,664

PROGRESS

Data has been obtained and methods of analysis are being worked out. Once accomplished, extensive data will be collected for determination of accuracy and precision of this method to ascertain abnormalities in regional myocardial blood flow. Once

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Pollen and Mold Survey of El Paso

WORK UNIT NO: 71/16

PRINCIPAL INVESTIGATOR: LTC John L Goiser, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To conduct a pollen survey of the El Paso area for two consecutive years. To determine the species of pollens present in the area. This will serve as a basis for allergic screening tests in the Allergy Clinic at William Beaumont Army Medical Center.

TECHNICAL APPROACH

Pollen surveys will be conducted three times a week using a 24-hour collection. The pollens thus collected will then be type classified according to species.

MANPOWER: 0.03 Man yrs

FUDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Due to mechanical failure the project on pollen survey has been terminated. Severe weather has blown off the hood twice and the motor has been repaired twice. Prior to terminal breakdown of equipment, sufficient data was accumulated for the Allergy Clinic to institute testing and treatment of a new mold strain indigenous to the El Paso area. Also the presence of weed pollens was demonstrated earlier in the growing season than originally expected and helped in the diagnosis of the patients suffering from allergies to these weeds. Tree pollen information was also obtained.

STATUS : Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Antibody Detection in Hepatitis Type B

WORK UNIT NO: 73/24

PRINCIPAL INVESTIGATOR: MAJ W McCartney, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To provide a simple radioimmunoassay kit for the assessment of antibody titers in patients with exposure to Hepatitis Type B.

TECHNICAL APPROACH

Available kit for determination of the presence of Hepatitis Type B antigen was to be converted to a kit for assay of the antibody.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal

FY74

\$210

FY75

\$327

Equip, Supp

-

-

OPA

-

-

Total

\$210

\$327

PROGRESS

Data is presently being accumulated. Satisfactory methods have been developed to determine antibody titers to Hepatitis type B by modification of Hepatitis antigen commercial kit. Data is being accumulated in patients with hepatitis and blood donors and is being compared with a newly developed commercial Hepatitis antibody kit.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: ^{99m}Tc Polyphosphate in the Diagnosis of Bone Disease in Patients

WORK UNIT NO: 73/32

PRINCIPAL INVESTIGATOR: COL M I. Nusynowitz, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the suitability and efficacy of ^{99m}Tc Stannous Polyphosphate as a skeletal imaging agent in benign and malignant disease.

TECHNICAL APPROACH

^{99m}Tc Polyphosphate has now been used by this institution for more than one year involving the administration of this agent to several hundred patients. Review of conditions amenable to study continues as does our continued evaluation for side effects of the agent (none of which have yet been found).

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$1300
FY75	\$327	\$171	-	\$ 498

PROGRESS

It appears that ^{99m}Tc Polyphosphate is a suitable agent for bone scanning. Several hundred case studies have been performed and in terms of lesion localization, target-background ratios, radiation dose, and technical performance factors, this is an acceptable radiopharmaceutical. A final report has been submitted to Nuclear Regulatory Commission and the Army Investigational Drug Review Board.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Effect of Potassium-Glucose-Insulin (KGI) Infusion on Left
Ventricular Contractility After Experimental Myocardial Infarct in Dogs

WORK UNIT NO: 74/14

PRINCIPAL INVESTIGATOR: LTC R J McCarty, M.D.

ASSOCIATE INVESTIGATORS: Dr. S. Glass and Dr. Foote

OBJECTIVES

To substantiate or disprove beneficial effect of Potassium-Glucose-Insulin solution on ventricular contractility following myocardial infarction by studying at least ten dogs.

TECHNICAL APPROACH

The production of infarcts in dogs followed by measurement of the effects of KGI solution on myocardial contractility will be done by measuring cardiac output, dp/dt, LVEDP and the LV ejection fraction as well as mean circumferential fiber shortening velocity.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

Terminated due to departure of ~~principal~~ ^{PROGRESS.} investigator.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Blood Pool Imaging with Indium 111 Chloride

WORK UNIT NO: 74/17

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To evaluate the suitability and efficacy of ¹¹¹Indium Chloride as a blood pool imaging agent.

TECHNICAL APPROACH

Intravenous Indium Chloride results in an Indium-transferrin bond. This results in a vascular imaging agent.

MANPOWER:	0.10 Man yrs			
FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$1091	-	-	\$1091

PROGRESS

Comparison of ¹¹¹Indium Chloride with ^{99m}Tc albumin shows the latter to be a superior agent in terms of its radiation characteristics and dosimetry. A report has been submitted to the Army Investigational Drug Review Board.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Gallium-67 Citrate in the Diagnosis of Soft Tissue Tumors

WORK UNIT NO: 74/18

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To evaluate ⁶⁷Gallium Citrate for use in the diagnosis of soft tissue tumors and inflammatory disease

TECHNICAL APPROACH

Patients with documented neoplasm or those highly suspected of having soft tissue neoplasm or occult abscesses are given intravenous injections of Gallium Citrate and subsequently scanned.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

To date, approximately 20 patients have been studied with no adverse reactions encountered. Scans have been of diagnostic quality. In view of this promising beginning, Gallium-67 Citrate will continue to undergo investigation.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Clinical Evaluation of Cisternography Utilizing Indium-111 DTPA

WORK UNIT NO: 74/19

PRINCIPAL INVESTIGATOR: COL M L Nusynowitz, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To evaluate ¹¹¹Indium DTPA as an agent for use in cisternography.

TECHNICAL APPROACH

¹¹¹Indium DTPA is instilled into the spinal subarachnoid space or into the cerebral ventricular or cisternal chambers. Scanning is performed at intervals following these injections and disappearance of activity is monitored with respect to time.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

To date approximately 20 patients have been examined without any incidence of aseptic meningitis or other adverse reaction. Studies have been of excellent diagnostic quality and of great clinical utility. The manufacturer has informed us that clinical trials have been completed and that a new drug application to FDA is pending.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Small Airway Obstruction in Allergic Rhinitis

WORK UNIT NO: 74/29

PRINCIPAL INVESTIGATOR: MAJ J. PUTNAM, MD

ASSOCIATE INVESTIGATORS: MAJ J Grossman, MD

OBJECTIVES

To study the effects of saline and methacholine inhalation in patients with allergic rhinitis using newer techniques such as a flow volume loop.
To assess the reactivity of small peripheral airways in this group of patients.

TECHNICAL APPROACH

Measure maximum mid-expiratory flow and maximum terminal flow in patients and controls before and after inhalation.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

As previously indicated in a preliminary study we retested four patients with seasonal hayfever when not in season. Three patients demonstrated a similar response to their earlier testing, that is, greater than 20% decrease in MMF and/or MTF. The fourth patient initially had a 30% decrease in MMF, but had normal studies when asymptomatic. Subsequently, four more patients were retested. All were on an antiallergenic regimen. A total of five of eight patients demonstrated a similar response to earlier testing. There was, however, no correlation between nasal symptoms, duration of antiallergenic regimen and demonstration of small airway reactivity.

STATUS : Completed. Results were published in the January 1975 issue of the Journal of Allergy and Clinical Immunology

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Comparison of Clindamycin & Penicillin in the Treatment of Bacterial Lung Abscesses

WORK UNIT NO: 74/33

PRINCIPAL INVESTIGATOR: MAJ E.J. Young, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To compare the efficacy of clindamycin vs high doses of penicillin in the treatment of bacterial lung abscesses in man. Included are such parameters as organisms(s) recovered, length of time on parenteral and oral antibiotics, complication rates and total cost of the two modes of therapy.

TECHNICAL APPROACH

All patients admitted to the Medical or Surgical Services of WBAMC with diagnosis of bacterial lung abscess are eligible for inclusion in this study. Patients assigned on alternating basis to each group (i.e., Clindamycin or Penicillin) with reasons for changing based only on (1) hypersensitivity to the drug, and (2) isolation of organism resistant to the drug.

MANPOWER: 0.03 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Since the last report, only 3 additional bacterial lung abscess cases have been studied. The protocol group now includes 3 patients treated with penicillin and 3 patients treated with clindamycin. Additional cases will be added before a final tabulation of the data is made.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Mechanisms of Brucella Endotoxin Effects in Experimental Animals

WORK UNIT NO: 74/34

PRINCIPAL INVESTIGATOR: MAJ E.J. Young, MD

ASSOCIATE INVESTIGATORS: Keith Erke, PhD (DAC)
William Tench, MD (Medical Student)

OBJECTIVES

To determine, using an experimental animal model, the role of brucella endotoxin in the pathogenesis of brucellosis.

TECHNICAL APPROACH

The isolation of endotoxin from B. melitensis will be conducted. Studies on lethality of this substance in mice, and studies of its pyrogenicity in rabbits, using an established animal model, will be done as well as studies on the role of sensitization to this antigen in the above reactions and the role, if any, of humoral and cellular antibodies.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$3340	\$755	-	\$4095
FY75	\$ 382	\$785	-	\$4605

PROGRESS

The biphasic fever response of rabbits to endotoxin is, in part, due to hypersensitivity. Natural sensitization occurs through endogenous flora. When the animal is exposed (injected) with an organism akin to that flora, such as Brucella, a monophasic fever response curve results. When the animal has been sensitized to this akin organism, a biphasic response results. The isolated fraction from B. melitensis satisfies the criteria for bacterial endotoxins, but appears to be weaker than normal enterobacterial endotoxins.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Induction of the Choline Phosphotransferase (CPT) Enzyme System
by Corticosteroids in Patients with Adult Respiratory Distress Syndrome

WORK UNIT NO: 74/44

PRINCIPAL INVESTIGATOR: MAJ J. Putnam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine whether venous blood or bronchial lavage fluids prove to be a valuable means of monitoring the level of choline phosphotransferase enzyme and to determine if this enzyme system is inducible by parenteral steroid therapy.

TECHNICAL APPROACH

Measurement of CPT levels in body fluids will be performed and comparisons of these results with clinical manifestations will be conducted.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal

FY74 \$1720

FY75 327

Equip, Supp
\$390

OPA

-

Total

\$2110

\$ 327

PROGRESS

We were never able to measure adequately CPT enzyme system from pulmonary lavage fluid, therefore, no further work could be done in the human. Difficulties in assessing CPT activity in pulmonary lavage fluids probably stem from the fact that the CPT fraction, being membrane bound, renders it inaccessible to lavage techniques and therefore unassayable.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Hypoxemia Associated with Chronic Hemodialysis

WORK UNIT NO: 74/45

PRINCIPAL INVESTIGATOR: MAJ J. Putnam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if chronic hemodialysis is associated with the induction of significant hypoxemia and the alveolar arterial oxygen gradient. Further objectives are to elucidate the cause of the constant hyperventilatory state noted in uremic patients during the interdialysis period.

TECHNICAL APPROACH

Hemodialysis patients will have routine spirometry done and arterial blood gases determined. The alveolar arterial oxygen difference will be measured.

MANPOWER: 0.03 Man yrs

FUDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

A total of six patients have now been studied with inconclusive results. There are no new patients on chronic hemodialysis at this institution at the present time. We would, however, like to pursue this line of investigation when more patients become available for evaluation.

STATUS : Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Steroid Metabolism in Oligospermia

WORK UNIT NO: 74/52

PRINCIPAL INVESTIGATOR: MAJ S R Plymate MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine whether or not there is a deficiency in testosterone production in oligospermia demonstrable by a reduced ratio in testosterone to 17-OH progesterone following HCG stimulation.

TECHNICAL APPROACH

Human chorionic gonadotropin has been given to ten oligospermic males with 17-hydroxy progesterone and testosterone measurements made on their plasma following administration of HCG. Five normal control patients are also to be done.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Samples have been obtained from patients diagnosed as suffering from oligospermia. These samples are currently being analyzed for their steroid metabolism metabolites.

STATUS :Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Chemotherapy of Cancer

WORK UNIT NO: 74/50

PRINCIPAL INVESTIGATOR: MAJ R.T. Weisberg, MD

ASSOCIATE INVESTIGATORS: MAJ R.S. Weinger, MD

OBJECTIVES

The affiliation of WBAMC Oncology and Hematology Svc with the other groups in the Western Cancer Group in conducting trials of chemotherapy in cancer will obtain the necessary understanding of the cancer process; determine the effective therapeutic approaches; and provide needed information to use in the care of patients with malignant diseases. The common objective of all investigators in the group is the conquest of human cancer, not by competition, but by unanimity of action.

TECHNICAL APPROACH

Each protocol used by the Western Cancer Group goes through a rigorous process of review, revision, and evaluation prior to becoming activated for group usage. The flow of protocols from author through specific disease committee, statistician, committee headquarters, studies management board, cancer investigational branch of the National Cancer Institute and the Cancer Investigational Branch of the National Cancer Institute is outlined on the WCSG new protocol flow wire diagram. Data collected by member institutions is reviewed and analyzed by the Study Analysis Center of the Western Cancer Group. There is also a full time group statistician whose function is to review study design and aid in analyzing data collected.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

This research is a part of the total Western Cancer Study Group Program, and, as such, cannot be evaluated on its own merit. The data is forwarded to the WCG for tabulation and analysis and, when such is computed, a final report will be submitted. At the close of this FY 77 patients have been admitted to study on various WCSG protocols.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Normal Values of Serum Triiodothyronine (T3) as Determined by Radioimmunoassay in Various Clinical Euthyroid States

WORK UNIT NO: 75/07

PRINCIPAL INVESTIGATOR: MAJ B. Mazat, MD

ASSOCIATE INVESTIGATORS: COL M Nusynowitz, MD; Jerome Waliszewski

OBJECTIVES

Determine normal values of T3 for: (a) Pregnancy during all three trimesters. (b) Females taking oral contraceptives. (c) Euthyroid Hashimoto's Disease. (d) Other thyroiditides

TECHNICAL APPROACH

Serum samples will be obtained from patients during 1st, 2nd, and 3d trimester of pregnancy; females on oral contraceptives for at least 3 months; euthyroid patients with Hashimoto's thyroiditis before treatment with thyroid hormone and after treatment with Synthroid; patients with thyroiditis (subacute). Clinical histories will be obtained and the clinical thyroid state will be determined. The serum samples obtained will be evaluated by radiobioassay. Determinations of the inclusion into the proposed categories will be from clinical diagnosis, clinically determined thyroid state and appropriate laboratory studies.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327

PROGRESS

All serum samples have been obtained and analyzed. Data is being tabulated and analyzed. It is anticipated that a paper will be submitted for publication shortly.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Incidence of Splenomegaly in Patients with Primary Carcinoma
of the Colon

WORK UNIT NO: 75/10

PRINCIPAL INVESTIGATOR: MAJ B. Mazat, MD

ASSOCIATE INVESTIGATORS: COL M L Nusynowitz, MD

OBJECTIVES

To determine the incidence of isolated splenomegaly as noted on radio-
colloid scanning of the liver and spleen in patients with carcinoma
of the colon.

TECHNICAL APPROACH

A retrospective review of the scans and medical histories of all patients
with carcinoma of the colon registered with the Tumor Board, WBAMC, from
1968-1974 is intended. Splenic size will be determined from the radiocolloid
scan by the method of Larson. Coincident liver abnormalities will be noted;
patients with evidence of significant liver pathology will be excluded.
Data obtained will be analyzed to determine the incidence of splenomegaly
in patients with carcinoma of the colon.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327

PROGRESS

Data is in the process of being collected and analyzed.

STATUS Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: ^{125}I Bone Densitometry in the Hyperthyroid State

WORK UNIT NO: 75/11

PRINCIPAL INVESTIGATOR: MAJ B Mazat, MD

ASSOCIATE INVESTIGATORS: COL M L Nusynowitz, MD, J Waliszewski (DAC)

OBJECTIVES

To determine the amount of calcium lost from bone matrix in the hyperthyroid state by ^{125}I photon absorption. Determine amount and rate of skeletal repair (increase in calcium content of bone) following treatment of hyperthyroidism.

TECHNICAL APPROACH

In vivo quantitation of bone mineral content by ^{125}I photon absorption will be performed in patients with hyperthyroidism. The radius, ulna, and/or os calcis will be used. Images will be recorded of the photons transmitted through the bones and surrounding soft tissue and be compared to adsorption in a water phantom. An adsorption index will be determined from the ratios of the photon and patient results. Laboratory studies of bone metabolism will be correlated with the photon adsorption data. Studies will be performed during the course of treatment with hyperthyroidism to ascertain both degree of bone involvement in untreated patients as it correlates with the severity of hyperthyroidism and to determine the rate of healing.

PROGRESS

Calibration studies have been prepared. Patient data is being collected for analysis.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Assay for Bacteremia During Fiberoptic Bronchoscopy

WORK UNIT NO: 75/12

PRINCIPAL INVESTIGATOR: MAJ J Putnam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if bacteremia, transient or sustained, occurs during or after the course of routine fiberoptic bronchoscopy.

TECHNICAL APPROACH

Routine blood samples were obtained during and following termination of fiberoptic bronchoscopy. These were cultured for aerobic and anaerobic organisms.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal

FY75

\$327

Equip, Supp

-

OPA

-

Total
\$327

#

PROGRESS

Some 15 patients were studied and showed no evidence of bacteremia; however, as we were performing our study a similar paper was reported in the American Review of Respiratory Disease by Kane, et al (Volume 111, 1975). the results were similar to our initial investigation and our study was therefore terminated.

STATUS : Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Vascular Complications of Percutaneous Femoral Arterial Catheterization
Using Systemic Heparinization-Prospective Evaluation with the Doppler
Ultrasonic Velocity Detector

WORK UNIT NO: 75/13

PRINCIPAL INVESTIGATOR: MAJ W C Foote, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To assess the incidence of vascular complications of a large number (<100) of patients undergoing percutaneous femoral arterial catheterization using systemic heparinization as evaluated by the Doppler Ultrasonic Velocity Detector.

TECHNICAL APPROACH

Pre and post-catheterization doppler evaluation of radial and posterior tibial pressures are being obtained in a series of patients undergoing percutaneous left heart catheterization after the administration of 5,000 units of heparin intravenously. The incidence of vascular complications including CUA, MI, femoral or distal arterial emboli or thrombi, bleeding, and dissection is being assessed. The data will be compared to a previous study wherein systemic anticoagulation was not employed.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

More than 70 patients have been studied to date with a 0.0% complication rate.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Hyperthyroidism and Chronic Lymphocytic Thyroiditis

WORK UNIT NO: 75/16

PRINCIPAL INVESTIGATOR: MAJ S.R. Plymate, MD

ASSOCIATE INVESTIGATORS: COL M L Nusynowitz, MD; MAJ F.B. Gluck, MD

OBJECTIVES

To determine if the association in the same patient of Hashimoto's Thyroiditis and Hyperthyroidism necessarily indicates the supervention of Graves' Disease on Hashimoto's Disease.

TECHNICAL APPROACH

Identification of patients with hyperthyroidism by clinical and serum hormone measurements and low radioactive iodine uptakes without either exogenous thyroid hormone ingestion or subacute thyroiditis will be performed as well as an evaluation of the histology of the thyroid gland from those patients who have had thyroid biopsies. Measurement of T3 uptake, T4 iodine, T3 by radioimmunoassay, ¹³¹I iodine uptakes, thyroglobulin hemagglutination titers, and long acting thyroid stimulation (LATS) levels, will be conducted.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

A paper entitled "Chronic Lymphocytic Thyroiditis and Hyperthyroidism with Low Radioactive Iodine Uptake" has been accepted by the New England Journal of Medicine. An abstract with the same title has been published in the Feb 75 issue of Clinical Research. A paper entitled "Hypercalemic Periodic Paralysis in Hashimoto's Thyroiditis" is in preparation.

STATUS : Completed

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Search for Bone Marrow Granulomas in Infectious Mononucleosis

WORK UNIT NO: 75/20

PRINCIPAL INVESTIGATOR: MAJ E J Young, MC

ASSOCIATE INVESTIGATORS: MAJ T. Brown, MC
Ms Lois Nance, DAC

OBJECTIVES

Previous reports have documented noncaseating granulomas in the bone marrows of patients suffering with infectious mononucleosis (IM). All such reports date from the period prior to serologic tests capable of testing for the presence of Epstein-Barr Virus (EBV) Material.

TECHNICAL APPROACH

The object of the study is to sample bone marrow from patients with IM and to document the presence of noncaseating granulomas. If granulomas are found, to stain the section with fluorescent-stained EBV antibodies to determine if the granulomas are reactions to the infecting agent.

MANPOWER: 0.01 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$1091	\$215	-	\$1307

PROGRESS

The start of this project has been delayed by the inability to procure Epstein-Barr virus antibody of suitable immunological activity. The search for this antibody is continuing and the project will begin upon obtaining EBV antibody.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Diagnostic Adrenal Scanning with ¹³¹I-Iodocholesterol

WORK UNIT NO: 75/23

PRINCIPAL INVESTIGATOR: MAJ McCartney, MC

ASSOCIATE INVESTIGATORS: MAJ F Gluck; COL M L Nusynowitz, MAJ B Mazat

OBJECTIVES

To determine the usefulness of ¹³¹I-Iodocholesterol in scanning of the adrenal glands.

TECHNICAL APPROACH

Patients with clinical evidence of adrenal disease will be thoroughly evaluated by an endocrinologist. Following intravenous administration of ¹³¹I-Iodocholesterol, adrenal scanning will be performed after 7-10 days. The material will be obtained from the Nuclear Pharmacy, University of Michigan. The WBAMC Radiopharmacist will perform sterility and pyrogenicity tests on the radiochemical to insure that radiopharmaceutical standards are met prior to injection. FD Form 1573 will be filed with the supplier prior to the use of the material in patients.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327

PROGRESS

Project was deferred pending receipt of an IND number. This has been obtained and we are now prepared to scan appropriate patients.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: $^{99m}\text{Tc-Sn-DTPA}$ Chelate in the Detection of Vesicoureteral Reflux

WORK UNIT NO: 75/24

PRINCIPAL INVESTIGATOR: MAJ McCartney, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine the usefulness of $^{99m}\text{Tc-Sn-DTPA}$ chelate as a renal imaging agent, and particularly in the demonstration of vesicoureteral reflux.

TECHNICAL APPROACH

Patients with known or suspected vesicoureteral reflux will be studied with $^{99m}\text{Tc-Sn-DTPA}$. The results obtained will be compared with clinical findings, laboratory tests, and roentgenographic studies. Commercially available radiopharmaceutical Sn-DTPA preparation kits will be employed. The kits will be supplied by Diagnostic Isotopes, Inc., 123 Pleasant Av, Upper Saddle River, NJ. These kits are supplied in sterilized and pyrogen-free form. Other suppliers will be sought only if their product appears to be far superior and only from those manufacturers who have filed an IND with the Food & Drug Admin. Several mCi of radiopertechetate are added to the Sn-DTPA kit and the manufacturers directions are explicitly followed for radiopharmaceutical preparation.

MANPOWER: 0.03 Man yrs

FUNDING Civ Sal
FY75 \$327

Equin, Supp

OPA

Total
\$327

PROGRESS

Several studies have been performed but we are limited in our potential patient population since we have not been allowed to study children below age 13. A reclama has been submitted to AIDRB requesting permission to study an appropriate population.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Spectinomycin in the Treatment of Gonorrhea

WORK UNIT NO: 75/28

PRINCIPAL INVESTIGATOR: MAJ L E Becker, MC

ASSOCIATE INVESTIGATORS: LTC C M Barnes, MD; CPT M Vigil, ANC

OBJECTIVES

To determine the cure rate of 2 gms of Spectinomycin, I.M. in the treatment of uncomplicated gonorrhea in the male.

TECHNICAL APPROACH

Smears and cultures will be obtained on initial and followup visits one week following treatment of the gonorrhea.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip,Supp

OPA

Total

-

-

\$327

PROGRESS

Between 15 Jan 75 and 24 Feb 75, 100 patients were treated with 2 gms of Spectinomycin, I.M. Only 17 patients returned as instructed in one week, one was positive and 16 were negative. Additional followup was secured at 30 and 90 day followup serology testing.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Parathyroid Gland Function in Hyperthyroidism

WORK UNIT NO: 75/32'

PRINCIPAL INVESTIGATOR: MAJ F B Gluck, MC

ASSOCIATE INVESTIGATORS: COL M L Nusynowitz, MD

OBJECTIVES

The purpose of the study is to determine parathyroid gland activity in hyperthyroid patients.

TECHNICAL APPROACH

After appropriate studies confirming hyperthyroidism, patients will undergo a 4-hour TRP and will have serum PTH and Ca levels determined. A 24-hour urine will also be collected for Ca and P determinations. A dietary history will be taken at this time to assess the state of calcium intake. Patients will be placed on Inderal, since the adrenergic system has been implicated in parathyroid secretion and the above tests will be repeated. They will be repeated once more when patients have achieved an euthyroid state. If the PTH is normal or elevated in the face of increased bone turnover, as estimated by alkaline phosphatase, 24-hour urine Ca, and urine hydroxyproline, and if these are reversible by B-adrenergic blockade, the hypothesis will be accepted.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327

PROGRESS

New project.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Umbilical Cord Lactate, Pyruvate, Betahydroxy Butyrate, pCO₂,
po₂, and pH Value in Normal and Abnormal Pregnancies

WORK UNIT NO: 74/01

PRINCIPAL INVESTIGATOR: COL A Kilham, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the effect of labor on normal pregnancies and pregnancies complicated with placental insufficiencies.

TECHNICAL APPROACH

Maternal amniotic fluid, venous, umbilical arterial and umbilical venous blood samples will be studied for the above levels. The results will be correlated with neonatal outcome and morbidity.

MANPOWER: .30 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY75	\$2728	\$2181	\$9985	\$12166

PROGRESS

Approximately one-half of the necessary specimens have been collected and analyzed. Preliminary report was given at the Mead Johnson Seminar on Perinatal Biology in August 1975. A trend between increased lactate and B-OH buyrate causing pathological pregnancy. More data is being collected.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Inhibition of the Vascular Effect of Estrogen with Actinomycin D

WORK UNIT NO: 74/10

PRINCIPAL INVESTIGATOR: COL A Killam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if the uterine vascular effect of estrogens involves the same mechanism as the uterine growth promoting effect in dogs.

TECHNICAL APPROACH

The increased uptake of amino acids will be blocked with Actinomycin D and uterine blood flow will be measured to see if the Actinomycin D also blocked the increase in uterine blood flow in response to a standard injection of estrogen.

MANPOWER:	0.03 Man yrs			
FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1060	\$240	-	\$1300
FY75	\$327	-	-	\$ 327

PROGRESS

Research still delayed pending receipt of electromagnetic flowmeter. Delivery expected shortly.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Maternal and Fetal Plasma Levels of Steroid Hormones in Normal and Pathological Pregnancies During Labor

WORK UNIT NO: 74/16

PRINCIPAL INVESTIGATOR: COL A Killam, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if a rapid assay of steroid hormones would be of clinical value if drawn at the onset of labor from maternal vein or fetal scalp.

TECHNICAL APPROACH

Women in labor with a high risk for fetal distress from placental insufficiency will be included as samples upon admission to Labor and Delivery. The radioimmunoassay for estriol is being modified by eliminating some steps and increasing the temperature during incubation.

MANPOWER: 0.03 Man yrs

FUNDING	Civ Sal	Equip, Supp	OPA	Total
FY74	\$2320	\$390	\$3769	\$6479
FY75	327	\$2545	-	\$2872

PROGRESS

Initial phase of maternal levels has been completed. One paper was presented at the Armed Forces District of the ACOG, Oct 74. An additional paper has been selected for the Oct 75 Armed Forces ACOG Meeting in addition to a comparison paper comparing HPL and 24-hour urine estriol levels. Two papers have been submitted for publication containing the substance of the talks presented, and one is in press. Normal values have been tabulated. This test has become an extremely valuable clinical test and is being used clinically because the research has proved its usefulness. With normal maternal levels, excellent fetal survival rates were evidenced. Only 2 cases of decreased maternal levels were seen with normal fetal survival. It is hypothesized that these low levels were due to enzymic deficiencies or insufficiencies in the placental steroid pathway.

STATUS: Initial basic research completed. Related clinical research is ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Primate Lung Maturation

WORK UNIT NO: 74/23

PRINCIPAL INVESTIGATOR: COL A Killam, MD

ASSOCIATE INVESTIGATORS: CPT N L Sass, PhD

OBJECTIVES

To find a way to accelerate fetal lung maturation and increased neonatal survival in prematures.

TECHNICAL APPROACH

Pregnant monkeys are given adrenal steroids and the level of enzymes involved in surfactant production are studied along with cortisol binding protein in the fetal lungs and the amniotic fluid lecithin/sphingomyelin ratio. Pregnant rabbits are also used.

MANPOWER: 0.35 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$3340	\$755	-	\$4095
FY75	\$3820	\$700	\$5426	\$4520

PROGRESS

Since last report, two monkeys were studied, but we have been unable to obtain any more monkeys because of a very poor breeding season at the Primate Colony. Subsequently, 8 rabbits have been studied and research will be continued utilizing pregnant rabbits until monkeys become available.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: A Comparison of 24-Hour Urinary Estrogen, Blood HPL and Plasma
Estriol Determination in High Risk Pregnancies

WORK UNIT NO: 74/41

PRINCIPAL INVESTIGATOR: COL A Killam, MD

ASSOCIATE INVESTIGATORS: MAJ D Turbeville, MD; COL J Sakakini, MD

OBJECTIVES

To determine which of 3 tests is the better indicator of fetal well
being.

TECHNICAL APPROACH

High risk obstetric patients will have all three tests performed serially.
The results of the tests will be compared with the condition of the fetus
at birth and the neonatal morbidity and mortality. The cost of the tests,
accuracy and rapidity of the drug will be considered to determine efficacy.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1720	\$ 390	-	\$4095
FY75	\$ 327	-	-	327

PROGRESS

A completed paper was accepted to the Armed Forces District, American
College of Obstetricians and Gynecologists Meeting, Oct 1975. HPL values
showed no statistical correlation, but clinical correlation of plasma
estriol values were good.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUFONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Prostaglandin E2, Efficacy Study for Termination of Pregnancy with
Fetal Intrauterine Death, Missed Abortion or Hydatidiform Mole

WORK UNIT NO: 75/09

PRINCIPAL INVESTIGATOR: COL W Scragg, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the effect of Prostaglandin E₂ in vaginal suppository form to effect evacuation of products of conception in cases of fetal death in utero, hydatidiform mole and missed abortion.

TECHNICAL APPROACH

Hematological, urine and blood chemistries are evaluated three times during the treatment as well as vital signs. Suppositories are utilized as frequently as every two hours if needed.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$ 327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

Nine patients have been treated with this therapy. Seven had fetal death in utero and two had hydatidiform moles. The response is very effective and has proven safe with the only complication being postpartum hemorrhage secondary to retained placenta in one patient which was resolved by D&C.

57

STATUS:

Ongoing. Data is being collected for presentation at the Armed Forces District Meeting of the American College of OB-GYN.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Prenatal Instruction for Adolescents

WORK UNIT NO: 75/35

PRINCIPAL INVESTIGATOR: 1LT P R Gates, ANC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The purpose of this study is to determine if prenatal instruction geared to the needs of pregnant adolescents results in a reduction in complications associated with pregnancy, labor, delivery and postpartum.

TECHNICAL APPROACH

Three groups of pregnant adolescents (ages 18 and under) will be studied. Members of each group will attend an OB Processing Class by the OB-GYN nurse clinician and receive routine clinic prenatal care, delivery and postpartum care at William Beaumont AMC. Assignment to each group will be voluntary on the part of the patients. Group A will receive no additional instruction unless obtained on their own initiative. Group B will have been invited to a series of Young Mother's Classes given by the OB-GYN nurse clinician, but chose not to take advantage of the classes. Group C will have attended the Young Mother's Class.

MANPOWER: 0.10

FUNDING: Civ Sal
FY75 \$1091

Equip, Supp

-

OPA

-

Total
\$1091

PROGRESS

New project.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Molecular Etching

WORK UNIT NO: 70/111

PRINCIPAL INVESTIGATOR: B.E.F. Reimann, DSc

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To obtain general information on the ultrastructure of biological membranes (in particular the erythrocyte membrane) and other cellular organelles in order to discern their structural changes under varying experimental (and disease related) conditions and, for this reason, to develop techniques by which the biological material can be investigated in the least altered state employing methods such as freeze drying and ionic etching in conjunction with electron microscopy.

TECHNICAL APPROACH

The final goal is to subject lyophilized embedded biological material to a bombardment with accelerated ions or atoms and to reveal the obtained structures by electron microscopy. Presently, the experiments are primarily concerned with osmotic pressures of erythrocytes employing freezing point depression osmometry and direct measurements with a Pfeffer's cell. A "critical point" drying chamber is to be constructed.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$200	\$200	-	\$400
FY75	\$1091	-	-	\$1091

PROGRESS

A publication describing the multiple specimen holder for critical point drying is in preparation. A considerable amount of time was spent on the design of the freeze drying unit, in particular the search for suitable, low temperature resistant plastics.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Injected Marihuana: Effects of Cannabinol?

WORK UNIT NO: 71/38

PRINCIPAL INVESTIGATOR: B.E.F. Reimann, DSc

ASSOCIATE INVESTIGATORS: Eleanor Duke, PhD

OBJECTIVES

To determine the possible toxic effect of intravenously injected cannabinoids in aqueous decoctions of marihuana.

TECHNICAL APPROACH

The project uses the Duquenois-Negm reaction modified by Lewin, thin layer chromatography and gas-liquid chromatography to determine amounts of cannabinoids in aqueous and other extractions.

MANPOWER:	0.03 Man yrs			
FUNDING:	Civ Sal	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1060	\$240	-	\$1300
FY75	327	-	-	327

PROGRESS

Experiments involved separation of various THC's by TLC of various extraction methods from plant material with the aim of obtaining a quantitative separation as a prerequisite for the subsequent quantitative assay.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Normal Values of ADH in Children

WORK UNIT NO: 73/27

PRINCIPAL INVESTIGATOR: MAJ M Barlow, Jr., MC

ASSOCIATE INVESTIGATORS: MAJ G D Loos, MC

OBJECTIVES

This study is designed to establish normal 24-hour urine values of ADH in children.

TECHNICAL APPROACH

Children, both in newborn and older age groups will be studied: Age height, weight, body surface area, 24-hour urine volume, osmolality, and creatinine, and serum osmolality will be recorded. ADH-measurement-radioimmunoassay to be done by Drs. Miller and Moses at VA Hospital, Irving Ave and Univ Pl, Syracuse, NY (No cost).

MANPOWER: 0.03

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY 74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Project is terminated due to departure of the investigators.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Pacifiers, Thumbsuckers and Childhood Poisoning

WORK UNIT NO: 74/05

PRINCIPAL INVESTIGATOR: MAJ David Turbeville

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To note if there was a high-risk group for ingesting poisons and if the high-risk could be identified by correlating ingestions with thumbsucking.

TECHNICAL APPROACH

The parents of every child with ingestion of poison admitted to the Emergency Room will be questioned about history of thumbsucking and the answers will be compared to a control group.

MANPOWER: 0.10

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$1091	-	-	\$1091

PROGRESS

Project has been completed and submitted for publication. No correlations were found between the children using pacifiers and those children treated at the Emergency Room for poison ingestion. However, of the 100 children (age 12 mos to 5 yrs) treated in the ER for poison ingestion, there was a high degree of statistical correlation with their oral gratification habits of thumb/finger sucking. This trend is probably clinically insignificant in the identification of high-risk children.

STATUS: Completed

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE:Effect of Blood in Amniotic Fluid on the Shake Test or L/S Ratio

WORK UNIT NO: 74/22

PRINCIPAL INVESTIGATOR: MAJ David Turbeville, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To see what effect blood has on the shake test or L/S ratio.

TECHNICAL APPROACH

Take an amniotic fluid sample with a low L/S ratio and add quantitative amounts of blood and see what effects are exhibited on the results of the L/S ratio or the shake test.

MANPOWER: 0.10 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$1091	-	-	\$1091

PROGRESS

Terminated due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: An Evaluation of Rh Sensitization of Rh Negative Infants Born to Rh Positive Mothers

WORK UNIT NO: 74/26

PRINCIPAL INVESTIGATOR: MAJ F Bowen, MD

ASSOCIATE INVESTIGATORS: MAJ D Turbeville, MD; Mr Lionel Pleasant (DAC)

OBJECTIVES

To determine if Rh-negative infants born of Rh-positive mothers are sensitized to Rh-positive RBC at birth rather than during gestation; to administer and test efficacy of RhoGam in preventing Rh sensitization in infants if part one results are positive.

TECHNICAL APPROACH

Paired blood samples (cord blood) and samples taken between one month and 6 months will be tested for anti-D by automated techniques. RhoGam will be administered to Rh-negative female infants born to Rh-positive mothers and blood will be serially sampled for analysis of anti-D by automated techniques.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$2728	\$113	-	\$2841

PROGRESS

This study showed that infants can respond to Rho(D) positive erythrocytes with the formation of Rho(D) antibodies. With further experimentation it is hoped that the Rho(D) human immune globulin could be used in immunoprophylaxis of Rho(D) negative infants whose mothers are Rho(D) positive.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: An Evaluation of Choline Phosphotransferase (CPT) in Newborn Cord Blood, Amniotic Fluid and Pharyngeal Secretions

WORK UNIT NO: 74/43

PRINCIPAL INVESTIGATOR: MAJ F, Bowen, MD

ASSOCIATE INVESTIGATORS: CPT N L Sass, PhD

OBJECTIVES

To measure choline phosphotransferase in cord blood, amniotic fluid and pharyngeal secretions and compare measurements to the clinical presentation of Hyaline Membrane Disease.

TECHNICAL APPROACH

Collect amniotic fluid from routine amniocentesis.
Collect cord blood and pharyngeal secretions from infant at delivery.
Collect lung tissue from autopsy and primates to standardize technique.

MANPOWER: 0.35 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$3340	\$755	-	\$4095
FY75	\$3820	\$223	\$7605	\$11648

PROGRESS

Radioactive substrates and lung tissue to standardize technique have been obtained. Process for enzyme identification completed. Eight samples tabulated. Papers in preparation describing results and technique. The initial results show increased specific activity of semi-purified enzymes upon administration of normal steroid therapy.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: A Single Blind Study to Determine the Effects of Corticosteroids
on Subsequent Developments of Infants Subjected to Severe Intrapartum

Asphyxia
WORK UNIT NO: 74/47

PRINCIPAL INVESTIGATOR: MAJ F. Bowen, MD

ASSOCIATE INVESTIGATORS: MAJ D.F. Turbeville MD; CPT R.E. Heath Jr.; MD

OBJECTIVES

To assess the effect of steroids on subsequent development in asphyxiated infants as measured by the Bayley Infant Developmental Test.

TECHNICAL APPROACH

Single blind design: Dr Grant, who will administer the Bayley test will not know the history of the patients he tests with regard to presence of asphyxia or treated or not treated with steroids.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1060	\$240	-	\$1300

PROGRESS

Eight infants were entered into study. Testing results were not obtained due to the departure of the psychological investigator. Additional support has been obtained from the Psychology Svc, WBAMC, and the project will be resumed with the addition of new cases.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Measuring the Number and Size of Coagulase Positive Staphylococcal Microcolonies on Infant Skin

WORK UNIT NO: 74/49

PRINCIPAL INVESTIGATOR: LTC Joseph Brown, M.D.

ASSOCIATE INVESTIGATORS: MAJ F Bowen, MD; MAJ L Cheldelin, MD

OBJECTIVES

To determine rate of colonization of staphylococci on newborn skin. To determine, on colonized infants, the number of staphylococcal microcolonies per square cm. To obtain an estimate of the size of microcolonies. To determine if colonization, number of colonies and colony size relates to eventual staphylococcal disease.

TECHNICAL APPROACH

All infants born between 0700 and 1600 will receive direct agar contact culture to skin in groin area. Simultaneously an adjacent area will be washed with broth and colony counts obtained of wash fluid. Infants entered into the study will be cultured the day of admission and every day subsequently for four days and at time of routine followup two weeks after discharge.

MANPOWER: 0.25 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$1060	\$245	-	\$1305
FY75	\$2728	\$1017	-	\$3745

PROGRESS

Using the direct agar contact technique, colonization rates of newborn infants in the William Beaumont Army Medical Center were obtained. The method proved to be a sensitive indicator of colonization. Quantitative data were easily obtained by the agar contact method. High colony counts indicated high risk for subsequent staphylococcal diaper dermatitis. This material was reported to the Annual Meeting, American Society of Microbiology, 2 May 1975 (Abstracts, Annual Meeting, American Society of Microbiology, 1975, Abstract No. C122)

Emphasis in the next phase of the study will be on colony size of skin organisms using the combined agar-contact-wash-scrub technique. Work should begin in early June 1975.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Indomethicin Effects on Labor and the Fetus

WORK UNIT NO: 75/01

PRINCIPAL INVESTIGATOR: CPT D. Turbeville, MD

ASSOCIATE INVESTIGATORS: COL J Sakakini, MC; COL A Killam, MC

OBJECTIVES

To see if Indomethicin and its derivatives will alter the artificial onset of premature labor in primates. To see if Indomethicin and its derivatives will alter pulmonary maturity and amniotic fluid prostaglandin levels of the primate fetus.

TECHNICAL APPROACH

Pregnant female monkeys will be given 100 mg Indomethicin by feeding tube daily starting at 80% gestation. Four of these will receive the drug until 105% gestation. Each week these 4 will have amniocentesis performed for L/S ratio, CPT level and prostaglandin F2 levels. At 105% gestation the fetus will be delivered by C section. Amniotic fluid and uterine vein blood samples will be collected for prostaglandin F2 analysis and decidua for electron microscopic studies. The remaining 6 monkeys will have a portion of the decidua and the uterine wall ligated on the day the Indomethicin treatment is begun at 80% of gestation. Amniocentesis will be done at the time of their surgery and repeated 1 week later. Two weeks following the original surgery the fetus will be delivered by C section. Amniotic fluid, uterine vein blood and decidua will be obtained and tested as above. Six control monkeys will be used.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

PROGRESS

Equip,Supp

OPA

Total
\$327

Lack of monkey support, no progress to date.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER,
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Arterial-Venous Amino Acid Gradients in Rhesus Monkey Infants
Receiving Total Intravenous Alimentation

WORK UNIT NO: 75/02

PRINCIPAL INVESTIGATOR: MAJ F Bowen, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

The study is designed to study the A-V gradients of the various amino acids across the brain in infant monkeys receiving intravenous amino acids.

TECHNICAL APPROACH

Infant rhesus monkeys (maintained in Armstrong heaters) will be studied from Day 2 to Day 5 postpartum. Forty-eight hour IV infusions through the lateral jugular vein will be performed using 10-15% dextrose or that amount necessary to maintain the blood glucose between 80-120 mg%. The infusate will contain 2 gms/kg of amino acid hydrolysate (Freeamine) and will be run at 100 cc/kg per day. Blood Glucose, pH, urine output, specific gravity, urine glucose and protein will be measured daily. Forty-eight hours after infusion, 5 cc of blood will be aspirated from the jugular vein. This will be sent out for amino acid analysis. On Day 5 the animal will be sacrificed and autopsied.

MANPOWER: 0.10 Man yrs

FUNDING: Civ Sal
FY75 \$1091

Equip, Supp
\$637

OPA

Total
\$1729

PROGRESS

Poor breeding season necessitated postponement until Spring 1976.
Armstrong warmer acquired.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Effects of Bicarbonate Therapy and Hypoxia on CNS Hemorrhage in
Cats

WORK UNIT NO: 75/03

PRINCIPAL INVESTIGATOR: MAJ D Turbeville, MD

ASSOCIATE INVESTIGATORS: COL A Killam, MD; MAJ F Bowen, MD

OBJECTIVES

To compare differences between hypoxia and sodium bicarbonate therapy on the incidence of CNS bleeding in cats.

TECHNICAL APPROACH

Four groups of cats were treated with either hypoxia and bicarbonate therapy, bicarbonate therapy, or nothing in comparing CNS hemorrhages.

MANPOWER: 0.25 Man Yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$2728	\$463	-	\$1729

Phase II. Studies will be conducted to determine and account for all factors involved in the elevation of serum osmolality as a result of bicarbonate therapy.

PROGRESS

Bicarbonate used in the treatment of hypoxia was found to cause CNS hemorrhage as well as affecting normal serum osmolality, sodium concentration, and pO_2 and pCO_2 while CNS hemorrhage was not a direct result of the hypoxia state. One paper has been submitted for publication on Phase I.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Identification of Group B Streptococcal Antigen (GB-SA) in
in Amniotic Fluid by Counterimmunoelectrophoresis (CIE)

WORK UNIT NO: 75/06

PRINCIPAL INVESTIGATOR: CPT R E Heath Jr, MD

ASSOCIATE INVESTIGATORS: LTC J Brown III, MD

OBJECTIVES

To determine if the CIE method of antigen detection can be used as a reliable method for identifying GB-SA in amniotic fluid at the time of delivery. To determine if detection by this method can be correlated with colonization and disease in the neonate.

TECHNICAL APPROACH

Routine vaginal cultures for GROUP B strep will be taken at 30 and 36 weeks' gestation. All infants will have umbilical, skin, throat, and gastric aspirate cultures taken upon arrival in the nursery. Amniotic fluid samples will be obtained from all diagnostic amniocenteses along with a routine vaginal culture. These will be subjected to CIE for GB-SA by the method of Levin, and results correlated with reference to positive vaginal cultures, positive infant cultures, positive infant gastric aspirate, and incidence of clinical disease in the neonate.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

Currently three CIE specimens have been processed utilizing existing CIE equipment. Further data is being collected.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Intrauterine Immunization with DPT and BCG

WORK UNIT NO: 75/08

PRINCIPAL INVESTIGATOR: MAJ D. Turbeville, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To study the effects of intrauterine immunization on the ability of newborn rabbits to fight infection.

TECHNICAL APPROACH

Pregnant rabbits at 95% gestation will undergo hysterectomy. One-half of the fetuses removed will be injected with BCG and DPT. The other animals ("nonimmunized") will receive saline. These animals will be divided into four groups. All animals will be given E. coli (100,000 cells IP). One group of each treatment, those "immunized" with BCG and DPT, and those receiving saline will receive Kanamycin, 15 mg/kg IM. The number of deaths and hours of survival will be recorded to determine whether or not intrauterine immunization has a significant effect on survival time.

PROGRESS

Project cancelled due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Comparison of Betamethasone and SoluCortef in Fetal Pulmonary Maturity

WORK UNIT NO: 75/14

PRINCIPAL INVESTIGATOR: MAJ R Heath, MC; COL J Sakakini, Jr., MC

ASSOCIATE INVESTIGATORS: COL A P Killam, MC; MAJ F Bowen, MC.

OBJECTIVES

To compare the speed and efficacy of betamethasone and SoluCortef in fetal pulmonary maturity in humans and in rabbits.

TECHNICAL APPROACH

Fetal rabbits at a defined time in gestation, are given SoluCortef and betamethasone and at varying hours later, the animals are sacrificed, with comparison of lung surfactant levels in an effort to compare the efficacy of betamethasone and SoluCortef in maturing fetal lungs.

MANPOWER: 0.25 Man yrs

FUNDING: Civ Sal
FY75 \$2728

Equip, Supp
-

OPA
-

Total
\$2728

PROGRESS

The project is approximately one fourth finished with some samples being obtained. No analysis has been performed at this time.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Complement Levels in Newborns with Elevated Cord Blood Immunoglobulin M (IgM)

WORK UNIT NO: 75/26

PRINCIPAL INVESTIGATOR: MAJ Frank Bowen, MC

ASSOCIATE INVESTIGATORS: MAJ D Turbeville, MC; MAJ R Heath, MC.

OBJECTIVES

To document complement levels in newborns who are born with elevated cord blood immunoglobulin levels.

TECHNICAL APPROACH

All newborns will, at birth, have cord IgM levels run. If the cord IgM level is elevated beyond normal, complement levels will also be drawn.

MANPOWER: 0.10 Man yrs

FUNDING: Civ Sal
FY75 \$1091

Equip, Supp
\$215

OPA
-

Total
\$1307

PROGRESS

Project has not yet been started, but hopefully will begin within the next month.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Evaluation of the Communication Skills of the Instructors and
Advisors of the U.S. Army Sergeants Major Academy, FBT

WORK UNIT NO: 74/38

PRINCIPAL INVESTIGATOR: CPT Laskow, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To establish a program to maximize and/or improve the communication skills of the instructors (Faculty Group Members) and advisors (Faculty Advisors) of the Sergeants Major Academy, Ft Bliss, TX.

TECHNICAL APPROACH

A collection of the data on the communication skills of the instructor and advisor populations will be conducted. A program will be instituted over a brief period of time to maximize and/or improve these skills. A collection of data again post training will occur. All data then will be subjected to statistical analysis.

MANPOWER: 0.10 Man yrs

FUNDING:	Civ Sal	Equip,Supp	OPA	Total
FY74	\$420	-	-	\$420
FY75	\$1091	\$ 42	-	\$1133

PROGRESS

The collection of the pre and post program data has been completed and a program package has already been instituted for the Faculty Advisors. This particular package consisted of 9-week training course for the advisors of the Academy. The content of the program focused on those ingredients deemed essential for effective communication and therefore effective in counseling by the Faculty Advisors. The program was submitted and approved by the Commandant of the Academy. Statistical analyses were conducted on the data received for this particular program. At this time pre-program data has been completed and received for a facilitation communication skills program for Faculty Group Members at the Academy. A 21-hour program was approved and instituted for this particular group and was approved by the Commandant. The post-program data has been received and is in the process of analysis.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Logoanalysis and Guided Imagery with Adolescents as Group
Treatments for Existential Vacuum

WORK UNIT NO: 75/17

PRINCIPAL INVESTIGATOR: CPT A. Stropko, MS

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To evaluate the use of two group guidance procedures (logoanalysis and guided imagery) in an adolescent population. Hypotheses are that the group guidance procedures will decrease boredom, decrease a neurotic trend and increase positive self-concept.

TECHNICAL APPROACH

Random assignment of 39 subjects to 7 week Logoanalysis, Guided Imagery and Control treatments - Administration of Purpose in Life Test, Tennessee Self-Concept Scale, Neuroticism Scale Questionnaire and Daily Activity Diary will be conducted as pre-, post-, and follow-up measures. Statistical analysis of data will follow.

MANPOWER: 0.10 Man yrs

FUNDING: Civ Sal
FY75 \$1091

Equip, Supp
\$108

OPA
-

Total
\$1199

PROGRESS

Both the group guidance treatments were conducted. Subjects screened and participating in the study were:

Logoanalysis

8 adolescents
3 junior enlisted wives
2 adolescents from Alivioni Youth Home

Guided Imagery

8 adolescents
3 junior enlisted wives
2 adolescents from Alivioni Youth Home

Control

8 adolescents
3 jr enlisted wives
2 adolescents from Alivioni Youth Home

A total of 9 separate guidance groups were conducted during the evaluation period to accommodate the above 9 groups. Collection of and evaluation of data is pending completion. Post-test follow-up data is presently being collected. Study has been accepted for presentation before Div. 32 of the American Psychological Association National Convention in Chicago in September 75.

STATUS: Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Assessment of Psychological Involvement in Patients Presenting with Back Problems.

WORK UNIT NO: 75/29

PRINCIPAL INVESTIGATOR: CPT F H Rath, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To improve psychological assessment procedures using the MMPI with patients presenting with low back problems and better define those MMPI profiles reflecting premorbid personality dispositions which contraindicate medical/surgical intervention of low back pain syndromes.

TECHNICAL APPROACH

All outpatients in the orthopedic clinic presenting with low back pain which meet the criteria will be requested by the attending physician to complete the MMPI, until a sample size of 500 completed MMPI profiles are obtained. This should take approximately 12 months (the present rate of such patients is estimated at 30-50 per month). All inpatients on orthopedic and neurosurgical wards scheduled for either conservative treatment of low back problems or surgery (spinal fusion or dissection) will be administered the MMPI.

MANPOWER: 0.10

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$1091	-	-	\$1091

PROGRESS

New project. Test kits have been ordered and project is underway.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Use of Polylactic Acid Implants in Orthopaedic Surgery

WORK UNIT NO: 71/07

PRINCIPAL INVESTIGATOR: COL C A Luekens, Jr. MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To learn if synthetic, biodegradable materials can advantageously be used as implants to prevent tendon adhesions, or to provide bony fixation.

TECHNICAL APPROACH

To use polylactic or polyglycolic acid in forms such as sheets or bony fixation devices to provide the necessary service for several weeks and then have the implant biograded away. This would then allow for complete normal function, remodeling, strengthening of the affected parts and eliminate the need for removal of the implant.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>TOTAL</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Terminated due to departure of principal investigator.

STATUS : Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Measurement of Red Cell Mass in Ambulatory and Nonambulatory
Patients with Fractures

WORK UNIT NO: 74/07

PRINCIPAL INVESTIGATOR: COL C A Luekens, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine if there is a "stress anemia" in patients who have suffered trauma and are kept at bedrest.

TECHNICAL APPROACH

Blood volume measurements are to be done by radioactive tracers in patients who have suffered fractures, a group of ambulatory patients will be compared with nonambulatory patients as a control.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Terminated due to departure of principal investigator

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Nerve Conduction Velocity Determinations in Traumatized Patients

WORK UNIT NO: 74/09

PRINCIPAL INVESTIGATOR: LTC Raymond Bagg, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

Study reaction to injury of traumatized peripheral nerves with special emphasis on the effect of the region of trauma may have on conduction velocity of clinically intact nerves.

TECHNICAL APPROACH

Nerve conduction studies performed on available peripheral nerves of traumatized patients early following injury and periodically thereafter when original velocities are abnormal. Patients admitted to the WBAMC Trauma Unit will be main source of clinical material.

MANPOWER: .03 Man-yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	\$4317	\$4527
FY75	\$327	-	-	\$ 327

PROGRESS

Seven normal subjects had induced muscle pain in the wrist extensor and paravertebral muscle groups by injection of hypertonic saline. The time course of integrated muscle action potential was found to coincide with the time course of induced pain. Electromyogram tracings were made and clearly showed that even mild muscular spasm is accompanied by muscular hyperactivity which can be evaluated using EMG techniques.

STATUS : Completed

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Determination of Viability of the Femoral Head in Elderly Patients
with Hip Fractures Using Either Radioactive Fluoride or 99m-Tc
Polyphosphate
WORK UNIT NO: 74/21

PRINCIPAL INVESTIGATOR: COL C A Luekens MD

ASSOCIATE INVESTIGATORS: MAJ Hopkins, MD

OBJECTIVES

To determine how early avascular necrosis of the femoral head can be determined.

TECHNICAL APPROACH

Patients with fractures of the femoral neck are to have bone scans approximately two weeks following injury and/or internal fixation.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Terminated due to departure of principal investigator

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Osmolar and Free Water Clearance in the Management of the Acutely Injured

WORK UNIT NO: 74/31

PRINCIPAL INVESTIGATOR: LTC Peacock, M.D.

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To attempt to demonstrate the utility of free water clearance determinations in the management of the acutely injured patient.

TECHNICAL APPROACH

Measurement of free water clearance at specified intervals in these patients, correlating result with fluid balance and other parameters of renal function.

MANPOWER: .03 Man-yrs

FUNDING: Civ Sal

FY74 \$210

FY75 \$327

<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
-	-	\$210
-	-	\$327

PROGRESS

Terminated due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Histologic Changes in the Inner Ear and Perilymphatic
Fistulae in Guinea Pigs

WORK UNIT NO: 74/37

PRINCIPAL INVESTIGATOR: MAJ Gerald B. Healy, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To try to create dilatation of the endolymphatic system in guinea pig inner ears by an artificially created fistula in the oval window.

TECHNICAL APPROACH

Stapedectomy or stapes subluxation is undertaken and a polyethylene plastic catheter is inserted in the oval window to allow chronic leak of perilymph.

MANPOWER: .03 Man-yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1720	\$390	-	\$2110
FY75	\$ 327	-	-	\$327

PROGRESS

Terminated due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Contralateral Masking of Pure Tones with Narrow Band Noise

WORK UNIT NO: 75/05

PRINCIPAL INVESTIGATOR: Sp4 James P. Wax, MSC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To determine a range of minimum sound pressure levels necessary to mask pure tones contralaterally.

TECHNICAL APPROACH

Twenty to 30 trained listeners from UTEP, WBAMC, and NMSU with H-1 profiles will be used for the project. Pure tone thresholds using earphones will be obtained using the Hughson-Westlake method [13]. The masking will then be applied to the poorer ear and will be increased in 5dB steps until the better ear experiences an increase in threshold of at least 10 dB. The dB setting will be noted by frequency, totaled, then an average will be calculated and a range established. The dB intensity of the masking signal will never reach an intensity high enough to cause any damage to the test subject.

PROGRESS

Terminated due to departure of principal investigator.

STATUS: Terminated

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: The Use of Proplast in Osteoplastic Surgery of the Frontal Sinus

WORK UNIT NO: 75/15

PRINCIPAL INVESTIGATOR: MAJ Schenck, MD

ASSOCIATE INVESTIGATORS: CPT M Tomlinson, DVM

OBJECTIVES

To evaluate a new implant material (Proplast) for potential use in frontal sinus surgery.

TECHNICAL APPROACH

Mongrel dogs undergo frontal sinus osteoplasty with implantation of Proplast. Dogs to be sacrificed at three month intervals to one year.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$327	-	-	\$327

PROGRESS

At the sixth month, Proplast appears to obliterate the canine frontal sinus cavity without infection or mucocele formation. Results to be submitted for presentation at the 1976 Triological Society Meeting and manuscript is in preparation for the Archives of Otolaryngology.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Pathogenesis of the Stress Ulcer Syndrome: A Prospective Study
of Gastrin in 50 Trauma Patients

WORK UNIT NO: 75/19

PRINCIPAL INVESTIGATOR: CPT G B Williamson, MC

ASSOCIATE INVESTIGATORS: LTC J Peacock, MC

OBJECTIVES

To investigate the role of serum gastrin in the pathogenesis of stress ulcer in 50 trauma patients.

TECHNICAL APPROACH

Serum gastrins along with routine lab and nasogastric secretions are collected on each trauma patient upon admission and for at least 5 days thereafter. Gastrointestinal bleeding will be identified and its source identified by endoscopy. Possible correlation of serum gastrin values with clinical GI bleeding will be determined.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp
-

OPA
-

Total
\$327

PROGRESS

Currently specimens are being collected. Serum gastrins are being frozen and will be run at the termination of 50 collections.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Effect of Peripheral Vasoconstriction on Thrombin Activation
of Intravascular Clotting

WORK UNIT NO: 75/21

PRINCIPAL INVESTIGATOR: BGen R M Hardaway III, MD

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To test the thesis that the production of vasoconstriction will prolong and intensify the intravascular coagulation effect of thrombin.

TECHNICAL APPROACH

Dogs will be paired in a control group and a treatment group. The control animals will receive an initial infusion of saline while the treated group will receive methosamine in saline. After an infusion period of five minutes a second infusion of bovine thrombin will be started in both groups. Blood pressures will be monitored for two hours. Blood samples will be drawn at specified intervals before, during and after the infusion periods. These samples will be analyzed for platelets, prothrombin time, fibrinogen, fibrinolysins and fibrin split products.

MANPOWER: 0.25 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip,Supp</u>	<u>OPA</u>	<u>Total</u>
FY75	\$2728	\$735	-	\$3464

PROGRESS

The use of dogs was forcibly curtailed due to a lack of canines. The project is continuing using rabbits as the experimental animal. A model has been developed using thrombin (4 units/kg) with nephrectomy being substituted for the vasoconstrictive drugs previously used.

STATUS : Ongoing

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Measurement of Antibiotic Levels in the Ventricular Fluid of Patients with Indwelling Ventricular Catheters

WORK UNIT NO: 75/31

PRINCIPAL INVESTIGATOR: MAJ J R Smith, MC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To assess serum and ventricular fluid levels of Methicillin, Kanamycin, and Gentamycin, and determine what IV dosage would be necessary to obtain MIC (minimum inhibitory concentrations) in ventricular fluid against more likely infecting organisms.

TECHNICAL APPROACH

Measurement of serum and ventricular fluid levels of each antibiotic 1/2 hr, 1 hr after last dose as well as 1/2 hr, 1 hr before next dose of IV antibiotic to have time profile of ventricular fluid level of each antibiotic as well as to determine if, at given IV doses, ventricular fluid levels are sufficient to be of MIC to more common organisms for which antibiotic is being given prophylactically.

MANPOWER: 0.03 Man yrs

FUNDING: Civ Sal
FY75 \$327

Equip, Supp

-

OPA

-

Total

\$327

PROGRESS

New project, no progress reported to date.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Diethylstilbestrol in Utero and Vaginal Adenosis and Adenocarcinoma

WORK UNIT NO: 74/42

PRINCIPAL INVESTIGATOR: CPT Tomlinson, VC

ASSOCIATE INVESTIGATORS: MAJ Lindner, MD

OBJECTIVES

To determine the relationship of diethylstilbestrol (DES) administered to the dam during the first trimester of pregnancy to vaginal adenosis and adenocarcinoma of the first generation offspring. The effect of sexual contact will also be studied as well as the effect in the second generation offspring.

TECHNICAL APPROACH

Two groups of 12 female white swiss mice will each be matched to males for breeding. Each group will receive either olive oil or DES in olive oil during the first trimester of each breeding. The female offspring are then randomly divided into two groups, one for breeding and one not to be bred. These mice will be sacrificed at 120 days of age and examined histopathologically for vaginal adenosis and adenocarcinoma. The second generation offspring will also be sacrificed at 120 days of age and examined.

MANPOWER: 0.03 Man yrs

FUNDING:	<u>Civ Sal</u>	<u>Equip, Supp</u>	<u>OPA</u>	<u>Total</u>
FY74	\$1060	\$240	-	\$1300
FY75	\$327	-	-	\$ 327

PROGRESS

Breedings were set up to evaluate effect of DES with respect to (1) administration during first or second breeding, (2) effect in female of first generation offspring with or without sexual exposure, (3) in female of second generation offspring with or without sexual exposure. Results indicate no significant difference between any of the control or experimental groups at dosages of DES used and administered as previously indicated.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Abomasal Parasite (Helminth) Counts as an Index for Herd Health and Population of Mule Deer

WORK UNIT NO: 75/18

PRINCIPAL INVESTIGATOR: MAJ M.S. Nix, JR, VC

ASSOCIATE INVESTIGATORS:

OBJECTIVES

To compare the Abomasal parasite count method of determining deer herd size and health status with current methods of pellet and Brouse count used on North McGregor Range.

TECHNICAL APPROACH

Deer will be collected by New Mexico Game and Fish Commission in the months of March and July. November is the normal hunting season; the abomasum can be collected from the hunters' kill.

MANPOWER: 0.10

FUNDING: Civ Sal
FY75 \$1091

Equip, Supp
-

OPA
-

Total
\$1091

PROGRESS

Due to logistics and personnel shortages, the study has not been started, but will be maintained on an active status.

MEDICAL RESEARCH & DEVELOPMENT
WILLIAM BEAUMONT ARMY MEDICAL CENTER
EL PASO, TEXAS 79920

DETAIL SHEET

TITLE: Evaluation of Applicability of the Wet Bulb Globe Temperature
(WBGT) Index to Armored Vehicle Operators

WORK UNIT NO: 74/48

PRINCIPAL INVESTIGATOR: CPT McNeil, MSC

ASSOCIATE INVESTIGATORS: Dr. R F Goldman, PhD

OBJECTIVES

To study the reliability of using the standard WBGT Index in the measurement of heat stress in armored vehicles. To date, no similar study has been reported.

TECHNICAL APPROACH

Collection of ambient WBGT Index temperatures versus like readings inside a variety of armored vehicles will be conducted. Measurements will be taken with the vehicles at rest, in convoy, in firing positions and during range fire. Collection of data regarding internal core and skin temperatures of various armored vehicle personnel and measurement of metabolic rates (work expenditures) will be carried out.

MANPOWER: 0.03 Man yrs

FUNDING:	Civ Sal	Equip, Supp	OPA	Total
FY74	\$210	-	-	\$210
FY75	\$327	-	-	\$327

PROGRESS

Progress to date includes: (a) Trip to the USA Environmental Research Laboratory to review protocol with Dr. Goldman and his staff. (b) Calibration and equation of past years' WBGT readings to determine most appropriate times for field testing. (c) Selection of appropriate test equipment. (d) Taking of WBGT readings inside and outside of major armored vehicles (e.g., Sherman tank, M60 tank, Armored Personnel Carrier, and Scout Command Vehicle). (e) Testing of equipment under actual field conditions will be accomplished.

STATUS :Ongoing

INDEX

SUBJECT:

Allergy, Pgs 27,34
Cannabinol, Pg 60
Dentistry, Dept of, Pgs 3,10
Dermatology, Pg 50
Drug Efficacy Studies, Pgs 35, 50,55,57,66,68,70,72,73, 88, 89
Electron Microospy, Pg 59
Endocrinology, Pgs 21,39,41,43,46,48,51,61
Enzymology, Pgs 24,25,55,65
Hematology, Pgs 26,31
Hepatitis, Pg 28
Infectious Diseases, Pgs 35,36,47
Medical Research & Development, Pgs 3,10
Medicine, Dept of, Pgs 4,10
Microbiology, Pgs 22,23,36,44,67,71
Nephrology, Pgs 38,49
Nuclear Medicine, Pgs 26,29,31,32,33,42,43,48,49,81
Ob-Gyn, Dept of, Pgs 6,11
Oncology, Pgs 32,40,42,47,89
Oral Surgery, Pgs 18,19
Orthopedics, Pgs 29,43,45,77,78,79,81,82,85
Otology, Pgs 83,84
Pain, Pg 24
Pathology, Dept of, Pg 6
Pediatrics, Dept of, Pgs 6,12
Pediatrics, Pgs 61,62,63,64,65,66,67,68,69,70,71,72,73,74
Pregnancy, Pgs 52,53,54,56,57,58,72,73
Prosthodontics, Pgs 16,17
Psychiatry, Dept of, Pg 7
Psychology Svc, Pgs 75,76,77
Radioimmunoassay, Pgs 20,28,41
Respiratory Distress Syndrome, Pgs 25,37,55,65,73
Rh Sensitization, Pg 64
Surgery, Dept of, Pgs 8,12
Trauma, Pgs 30,80,86,87
Vet Med Svc, Pgs 89,90

AUTHORS:

Bagg, Raymond, Pg 80
Barlow, M., Pg 61
Barnes, C.M., Pg 50
Becker, L.E., Pg 50
Benedetto, A.R., Pgs 10,11
Bowen, F., Pgs 15,64,65,66,67,69,70, 73,74
Brown, J. Pgs 67,71
Cobb,C.R., Pg 12
Devries, H.A., Pg 12
Dillard, S.H., Pg 11
Duke, E., Pg 60

AUTHORS (contd)

Erke, K., Pgs 22,23,36
Edmonds, P., Pg 10
Fearnow, R., Pg 12
Foote, W.C., Pgs 30,45
Gates, P.R., Pg 58
Glass, B.L., Pg 30
Gluck, F.B., Pgs 11,14,46,48,51
Goiser, J.L., Pg 27
Grossman, J., Pgs 10,15,34
Hardaway, R.M., Pg 87
Healey, G.B., Pg 83
Heath, R.E., Pgs 56,71,73,74
Iannone, L.A., Pg 10
Killam, A.P., Pgs 11,12,14,52,53,54,55,56,68,70,73
Laskow, G.B., Pg 75
Loos, G.P., Pg 61
Luekens, C.A., Pgs 12,78,79,81
Lull, R.J., Pg 10
Manna, B., Pg 10
Mazat, B., Pgs 41,42,43,48
McCartney, Wm, Pgs 11,28,48,49
McCarty, R.J., Pgs 10,30
McNeil, T.J., Pg 91
Milstein, D., Pg 10
Nix, M.S., Pg 90
Nusynowitz, M.L., Pgs 10,11,15,20,26,29,31,32,33,41,42,43,46,48,51
Patton, R.C., Pgs 11
Peacock, J.B., Pgs 82,86
Pick, R.O., Pg 10
Plymate, S.R., Pgs 11,39,46
Porter, W., Pg 10
Putnam, J., Pgs 15,34,37,38,44
Rath, F.H., Pg 77
Reimann, B.E.F., Pgs 59,60
Renfield, Pg 15
Sakakini, J., Pgs 56,68,73
Sass, N.L., Pgs 19,20,21,24,25,55,65
Schenck, N.L., Pg 85
Scragg, W.H., Pg 57
Smith, J.R., Pg 88
Sproull, R.C., Pgs 16,17
Strader, W.J., Pg 11
Stropko, A.J., Pg 76
Tench, Wm, Pg 36
Thomas, P.C., Pg 17
Tomlinson, M.J., Pgs 85,89
Turbeville, D.F., Pgs 12,56,62,63,64,66,68,70,72,74
Van Stone, J.C., Pgs 10,11
Vigil, M., Pg 50
Waliszewski, J., Pgs 41,43

AUTHORS (contd)

Wax, J.P., Pg 84
Weinger, R.S., Pg 40
Weisberg, R.T., Pg 40
Williamson, G.B., Pg 86
Wilson, R.L., Pgs 18,19
Young, E.J., Pgs 35,36,47

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