

(77)

RCC1 950609.005

PROGRAM PROGRESS REPORT

**4 TH QUARTER
FY 1959**



**OFFICE OF THE SURGEON GENERAL
DEPARTMENT OF THE ARMY**

**Record Group: 319
Accession#: 83-0052
Box#: 1
File Name: Annual Reports Army Surgeon General**

DISTRIBUTION

CHIEF OF STAFF, UNITED STATES ARMY	
Office of the Comptroller of the Army	
Director of Accounting	1
Program Review and Analysis Division	2
Deputy Chief of Staff for Logistics	
Review and Analysis Division	1
Military Personnel and Training Division	1
Deputy Chief of Staff for Military Operations	1
Deputy Chief of Staff for Personnel	1
Assistant Chief of Staff for Intelligence	1
Assistant Chief of Staff for Reserve Components	1
National Guard Bureau	1
TECHNICAL SERVICES	
Medical	
The Surgeon General	62
Class II Hospitals, Medical Centers, Depots, and Other	47
Chief of Ordnance	1
Chief of Engineers	1
The Quartermaster General	1
Chief Chemical Officer	1
Chief of Transportation	1
Chief Signal Officer	1
ARMY AREAS	
CG, First US Army	4
CG, Second US Army	3
CG, Third US Army	4
CG, Fourth US Army	3
CG, Fifth US Army	4
CG, Sixth US Army	4
CG, MDW	3
OVERSEAS COMMANDS	
CINCUSAREUR	4
CINCUSARPAC	4
CGUSARCARIB	4
CGUSARAL	4
CGEUSA	4
CGUSARHAW/25th Inf Div	4
OTHER	
CG, USCONARC	2
Commander, Field Command, AFSWP	1
Supt., U. S. Military Academy	1
Commandant, U. S. Army Management School	1
Hq. Army Audit Agency	1
TOTAL NUMBER OF COPIES	180

REQUEST FOR COPIES

Request for this report must be in writing and addressed through command channels to:

Review and Analysis Branch
Office of the Comptroller
Office of The Surgeon General
Room 1647, Main Navy Building
Washington 25, D. C.

TABLE OF CONTENTS

	Page No.
Contents	i
Foreword	ii
Summary	iii

AMEDS PROGRAM

Chapter

2	STAFF AND ADMINISTRATION PROGRAM	1
3	COMPTROLLER ACTIVITIES PROGRAM	11
4	MANPOWER CONTROL PROGRAM	15
5	SPECIAL PLANNING ACTIVITIES PROGRAM	27
6	PREVENTIVE MEDICINE PROGRAM	37
7	INTELLIGENCE PROGRAM	47
8	MILITARY PERSONNEL PROGRAM	47
9	CIVILIAN PERSONNEL PROGRAM	59
10	PATIENT CARE AND RELATED ACTIVITIES PROGRAM	67
11	TRAINING PROGRAM	85
12	TACTICAL FORCES PROGRAM	93
13	RESERVE COMPONENTS PROGRAM	93
14	MEDICAL MATERIEL PROGRAM	97
15	INSTALLATIONS AND CONSTRUCTION PROGRAM	117
16	RESEARCH AND DEVELOPMENT PROGRAM	125
17	PRESERVATION OF ORDER PROGRAM	129
19	LOCAL MAINTENANCE AND MANAGEMENT OF FACILITIES PROGRAM . .	131
20	LOCAL LOGISTIC SUPPORT PROGRAM	137

16 AMEDS RESEARCH AND DEVELOPMENT PROGRAM

Research

1. Biological and Medical Aspects of Ionizing Radiation

An allotment of \$1 million of DOD emergency funds was received in May 1959 for the purpose of conducting studies on an anti-radiation agent. Previous studies conducted at the Walter Reed Army Institute of Research had provided excellent results toward development of such an agent. Of the funds received, \$700,000 was designated tentatively for in-service use and the balance for studies to be conducted under contracts with both civilian educational institutions and commercial laboratories.

2. Neuropsychiatry

a. A new study was initiated by contract to investigate the relationship between certain background socio-economic factors and military effectiveness.

b. The in-service task study on sleep deprivation entered a new active phase with its focus upon a detailed analysis of the differential effects of sleep deprivation upon different kinds of activity.

3. Studies in Immunization

Laboratory tests conducted during the past quarter have shown that a freeze-dried smallpox vaccine was as effective as the presently used wet glycerinated vaccine, even after continued storage at 45° Centigrade or less for a period of at least five and one-half months. Such drastic conditions of storage for medical material on any part of the earth's surface is not visualized at the present time; normal storage is expected to be at temperatures of 28° C or less even in tropical climates. The new vaccine is expected to retain effective potency for years thereby obviating the problems posed by the ninety day expiration period and below freezing storage conditions inherent in the present standard item.

4. Psychophysiological Studies

Two standard experimental techniques (operant conditioning and complex discrimination) were put to new use in the preparation of animals for investigation of the effects of space environment upon behavior. Although the final test was never completed, considerable progress was achieved in the adapting of these "old" techniques to this new type of study.

5. Biomedical Aspects of Missile Transport

On 28 May 1959, the Army successfully launched a Jupiter missile from Cape Canaveral carrying a squirrel monkey, a rhesus monkey, sea urchin eggs, human blood, and numerous cylinders containing mustard seeds, corn, drosophila, and onions. The nose cone was successfully recovered and the monkeys showed no ill effects of their historic flight into outer space. Basic physiologic data on the monkeys were telemetered back to earth which indicated how the animals reacted to the various stresses of restraint, confinement, acceleration, deceleration, and zero gravity. The blood sample showed less hemolysis than had been expected. Analysis of data is continuing. The successful flight is a tribute to bio-engineering skill and allows for optimism in the future missile transport of personnel and high priority cargo in peace and war.

Research

6. Traumatic Surgery and Shock

Electronic goniometers for measuring and recording graphically the motions of various joints of the human body were developed under an Army contract. The original instrument was constructed to measure, record, and calibrate the foot and ankle motion during walking; these measurements were made in connection with tests of new boots and shoes. Subsequent instruments were developed for other joints which will facilitate study of joint functions after injury, during rehabilitation, and in certain diseases as well as in limb prosthetic work.

7. Radiation and Thermal Burns

a. Army contractual research reveals that 5-hydroxytryptamine (serotonin) affords some protection against hemorrhagic manifestations caused by ionizing radiation. Simultaneous independent reports from the Netherlands, Germany, and Russia confirm this finding and add that certain other biologic amines may have similar effects.

b. Studies of the effects of ionizing radiation on skin grafting procedures show that irradiation of animals significantly reduces the "takes" of skin grafts. It was found that treatment with cysteine before irradiation restores the "takes" to normal and that skin grafts "take" well upon irradiated recipient areas so treated. However, skin grafts from irradiated donor areas do not "take" well. Tolerance of irradiated animals to anesthetics and analgesic drugs is greatly reduced, and normal doses of some of these drugs are lethal in irradiated animals. These findings indicate that modification of standard procedures for treating patients may be necessary when the patients have been irradiated, and contribute information which may be valuable in finding anti-radiation drugs.

8. Artificial Plasma and Plasma Volume Expanders

A synthetic protein constructed in ratios of six parts glutamic acid and four parts lysine, which was developed under Army contract, holds great promise of being a better artificial plasma volume expander than any of the substances now available. Animal tests have failed to reveal any serious disadvantages in the use of this material. Tests on humans will be conducted and if successful will overcome the disadvantages of existing plasma volume expanders as well as the necessity for a human source and the risk of hepatitis inherent in human plasma.

9. Oral Diseases

During the quarter efforts were made to develop a vaccine against dental decay. Strains of lactobacillus-type micro-organisms were carefully and successfully isolated and the organisms have been used to develop vaccines. Some, but not all of these vaccines resulted in a reduction of dental decay when tested on experimental animals. Future plans include the preparation of other types of protective vaccines, among them the enterococci type micro-organism. Positive results in this area would constitute a major breakthrough in the science of treating teeth.

16 AMEDS RESEARCH AND DEVELOPMENT PROGRAM

Research

10. Summary of Research Activities During FY 1959

The objective of the AMEDS Research Program during FY 1959 continued to be that of providing new or improved means for the prevention and treatment of disease and injury. Decreased emphasis was placed on x-ray and photographic techniques, physical standards research, and research on biomedical effects of blast. At the same time there was a marked increase in activities in the field of ionizing radiation and the prevention of radiation injury. During this fiscal year, the Army Medical Service for the first time entered the field of bioastronautics. Through this project, a research program was instituted in coordination with the Surgeon General of the Navy. Even in the infancy of this effort a major first was achieved -- successful flight into space of living primates.

Development

11. Development of Medical, Dental & Veterinary Equipment & Supplies

a. During the fourth quarter FY 1959, two subdivisions were terminated by the Army Medical Service Technical Committee. As of 30 June, a total of 46 of the 147 subtasks and subdivisions programmed for FY 1959 were completed. The remaining 101 will be carried over into FY 1960.

b. During FY 1959, continued emphasis was directed toward the improvement of existing and the development of new medical equipment for field medical units. Changing concepts of modern warfare dictate that the weight and cube of field equipment be reduced as much as possible. In addition, vital considerations were given to maintenance, simplicity of operation, reliability, and minimum logistical support requirements. Representative of the items toward which developmental efforts were directed are projects relating to a scrub sink, field hospital bed, field sterilizer, field operating table, and field x-ray apparatus. A development feasibility study was initiated concerning a medical-surgical pod for air vehicles. The automatic jet injector was carried through user-tests and is being processed for standardization. The use of the jet injector in the field made it possible to process 1,200 immunizations per hour.