ARMY MEDICAL SERVICE

PROGRAM PROGRESS REPORT

2nd QUARTER FY 1968

OFFICE OF THE SURGEON GENERAL

DEPARTMENT OF THE ARMY

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AMEDS PROGRAM

16 AMEDS RESEARCH AND DEVELOPMENT PROGRAM

1. Budget. Except for $750,000 still being withheld from obligation by the Office, Chief of Research and Development (OCRD), the $11.1 million that was deferred from obligation in the first quarter was released during the reporting quarter. However, $500,000 was completely withdrawn from the program which now totals $50.4 million. The entire $50.4 million was allotted for obligation during the quarter. As of 31 December 1967, $19.4 million or 38.5 percent of the program was obligated. The status of the AMEDS RDTE program is shown in the table below.

Budget Summary, First Half FY 1968

(Thousand Dollars)

Project	Total Program	Total Allotments	Total Obligations	Percent of Allotments Obligated	Percent of Program Obligated
5011 Defense Research Sciences, Army	$15,490	$15,490	$ 6,927	44.7	44.7
5016 In-House Laboratory Independent Research	1,560	1,560	456	29.2	29.2
5028 Biomedical Investigations	16,050	16,050	6,205	38.7	38.7
5695 Therapeutic Development	10,000	10,000	3,069	30.7	30.7
5665 General Combat Support	3,175	3,175	813	25.6	25.6
5700 Facilities and Installation Support	4,100	4,100	1,907	46.5	46.5
Total	$50,375[a]	$50,375	$19,377	38.5	38.5

a/ Total includes $750,000 OCRD deferral in budget project 5011.

2. Contracts and Grants

a. A total of 25 contracts and grants were awarded during the second quarter FY 68. Including modifications, there were 389 procurement actions valued at $5.5 million during the same period.

b. At the close of the second quarter, there were 1,300 contracts and grants being administered by the Medical Research and Development Command. However, this total included some 566 contracts which were completed but not administratively closed.

3. Personnel

a. As of 31 December 1967, personnel spaces authorized for the Command totaled 2,807 (600 officers, 834 enlisted men, and 1,373 civilians). During the second quarter, the total civilian personnel authorization was reduced by 100 spaces (95 in BP 5000 and 5 in BP 2400).

b. The reduction was distributed among laboratories and units with unfilled civilian slots; no employee terminations were required. The Army Research Institute of Environmental Medicine and the Army Medical Unit at Ft. Detrick experienced reductions of 27 and 21, respectively. These Units had the bulk of the unfilled spaces because of difficulty in recruiting scientists and technicians. WRAIR's research work in Southeast Asia will be maintained, but the present reduction negates the 71 civilian spaces received on 1 July 1967 for expanding the medical research program. Full funding had been provided by OCRD for these new spaces.

4. Construction and Facilities Planning

a. Construction of the laboratory building for the U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts, approved in the FY 64 MCA Program, will be completed on or about 1 March 1968. This new building will provide a research facility of approximately 75,000 square feet, equipped with the latest research instrumentation to conduct research in all fields of environmental medicine. A contract to move into the facility after completion has been awarded.

b. Construction of Phase I of the U.S. Army Medical Biological Defense Facility, Ft. Detrick, Maryland, was approximately 30 percent complete as of 31 December 1967. This facility will provide 126,800 square feet of space at an estimated cost of $8,865,000. It is the first phase of a 2-phase construction program planned to provide necessary and complete facilities to accelerate research and development in medical defense against biological weapons. The project is expected to be completed in February 1969.

c. A contract for a new building for the Blood Bank of the U.S. Army Medical Research Laboratory, Ft. Knox, Kentucky, was awarded on 16 October 1967, in the amount of $183,689. The estimated completion date is 16 October 1968. The building will provide space for the required expansion of AMRL's program, and enable the Laboratory to provide 100 units of blood per day on a sustained basis in support of the Vietnam commitment.

d. Another recent development was the establishment of the U.S. Army Medical Research Team, Alaska, a component of the Army Research Institute of Environmental Medicine. The Team is stationed at Ft. Wainwright, Alaska, near Fairbanks, and attached to Bassett Army Hospital for administrative and logistical support. Total authorized spaces include 3 officers (2 MC-1 MSC), 7 enlisted men, and 11 civilians. The Team occupies a former Air Force laboratory building.

5. Medical Unit, Self-Contained Transportable (MUST)

a. The following items were Type Classified Standard A by the Army Medical Service Materiel Technical Committee:

(1) FSN 6545-877-6995, Medical Equipment Set, Medical Field Treatment Facility, Intensive Care Assembly (MUST).

(2) FSN 6545-999-6447, Medical Equipment Set, Medical Field Treatment Facility, Sterile Preparation (MUST).

(3) FSN 6545-999-6452, Medical Equipment Set, Medical Field Treatment Facility, Ward (MUST).

b. The U.S. Army Mobility Equipment Command has contracted for the procurement of 97 Utility Packs, 115 Expandable Shelters, and 255 Inflatable Shelters. They are also in the process of contracting for 195 Ward Containers. The U-Packs are being purchased from PEMA funds,and the expandable and inflatable shelters are being procured from AMC stock funds.

c. Acceptance testing has been completed on the Food Service Equipment which has been shipped to Ft. Sam Houston, Texas, for further evaluation.

d. The Military Surgeons Annual Convention featured a display of the MUST system.

e. The Army's first operational MUST hospital, the 45th Surgical Hospital, located near Tay Ninh, Vietnam, celebrated its first anniversary on 13 November 1967. During its first year, the 60-bed facility performed 1,414 major and 706 minor surgical procedures. The mortality rate for the hospital was 1.65%.

6. Malaria Prophylaxis

a. During the reporting period, a total of 564 compounds were submitted by contractors participating in the program for screening as possible antimalarials. Of these compounds, 309 were targets and 255 were intermediates. All will be introduced into the primary screening system for evaluation as antimalarials.

b. The contractor operating the primary screen, a *Plasmodium berghei*-mouse system, has reported that somewhat over 10,000 compounds were screened for antimalarial activity during the quarter. Significant activity was observed in approximately 300 of these compounds. Approximately 400 compounds were also evaluated in the *P. gallinaceum* - chick test system.

c. The Pharmacology Advisory Committee at its November meeting unanimously recommended submission of files on three drugs to the Army Investigational Drug Review Board (AIDRB) in the form of Investigational New Drugs (IND's). One supplement to a previously submitted IND has also been referred to the AIDRB during the reporting period.

d. A major contractor on research in the biology of malaria has reported the following: A cycle of mosquito transmission of P. berghei has been established in the laboratory; EE stages are regularly detected in these infections. Attempts at immunization with non-specific agents and with irradiated sporozoites are in progress and have given encouraging results. Attempts are also underway to establish arthropod tissue cultures and to infect these with different stages of plasmodia.

e. Another contractor working at the Kansas City General Hospital in Kansas City, Missouri, has developed a treatment that in preliminary tests demonstrated considerable effectiveness against P. falciparium malaria, without any apparent serious side effects. The new drug, a combination of sulfamethoxypyrazine (Kelfizina) and trimethoprim, was tested at the Jackson County Prison in Kansas City by inoculating volunteer inmates with both drug-resistant and non-resistant strains of malaria. All patients were permitted to attain a fever and parasitemia before therapy was started. Treatment with a single dose of sulfamethoxypyrazine-trimethoprim cured the ten of eleven patients in 2-3 days. The patients were then followed for 60 days after treatment for possible recrudescences. After further evaluations the medication will be tested on a small group of selected troops in Vietnam.

7. Medical Research Program - Southeast Asia

a. In a continuation of a survey of Thailand for freshwater molluscs of possible medical importance, 50 additional species new to the country have been reported. Special attention has been directed toward three genera in the search for the vector of human schistosomiasis in Thailand. One genus in particular (Ferrissia) is of interest since a fork-tailed cercaria has been found in one its species whose distribution coincides with a schistosome focus in Thailand.

b. In studies on dengue, a contractor has reported that lyophilization is feasible for long-term storage of type 1 dengue vaccine. Other tests have shown that on-hand lots of MD-1 vaccine and vaccine of two strains of type 2 dengue are free from 9 different murine viruses. Standardized conditions have been established for plague assay of type 1 dengue and for survey experiments with other serotypes.

c. During September and October, tests were conducted on the island of Koh Samui, Thailand, to determine the effectiveness of a combined malathion-adulticide and Abate-larvicide attack on Aedes aegypti. The mosquito population of Koh Samui has been extensively studied in the last year because of the occurrence there of dengue hemorrhagic fever epidemics. Preliminary studies indicated that only two Stegomyia mosquitoes were likely to be vectors -- the domestic Aedes aegypti and the sylvan species A. albopictus. In this village scale test, Abate was added to the stored water containers, which represent almost the entire breeding site of aegypti, at rates ranging from 0.25 to 1.0 parts per million. The village was also fogged with 2% malathion every morning for one week and on alternate mornings for an additional three weeks. There was a dramatic drop in the population of aegypti in the village under this

combined attack. By the end of the application phase no aegypti could be found by larval survey in treated containers, in artificial breeding sites, or by human biting collections. As predicted from the habits of the vector species, there was no great effect on the population of A. albopictus, which breeds primarily in the forest and bites out of doors. Observations are still under way to determine the rate of reinfestation of the village by aegypti and the possible movement of albopictus into the domestic niche previously occupied by aegypti.