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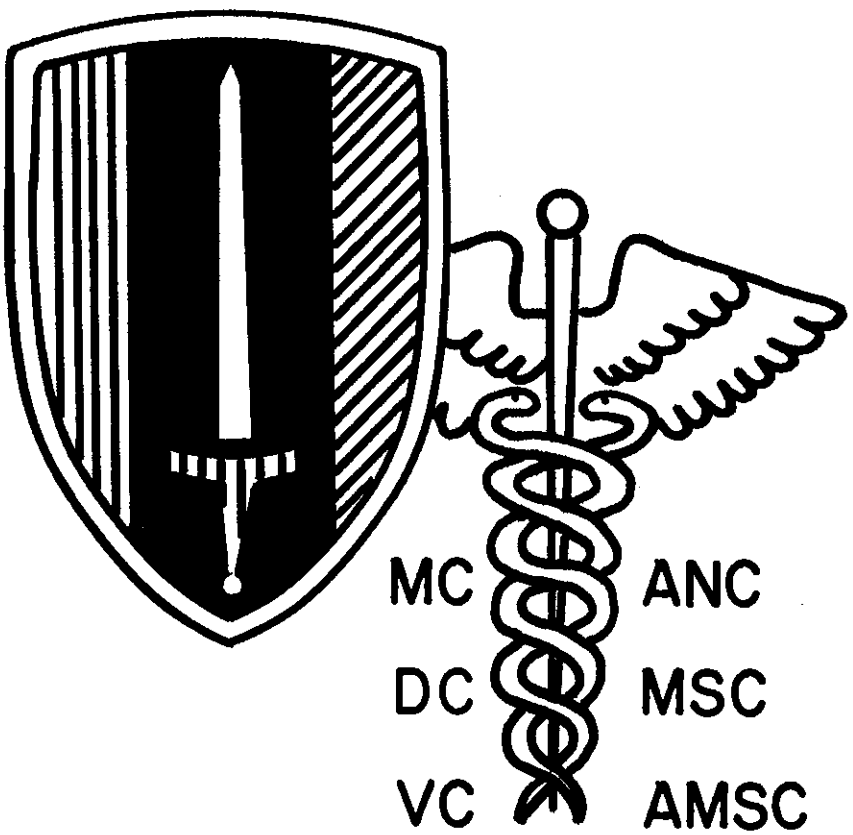

MEDICAL BULLETIN

SEP-OCT

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UNITED STATES ARMY VIETNAM
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MEDICAL SERVICE

USARV Medical Bulletin, Sep - Oct 1967

1. PURPOSE: To provide information of interest and assistance to medical services of the US Armed Forces in RVN.

2. GENERAL: This headquarters does not necessarily endorse the professional views or opinions that may be expressed in this pamphlet apart from official notices. The contents of this pamphlet are not directive in force.

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USARV MEDICAL BULLETIN

CONTENTS

FREUD IN THE BOONIES

A Preliminary Report on the Psychiatric Field Program in the 4th Infantry Division

Captain Gerald Motis, MC*

Having reviewed the literature and various hastily scrawled Fort Sam Houston lecture notes on the benefits of psychiatric management as far forward as possible the author felt his own division would benefit from a field program ensuring the proper handling of psychiatric problems in the forward areas. Our psychiatric team visited most the 4th Infantry Division's battalion surgeons, scattered over a large area of the Central Highlands. We got two impressions: 1) Surgeons and their corpsmen were too busy tending the wounded to give adequate attention to the relatively rare, acute psychiatric casualties and 2) the more chronic psychiatric casualties were considered a time consuming annoyance and shipped off to MHCS at 4th Division Base Camp thus removing work and firepower from the field and reinforcing the patients' secondary gains (a work up at MHCS often takes 3-5 days).

Mohammed decided to come to the mountain. Qualified social work/psychology technicians, assigned as far forward as bases covering brigade size units, could provide the immediate psychiatric consultation needed for the acute combat reactions. The technician's first echelon screening could keep most of the men functional in the forward area.

The rewards to the technicians would be manifold. They would have an opportunity to see acute stress reactions immediately after the precipitating traumatic situation. They would act responsibly as counsellors, screeners, and counsultants to the surgeons. They would learn, grow, and mature in their specialized field. They would become adept at diagnosing problems and in the utilization of brief supportive psychotherapy for those with more chronic problems. They would also gain a large measure of independence, to say nothing of the vacation from the humdrum routine of a division size base camp operation.

The Plan

MHCS, Pleiku area, operating out of the 4th Inf Div Base Camp provides exclusive psychiatric support for two full brigades organic to the division and partially support a third brigade at Duc Pho. We are responsible for the mental health of the 173d Airborne Brigade, and 1st Airmobile Cavalry Division, when located in the Kontum area. There are numerous non-divisional support units in the Pleiku area that look to the Division for psychiatric help. Each brigade of the 4th Division receives its medical support from a particular company of the 4th Medical Battalion. The 173d Airborne has its own medical company.

*Division Psychiatrist, 4th Infantry Division.

In the initial plan, one technician was to be assigned to each of the medical companies, in the forward base. He was to be taken out to the area by the psychiatrist, social work officer, NCOIC, or any combination of the three, and introduced to the medical personnel, who in turn were to be informed of the technician's functions and responsibilities. Once the technician was left at the area he was to make contact with the battalion surgeons and inform each of them of his role and where he could be found. He was to encourage the surgeons to consult with him on psychiatric cases and he would visit as many units as possible encouraging command to use his consultation service freely. As to diagnostic impression, mode of treatment and ultimate disposition, he was to keep files and adequate records listing patients according to unit. In that way total unit problems could be uncovered. These records would be useful in our study and monthly reports of patients seen by MHCS, Pleiku area. The technician was to be responsible for setting up and maintaining his own living quarters, and during his spare time make himself available for general medical and detail work around the camp.

Supervision would be provided by weekly visits by the social work officer, the NCOIC or the psychiatrist, usually a combination of two of these people.

Each of the technicians was to spend thirty days forward, at the end of which he could elect to stay, rotate to another brigade, or come back to MHCS in the 4th Division base camp. It was hoped that every one of our technicians would have the opportunity to spend at least thirty days forward.

The Pilot Study

During July and August, the above plan was implemented with only one technician each month. He was assigned to one medical company. Each technician carried out his assignment and was supervised, according to the plan. The technician who was forward in July saw twenty patients. Fifteen of these patients were kept in the field and five returned to division base camp for intensive evaluation and treatment or possible evacuation to the rear. In August, the second technician saw twelve patients. The drop in total number of referrals was attributed to a diminution in combat activities in the area and to the fact that much of the brigade personnel were preparing to rotate to CONUS. He managed to keep nine out of twelve functioning, in the forward area, and sent to base camp only three. This gave us the remarkably consistent figure of 75 per cent "saves." Since the surgeons and commanding officers were still unused to having psychiatric support close by, many patients bypassed the technician and were sent rearward without benefit of forward area consultation.

In spite of the small number of cases seen by each technician, the consistency of the 75 per cent warranted implementation of the full scale program. However, it was hoped that the technicians, by being more aggressive, in making their presence and capabilities known, could screen many more patients in the future.

Current Situation

At the beginning of September the full scale program was launched according to the original plan. Prior to the placement of the technicians further visits were made by the psychiatrist and NCOIC, to the forward areas, to pave the way for the technicians and to learn how the doctors felt about having psychiatrically oriented technicians working with them. We were also interested in the doctors opinions as to how the technicians could best be utilized. Most were impressed by the findings of our pilot program and expressed eagerness to have psychiatric support close by. They were willing to help the technician set up and to make his presence known to the other doctors and company commanders in the various areas.

The technicians went forward the first week of September, covering all three of the 4th Division Brigades. In spite of a bit of apprehension on their parts the technicians were well received. Personnel working with them, in various areas, have utilized them more and more with satisfying results.

Statistics at this time were unavailable. Complications arose in that the brigades were shifted around tactically in September. Even though the man with the 3d Brigade is supported principally by Task Force Oregon, we are still interested in his statistics, especially the number of patients he managed to keep from being evacuated to Oregon's base camp. Despite a bit of chaos the technicians are seeing more patients than in the pilot study and their "save" rate seems to approximate the 75 per cent mark set in the pilot study.

Difficulties encountered, other than the shifting of brigades from one area to another area lie mainly in the area of proper supervision due to transportation problems. It is hoped that a prearranged schedule of visits can be set up with one of the local helicopter units.

Within the next few months meaningful statistics can hopefully be gathered showing the effectiveness of this method of conserving the fighting strength by consulting as far forward as possible.

Summary

Because it was felt that psychiatric cases were not being adequately treated as far forward as possible, a plan was devised and implemented whereby social work/psychology technicians were assigned to the various medical companies supporting the 173d Airborne Brigade and the 4th Infantry Division. These men provided consultation, screening, and treatment to acute and chronic psychiatric patients in the brigade camp areas. A pilot study was done, using the plan for our 1st Brigade, for two months with consistent findings that 75 per cent of those problems referred to the technicians were returned to duty. Statistics for the full program, which has just gotten under way are, of course, incomplete. However, the supervisors of the program, viz. the social work officer, the NCOIC and the psychiatrist have been impressed that the "save" rate approximates that of the pilot study thus far.

A preliminary conclusion is that social work/psychology technicians, assigned to forward medical companies supporting forward brigades are an invaluable aid to the medical personnel in handling psychiatric problems.

INSTRUCTIONS TO PATIENTS*

Army Medical Service personnel are reminded of the necessity of attaining absolute clarity in any verbal instructions given to patients and of the wisdom of providing instructions in an understandable written form whenever there is the possibility of confusion.

Prescriptions to be filled at the pharmacy should contain clear and specific directions as to amount and frequency of dosage. When medications are issued directly in clinics or emergency rooms, labelling should be equally precise.

The greatest hazard of misunderstanding exists when instructions are given verbally. Approximately 70 per cent of the average person's waking hours are spent in verbal communication, yet a myriad of factors exist in the physician patient relationship which may prevent a clear and precise interchange of verbal information. The use of technical terms, differences in language, customs, accents, lack of repetition, preoccupation with illness and hesitation to request clarification - all may result in a failure of exact understanding. It is incumbent upon the physician or other medical attendant to be absolutely certain that his instructions have been understood and the patient should be made to repeat the instructions and explain them in his own words.

Written instructions have the distinct advantage of being readily available for reference and are certainly to be preferred whenever exact compliance with instructions are critical. Mistakes are possible, however, unless the writing is legible and the writer uses clear language and avoids confusing the abbreviations. The necessity of confirming that the patient fully understands what is to be done still applies even when directions are in writing.

For the protection of the patient and physician, the details of any instruction given to the patient should always be accurately recorded in the Health or Outpatient Record.

In Summary:

All instructions to patients concerning procedures or medication should be clearly given, in writing whenever possible, confirmed by asking the patient to repeat them, and the nature of such instructions should be recorded in the patient's record. The responsibility is the physician's.

MEDPS-CM

* Extracted from DA TB "The Surgeon General," Series 8-21.

A REPORT OF SEVENTY-ONE CASES OF VIRAL HEPATITIS AMONG 1st INFANTRY DIVISION PERSONNEL, PERIOD 5 April - 1 June 1967

Captain Donald B. Kunkel, MC*

Introduction

April 3, 1967, the first of a series of cases of viral hepatitis was observed among troops of the 1st Infantry Division. The reported number of cases reached peak epidemic proportions during the period April 15-22 with seven cases admitted to the 93d Evacuation Hospital April 19. During the period of this report, April 3 - June 1, a total of 71 cases of viral hepatitis, almost certainly infectious hepatitis, were diagnosed definitively in rear echelon medical facilities.

The purpose of this report is to attempt a comprehensive survey of the epidemiology of this series of cases, to draw a logical conclusion as to probable source of infection, and to review prophylactic and control measures to prevent furtherance of the epidemic course of the disease.

Patient Diagnosis and Case Study

Upon initial suspicion of hepatitis or with an early diagnosis of fever of undetermined origin, patients were progressively evacuated through medical channels, with confirmed diagnoses being made (in all but two cases) at the 93d Evacuation Hospital, Long Binh. Confirmed diagnoses in the two other cases were made at the 12th Evacuation Hospital, Cu Chi. These two cases were later transferred to the 3d Field Hospital, Saigon. After preliminary studies and clinical stabilization, patients were either evacuated to the 36th Evacuation Hospital, Vung Tau or were returned to CONUS if their DEROS date was approaching.

Although several patients were almost moribund during the early course of their disease, no fatalities have been reported to this office among the 71 cases.

The centralized grouping of these patients at the 93d Evacuation Hospital facilitated the questioning of patients with respect to epidemiologic factors. A total of 59 of the 71 patients were personally interviewed by this office, during their hospitalization. Interrogation was both by means of personal interview and by use of a hepatitis questionnaire published by this office.

Time and Location Factors

In the initial case studies, it became evident that all patients had several factors in common: all were engaged in Operation Junction City in War Zone C near the Cambodian border and had been in the field during the estimated time of exposure (10-40 days, average 25 days, prior to onset of symptoms).

*Division Preventive Medicine Officer, 1st Infantry Division.

Operation Junction City was a division wide sweeping operation commencing approximately forty miles North of Saigon with movement toward the Cambodian Border. The operation began 20 February and closed 15 April. Several elements of other units were involved, including the 1st Brigade of the 9th Infantry Division, 173d Airborne Brigade and the 11th Armored Regiment.

The villages of An Loc, Quan Loi, and Minh Thanh served as forward base camps for operations during the exercise. Approximately 92 per cent of all individuals questioned had been physically in one or more of these villages during Operation Junction City.

One of the purposes of Operation Junction City was to secure a bridgesite and finish construction of an airstrip near a Special Forces Camp in War Zone C West of An Loc at coordinates XT 624815. Ninety-four per cent of the individuals questioned had been assigned duties at the bridgesite during the operation.

Epidemic Curve

In Figure 1 hepatitis cases are shown by week of admission. It will be noted that the peak of admissions occurred during the week ending 22 April. Seven admissions were recorded 19 April. No individual above the rank of Captain was admitted for hepatitis.

Unit Incidence

Figure 2 compares the number of cases of hepatitis admitted in company and battalion sized units during the period April 3-June 1, 1967. With the exception of the 2d Bn, 16th Inf elements of all tactical units within the division were in the zone of activities of Operation Junction City when it began 20 February. Several support units also had personnel in the area. The 2d Bn, 16th Inf had no cases of hepatitis until 20 May. This unit did not enter Operation Junction City until 20 March.

Investigation of Possible Modes of Ingestion of Hepatitis Virus

A thorough search into food, beverage, and ice supplies was made along with extensive questioning of patients with respect to dietary habits and swimming activities. These are listed below.

Swimming - since shower facilities were not always readily available to troops on Operation Junction City, patients were quizzed as to whether they swam in rivers or swamps in the field. Sixty-three and six tenths per cent answered "yes." The vast majority of those who admitted to swimming did so in the river at the above mentioned bridgesite.

Ingestion of non-potable water - only 38.4 per cent of patients interviewed admitted to having ingested non-potable river or swamp water during the three months prior to the onset of symptoms. Almost all of these individuals used the iodine purification tablets.

Use of Vietnamese foodstuffs - 59.8 per cent of those interviewed had eaten food purchased in Vietnamese establishments during the three month period prior to illness. However, food was purchased at varying sites, and no pattern of point source could be detected.

Use of Vietnamese beverages - when questioned about the use of locally purchased Vietnamese beverages, 58.4 per cent of patients stated they had at one time or another consumed such - usually soda or beer of a "brand" name.

Use of Vietnamese produced ice - in questioning separate from that concerning the use of local beverages, 65.8 per cent stated they had, at some time in the previous month period, used local ice either in drinks served by the local vendors or for other purposes. This will be elaborated upon in a section below.

Use of mess halls - upon questioning as to whether the patients had ever used mess halls other than their own unit's mess, 47.6 per cent stated they had at some time in the prior three months used mess facilities other than their own. However, in no instance was the mess used identical with that used by another patient who also had hepatitis.

Potable water supplies - during Operation Junction City, the bulk of potable water supplies used by troops in the area of question (War Zone C, An Loc, Quan Loi, Minh Thanh, and bridgesite) was supplied by three erdlators at the bridgesite operated by the 1st and 27th Engineer Bn. Unfortunately, records were destroyed completely on one erdlator's operation, only partial records were kept on the second, and this office has been unable to contact the 27th Engineer Bn with respect to operations of the third erdlator. However, records of water chlorination gathered from various sources, including surgeons in the area, confirm the operators reports that available chlorine levels were kept above 5 ppm.

Food supplies - after consulting with personnel from division support command, it was determined that rations supplied to the area in question were of the same type supplied to base camp areas, which did not have an increased incidence of hepatitis. Rations for the questionable area were usually "B" type with "A" supplement or "C" type in the field. Fresh vegetables were from the same source as that used in base camps and were not purchased locally. Dairy products were procured from the Foremost Dairy at Thu Duc, an approved source. The same dairy products were distributed to base camp areas.

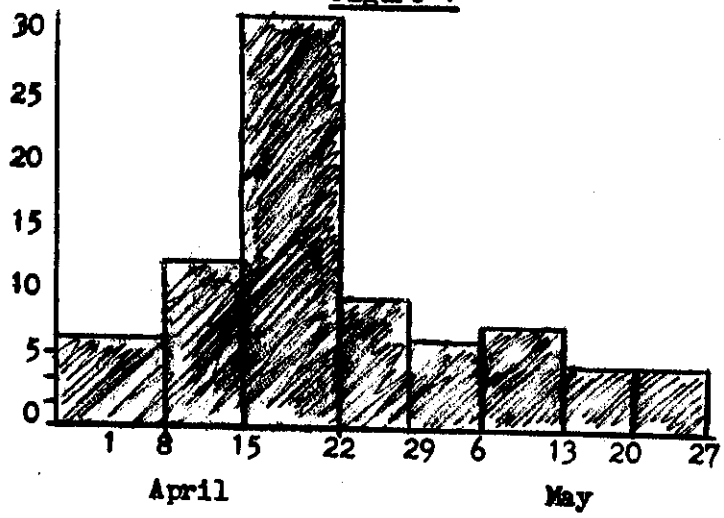
Unit Ice Supplies

Ice distribution to units participating in the early phases of Operation Junction City was sporadic due to interrupted transportation lines and distances from points of production to points of consumption. After close questioning of individuals and unit supervisors, it was determined that large quantities of non-potable ice were being bought and used by both individuals and by units, as a matter of necessity in many instances. Much of the

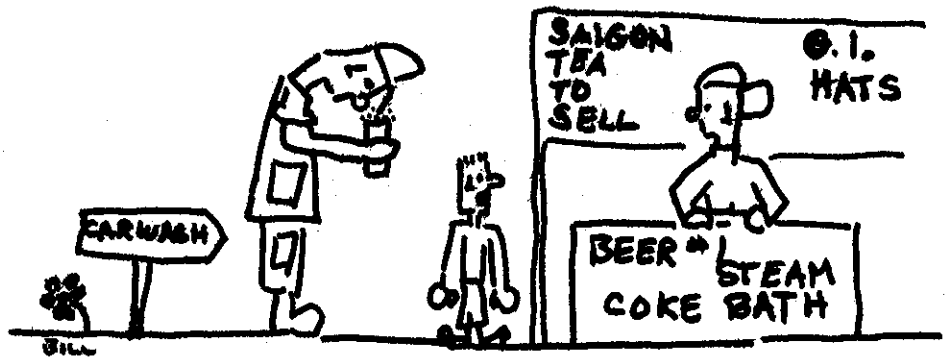
Hepatitis Cases - 1st Infantry Division

By Week of Admission

Figure 1



NOTE: One case admitted 31 May



"He says he wants potable ice in his beer"

unit sized purchase was by contributions to a common fund for this purpose. Very little ice was purchased from appropriated division funds, therefore, records were sparse and information gathered by consultation with individuals involved.

Some ice was supplied to the Minh Thanh area from shipments to BGI (approved Vietnamese source) ice produced in Saigon and shipped to Minh Thanh via Di An, 1st Infantry Division Base Camp. Supplies of this ice were also distributed to the Di An area without a rise in hepatitis incidence.

Those areas of Operation Junction City which received little or no ice supplies (Minh Thanh, An Loc, Quan Loi, and above stated bridgesite) bought ice in the village of An Loc, where a non-potable ice manufacture plant is located. This ice plant was supplemented by ice from "A and M" distributors, an apparently non-potable ice supply in Saigon.

An inspection of the non-potable ice source in An Loc, 11 May, revealed several glaring deficiencies.

1. The processing of ice was completely unsanitary. Workers were in barefeet. No foot baths, mops, cleaning instruments, toilet nor other sanitary facilities were noted.

2. The water was supplied from an obviously inadequate well, and no chlorine compounds nor equipment to chlorinate water were in evidence.

3. Dogs were observed drinking water from melted ice directly on top of one freezing compartment.

4. Two ice samples from the plant revealed no chlorine residual and numerous coliform organisms, upon analysis by this office.

The day of the visit to the non-potable ice plant, several individuals from US units in the area at the time were observed making ice purchases.

Evidence of Point Source Other than 1st Infantry Division Unit Hepatitis Experiences

One of the factors leading this office to a consideration of non-potable ice as the source of viral hepatitis was a report of several cases of hepatitis seen at the Air Force 552d Medical Service Flight (MILPHAP) hospital in An Loc, from the period April 9-20. This hospital reported five cases among persons in various US units - two Air Force officers, one US Army ARVN advisor, one US Army Special Forces officer and one USAID advisor (civilian). One of the Air Force officers was in An Loc for three days then was transferred to Japan where he subsequently developed hepatitis.

One case of hepatitis in an ARVN soldier was treated at the MILPHAP unit during the reporting period.

A listing of the individuals involved in the concurrent hepatitis outbreak at An Loc is presented below:

RANK	UNIT	DATE OF ADMISSION
CPT	USAF	9 April
ARVN EM	Unk	9 April
SP-4	5th Adv Ap	14 April
CPT	5th Special Forces	20 April
CIV	USAID	20 April
1LT	USAF	20 April

Actions taken to Curtail Epidemic Trends

Prophylactic immunization - immediately after the cognizance of a possible widespread hepatitis epidemic in the division, unit sized gamma-globulin immunizations were begun with the arbitrary number of two cases per unit (battalion size) being used to determine need for mass immunizations. A total of 4,784 immunizations were given from April 17-24 to company and battalion sized units exposed to hepatitis threat. These included units of the 1/2 Inf, 1/5 Arty, 8/6 Arty, 1/16 Inf, 1/18 Inf were later given to 2/2 Inf and 2/16 Inf along with selected individuals from 701st Maint Bn and 1st S & T Bn support units.

Upon recognition and confirmation of non-potable ice as the most probable cause of the epidemic commanders and surgeons were reminded of the hazards involved in the use of non-potable ice. Immediate command emphasis on the problem was received and ice purchases from the An Loc plant and another non-potable source at Phu Loi were discouraged. However, since the source of infection was not clearly understood until early May sporadic cases of hepatitis continued to appear as a result of the prolonged incubation period of the disease after the source had been controlled.

Summary

A report of 71 cases of viral hepatitis among personnel of the 1st Infantry Division is presented. Cases were diagnosed during the report period April 3 - 1 June 1967.

The source of infection was arrived at by exclusion and by concurrent hepatitis cases seen by the USAF MILPHAP unit at An Loc. The personnel seen by the MILPHAP Group had used the same non-potable ice supply as troops from the 1st Infantry Division - no other common food or water parameters were found. Therefore, evidence is strongly in favor of non-potable ice as the source of the reported epidemic; the ice being produced at An Loc.

EDITOR'S NOTE

The USAMV Medical Bulletin is the professional Agora of Vietnam where experiences and thoughts are exchanged. Any article printed here is subject to correction and comment by any reader - especially Free World readers who are in Vietnam or who have served here.

An article once printed in the Bulletin is floated on the sea of Vietnam professional opinion to be studied, modified, strengthened or nullified. The author can then revise or completely rewrite it and present it in the U.S. with confidence concerning its meaning within Vietnam.

Hepatitis Admissions by Unit

Figure 2

Unit	HQ Co	A Co	B Co	C Co	D Co	Total
1st Bn, 2d Inf	5	1	1	4	0	11
2d Bn, 2d Inf	1	1	0	0	0	2
1st Sqdn, 4th Cav	0	0	0	0	1	1
1st Bn, 5th Arty	0	0	9	0	3	12
8th Bn, 6th Arty	1	1	1	0	6	9
1st Bn, 16th Inf	0	1	0	0	0	1
2d Bn, 16th Inf	0	1	1	0	0	2
1st Bn, 18th Inf	2	3	1	1	0	7
2d Bn, 18th Inf	0	0	2	0	0	2
1st Bn, 26th Inf	2	5	0	0	0	7
2d Bn, 28th Inf	0	1	1	0	0	2
Div Arty	0	0	0	0	0	1
701st Maint Bn	0	1	1	0	2	4
1st S&T Bn	0	2	0	0	0	2
1st Inf Bn	0	3	0	0	3	6
216th Main Bn						1
1st Admin Co						1
TOTAL						71

EDITOR'S NOTE

Units conducting MEDCAP programs may use organic medical equipment and expendable medical materiel furnished through the regular medical supply support system. The medical items are authorized for inclusion in activity supply levels with total medical requirements being requisitioned from the supporting medical supply activity. No special authorization for non-expendable equipment items for MEDCAP purposes may be requested. In the event a MEDCAP assisted Vietnamese facility has need for non-expendable medical equipment items, issue of such items from the GVN Ministry of Health Department should be arranged through the local USAID representative.

ACUTE RENAL FAILURE - FIRST YEAR EXPERIENCE IN SOUTH VIETNAM

Captain James V. Donadio, MC, and Captain Andrew Whelton, MC*

The early faltering steps of hemodialysis as a clinical method of treatment of acute renal failure (ARF) were made during the late 1940s. The development of renal dialysis and the progress in the management of ARF patients since that time represents one of the great milestones in the history of medicine. Much of our present day knowledge in this subject stems from the original experience gained during the Korean War. Once again interest has been focused on the problem of acute renal failure. At present prevention of ARF is the primary objective since this form of organ failure clearly has been shown to be a preventable disorder.

In April 1966, a specific "K" team, appropriately designated as a "KP" team was deployed to the Republic of Vietnam for the purpose of establishing a renal center in country. This team, the 629th Medical Renal Detachment is located at the 3d Field Hospital in Saigon. Appropriate location for such a team is most important since merely having the requisite equipment and personnel is not sufficient. Requisites:

a. Adequate laboratory support on a 24-hour basis to do electrolyte determinations (BUN, Creatnine, etc.).
b. Adequate and reliable electrical power.
c. Adequate volume of preheated processed water available at all times (100 gallons per hemodialysis).
d. Adequate medical maintenance facilities.
e. Location near an aircraft landing strip and heliport.

The present location satisfies all the requirements.

The importance of a renal unit in Vietnam is readily apparent. The role of such a unit encompasses many of the facets pertaining to the general management of renal disease. The two objectives are prevention and treatment of acute renal failure. The principles of prevention of ARF must be constantly brought to the attention of all physicians in the combat zone. Instruction, consultation, and availability of the medical staff of the unit to visit all Vietnam hospital installations are the means to this end. The importance of rapid correction of blood volume, body fluids, electrolytes, and the judicious use of mannitol cannot be emphasized too strongly. The early recognition of incipient or established organic renal failure is of paramount importance in decreasing morbidity and mortality.

From the therapeutic standpoint, all dialysis therapy is undertaken at the renal unit. In many cases the referring hospital staff must initiate intravenous therapy to counteract hyperkalemia.

Potassium intoxication is a life threatening emergency and requires vigorous treatment. It may develop rapidly after abrupt renal decompensation or after mobilization of cellular potassium the result of a massive

* Members, 629th Medical Detachment - KP.

tissue injury or metabolic acidosis. When serum potassium rises above 7 mEq/L 500 ml of 20 per cent dextrose with twenty units of regular insulin and approximately 88 mEq of sodium bicarbonate solution infused gradually will lower the serum potassium concentration over several hours. Enemas using the exchange resin sodium polystyrene sulfonate (Kayexalate) 50 gms added to a 25 per cent sorbitol solution to make a final volume of 100 ml will remove potassium from the gut at the rate of 1.2 mEq/L per enema. The usefulness of serial electrocardiograms, when serum potassium determinations are not available, is an invaluable alternative in determining the requirements for this form of therapy. The effect of these measures is temporary. Unless renal function improves it becomes necessary to employ some form of dialysis for adequate reduction of hyperkalemia.

REVIEW OF CLINICAL RESULTS

During the past twelve months 48 patients have been referred to the 629th Medical Renal Detachment for treatment. Additional patients were admitted with severe trauma and overwhelming sepsis and shock precluding dialysis therapy. All died within 24-hours of admission. Therefore they were omitted from this study. The spectrum of contributing etiologies has been varied. The vast majority of these patients have required prolonged treatment utilizing either hemodialysis or peritoneal dialysis. Four main categories may be defined within the treatment group:

1. Medical causes of renal failure
2. Post traumatic renal failure
3. Burn cases
4. Miscellaneous.

Table 1 lists the variety of medical causes of renal failure seen in this unit. Several points are worthy of comment. Six patients with malaria and renal failure (black water fever) were treated with one fatality. This was associated with fulminant gram-negative septicemia and diffuse microabscess formation. Data on serum quinine levels and peritoneal membrane clearances are available on three patients and indicate that during the oliguric period approximately one-third of the normal dosage of quinine should be administered. Thus 600 mgs. of quinine dihydrochloride is adequate for a 24-hour period. During the diuretic phase the normal 1800 mgm dose per 24-hours may be instituted to complete the required fourteen day course of treatment.*

Three patients with Glucose-6-Phosphate Dehydrogenase (G-6-PD) deficiency, acute hemolytic crisis and renal failure were treated. Clinically these conditions mimic black water fever so that whenever a patient is seen in a setting where black water fever or acute hemolytic anemia is likely to occur, G-6-PD deficiency should be considered. The other medical causes of acute renal failure are listed in Table 1 and require no special comment.

Peritoneal dialysis has been used effectively in the treatment of all medical causes of renal failure in this series and its value in a war zone has been demonstrated. However, in all high catabolic states, particularly in post traumatic renal failure hemodialysis is the treatment of choice.

*presently ten days.

In order to continue maximum effort towards a further reduction in the mortality of renal failure patients in Vietnam some recommendations can be made to the referring physicians in the various medical facilities throughout the war zone.

1. Strict adherence to the preventive principles of acute renal failure.
2. When the diagnosis of ARF is established or even suspect referral to the renal unit should not be delayed.
3. When possible, the referring physician should accompany the patient to the renal unit (or a physician familiar with the case).
4. The use of intravenous therapy solutions to combat potassium toxicity, when necessary (see text).
5. Early referral is infinitely better than delayed referral.

Editor's Note: The mortality rate from acute renal failure during World War II and Korean war prior to the use of hemodialysis approximated 80-90 per cent. The overall mortality rate with the use of the Brigham-Kolff type artificial kidney during the Korean War was 53 per cent (includes patients treated medically).

TABLE I

Cases of acute renal failure admitted to 629th Medical Detachment

May 1966 - May 1967

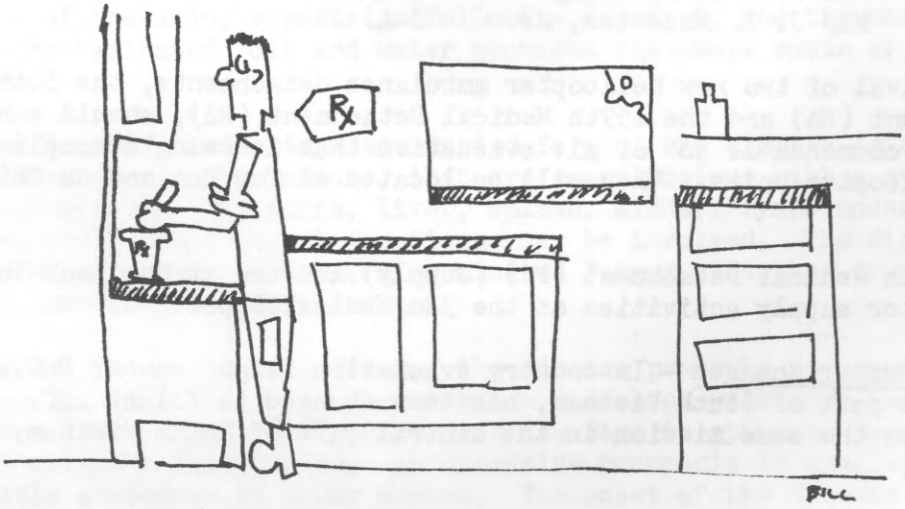
Medical Causes of ARF	Number Patients	Number Survivors
Malaria	5	4
Malaria and leptospirosis	1	1
G-6-PD deficiency*	3	3
1 Scrub typhus		
1 Tick-borne typhus		
Hemolytic anemia, ? etiology	1	1
Amebic hepatic abscess, azotemia	1	1
Pneumonia, alcoholism	1	1
Pneumonia, kanamycin toxicity	1	1
Unknown infection	1	1
Chronic renal disease	2	1
1 Diabetes mellitus, KW		
Disease, congestive cardiac failure		
1 Bilateral renal calculus		
Acute bacterial endocarditis, anemia and cardiac arrest	1	0
TOTAL	17	13

*All taking chloroquine-primaquine malarial suppressive therapy once weekly.

TABLE II

Cases of acute renal failure

Post traumatic renal failure	Number Patients	Number Survivors	
Cases referred to unit	27	7	(43.7%)
Treated	16		
Burn Cases with ARF			
White phosphorus	2	1	
Thermal flare grenade	1	0	
Miscellaneous			
Methanol toxicity	1	0	
Overall survival rate of cases treated			
Medical causes	16	13	
Post traumatic	16	7	
Burns	3	1	
Miscellaneous	1	0	
TOTAL	36	21	(58.2%)



"Hey, 501 of the red, 294 of the green, 333 of the blue, 147...."

44th MEDICAL BRIGADE NEWS

Movement of Brigade Headquarters - The 44th Medical Brigade Headquarters became operational at Long Binh Post, 29 September 1967.

Unit Relocations - As the areas of tactical emphasis change and as new units arrive in-country, it is necessary to relocate some medical treatment facilities in order to provide the best medical care that is possible. The following units have been relocated since 1 September 1967:

1/563d Medical Company (clr) to Chu Lai
2/563d Medical Company (clr) to Danang
HQ, 67th Medical Company (AC) to Bien Hoa
74th Medical Battalion to Chu Lai.

New Units - The 67th Medical Group at Bien Hoa became operational on 23 October 1967. The following hospitals which were formerly under the 68th Group have been assigned to the 67th:

12th Field Hospital
3d Field Hospital
3d Surgical Hospital
17th Field Hospital
45th Surgical Hospital.

The 67th Group is commanded by Colonel John A. Sheedy and the primary staff members are as follows:

LTC Ernest W. Snyder	Executive Officer
MAJ Allen Samuels	S-1
MAJ Fred W. McKinley	S-2
MAJ J. L. Macentee, Jr.	S-4.

The arrival of two new helicopter ambulance detachments, the 50th Medical Detachment (RA) and the 159th Medical Detachment (RA), should enhance an already commendable job of air evacuation that is being accomplished by our helicopter units. They will be located at Tuy Hoa and Cu Chi, respectively.

The 507th Medical Detachment (FC) (Supply) located at Cam Ranh Bay is expected to bolster supply activities at the 32d Medical Depot.

Flight Number Changed - In-country evacuation flight number 860, which serves the northern part of South Vietnam, has been changed to flight 260. Flight 660, which has the same mission in the central part of South Vietnam, remains unchanged.

Chaplains Workshop - A chaplains workshop was held September 18-21 at Vung Tau for the chaplains of the 44th Medical Brigade and the divisions. Medical Brigade Pamphlet 165-1, which should prove a valuable aid to all chaplains working in medical treatment facilities, was introduced during the workshop.

A TECHNIQUE FOR PREPARING AND STAINING MALARIA SMEARS

Captain William K. Drake, MC*

INTRODUCTION:

The following is a detailed description of a simple, rapid method for the preparation of malaria slides of uniform high quality using buffered Wright's stain. It has been developed in a field setting and requires only readily available equipment and materials. Pitfalls and corrective measures are also described.

Primary attention should be directed toward the thick film which increases approximately 50 fold the number of cells which can be examined per oil immersion field. In routine screening only the thick film is used and for the most part species differentiation can be made from it. The thin smear is used mainly to distinguish finer differences of species, i.e., red cell enlargement and pallor, Schuffner's dots, multiple infection of the red blood cell, applique forms and ban trophozoites. The thin film is also used to accurately determine the degree of parasitemia.

METHOD OF MAKING THE BLOOD FILM:

The thick film is prepared by placing one small drop of blood near one end of an alcohol cleaned slide. It is essential that the slide be spotlessly clean as dust particles mimic the malaria parasite and if considerable dirt is present the extraneous particles will completely preclude parasite identification. The drop is then spread to a dime sized blot by moving the corner of a glass slide through the drop in a circular outward motion. The spreading procedure takes approximately five seconds and also serves to defibrinate the thick film. Inadequate defibrination results in long traversing fibrin strands in the final product. The thickness of the thick film is also critical. When the fresh blood drop has been spread out to the proper thickness it has a reddish-brown hue. If too thick it appears dark red and opaque; if too thin, a translucent pale brown. Later, in the final product, a film which is too thin has, of course, failed to concentrate parasites. One which is too thick microscopically appears dark blue and parasites are obscured or if the parasites are still discernible, the essential differential staining of the nucleus and cytoplasm is lost.

The thin film is made on the other end of the same glass slide in the manner of a standard differential smear. It should be well separated from the thick preparation and have a good feather edge.

The freshly prepared slide must be kept flat until dry otherwise the thick film will run to one edge and be lost. The unstained slides must also be covered to protect them from dust and flies.

LYSING OF THE THICK FILM:

The lysing agent is 2 per cent acetic acid. The slides are placed on end in small specimen bottles filled with 2 per cent acetic acid to a level sufficient to cover the thick film but not reach the thin film. The thick film must be completely dry prior to lysis or it will flake off during this phase. The time required for lysing is approximately 2-3 minutes and can be recognized as complete when the film becomes devoid of pigment and appears as a thin plaque of slightly resilient clear gray-white protein. Lysis can be accelerated by gentle agitation but is associated with the risk of dislodging the plaque. Extended lysis with the 2 per cent acetic acid solution will cause a gradual disintegration of the plaque but will not affect morphology or staining characteristics of either parasites or white blood cells.

The advantages of lysing with acetic acid are several. Lysing time is shortened by 5-8 minutes and the end point is less critical. With distilled water, tap water or Wright's buffer as the lysing agent there is a progressive alteration of both parasites and white blood cells to expand to 2-3 times normal size. These expanded nuclei appear a granular pale blue instead of the expected condensed dark purple. The parasites are also severely altered to the point of non-recognition. Their blue cytoplasm is expanded, pale and feathery and poorly defined. The usual solid pink condensed nuclear chromatin also becomes pale expanded and granular.

Following lysis the thick film is rinsed by vertically dipping the thick end of the slide several times in clean tap water. Care is again taken not to splash the water on the thin film. This rinse water must be changed after every 30-35 rinses to prevent the deposition of a very fine red staining particulate matter on the surface of the thick film plaque. Residual acid must be completely rinsed out or the subsequent staining phase will be inhibited and result in a grossly pink plaque which microscopically shows pink staining of white blood cell nuclei. Parasites, under these conditions, remain unstained and not visible.

The slide is then dried at room temperature. This may be hastened by mild heating either over a lamp or in an oven. Thorough drying is essential to prevent the formation of crystals in the unlysed red blood cells of the thin smear during the subsequent staining procedure.

PREPARATION OF THE BUFFERED WRIGHT'S STAIN:

Buffered Wright's stain has the advantages of reproducibility, speed, stability and sharp, dark, differential staining of nucleus and cytoplasm of the parasites.

To prepare the stain add 3 gm of prepared Wright's stain (FSN 6505-149-6001), 1 gm Giemsa buffer salts (FSN 6505-153-9968), 30 ml glycerine, and 970 ml of methyl alcohol to an opaque, light protecting stock bottle.

Cap and shake vigorously. This stock solution is stored in the refrigerator to prevent bacteria and fungus contamination. It is necessary to grind the Wright's stain if the stain is to be used during the first few days after preparation. Buffer salts do not pass completely into solution, therefore prior to using, the stock solution must be shaken for one minute to evenly disperse undissolved buffer salts. Note that Giemsa buffer salts provide a pH of approximately 6.8 and can be made up independently from phosphate salts if necessary.

STAINING PROCEDURE:

Two covered biological staining dishes with matching slide racks for twenty slides (FSN 6640-422-3810) are used. The advantage of the staining dish over the flat rack is that extraneous particulate matter tends to settle to the bottom rather than cling to the surface of the slide. Evaporation of the alcohol is for the most part eliminated and speed and ease of handling multiple specimens is provided. Dishes are labeled 1 (staining and fixing phase) and 2(buffering phase). Add unfiltered Wright's stain to 1 to a level sufficient to cover the slides in the rack. Fill dish 2 to the same level with 2/3 distilled water and 1/3 buffered Wright's stain. Replenish 1 by adding well shaken stock stain. Replenish 2 by adding distilled water only, as sufficient stain is carried over from 1 to 2 with each run. Change the solution once a week. Keep the dishes covered at all times and refrigerated after each daily run to reduce evaporation and contamination.

The time for staining and buffering is determined through the use of a control slide - a known positive with a high rate of infection. The control is passed through the stain solutions using an arbitrary time of one minute for each step. Staining time varies from one-half to two minutes in each solution depending upon the environmental temperature. The standard procedure is to load the lysed and dried slides into the rack, immerse the rack first in the staining dish 1 for the predetermined time; remove and place in the buffering dish 2 in a similar manner. When buffering is complete, wash the stained slide in a pan of clean tap water and then rewash the slides with a squirt bottle to insure removal of any surface particulate matter.

MICROSCOPIC APPEARANCE OF THE STAINED SLIDE:

Examination of the optimum stained and processed thick film with the oil immersion lens should reveal the following four elements:

1. The background is a light to medium blue and has a fluffy texture. No extraneous material is present.

2. Platlets are present singly or in clumps; each appears as a cluster of tiny azure rodlets set in a pale gray-blue cytoplasm. The small pink rodlets contrast with the chromatin dot of the common ring trophozoite which is solid or condensed and a darker red color. The smallest chromatin dot of a malaria ring in many times larger than the individual small granule or rodlet of a platelet.

3. White blood cells despite lysis maintain the nuclear and cytoplasmic granule staining qualities of the thin smear. Both basophilic (blue) and acidophilic (red) elements stain deeply and distinctly.

4. Malaria parasites present in the common ring form show a sharp contrast between nucleus and cytoplasm. It is a basic requirement of malaria parasite identification that both constituents, i.e., nucleus and cytoplasm be clearly identifiable as such. The nucleus is dark and cytoplasm be clearly identifiable as such. The nucleus is dark pink-red to crimson, round or oval in shape always slightly irregular and not sharply marginated. The cytoplasm of many organisms, however, appears amorphous and fails to take a ring form. Nevertheless, in all organisms cytoplasm is easily recognizable as such by its color, a moderate to dark blue which contrasts sharply with the pale blue background. With larger ameboid trophozoites, schizonts and gametocytes, nuclear material will take the red hues and the cytoplasm will be definitely blue and contrast with the background. When present, pigment and its morphology can also be appreciated.

The thin film should compare to a well stained blood smear made for routine differential counts. The parasites are vividly apparent in red cells, with well defined differential staining of nuclear chromatin and cytoplasm as described for the thick film. Special advantages of the thin film were previously discussed and important differential features such as red blood cell enlargement and pallor, parasite morphology and location should be readily apparent. It is of special note, that within the optimum staining time for the thick film, Schuffner's dots of P. vivax will be only faintly visible or unstained. In order to bring out Schuffner's dots both staining and buffering time must be increased.

CONCLUSION:

It is hoped that this detailed description of the preparation and staining of malaria slides with emphasis on the fine points of technique does not tend to misrepresent the speed and simplicity of the method. The main problem of malaria diagnosis in the laboratory is not lack of ability to recognize and identify parasites but that of preparing a slide fit to be placed on the microscope stage. It is believed that this technique provides the constancy and safeguards essential to this end.

Acknowledgments

Floyd R. Strew, PFC RA 13845630, by whose hand this technique was developed.

Paul P. Murphy, PFC US 51479816, and Robert T. Grossman PFC US 55807804, who assisted in drafting this paper.

COMPARISON OF 10-DAY AND 14-DAY QUININE THERAPY WITH FALCIPARUM MALARIA

Captain William M. Rogoway, MC and 1LT William H. Bailey, Jr., MSC*

The use of quinine in the treatment of falciparum malaria is not without complications. Symptoms of cinchonism appear not infrequently, the length of the therapy prolongs the patient's hospital stay, drug-induced thrombocytopenia occurs, and there is suggestive evidence that the drug is responsible for severe granulocytopenia in rare individuals. In an attempt to determine whether the duration of quinine therapy could be reduced without increasing the relapse rate, a clinical study was initiated at the 6th Convalescent Center in January 1967.

One hundred and forty-one consecutive patients with falciparum malaria admitted directly or by transfer to the facility and treated with pyrimethamine (25 mg tid for three days), DDS (25 mg qd), and quinine were included. These patients were treated alternately with ten or fourteen days of quinine (650 mg tid). Table 1 indicates that the patients were quite comparable with regard to age and race. The mean length of stay at the Center for those receiving fourteen days of quinine was three days longer than for those receiving ten days. This is consistent with the attempt to keep all patients hospitalized a total of twenty one days after completion of quinine. There were no relapses in either group. Three patients receiving fourteen days of quinine had complications. One patient developed vivax malaria after completion of therapy. A second had a megaloblastoid anemia detected during his treatment. A third developed a maculopapular rash, high fever, arthralgias, and headache on day eleven of quinine therapy. This responded rapidly to discontinuance of the drug and systemic corticosteroids and was felt to be an allergic reaction to quinine. There were no complications noted in the ten day group. One patient seen prior to the study and treated with only ten days of quinine did develop granulocytopenia.

The study suggests that, in conjunction with pyrimethamine and DDS, reducing quinine therapy from fourteen to ten days does not increase the relapse rate and may decrease the complications as well as shortening the hospital stay.

TABLE I

	10 Days Quinine		14 Days Quinine		Total
No. of Patients (%)	71	(50.4%)	70	(49.6%)	141 (100%)
Race					
Cau	64	(90%)	62	(89%)	126 (89.4%)
Neg	7	(10%)	8	(53.3%)	15 (10.6%)
Age (mean)	23.3	yrs.	21.3	yrs.	21.8 yrs
Length of stay (mean)	25.7	days	28.8	days	27.2 days
No. of Relapses	0		0*		0
No. with malaria previously	14		10		24 (17%)

*Three complications observed

*CPT Rogoway is former Chief, Medical Service, and LT Bailey is Administrative Officer, 6th Convalescent Center, APO 96377

THE USE OF CORTICOSTEROIDS IN INFECTIOUS MONONUCLEOSIS

Captain Louie Travis, MC*

The place of corticosteroids in the treatment of infectious mononucleosis is still a controversial matter. Although their value in the treatment of severe anginose type, and certain of the rarer complications of the disease, is well recognized, their usefulness in the management of the routine, less severely ill patient has not been generally appreciated.

The purpose of this paper is to report the results of the synethetic corticosteroids in the management of a group of young adults with moderately severe or severe infectious mononucleosis. This study was preliminary to a double blind study still in progress.

MATERIALS AND METHODS

Study Population and Criteria for Diagnosis

The majority of the patients were students referred from the health services of Rice University and the University of Houston. The remainder came from our private practice. Diagnosis was based upon a characteristic clinical picture, lymphocytosis with a large number of atypical lymphocytes, and an initially high or a rising heterophile antibody titer after guinea pig absorption.

Only cases severe enough to prevent attendance at school or work were treated with steroids. Paramethasone acetate** was used. The initial dose was generally 16 mg daily (equivalent to approximately 40 mg prednisone) although in a few instances a larger dose was needed to control the symptoms. The dose was tapered at a rate consistent with the patient's response. The average duration of treatment was 20.6 days (range 13-40 days). Patients were advised to resume their normal activities but to refrain from contact sports until splenomegaly had subsided. Liver function tests, blood counts and serologic studies were performed twice weekly.

RESULTS

Forty-three patients were evaluated. Table I shows the incidence of signs and symptoms at the time of admission. The median duration of illness was seven days at the time steroid therapy was initiated. It should be noted that all patients presented at a stage in their illness when symptoms were progressing in severity, or had reached a plateau. None appeared to be improving spontaneously.

Table II shows the duration of signs and symptoms after steroid therapy was begun. The rapid resolution of fever and other symptoms was impressive. The average patient was completely symptom free in eight days, whereas it took an average of sixteen days for all clinical signs to disappear. Almost 90 per cent of the patients had elevated SGOT OR SGPT (up to 660 units) when

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**Generously supplied as Haldrone - Eli Lilly and Co.

therapy was begun. About a third of the patients had further disturbance in their liver function tests (SGOT, SGPT) during therapy, whether initially abnormal or not. In all instances these values returned to normal by the end of the second week of treatment. Nine patients (21 per cent) had hyperbilirubinemia (1.1-5.7 mg per cent) initially and twenty-four (56 per cent) had elevations of alkaline phosphatase (2.6 - 10.8 Bessie Lowry units). Invariably the heterophile titer increased during steroid therapy, regardless of the patient's clinical response. For example, one patient had an initial titer of 1:225 increasing to 1:7168 despite a prompt clinical response. The average patient had 40 per cent atypical lymphocytes on the initial peripheral blood smear, and this continued for an average of fifteen days following treatment.

A few patients noted side effects such as acne, insomnia, nervous irritability, epigastric burning, and increased appetite. These were never troublesome and resolved as the steroid dosage was reduced.

ILLUSTRATIVE CASES

Case 1. A twenty year old white male had been ill several days with extreme malaise, fever as high as 104°, lymphadenopathy, hepatosplenmegaly, bilirubin 5.0 mg per cent and SGOT 400 units. Paramethasone 16 mg daily was begun with rapid defervesence and relief from malaise. The bilirubin and SGOT increased somewhat during the early days of treatment (to 5.7 mg per cent and 550 units respectively) and the heterophile titer rose to 1:1792. Nevertheless the patient felt well enough to return to classes four days after therapy was begun. The dosage was reduced gradually over the next forty days. Physical signs and laboratory values returned to normal.

Case 2. A twenty-one year old white male was moderately ill with malaise, sorethroat, and fever to 102°. After three days of therapy he was free of symptoms and therapy discontinued. Within 24 hours he was just as ill. Resumption of steroids brought about prompt symptomatic relief. His dosage was reduced in the usual fashion without recrudescence of symptoms.

Case 3. A seventeen year old white male linebacker on a high school football team had been ill one week with vomiting, ten pound weight loss, fever, malaise, lymphadenopathy, and hepatosplenomegaly. Initial bilirubin 3.2 mg per cent, SGOT 120 units and SGPT 150 units. The day following an initial 16 mgm dose of paramethasone his symptoms had subsided and a few days later he was able to return to school. Contrary to advice he resumed football activities and on the seventeenth day of therapy he played in a high school football game and won the outstanding player award for that particular game. Steroids were reduced in the usual manner, terminating on the twenty-fifth day.

Case 4. A seventeen year old white female became very ill with headache, sorethroat, fever to 102°, lymphadenopathy, and hepatosplenomegaly. Paramethasone 16 mg daily was instituted. She failed to improve and after 48 hours the dose was doubled. Within three days she was symptom-free and ready to return to school. However, her mother insisted the steroids be

discontinued. Within two days her symptoms recurred. She went home to bed and subsequently missed 41 days of school.

COMMENT

The purpose of this study was to test the efficacy of corticosteroids in the treatment of infectious mononucleosis and to permit the author and his associates to formulate an opinion, relying upon their own impressions concerning the natural history of this disease and in determining whether a double blind study was warranted. At the time this investigation was undertaken no well controlled studies on this subject had been published, to our knowledge. Since then at least two publications have appeared[1,2] and both demonstrate that steroids favorably influence the course of the illness. Pyrexia, sorethroat, and nausea are promptly and predictably terminated and prolonged asthenia is not encountered. Steroids curtail unnecessary suffering and restore to the patient a sense of well being enabling return to his work with a minimal loss of time.

Adequate dosage of steroid is essential. Breen[1] recommends 1 mg prednisone/kgm/day and up to 2 mg/kgm/day in the anginose variety. In our experience, the equivalent of 40 mg prednisone per day initially is usually sufficient. The dosage is doubled if no response is evident in two days. Therapy must not be curtailed rapidly, since a prompt recrudescence of symptoms often occurs.

One valid criticism of using steroids in combat troops concerns the risk of adrenal suppression, and the hazards thereof should the trooper become injured subsequently. Some adrenal suppression probably occurs, but in young healthy men it does not persist long. Danowski[3] treated eleven healthy men with 300 mg hydrocortisone daily for thirty days. One month later he found that their urinary excretion of Porter-Silber chromogens and compound S after metyrapone was normal. He concluded that in this dose range no permanent suppressive effect on either the pituitary or adrenal in healthy men can be demonstrated. Somewhat smaller dosages for a shorter period are used for the treatment of infectious mononucleosis.

It is concluded that corticosteroids effect a prompt and sustained symptomatic relief in infectious mononucleosis and are indicated for patients moderately or severely ill with this disease.

EDITOR'S NOTE

Why Publish in USARV Medical Bulletin

The value of the USARV Medical Bulletin over stateside professional publications is that a practical article about work in Vietnam gets rapid professional comment, correction, and pertinent additions from other pratical professionals faced with similar tasks in Vietnam. Some of these comments are published, others are passed directly to the author. This increases the value of any article later expanded for publication in the international medical literature.

TABLE I

Incidence of signs and symptoms in 43 cases of mononucleosis

	Per cent of total
Sorethroat	81
Anorexia	51
Fever	88
Headache	44
Malaise	93
Adenopathy	93
Splenomegaly	42
Hepatomegaly	53

TABLE II

Duration of signs and symptoms after corticosteroids begun

	Average duration, in days, after therapy begun	Median
Sorethroat	3.8	2
Anorexia	3.3	2
Fever	1.5	1
Headache	1.4	1
Malaise	4.0	2
Adenopathy	12.7	13
Splenomegaly	7.9	6
Hepatomegaly	12.5	14

REFERENCES

1. BREEN, et al: Corticosteroids in Acute Infections, Lancet, 16 January 1965.

2. Corticosteroids in Infectious Mononucleosis, JAMA, 20 February 1967.

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GLUCOSE 6* PHOSPHATE DEHYDROGENASE DEFICIENCY

LTC Samuel C. Jefferson, MC*

Hemolytic anemia due to the 8-aminoquinolone antimalaria drugs (primaquine) has been recognized since 1934. No racial group has been spared; however, the incidence has been the highest in Negroes (10 per cent of American Negroes) and people from the Mediterranean area. The incidence tends to follow that of falciparum malaria, and it has been postulated that like Sickle Cell Anemia there is a lesser susceptibility to malaria in the affected individual.

In 1954, at the Army Medical Research Unit of the University of Chicago it was demonstrated that there is an intrinsic defect in the red blood cells of affected individuals, and that the hemolysis is self limited. In 1956, an inherent deficiency in the enzyme, glucose 6-phosphate dehydrogenase (G6PD) was found in susceptible red cells, and following this, further work demonstrated that this deficiency was responsible for the hemolytic anemia following administration of certain drugs. This enzyme catalizes the initial step in the pentose phosphate pathway of carbohydrate metabolism; this pathway is the only source of reduced triphosphopyridine nucleotide (TPNH) in the erythrocyte which in turn is required for the maintenance of glutathione in the reduced state (GSH), (Fig 1). When the cell is deficient in G6PD, there is a reduction in the amount of GSH, and the cell becomes more susceptible to either auto-oxidation or various oxidative compounds.

The following sequence of events is believed to occur. Certain drugs such as primaquine form reduction-oxidation (redox) intermediates, and this oxidative potential is transmitted to hemoglobin and other compounds with resulting formation of methemoglobin. Hydrogen peroxide (H_2O_2) is also formed, and probably caused denaturization of enzymes, hemoglobin and other protein molecules within the cell. These may be seen as Heinz bodies either in a wet mount or with supravital stains (they are not visible with ordinary Wright's stain). In order to maintain cellular and membrane integrity there is an increased demand for ATP; when the metabolic demands placed upon the erythrocyte exceed the supply, hemolysis occurs, primarily in the spleen. As red cells age, their levels of G6PD progressively decrease both in the normal and the G6PD deficient individual, and it is therefore the older red cell which is most sensitive to drugs. In addition there is a definite correlation between dosage, blood levels, type of drug as well as the severity of the individual's deficiency. Thus when 30 mgm, of Primaquine daily are given to a susceptible individual, there is an initial acute hemolysis with formation of Heinz bodies, jaundice and often hemoglobinuria, reaching a maximum in about ten to twelve days. Following this, in spite of continued drug administration, there is a recovery phase until a state of equilibrium is reached at about four weeks. If the dosage is then increased,

*Formerly, USAEUR Medical Consultant

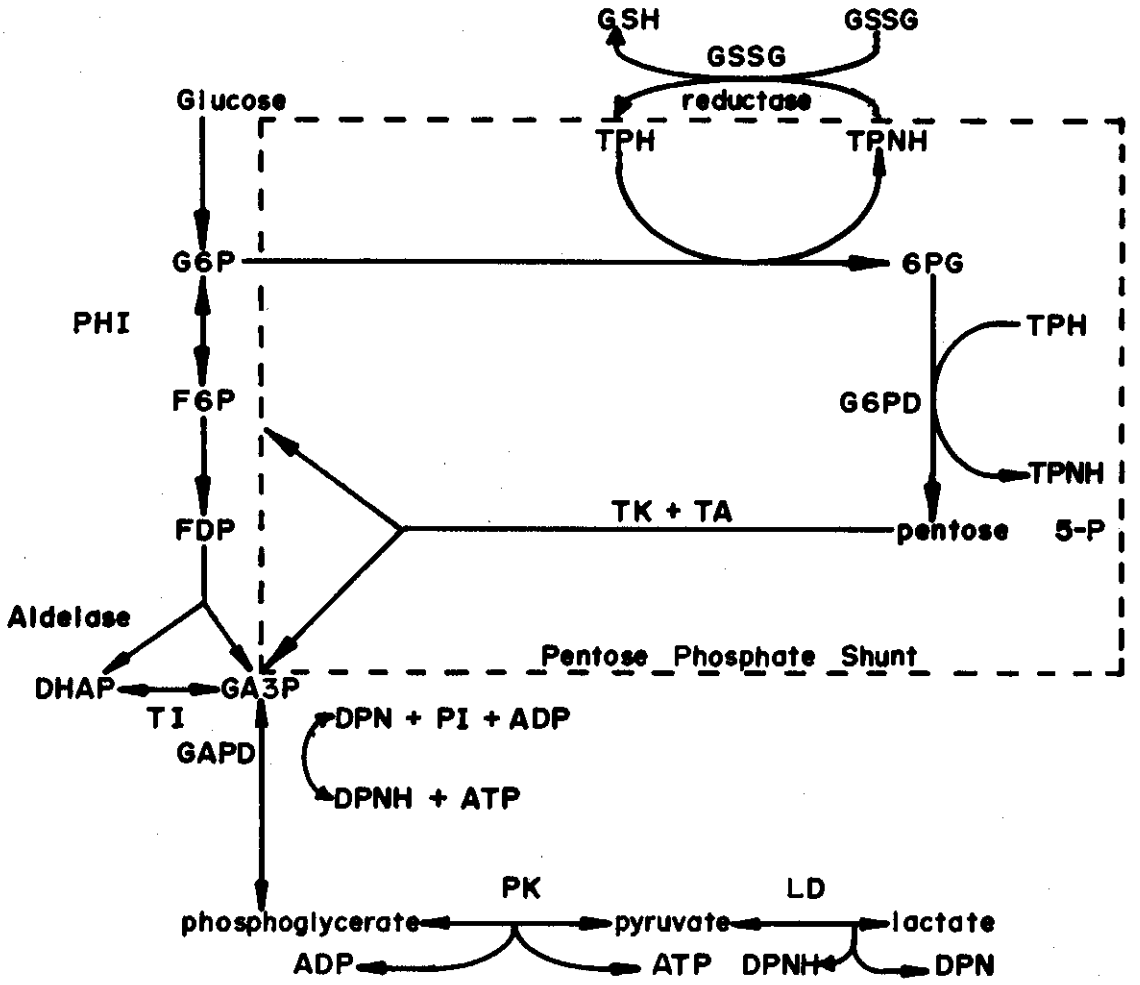
a repeat episode of hemolysis with susequent recovery occurs. Eventually, however, a point is reached at which compensation cannot occur.

In addition to the classic G6PD deficiency a number of genetic variants of the enzyme have been described which, while apparently present in normal amounts, are not as effective and therefore also result in primaquine sensitivity anemia. A few cases of glutathione reductase deficiency have been described as well as a deficiency in glutathione itself. Hemoglobins H and Zurich are unstable hemoglobins which apparently require higher levels of protection against oxidation and therefore are causes of drug sensitivity in the presence of normal enzyme systems. Hemolytic anemia associated with fava beans ingestion has occurred only in G6PD deficient subjects but apparently requires in addition an unknown serum factor (perhaps an antibody) as not all individuals with G6PD deficiency are affected by fava beans.

A number of other drugs have been implicated in hemolytic anemia with G6PD deficiency. These include Furadantin, sulfa drugs, Vitamin K, phenylhydrazine, acetanilid, phenacetin and PAS. A number of apparently normal individuals have had hemolysis associated with renal failure. Here it is felt that the blood levels of the drug were so elevated due to failure of the excretory mechanism that even normal amounts of enzymes were insufficient to protect the red cells. It is therefore important to recognize that the occurrence of hemolytic anemia in G6PD deficiency is simply a failure of the normal protective mechanisms and that if the insult is great enough to normal cells, hemolysis will also occur.

Diagnosis of this condition is based upon the clinical picture, history of drug exposure and specific laboratory tests. During the first three days Heinz bodies may be observed in the peripheral blood; these rapidly disappear (probably due to trapping of the abnormal cells in the spleen). A number of tests have been devised including an assay technique for G6PD. This latter, however, will not pick up those cases due genetic variants of the enzyme as opposed to those due to a deficiency in the amount of enzyme. The widely used and most practical procedure is the methemoglobin reduction test. It is simple to perform, has a visual end point, has a high degree of accuracy and is adaptable to mass screening procedures. Methemoglobin is formed by subjecting the red cells to sodium nitrite. Methylene blue is then added; if TPNH is present, a TPNH-dependent methemoglobin reductase system is activated. This system requires methylene blue as an oxygen carrier. The persistence of methemoglobin is indicative of a deficiency in TPNH and is therefore directly related to deficiency G6PD.

Abbreviations: G6P, glucose 6-phosphate; 6PG, 6 phosphogluconate; G6PD, glucose 6-phosphate dehydrogenase; TPN, triphosphopyridine nucleotide; TPNH reduced TPN; GSSG, oxidized glutathione; GSG, reduced glutathione; 6PGD, 6 phosphogluconate dehydrogenase; TK, transketolase; TA, transaldolase; PHI, phosphohexoseisomerase; F6P, fructose 6-phosphate; FDP, fructose-1-6 phosphate; DHAP, dihydroxyacetone phosphate; TI, triose isomerase; GA3P, glyceraldehyde-3-phosphate; GAPD, glyceraldehyde-3-phosphate dehydrogenase; DPH, diphosphopyridine nucleotide; DPNH, reduced DPN; Pi, inorganic Phosphate; ADP, adenosine diphosphate; ATP, adenosine triphosphate; PK pyruvate kinase; LD lactic acid dehydrogenase.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F6P
G6PD
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FDP
TK + TA
pentose 5-P
Aldolase
Pentose Phosphate Shunt
DHAP
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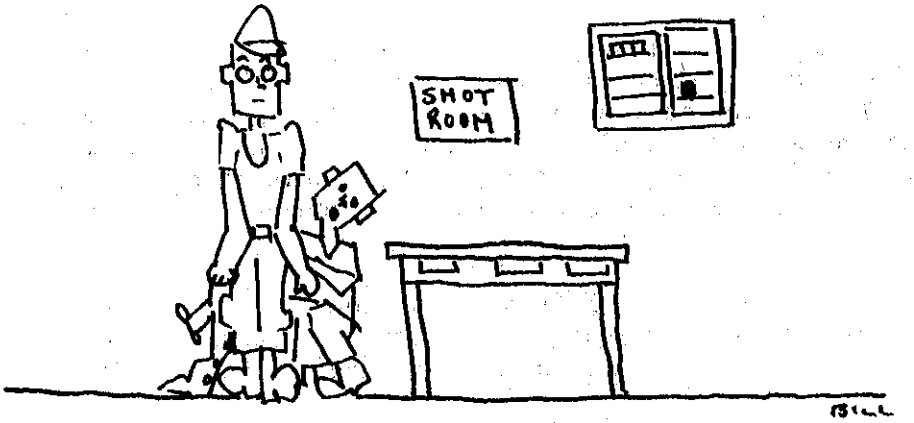

SHOT ROOM

"Smart?"

AN EPIDEMILOGICAL STUDY OF AN ISOLATED OUTBREAK OF PLASMODIUM FALCIPARUM MALARIA AMONG PERSONNEL OF THE 1st INFANTRY DIVISION

LTC Arthur W. Buswell, MC*
Captain Donald B. Kunkel, MC**
Captain Theodore C. Reineck, Jr., MC***

Introduction

During the latter portion of August and the first days of September, 1967, a high incidence (55 cases) of P. falciparum malaria and one case of P. vivax malaria was recorded among personnel of the 1st Battalion, 2d Infantry, 1st Infantry Division after an operation 65 miles North of Saigon. This outbreak was remarkable in that the episode marked the first large scale malaria problem of epidemic proportions within a single unit in the division since the division's movement into Vietnam in July 1965. It is also of significance in that the area of infectivity has been entered on several occasions, in the past, with moderately low numbers of malaria cases resulting.

It is the purpose of this report to attempt to give an exhaustive analysis of the causative factors involved in the outbreak and to define the role of North Vietnamese infiltrators in the propagation of malaria in South Vietnam. A summary of problems in malaria prevention experienced by combat units will also be presented.

All cases of malaria reported herein were progressively evacuated from organic division medical units to the 93d Evacuation Hospital, Long Binh, and from there to the 6th Convalescent Hospital, Cam Ranh Bay, the 36th Evacuation Hospital, Vung Tau, or to hospitals in CONUS if the DEROS date was near.

Associated Fevers of Undetermined Origin

Associated concomitantly with the large number of malaria cases in question was an even larger number of fevers of undetermined origin. The majority of these cases were of short duration and presented with only moderate constitutional symptoms. However, several individuals presented with hemorrhagic tendencies suggestive of leptospirosis or arbovirus infections. This office is presently working closely with the 9th Medical Laboratory and the 20th Preventive Medicine Unit in the collection of materials and data for the determination of the etiologic agent. A later report on these FUO's will be released by one of these headquarters.

*Division Surgeon, 1st Infantry Division
** Division Preventive Medicine Officer, 1st Infantry Division
***Administrative Assistant to the Division Surgeon, 1st Infantry Division

Appreciation is extended for the able assistance in the gathering of material for this paper to the 20th Preventive Medicine Unit, 9th Medical Laboratory, and to CPT Howard Gerstel, MC, and 1LT Lawrence Becco, MSC, of the 1st Battalion, 2d Infantry, 1st Infantry Division.

Previous Division Malaria Experience

As can be seen in Inclosure 3, the 1st Infantry Division experience with malaria has been moderate with respect to incidences recorded by many units in the Central Highlands who have experienced rates several times that of the 1st Division. Rates of 200-600/1000/annum are not uncommon to units exposed to highly endemic areas in Vietnam.

The 1st Division area of responsibility is divided into two basic geographic zones: in the southern area, the land is flat, heavily cultivated, and densely populated; however, the northern area is thickly jungled and forested, contains large rubber plantations, and is relatively sparsely populated. The northern area consists of rolling hills and may properly be included in the Central Highlands type of terrain, whereas the southern area may be called Coastal Plain. Rainfall and terrain in the northern areas are conducive to proliferation of the Anopheles mosquito, the vector of malaria.

During the preceding months, the greatest numbers of malaria cases have come from the northern areas. However, there have been no large numbers of cases from one unit such as are reported here. During the month of August 1967, admissions for malaria in the 1st Bn, 2d Inf comprised 80.1 per cent of the total division admissions.

The division has operated in the suspected area of infectivity (see below) on several occasions in the past, including a stay of over one month during Operation Junction City, March-April 1967. During no operation in this area previous to the present reported outbreak has the division experienced such a large number of admissions from one point source.

Time and Location Factors

Inclosure 4 presents data on the distribution of admission dates of malaria cases for the 1st Bn, 2d Inf. As can be seen, an interesting distribution of cases exists, with one patient admitted on 17 August, the bulk of cases admitted between 20-29 August, and a seemingly separate group admitted between 1-3 September. The mode date of the distribution is clearly 24 August with fifteen cases admitted on that date. A total of 56 cases were admitted during the report period.

Below is an outline of the movement of 1st Bn, 2d Inf prior to, during and after the onset of symptoms of infected personnel (Ref Incl 1):

Quan Loi	27 July - 8 August
Tong Le Chon	8 August - 13 August
Area "A"	13 August - 19 August
Quan Loi	19 August - 27 August
Phuoc Vinh	27 August

Since 1) no increased incidence of malaria was noted among units at Quan Loi with 1st Bn, 2d Inf during the period 27 July - 8 August, 2) several replacement troops contracted malaria after being sent directly

to Tong Le Chon after the unit had left Quan Loi, and 3) the only areas in which malaria could possibly have been contracted were Tong Le Chon (coordinates XT 622810) and/or Area "A" (approximate coordinates XT 7476).

With an accepted intrinsic incubation period of 11-14 days for Plasmodium Falciparum,[1] it may be seen that by subtracting these two figures from 24 (24 August being the mode date of cases admitted) an earliest date of August 10 and a latest date of August 13 would be postulated as the most probable dates of infection of the mode group. In calculating from the obverse manner, if the dates 8-13 August are used as a most probable time of infection, addition of 11 and 14 days to both would give dates at both extremes of most probable dates of onset of symptoms of 19-27 August. This indeed is the picture for all but the latter cases.

If the dates 13-19 August are used (Area "A") it will be seen that the earliest case should have occurred on 24 August (using a minimum 11 day incubation period from 13 August). However, cases were experienced as early as 17 August, indeed, a second case was admitted 20 August, a day after the unit was in operation in Area "A." A postulated incubation period for the dates of operation at Area "A" would be entirely too short. In addition, most patients were held at forward medical facilities for one or two days while malaria smears were confirmed and transportation provided. This would mean that the actual onset of symptoms in most cases was up to two days prior to recorded admission dates at the 93d Evacuation Hospital, which are recorded in Inclosure 4.

A question still exists as to the eight cases recorded as being admitted between 1-3 September. Two possibilities come to mind: 1) delayed incubation due either to partial suppression by chloroquine-primaquine tablets taken prophylactically or to mild initial inoculation of malaria parasites and 2) the possibility of a second contact with malaria at Area "A". At present the second postulate seems more probable because of North Vietnamese activity in the general area.

Historical Aspects - The Battle of Tong Le Chon

Within hours after a combined mortar and ground attack from the South end of the camp upon the Special Forces compound at Tong Le Chon (Inclosure 1) the 1st Bn, 2d Inf was rushed from Quan Loi to provide support and a deterrent effect against further hostilities. The battalion arrived in the early morning hours 8 August and remained at the camp to provide security until 13 August, when it moved approximately eleven kilometers to the southeast for a period of six days.

The Special Forces camp group was comprised of approximately 400 CIDG (Civilian Irregular Defense Group) individuals supervised by eleven Special Forces personnel of the A-334 Special Forces Team.

1. Hunter, Frye, and Schwartzwelder, A Manual of Tropical Medicine, Fourth Edition, 1966, W. B. Saunders & Co., Pg 347.

Terrain Features - Tong Le Chon

Inclosure 2 presents an approximate scale drawing of the Tong Le Chon area. The site of Tong Le Chon is within the northern division area and lies beside the Saigon river and its small tributary, the Prek Trau (Trau Creek). It is within the watershed of the Saigon River and receives a heavy annual rainfall. Completely surrounding the camp and its airstrip is heavy jungle with three or four canopies of growth, depending upon location. On the east, west, and north are many tributaries of the Saigon River, with interspersed marshes and swamps.

As will be expanded upon below, heavy rainfall during the period 8-13 August caused the waterways to swell and inundate several areas of the camp, causing several platoons of the 1st Bn, 2d Inf to be moved to higher ground.

Hostile Forces Intelligence Data - Tong Le Chon

Intelligence data accumulated by the 1st Division and by Special Forces personnel prior to, during, and after the battle of Tong Le Chon indicate that at least one North Vietnamese unit - 165th NVA Regiment - and possibly another - 101st NVA Regiment - participated in the initial assault upon Tong Le Chon. The 141st NVA Regiment was in the area but apparently did not participate in the actual attacks.

Reconnaissance units sent into the jungle at the south end of the camp found heavily used, semi-permanent bunkers thought to have been constructed by NVA elements at least one month prior to the attack, indicating the NVA were in the area several weeks before the assault. This amount of time would allow large numbers of mosquitoes to become infected after biting malaria carriers, as the extrinsic incubation period within the mosquito is 7-14 days.[2] Many of these bunkers were found approximately 1200-1300 meters south of the camp, well within the flight range of the mosquito.

It is well known that North Vietnamese infiltrators into South Vietnam have a high incidence of clinical and subclinical malaria, almost invariably P. Falciparum. Intelligence sources have noted that the 165th NVA Regiment entered South Vietnam in March 1966 and began operations in the 1st Division area in June 1966. Little information is known in respect to malaria in either the 165th or 101st NVA Regiments. However, information concerning the 141st Regiment is probably generally applicable to most, if not all, North Vietnamese units operating in South Vietnam. The 141st Regiment infiltrated in late 1965, through Laos, and began operations in the 1st Division area in May 1966. Because of lack of medical supplies and equipment, and due to the forced march south, intelligence data accumulated indicate that the 141st lost 30 per cent of its troop strength during infiltration into the south, predominantly due to deaths and illnesses described as being caused by malaria.

2. Ibid, Ref 1, pg 319.

Special Forces Malaria Experience - Tong Le Chon

Immediately after the initial group of patients had been admitted to the 93d Evacuation Hospital with confirmed malaria a visit by this office to the Special Forces CIDG camp at Tong Le Chon revealed that aidmen there had seen and diagnosed eight cases of malaria (type unknown) by clinical symptoms and were in the process of treating these individuals. Due to the length of time in camp prior to symptoms these individuals almost certainly contracted their malaria at Tong Le Chon at approximately the same time as the 1st Bn, 2d Inf. Only occasional cases of malaria among CIDG personnel had been seen prior to that time.

The Special Forces personnel themselves had no symptoms suggestive of malaria; however, all professed to strict adherence to personal protective measures, especially the use of repellents and bednets.

Entomologic studies - Tong Le Chon

Shortly prior to the writing of this report, an analysis of a human biting mosquito survey at Tong Le Chon revealed 78 per cent of mosquitoes to be Anopheles species, the remainder being Aedes species.

Mosquitoes at Tong Le Chon during the operation 8-13 August were reported to be of moderately high density, but this varied subjectively from individual to individual and unit to unit.

Deployment of Units - Tong Le Chon 8-13 August

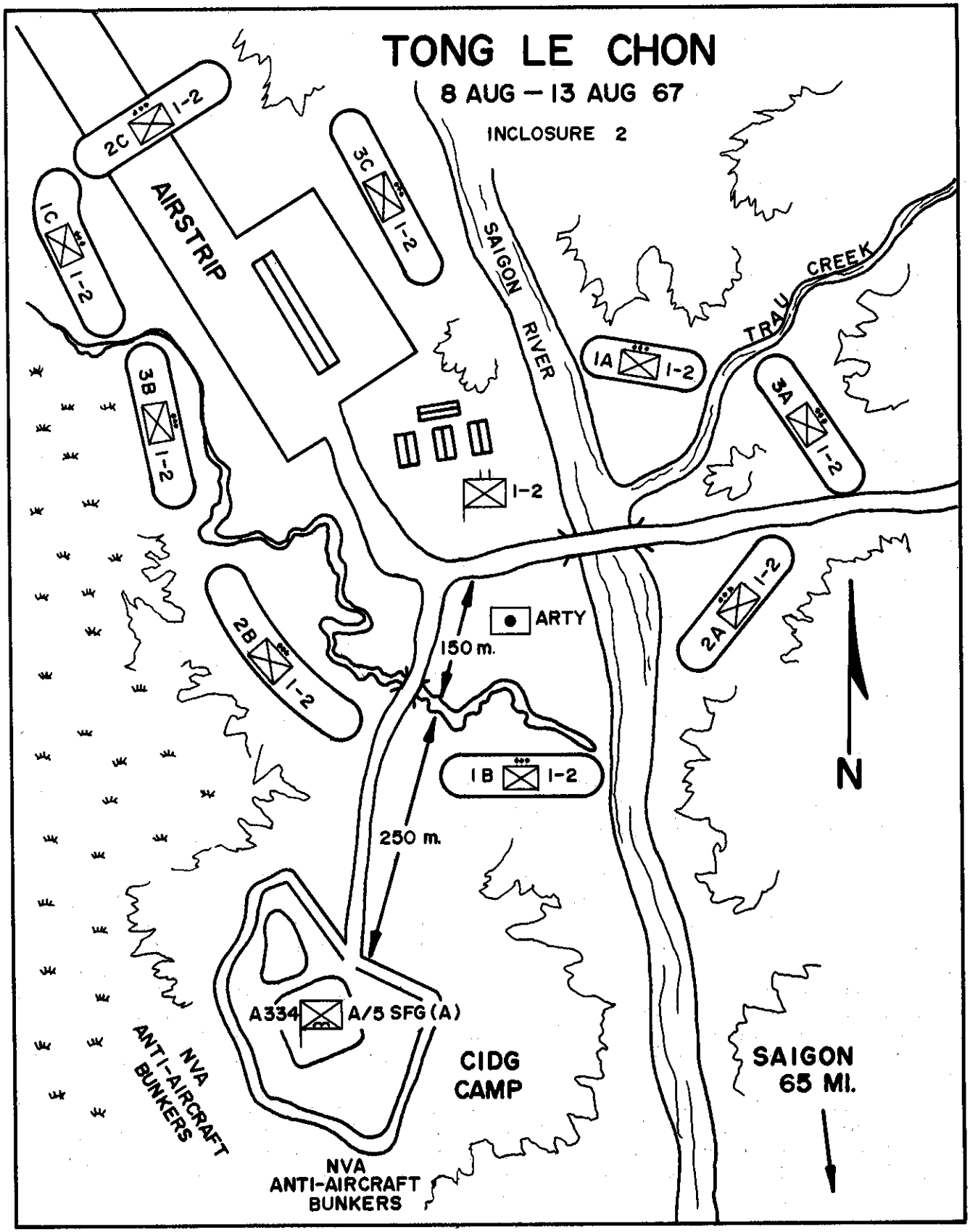
Inclosure 2 portrays the approximate deployment of platoons of the 1st Bn, 2d Inf around the airstrip at Tong Le Chon, 8-13 August. The reconnaissance and support platoons of headquarters company were for the most part near the battalion headquarters area, although this was variable with assigned duties. The medical platoon was deployed to other units of the battalion. Not listed on the map (Inclosure 2), the weapons platoon of A Company was situated between the second and third platoons of A Company.

August 10, the second and third platoons of C Company and the second platoon of B Company were moved to higher ground because of rising flood waters caused by heavy rains in the area. All areas to the east, north and south of the airstrip were flooded and marshy.

Also present at Tong Le Chon during the period in question were C Battery, 6th Battalion, 15th Artillery and four mortar crews from Lighthorse C Battery, 8th Battalion, 6th Artillery. These units were on high ground near the 1st Battalion, 2d Infantry Headquarters.

Unit Malaria Incidence - Tong Le Chon

Platoons organic to 1st Bn, 2d Inf were extremely variable in respect to numbers of cases of malaria experienced. Admissions varied from thirteen cases within the third platoon, A Company, to one each for several other platoons. It will be noted by correlation of Inclosures 2 and 5 that the


TONG LE CHON
8 AUG – 13 AUG 67
INCLOSURE 2
AIRSTRIP
SAIGON RIVER
TRAU CREEK
2C 1-2
3C 1-2
1C 1-2
3B 1-2
1-2
1A 1-2
3A 1-2
2B 1-2
ARTY
150 m.
2A 1-2
1B 1-2
250 m.
N
A334 A/5 SFG (A)
CIDG CAMP
NVA ANTI-AIRCRAFT BUNKERS
NVA ANTI-AIRCRAFT BUNKERS
SAIGON 65 MI.

preponderance of cases occurred along the northern aspect of the camp. No explanation is offered with the exception of 1) the units in the south end of the area were generally on higher ground and in more open areas than units in the northern aspect of the camp, and 2) individuals from units in the northern area generally complained more of mosquito bites than those to the south.

It is interesting to note that the artillery units involved experienced no malaria, although two individuals were admitted with initial diagnoses of malaria which were later changed to FUO. It has been postulated, by several individuals in the area during the time of question, that the repelling of mosquitoes by smoke and shock waves from artillery pieces, combined with the units' being on high ground in more open areas, plus more opportunity to use personal protective measures by artillerymen, contributed to the lack of malaria among these individuals. It is known that infantry units within the division have a much higher incidence of malaria than artillery units. Since the beginning operations against hostile forces in Vietnam in July 1965, the four artillery battalions organic to the division have averaged 5.7 cases/battalion, whereas the nine infantry battalions have averaged 57.1 cases/battalion, ten times the average of the artillery units. These figures exist even though the artillery units are often near the infantry units in support of operations.

Preventive Measures

Due to the extremely rapid mobilization and move to Tong Le Chon from Quan Loi, 8 August, several items necessary for personal protective measures were not taken. No mosquito nets were used during the entire period at Tong Le Chon, nor were they used during operations in Area "A." Several individuals questioned also complained of a lack of resupply of insect repellents and sprays. Sleeves generally were not rolled down at night to protect the forearms against mosquito bites.

It is interesting to diverge at this point to discuss what possible action would have been taken by the involved infantrymen if proper supplies of personal protective items had been supplied.

As regards mosquito nets, possibly the most effective form of personal protection, it has been the experience of this office that troops on operations offer three main reasons, whether valid or invalid, for not carrying or using the mosquito net. The most common excuse for not having a mosquito net is the additional pack weight, especially when the net becomes wet and muddy. A matter of lack of judgment is involved here, because these men will willingly carry a much heavier poncho to withstand rain. Reasons offered for not using the net are inability to see through the netting while on guard duty and a fear of becoming entangled in the net during a mortar or ground attack.

A disadvantage as regards insect repellents is the rapidity with which the repellent is washed from the skin by sweat. Since high temperatures and humidities are encountered during operations, body sweat is usually copious. To be effective, the repellent must be reapplied every 45-60 minutes while exercising and at least every 4-6 hours at rest.

The rolling down of sleeves at dusk presents a distinctly unfavorable situation of increased body heat entrapment within the shirt.

It is not known if supplies of bednets and repellents would have greatly affected the malaria incidence within the battalion. Strict command control of the utilization of personal protective measures is needed in an effective malaria control program.

An investigation into battalion policies on the use of the weekly prophylactic chloroquine-primaquine tablet revealed adequate roster control as to the dispensing of tablets. However, no system was in evidence to insure that each man actually ingested his tablet.

Immediately after the initial cases of malaria became evident, adequate measures were taken by commanders to insure against the spread of malaria from infected troops to other troops in base camps. In addition to strict enforcement of personal protective measures, area protective measures at Quan Loi and Phuoc Vinh base camps were undertaken to include insecticide fogging, spraying, and elimination of mosquito breeding areas. Command interest in this outbreak has resulted in explicit instructions to units as to the employment of personal and unit protective measures.

Summary

An epidemiological study of 56 cases of malaria, all but one P. Falciparum (one case P. Vivas) within an infantry battalion of the 1st Infantry Division is presented. The report is significant in that it is concerned with an isolated outbreak of malaria in an area of previously moderately low endemicity. A direct correlation seems to exist between the presence of North Vietnamese units in the area for a period of at least one month and the high incidence of malaria among 1st Division troops after a five day contact with the area.

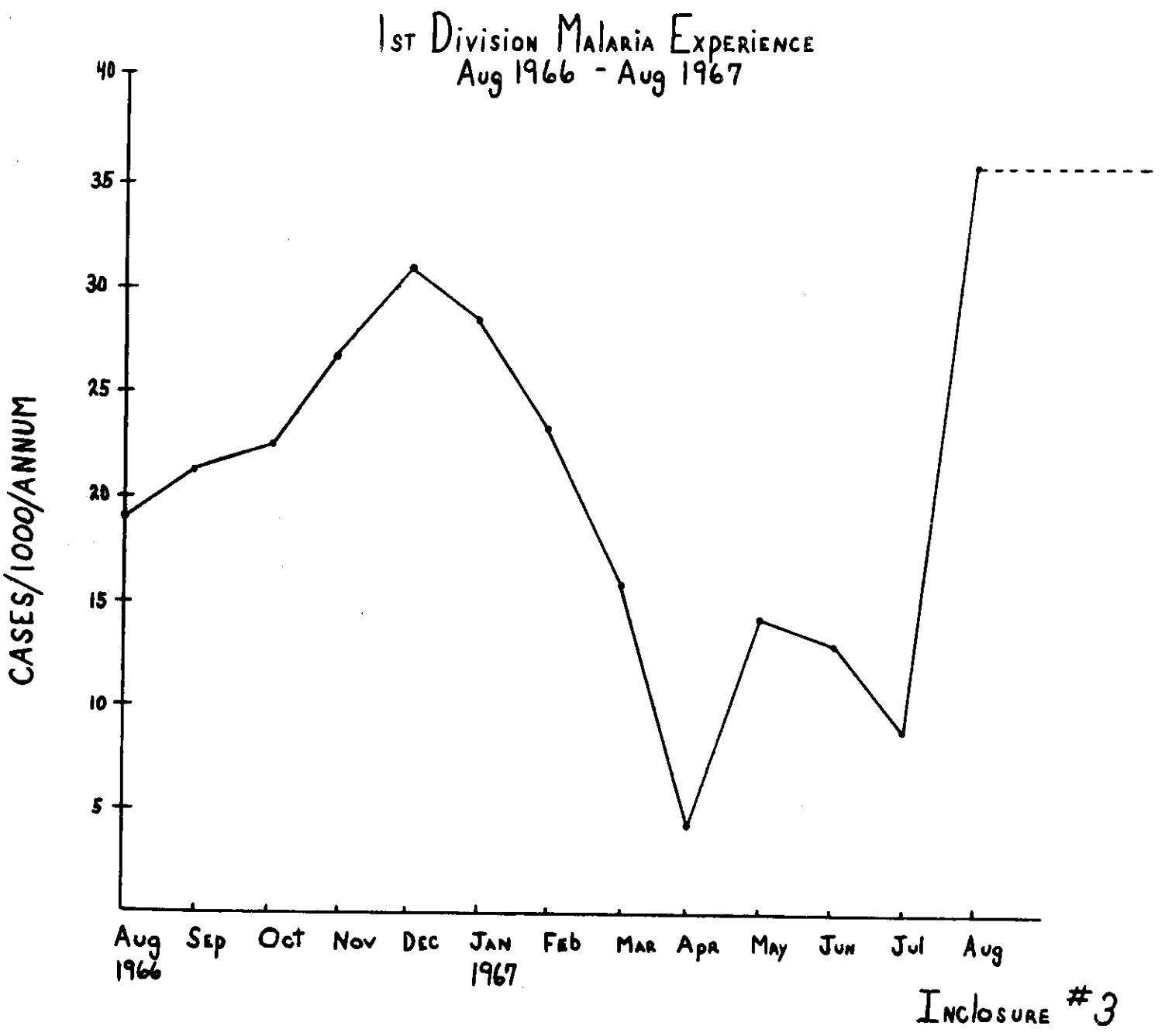
The area of infection is well defined by incubation dates and correlative data.

A discussion of personal protective measures and their application in the field is discussed.

A report will be submitted at a later date on the etiology of a large series of fevers of undetermined origin seen during the same period of time as the admissions of malaria.

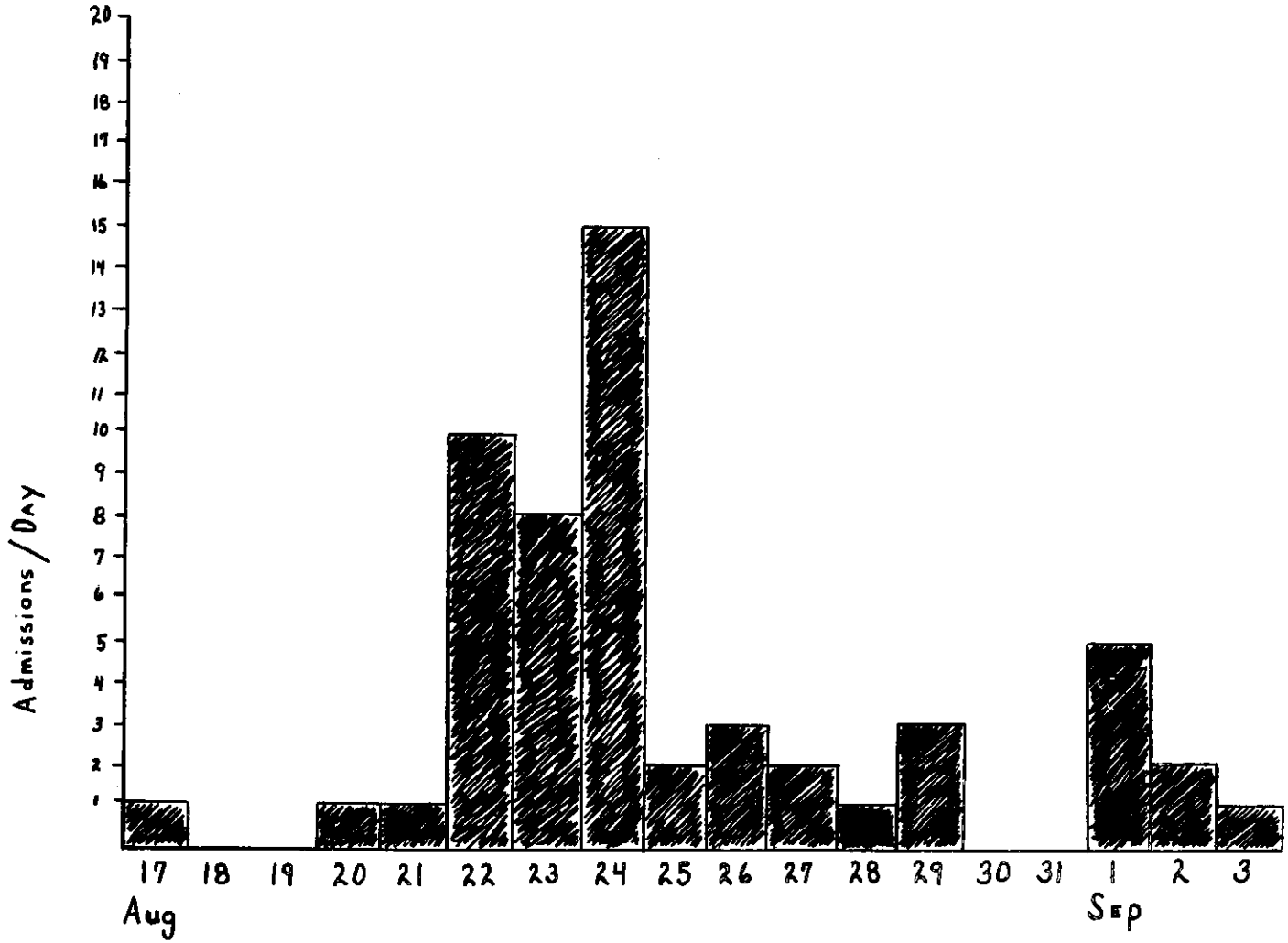
EDITOR'S NOTE

As of this issue, the editor has exhausted the available supply of photographs of the AMEDS in Vietnam. All personnel are invited to contribute pictures depicting the medical effort in Vietnam. Particulary desired are photographs of hospitals, the combat medic in action, MEDCAP activities and MED-EVAC operations. Photographs should be black and white glossy prints of good quality and contrast. Photographs showing patients faces must be accompanied by a witnessed, signed release from each patient identified.


1ST DIVISION MALARIA EXPERIENCE
Aug 1966 - Aug 1967
CASES/1000/ANNUM
40
35
30
25
20
15
10
5
Aug 1966
Sep
Oct
Nov
Dec
Jan 1967
Feb
Mar
Apr
May
Jun
Jul
Aug

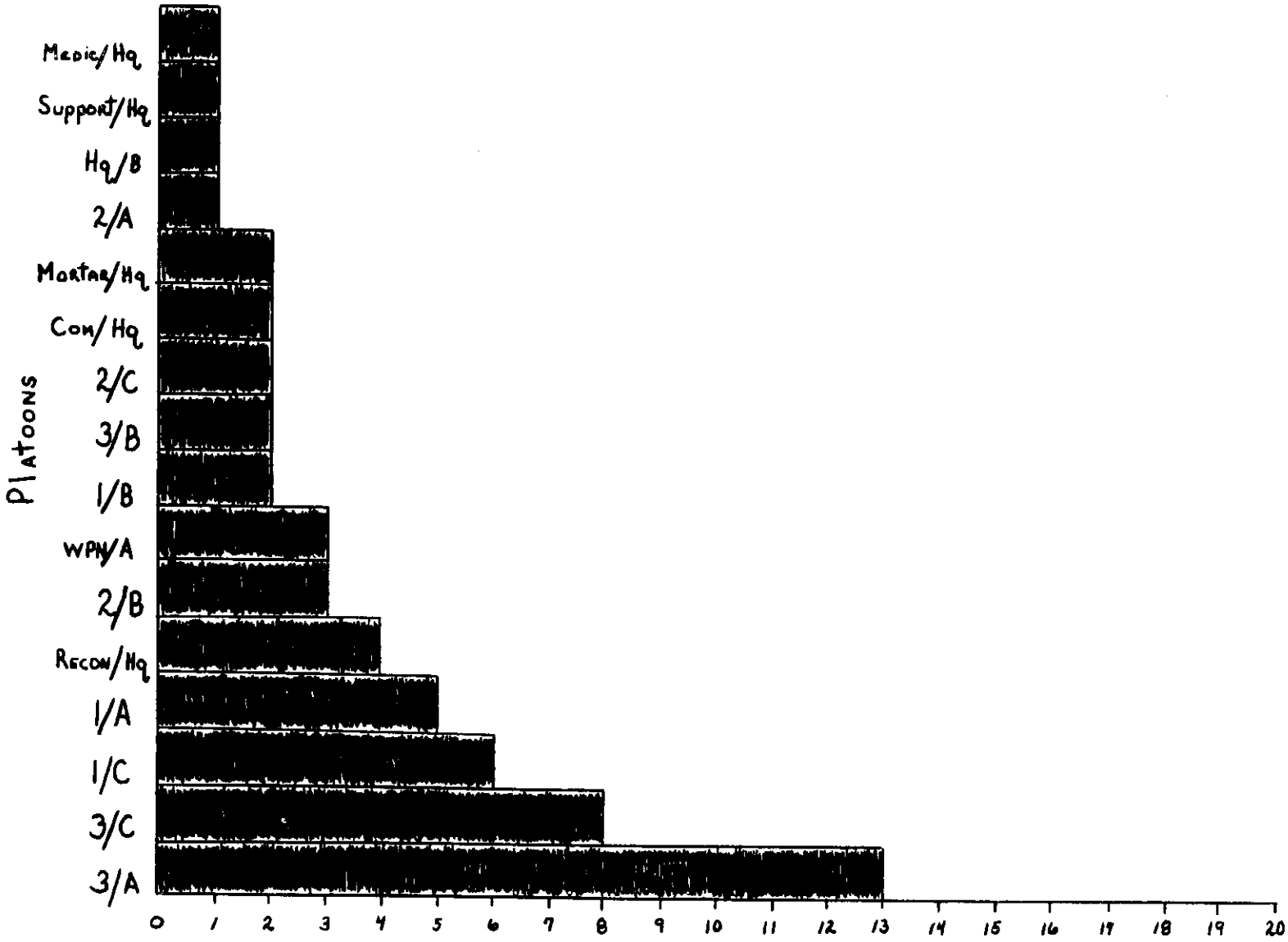
INCLOSURE #3

Malaria Admissions - 1/2 Infantry
93d Evacuation Hospital
17 Aug - 3 Sep 1967



Inclosure #4

Distribution Of Malaria By Platoons



Inclosure #5

HUMAN MELIOIDOSIS

LTC Nicholas F. Conte, MC*

Melioidosis is an infectious disease of some military importance because of its prevalence in South Vietnam and other regions of Southeast Asia. Man acquires the disease by ingestion of, or contamination with, the bacillus Pseudomonas pseudomallei that seems to thrive in the water and mud of rice paddies and cultivated pastures. The clinical spectrum of the disease is broad but it commonly presents as an acute pneumonic process. Many asymptomatic infections pass unrecognized and may be detected by chest roentgenogram or appropriate serologic studies. In the most devasting form it is a rapidly progressive and invariably fatal septicemia with multiple abscesses in the lungs, liver, kidney, spleen, bone and joints, and other tissues.

The etiologic agent **Pseudomonas pseudomallei (previously referred to as** Malleomyces pseudomallei or Whitemore's bacillus) is a gram negative motile aerobic bacillus that exhibits bipolar staining. On blood agar media it grows readily with discrete, raised, cream or yellow to yellow-brown crinkled colonies appearing after several days. Considerable variation among strains and within the same strain have been observed.

Melioidosis is endemic to Southeast Asia. Most of the human case reports in the medical literature are from this part of the world. It could be considered as an emerging zoonotic disease but no evidence has appeared to establish a relationship between the human disease and the natural occurring infections known to exist in swine, goats and wild animals. The organism survives for long periods in moist soil. It has been isolated readily from surface waters, rice paddies, pastures and contaminated produce in the endemic regions of Malaya, South Vietnam, Burma and Thailand. Thus exposure of the skin, especially following injuries, and the mucous membranes to contaminated soil and water provides the usual route of infection.

The pathology of the acute disseminated form of the disease is one of multiple abscesses, often minute, that are granulomatous with a central sanguinopurulent core. The lungs, liver, spleen, kidney, lymph nodes, and bone are frequently involved but any tissue may be involved. The disease can resemble miliary tuberculosis, disseminated fungus infection or staphylococcal and gram negative septicemias.

Clinically, the septicemic form of the disease presents as an overwhelming toxemia with high fever, prostration and shock with an invariably fatal outcome within a matter of hours or a few days in spite of heroic therapy with multiple antibiotics. An extensive pneumonia is usually present with metastatic abscesses in other organs. The onset of the disease may be heralded by protracted non-bloody diarrhea -- marked dehydration and shock supervening within a short time.

*Medical Consultant, USARV

Localized forms of the disease are not uncommon. A pneumonic infiltrate with or without a pleuritis seen in any bacterial pneumonia or a chronic form mimicking pulmonary tuberculosis occurs. Chronic cavitary lesions in the lung may develop from which the organism may or may not be readily recovered. Occasionally a pseudo-cavity or soft infiltrate resembling a cavitary lesion is observed radiographically that clears within a short time.

Inapparent infections such as a mild pneumonia responding readily to therapy may be more widespread than is appreciated at present. In such cases the diagnosis is more often established in retrospect, after serologic testing, utilizing the hemagglutination test performed at the 9th Medical Laboratory in Saigon.

The laboratory findings often disclose a moderate polymorphonuclear leukocytosis although an absence of leucocytosis may occur. Anemia occurs commonly when the disease has been present for more than a few weeks. A definitive diagnosis can be made also by bacteriological identity of the organism isolated from sputum, pus or blood; differentration from P. aeruginosa is essential and should not be difficult. Suspicious colonies should be referred to the 9th Medical Laboratory for confirmation.

Intraperitoneal innoculation of hamsters with positive blood or sputum will produce a fatal septicemia within 72-hours.

Serologic tests are useful adjuncts in diagnosis. The 9th Medical Laboratory utilizes the hemagglutination test which is often positive in serum specimens obtained during the acute phase of the disease. The diagnosis can be confirmed if a fourfold rise in titer or greater is demonstrated in the convalescent serum.

The differential diagnosis include pulmonary tuberculosis, disseminated fungal infection, other bacterial or viral pneumonias, staphylococcal and other gram negative septicemias. There is nothing characteristic of the pulmonary infiltration observed radiographically with this disease. Melioidosis should be included as a consideration in a soldier (or veteran) from Vietnam, Thailand or other regions of Southeast Asia who presents with an obscure febrile illness particularly when associated with a pulmonary infiltrate. Localized cutaneous forms must be differentiated from the more prevalent staphylococcal infections.

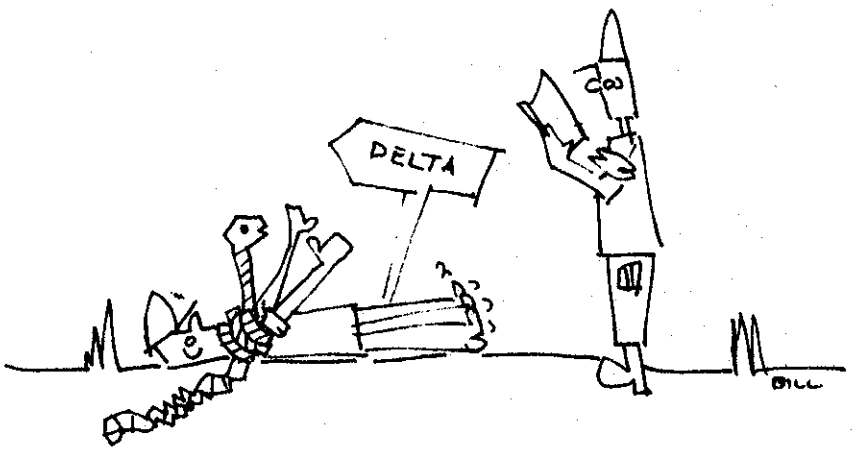
The prognosis in the untreated fulminating form of the disease is unfavorable with a mortality in excess of 90 per cent. Chloroamphenicol and the tetracyclines are the antibiotics of choice in treatment with dosage levels of 3 gms or more per day. Heroic measures with multiple antibiotic therapy are necessary in the septicemic form and extensive penumonias, using kanomycin, novobiocin, keflin, and colymycin in large doses. There is insufficient data to indicate whether multiple antibiotic therapy is any more effective than a single agent.

Treatment should be continued for at least three or four weeks after a clinical response has been achieved, ofttimes for several months. Relapse

is prone to occur and there is some evidence that this organism acquires resistance to antibiotics readily, particularly when interrupted therapy is practiced.

An awareness of the many ramifications of this infectious process by the military physicians in Vietnam will broaden our understanding of the behavior of this disorder and contribute to more effective means of therapy.

Acknowledgement is made of the previous review of this disease by Colonel Raymond Blohm in USARV Medical Newsletter, Vol 1, No 6, 1966, and to Colonel Hinton Baker, Commanding Officer, 9th Medical Laboratory for invaluable advice and criticism.



"The Surgeon General feels that most snake bites,
if properly treated, are harmless"

CORRECTIONS

The following changes should be posted to the article BLOOD PROGRAM GUIDE which appears on page 13, JUL-AUG edition of the Medical Bulletin.

1. Page 14, para 5 e delete the word "minor."
2. Page 14 para 5 g and the last sentence on page 15, change "RH O negative to RH_0 negative."
3. Page 15, step 14, change "present" to "absent" change "at all step 12" to "at all except step 12."
4. Page 16, second paragraph, 3d sentence should read "The complete test will require approximately one hour. Steps 1-4 require about five minutes after the patient's blood specimen is separated and grouped."

(The Editor)

Psychiatry: Unit Group Consultation*

Your writings in Vietnam reveal some conceptual kinship with our unit group consultation here. The command consultant develops his relationship whenever possible with more than one member of the unit at the same time. When several members think together about human relation problems and talk about them freely and responsibly with each other then old members may leave and new ones come, but the unit's ability to handle all such problems can keep on improving. If the consultant deals only with individual consultees he risks the loss of every advantage he has built up when that individual moves to another station. If the consultant meets the consultees in groups, the group and its influence remains, evolves, develops even though individuals enter and leave the group as months go on. The group's knowledge, sophistication and style of management quickly capture the new member, and this considerably lessens the consultant's job of establishing a new relationship. For instance when one gets together groups of key administrators e.g., C&A, personnel workers, security officers, etc., and they become used to working with mental hygiene consultation, then the peers of the new officer quickly point out the advantages and the best methods of utilizing consultation.

For twenty months we have utilized unit group consultation with several military units. Of those soldiers seen only one has gone AWOL, one has been hospitalized and none have been separated from the Army. This is a striking result when compared with the morbidity in other units where unit group consultation has not been practical. Even the highly skilled EM who carry out this group consultation are frequently scared at first and need a great deal of support until they have been at it for a month or so.

The individual soldier is seen in the company area in the presence of his CO, first sergeant, platoon leader and whomever else is germain to his problem, e.g., instructor, chaplain, parents, wife, etc.

Advantages

1. When all concerned are brought together at the same time the CO, for instance, can feel the impact of the difficulty and has to be involved in the problem solving. It is also first hand OJT to him to see how problems can be resolved and it helps him to resolve similar ones on his own.

2. When the CO or other referring officer must sit in on the conference he is not going to refer just anyone.

3. If the CO takes an active part in the problem solving, the soldier's allegiance will belong more to him and not merely to the Medical Corps.

4. Since the whole conference is run by the social work specialists the problem does not pick up such weighty importance as it does when handled by the "magic people" - the social workers and psychiatrists.

*Extract of a letter from Mr. Robert Pease, Social Worker at Ft. Devens, Massachusetts.

1st AIR CAVALRY MED-EVAC

1LT Gerald F. Duggan, MSC*

The only organic Air Ambulance Unit in the Army today is one of the many unique assets claimed by the 1st Air Cavalry. This divisional medical support is provided by the Med-Evac Platoon, Headquarters Company, 15th Medical Battalion.

The platoon's twelve Hueys provide direct field medical evacuation in each of the division operational areas. Readily available for any type of medical extraction the five man helicopter crews live and work in close association with the area brigade or battalion forward command post. They usually pluck wounded and seriously ill from the point where they were incapacitated rather than from the battalion aid station. Fifteen to twenty minutes after the Med-Evac request is submitted, they find themselves in the skillful hands of the nearby medical company doctors. The crews are always ready to hoist critically wounded directly from the injury site even where terrain, time, and the patient's condition preclude the use of a landing zone.

In making a difficult or dangerous extraction, the key man is the medic. Each medic is selected from among many experienced medics for his skill and ability to work in a fast moving, difficult environment. Because of his centralized position in the ship, facing rearward, directly behind the pilots, the medic is responsible for the presence and safety strapping of the gunner and crewchief-gunner, the safety of the doors, guns and other vital equipment. The aircraft commander relies on him to report the status of the crew and gear before each take off, as well as quick evaluation of the condition of patients. In the event of an extended return flight, the crew medic is well equipped to administer dextran or saline hemorrhage control and with a multipurpose mechanical respirator to provide artificial respiration.

As soon as the ship clears the pickup site communication of each patient's condition provides doctors and medical technicians with a five to ten minute warning as the type, number, and seriousness of the incoming casualties. When the ship touches down a doctor, waiting on the pad, triaged the casualties and insures that those in critical condition are carried directly to the VSI (very seriously injured) tent.

During evacuations, air cover is normally provided by one of the numerous gunship fire teams. Air cover is utilized on all hoist extractions and on other pickups when the situation warrants. Mounted on each Med-Evac ship are two M-60 machine guns providing patients additional protection.

The nature of the training and teamwork of the other crew members further reinforces the safety and ease of recovery. The aircraft are piloted by Medical Service Corps aviators and warrant officer pilots, most of whom

*283d Medical Detachment, Helicopter Ambulance.

have received extensive medical training at Fort Sam Houston. The crew chief and gunner maintain the ship and its equipment insuring that their ship is mission-ready to meet the platoon's heavy and widely dispersed commitments.

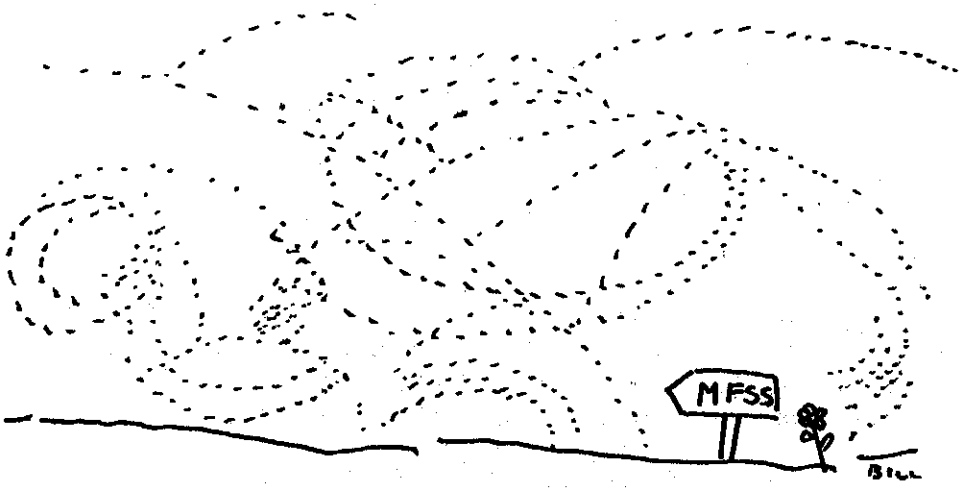
In the last twelve months the platoon has supported the 1st Air Cav in Operations Paul Revere III and IV, Thayer I and II, Irving, Byrd, and Pershing. Many of the crewmen now sport Purple Heart, and all of the ships have many little patches decorating their original exteriors. Now, as the second team of Med-Evacs begins to rotate home, the 1st Cavalry's successful adaptation of the 15th Medical Battalion to an air mobile division can be permanently added to the annals of Army Medical Service.

MEDICAL INQUIRIES

Interest in the health of the serviceman is often expressed in the form of a medical inquiry occasioned by fear that a past medical condition has been aggravated or that a serious condition has arisen as the direct result of service in Vietnam. Such inquiries are referred to the Office of the Surgeon, HQ USARV, for action and, ultimately, the subject of the inquiry is remanded to the nearest medical facility for evaluation.

Medical personnel charged with the responsibility to examine the serviceman must take positive effort to expedite the process and insure that all relevant investigations, whether initially directed or indicated by subsequent developments in the examination, be accomplished forthwith and not wait upon further direction from the surgeon.

Reports should be legible, concise and indicate clearly the serviceman's health status, to what extent his activities might be compromised, what has been done about it and, central to the issue, a statement must be included indicating the individual's fitness for duty in Vietnam



"Now I see why they call it Dustoff!"

OBTAINING MEDICAL TREATMENT FOR VIETNAMESE CIVILIANS

Captain Jerome F. John, MSC*

The USARV Surgeon's Office has received numerous inquiries concerning treatment of Government of Vietnam local nationals (GVNLN) in USARV medical facilities. This article is designed to explain policies governing treatment of GVNLN and to serve as a procedural guide for obtaining this treatment.

Emergency admission to USARV medical facilities of GVNLN to prevent undue suffering or loss of life is authorized when GVN medical care is not readily available. Such cases will be evacuated to the nearest GVN civilian treatment facility capable of assuming care as soon as is medically feasible. Specialized surgical and/or medical treatment may be given to a GVNLN when needed care is not otherwise available; however, approval must be obtained in advance from the CG, USARV for each individual case. Procedures to be followed in obtaining this approval are outlined in the following paragraph.

Units or individuals desiring to obtain treatment for a GVNLN must contact the MACV Province/Sector advisor and acquaint him with the particulars of the case. If the desired care cannot be obtained from GVN, USAID or MILPHAP resources the MACV Province/Sector advisor may request assistance directly from the CG, USARV. Normally the request will be in letter form, but in urgent cases initial approval may be obtained by calling the USARV Surgeon's Office, Professional Services Division at Long Binh 4229/4546/4725/4815. This request may be initiated only by the MACV Province/Sector Advisor and will include

1. Name
2. Address
3. Age
4. Sex
5. Diagnosis
6. Statement as to how transportation of the individual will be arranged.
7. Statement that the desired care is not available in the Province/Sector.
8. Justification for the treatment to state exactly how this will assist the CG, USARV in achieving the US national objective.
9. A certificate signed by a commissioned officer of the US Army will be attached regarding the ability of the individual to pay for such services. Recommendation for waiver may be made if the individual cannot afford the charges.
10. In the case of minors, a written permit for treatment will be signed by the parents, guardian or legal custodian of the minor.

A sample request with required enclosures follows.

*Administrative Assistant, USARV Surgeon's Office.

SUBJECT: Request for Medical Treatment of GVNLN

TO: Commanding General
United States Army Vietnam
ATTN: AVHSU-M
APO 96375

1. Request that the below named individual be furnished medical treatment in a USARV medical facility. The following information is furnished:

a. NAME: Nguyen Vo Dinh

b. ADDRESS: Tan Hiep, Hoc Mon District, Gia Dinh Province

c. AGE: 3 yrs

d. SEX: Male

e. DIAGNOSIS: Cleft palate

2. Transportation will be arranged thru local USAID resources.

3. The desired care is not available in the province/sector thru GVN resources.

4. Treating this boy will assist us in obtaining the cooperation and support of the local Vietnamese populace by demonstrating our concern for their well-being.

5. Recommend waiver of all charges.

2 Incl
1. Certificate
2. Permit for treatment

JAMES F. MOORE
LTC, Infantry
Senior Province Advisor

Certificate

I certify that the parents of Nguyen Vo Dinh are unable to pay for any treatment provided by a USARV medical facility.

CHARLES S. WILLIAMS
CPT, Inf
US Army

PERMIT FOR TREATMENT

I the mother of Nguyen Vo Dinh grant permission for my son to be treated in a USARV medical facility; this permission to include anesthesia, surgery or medical treatment deemed necessary. The possible risk of this treatment has been explained to me.

Incl 2 s/Nguyen Mai Dinh

MEDIC

1LT James J. Kelly, MSC*

When General Westmoreland speaks of the "magnificent" young soldier here in Vietnam, I can heartily agree with him especially when calling to mind our 'special' soldier - the front line combat medic. I am, indeed, proud to work with and know them.

The medics in our battalion spend an average of seven to nine months in the field. During this time, they act as both a doctor and a brother in their relationships with the other men in their company. A medic under fire merits special recognition for he is, with his very life, conserving the fighting strength.

WHO IS A MEDIC?

He's a guy down the block who unlike the others wonders at an anthill rather than steps on it.

He's a nervous, skinny kid who cringes at the sound of mortar but he is also the man who crawls under fire to save a life.

He's a Conscientious Objector without a weapon and you don't worry about him because he is as fine a medic as his peers.

He's a one time Golden Gloves champ, a high school drop out, a hillbilly, an accordian player.

He is, above all, a human being with both a heart and guts.

He is the Army Medical Service's man up front and we are a stronger team because he's there.

*Medical Field Assistant, 2/12th Inf.

USARV MEDICAL REGULATIONS

NUMBER	DATE	TITLE
40-1	12 Aug 67	Sanitary Operation of Barber Shops
40-2	19 Aug 67	Medical Items Requiring Special Storage and Issue Precuations C1
40-3	25 Jun 67	Emergency Medical Support
40-4	4 Jul 67	Drug Prevention of Malaria C1
40-5	1 Apr 66	Reporting and Processing Medical Materiel Complaints
40-6	7 Mar 66	Prevention and Control of VD
40-7	2 Nov 65	Immunization Requirements and Procedures C1
40-8	17 Oct 66	The Admission - Disposition Sheet
40-9	18 Jan 66	Management of Vascular Injuries
40-10	16 Jul 67	Patient Effects in Medical Treatment Facilities
40-11	3 May 66	Treatment of Vietnamese Civilian Nationals in US Army Military Medical Facilities
40-12	7 Oct 67	Anti-Cholera Measures for US Military Personnel in Vietnam
40-13	11 Feb 66	Medical Clearance
40-14	7 Jan 66	Medical Records and Reports C1,2,3,4,5,6
40-15	1 Sep 67	Rabies Control and Reporting of Animal Bites
40-17	23 Nov 66	Army Medical Service Officers Biographical Data File
40-18	10 Oct 65	Space Utilization and Construction Priorities for Hospitalization
40-19	12 Oct 65	Field Sanitation Teams
40-21	6 Apr 66	Early Treatment of Wounds and Injuries
40-22	23 Oct 65	Individual and Unit Protective Measures - Insect and Rodent-Borne Diseases C1
40-23	2 Nov 66	Participation of AMEDS Personnel in Aerial Flights
40-24	20 Jul 67	Command Health Report RCS MED-3 (R3)
40-25	28 Aug 66	Medical Speciality Board Examinations
40-26	4 Jan 66	Whole Blood Program
40-27	7 Dec 65	Anesthesia
40-28	26 Dec 65	Prevention and Treatment of Heat Illness
40-29	25 Jan 66	Care of the Feet
40-30	2 Mar 66	Requisitioning and Use of Certain Medical Material
40-31	28 Jan 66	Mess Sanitation
40-32	30 Apr 66	Sanitation and Waste Disposal
40-33	4 Feb 66	Treatment of Malaria
40-34	8 Sep 67	Mental Health and Neuropsychiatry
40-35	19 Feb 66	Dental Services Administration and Treatment
40-36	20 Mar 66	Preventive Medicine Unit Service
40-37	6 Apr 66	Subsistance Reimbursement for Hospitalization
40-38	7 Mar 66	Preventive Dentistry Program
40-39	25 Aug 67	Medical Civic Action Program (MEDCAP I and II)
40-40	11 Mar 66	Control of Patient Visits and Interviews
40-42	5 Jul 66	Wound Evaluation and Analysis C1
40-43	25 May 66	Medical Qualification Requirements for Aviation Personnel
40-44	23 May 66	Medical Regulating
40-45	7 Jan 67	Water Supply
40-417	1 Jan 67	Medical Statistical Summary

LIST OF CONSULTANTS TO THE SURGEON, US ARMY VIETNAM

SPECIALTY	NAME, GRADE, SVC NO.	MOS	LOCATION	TELEPHONE
ANESTHESIOLOGY	PERRY, Lawrence B. LTC, 097181, MC	B3115	93d Evac Hosp	Long Binh 3235
AVIATION	MacLENNAN, Robert J. LTC, 069975, MSC	1981	44th Med Bde	Long Binh 2911/2023
AVIATION MEDICINE	BEZREH, Anthony A. MAJ, 089724, MC	C3160	1st Avn Bde	Long Binh 2907/2188
DERMATOLOGY	FISHER, William C. LTC, 072387, MC	3500 (B3112)	8th Fld Hosp	Goldfinch 795/333
DIETETIC	ARMSTRONG, Mary A. MAJ, R2029, AMSC	3420	HQ USARV	Long Binh 4815/4725
EAR, NOSE AND THROAT (ENT)	LeMAY, Sonley R. Jr. LTC, 091314, MC	B3126	24th Evac Hosp	Long Binh 3843
ENDODONTIA	NAITO, Roy M. MAJ, OF110013, DC	D3170	518th Med Det (KJ)	Qui Nhon Local 174
ENTOMOLOGY	YOUNG, William W. LTC, 091314, MSC	C3315	9th Med Lab	Lynx 611
ENVIRONMENTAL ENGINEERING	DUTTWEILLER, David W. LTC, 065498, MSC	B7960	HQ, USARV	Long Binh 4825/4713
FIXED PROSTHETIC	WILLIAMS, James F. LTC, 076754, DC	D3176	36th Med Det (KJ)	Cholon 206
HEMATOLOGY	DIRKS, Kenneth R. COL, 073253, MC	A3325	3d Field Hosp	Lynx 700
MEDICINE	CONTE, Nicholas F. LTC, 062905, MC	B3139	HQ, USARV	Long Binh 4815

SPECIALTY	NAME, GRADE, SVC NO.	MOS	LOCATION	TELEPHONE
NEUROLOGY	GINSBERG, Stanley H. CPT, 05241566, MC	C3128	935th Med Det	Long Binh 3129
NEUROSURGERY	LEAVER, Robert C MAJ, 088279, MC	B3131	24th Evac Hosp	Long Binh 3755
OBSTETRICS AND GYNECOLOGY (Ob-Gyn)	BOYSON, William A. COL, 064967, MC	3500 (B3108)	HQ, USARV	Long Binh 4728/4229
OPHTHALMOLOGY	POWERS, Bruce T. LTC, 075944, MC	3500 (B3125)	6th Conv Ctr	Cam Ranh 2806
	MICHIE, James L. MAJ, 092226, MC	B3125	67th Evac Hosp	Qui Nhon Local 431
	KERN, William A. MAJ, 097144, MC	B3125	24th Evac Hosp	Long Binh 3843
ORAL SURGERY	ZAK, Henry L. LTC, 063831, DC	C3171	93d Evac Hosp	Long Binh 3235
	OSBON, Donald B. LTC, 073179, DC	B3171	104th Med Det (KD)	Long Binh 3313
	SHANNON, Charles F. MAJ, 094130, DC	B3171	85th Evac Hosp	Calico 40
ORTHOPEDICS	BAKER, George I. LTC, 072674, MC	B3151	24th Evac Hosp	Long Binh 3312/3751
PATHOLOGY	BAKER, Hinton J. COL, 005689, MC	43325	9th Med Lab	Lynx 611
PARASITOLOGY	HERNANDEZ, Alfred CPT, 02317417, MSC	3310	9th Med Lab	Lynx 611
PERIODONTIA	JONES, Richard H. MAJ, 099217, DC	C3174	36th Med Det (KJ)	Cholon 206

SPECIALTY	NAME, GRADE, SVC NO.	MOS	LOCATION	TELEPHONE
PHYSICAL THERAPY	WESTHOVEN, Mary F. MAJ, M101144, AMSC	3418	17th Fld Hosp	ARVN 6004 ext 135
PLASTIC SURGERY	ZBYLSKI, Joseph R. MAJ, 089652, MC	B3152	3d Fld Hosp	Lynx 700
PREVENTIVE MEDICINE	NITZ, Robert E. COL, 070003, MC	B3005	HQ, USARV	Long Binh 4825/4713
PREVENTIVE DENTISTRY	CHRISTMAN, Peter D. MAJ, OF105352, DC	C3176	HQ, USARV	Long Binh 4427
PSYCHIATRY	PARRISH, Matthew D. COL, 065447, MC	B3129	HQ, USARV	Long Binh 4725
RADIOLOGICAL HYGIENE	QUILLIN, Robert M. MAJ, 097630, MC	D3308	20th Prev Med	Bien Hoa Army 490/491
RADIOLOGY	SIEBERT, Paul E. LTC, 069557, MC	A3306	36th Evac Hosp	Lark 9 2497/2440
	VEATCH, William M. LTC, 097048, MC	B3306	24th Evac Hosp	Long Binh 3752
REMOVABLE PROSTHETIC	WORMLEY, John H. LTC, 075326, DC	B3175	13th Med Det (KJ)	New MACV 3647
SOCIAL WORK	GALLEGOS, Reuben LTC, 0999171, MSC	3606	6th Conv Ctr	Cam Ranh 2806
SURGERY	AABY, Gene V. LTC, 075130, MC	B3150	HQ, USARV	Long Binh 4546
UROLOGY	ZONE, Robert M. LTC, 075446, MC	3500 (B3111)	67th Evac Hosp	Qui Nhon 420
VETERINARY	MORGAN, Richard B. COL, 065540, VC	B3221	44th Med Bde	Long Binh 2801

MEDICAL SPECIALITY LIST

SPECIALTY	FACILITY																
	2d Surg	3d Fld	3d Surg	6th C.C.	7th Surg	8th Fld	12th Evac	17th Fld	18th Surg	24th Evac	36th Evac	45th Surg	67th Evac	71st Evac	85th Evac	91st Evac	93d Evac
ANESTHESIOLOGY	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
CARDIOLOGY		x													x		
DERMATOLOGY*						x		x									
GASTROENTEROLOGY				x				x				x				x	x
HEMATOLOGY		x		x			x				x						x
INTERNAL MEDICINE	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
NEUROLOGY						x											x
NEUROPSYCHIATRY		x				x		x			x		x	x			x
OBSTETRICS AND GYNECOLOGY										x							
OPTOMETRY							x			x					x		x
OPHTHALMOLOGY		x		x		x	x			x	x		x	x	x	x	x
OTORHINOLARYNGOLOGY						x				x	x						
PATHOLOGY, AUTOPSY							x								x	x	
PATHOLOGY, CLINICAL							x						x		x		x
PATHOLOGY, SURGICAL							x								x		x
PEDIATRICS															x		x
PHYSICAL MEDICINE		x		x		x	x	x		x							x

MEDICAL SPECIALITY LIST

SPECIALTY	FACILITY																
	2d Surg	3d Fld	3d Surg	6th C.C.	7th Surg	8th Fld	12th Evac	17th Fld	18th Surg	24th Evac	36th Evac	45th Surg	67th Evac	71st Evac	85th Evac	91st Evac	93d Evac
PROSTHODONTICS			x			x											
RADIOLOGY	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RENAL & PERITONEAL DIALYSIS		x															
SURGERY, GENERAL	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
SURGERY, MAXILLOFACIAL		x				x				x	x		x		x	x	
SURGERY, NEURO	x					x				x			x				
SURGERY, ORTHOPEDIC	x	x	x		x	x	x	x	x	x	x	x	x		x	x	x
SURGERY, ORAL		x				x	x			x	x		x		x	x	x
SURGERY, PLASTIC		x															
SURGERY, THORACIC		x				x	x			x			x	x	x	x	x
UROLOGY						x	x	x			x		x	x	x	x	x
VIROLOGY																	
WHOLE BLOOD DEPOT SVC																	

*Also available at 9th Med Bn

CONSULTANT'S CORNER

Medical Examination Forms - medical officers performing medical examinations requiring completion of form 88 and 89 should familiarize themselves with the type and scope of examination required for a specific purpose. This is contained in AR 40-501, Chap X and Appendix IX. Many examinations reviewed by this office must be returned because of incompleteness or improper entries. As a result their processing is unnecessarily delayed. (Medical Consultant)

Dithiazanine Iodide (Delvex) has been withdrawn from the market by the FDA. The only other anthelmintic available in command at the present time that is effective against strongyloides infestations is pyrivinium pamoate (Povan). It is available as a 50 mgm tablet; 5 mgm/kg administered as a single dose is recommended with a maximum dose 0.25 gm. Two weeks cause nausea, vomiting or diarrhea but is usually well tolerated; it turns the stools red. In the near future thiabendazole (Minterzol or Thibenzol) will be made available as a suspension 100 mgm/ml. This agent is also effective against pinworm, hookworm and ascaris. The accepted dosage is 25 mgm/kg twice daily for three to five days. Gastrointestinal side effects occur but are not serious. (Medical Consultant)

Identification of the dead using dental records - accurate dental records are essential to the identification of bodies according to the identification chief, Tan Son Nhut Mortuary. Only fingerprints are more reliable, but soft tissue deteriorates rapidly in the tropics and is easily destroyed in disasters such as plane crashes. The dentition is more resistant and many times is the only reliable method left to identify the remains. Whenever a soldier is missing for more than ten days his health and dental records are sent to the USARV Casualty Branch and kept on file. Whenever a body is discovered, these records are used to aid in identifying the person. This is just one more reason to do thorough dental examinations and keep accurate records. (Preventive Dentistry Consultant)

Occasionally a medical board, including a psychiatrist, concludes that an individual has anxiety associated with flying. Usually no treatment is suggested for this problem except for the person to avoid flying although this will surely hamper the future career of any soldier. An impending fire fight is a far more common cause of anxiety and fear among soldiers but no one in the Army expects the average soldier to be excused from combat solely on this basis. Avoiding the anxiety producing situation fixes the fear more firmly instead of alleviating it. The best medical management of a person suffering from a fear of flying is to expect the member to fly like anyone else. This will usually result in the fear decreasing with future flights. If at the time of embarkation the local surgeon considers the anxiety significant enough, the member may be given a tranquillizer to relieve his anxiety. If this is not sufficient (which is unlikely) the member should be hospitalized and evacuated by air. In these cases there is no medical contraindication for sufrace travel but it is certainly not a medical necessity. (Psychiatry and Neurology Consultant)

NEW ARRIVALS

NAME	GRADE	BRANCH	ARRIVED	ASSIGNED
Anderson, A.	LTC	MSC	10 Sep 67	55th Med Gp
Anderson, J.R.	LTC	MC	19 Sep 67	935th Med Det
Augerson, W.S.	LTC	MC	10 Sep 67	Americal Division
Balkema, S.A.	LTC	MSC	24 Sep 67	12th Evac Hosp
Bartley, J.D.	MAJ	MC	17 Sep 67	44th Med Bde
Butler, J.N.	COL	MSC	15 Aug 67	HQ USARV
Cass, K.A.	MAJ	MC	31 Aug 67	3d Surg Hosp
Casper, E.	MAJ	MC	27 Sep 67	Americal Division
Culp, N.W.	MAJ	MC	11 Sep 67	12th Evac Hosp
Davis, M.J.	MAJ	ANC	21 Sep 67	71st Evac Hosp
Easton, H. V.	MAJ	MSC	29 Aug 67	61st Bn
Ebert, M. A.	MAJ	ANC	21 Sep 67	67th Evac Hosp
Feltis, J. M.	MAJ	MC	21 Sep 67	93d Evac Hosp
Flair, R.C.	MAJ	MC	31 Aug 67	9th Med Lab
Graff, C.K.	MAJ	MC	19 Sep 67	24th Evac Hosp
Graziano, J.F.	LTC	MSC	1 Sep 67	HQ USARV
Hubbart, J.A.	MAJ	MSC	29 Aug 67	55th Med Gp
Jaques, D.A.	MAJ	MC	8 Sep 67	2d Surg Hosp
Kelly, J.J.	LTC	DC	29 Aug 67	38th Med Det KJ
Kelsh, J.M.	MAJ	MC	16 Aug 67	91st Evac Hosp
Keneson, L.F.	MAJ	ANC	17 Sep 67	85th Evac Hosp
Keuls, H.A.	MAJ	MC	13 Sep 67	24th Evac Hosp
Leaver, R.C.	MAJ	MC	21 Aug 67	24th Evac Hosp
Leeder, L.C.	MAJ	MSC	6 Sep 67	32 Med Dep
Lightmann, M.W.	MAJ	MC	27 Sep 67	3d Fld Hosp
Maldonado, L.	COL	MC	3 Sep 67	68th Med Gp
Mac Entee, J.L.	MAJ	MS	22 Sep 67	67th Med Gp
Mc Iver, W.J.	MAJ	MC	24 Sep 67	36th Evac Hosp
Mc Kinley, F.	MAJ	MS	22 Sep 67	67th Med Gp
Morales, H.	MAJ	MC	21 Sep 67	8th Fld Hosp
Moynahan, H.S.	MAJ	ANC	18 Sep 67	36th Evac Hosp
Nagle, L.H.	MAJ	ANC	19 Sep 67	85th Evac Hosp
Pettera, R.L.	MAJ	MC	27 Sep 67	9th Division
Rivera, J.E.	MAJ	ANC	11 Sep 67	67th Evac Hosp
Samuels, A.	MAJ	MS	22 Sep 67	67th Med Gp
Schaefer, C.	MAJ	MC	31 Aug 67	45th Surg Hosp
Sheedy, J.A.	COL	MC	18 Sep 67	67th Med Gp
Snyner, E.W.	LTC	MC	17 Sep 67	67th Med Gp
Smith, A.R.	MAJ	MSC	17 Sep 67	68th Med Gp
Smyth, A.N.	MAJ	ANC	18 Sep 67	3d Fld Hosp
Stark, F.R.	MAJ	MC	28 Sep 67	85th Evac Hosp
Stephenson, J.D.	MAJ	MC	29 Sep 67	8th Fld Hosp
Trudell, E.D.	MAJ	ANC	19 Sep 67	71st Evac Hosp
Tussey, H.M.	MAJ	ANC	18 Aug 67	45th Surg Hosp
Yhap, E.O.	MAJ	MC	27 Sep 67	67th Evac Hosp
White, C.L.	MAJ	MS	2 Oct 67	44th Med Bde
Williams, L.	MAJ	ANC	30 Aug 67	1st Bde, 101st Abn
Wood, W. B.	MAJ	MSC	14 Aug 67	IFFV
Zeigler, M.G.	MAJ	MC	27 Sep 67	12th Evac Hosp
Zorn, A.N.	MAJ	ANC	29 Aug 67	8th Fld Hosp

USARV SURGEON'S OFFICE

Colonel Edmund R. Kielman, MC, was awarded the Legion of Merit in a ceremony at Headquarters USARV, 23 October 1967. The presentation was made by Brigadier General Glenn J. Collins, MC, USARV Surgeon. Colonel Kielman has departed for his new duty assignment in the Surgeon General's Office, Washington, D. C. His successor as USARV Deputy Surgeon/Chief Professional Services is Colonel William A. Boyson, MC, former commander of the 68th Medical Group.

On the occasion of his departure from Headquarters, USARV, Colonel Justin A. Zack, DC, was awarded the Legion of Merit by Brigadier General Glenn J. Collins, MC, USARV Surgeon. Colonel Zack has been assigned as Post Dental Surgeon, Fort Sill, Oklahoma. His successor as USARV Dental Surgeon is Colonel Jack P. Pollock, DC, who remains as the 44th Medical Brigade Dental Surgeon.

USARV MEDICAL BULLETIN

Surgeon, USARV
Brigadier General Glenn J. Collins, MC

Deputy Surgeon, USARV
Colonel William A. Boyson, MC

Editor
Colonel Matthew D. Parrish, MC
Psychiatric Consultant

Associate Editors
LTC Nicholas F. Conte, MC
Medical Consultant

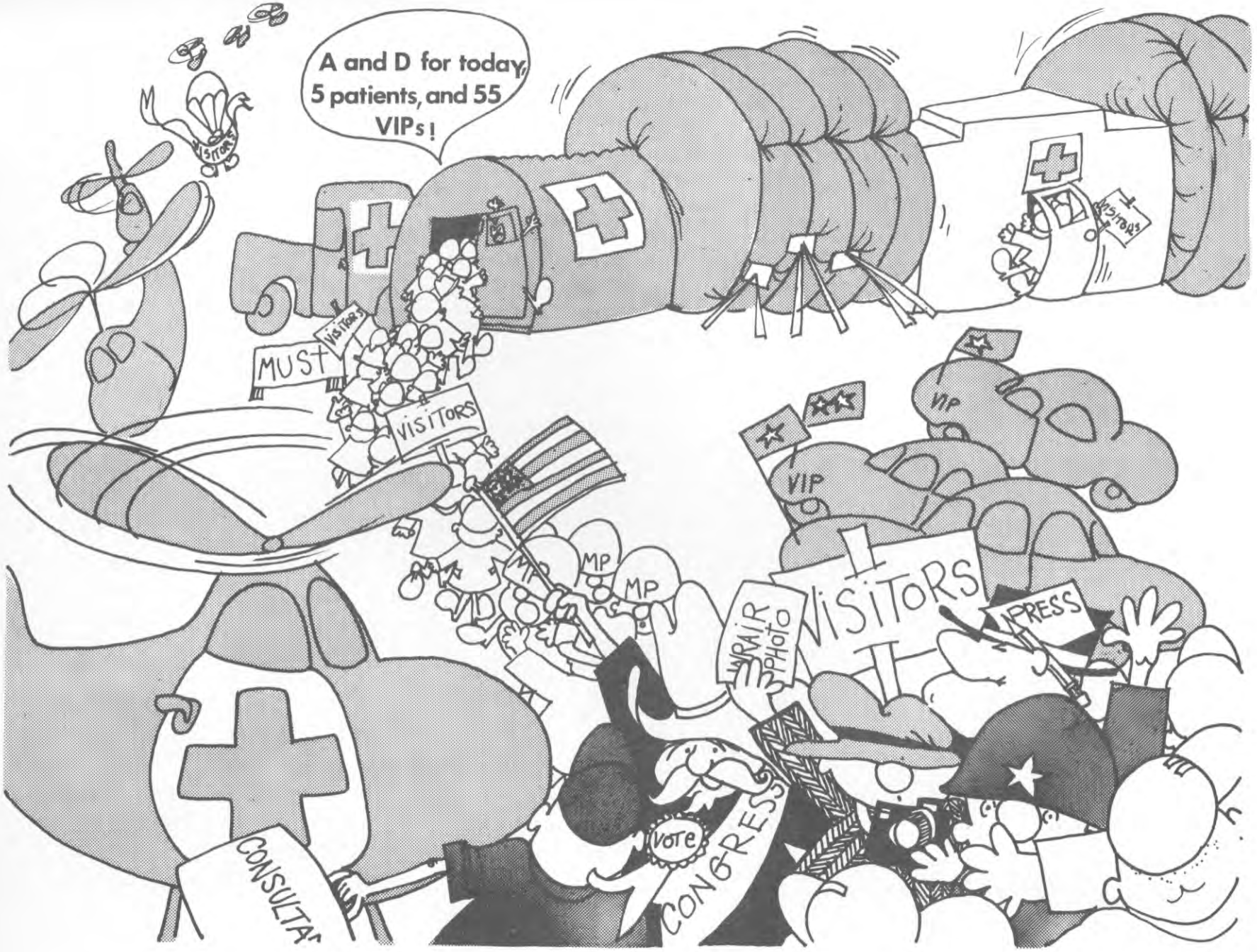
LTC Gene V. Aaby, MC
Surgical Consultant

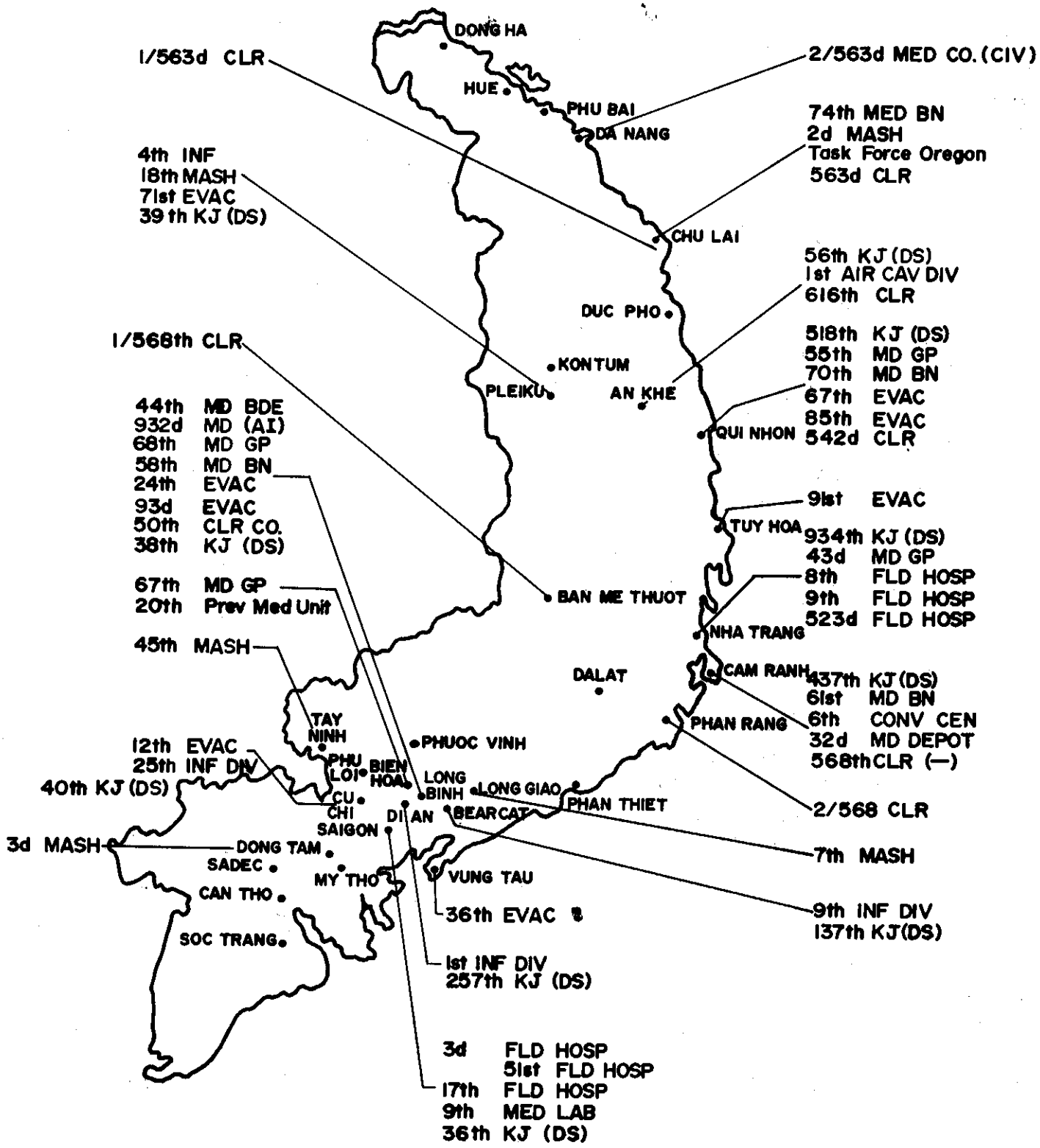
Assistant Editor
Captain Jerome F. John, MSC

The USARV Medical Bulletin is published bimonthly by Headquarters, United States Army Vietnam as the medium for disseminating material of professional and administrative interest to all medical personnel of USARV. Information in this publication is for use by this command and does not necessarily reflect the opinion of the Department of the Army, the USARV Surgeon, nor the editors.

The Surgeon, USARV, invites all members of the Army Medical Service including the Medical Corps, Dental Corps, Veterinary Corps, Medical Service Corps, Army Nurse Corps, Army Medical Specialist Corps, and enlisted personnel, as well as other members of the medical professions in Vietnam, to submit articles to be considered for publication in the Bulletin.

Items submitted for publication should be typed **double spaced in final** corrected form and addressed to the Editor, USARV Medical Bulletin, **HQ**, USARV, Office of the Surgeon, APO 96375. If typing is not available your legibly handwritten manuscript will be considered. Accepted manuscripts become the property of the Bulletin. Authors are urged to retain a carbon copy of each manuscript. The editors reserve the privilege of review and editorial modification.


A and D for today, 5 patients, and 55 VIPs!
VISITORS
MUST
VISITORS
VISITORS
MP
MP
MP
VIP
VIP
VISITORS
AIR PHOTO
PRESS
CONSULTA
VOTE
CONGRESS


DONG HA
1/563d CLR
2/563d MED CO. (CIV)
HUE
PHU BAI
DA NANG
74th MED BN
2d MASH
Task Force Oregon
563d CLR
4th INF
18th MASH
71st EVAC
39th KJ (DS)
CHU LAI
56th KJ (DS)
1st AIR CAV DIV
616th CLR
DUC PHO
518th KJ (DS)
55th MD GP
70th MD BN
67th EVAC
85th EVAC
542d CLR
1/568th CLR
KONTUM
PLEIKU
AN KHE
QUI NHON
44th MD BDE
932d MD (AI)
68th MD GP
58th MD BN
24th EVAC
93d EVAC
50th CLR CO.
38th KJ (DS)
91st EVAC
TUY HOA
934th KJ (DS)
43d MD GP
8th FLD HOSP
9th FLD HOSP
523d FLD HOSP
67th MD GP
20th Prev Med Unit
BAN ME THUOT
NHA TRANG
45th MASH
DALAT
CAM RANH
437th KJ (DS)
61st MD BN
6th CONV CEN
32d MD DEPOT
568th CLR (—)
TAY NINH
PHUOC VINH
PHAN RANG
12th EVAC
25th INF DIV
PHU LOI
BIEN HOA
LONG BINH
LONG GIAO
40th KJ (DS)
CU CHI
PHAN THIET
BEARCAT
2/568 CLR
SAIGON
DI AN
3d MASH
DONG TAM
7th MASH
SADEC
MY THO
VUNG TAU
CAN THO
36th EVAC
9th INF DIV
137th KJ (DS)
SOC TRANG
1st INF DIV
257th KJ (DS)
3d FLD HOSP
51st FLD HOSP
17th FLD HOSP
9th MED LAB
36th KJ (DS)

PPC-Japan