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**ILLNESS BEHAVIOR AND TRANSITIONAL STATES:
A STUDY OF OUTPATIENT RATES AND SYMPTOM PRESENTATION
IN RELATION TO TROOP DEPLOYMENT DURING PEACETIME.**



TECHNICAL REPORT 1

**THE HEALTH CONSEQUENCES OF DEPLOYMENT.
PART 1 DATA GATHERING.**

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A124509	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE HEALTH CONSEQUENCES OF DEPLOYMENT: PART I DATA GATHERING		5. TYPE OF REPORT & PERIOD COVERED INTERIM June 1980 - May 1981
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Joseph M. Rothberg, Ph.D.; CPT Linda K. Jellen, MSW; and Richard J. Oldakowski		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Division of Neuropsychiatry Department of Military Psychiatry WRAIR, WRAMC, Washington, DC 20012		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 62771A 3E 162771A804 00 047
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Medical Research and Development Command Ft Detrick, MD 21701		12. REPORT DATE 27 Oct 1982
		13. NUMBER OF PAGES 37
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Walter Reed Army Institute of Research Washington, DC 20012		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approve for Public Release. Distribution Unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Health Stress (medical) Airborne Deployment Medical records Symptoms Outpatient Medical services Demography Sickcall Medical statistics Injuries Registry		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This technical report describes the data gathering system developed in support of a study of short-term stress effects, "Illness Behavior and Transition States: A Study of Outpatient Rates and Symptom Presentation During Peacetime." The methodology is described and serves as background for other reports in this series. The body of the report considers the purposes of the system, the study population, the health care facilities, the coding of the visits to those facilities, the coding of the military training and activities, and the computerized data linkage system which was developed to deal with the data. This study is a		

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unique linkage of medical visits, personnel records and military activities of the soldier's unit. The research protocol is reproduced as Appendix A, areas of future reports are listed in Appendix B, major summary medical codes in Appendix C, and military training and activity codes in Appendix D.

TECHNICAL REPORT 1
THE HEALTH CONSEQUENCES OF DEPLOYMENT.
PART I: DATA GATHERING.

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27 October 1982

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INTRODUCTION

This technical report describes the data gathering system developed in support of a study of short term stress effects, "Illness Behavior and Transitional States: A Study of Outpatient Rates and Symptom Presentation in Relation to Troop Deployment During Peacetime" (the study protocol is reproduced as Appendix A and will be referred to as "Health Consequences of Deployment" in the following discussions). This report describes the methodology which was developed and provides background information for the following Technical reports (see Areas of Future Reports, Appendix B).

The body of this report considers the purposes of the system, the study population, the health care facilities and the coding of the visits to those facilities, the coding of the military training and military activities, and the computerized data linkage system which was developed to deal with the data.

PURPOSE

The data gathering system was designed to yield a multidimensional database of previously unavailable information on the quantity and causes of outpatient sickcall visits in a defined military population. The flexibility of the database allows the outpatient visits to be examined in relation to 1) the characteristics of the patient, 2) the military organization and its activities and 3) the seasonal environmental variation.

This study is a unique linkage of three sources of data for the same individuals: the medical visits, the personnel records and the military activities of the soldiers' unit. The specific research hypotheses are found in Appendix A.

STUDY POPULATION

The population at-risk is defined as those soldiers (and their family members) assigned to specified combat and support units at an Army post located in the southeastern US.

The specific combat companies utilized are those that make up one brigade. This consists of three battalions of five companies each plus a headquarters and one additional company making a total of 17 companies. The 5 support companies include finance, data processing, administrative, parachute rigging, and personnel companies from a higher level support command.

The univariate demographic characteristics and attributes of the soldiers in the 22 companies as of the middle of the first year, month end November 1980, are presented as Table 1. The full analysis of the demography of the population-at-risk requires the use of person-months at risk during the full year. In general, the person-months at risk for any specific demographic variable is a better measure of the true population-at-risk than either one month in mid-year or the average of month-end values throughout the year. These calculations are currently being developed from an extended

registry and will be included in the report on Demography, Turbulence and Outpatient Visits (see Areas of Future Reports, Appendix B).

HEALTH CARE FACILITIES

We recorded the outpatient sick call visits from the health care facilities that serviced the population-at-risk. The active duty soldiers of the combat companies receive their medical care from three Battalion Aid Stations (BAS) and a single Troop Medical Clinic (TMC). In addition, the soldiers may be seen without referral at the Divisional Mental Health Clinic, Emergency Room (ER), Acute Minor Injury Clinic (AMIC), Psychiatry or Social Work Service of the post hospital. The soldiers in support companies do not have any BAS and use 2 TMCs. The support companies have female soldiers who may be seen on a walk-in or referral basis at the obstetrics and gynecology (OB/GYN) service. We are currently reviewing the extent of non-referral walk-in service provided at other (e.g. Communicable Disease) clinics of the hospital.

For the family members of the soldiers, they all may be seen at the ER, AMIC, OB/GYN, Pediatric, Psychiatry and Social Work Clinics of the post hospital. The family members of combat soldiers may also be seen after the soldiers at clinics held at two TMCs. During the first year the visits to the Family Practice Clinic were not included due to technical constraints

of their record keeping system. This clinic has recently introduced a locally maintained records system which will allow us to access their records.

Active duty soldiers are unlikely to receive any ambulatory health care outside of the military system for reasons of cost and convenience. The family members have considerably more freedom to seek health care elsewhere. We have no estimate of the extent of use of non-Army health care services.

CODING OF HEALTH CARE VISITS

No changes in the procedures of the clinics and aid stations were implemented. In particular, we did not task the health care providers with the requirement of filling out a new or revised form to collect our data. We are of the opinion that the excellent cooperation which we have enjoyed derives mostly from our lack of procedural intrusiveness.

The data collection used the sign-in logs and the medical records currently maintained by the service providers. The only change which we requested was to have the staff consistently record the full social security number at those TMCs that had allowed the use of the last four digits, and note the sponsor's military unit for a family member visit. The log book gave the presenting problem, the unit and the social security number as stated by the patient. For the active duty soldier,

corresponding entries in the medical record gave the diagnosis, disposition and identity of medical care provider. These data sources were reviewed daily at the BAS, once or twice a week at the TMCs and weekly or bi-weekly at the hospital clinics. To insure complete collection of relevant visits, we included all visits so long as they were not in a unit clearly different from one of our 22 units (e.g., family member visits to the ER with no listing of the sponsor's unit were included). The summer training of reserve personnel was accompanied by an increase of incomplete records in the ER. These records were coded and later rejected when they could not be matched to soldiers in one of our units. We also observed an increase in incomplete records in some cases after the turnover of clerks in the ER.

Health care in the field was recorded when the records were available on return. When the entire Battalion was in the field, the recording procedure in the field was the same as at the on-post BAS. When only a part of the Battalion was in the field, the log book remained at the BAS and only the medical record sheets were used to code the visits in the field.

The presenting problem and diagnosis were coded using the Reason for Visit Categories (RVC) developed (1) for the National Ambulatory Medical Care Survey (NAMCS). The author of the RVC describes the scheme as "primarily a classification of patient or lay terminology encountered in the ambulatory care settings."

The RVC coding scheme was selected because it includes categories for the patient's stated presenting problem. There are other outpatient coding schemes which have been seen in other settings (e.g., insurance codes) but no in-depth review of the logical basis and operational evaluation of these health contact coding schemes is known to us.

The specific coding of a presenting problem or a diagnosis uses five characters (one letter and four digits). The initial letter describes the module: Symptom, Disease, Diagnostic/Screening/Preventive, Treatment, Injuries/Adverse Effects, Test Results, Administrative, or Uncodable. The remaining digits indicate the body system or specific problem.

There are three tables which re-appear in the successive technical reports. One is a rank order listing of frequency of the top 20 specific RVC categories. The second presents the counts of visits by module (with the exceptions that those symptom and disease visits referring to the same body system are grouped together, and that the mental health category includes the appropriate treatment codes). The third aggregates the counts into the three broad categories of 1) musculoskeletal disease or symptom or injury, 2) other disease or symptom or 3, other reason for visit. The first two of these tables were patterned after the 1979 NAMCS report (2), and the third was specific to this study. The format of the last two tables is

shown in Appendix C and the specific RVC codes for each grouping are presented.

CODING OF PERSONNEL DATA OF SOLDIERS

At every Army post, individual soldiers are listed by name and social security account number (SSAN) on the centralized computerized files of the personnel system (SPF). The record for each soldier contains their unit of assignment, number of dependents, date of birth, race, sex, marital status, military occupational speciality, rank, general technical score, medical profile (PULHES), and length of service. This personnel data was used to define the population at-risk and describe the demographic composition of the military units.

CODING OF TRAINING AND OTHER ACTIVITIES OF SOLDIERS

Since the major research question is the relation between outpatient sick call visits and type of unit activity, data collection was done from the units as well as from the medical treatment facilities. The activity data for each company were drawn from a number of sources. The unit training schedule furnished information on 1) physical training (PT), 2) special events such as inspections, parachute jumps or change of command, and 3) the major activity for the day such as training,

maintenance, on-post exercises or off-post exercises. Since the schedules are produced ten days in advance there was a periodic review with the company to pick up unscheduled changes. The day to day variation from the scheduled PT due to the weather was not always available. The alert status of the unit was provided by brigade headquarters. The local weather was recorded from the temperatures and precipitation obtained at a nearby Air Force Base. The winter time wind chill factor and the summer temperature-humidity factor were provided by the Army Preventive Medicine Activity on post. The code categories for the above data elements are reproduced as Appendix D.

COMPUTERIZED DATA LINKAGE SYSTEM

The individual soldier medical records and records of the company activity and mission and the environmental condition records were transcribed to coding sheets and mailed or brought by courier to Department of Military Psychiatry on a monthly basis. They were then sent out to be keyed onto disk files. The personnel files were provided on magnetic tape on a monthly basis from the post management information systems office. The format of the tapes changed as of month end September 1980 requiring rewriting of numerous computer programs. The at-risk population for computing rates of medical visits per person was

tabulated for each unit from the SPF of the individual soldiers and their units of assignment. The family member at-risk strength came from the same record.

The routine monthly computer processing checks the SSAN of the medical record against the personnel records for 1) an exact match or 2) matches that differ in one position of the SSAN with agreement on the first and third or second and fourth of the first four positions of the last name. This procedure was initiated to compensate for transcription errors present in the personnel records, log books, code sheets and keypunching. A formal error evaluation was not done since the overall matching rates for active duty soldiers were in excess of 98% and that was felt to be more than adequate. For a match, the personnel record was appended to the medical record and stored on a cumulative file. The non-matched medical records were retained for processing against the adjacent month's personnel file. Medical records which did not match in an adjacent month were added to a cumulative file for the end of year exception processing.

The exception processing used the cumulative unmatched medical records file as well as a cumulative personnel registry of any soldier carried on the tape at the post during the year.

The automated SSAN checking was done for the cumulative personnel registry and the cumulative exceptions. Those medical records remaining unmatched to personnel records were then manually reviewed by name to detect (presumptive) SSAN transcription errors. The SSAN's of the medical records were changed to reflect the corrections and the automated processing repeated.

This process of matching the patient and facility data with the SPF data allowed each visit to be assigned to the correct unit. Since our analysis is only concerned with visits from individuals in the specified sample of units on post, this process allowed the rejection of the superfluous records that were collected to insure completion of coverage (as described in the section on Coding of Health Care Visits above).

RECORDS AND FILES

The data gathering system generates a single record from individual medical contact. Each subsequent contact is entered into the record. The record is linked to both the personnel files and to a training activity file to allow the determination of rates of disease and injuries in relation to demographic, military, and environmental variables. This linkage also allows the formation of a registry which provides a longitudinal

medical history for the soldier or the soldier's family unit. The data system includes the visits to Army facilities for the family member as well as the Active Duty sponsors.

FOOTNOTES

1. A Reason for Visit Classification for Ambulatory Care, D. Schneider, DHHS-PHS; 79-1352, Washington DC, 1979.
2. National Ambulatory Medical Care Survey, 1979, T. McLemore, DHHS-PHS; 81-1250, Washington DC, 1981.

ACKNOWLEDGMENT

We thank SP5 Harrington, SP4 Hodge, SP4 Kamoni and SP5 Rigney who have been responsible for the coding of the medical data throughout this study and SP5 Helm for his assistance with generating these reports.

TABLE 1: DEMOGRAPHIC CHARACTERISTICS AND ATTRIBUTES OF ACTIVE DUTY SOLDIERS PRESENT IN 22 UNITS DURING NOVEMBER 1980.

GRADE	E9	10	(0%)
	E8	36	(1%)
	E7	110	(4%)
	E6	228	(8%)
	E5	513	(18%)
	E4	875	(30%)
	E3	600	(21%)
	E2	291	(10%)
	E1	111	(4%)
	O6	1	(0%)
	O5	5	(0%)
	O4	10	(0%)
	O3	35	(1%)
	O2	26	(1%)
	O1	39	(1%)
	W4	1	(0%)
	W3	1	(0%)
	W2	4	(0%)
	W1	2	(0%)
SEX	FEMALE	151	(5%)
	MALE	2747	(95%)
RACE	CAUCASIAN	1854	(64%)
	NEGRO	832	(29%)
	OTHER & UNKNOWN	212	(7%)
MARITAL STATUS	SINGLE	1599	(55%)
	MARRIED	1133	(39%)
	OTHER	166	(6%)
EDUCATION	NOT HIGH SCHOOL GRADUATE	391	(13%)
	HIGH SCHOOL GRADUATE	2167	(75%)
	BEYOND HIGH SCHOOL	340	(12%)
PHYSICAL PROFILE (PULHES)	111111	2119	(73%)
	NOT 111111	779	(27%)
DEPENDENTS	NONE	1661	(57%)
	ONE	453	(16%)
	2 OR MORE	784	(27%)
MEAN GT SCORE (STANDARD DEVIATION)		106.7 (14.5)	
MEAN AGE, YEARS (STANDARD DEVIATION)		24.0 (5.2)	
MEAN TIME AT POST, MONTHS (STANDARD DEVIATION)		21.3 (19.2)	

APPENDIX A: PROTOCOL

Illness Behavior and
Transitional States

A Study of Outpatient Rates

and

Symptom Presentation in
Relation to

Troop Deployment During
Peacetime

Department Chief: David H. Marlowe, Ph.D

Investigators:

Linda K. Jellen, MSW, CPT, MSC

Joseph M. Rothberg, Ph.D.

I. Purpose

This is a proposal for a two-year study designed to provide information on the relationship between outpatient visits and unit transitional states.

II. Military Significance:

A. The state of health of individuals comprising the fighting strength is a major consideration in troop deployability and troop strength during combat. At one time during WWII, the British Forces reported that duodenal ulcers were found to be the major cause of medical invalidism (cited by A.L. Glass, 1968). In September 1943, it was reported in the Disability Discharge Bulletin, US Medical Department, that the medical discharge rate was almost 70,000 per month, which was approximately equal to the induction rate. Kinsey (1943) analyzed 1,000 medical discharges over a period of 6 months in late 1942 and early 1943. In his report he noted that the highest discharge category was psychoneurosis (40.2%) and that almost all of these cases had symptoms related to the cardio-vascular system or the gastrointestinal tract. Tigerett (1966) reported that during 1965, the number of soldiers being evacuated from Vietnam because of wounds and those being evacuated because of malaria were approximately the same.

B. There is a large body of literature regarding the relationship between psycho-social stress and physical illness

demonstrated by increased physical dysfunction or susceptibility to physical disease (Cassel, 1974; Corson & Corson, 1971; Dubos, 1953; D.C. Glass, 1977; Marsh, 1964; Rioch, 1971; Russek & Russek, 1976; Taggart & Carruthers, 1977; Wolf, 1971; Wolff, 1953). It is interesting to note that much of this research concerns the relationship of stress to the cardiovascular and gastrointestinal systems which are the same systems reportedly causing great medical losses in times of military conflicts (See A above).

The relationship between stressful life events and the occurrences of illness also encompasses psychiatric disorders (Brown, 1974; Brown & Birley, 1968; Brown, Harris & Peto, 1973; Cooper & Sylph, 1973). In a study of 40 Israeli soldiers suffering an acute combat reaction, several findings pertinent to the relationship of stress and illness were reported. Forty percent of the men with combat reactions had interpersonal difficulties in their units as opposed to 10% in a control group. 80% of the study population had prior or ongoing civilian stresses. Twenty-eight percent had had a death in the family within the last year and fifty percent had wives who were pregnant or had given birth within the last year (Noy, 1978).

C. Although there are many differing views and assertions about the relative role of stress in relation to other etiological factors in disease, most experts in the field agree

that discomforting psychological states play an important role in at least some kinds of diseases and may be a contributing factor in all disease processes (Mechanic, 1978). Stress has been defined in many ways but definitions frequently include stress as an event which causes a change in a steady state or ongoing pattern (Holmes & Masuda, 1974; Holmes & Rahe, 1976; Rabkin & Struening, 1976), or stress as a situation that is characterized by conditions likely to be discomforting for most people living within a specific group (Basowitz, 1955, Dyk, 1957; Mechanic, 1962; Mechanic, 1978). Stress has also been described as the whole area of problems -- sociological, psychological, and physiological -- in which individuals are taxed by stimulus demands to the limit of their potential to adapt (Lazarus, 1971). Therefore it is a situation which requires a reorganization of behavior.

D. Military transitional states seem to represent periods of increased stress that result in increased illness behavior. Military transitional states denote those periods when unit activities or missions change from one mobilization or readiness posture to another, to include garrison duty, alerts, deployments to training or testing in the field, movement to overseas, and Army Training and Evaluation Programs (ARTEP). There are persistent reports that both soldiers and their dependents make increased use of the health care system during

transitional states. Jones (1967) reported an increase in the number of both active duty and dependent patient visits to a Mental Hygiene Consultation Service prior to deployment of a division to Vietnam. Dickerson and Arthur (1965) reported an increase in utilization of a child guidance clinic by Navy families when the fleet was mobilized for deployment. Specific rates were not reported in either case. Persistent anecdotal and informal reports regarding increased unit sick call visits during transitional periods have been reported to WRAIR investigators. A non-deployment figure of approximately 10-15% has been estimated by command and medical personnel. The types of transitions referenced involved both extended deployment for CONUS training training and short-term deployment to the field for training and testing.

III. Statement of the Problem:

A. Transitional states in the military are times of increased stress and therefore increased risk for health problems. Currently, there exists no formal documentation or record system which provides data regarding the relationship between illness behavior (as defined by outpatient visits and symptom presentation) and unit transitional periods. The only available data regarding care-seeking behaviors in relation to unit activity are primarily anecdotal, without a broad baseline consisting of both absolute numbers and rates, and without

descriptive population characteristics of the soldiers involved. The lack of empirical validation of this relationship means that there are no data to determine real trends or to examine demographic or epidemiologic aspects of this problem.

B. Centralized demographic and epidemiological data regarding health care utilization by active duty troops are derived mainly from inpatient hospital stays and quarters assignments, largely neglecting outpatient treatment. Although health care-seeking behaviors at the outpatient level are usually of a less serious nature, they may result in significant lost time and have important consequences for the deployability of troops. They also impact significantly upon the resources of the care giving system. Therefore, patterns in outpatient utilization and the fluctuations in such patterns in response to transitional states represent unique and important data to military health planners as well as to unit commanders.

C. This research will address a number of specific questions:

1. What are the patterns of utilization of outpatient health care giving services by active duty troops and their dependents? How do these patterns, as expressed in rates, vary over time and how do they correlate with various transitional states of the units?
2. Are there patterns of symptoms or symptom clusters of diseases exhibited by soldiers and their dependents using the

outpatient care giving system? How and to what extent do such symptom patterns and clusters change in relationship to transitional states?

3. Are there relationships between demographic characteristics of this population and patterns of use or symptoms presented to outpatient care givers?

4. What specific differences in utilization, if any, occur in relation to the type of unit activity? For example, are there differences in such patterns relative to a week of local field deployment versus deployment to the Canal Zone for three weeks of jungle training?

5. Does prior knowledge of deployment alter the pattern of health care utilization, and does the length of time between the knowledge and the deployment have any impact on the pattern?

IV. Method

This study will utilize records of outpatient visits to monitor sick call behavior of active duty personnel and their dependents.

A. Data Collection:

1. Point of Contact will be established in each of the designated units to obtain the following information:

- a. Ongoing information regarding unit activities;
- b. The time interval between formal notification to the troops of deployment plans and actual deployment;

c. Reason for and number of non-deployed personnel.

2. From the outpatient clinic (battalion aid stations, troop medical clinics) supporting the selected units, the subject's name, social security number, date of visit, presenting symptom or diagnosis and outcome will be collected and coded on a daily basis. A primary source of these data will be patient visit record keeping systems already established in the clinic. If necessary the soldiers' outpatient records may also be consulted. The classification system presented in DHEW Publication No. (PHS) 79-1352, titled "A Reason for Visit Classification for Ambulatory Care" will be used for the coding of the presenting symptoms.

3. Data will be collected from Community Mental Health Activity and other psychiatric care giving facilities that offer a walk-in service.

4. Standard demographic data will be obtained from the Army personnel system (SIDPERS tapes) including such categories as: Length of time assigned, PMOS, SQT scores, physical profile, sex, age, race, marital status, number of children, etc. These data will be combined with the outpatient visit information listed on Section 2. A case register which "marries" information on each soldier from both recording systems (medical and personnel) will be constructed following the model devised at this Institute (Rothberg & Chloupek, 1978). No attempt will be made to contact individual soldiers for any purpose.

5. Outpatient sick call visit data on dependents of the soldiers studied will also be collected and coded utilizing the methods described in Part IV A2 and A3. If it is not the practice of the dependent outpatient clinics to include the active duty member's unit in the clinic's visit record keeping system, it may be necessary to request that this datum be added.

6. The coded results will be processed electronically and findings described and analyzed by using one of the computerized statistical analysis packages, thus conserving time and programming.

B. Study sample:

The primary goal of this study is to examine care-seeking behaviors with respect to transitional states of deployment; accordingly, the following criteria for a study population must be met:

1. In order to have sufficient data, a sample of two brigade sized units is needed.

2. The major research question of this study focuses on how care-seeking behaviors fluctuate as a function of change in unit activity. Therefore, the military units must experience a variety of activities of various durations and intensities such as field activities, OCONUS field exercises, alerts and garrisons on duty. For ease of correlating sick call behaviors with unit activities, some of these activities should have a fairly predictable pattern.

3. The selected units should include those for whom deployment into a combat environment is a real possibility.

4. To help determine whether care-seeking behaviors are a function of changes in unit activity, a contrast set of units, at the same Post, which do not experience as many transitional states must be included.

Preliminary investigation indicates that elements of the XVIII Airborne Corps and the 82nd Airborne will best fulfill these requirements.

V. Analysis:

Standard statistical epidemiological methods will be utilized to describe the findings. They will include calculation of crude and specific rates. Relationships between variables, particularly between health factors and unit activities, will be studied via contingency tables or correlation coefficients as appropriate. For project time schedule and internal review process, see Annex A.

VI. Manpower and Logistics:

This study requires a field office with a telephone. Manpower requirements include the full time assignment of 1 officer and 2 enlisted technicians. This would provide for data collection and coding of sick call visits for the study units. The team would effect daily contact with the battalion aid

stations and troop medical clinics, plus regular visits to other health care agencies providing services for the sample population. Weekly contact will be made with the unit POC's. The team would remain in place for approximately 24 months.

VIII. Human Research Issues:

A. The research proposed in this protocol is to be conducted by utilizing only information contained in existent Army records systems. Other information sources such as non-Army records systems or personal interviews with individual soldiers or members of their units will not be used.

B. To link information from one Army records system with information from another, it will be necessary to use personal identifiers to accomplish the linkage. The linkage will be accomplished electronically. The investigators will have no need to know and will not know which data set is linked to which individual person. They will only need to be able to distinguish one data set from another. Personal identifiers will be restricted to electronic storage only. Thus, possible breach in confidentiality is minimized.

C. Performance of the research proposed in this protocol is in compliance with paragraph 3.2A of Army Regulation 345-21, "The Army Privacy Program" dated 27 August 1975, and Army Regulation 70-25, "Use of Volunteers as Subjects of Research" dated 31 July 1974.

REFERENCES

- Basowitz, H. et al. ANXIETY & STRESS. New York: McGraw-Hill, 1955.
- Brown, G.W. "Meaning, Measurement and Stress of Life Events." In B.S. Dohrenwend and B.P. Dohrenwend (Eds.) STRESSFUL LIFE EVENTS: THEIR NATURE AND EFFECTS. New York: Wiley, 1974.
- Brown, G.W. and Birley, J.L.T. "Crisis and Life Changes and the Onset of Schizophrenia." JOURNAL OF HEALTH AND SOCIAL BEHAVIOR, 9: 203-214, 1968.
- Brown, G.W., Harris, O.T., and Peto, J. "Life Events and Psychiatric Disorders. Part 2: Nature of Causal Link." PSYCHOLOGICAL MEDICINE, 3: 159-176, 1973.
- Cassel, J. "Psychosocial Processes and Stress: Theoretical Formulation." INTERNATIONAL JOURNAL OF HEALTH SERVICES, 4: 471-481, 1974.
- Cooper, B. and Sylph, J. "Life Events and the Onset of Neurotic Illness: An Investigation in General Practice." PSYCHOLOGICAL MEDICINE, 3: 421-435, 1973.
- Corson, S.A. and Corson, E. "Psychosocial Influences on Renal Function - Implications for Human Pathophysiology." In L. Levi (Ed.) SOCIETY, STRESS AND DISEASE: Vol 1. THE PSYCHO-SOCIAL ENVIRONMENT AND PSYCHOSOMATIC DISEASES. London: Oxford University Press, 1971.
- Disability Discharge Bulletin, U.S. Army medical Department; 2: 52-55, 1944.
- Dickerson, W.J. and Arthur, R.J. "Navy Families in Distress." MILITARY MEDICINE. 130: 894-898, 1965.
- Dubos, R. "The Golden Headed Cane in the Laboratory." In NATIONAL INSTITUTE OF HEALTH ANNUAL LECTURES. Washington, DC: U.S. Department of Health, Education and Welfare, 89-102, 1953.
- Dyk, R. and Sutherland, A. "Adaptation of the Spouse and Other Family Members to the Colostomy Patient." CANCER, 9: 123-133, 1956.
- Glass, A.J. "Psychosomatic Medicine in Internal Medicine in WWII." In INFECTIOUS DISEASES AND GENERAL MEDICINE. Vol III. Washington, DC: Office of the Surgeon General, Department of the Army 1968.

Glass, D.C. "Stress Behavior patterns and Coronary Disease." AMERICAN SCIENTIST, 65: 177-187, 1977,

Holmes, T.H. and Masuda, M. "Life Changes and Illness Susceptibility." In B.S. Dohrenwend and B.P. Dohrenwend (Eds.) STRESSFUL LIFE EVENTS: THEIR NATURE AND EFFECTS. New York: Wiley, 1974.

Holmes, T.H. and Rahe, R.H. "The Social Readjustment Rating Scale." JOURNAL OF PSYCHOSOMATIC RESEARCH, 11: 213-218, 1967.

Jones, F.D. "Experiences of a Division Psychiatrist in Viet Nam." MILITARY MEDICINE, 132: 1003-1008, 1967.

Kinsey, R.E. "Study of 1,000 Cases Separated From the Army on Certificate of Disability for Discharge." BULLETIN U.S. ARMY MEDICAL DEPARTMENT, 1:64-75, 1943.

Lazarus, R.S. "Concepts of Stress and Disease." In L. Levi (Ed.) SOCIETY, STRESS AND DISEASE: Vol 1. THE PSYCHOSOCIAL ENVIRONMENT AND PSYCHOSOMATIC DISEASE: London: Oxford University Press, 1971.

Marsh, J.T. "Experimental Studies on Response to Viral Infection." In SYMPOSIUM ON MEDICAL ASPECTS OF STRESS IN THE MILITARY CLIMATE. Washington, DC: WRAIR, 489-506, 1964.

Mechanic, D. STUDENTS UNDER STRESS: A STUDY IN THE SOCIAL PSYCHOLOGY OF ADAPTATION. New York: Free Press, 1962.

Mechanic, D. MEDICAL SOCIOLOGY. New York: The Free Press, 1978.

Noy, S. "Stress and Personality as Factors in Casualty and Prognosis of Combat Reactions." Presentation at the Second International Conference on Psychological Stress and Adjustment in Time of War and Peace. Jerusalem, Israel, 19-24 June, 1978.

Rabkin, J.G. and Struening, E.L. "Life Events, Stress, and Illness." SCIENCE, 194: 1013-1020, 1976.

Rioch, D. "The Development of Gastrointestinal Lesions in Monkeys." In L. Levi (Ed.) SOCIETY, STRESS AND DISEASE: Vol 1. THE PSYCHOLOGICAL ENVIRONMENT AND PSYCHOSOMATIC DISEASES. London: Oxford University Press, 1971.

Rothberg, J.M. and Chloupek, R.J. "A Longitudinal Study of Military Performance Subsequent to Civilian Drug Use." AMERICAN JOURNAL OF PUBLIC HEALTH, 68: 743-747, 1978.

Russek, I. and Russek, G. "Is Emotional Stress an Etiological Factor in Coronary Heart Disease?" PSYCHOSOMATICS, 17: 63-67, 1976.

Taggart, P. and Carruthers, M. "Behavior Patterns and Emotional Stress in Etiology of Coronary Heart Disease: Cardiological and Biochemical Correlates." In D. Wheatley (Ed.) STRESS AND THE HEART, New York: Raven Press, 1977.

Tiggertt, W.D. "Present and Potential Malaria Problems." In RESEARCH IN MALARIA: AN INTERNATIONAL PANEL WORKSHOP. Washington, DC: WRAIR: 1966.

Wolf, S. "Psychosocial Influences in Gastrointestinal Function." In L. Levi (Ed.) SOCIETY, STRESS AND DISEASE: Vol 1. THE PSYCHOLOGICAL ENVIRONMENT AND PSYCHOSOMATIC DISEASE. London: Oxford University Press, 1971.

Wolff, H.G. "Changes in the Vulnerability of Tissue: An Aspect of Man's Response to Threat." In NATIONAL INSTITUTE OF HEALTH ANNUAL LECTURES, Washington, DC: U.S. Department of Health Education and Welfare, 38-71, 1953.

APPENDIX A

Project Time Schedule
and
Internal Review Process

Project Time Schedule

This is an eight quarter project, quarterly breakdown as follows:

I. Quarter 1 - Training and Project Initiation

A. 1 month training in coding and research principles.

B. Reliability checks on rates, refining of computer processing techniques used to match data banks, and refining of system data flow (including POCs, personal tape availability, etc).

C. First two months of data collection (months 2 and 3) will be considered trial and may not be utilized.

II. Quarters 2-6 Data Collection

A. Quarters 2-5 Use of an entire calendar year will allow for:

1. Seasonal changes

2. Exposure to at least one each of various annual field exercises (e.g., AR1EPS).

3. Command and personnel turnover.

B. Quarter 6 - One additional quarter is programmed to assess yearly stability in rates.

III. Quarters 7-8 Final data analysis

A. Analysis and Presentation of data.

B. Outbriefing for XVIII Airborne Command

Internal Review Process

The internal review process will be as follows:

- A. The principal investigator will conduct continuous review of reliability of data collection techniques and computer programs.
- B. Quarterly review will take place among the principal investigator and senior investigators to determine:
 1. The adequacy of the data and any trends which require modification or changes in techniques.
 2. Any changes in data collection techniques which seem useful to support other epidemiological work within the Department of Military Psychiatry.

APPENDIX B: AREAS OF FUTURE REPORTS

The following are working titles of technical reports for which data is currently being analyzed:

T1: The Health Consequences of Deployment. Part I: Data Gathering. Department of Military Psychiatry, WRAIR, WASHINGTON DC. 20012. 1982.

T2: Types and Rates of Outpatient Sickcall Visits of Active Duty and Their Family Members. Department of Military Psychiatry, WRAIR, WASHINGTON DC. 20012. 1982.

T3: Comparison of Outpatient Sickcall Visits for a Sample of Combat Arms and Support Soldiers.

T4: Additional Survey of Injuries of Combat Soldiers.

T5: Impact of Activity and Transitional States on Combat Arms Soldiers Outpatient Sickcall Rates.

T6: Variation in Outpatient Sickcall Visits Among Matched Combat Arms Battalions.

T7: Demography, Unit Personnel Turnover and Outpatient Visits.

T8: Identification of Repeated Users of Health Care Resources

T9: Characterization of Active Duty and Family Members Who Make Mental Health Visits.

APPENDIX C: REASON FOR VISIT CODES AND MODULES INCLUDED IN MAJOR SUMMARY CATEGORIES.

INJURY	J001-J999	Injuries and Adverse Effects Module
MUSCULAR/SKELETAL	S900-S999	Symptoms Referrable to the Musculoskeletal System
	D900-D949	Diseases of the Musculoskeletal System and Connective Tissue
GENERAL SYMPTOMS	S001-S099	General Symptoms
MENTAL HEALTH	S100-S199	Symptoms Referable to Psychological and Mental Disorders
	D300-D349	Mental Disorders
	T700-T799	Social Problem Counseling
NERVOUS SYSTEM	S200-S259	Symptoms Referable to Nervous System (excluding sense organs)
	D350-D399	Diseases of the Nervous System
EYE AND EAR	S300-S399	Symptoms Referable to the Eyes and Ears
	D400-D499	Disease of the Eye and Ear
HEART AND BLOOD	S260-S299	Symptoms Referable to the Cardiovascular and Lymphatic System
	D250-D299	Disease of the Blood and Blood-Forming Organs
	D500-D599	Disease of the Circulatory System
RESPIRATORY	S400-S499	Symptoms Referrable to the Respiratory System
	D600-D649	Diseases of the Respiratory System

DIGESTIVE	S500-S639	Symptoms Referrable to the Digestive System
	D650-D699	Diseases of the Digestive System
	S640-S829	Symptoms Referable to the Genito-Urinary System
	D700-D799	Diseases of the Genito-Uninary System
SKIN,HAIR & NAILS	S830-S899	Symptoms Referrable to the Skin, Nails and Hair
	D800-D899	Diseases of the Skin and Subcutaneous Tissue
TEST RESULTS	R100-R700	Test Results Module
TREATMENT	T100-T699, T800-T899	Medications, Preoperative and Postoperative Care, Specific Types of Therapy, Specific Therapeutic Procedures, Medical Counseling, Progress Visit NEC
DIAGNOSTIC-SCREENING	X100-X599	Diagnostic, Screening and Preventive Module
ADMINISTRATIVE	A100-A140	Administrative Module
OTHER AND UNCODABLE	D001-D249	Infective and Parasitic Diseases, Neoplasms, and Endocrine, Nutritional and Metabolic Diseases.
	D950-D999	Congenital Anomalies, Perinatal Morbidity and Mortality Conditions
	U990-U999	Uncodable Entries Module

(M/S & I) MUSCULAR/
SKELETAL COMPLAINTS
AND INJURIES

J001-J999 Injuries and Adverse Effects
Module

S900-S999 Symptoms Referrable to the
Musculoskeletal System

D900-D949 Diseases of the Musculoskeletal
System and Connective Tissue

(O D/S) OTHER
DISEASES AND SYMPTOMS

S001-S899 Symptoms, NEC
D001-D899 Diseases, NEC

(O) OTHER

X100-X599 Diagnostic, Screening and
Preventive Module

T100-T899 Treatment Module

R100-R700 Test Results Module

A100-A140 Administrative Module

U990-U999 Uncodable Entries Module

APPENDIX D: TRAINING AND ACTIVITY CODES.

The training and activities of the active duty soldiers was coded along six dimensions as the presence of one of the listed values for each dimension for each company for each day.

CYCLE	Mission Intensified Training Garrison Support
DEFENSE READINESS FORCE (DRF)	Status 1 thru Status 9
PHYSICAL TRAINING (PT)	1 Mile Run thru 6+ Mile Run 1 Mile Forced march thru 6+ Mile Forced March PT Test Section PT Sports Drills and Training
ACTIVITY	Army Readiness Test and Evaluation Program (ARTEP) Emergency Deployment Readiness Exercise (EDRE) on Post or off Post Field Training Exercise (FTX) of Full or Partial Company On Post or Off Post

Mission

Support

Training

Preparation for Major Event
Maintainence

SPECIAL EVENT

Activity Day

Company Party

Change of Command

Inspection Division Maintainence
Evaluation Team (DMET)

Inspection (Insoector General)

Jump

Jump Fatality

Holiday

Ceremony or Parade

Payday Activities

Days Off

Weather

Temperature and Temperature-
Humidity Categories
With or Without Precipitation