

TYPES AND SEVERITY OF DISABILITIES

OBJECTIVE

Public Law 95-479, Section 305 (a) (2) - ". . . the types and severity of disabilities that are particularly prevalent among former prisoners of war in various theaters of operation at various times."

INTRODUCTION

This chapter describes the disabilities prevalent among former prisoners of war from the time immediately following their repatriation to the present. The disabilities suffered by former POWs at the time of repatriation, as well as during captivity, are discussed in the chapters on repatriation procedures and conditions of captivity.

Recent Congressional concern regarding disabilities suffered by former POWs was expressed in the Senate Committee on Veterans Affairs recommendation for this study: "Recently, the Committee has become concerned about claims, particularly by former prisoners of war (POWs) from World War II who were interned in the Pacific Theater, of long-lasting and progressive physical and psychological damage attributable to the conditions of internment experienced by former POWs....Former prisoners of war may have a higher incidence of particular types of diseases."¹

Evidence of prior Congressional interest in this area was the HEW/VA/Labor/Defense written report entitled Effects of Malnutrition and Other Hardships on the Mortality and Morbidity of Former United States Prisoners of War and Civilian Internees of World War II, dated January 12, 1956. This study was authorized by Section 202, P.L. 83-744, which stipulated that the report should include an analysis of former POW mortality and morbidity in order to determine whether their abnormally high rates of death and disease were directly "attributable to the malnutrition and other hardships suffered by them while held as POWs."²

This chapter employs both mortality and morbidity measurements to describe the types and severity of disabilities suffered by former POWs of various theaters at various times. Mortality data can be used as an indirect measure of disability if it is assumed that premature death was caused by certain disabilities. Morbidity data is a more frequently used measure of disability, since there is usually a direct relationship between illness or injury and disability.

WORLD WAR II - EUROPEAN THEATER

BACKGROUND

Shortly after World War II, the War Claims Commission conducted a survey on the current health status of living former POWs from the European Theater. In 1950, the Commission sent out thousands of questionnaire forms to veterans and civic organizations, requesting that they provide these survey forms to any of their members who had been prisoners of war of the Germans. The survey replies received from European as well as Pacific Theater POWs were used in preparing a report on World War II POWs. Excerpts from this Commission report were printed as part of the Congressional hearings on a bill to provide for a study of the types and severity of disabilities among former World War II POWs.

Many respondents cited in the Commission report and Congressional hearings complained of the aftereffects of malnutrition or gastrointestinal problems, and inability to earn a steady living due to fatigue and/or illness arising out of these conditions. Particularly revealing were the replies received from the European Theater POW physicians. One former POW physician stated that "As a doctor. . . it is my opinion that physical and/or mental sequelae may be present, but masked, in many former patients. From my own experience I know that many of the patients I had in Germany later were hospitalized with mental and physical ailments following their return to the United States."³

Another European Theater POW physician responded that "No doubt there were many prisoners in German POW camps who suffered a reasonable degree of hardship but hardly enough to account for a permanent disability. On the other hand, there were certainly thousands of American prisoners of war in Germany who suffered tremendously, and it would be very reasonable to expect a prolonged disability as a result. . . Since practically all POWs suffered from some degree of malnutrition, gastritis, dysentery, respiratory diseases, skin diseases, arthritis, frostbite, exposure, and/or nervous conditions, I feel that every POW should automatically be service connected for those ailments or any related to them."⁴

In addition to replies from the prisoners and their physicians, the Commission report and Congressional hearings cited the opinions of several non-POW medical experts on the residuals of the World War II POW experience. These physicians were asked the question: "Do you believe that the average American physician, because of the comparative rarity of malnutrition here, would have difficulty in recognizing the residuals of malnutrition for what they are?" The unanimous reply from the physician experts was "Yes." Another question asked was: "Do you

believe that because of the paucity of available knowledge on the long-term effects of malnutrition, and because of difficulty of diagnosis, that former POWs should receive the benefit of presumption of service-connected disability with the attendant privilege of entering a veterans hospital?" The physician respondents all answered "Yes."⁵

The above Congressional hearings resulted in the initiation of a contract between the Veterans Administration and the National Academy of Sciences/National Research Council to do mortality and morbidity studies on former POWs. These scientific studies, performed by the NAS/NRC's Medical Follow-Up Agency, used representative samples of ex-POWs and carefully matched control groups of veterans from the same theater of operation. Records and questionnaires, rather than physical examinations, were used to collect data for these analyses.

TYPES AND SEVERITY OF DISABILITIES SINCE REPATRIATION

Mortality As A Measure of the Types and Severity of Disabilities

The first NAS/NRC study on the mortality of former World War II POWs was written by Dr. Bernard Cohen, NAS/NRC, and Dr. Maurice Cooper, VA, and covered the six year period immediately following repatriation.⁶ The Cohen and Cooper study found that the mortality rates of former European Theater POWs were not significantly different from that of other World War II veterans during the study period.

The Cohen and Cooper study was used as the basis for the P.L. 83-744 mandated inter-agency report to the Congress on the mortality and morbidity of former World War II POWs. In the area of mortality, the P.L. 83-744 report noted that "a search was made at the Armed Forces Institute of Pathology for autopsy protocols." In the course of this research, "autopsy records were found for only nine Pacific prisoners and two European. In no case was the autopsy record informative as to findings indicative of possible residuals of the effects of imprisonment other than tuberculosis." The P.L. 83-744 report recommended further analysis of former POW mortality.⁷

Acting on the P.L. 83-744 recommendation for further mortality study, the NAS/NRC completed another follow-up study in 1970.⁸ This mortality study, written by Dr. Dean Nefzger, included an analysis of a sample of former European Theater POWs until 1965, comparing them with the mortality of several types of other European Theater veterans groups -e.g., combat riflemen, POWs hospitalized for malnutrition upon repatriation, and veterans discharged before the end of the war. For the period 1953-1965, Nefzger confirmed Cohen and Cooper's finding of no significant excess mortality among former European Theater POWs as compared to other veterans

of that theater.

However, Nefzger pointed out that the former European POWs hospitalized for malnutrition had all increased mortality rates due to trauma, tuberculosis, and cirrhosis - a situation similar to that found among the Pacific Theater and Korea former POWs included in his analysis.

In 1979, another NAS/NRC POW follow-up mortality study was completed by Mr. Robert Keehn.⁹ Data from this study, which is expected to be published in final form shortly, will be cited below. This study included an analysis of a sample of World War II European Theater POWs and their controls through 1975.

Morbidity As A Measure of the Types and Severity of Disabilities

The Cohen and Cooper study analyzed the morbidity as well as mortality of former World War II POWs. The study discovered relatively higher rates of malnutrition, psychoneurosis, and gastrointestinal disorders among the former European Theater POWs than among their controls.

Based upon such findings, the P.L. 83-744 study recommended that the VA thoroughly examine former European Theater and other World War II POWs for residuals of such disorders. The report further recommended that the VA devise procedures and standards to ensure that such examinations were carried out.

The P.L. 83-744 report also called for follow-up morbidity studies on former World War II POWs, which would focus on malnutrition, psychiatric problems, and other prevalent residuals of the POW experience. Accordingly, Dr. Gilbert Beebe of NAS/NRC completed a follow-up morbidity study of former POWs, which included an analysis of a sample of European Theater POWs and a World War II veteran control group through 1965.¹⁰

TYPES AND SEVERITY OF DISABILITIES AT THE PRESENT TIME

Mortality As A Measure of the Types of Disabilities

Keehn's study constitutes the most recent epidemiological data on the causes of mortality among former European Theater POWs. Keehn confirmed the Cohen-Cooper and Nefzger findings of no significant excess of deaths among former European Theater POWs through 1975. While the mortality differences discovered between the former POWs and all other World War II veterans were not statistically significant, Keehn nonetheless observed more deaths during certain follow-

ip intervals among former European Theater POWs due to such causes as trauma, tuberculosis, and cirrhosis than among the World War II veteran control group.

Mortality As A Measure of the Severity of Disabilities

Keehn confirmed the Cohen-Cooper and Nefzger mortality findings that European Theater POWs did not have significantly higher death rates than their controls.

Keehn's study also noted that approximately 14 percent (291 out of 2,035) of the repatriated European Theater POWs, as opposed to approximately 15 percent (165 out of 1,063) of other European Theater veterans in his sample had died as of January 1, 1976. These repatriated POWs died an average of almost 21 years after repatriation (1966).¹¹

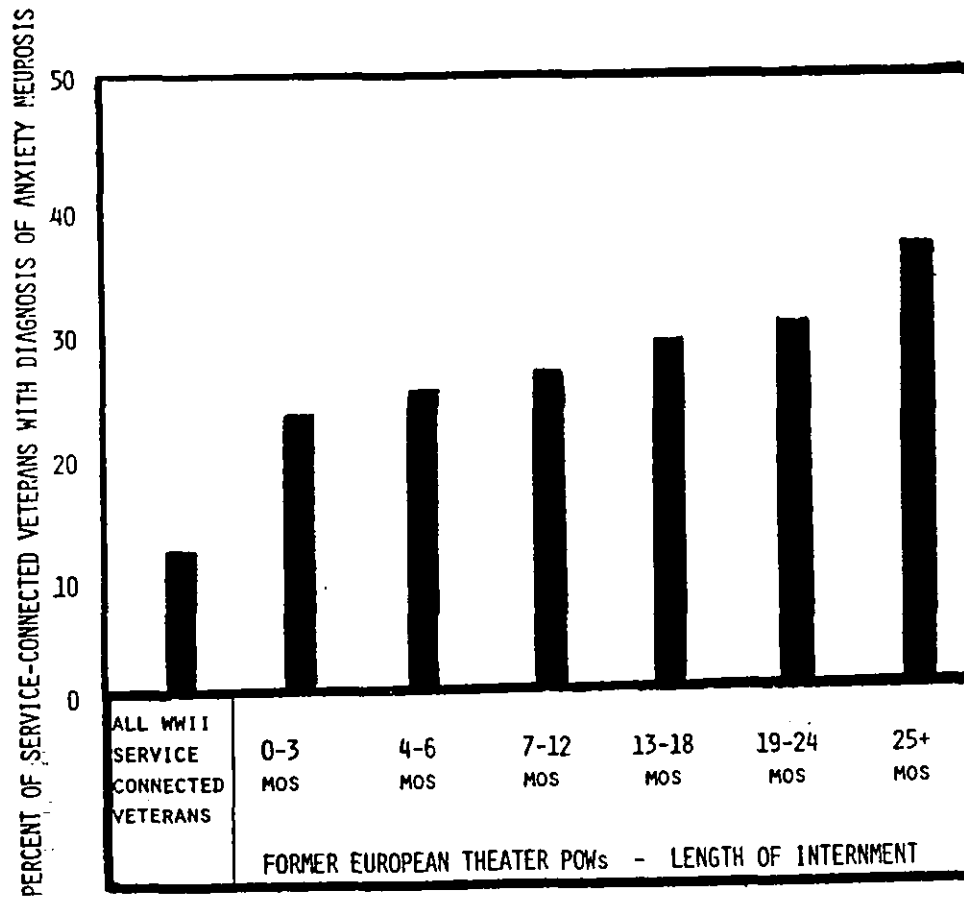
In an effort to update these mortality findings, 1979 mortality data on World War II POWs was collected through a comparison of a list of repatriated World War II POWs obtained from the National Archives with data maintained on these former prisoners in VA computer systems. The data produced indicated that approximately 15 percent (13,582 out of 85,385) of the repatriated European Theater POWs in VA computer systems had died as of June 1, 1979. These deceased European Theater POWs died an average of slightly over 24 years after repatriation (1969). The approximately three year difference between the Keehn and VA comparison dates of death can be largely explained by the time difference in data collection for the Keehn study (through 1975) and the VA comparison (to 1979). When this difference is accounted for, the VA data generally supports Keehn's information on the average number of years after repatriation former European Theater POWs survived. The table below presents this mortality data for former European Theater POWs, as well as Pacific and Korea ex-POWs.

TABLE 3 Former POW Mortality Data

<u>NAS/NRC (Keehn-1975)/VA Comparison (1979)</u>	<u>WW II Europe</u>	<u>WW II Pacific</u>	<u>Korean Conflict</u>
POWs in NAS Sample/POWs Identified in VA Comparison	2,035/85,385	3,147/19,160	3,932/4,418
Deceased POWs in NAS Sample/VA Comparison	291/13,582	668/4,494	382/499
Percent of POWs Who Died in NAS Sample/VA Comparison	14.3/15.9	21.2/23.5	9.7/11.2
Number of Years Survived Since Repatriation - NAS Sample/VA Comparison	20.76/24.40	18.51/22.52	13.20/16.19

of European ex-POWs with anxiety neurosis as opposed to all other service-connected World War II veterans - persists among those European ex-POWs interned longer periods of time (e.g., 4-6 months, 7-12 months, etc.). Thus, there does not appear to be a specific minimum length of internment which must be attained before anxiety neurosis really appears in former European Theater POWs; this disability occurs in a significant number of the POWs interned a few days just as certainly as it does among those interned several years. This relationship is illustrated in the following table.

TABLE 6 PERCENT OF SERVICE-CONNECTED FORMER EUROPEAN THEATER POWs WITH DIAGNOSIS OF ANXIETY NEUROSIS CORRELATED WITH LENGTH OF INTERNMENT



WORLD WAR II - PACIFIC THEATER

BACKGROUND

Like their European Theater comrades, the former Pacific Theater POWs queried in the 1950 War Claims Commission survey complained of malnutrition and gastrointestinal problems, as well as the inability to earn a steady living due to fatigue and/or illness arising out of these conditions. In addition to these complaints, the former Pacific Theater POWs mentioned residuals of tropical

and parasitic diseases, which were incurred while serving in the Pacific.

Survey replies received from Pacific Theater POW physicians were similar to those given by their European Theater professional colleagues. One Pacific Theater POW physician stated that "It is my opinion that virtually none of the released POWs of the Japanese who underwent internment for three to three-and-one-half years escaped without some residual impairment of their health. This may vary from minor mental or physical symptoms to gross crippling disease."¹³ Yet another Pacific Theater POW physician declared that "It is my opinion that no one who suffered the prolonged starvation, degradation, and physical suffering experienced by this group has been able to make a full recovery, either physical or emotional. It is also my opinion that one who has not experienced such a situation has no concept of the problem presented by these men."¹⁴

The medical experts consulted as part of the War Claims Commission report gave the same answers concerning Pacific Theater POWs as they did concerning European Theater POWs - namely, that the average American physician would have difficulty in recognizing the residuals of malnutrition and that former POWs should receive the presumption of service-connected disability with the accompanying benefit of entering a veterans hospital. These physicians also identified optic atrophy, peripheral neuropathy, and beriberi as being residuals of the Pacific Theater POW experience.¹⁵

TYPES AND SEVERITY OF DISABILITIES SINCE REPATRIATION

Mortality As A Measure of the Types and Severity of Disabilities

The Cohen and Cooper study found that the principal causes of a significantly higher percent of deaths among former Pacific Theater POWs during the study period (1946-1952) were tuberculosis and trauma. The authors suggested that the greater number of tuberculosis deaths might be either a direct result of infection during imprisonment or an indirect effect of a lowered post-repatriation resistance to infection. Trauma - accidents, suicide, homicide - was a statistically significant cause of death which the authors hypothesized might be due to underlying psychiatric problems arising out of the POW experience. Cohen and Cooper also found that former Pacific Theater POWs had a significantly higher number of deaths for the first two years after liberation (1946-1947) and a slightly diminished, yet still excessive, death rate for the remaining four years of their study (1948-1952).

The P.L. 83-744 report which cited Cohen and Cooper's findings recommended follow-up mortality studies of former World War II prisoners, especially former Pacific Theater POWs, as they had the highest mortality rate of all World War II POWs.

In this regard, the P.L. 83-744 report stated: "Further, it is recommended that a centrally directed systematic program be initiated to obtain, whenever possible, complete autopsies in all future deaths, accidental or otherwise, of these former prisoners. In addition to gross and microscopic procedures usually employed, special attention should be given to the central and peripheral nervous system, and to the nerves and vascular system of the lower extremities. The immediate autopsy examinations, which may be done in hospitals through the country, should be supplemented by sending the complete medical records, autopsy report, and appropriate blocks of tissue to a central laboratory where further histologic studies should be done and all facts evaluated."¹⁶

The Nefzger POW mortality study confirmed Cohen and Cooper's finding of trauma and tuberculosis as being the principal causes of death among former Pacific Theater POWs for the 1953-1965 follow-up period. Nefzger also found a significantly greater number of deaths due to cirrhosis. Nefzger found no evidence to support the Cohen and Cooper hypothesis that tuberculosis among former Pacific Theater POWs might be due to lowered resistance to infection which occurred after repatriation. Like Cohen and Cooper, Nefzger implied that excess death due to trauma might be due to underlying psychiatric problems (e.g., anxiety neurosis). Nefzger also suggested that a significantly higher percent of deaths due to cirrhosis might have its origin either in malnutrition during imprisonment or a "different standard or manner of living since repatriation" (e.g., alcohol abuse).¹⁷

Nefzger also discovered that the excess mortality of former Pacific Theater POWs relative to other World War II Pacific Theater veterans diminished with time. After 1953, the mortality rate of former Pacific Theater POWs was indistinguishable from that of the other World War II Pacific veterans in his study.

Keehn's study traced mortality among former Pacific Theater POWs through 1975. The findings from this soon to be published study are discussed below.

Morbidity As A Measure of the Types and Severity of Disabilities

Cohen and Cooper discovered that former Pacific Theater POWs exhibited a wide variety of malnutrition, gastrointestinal, cardiovascular, and psychoneurological diseases which occurred far in excess of the amount of these diseases found among other World War II veterans or former European Theater POWs.

The P.L. 83-744 report recommended further morbidity studies of World War II prisoners, especially former Pacific Theater POWs, as they had the highest morbidity rates of all World War II POWs. In this regard, the P.L. 83-744 report declared: "Psychological and psychiatric studies should be conducted to determine the extent to which psychological consequences of imprisonment, perhaps unrecognized by the individual, may have impaired mental adjustment and physical efficiency, the extent to which present and past physical illness and the observed high rate of accidental deaths can be explained on a psychological basis, and to separate complaints of organic origin from those due to psychological causes."¹⁸

The Beebe follow-up morbidity study generally confirmed Cohen and Cooper's findings of greater morbidity among former Pacific Theater POWs due to a variety of causes. In particular, Beebe found that through 1965, former Pacific Theater POWs sustained a higher morbidity rate from tuberculosis and other infective and parasitic diseases, as well as nerve inflammation (neuritis), peripheral neuropathy, and gastrointestinal, genitourinary, and orthopedic problems. Beebe found that arteriosclerotic heart disease was also quite prevalent among former Pacific Theater POWs.

TYPES AND SEVERITY OF DISABILITIES AT THE PRESENT TIME

Mortality As A Measure of the Types of Disabilities

Keehn confirmed Nefzger's report of a significantly higher amount of mortality due to trauma, tuberculosis, and cirrhosis in former Pacific Theater POWs than in his Pacific Theater veteran control group. Like Nefzger, Keehn found no evidence (in the form of excess deaths from tuberculosis through 1975) which supported the Cohen-Cooper hypothesis that tuberculosis might be due to a chronic post-repatriation lowered resistance to infection as well as to an acute infection occurring during imprisonment. Like Cohen-Cooper and Nefzger, Keehn suggested that a significantly higher number of former Pacific Theater POWs deaths due to trauma could have its origin in underlying psychiatric problems arising out of the stress of internment. Like Nefzger, Keehn suggested that former Pacific Theater POW mortality due to cirrhosis could be due to post-liberation alcohol abuse as well as to malnutrition suffered during internment.

Mortality As A Measure of the Severity of Disabilities

Keehn confirmed Nefzger's finding of no significantly higher amount of mortality among former Pacific Theater POWs after the mid-1950s.

Keehn's study also noted that approximately 21 percent (668 out of 3,147) of the repatriated Pacific Theater POWs as opposed to approximately 19 percent (407 out of 2,175) of the other Pacific veterans in his sample had died as of January 1, 1976. The repatriated POWs died an average of 19 years after repatriation (1964).¹⁹

The VA comparison conducted as part of this study updated these mortality findings to 1979. Approximately 23 percent (4,494 out of 19,160) of repatriated Pacific Theater POWs in VA computer systems had died as of June 1, 1979. These repatriated Pacific Theater POWs died an average of more than 22 years after repatriation (1967). The approximately three year difference between the Keehn and VA comparison dates of death can be largely explained by the time difference in data collection for the Keehn study (through 1975) and the VA comparison (to 1979). When this difference is accounted for, the VA comparison generally supports Keehn's information on the average number of years after repatriation that Pacific Theater ex-POWs survived.

Morbidity As A Measure of the Types of Disabilities

The most recent NAS/NRC morbidity study found that former Pacific Theater POWs were suffering from a significantly greater amount of service-connected disabilities due to the following conditions: musculoskeletal problems (arthritis and back disorders), systemic diseases (avitaminosis, beriberi, pellagra, malaria), eye diseases (conjunctivitis), respiratory problems (sinusitis, bronchitis, tuberculosis), cardiovascular symptoms (residuals of frozen feet), gastrointestinal diseases (peptic ulcer, gastritis, amebiasis, dysentery, hemorrhoids, hepatitis), genitourinary problems (prostate gland infection), skin diseases (scars, dermatophytosis), neurological disorders (peripheral neuropathy), and psychiatric problems (anxiety neurosis, coded as "anxiety reaction" and "anxiety state"). Beebe noted that the significant amount of arteriosclerotic heart disease among the living Pacific Theater ex-POWs in his sample should be monitored in a follow-up study to determine if it would result in a significantly higher amount of deaths from heart disease among these POWs in future years. The most prevalent of the service-connected disabilities in Beebe's sample of former Pacific Theater POWs was malaria (27.0 percent), closely followed by anxiety neurosis (25.8 percent). Furthermore, Beebe found that the percent of his former Pacific Theater POW sample suffering from these two disabilities was

significantly greater than the percent of his Pacific Theater veteran control group compensated for these disabilities (11.2 percent with malaria, 5.0 percent with anxiety neurosis).²⁰

The VA comparison updated this morbidity information to 1979. Malnutrition and systemic diseases (malaria, avitaminosis, beriberi, and pellagra), amebiasis and other gastrointestinal disorders, and anxiety neurosis were found to be the statistically significant service-connected disabilities among Pacific Theater POWs currently receiving disability compensation. Anxiety neurosis was the most prevalent of these service connected conditions, accounting for 11.4 percent of all former Pacific Theater POW service-connected diagnoses. Also as in Beebe's study, this disability occurred in a significantly greater amount among former Pacific POWs (11.4 percent) than other service-connected World War II veterans (6.9 percent).

Another NAS/NRC morbidity study, such as the one currently underway, could reconcile the significant former Pacific POW disabilities mentioned in the Beebe study with those in the VA comparison, thereby determining if all of Beebe's significant disabilities are still statistically significant, or if as the VA comparison data suggests, some of these disabilities are no longer statistically significant.

Morbidity As A Measure of the Severity of Disabilities

The extent of former Pacific Theater POW disability can be seen from the VA comparison, which provides data on the percent of living Pacific Theater ex-POWs currently receiving service-connected disability compensation and the average degree of their disability.

Significantly, 50.6 percent of living Pacific Theater ex-POWs are receiving service-connected disability compensation as compared with all other living World War II veterans (9.6 percent) or former European Theater POWs (41.2 percent). Furthermore, the average disability rating for the former Pacific Theater POWs (40.3 percent) is significantly greater than for all other service-connected World War II veterans (27.9 percent) or former European Theater POWs (27.0 percent).

An examination of former Pacific Theater POWs using other indices of disability severity - percent of those with serious disability (over 50 percent) and unemployability ratings - shows that there are significant differences between former Pacific Theater POWs and other World War II veterans and former European Theater POWs. Almost half (48.8 percent) of living Pacific Theater ex-POWs receiving disability compensation are rated at 50 percent or more, which is much greater than the amount of all other seriously disabled World War II veterans (21.9 percent)

or seriously disabled former European Theater POWs (20.1 percent). The following table compares the percent of living service-connected World War II and Korea ex-POWs with the percent of other living seriously disabled veterans of those conflicts.

TABLE 7 **Percent of Living Service-Connected Disabled Rated 50% or Greater**

	<u>POWs</u>	<u>All Veterans</u>
WW II European Theater	20.1	
WW II Pacific Theater	48.8	
Total WW II	25.9	21.9
Korea	34.7	25.5
Total WW II and Korea	26.4	22.1

Furthermore, a significantly greater number (22.0 percent) of living Pacific Theater ex-POWs have unemployability ratings - an assignment of total disability made when a veteran has a service-connected disability rated at less than 100 percent which renders him unable to hold a job - as compared to all other living World War II veterans (5.4 percent) and former European Theater POWs (5.3 percent). The following table compares the percent of living service-connected World War II and Korea ex-POWs rated unemployable with the percent of other living service-connected veterans of those conflicts.

TABLE 8 **Percent of Living Service-Connected Disabled Rated Unemployable**

	<u>POWs</u>	<u>All Veterans</u>
WW II European Theater	5.3	
WW II Pacific Theater	22.0	
Total WW II	8.7	5.4
Korea	8.9	6.3
Total WW II and Korea	8.7	5.3

Comparing the extent of anxiety neurosis with variations in length of internment was not statistically relevant for former Pacific Theater POWs because most Pacific Theater POWs were held for the same long period of time (over three years). This fact made meaningful comparisons between former Pacific Theater POWs interned shorter lengths of time - i.e., 0-3 months, etc. - statistically unreliable.

KOREAN CONFLICT

TYPES AND SEVERITY OF DISABILITIES SINCE REPATRIATION

Mortality As A Measure of the Types and Severity of Disabilities

The Nefzger study provided the first opportunity to scientifically examine the mortality of former Korean Conflict POWs. Nefzger discovered that the increased mortality from trauma - accidents, suicide, homicide - was significant among former Korea POWs. Nefzger hypothesized that as with former World War II POWs, psychological factors might be the underlying cause of death in such cases. He also discovered that the mortality trend of Korea POWs was quite similar to that of former Pacific Theater POWs, in that a significant excess of deaths in the years immediately after repatriation all but disappeared by the end of 1965. Keehn followed up Nefzger's analysis of former Korea POWs through 1975. Keehn's soon to be published study will be discussed below.

Morbidity As A Measure of the Types and Severity of Disabilities

Beebe's study provided the first opportunity to scientifically examine morbidity among former Korea POWs. Beebe found that the most prevalent service-connected residual among former Korea POWs, as with former World War II POWs, was anxiety neurosis. Beebe also observed that former Korea POWs suffered from most of the same types of other service-connected disabilities - e.g., avitaminosis, beriberi, amebiasis - as former Pacific Theater POWs.

TYPES AND SEVERITY OF DISABILITY AT THE PRESENT TIME

Mortality As A Measure of the Types of Disabilities

Keehn provides the most recent scientific description of mortality among former Korea POWs. Keehn confirmed Nefzger's finding of a significant excess of mortality among former Korea POWs due to trauma. Like Nefzger, Keehn also hypothesized that this significantly higher amount of death might be due to underlying psychological problems. Keehn also found a significant number of former Korea POW deaths due to cirrhosis. He suggested that this excess might be due to either malnutrition during internment or stress-related alcohol abuse in the post-repatriation years.

Mortality As A Measure of the Severity of Disabilities

Keehn confirmed Nefzger's finding of an early significant excess of deaths among former Korea POWs in the years immediately following repatriation which all but disappeared by the mid-1960s.

Keehn's study noted that approximately 10 percent (382 out of 3,932) of the repatriated Korea POWs as opposed to approximately 8.5 percent (335 out of 3,940) of other Korea veterans in his sample had died as of January 1, 1976. These repatriated POWs died an average of 13 years after repatriation (1966).²¹

The VA comparison updated these mortality findings to 1979. Approximately 13 percent (499 out of 3,944) of the repatriated Korea POWs in the VA comparison had died as of June 1, 1979. These repatriated Korea POWs died an average of 16 years after repatriation (1969). The approximately three year difference between the Keehn and VA comparison dates of death is largely attributable to differences in dates of data collection between Keehn (through 1975) and the computer match (to 1979). Thus, the most recent VA data generally confirms Keehn's information on the average number of years after repatriation the Korea ex-POWs survived.

Morbidity As A Measure of the Types of Disabilities

The most recent NAS/NRC morbidity study discovered that former Korea POWs suffered from a variety of service-connected disabilities similar to those found to be significant among former Pacific Theater POWs. Beebe found that the significant service-connected disabilities among former Korea POWs were: musculoskeletal disorders, eye disease (conjunctivitis), malnutrition and systemic diseases (avitaminosis and beriberi), respiratory diseases (bronchitis and tuberculosis), cardiovascular disease (residuals of frozen feet), gastrointestinal disorders (peptic ulcer, amebiasis, dysentery, hemorrhoids, hepatitis), skin disorders, (dermatophytosis), and psychological problems (anxiety neurosis, coded as anxiety state or anxiety reaction). As with former World War II POWs, the most prevalent service-connected disability in Beebe's sample of former POWs was anxiety neurosis (19.2 percent). Furthermore, Beebe found that the 19.2 percent of Korea ex-POWs in his sample compensated for anxiety neurosis was significantly greater than the 4.8 percent of his Korea veteran control group compensated for this disability.²²

The VA comparison updated this morbidity information to 1979. Malnutrition and systemic diseases (malaria, avitaminosis, beriberi, and pellagra), residuals of frozen feet, amebiasis, scars, and anxiety neurosis were found to be the significant service-connected disabilities among former

Korea POWs currently receiving compensation. Anxiety neurosis was the most prevalent of these service-connected conditions, accounting for 11.1 percent of all service-connected diagnoses. Also as in Beebe's study, this disability occurred in a significantly greater amount of Korea ex-POWs (11.1 percent) than other service-connected Korea veterans (2.6 percent).

The NAS/NRC morbidity study currently underway could reconcile the significant former Korea POW disabilities mentioned in the Beebe study with those in the VA comparison, thereby determining if all of Beebe's significant disabilities are still statistically significant, or if as the VA comparison information suggest, some of these disabilities are no longer statistically significant.

Morbidity As A Measure of the Severity of Disabilities

The VA comparison also supplied current data on the percent of living Korea ex-POWs receiving service-connected disability compensation. This amount (59.2 percent) was significantly greater than that for all other living Korea veterans (5.1 percent), or of any other POW group under study. The average disability rating for living Korea ex-POWs (36.1 percent) is significantly greater than that for all other living Korea ex-POWs (30.6 percent), and is exceeded only by the average disability rating of living Pacific Theater ex-POWs (40.3 percent).

An examination of ratings for serious disability (over 50 percent) and unemployability provides further evidence of the severity of former Korea POW service-connected disabilities. Approximately one-third (34.7 percent) of living Korea ex-POWs receiving service-connected disability compensation are rated at 50 percent or more, which is much greater than the number of all other living seriously disabled Korea veterans (25.5 percent). Furthermore, a greater amount of living Korea ex-POWs (8.9 percent) have unemployability ratings relative to other Korea veterans (6.3 percent). A comparison of former Korea POW anxiety neurosis with length of internment was not statistically relevant because most Korea POWs were interned for more than one year. This fact made meaningful comparisons between former Korea POWs interned shorter lengths of time - i.e. 0 - 3 months, 4 - 6 months, etc. - unreliable.

VIETNAM ERA

TYPES AND SEVERITY OF DISABILITIES FROM REPATRIATION TO THE PRESENT

The available mortality and morbidity information on Vietnam Era POWs is too recent to draw any definitive conclusions as to the types and severity of their post-repatriation disabilities. Since the bulk of the Vietnam POWs were released in 1973, the military services have been

engaged in collecting data which can be used in long-term research and treatment.

The Naval Health Research Center has conducted a five year (1973-1978) follow-up study of the health status of a representative sample of former Vietnam POW Navy aviators and a matched control group.²³ The data from this study, which consists mostly of the results of annual physical examinations of these repatriated POWs and their controls performed at the Naval Aerospace Medical Research Laboratory, Pensacola, Florida, are currently being assembled by the Naval Health Research Center. Results of these examinations will be presented in a soon-to-be-completed study by the Naval Health Research Center.

The Naval Health Research Center also has conducted a follow-up study of Pueblo POWs.²⁴ The results of this 1977 study, which used a mail questionnaire, indicated that the most prevalent medical problem observed among these former POWs was in the psychoneurological area.

The Air Force Vietnam POW follow-up consists of examinations of those former POWs who have voluntarily visited the School of Aerospace Medicine for physical examinations. The observations from the examinations conducted to date are that neurological and orthopedic disabilities are the most prevalent disabilities among these Air Force POWs.²⁵

Since 1973, there have been periodic inter-agency meetings where the results of former Vietnam POW follow-up studies have been discussed. At the most recent inter-agency meeting, held in May, 1979, a proposal was presented by VA Department of Medicine and Surgery representatives which provided for VA physical examinations for those former Vietnam POWs who had separated from the military. This proposal called for the parent military service to initially identify these POWs to the VA, then for the VA to offer these former POWs an examination using medical treatment protocols provided by the military, and then have the VA forward the results of these examinations to the appropriate military service. A copy would be forwarded to the appropriate Navy or Air Force POW research center for use in follow-up studies. The results of these follow-up studies would then be shared with the VA, which would be responsible for publishing the findings of such examinations.²⁶

SUMMARY

The available mortality and morbidity data on the types and severity of former POW disabilities from repatriation to the present time indicates that the Congressional concern about former POWs, especially those of the World War II Pacific Theater, having a significantly higher incidence and greater variety of diseases attributable to internment is well founded. Evidence to substantiate this concern comes from National Academy of Sciences and VA mortality/morbidity

data, concerning the severity of former POW disabilities which show that Pacific ex-POWs are the most severely disabled POW group, followed closely by former Korea POWs. While former European POWs are not as disabled as former Pacific or Korean POWs, they are more disabled than other World War II veterans. The relative disability of former Vietnam POWs, who were held longer than any other group of POWs under study, must await the completion of currently ongoing studies.

These findings provide support for the contention that captivity in an Asian environment was generally harsher than captivity elsewhere. However, this contention applies only on a general, theater-wide level. Any attempt to apply it to all individual cases would be mistaken, as conditions varied from camp to camp, thus resulting in a wide spectrum of disability even within the same theater.

The most remarkable finding of the review of the types of former POW disabilities is that anxiety neurosis is the most prevalent disability among former POWs from the time of repatriation to the present. The significance of this disability relative to veterans controls remains regardless of the length of internment. This is especially apparent among former European Theater POWs, in which those POWs interned less as well as more than six months exhibit significantly higher rates of anxiety neurosis compared to other service-connected World War II veterans.

Another important finding of the review of the types of former POW disabilities is that systemic and malnutrition related diseases -e.g., malaria, beriberi, pellagra - are prevalent among former POWs, especially those interned in Asia

The types of statistically significant former POW disabilities discussed in this review are summarized in the following table. The length of the service-connected disability lists presented in the table indicates the relative severity of disability among the former POW groups under study -i.e., the longer the list, the more severely disabled the POW group is.

TABLE 9 Statistically Significant Service-Connected Disabilities Among Former POWs (1946-1979)

<u>WW II Europe</u>	<u>WW II Pacific</u>	<u>Korea Conflict</u>	<u>Vietnam Era</u>
anxiety neurosis	anxiety neurosis	anxiety neurosis	currently being studied
avitaminosis	avitaminosis	avitaminosis	

arthritis	arthritis	arthritis
frozen feet residuals	frozen feet residuals	frozen feet residuals
scars	scars	scars
	skin diseases	skin diseases
	beriberi	beriberi
	pellagra	pellagra
	malaria	malaria
	eye diseases	eye diseases
	respiratory diseases	respiratory diseases
	gastrointestinal diseases	gastrointestinal diseases
	genitourinary diseases	
	psychoneurological diseases	
	cardiovascular diseases	

FOOTNOTES

¹ U.S. Congress, Senate, Committee on Veterans Affairs, Report to Accompany S. 2828: Veterans Disability Compensation and Survivors' Benefits Act of 1978, Senate Report No. 95-1054, 95th Congress, 2nd Session, July 31, 1978, p. 35.

² U.S. Department of Health, Education, and Welfare, Effects of Malnutrition and Other Hardships on the Mortality and Morbidity of Former United States Prisoners of War and Civilian Internees of World War II: An Appraisal of Current Information, Washington, D.C.: Government Printing Office, 1965, pp. 1-69, hereafter referred to as "HEW."

³ U.S. Congress, House, Committee on Veterans Affairs, Hearings on H.R. 8848: A Bill to Provide for a Study of the Mental and Physical Sequelae of Malnutrition and Starvation Suffered by Prisoners of War and Civilian Internees During World War II, 81st Congress, 2nd Session, September 15, 1950, p. 1846. Hereafter referred to as "POW Hearings."

⁴ Ibid, p. 1846.

⁵ Ibid, p. 1848.

⁶ Bernard Cohen and Maurice Cooper, A Follow-Up Study of World War II Prisoners of War, Washington, D.C.: Veterans Administration Medical Monograph, September, 1954, pp. 1-81.

⁷ HEW, p. 12.

⁸ Dean Nefzger, "Follow-Up Studies of World War II and Korean War Prisoners, I. Study Plan and Mortality Findings," American Journal of Epidemiology, Vol. 91, No. 2, 1970, pp. 123-138.

⁹ Robert Keehn, "Follow-Up Studies of World War II and Korean War Prisoners, III: Mortality to 1 January 1976." accepted for publication in American Journal of Epidemiology, 1980.

¹⁰ Gilbert Beebe, "Follow Up Studies of World War II and Korean War Prisoners, II. Morbidity, Disability, and Maladjustments," American Journal of Epidemiology, Vol. 101, No. 5, 1975, pp. 400-422.

- 11 Robert Keehn, Letter to VA Studies and Analysis Service, October 11, 1979, p. 1.
- 12 Beebe, Gilbert, p. 417.
- 13 POW Hearings, p. 1843.
- 14 Ibid, p. 1845.
- 15 Ibid, pp. 1847-9.
- 16 HEW, p. 43.
- 17 Nefzger, p. 137.
- 18 HEW, pp. 42-3.
- 19 Robert Keehn, Letter to VA Studies and Analysis Service, October 11, 1979, p. 1.
- 20 Beebe, p. 417.
- 21 Robert Keehn, Letter to VA Studies and Analysis Service, October 11, 1979, p. 1.
- 22 Beebe, p. 417.
- 23 R. C. Spaulding, L. E. Murphy, and J. Phelon, A Comparison Group for the Navy Repatriated POWs from Vietnam: Selection Procedures Used and Lessons Learned, Report No. 78-22, San Diego, CA: Naval Health Research Center, 1978, pp. 1-14.
- 24 R. C. Spaulding, The Pueblo Incident: A Follow-Up Survey Conducted Eight Years After the Release of the U.S.S. Pueblo Crew From North Korea, Report No. 78-37, San Diego, CA: Naval Health Research Center, 1978, pp. 1-28.
- 25 Harry Wetzler, "Status of Air Force POWs - Five Years Post-Repatriation," Medical Service Digest, Vol. 30, No. 6, 1979, pp. 26-28.
- 26 Stewart Baker, Letter to Project Manager, POW Study Task Force, May 21, 1979, pp. 1-3.