

Causes of Death of Prisoners of War during the Korean War (1950-1953)

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Purpose: This study aimed at analyzing the causes of death of prisoners of war (POWs) during the Korean War (1950-1953) who fought for the Communist side (North Korea and the People's Republic of China). In 1998, the United States Department of Defense released new information about the prisoners including, 7,614 deaths of the POW during the Korean War. The data on the causes of death of the POWs during the Korean War provides valuable information on the both the public health and history of the conflict. **Materials and Methods:** To analyze the causes of death of the POWs, we classified the clinical diagnosis and findings on 7,614 deaths into 22 chapters, as outlined in the International Statistical Classification of Diseases and Related Health Problems-10th Revision (ICD-10). Second, we traced changes in the monthly death totals of POWs as well as deaths caused by common infectious diseases and external causes of death including injury over time from August 1950 to September 1953. **Results:** The most common category of causes of deaths of POWs was infectious disease, 5,013 (65.8%) out of 7,614 deaths, followed by external causes including injury, 817 (10.7%). Overall, tuberculosis and dysentery/diarrhea were the most common causes of death. Deaths caused by acute and chronic infection, or external causes showed different patterns of increases and decline over time during the Korean War. **Conclusion:** The information and data on POWs' deaths during the Korean War reflects the critical impact of the POWs' living conditions and the effect of public health measures implemented in POW camps during the war.

Key Words: Prisoners of war (POW), Korean War, causes of deaths, infectious diseases

INTRODUCTION

During the Korean War from June 25, 1950 to July 27, 1953, the prisoners of war (POWs) who fought for the communist side of North Korea and the People's Republic of China were held captive in United Nations-administered POW camps. The camps were built on Geoje-do (Geoje island), Jeju-do, and several mainland areas of the southern part of the Korean peninsula under US direction, and the largest camp was set up in Geoje-do. According to a UN Command report of July 1953,

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the total number of POWs committed to these camps during the Korean War was 171,494.¹ Some civilian refugees also were held in the POW camps.^{1,2} In addition to the North and South Korean soldiers, the camps also held South Koreans who had joined the North Korean army during the period of North Korea's occupation of South Korea at the early stages of the Korean War.

In 1998, the United States Department of Defense, through the US National Archives and Records Administration, released new information about the prisoners, including records on 7,614 deaths of POWs during the Korean War. Information released on the POWs' deaths during the war included records on clinical diagnosis of disease and findings on each POW's death, the date of death as well as the rank, birth date and birth place of the person who died. However, the documents did not mention the place of death, the gender of the person who died, nor the name or job position of the medical personnel who made or described the clinical diagnosis of disease and findings related to the POWs' death. Despite the incomplete nature of the information about POWs' deaths, the documentation provides significant insight into understanding issues related to the public health and history of UN-held POWs during the Korean War. Until recently, medical researchers have had extremely limited access to information on POWs' deaths during the Korean War.

Considering the social political situation in Korea during the war, POWs' health could have been affected either positively or negatively by a variety of factors. For example, personal health and nutritional status before being captive were important factors in shaping death rates.³ The prevalence of epidemic/endemic diseases within the general population and military soldiers before or during the war also could have affected POWs' health status. Additionally, acute or chronic infectious diseases such as malaria, typhus, smallpox, typhoid, diphtheria, dysentery, and tuberculosis were highly prevalent in Korea during the Korean War, especially in earlier stages of the conflict, and many POWs would have been exposed to these diseases prior to entering into the camps.^{3,7} Living conditions in POWs camps also had a critical impact on POWs' health. Physical environments such as food and water supply, individual hygiene, sanitation and sewage management, crowding, accessibility of drugs and medicine, and social environment, including political conflicts with communists or anti-communists' counterparts, all shaped the ability of people to survive incarceration in the camps.^{8,9} Lastly, the health of the POWs was affected by medical treatments, hospitalization,^{3,7} and public health

measures for communicable disease control in the camps⁸ as well as in the general population and army.^{5,6,10} The quality of care given in combat situations, on battlefields, and during evacuation could indirectly affect the susceptibility of POWs to disease, trauma, and death.

Under the Geneva Convention of 1949, the US-led UN Command (UNC) supplied safe food and water to the POWs. In some cases, the availability of these supplies in camps were better than those accessible to the general public.^{1,11} A rapid increase in communist POWs occurred in the aftermath of the Incheon landing, the recovery of Seoul, and communist setbacks in September and October 1950. With the UN retreat in the face of the Chinese military intervention in the winter of 1950-1951, UN POW camps became severely overcrowded, sanitation in the camps was very poor, and the individual POW's hygiene deteriorated significantly.^{8,12} The social environments and political environments of the camps also deteriorated. Violence and revolts occurred within the camps, both as a consequence of poor conditions and the politicization of the POWs; most of whom were subject to propaganda and forced to choose sides in brutal the cold war battles that broke out in the camps.^{8,9}

Information related to the death and causes of death of POWs can therefore illuminate not only the health issues affecting the prisoners, but also the POWs' living conditions in the camps during the Korean War. Besides this, the data can suggest the impact medical interventions had on affecting the POWs' health as well as the impact of public health measures to deal with communicable diseases in the camps themselves. Furthermore, understanding the incidence and causes of death in the camps can also highlight to a broader extent public health issues in the two Koreas during the war. With these issues in mind, we undertook our analysis based on the information given about 7,614 deaths of the POWs during the Korean conflict. The research questions posed for our study are as follows.

'What were the main causes of death of POWs held by the UNC during the Korean War?'

'Were they similar to the main causes of death in the Korean population or did they reflect the incidence of epidemic or endemic diseases in the army? Were the deaths of UNC-held POWs much different from the deaths of civilians or outside the camps because of POW camps' conditions?'

'In evaluating POWs' deaths caused by disease, were there any unexpected findings?'

'Does the evidence suggest that POW's deaths were

strongly impacted by the living conditions at camps?’

‘Were there any indications that UNC public health measures for dealing with communicable diseases control and prevention affected the incidence of deaths in the camps?’

Regarding our research questions, we assumed that for epidemics of infectious diseases, there would be a decline in the number of monthly deaths after the UNC implemented public health or medical intervention measures in the POWs camps. We also assumed that leading causes of the POWs’ deaths would be different over time because of the impact of changes in the POWs’ living conditions in the camps and

Table 1. Sociodemography of Deaths of Prisoners of War during the Korean War

Category	No.	% of total
Age		
10-19	538	7.1
20-29	1,418	18.6
30-39	661	8.7
40-49	59	0.8
50-59	14	0.2
60+	7	0.1
Unknown	4,917	64.6
Rank		
Captain	11	0.1
Warrant officer	1	0.0
Lieutenant	61	0.8
Major	6	0.1
Sergeant	42	0.6
Corporal	35	0.5
Private/Recruit	6,755	88.7
Guerilla	2	0.0
Civilian/Refugee	304	4.0
Volunteer	11	0.1
Others (guard group)	1	0.0
Unknown	385	5.1
Distribution of death per date of death		
1950. 8-9.	92	1.2
1950. 10-12.	2,012	26.4
1951. 1-3.	2,449	32.2
1951. 4-6.	1,125	14.8
1951. 7-9.	454	6.0
1951. 10-12.	283	3.7
1952. 1-3.	223	2.9
1952. 4-6.	251	3.3
1952. 7-9.	127	1.7
1952. 10-12.	113	1.5
1953. 1-3.	159	2.1
1953. 4-6.	183	2.4
1953. 7-9.	92	1.2
Unknown	51	0.7
Total	7,614	100.0

UNC medical interventions.

MATERIALS AND METHODS

We obtained data on 7,614 deaths of POWs during the Korean War from the Institute of Asian Culture Studies, Hallym University. The information, included the dates of birth and death, military rank, birth place, and clinical diagnosis of disease or findings related to the cause of death. Some records of many POW deaths were incomplete, but the clinical diagnosis was included for most cases. Clinical diagnosis was described in detail for some cases, and diagnosis was confirmed through an autopsy or surgical operation for other cases.

To analyze the causes of the POWs’ death, we classified clinical diagnosis into several categories using a well-known systematic classification of diseases and health problems known as the International Statistical Classification of Diseases and Related Health Problems at Clinics and Hospitals (ICD). The ICD has been used world-wide, and is continuously updated so that the 2007 ICD-10th revision (ICD-10) has 22 chapters of categories of disease, including ‘Certain infectious and parasitic disease’, ‘Neoplasm’, ‘Diseases of the blood and blood-forming organ’, ‘Endocrine, nutritional and metabolic disease’, ‘Mental and behavioral disorders’, ‘Disease of the nervous system’, and so on. Following the guidelines of ICD-10, we classified the clinical diagnosis of disease or other medical findings on the cause of death of 7,614 POWs’ deaths into the various chapters or categories of disease. We counted the number and the proportion of deaths classified in each category. In some cases, an individual had multiple diagnoses of disease or other medical conditions related to death; therefore, it was not possible to discriminate the immediate cause of death. For example, the conditions leading to death or the underlying antecedent causes of death were cited as ‘dysentery and tuberculosis’, ‘Dysentery, Acute and Bronchitis’, ‘Tetanus and Pneumonia Bronchial’, etc. For these cases, we placed more stress on fatal conditions and infections as the underlying antecedent causes of death. Second, we considered death the result of a disease in hierarchy of a critical organ such as the brain, heart or lung. In total, we obtained a list of 640 differently described causes of death of the 7,614 POWs.

Next, we traced the change of monthly POWs’ deaths over time from August 1950 to September 1953. We observed not only the POWs’ deaths in each month from total

deaths, but also the deaths caused by the two most common infectious diseases (dysentery/diarrhea and tuberculosis) from the infectious diseases category, and another category of external causes including injury, etc. The reasons why we traced these diseases and the category of external causes over time were as follows. First, tuberculosis and dysentery/diarrhea were the most common diseases among the category of 'Infectious and parasitic diseases', which was the largest category of the POWs' death in the ICD-10 chapters and followed by the category of external causes including injury, etc. Second, the nature of these two infectious diseases and the category of external causes were different from each other as causes of death: 'dysentery/diarrhea' by acute gastrointestinal infection, 'tuberculosis' by primarily chronic pulmonary infection, and the external causes with mainly injuries by military weapons like gunshots, bombs and violence at POWs camps. In counting POWs' deaths by the three different causes of death, we regarded typical acute enteric disease cases with clinical diagnosis and findings of dysentery, diarrhea, acute enteritis, acute colitis, salmonellosis, and shigellosis as 'dysentery/diarrhea', and counted any chronic infection cases with tuberculosis diagnosis regardless of the organ involved as 'tuber-

culosis'. Based on the different nature of each cause of death, we supposed that the change in monthly deaths according to these diseases and category could reflect not only the different nature of diseases, but also the impact of the POWs' social and physical living conditions and the effect of public health intervention efforts in the POWs' camps.

RESULTS

The majority of deaths of POWs (74.6%) occurred during the initial stages of the Korean War, from August 1950 to June 1951. More than 60% of the POWs' who died did not have a recorded date of birth, but the plurality of the people who died (amongst those with recorded birthdates) were in their twenties (18.6%), followed by those in their thirties (8.7%), and teenage years (7.1%) (Table 1). In terms of military rank, an overwhelming number of those who died were privates (88.7%). Also included in the death statistics were more than 300 civilian refugees (4%) and some Chinese volunteer soldiers (0.1%). Sex was not indicated in the death records. Although women were included in POW

Table 2. Causes of Death of Prisoners of War during the Korean War (1950-1953) According to the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10)

	Category	No. of sample	% of total
I	Certain infectious and parasitic disease	5,013	65.8
II	Neoplasms	30	0.4
III	Disease of the blood and blood-forming organs and certain Disorders involving the immune mechanism	6	0.1
IV	Endocrine, nutritional and metabolic disease	59	0.8
V	Mental and behavioral disorders	2	0.0
VI	Diseases of the nervous system	84	1.1
VII	Diseases of the eye and adnexa	-	-
VIII	Diseases of the ear and mastoid process	-	-
IX	Disease of the circulatory system	84	1.1
X	Diseases of the respiratory system	531	7.0
XI	Diseases of the digestive system	269	3.5
XII	Diseases of the skin and subcutaneous tissue	13	0.2
XIII	Diseases of the musculoskeletal system and connective tissue	4	0.1
XIV	Diseases of the genitourinary system	54	0.7
XV	Pregnancy, childbirth and the puerperium	-	-
XVI	Certain conditions originating in the perinatal period	-	-
XVII	Congenital malformations, deformations and chromosomal abnormalities	-	-
XVIII	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	648	8.5
XIX	Injury, poisoning and certain other consequences of external causes	817	10.7
XX	External causes of morbidity and mortality	-	-
XXI	Factors influencing health status and contact with health services	-	-
XXII	Codes for special purposes	-	-
Total		7,614	100.0

camps, we do not have any information about causes or incidence of death for females.

As shown in Table 2, the causes of death of the POWs were classified into 14 categories according to ICD-10 criteria, and the most common category of causes of death of POW's was infectious disease, 5,013 out of 7,614 deaths (65.8%). This was followed by external causes of death, including injury, 817 (10.7%), not elsewhere classified, 648 (8.5%), diseases of the respiratory system, 531 (7.0%), diseases of the digestive system, 269 (3.5%), diseases of the nervous system, 84 (1.1%), diseases of the circulatory system, 84 (1.1%), and seven categories of causes of death, 168 (2.3%). In the category of infectious diseases, tuberculosis and dysentery/diarrhea were the most common or leading causes of death of the POWs, with 2,404 and 2,299 cases, respectively, followed by tetanus (226 cases) (Table 3). Very few of the POWs were reported as dying of typhus, smallpox, hepatitis, or malaria. This was contrary to trends in the general population, where deaths caused by these diseases were commonly reported during the Korean War.⁷

We examined monthly POWs' deaths over the period from August 1950 to September 1953. As expected, the numbers of deaths rose sharply in the period after from September 1950, and reached their highest peak in the early winter of 1950-1951, with more than 1,200 cases in December 1950 and more than 1,100 cases January 1951. In February 1951, the death rate of POWs decreased significantly to about 600 cases, but in March, it rose again to more than 700 cases. After this period, deaths declined fast to less than 100 cases by November 1951. After that date, there were two

more small rises in the death rate of POWs-in June 1952 and June 1953 the rate increased to over 100 cases. Otherwise, less than 100 cases per month were recorded until the end of the war (Table 4, Figs. 1 and 2).

Dysentery/diarrhea showed a similar change in monthly deaths, with the highest peak of 715 cases occurring in December 1950 and 712 cases in January 1951, with a rapid decline in cases after that date. Deaths caused by dysentery/diarrhea, remained at more than 100 cases per month until April 1951, and a statistic that decreased to 34 cases by May 1951. After July 1951, death because of dysentery/diarrhea remained low-less than 5 cases per month (Table 4, Fig. 1). This finding suggests the existence of a dysentery/diarrhea epidemic in the POW camps from October 1950 to April 1951.

Meanwhile, tuberculosis showed a different pattern of change in monthly deaths.

After October 1950 the number of monthly deaths caused by tuberculosis rose relatively less sharply than the other diseases mentioned so far, and reached its highest peak of over 200 cases during the three month period from March to May 1951 (201, 233 & 251 cases respectively). After this, the incidence of the disease slowly declined, though there were flare-ups of the disease until the end of the Korean War (Table 4, Fig. 1).

External causes of death, including injury (by gunshot, bomb, or other violence)-the second most common category of cause of death amongst POWs-had a much lower number of monthly deaths until the autumn of 1952 than did the category of infectious diseases. However, external causes of death resulted in a relatively higher number of monthly deaths proportional to the monthly total of POWs' deaths than above two common infectious diseases during the later period of the Korean War (December 1952 to July 1953) (Fig. 2). The highest peak of 103 cases occurred in October 1950, although there were some fluctuations in the number of those who died as a result of "external causes" until the end of the war. Meanwhile, there were two small peaks of monthly deaths by external causes in June 1952 (36 cases) and June 1953 (70 cases), which reflected periods of more intense violence within the POW camps (Table 4, Fig. 1).

Table 3. Infectious Diseases as Causes of POWs' Death during the Korean War

Diseases	No. of sample	%
Sepsis	20	0.4
Dysenteries/Diarrhea	2,299	45.9
Hepatitis	31	0.6
Influenza	1	0.0
Parasitic diseases	14	0.3
Paratyphoid fever	2	0.0
Pneumococcal meningitis	1	0.0
Poliomyelitis	2	0.0
Relapsing fever	2	0.0
Syphilis	1	0.0
Tuberculosis	2,404	48.0
Tetanus	226	4.5
Typhoid fever	10	0.2
Total	5,013	100.0

POWs, prisoners of war.

DISCUSSION

This study presents valuable information about the causes of death of the POWs during the Korean War. It provides a

general overview of the causes of the POWs' deaths consistent with the categories of death outlined in ICD-10 and notes changes in the causes of POWs' deaths over time.

Most POW died as a result of 'infectious and parasitic diseases'. According to our statistics, infectious diseases

(Table 2) caused two out of three POWs' deaths (65.8%). This finding reflects several aspects of the public health and social situation in Korea during the Korean War. First, infectious and parasitic diseases such as dysentery, smallpox, typhus, cholera, malaria, and tetanus were highly prevalent

Table 4. Distribution of POW Deaths Caused by Dysenteries, Tuberculosis and External Causes by Date of Death (Month) during the Korean War

Date of death	Dysenteries/Diarrhea			Tuberculosis			External causes			
	No.	%	Cumulative %	No.	%	Cumulative %	No.	%	Cumulative %	
1950	8	0	0.0	0	0.0	0.0	5	0.6	0.6	
	9	1	0.0	0	0.0	0.0	45	5.5	6.1	
	10	29	1.3	1.3	13	0.5	103	12.6	18.7	
	11	179	7.8	9.1	68	2.8	36	4.4	23.1	
	12	715	31.2	40.2	150	6.2	9.6	34	4.2	27.3
1951	1	712	31.0	71.2	83	3.5	13.1	62	7.6	34.9
	2	241	10.5	81.7	129	5.4	18.4	31	3.8	38.7
	3	234	10.2	91.9	201	8.4	26.8	36	4.4	43.1
	4	112	4.9	96.8	233	9.7	36.5	13	1.6	44.7
	5	34	1.5	98.3	251	10.4	46.9	20	2.4	47.1
	6	6	0.3	98.6	185	7.7	54.6	17	2.1	49.2
	7	3	0.1	98.7	148	6.2	60.8	6	0.7	49.9
	8	3	0.1	98.8	112	4.7	65.4	25	3.1	53.0
	9	0	0.0	98.8	67	2.8	68.2	38	4.7	57.6
	10	3	0.1	98.9	91	3.8	72.0	7	0.9	58.5
	11	4	0.2	99.0	73	3.0	75.1	6	0.7	59.2
	12	1	0.0	99.1	56	2.3	77.4	11	1.3	60.6
1952	1	1	0.0	99.1	46	1.9	79.3	5	0.6	61.2
	2	1	0.0	99.2	60	2.5	81.8	6	0.7	61.9
	3	2	0.1	99.3	56	2.3	84.1	15	1.8	63.8
	4	0	0.0	99.3	49	2.0	86.2	12	1.5	65.2
	5	0	0.0	99.3	51	2.1	88.3	9	1.1	66.3
	6	1	0.0	99.3	45	1.9	90.2	36	4.4	70.7
	7	1	0.0	99.3	30	1.2	91.4	7	0.9	71.6
	8	1	0.0	99.4	24	1.0	92.4	5	0.6	72.2
	9	3	0.1	99.5	13	0.5	93.0	5	0.6	72.8
	10	2	0.1	99.6	23	1.0	93.9	3	0.4	73.2
	11	0	0.0	99.6	19	0.8	94.7	5	0.6	73.8
	12	0	0.0	99.6	13	0.5	95.3	17	2.1	75.9
1953	1	2	0.1	99.7	21	0.9	96.1	11	1.3	77.2
	2	2	0.1	99.8	16	0.7	96.8	13	1.6	78.8
	3	0	0.0	99.8	13	0.5	97.3	37	4.5	83.4
	4	0	0.0	99.8	12	0.5	97.8	19	2.3	85.7
	5	1	0.0	99.8	7	0.3	98.1	9	1.1	86.8
	6	0	0.0	99.8	12	0.5	98.6	70	8.6	95.3
	7	1	0.0	99.9	14	0.6	99.2	19	2.3	97.7
	8	0	0.0	99.9	9	0.4	99.5	4	0.5	98.2
	9	0	0.0	99.9	2	0.1	99.6	4	0.5	98.7
Unknown	4	0.2	100.0	9	0.4	100.0	11	1.3	100.0	
Total	2,299	100.0		2,404	100.0		817	100.0		

POWs, prisoners of war.

and were the leading causes of death in the general population in Korea in early 1950s.^{3-7,13} Second, the general population in Korea during the war experienced poor health, with low immunity and resistance to the causative agents of disease because of an inadequate diet and semi-starvation conditions.³ Third, the concept of sanitation in Korean society

was unfamiliar and poor.^{3,6} Lastly, because of the lack of health education about infectious diseases, only a few people were aware of the causes of infectious disease, and most were unable to practice adequate individual hygiene.

There were some differences, however, in the causes of deaths of the general population and the POWs. Commonly,

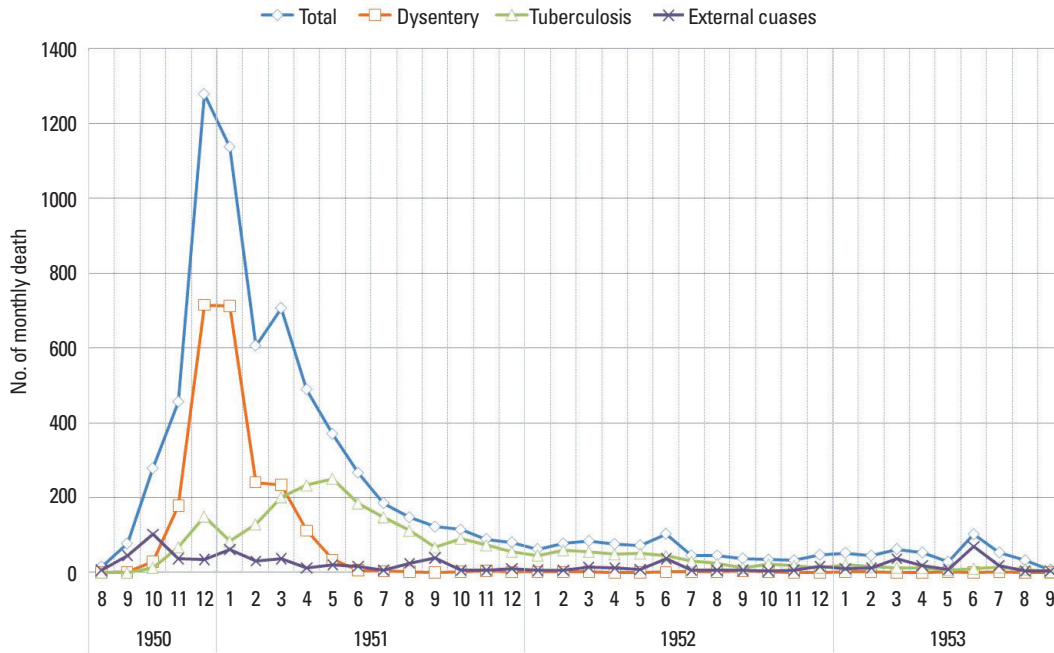


Fig. 1. Number of monthly deaths of prisoners of war caused by Dysenteries, Tuberculosis, and External causes during the Korean War.

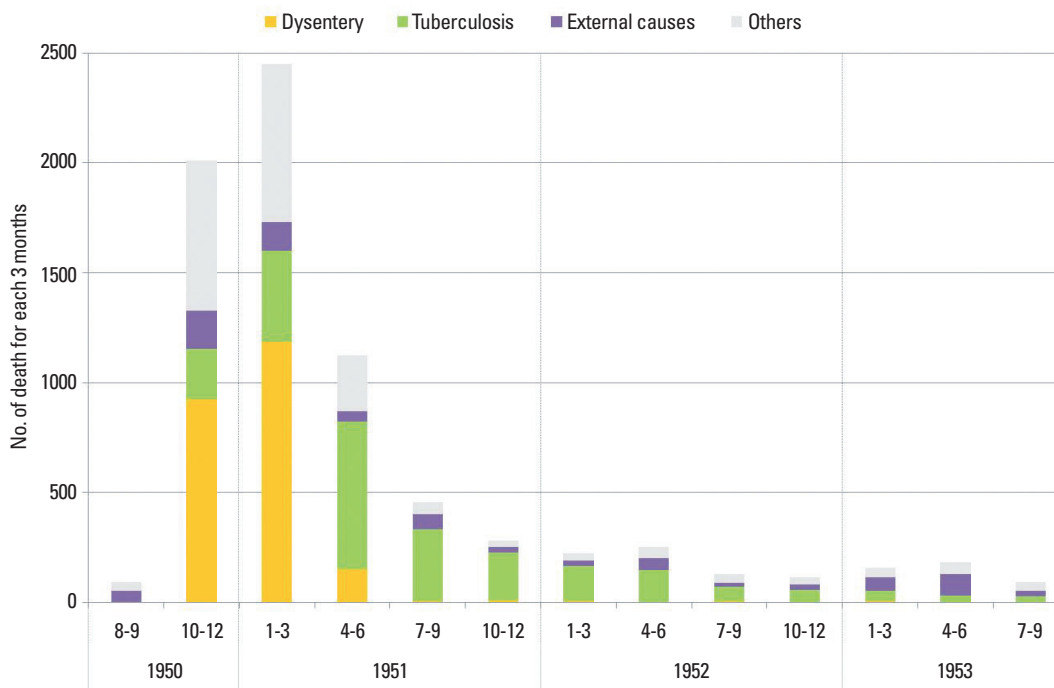


Fig. 2. Number of deaths for each 3 months of prisoners of war caused by Dysenteries, Tuberculosis, and External causes during the Korean War.

tuberculosis and dysenteries/diarrhea were the most common cause of death in both the POWs and general population in Korea.^{3,5,7} By contrast, few POWs' died of malaria, typhus, diphtheria, or other parasitic diseases, while many such deaths were reported among the general population (Table 3). This difference could be the result of a better supply of food and water in the camps, more aggressive public health measures amongst a confined population, and better access to medical treatment at the POW camps, compared with the general population.

Regarding the period of recorded deaths, the majority of POWs (74.6%) died in the earlier stages of the Korean War, between August 1950 and June 1951, before the war was stabilized (Table 1). Several factors negatively influenced the health of the POWs during this period. Among possible factors, we have highlighted the role of living conditions. However, Garfinkel¹² (1954) put particular emphasis on the impact of the sudden overcrowding of the POWs camps, since overcrowding could allow infectious diseases to spread rapidly, exacerbate sanitation problems at the camps, and result in a decline in individual hygiene. Garfinkel¹² explained in this way the 1950-1951 winter epidemic of acute enteric infectious diseases (dysentery/diarrhea), which had been uncontrolled for several months, despite aggressive UNC public health measures and medical intervention. During the winter epidemic, more than 4,000 POWs were hospitalized of dysentery and more than 600 POWs died each month.⁷ Our finding of a sharp rise in the monthly deaths caused by acute infectious diarrheas in early stages of the Korean War, as shown in Fig. 1, would to some extent support his view.

We observed that tuberculosis was a cause of POWs' deaths for a longer period than was dysentery and diarrhea (Table 4, Figs. 1 and 2). Dysentery/diarrhea declined rapidly after the winter of 1951, and the epidemic was controlled in few months. Leedham³ explained that many deaths caused by tuberculosis were due not only to the high prevalence of the disease and, but also to the lowered health and nutritional status of the population in general, which brought a low degree of resistance to tuberculosis. In the early 1950s, the prevalence of tuberculosis in the general population was 6.5% and the mortality rate was 300/100,000. Leedham³ reported that the incidence rate of tuberculosis for POWs in the calendar year of September 1, 1951-August 31, 1952 was 43/100,000, and aggressive treatment with segregation and hospitalization of more than 3,000 POWs was done. These POWs received good medical care and a high calorie diet

to improve their health status. He proposed that despite aggressive medical and surgical treatment and hospitalization, many POWs died of tuberculosis because of their pre-existing low resistance and immune status.

Regarding POWs' deaths caused by external causes, two increases in monthly deaths reflected the prevalence of violence in POW camps between the communist and anti-communists and UNC army troops (Table 4, Fig. 1). The rise in monthly deaths caused by external causes in June 1952 was related to a battle to regain control at the Geoje island POW camp by the US army-more than 30 POWs were killed and 139 were wounded.^{8,9} On the other side, the rise in deaths caused by external causes in June 1953 were related to conflicts over the repatriation of the POWs at the time of the armistice negotiations.^{8,9}

The two most common causes of death-infectious diseases (dysentery/diarrhea and tuberculosis) and external causes-showed different patterns of incidence during the war, something we anticipated (Figs. 1 and 2). The number of monthly POWs' deaths changed over time, and experienced an increase four times during the Korean War. Each increase in monthly death totals occurred when one of the three most common causes of death also peaked. The highest peak of deaths during the war occurred during the winter epidemic of acute enteric infectious diseases, dysentery/diarrhea, while the second highest death rate occurred during the peak in chronic infectious diseases, tuberculosis. By contrast, two increases in June 1952 and June 1953 of total monthly deaths paralleled increases of monthly deaths related to "external causes".

This finding can be taken as evidence to suggest not only the different nature of causes of death amongst POWs, but also the impact of public health measures in the camps and efforts by the UNC to control disease in POW camps during the Korean War. The living conditions in the camps also affected the causes and timing of deaths amongst the POWs.

Lastly, we regard the information released on POWs' deaths and the data used in our analysis of the causes of the POWs' deaths as medical reports, not formal death certificates. In all likelihood, considering the wartime situation,⁷ it is unlikely that the US army doctors would have produced formal death certificates for the POWs.

In conclusion, this study provides valuable information and data about the deaths of POWs during the Korean War. Researchers now have knowledge about how the causes of death in the POW camps related to the critical issues of the POWs' living conditions and the effects of pub-

lic health measures in POW camps during the war. Our analysis provides insight into POWs' health and living conditions during the war and, from an ecological perspective, highlights the multiple factors that shaped the individual and society during the Korean War.

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