

Public health at Anzac Cove

Gastrointestinal diseases in the trenches at Gallipoli

An outstanding feature of the trend in mortality of combatants in major wars waged by European and American armies between 1792 and 1918 is that the ratio of deaths from communicable diseases (CDs), especially gastrointestinal infections, to deaths from wounds (much complicated by septic infections) declined steadily despite the increasing lethality of weapons. However, the turning point in the trend was World War I, when the ratio of deaths resulting from CDs to deaths resulting from wounds was reversed (Box 1).¹

For centuries during which records and documents are available, illness and deaths from CDs were much greater than from battle casualties. Consequently, modern military medicine focused much more on the prevention of CDs. As the field of bacteriology expanded in the late 19th century, the causative pathogens for CDs like typhoid and dysentery that had ravaged armies for centuries were discovered; and epidemiology showed how the spread of such diseases might be prevented.

The ratio of deaths from infectious diseases to battle-related deaths was considerably better in the Australian Imperial Force in 1915 than for troops in the South African War, 1899–1902 (Box 2).

By the end of World War I, the new preventive medicine and associated public health measures had demonstrated improved health outcomes. However, the picture is not quite so bright during the earlier years. This is aptly illustrated during the ANZAC campaign, when CDs seriously sapped the fitness and fighting capacity of the Australian and New Zealand troops.

Hill, in his introduction to the official war history of ANZAC by CEW Bean,² argued that the thrust by the Australian 4th Brigade and the New Zealand Infantry Brigade to take Sari Bair, vital to the success of the August offensive to end the military stalemate at Gallipoli, failed partly because the troops were unfit,

their health sapped by recurrent dysentery, poor diet and 3 months of confined trench warfare.

Colonel Graham Butler, an Army medical officer at Gallipoli and historian of the Australian Army Medical Services in World War I, went so far as to write of “the disease debacle at Gallipoli”.³ He noted that in the summer of 1915, a serious, mainly fly-borne epidemic of intestinal infection attacked the troops. Regimental and divisional staffs and general headquarters were slow to appreciate the causes of the epidemic: seriously inadequate handling of rubbish disposal; the Army Medical Service’s excessive focus on water purity as a safeguard against such infections; and the military commanders’ concern to retain troops with less serious cases of the infection on the front.³

Bean described the effects of illness often due to failed public health measures. During the summer of 1915, the influence of sickness on the troops became profound:

Until the end of May the health of the troops at Anzac was perfect. The days were fresh and bright. The life was novel ... But [in the second month of the occupation] in the manure of the transport animals, crowded in valleys behind the opposing lines, in the waste food and other refuse ... carelessly disposed of, and in the bodies of the dead, decaying by thousands after the Turkish attack of May 19th, they [flies] were produced in swarms.²

Diarrhoeal disease took hold among the 25 000 troops and “at the end of July the corps was losing fortnightly through sickness as many men as would be placed out of action in a general assault”.² The illness was classified as paratyphoid A and B, the troops having been immunised against typhoid either in Egypt or on the voyage from Australia. Dysentery followed, posing diagnostic problems: first it was thought to be amoebic and then bacillary. Orders to manage all cases with emetine fell apart because no emetine was available. This was one of a long list of complications in the medical and surgical treatment of the troops. Hospital facilities in Egypt and Lemnos were quickly saturated

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Milton J Lewis
BA (Hons), MA, PhD¹

Stephen R Leeder
MD, FRACP, PhD²

¹University of Sydney, Sydney, NSW.

²Medical Journal of Australia, Sydney, NSW.

milton.lewis@sydney.edu.au

doi: 10.5694/mja15.00290

1 Deaths in major European and American wars, 1792–1918*

War	Years	Army	Killed in action	Deaths due to CDs (a)	Deaths due to wounds (b)	Ratio of (a) to (b)
French Revolutionary/Napoleonic†	1792–1815	British	16 000	194 000	8 000	24.3:1
American Civil	1861–1865	Union and Confederate	118 000	344 000	63 000	5.5:1
Franco–Prussian	1870–1871	Prussian	17 000	15 000	11 000	1.4:1
South African	1899–1902	British	ns	14 000	7 500‡	1.9:1‡
World War I	1914–1918	British and Dominion	418 000	113 000	167 000	0.7:1

CD = communicable disease. ns = not specified. * Adapted from Cooter;¹ numbers are approximate. † Excluding Peninsular War. ‡ Includes killed in action. ◆

2 Ratio of deaths due to communicable diseases (CDs) to deaths in battle or due to wounds: AIF (1915) compared with British troops in the South African War (1899–1902)*

	Deaths due to CDs (a)	Deaths in battle or due to wounds (b)	Ratio of (a) to (b)
AIF	600	7 818	1:13
South African War: British troops	13 475	6 872	2:1

AIF = Australian Imperial Force. * Adapted from Butler.³ ◆

and the sick and wounded were distributed to other Mediterranean hospitals.²

The troops were well supplied with food — probably too much for a fighting force confined to a small space:

before the danger of the practice was perceived, ends of bacon, dregs of tea, and remnants of meals were constantly thrown by troops over the front or rear of their trenches. During May it was recognised that this encouraged the breeding of flies, and, as that pest increased, the cleanliness of the trenches was safeguarded by a very strict regime ... all refuse was collected and burnt; great care was exercised not to spill tea or water, which in that dry climate was observed instantly to attract flies.²

Flies swarmed from May until October. Latrines were built, rubbish burned and bodies buried, but incompletely so and disease continued to spread, especially as the troops' nutritional status began to wane. Those who were sick could not be easily evacuated and the troops themselves scorned this approach because of the administrative difficulty in returning to the front when well.²

Enteric problems accounted for half the sickness. Dental problems were prominent as well, partly due to the effects of trying to eat army biscuits. The medical corps did not include dentists. Several dentists were found among the ranks and, with an utterly basic kit, they went to work.²

Lice infected everyone after the trenches were occupied: "not only did the troops occupy a number of trenches abandoned by the Turks; they necessarily lived for months with their clothes unchanged". Remarkably, there was no louse-borne typhus.²

The diet was tedious and limited:

For a month it was possible to eat "bully beef," [suspected by all the men of having been already robbed of its juices for "extract"] onions, army biscuits, bacon, and jam, and drink tea with relish. But as month followed month; as heat and flies increased; as men became jaded with heavy monotonous work, insufficient sleep, and almost universal diarrhoea and dysentery; as vermin encroached and their constant crawling over chest and limbs precluded all rest and its

refreshment; ... the troops sickened of their unchanging ration.²

There was little respite:

A system of reliefs and rests, such as ... in France, was out of the question at Anzac. A proportion of regiments or brigades were of course withdrawn into the area behind the lines; but ... the necessary works were so urgent that this period was completely occupied with heavy and monotonous fatigues; and, though the rest area was generally safe, the fatigues ... took men to the Beach, where casualties were almost certain to occur.²

The beach provided respite and an opportunity to wash body and clothes: "although for men in the trenches the chance might not occur once in a month, almost every man in the force contrived occasionally to get to the sea". Bean described the scene in June, when "the bathing became so popular that the Beach took on some of the appearance of a health resort".² This was rare relief.

Battle fatigue, illness and the risk of death — these were the realities daily confronting the Anzacs. We need to be clear in our understanding of the variety and depth of challenges faced by those troops 100 years ago.

Note: The larger organisational causes of the disease debacle, especially lines of communication failures in the evacuation of the sick and wounded, are discussed in: Tyquin MB. Gallipoli: the medical war: the Australian Army Medical Services in the Dardanelles campaign of 1915. Sydney: University of New South Wales Press, 1993.

Competing interests: No relevant disclosures.

Provenance: Commissioned; not externally peer reviewed. ■

References are available online at www.mja.com.au.

Australian World War I troops charging near a Turkish trench



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- 2 Bean CEW. *Official history of Australia in the war of 1914–1918. Volume II — the story of ANZAC from 4 May, 1915, to the evacuation of the Gallipoli Peninsula*. 11th ed, 1941. https://www.awm.gov.au/histories/first_world_war/AWMOHWW1/AIF/Vol2 (accessed Mar 2015).
- 3 Butler AG. *Official history of the Australian Army Medical Services, 1914–1918. Volume I — Gallipoli, Palestine and New Guinea*. 2nd ed, 1938. https://www.awm.gov.au/histories/first_world_war/AWMOHWW1/AAMS/vol1 (accessed Mar 2015). ■