

**Table 1:** Ten cases illustrating aspects of the morbidity experience among New Zealand military veterans of WWI.

Feature/ characteristic	Details
<b>Severity of outcome/condition</b>	
Worst outcome: head wound and then committed suicide when back in New Zealand (Case A)	<p>Case A appeared to have the worst war-related outcome of the sample of 200 personnel. He died from suicide in 1919, with this being officially attributable to his war service given his injuries sustained during the war. In the Battle of the Somme in September 1916 he had suffered shrapnel injuries to the head. As a result of this he developed a permanent one-sided facial paralysis. His treatment involved 3.5 months in three facilities (two hospitals and a convalescent facility). He was discharged as no longer physically fit for war service and arrived back in New Zealand in June 1917. A medical board recommended he get a war pension with an assessment that his “<i>capacity for earning a full livelihood in the general labour market is lessened by ... ½</i>”. Archival data (pension card collection) confirm that he was given a war pension. He died at age 31 years from a self-inflicted gunshot in mid-1919, which was 2 years and 8 months after his injury on the Somme, and 4 years and 5 months after enlistment. The Coroner reported that his suicide was while he was mentally depressed, and that he had suffered from influenza during the epidemic from which he had been left weak and depressed. There were no data identified on his post-war occupational status (his name was not listed in the 1919 Electoral Roll).</p> <p>He was one of three brothers who enlisted for WWI. One was killed in action in 1916 (2 weeks before Case A’s own injuries), and the other brother died in the 1918 influenza pandemic.</p>
PTSD example: “shell shock” that was “severe” (Case B)	<p>Of the personnel in the sample who were described as having “shell shock”, we identified the case where this was described as “severe”, Case B. He was first described as having “shell shock” in July 1916 and was managed by a field ambulance and then a casualty clearing station in France. Following this, he was transferred to a depot at Étaples (a major site for quartering Commonwealth troops and with many hospitals), although it was not clear what he did at the depot (possibly on light duties). But in November 1916 he was admitted to a hospital in France with “old shell shock” and then transferred to a hospital in the United Kingdom (UK). In January 1917 he was transferred to a convalescent facility and classified as “unfit”. He was then “invalided” back to New Zealand in a hospital ship, arriving in March 1917. Archival data (pension card collection) indicated he was given a war pension. Electoral roll data indicate he worked as a freezing worker and labourer and had four different residential addresses between 1919 and 1931 with his wife (including in two different regions). After 1931 his residential address was more stable (only two moves). He died at age 84 years in the early 1970s.</p>
<b>High frequency of conditions/hospitalisations</b>	
Highest number of new diagnoses: eight (Case C)	<p>Case C had a total of eight new diagnoses during his more than 4 years of military service (of which he spent 3 years and approximately 5 months overseas). This was the highest number of new diagnoses for any individual in the sample of 200 personnel. He had poor dentition (needing dental attention); had two separate injuries (both gunshot wounds); myalgia (November 1916); influenza (January 1917); pneumonia (December 1917); an STI; and was put on sick leave for a non-specified reason (December 1918). Of these conditions, he was hospitalised for four of them: both the gunshot injuries, the myalgia and the STI. He was “dangerously ill” with pneumonia during one injury-related hospitalisation and was invalided back to New Zealand twice (once after an injury at Gallipoli, Turkey; and then, after returning to service in France, he was declared unfit for military service due to chronic pulmonary disease). Unlike most of the other cases detailed in this table, he did not have a pension card indicating a war pension (based on a search of archival data). Archival data (Police Gazettes) indicate he was involved in two separate criminal offenses during the 1920s, when he was identified as a labourer. He died at age 58 years in the early 1940s.</p>

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Highest number of hospitalisations for new conditions: six (Case D)	<p>Case D had the highest number of hospitalisations for new conditions (six) in the sample of 200 personnel. His first hospitalisation was in “Salonika” (the modern-day city of Thessaloniki, Greece) in February 1916. This was for post-inoculation fever and while the name of the vaccine was not stated, it was probably typhoid vaccine. After recovery he was next “admitted” to a hospital in Moascar (a military camp near Ismailia in Egypt) in April 1916. He was subsequently “discharged” after an unknown period with no stated diagnosis. His third hospitalisation was in September 1916 at a hospital in Amiens (France) for around 2 weeks and with no diagnosis stated. He was discharged but then re-admitted 2 weeks later with pyrexia of unknown origin (PUO), (so we classified these two sequential hospitalisations as probably related to the same diagnosis). His fourth hospitalisation was in January 1917, again to a hospital in Amiens. This was for a sprained ankle and he was discharged after several days. His fifth hospitalisation was to a hospital in Wisques (France) with PUO in November 1918. His sixth hospitalisation was to a ship’s hospital in May 1919. This was for several days but with no diagnosis given. Of note was that this individual was in the medical corps, but it was clearly stated that he was “admitted” and then “discharged”, as opposed to being placed in a hospital for work purposes. Archival data (pension card collection) indicated he was given a war pension. In post-war legal documents and media reports he was described as a farmer who was involved in a local rifle club and Home Guard. He was married and only had three different residential addresses in the post-war period (electoral roll data). He died at age 79 years in the early 1970s.</p>
Most non-fatal war injury events: three (Case E)	<p>Several cases in the sample had three non-fatal injury events, but only for Case E were these all from gunshot or artillery shells (i.e., the others also involved accidents or being gassed). The first of these was a “GSW head” (a gunshot wound to the head), in August 1915 at Gallipoli, Turkey. He was treated on a hospital ship and then spent nearly 5 weeks at a hospital in Malta. The second injury involved being “sick &amp; blown up by shell” in September 1916. For this he was hospitalised in France for a week. At this time, he was also reported as having a “urethral stricture” that may or may not have been related to this injury event. The third injury event involved gunshot wounds to his left arm and right thigh at Passchendaele (Belgium) in October 1917. These wounds were treated in the field (dressing station/field ambulance) and he returned to duty after a little over 2 weeks.</p> <p>Another health problem during his service was bronchitis, with this involving 3 weeks in a UK hospital (December 1917). It was for this condition that he was discharged from the military as no longer fit and was recommended for a war pension by a medical board. Archival data (pension card collection) confirmed that he was given a war pension. He was listed in electoral rolls as a shepherd and appears to have never been married. He died at age 70 years in a residential facility for war veterans in the mid-1950s.</p>
Highest number of different STI diagnoses: three (Case F)	<p>Case F had three different STI diagnoses, the highest number in the sample of 200 personnel. The first of these was the diagnosis of “gonn”, presumably gonorrhoea, in January 1919, with this managed at a casualty clearing station. But several days later he was hospitalised in Étapes, France with “V.D.S.C.”, an abbreviation used for the STI of “venereal disease soft chancre”. Then, in March 1919, he was admitted to hospital with “V.D.S.”, the abbreviation used for syphilis.</p> <p>Other diagnoses that this man had during his military service were trench mouth, scabies (twice) and being hospitalised on the ship voyage back to New Zealand (no diagnosis given). Archival data (pension card collection) indicated his war pension was “declined”, without any specific details for this identified. In post-war legal documents he was described as a carpenter and having had a divorce in the 1930s. Electoral roll data indicate three other occupational descriptions (cabinetmaker, labourer and handyman) and six different post-war residential addresses. He spent 1 month in jail in the early 1930s. He died at age 58 years in the mid-1950s.</p>

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<b><i>Debility associated with various conditions</i></b>	
Debility as a result of being gassed (Case G)	Of the personnel in the sample who were gassed, the link with subsequent debility was most unambiguous in Case G. He was injured by phosgene gas in Flanders (Belgium) in November 1917, and was managed in a field ambulance and casualty clearing station. But he had a persisting cough and shortness of breath and when hospitalised in March 1918 he was reported as having “severe” debility. A medical board assessment in September 1918 declared that he had breathlessness and permanent debility as a result of the gas poisoning. In May 1918 he left on a ship back to New Zealand and was discharged from the military in September 1918. He was recommended for a war pension with an assessment stating he had a permanent disability and that his “ <i>capacity for earning a full livelihood in the general labour market is lessened by ... ½</i> ”. Other archival data confirm he was given a war pension (pension card collection). In the post-war period he worked as a farmer and as a grocer, and had three changes of residential address shown in the electoral rolls (along with his wife). He died at age 81 years in the late 1960s.
Debility following gastroenteritis in the Gallipoli Theatre (Case H)	The most unambiguous case of debility following gastroenteritis at Gallipoli (Turkey) was Case H. He was first admitted to a hospital ship at ANZAC Cove (Gallipoli) with tonsillitis in August 1915. But 3 days later, he was also given the diagnosis of gastroenteritis. He was treated in hospital in Cairo (Egypt). Subsequently, he was invalided back to New Zealand on a ship in September 1915. The final medical board assessment in his records in April 1916 noted gastroenteritis with consequent debility with only “slight” progress in recovery. He was recommended for a war pension with an assessment that his “ <i>capacity for earning a full livelihood in the general labour market is lessened by ... ¼</i> ”. Archival data confirm that he was given a war pension (pension card collection). In post-war documents he was described as a retired butcher, was a Justice of the Peace and stood for the office of mayor. Electoral roll data indicate he also worked as a fruiterer, had a wife, and lived nearly all his post-war life in just one town. He died at age 73 years in the late 1960s.
Debility from malaria (Case I)	Although a number of personnel experienced malaria-related debility, this was most unambiguous for Case I (i.e., he had no other reported conditions that could have contributed to debility). He was diagnosed with “severe” malaria in October 1918 when in the vicinity of Gaza, Palestine. This resulted in him being hospitalised in Heliopolis (Egypt) for 2 weeks, and then he had 2 weeks in a convalescent facility. He was discharged from the military as no longer being fit due to “malarial debility” in March 1919. In total, he had spent only 1 year and 2 months outside of New Zealand. Archival data indicated he was given a war pension (pension card collection). Post-war documentation and electoral roll data suggest he worked as a coal miner, farmer and labourer, and was married. He appears to have had only two different residential addresses after WWI. He died at age 58 years in the mid-1950s.
Debility following likely pandemic influenza (Case J)	Several of the military personnel in the sample had a diagnosis of “debility” following influenza infection—but only Case J had this at a time that would fit with pandemic influenza in late 1918. That is, in mid-December 1918 he was diagnosed with “influenza” and hospitalised at Outreau (France). In mid-January 1919 he was transferred to a hospital in the UK for a week and then to a convalescent facility. A medical board assessment in late January described him as having “debility following influenza” with a minimum recovery time of 3 months. He left by ship to New Zealand in March 1919 and he had a normal discharge from the military in May 1919 (i.e., with no further mention of his health status). A search of archival data (pension card collection) found no pension card, suggestive that he was not given a war pension. In post-war archival documents and electoral rolls, his occupation was “salesman”. He had three different post-war addresses and appeared to have never married. He died at age 70 years in the early 1950s.