

# Lifetime suicide risk in a representative cohort of World War I soldiers

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## Introduction and objectives

“The whole nervous system of individuals changed during and since the War”

Dennis Geffen, “The Causes of Suicide”

*Transactions of the Medico-Legal Society*, 1932.

World War I has long been argued to be an especially traumatic war for surviving soldiers. But, in comparison to recent conflicts there are few long-term studies of surviving soldiers’ mental health.

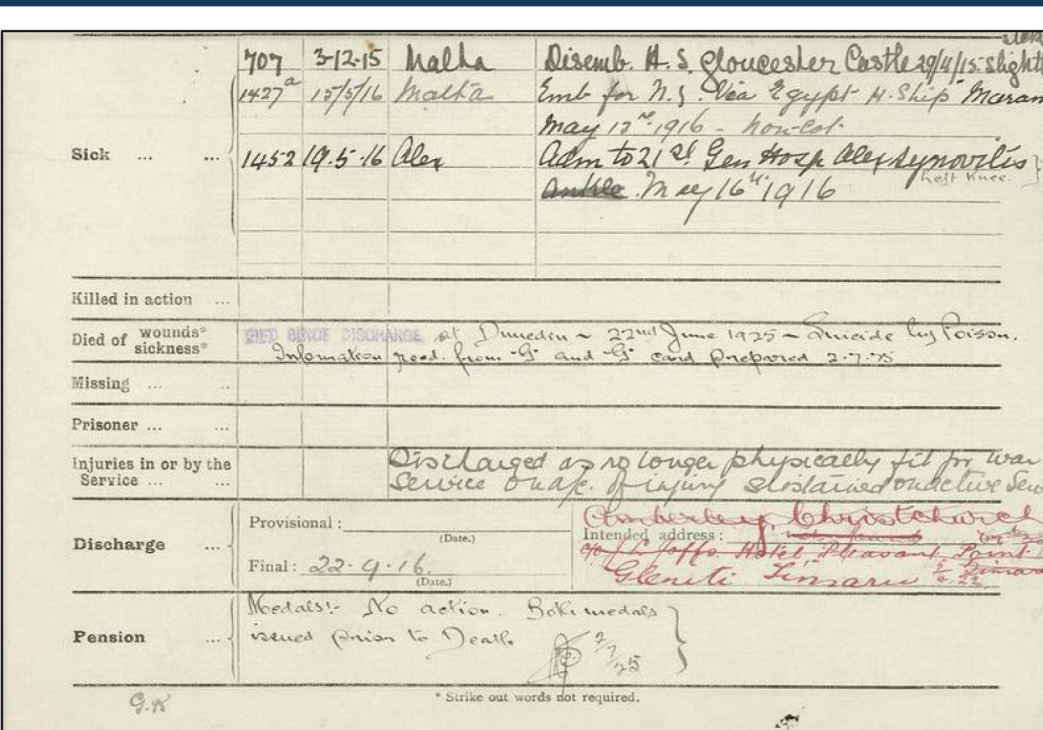
We follow a representative, prospective, cohort of World War I returned soldiers throughout life to:

- Estimate lifetime suicide rates in a cohort of World War I returned soldiers
- Compare suicide rates from World War I to veteran suicide rates from more recent conflicts
- Estimate the impact of suicide on life expectancy

## Unique historical microdata

### Longitudinal study

We select 2539 New Zealand soldiers who enlisted and served in World War I, and survived both the war and the 1919 influenza epidemic.



**Rich data on soldiers’ background and wartime experience**

Service history sheets summarize exposure to combat and often note post-service deaths.

Baseline demographic & health information comes from military files.

We link 74% (1868) to death certificates detailing cause of death.

## Measures and methods

We follow soldiers from 1920 to their deaths, and classify deaths to ICD-10 codes.

We calculate three key measures of the impact of suicide on the population:

- Suicides per 100,000 life years lived
- Potential years of life lost before age 50 & age 70
- Contribution of suicide to life expectancy change between cohorts exposed to war and later cohorts

## Identifying suicides

New Zealand death certificates describe a “Primary cause of death” that is often just “Suicide” for suicide cases. Another field provides greater detail including methods and evidence of intent.

Cause of death	Primary cause of death
Suicide while temporarily insane: by placing gelignite in his mouth to which a lighted fuse was attached	Suicide while temporarily insane
suicide whilst in a state of temporary mental derangement - shooting with shotgun.	suicide
coroner verdict - poisoning by lysol self-administered while in a state of depressed condition	suicide by poisoning

We classified additional deaths as potential suicides when causes corresponded to coded language for likely suicides, particularly drowning cases.

Cause of death	Primary cause of death
death was caused by a gunshot wound but there is now evidence to show how it happened. - coroners verdict	gunshot wound
coroner verdict - drowning there being no evidence to show how deceased came to be in the water	drowning
CV: "Dcd died accidentally, burnt when the dwelling he occupied at Matawaia was totally destroyed by fire"	Burnt when the dwelling he occupied at Matawaia was totally destroyed by fire

## Suicide occurred at young ages

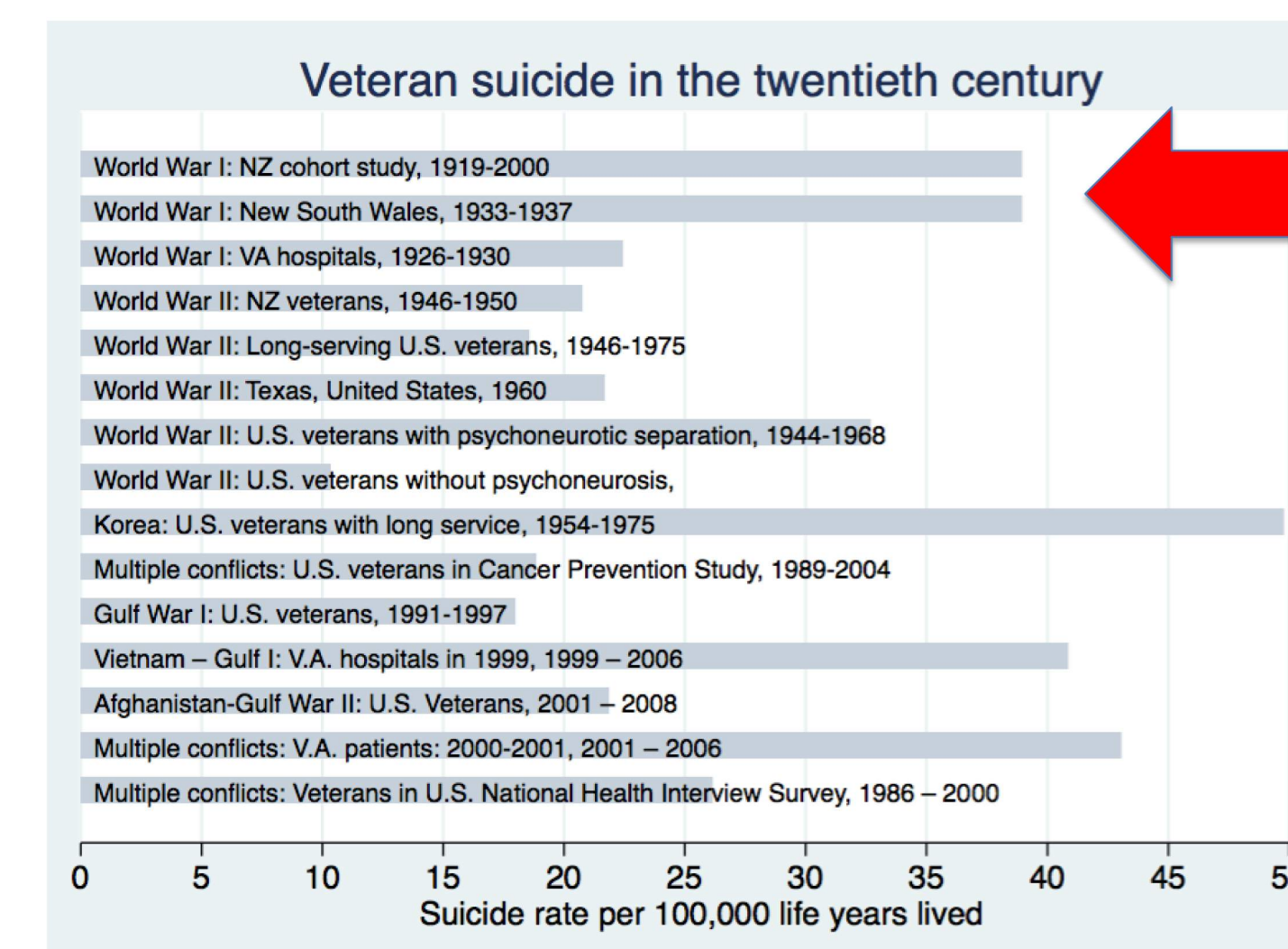
Endpoint	All other causes			Suicide		
	Number	Mortality rate	PYLL	Number	Mortality rate	PYLL
Death < 50 yrs	181	346	3564	18	34	442
Death < 70 yrs	778	956	12208	31	38	911
<i>Including potential suicides</i>						
Death < 50 yrs	171	326	3303	28	53	703
Death < 70 yrs	762	936	11693	47	57	1425
Total N (deaths): 1868						

Suicide accounted for 10% of deaths before age 50 and 12.5% of years of life lost before age 50.

All suicides in the cohort occurred before age 70 (life expectancy conditional on surviving the war).

Potential suicides also occurred at young ages, together accounting for one in seven deaths among veterans before age 50.

## High suicide rate in WWI veterans



Suicide rates in our cohort were much higher than similar “general population” cohorts from recent conflicts.

## Suicide reduced life expectancy

Group	Life expectancy at age 29
1891 cohort including veterans and suicides	41.0
1896 cohort including veterans and suicides	41.3
1891 cohort if excess suicide mortality avoided	41.1
1896 cohort if excess suicide mortality avoided	41.4
1901 cohort (unaffected by war)	42.1
Share of 1891 to 1901 improvement from suicide reduction	0.09
Share of 1896 to 1901 improvement from suicide reduction	0.13

Suicide reduced cohort life expectancy at age 29 (average age of returning from war) by 1.4 to 2.4 months.

The reduction in suicides between cohorts accounted for about 10% of improvements in life expectancy

## Contribution and conclusions

- First ever study to follow a representative cohort of WWI soldiers from conclusion of service to death.
- Suicide rates in WWI soldiers were extremely high in comparison to veterans of recent conflicts.
- Lifetime suicide rates in general population of WWI veterans similar to immediate post-conflict rates among most affected veterans of recent conflicts.
- Suicide had a significant impact on life expectancy of cohorts with high wartime service rates.