PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Multi-site sentinel surveillance of self-harm in New Zealand: Protocol for an observational study
AUTHORS	Fortune, Sarah; Hetrick, Sarah; Sharma, Vartika; McDonald, Gabrielle; Scott, Kate; Mulder, Roger; Hobbs, Linda

VERSION 1 – REVIEW

REVIEWER	Davaasambuu, Sarantsetseg Research Foundation of CUNY
REVIEW RETURNED	08-Sep-2021

GENERAL COMMENTS	Dear Editor, Thank you for the opportunity to review this very interesting and important article regarding self-harm surveillance system study. This is an extremely important study that focuses on surveillance systems for self-harm and suicidal ideation in New Zealand. In my opinion, a few changes need to be made to increase the quality of the article: 1. Overall, the article is well organized and written. This is a protocol paper for an ongoing study. The study has started in July 2020 and will continue until July 2022. The protocol explains the study methods in detail. 2. Authors discussed about total population suicide rates and high suicide rates among young people in New Zealand. However, these numbers are not compared with the world prevalence or other similar countries' prevalence. Therefore, it was difficult to see how high the prevalence was in New Zealand. In addition, the prevalence among indigenous population is measured at a different scale than other types of population. Again, it is difficult to compare readers when prevalence numbers are at different levels. 3. Authors discussed about different international surveillance systems for self-harm and suicidal behaviors. However, they did not discuss how the surveillance system they were examining was different or advanced than the other systems. 4. Study data are collected at 3 different hospitals for 3 different types of population (all ages, up to 18, and <15). Authors need to explain why (rational) data are needed to be collected for different types of population at different hospitals and especially why these hospitals are chosen. 5. Very little is discussed about current surveillance systems in New Zealand. Therefore, it was difficult to see whether the study

	will assist to overcome the limits of the current system or bring a new system into the country's surveillance system. Thank you, Sara Davaasambuu, PhD

REVIEWER	Griffin, Eve University College Cork, National Suicide Research Foundation
REVIEW RETURNED	13-Sep-2021

GENERAL COMMENTS	This is a really interesting project, and I very much enjoyed reading about the plans to establish surveillance of self-harm in New Zealand. This is a clear priority of WHO in its plan to reduce suicide globally, and protocols like these are really important in systematically reporting on self-harm across different regions and countries. The protocol document is well laid out and the approach taken is clear and well justified. Most of my comments relate to points of clarification, which would be important to consider before accepting for publication. The methods section could do with some additional information. 1. Firstly, a sub-section/paragraph detailing the context – the demography and population of New Zealand, the health care structure, hospital access and number of hospitals. This will be important for international readers and to put the proposed data collection into context of the region. 2. Following this, I would advise that the selection of study sites be expanded on. What type of hospitals are they (I presume one is paediatric), where are they located, what is their catchment population? While it is a valid approach to select hospitals on the basis that they service 'socio-economically deprived and ethnically diverse communities', how representative are they of the wider region/country? This will be important when, for example, extrapolating findings to the whole country. 2. Regarding using the two approaches to collecting data, will both approaches use the same list of data items, or will the existing system be more minimal? Can you add more details on the history of this second system – its operation and functioning (e.g. how the data are collected/recorded), and a reference if possible? 3. The authors could consider a bit more (in the discussion perhaps) the advantages/disadvantages of using two approaches. How reliable /comparable will the systems be, and what will be the strengths and limitations of both. 4. There is no definition of suicidal ideation provided. From experience, this can be difficult to operationalise, so it would be important to clarify how these cases will be recorded and how, for example they will be distinguished from self-harm presentations. 5. Description of methods of self-harm - considering using ICD-10 codes, especially in relation to objective to identify 'new methods' emerging. rather than two large categories?

	6. The checks around data quality are sensible and easy enough to implement. One suggestion would be if, instead of reviewing a random selection of identified cases, to review consecutive cases of all medical records in a hospital. This would help to identify presentations not picked up, either by data collectors or electronic key word searches? Minor points: 1. While it does say that the project will last for 1 year, the system taken appears to align with an aim to undertake longer term monitoring. Therefore I would avoid labelling the study as 'cross-sectional). 2. Page 7, line 47. References to support this? 3. Page 10 - list of codes/response categories for this? 4. Introduction: correct full title is National Self-Harm Registry Ireland. 5. I would avoid including too many acronyms (e.g. SH and NZ) and, where necessary, spell out in the first instance.

VERSION 1 – AUTHOR RESPONSE

2. Reviewer One:

- Authors discussed about total population suicide rates and high suicide rates among young people in New Zealand. However, these numbers are not compared with the world prevalence or other similar countries' prevalence. Therefore, it was difficult to see how high the prevalence was in New Zealand. In addition, the prevalence among indigenous population is measured at a different scale than other types of population. Again, it is difficult to compare readers when prevalence numbers are at different levels.

We have added additional detail on these matters on p.4:

In 2016, the most recent year for which there are finalised publicly available data, New Zealand (NZ) reported a total population suicide rate of 11.3 deaths per 100,000 people, with higher rates among young people (16.8 per 100,000)[11] and indigenous Māori having rates which are nearly double (RR 1.85, CI 1.64-2.10)[12] those of non-Maori (17.1 per 100,000 compared with 8.1 per 100,00 for Pacific peoples and 11.3 per 100,000 for other ethnic groups. The burden of suicide is particularly evident among Māori males (31.3 per 100,000 compared with non-Māori males 14.4 per 100,000), however rates among Māori women have risen 40% between 1996-2016 [13]. The WHO estimate that New Zealand suicide rates in 2019 (provisional data) are 10.3 per 100,000, the same as Canada, higher than Ireland (8.9 per 100,000) and United Kingdom (6.9 per 100,000) and lower than Australia (11.3 per 100,000) and the USA (14.5 per 100,000) [14].

- Authors discussed about different international surveillance systems for self-harm and suicidal behaviors. However, they did not discuss how the surveillance system they were examining was different or advanced than the other systems.

We have added the following content on p.5

The New Zealand surveillance system will use similar methods to facilitate comparisons and build on existing learnings, but is novel in the use of manual screening of all hospital emergency department presentations to check for cases, the inclusion of cases with suicidal ideation only and the first international use of Paediatric Surveillance systems to monitor self-harm as a condition of interest.

- Study data are collected at 3 different hospitals for 3 different types of population (all ages, up to 18, and <15). Authors need to explain why (rational) data are needed to be collected for different types of population at different hospitals and especially why these hospitals are chosen.

We have added additional detail on these matters on P. 6/7 on the rationale for hospital sites
Hospital sites: Self-harm surveillance sites will be established in the public hospital Emergency Departments of Middlemore Hospital in Auckland (North Island), Dunedin Hospital in Dunedin, and Southland Hospital in Invercargill (South Island). Surveillance data will be collected for hospital presenting cases of SH and suicidal ideation among all age-groups at Dunedin and Southland Hospitals and for paediatric age group (< 15 years) at Middlemore Hospital.
Study sites have been selected as they serve some of the most socio-economically deprived and ethnically diverse communities who also experience relatively high burden of suicide deaths[29]. Middlemore Hospital has approximately 110,000 ED presentations per annum, of which there are around 800 episodes of SH in the paediatric population (up to 18 years). Middlemore is the largest of three hospitals with a 24/7 Emergency Department in the Auckland region which a total population of 1.7 million people Middlemore serves large Māori and Pacific communities[11], and was selected to better understand the urgent suicide prevention opportunities for young people in these groups. Oversampling Māori and Pacific presentations is important, as they are typically undercounted in most health datasets in New Zealand[30]. Findings are likely generalisable to the wider Auckland region which is very multicultural. Dunedin Hospital has 36,000 ED presentations and around 1,800 SH episodes per annum. Southland Hospital has around 30,000 ED presentations annually[31]. The Southern District Health Board, that operates these hospitals, has experienced suicide rates significantly higher than the national average in most years since 2009 (https://www.health.govt.nz/publication/suicide-web-tool). In combination these two hospitals cover around one third of the population who live in the South Island making the findings generalisable, while also allowing greater understanding of rural populations.
and on p 13 regarding paediatric populations:
The main aim of this study is to establish multi-centre sentinel surveillance of patients presenting with SH or suicidal ideation as per the recommended WHO practice guidelines on surveillance systems [22] and to provide up-to-date, detailed and robust epidemiological data which will establish trends in SH in NZ. The focus on paediatric populations at Middlemore Hospital and via the New Zealand Paediatric Surveillance Unit has been informed by the lack of high-quality data for this group who have historically been excluded from studies due to relatively small numbers, the prominence of self-harm among those who die at a very young age by suicide and the support of a specific paediatric health funder. Hospitals were selected for study inclusion because they have large numbers of patients presenting for emergency care, allow for purposeful oversampling of indigenous youth, serve large populations. The inclusion of paediatricians reporting on presentations around the country allows triangulation of data, and a greater understanding of the epidemiology of self-harm beyond large hospital catchment areas. In doing so, the study findings will inform suicide prevention efforts to support the development of evidence-based interventions and workforce development in a way that is most likely to reduce SH and ultimately suicide deaths.

- Very little is discussed about current surveillance systems in New Zealand. Therefore, it was difficult to see whether the study will assist to overcome the limits of the current system or bring a new system into the country's surveillance system.

We have added additional content clarifying the current position in terms of data reporting and quality:
Despite high public interest, relatively little progress has been made in reducing suicide in NZ[11], partly due to lack of good quality data to inform interventions; current data reporting practices based on routinely collected data on presentations to public hospitals in NZ undercount SH presentations by an

estimated 50 - 60% for several reasons including only episodes with a length of stay greater than 48 hours which misses a significant proportion of presentations. Government reported data also refers to episodes rather than individuals making it hard to estimate repetition rates, and report on a limited number of variables[11 15] most of which are not amenable to change. In addition mental health presentations appear particularly poorly coded by hospital staff compared with physical health complaints, which leads to further undercountig of this population [16].

3. Reviewer two

- Firstly, a sub-section/paragraph detailing the context – the demography and population of New Zealand, the health care structure, hospital access and number of hospitals. This will be important for international readers and to put the proposed data collection into context of the region.

We have added the following additional content on P4.

New Zealand is a high-income country with a population of 5 million people from a range of ethnic groups including European/Pakeha (70%), indigenous Māori (17%), Asian (15%) and Pacific Peoples (8%) [11]. The healthcare system in New Zealand provides free of charge universal care to eligible citizens funded via general taxes. Around one third of the population also carry private health insurance [12]. Currently 20 District Health Boards operate around 40 public hospitals of which 28 have 24 hour emergency departments which have around 1 million presentations per annum [13].

- I would advise that the selection of study sites be expanded on. What type of hospitals are they, where are they located

We have added additional information on p7.

Study sites have been selected as they serve some of the most socio-economically deprived and ethnically diverse communities who also experience relatively high burden of suicide deaths29. Middlemore Hospital has approximately 110,000 ED presentations per annum, of which there are around 800 episodes of SH in the paediatric population (up to 18 years). Middlemore is the largest of three hospitals with a 24/7 Emergency Department in the Auckland region which a total population of 1.7 million people Middlemore serves large Māori and Pacific communities [11], and was selected to better understand the urgent suicide prevention opportunities for young people in these groups. Oversampling Māori and Pacific presentations is important, as they are typically undercounted in most health datasets in New Zealand. Findings are likely generalisable to the wider Auckland region which is very multicultural. Dunedin Hospital has 36,000 ED presentations and around 1,800 SH episodes per annum. Southland Hospital has around 30,000 ED presentations annually[30]. The Southern District Health Board, that operates these hospitals has experienced suicide rates significantly higher than the national average in most years since 2009 (https://www.health.govt.nz/publication/suicide-web-tool). In combination these two hospitals cover around one third of the population who live in the South Island making the findings generalisable while also allowing greater understanding of rural populations.

VERSION 2 – REVIEW

REVIEWER	Davaasambuu, Sarantsetseg Research Foundation of CUNY
REVIEW RETURNED	26-Dec-2021

GENERAL COMMENTS	Dear Editor, Thank you for the opportunity to review this very interesting and important article regarding self-harm surveillance system study. This is an extremely important study that focuses on surveillance systems for self-harm and suicidal ideation in New Zealand. In my opinion, the authors sufficiently addressed the concerns that were raised in the previous review. I believe that the article is much more detailed, useful, and easier to understand due to the revision. The article quality has improved significantly.