Reviewer's report

Title: Suicide and unintentional poisoning mortality trends in the United States, 1987-2006: Two unrelated phenomena?

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Reviewer: David J Gunnell

Reviewer's report:

This paper is improved. There are some additional minor changes the authors might wish to make prior to publication. A key issue the authors do not address is why there was a sudden increase in the rate of accidental poisoning deaths from around 2000. They might like to speculate about the specific timing of the rise.

I’m still frustrated that the reader is provided with so little information (even in the discussion) on the drugs contributing to the rise in accidental poisoning deaths. Does the publication they cite in the discussion specify the names of particular opioid analgesics / other drugs and the relative contribution they make to the marked rise in rates? Are there no other secondary sources they could draw upon to clarify this? Could some of these deaths be poisoning by gases e.g. carbon monoxide from charcoal burning?

Minor essential revisions:

In several places in the paper the wording implies the decline in US suicide between 1987 and 2000 was artifactual (e.g. abstract, conclusions: “was partially artifactual” (repeated on page 13). I’d suggest the authors soften this as the evidence they present is circumstantial. Perhaps “May have been artifactual” would be more appropriate.

Abstract conclusions: I am not clear what “rapidly increasing potential for suicide misclassification” means? Suggest re-phrase, or alternatively delete the latter half of this sentence.

Much of the paper depends on discussion of relative changes, it would be useful, from time to time, to present absolute rates (see first 3 lines of results section in abstract)

Page 5 para 2- sentence in bold. I’m not sure I agree with the suggestion that deaths coded as undetermined poisoning deaths are misclassified. This ICD category is being used because of the particular difficulty in classifying possible suicides due to poisoning.

Page 7, 5 lines from bottom “The rate difference…” (between what and what?)

Last line page 8 – do the data definitively show that poisoning has become a more common method of suicide? My take is that they provide suggestive evidence that suicide by poisoning may be underestimated.

Page 10, line 3 – I’m not sure carrying out autopsies on poisoning deaths would help clarify whether they were suicidal or accidental – more detailed police /
coroner investigation of circumstances of the death may be more likely to help.

Minor discretionary revisions:

Page 4 – most readers will be unfamiliar with the concept of high energy methods – suggest spell out the specific methods

Page 5, para 1 – it strikes me as unlikely that the stigma associated with substance use additionally compromises the accuracy of suicide statistics in possible suicide amongst drug misusers, the key challenge is distinguishing intent in such cases.

Page 6, line 1 – suggest delete “cross-sectional”

Page 7, line 8 – suggest re-word “remained constant or tended to decline…” I think you could simply say “it declined”.

Page 8, para 2 – replace “independent of gender” with “in both men and women”

Page 9, para 3 – has the decline in suicide really been “precipitous”?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests