Reviewer's report

Title: An Epidemiological Analysis of Acute Flaccid Paralysis and its Surveillance System in Iraq, 1997-2011

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Reviewer: Olen Kew

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This report, which describes the Acute Flaccid Paralysis (AFP) surveillance system in Iraq from 1997 to 2011, contains important information on the basis of certifying Iraq as polio-free. The last known case associated with wild poliovirus (WPV) infection was reported in 2000, and despite severe security challenges after March 2003, the AFP system continued to strengthen and no polio cases were detected.

Although much of the information presented is very similar in content and format to what is presented at WHO Technical Advisory Group meetings and Certification Commission meetings, the report from Iraq is of special interest to public health professionals as it makes widely accessible documentation of the efforts to maintain and improve surveillance for polio after the last polio outbreaks and during a time of intense conflict.

Major compulsory revisions

1. The report would be considerably strengthened if more details were given on how the AFP system was sustained after March 2003. As the manuscript is currently written, data from 1997-2002 and 2003-2011 are aggregated in figures 2, 5, and 6. As such, they present a rather static view of what was likely a very dynamic situation. What were the special areas of concern after 2002? How was the AFP system impacted by the severe conflict and how was it rebuilt? What steps were taken to assure sensitive AFP surveillance in areas of insecurity? How was specimen transport implemented? Although some of the issues may be too sensitive to share with a global audience, I would encourage the authors to present what they can to give the readers some idea of how many of the most serious challenges were overcome, and how they were able to maintain a focus on polio eradication in the face of many other public health challenges.

2. On pages 5-6 (please number pages and lines!) the authors describe the capture-recapture method to estimate and adjust for under-reporting of cases, but then provide no data on how this method was used. If no data are currently available, it would be best to shorten that section, pending more complete application and analysis of the method.

Minor essential revisions

1. p. 1, Abstract; p. 6, l. 12: suggest “…and other CNS infections…” (polio is a
CNS infection)

2. p. 1, Abstract: It is not clear why more than one National Polio Laboratory is needed in Iraq, as the existing laboratory in Baghdad appears to be performing well.

3. p. 2, l. 3: Suggest “The large majority of infections are subclinical…” (i.e., most infections are not cases).

4. p. 2, l. 9; decrease by >99.9% since 1988

5. p. 6, l. 3: “…of those who died…”

6. Figures 5 and 6 should be switched, as AFP cases are first reported before collection of stool specimens.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**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'