Reviewer's report

Title: Heterogeneity in regional notification patterns and its impact on aggregate national case notification data: the example of measles in Italy

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Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Other (see below)

Williams and coll. deal the argument of the under-reporting of measles case notification data in Italy. They demonstrated, using an algorithm based upon the equality between births and measles cases in pre-vaccination era, that the shape of the corrected national time series remains close to that of aggregated data.

The arguments is of interest in consideration of the well-known problem of under-reporting of measles cases and the availability of time series from 1949. The question is not entirely new, but the approach is innovative. The extrapolation of pre-vaccination correction factors for post-vaccination data is discussed in the work and could be an argument of confrontation inside the scientific community. The paper is well written and methodologically correct.

Compulsory Revision. Point-by-point questions:

. Page 6. Line 8. Add the reference to the Table that shows "a decline in the number of notification during pre-vaccination period".
. Figures 2 is confusing. The authors should choose some patterns to describe the regional heterogeneity
. Figure 6b. The description of the figure is unclear. The authors should explain how the uncorrected data were scaled to be the same magnitude as that of the aggregate adjusted regional data

Competing interests:

None declared.