Reviewer’s report

Title: Laboratory Testing and Diagnostic Coding for Cytomegalovirus among Privately Insured Infants in the United States: a Retrospective Study using Administrative Claims Data

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Reviewer: Klaus Hamprecht

Reviewer’s report:

To the authors

Leung et al submitted a manuscript entitled:

“Laboratory Testing and Diagnostic Coding for Cytomegalovirus among Privately Insured Infants in the United States: a Retrospective Study using Administrative Claims Data”

...to BMC Pediatrics.

The group around M Cannon has contributed important epidemiological knowledge on congenital CMV during the last decade.

In the absence of an official CMV screening in the US, the authors determined rates of CMV testing and diagnostic coding for CMV among privately insured infants using the Truven Health MarketScan Commercial database for infants <30 days p.p..

It is difficult for someone, who is not familiar with the US health care system to understand the author’s approach for acquiring epidemiological data on the frequency of quite unspecific congenital CMV-related symptoms and the CPT codes for CMV testing which include both CMV serology and direct virus detection methods, since we know, that serology does not play a major role in cCMV diagnosis and only direct virus detection methods using PCR or virus culture is able to make a reliable cCMV laboratory diagnosis.

In principal, the results the authors present and discuss are very interesting and are discussed very conclusively. However there remain some open questions for the interested reader with respect to the study design.

1.) Can the authors exclude any bias using the national healthcare claims of privately insured infants by generating epidemiological data via the commercial MarketScan database? In “Methods” on page 5 (study definitions) the authors state, that the MarketScan database does not include laboratory testing results.

2.) How many potentially cCMV infected infants are excluded using only privately insured patients?

3.) What influence does this approach have on the selection of ethnical background of the infected infants (white versus hispanic versus black
population)?

4.) How the authors comment the potentially biased approach with “CMV specific testing” including the mixed CPT code for CMV IgG, IgM (serology), together DFA or PCR (direct virus detection)? (page 5) Using that approach the authors will get also cCMV-unrelated information using CMV serology, since in context of postnatal CMV and preterm infants it might be of interest, whether the mother is potentially excreting CMV or not. Additionally to exclude cCMV the detection of CMV IgM is not helpful. Indeed, the authors mention the underlying problem and point it out, but the acquired data may misleading, since specific laboratory confirmation is not available.

5.) Table 1: There are given 61 infants with cCMV-either asymptotically or symptomatically infected. Is it conclusive that in only 5 infants (8.2%) thrombocytopenia was found?

6.) Table 2: Can the authors exclude any bias by correlating “CMV specific testing”, which includes serology (in 44%: abstract, results) and CMV PCR and DFA with CMV-associated conditions?

7.) It would be very interesting to see the results of Table 2 via the correlation of only PCR/culture and not CMV serology to the CMV associated conditions.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests