Reply to comment on: The diagnosis of typhoid fever in the Democratic Republic of the Congo

We thank Arya and Agarwal for their relevant comments on our paper about the diagnosis of typhoid fever.[1]

Arya and Agarwal propose a system of centripetal external quality assessment (EQA) – in which peripheral laboratories submit samples for reassessment to an intermediate/central laboratory – for improving the quality of the Widal test. In addition, they provide technical comments on the slide agglutination method of the Widal test and refer to the more recent immunochromatographic assays for detection of *Salmonella* Typhi and *S. paratyphi* antibodies, deployed in the physician's surgery or in field conditions.

For malaria and mycobacterial microscopy, the centripetal EQA is known as 'cross-checking' of routine samples.[2,3] Cross-checking however is, to the best of our knowledge, not yet applied to serologic analyses, apart from incidental shipments for referral settings. Indeed, technical issues need to be resolved, such as the statistical representativeness of the samples (algorithms used for microcopy do not apply to titers) and – most important – transport conditions for the samples. Indeed, shipment of cooled or frozen samples in a large resource-limited country with poor infrastructure, such as the Democratic Republic of the Congo (DRC), is virtually impossible or highly expensive. As an example, during a recent nationwide EQA of malaria microscopy, sample panels shipped all over the country were only received after a median delay of 27 (1 – 109) days (Mukadi P, Gillet P, Atua B, et al; personal communication, 2012). Likewise, frozen storage of positive controls will be very difficult and costly, particularly in rural settings in DRC, given that in the urban setting of Kinshasa nearly 60% of laboratories experienced serious problems in electricity supply.[1] Finally, although rapid diagnostic tests represent some improvement over the Widal test, their diagnostic accuracy and consistency is still not sufficient for them to be recommended in endemic settings.[4]

If EQA is adopted, we favor EQA sessions ('proficiency testing', in which the reference laboratory sends samples to the peripheral laboratories, collects the reported results and gives didactic feedback to the participants). Such EQA boosts participants' performance and self-confidence, and also allows interlaboratory comparisons and detection of shortcomings in diagnostic strategies or diagnostic kits' performance or instructions.[1,5,6] Of course, investment in such EQA sessions should fit into the national strategic laboratory plan,[7] and it is questionable whether any current serologic test for the diagnosis of typhoid fever will be prioritized.

But is quality control enough to prevent or to eliminate the overdiagnosis of typhoid fever? We hardly believe so, as in our study we found evidence of serious misconceptions about the Widal test on the part of prescribers, concerning both indications for the test and the interpretation of its results.[1] In a setting of non-availability of microbiologic diagnosis clinicians are too reliant on the Widal test, and continuous medical education programs should address the evidence-based use of laboratory tests.[7] And it is our perception, although we have not studied this in depth, that patients in DRC are also 'believers' in the Widal test, and may exert pressure on clinicians, so educational campaigns should address the general public too.

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