Author’s response to reviews

Title: Quality of care for children with severe disease in Congo, DRC

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Author’s response to reviews:

Response to Reviewer 1: Jamie Murdoch

The authors have successfully addressed my comments and I have no further suggestions for improving the manuscript.

Thank you very much for your kind words and support – we appreciate it.

Response to Reviewer 2: Anbrasi Edward

The authors have improved the manuscript enormously, addressing comments of previous reviews.

Thank you for this positive feedback – we appreciate it.

Though additional reflections on combining hospital and health clinic cases, without risk adjustments, comorbidities etc need to be considered, the inference provides key issues on the lack of provider adherence, and low training in IMCI protocols.

We fully agree that risk profiles of patients arriving in health centers are likely different from the ones arriving at hospitals, and thus show results stratified by facility type in Tables 3 and 4. While there are some systematic differences in prescription patterns, major gaps in the quality of treatment are clearly visible for both types of facilities.
CHW's provide iCCM, yet, there is no indication of whether these pts accessed or received treatment from these providers prior to arrival at the outpatient clinics.

This is an important point, and a limitation of the study – we have added the following sentence to the Discussion section to address this:

“Third, we did not collect information on previous diagnoses or treatments by other health centers or community health workers, and thus do not have complete information on patient conditions at the time of admission.”

In general, coverage of community health workers seems to be very limited in this area. As we write in the manuscript, only 1% of sick children were brought to community health workers by caregivers, and referrals are uncommon. While our data does not allow us to assess what exactly happened to children before they arrive at facilities it thus seems relatively safe to assume that on average very little has been done in terms of treatment by other providers.

Higher patient volume is reported, but even in the health centers, this computes to an average of 5 patients per day, assuming clinics operate 5 days a week? Not as high to affect quality of care?

We did indeed observed a relatively low patient volume across facilities, and agree that the mere patient volume is likely not the main factor explaining low compliance here. We have added the following sentence to the Discussion to summarize this:

“With an average of 4-5 under-5 patients per day, time constraints are unlikely to explain the low levels of compliance observed.”

Another minor element is whether providers neglected to prescribe antimalarials due to stock outs, and if system readiness assessments indicated lack of essential supplies.

We definitely agree with this, and directly address this in the Discussion where we write:

“Improving the supply of essential medicines is one necessary step: the national Service Availability and Readiness Assessment (SARA) in the DRC in 2014 found that only 50% of health facilities had amoxicillin in storage and only 23% had zinc (18). However, the observed low quality of care is unlikely to be entirely explained by insufficient infrastructure or resources such as medical supplies or drugs.”

A more compelling statement for the concluding section, which reflects on the potential for RBF to improve quality, may be essential

Thank you for this suggestion. We have added the following sentence to the Conclusions:

“The current RBF program in the study areas tries to directly address this by financially rewarding facilities where provider knowledge of IMCI protocols is high; it will be interesting to see whether such financial incentives are sufficient to increase protocol compliance in this setting.”