Author’s response to reviews

Title: Teleradiology for remote consultation using iPad improves the use of health system human resources for paediatric fractures: prospective controlled study in a tertiary care hospital in Italy

Authors:

Floriana Zennaro (floriana.zennaro@burlo.trieste.it)
Daniele Grosso (daniele.grosso@burlo.trieste.it)
Riccardo Fascetta (rikfarf@libero.it)
Marta Marini (radiologia@burlo.trieste.it)
Luca Odoni (luca.odoni@burlo.trieste.it)
Valentina Di Carlo (valentina.dicarlo@burlo.trieste.it)
Daniela Dibello (daniela.dibello@burlo.trieste.it)
Francesca Vittoria (francesca.vittoria@burlo.trieste.it)
Marzia Lazzerini (lazzerini@burlo.trieste.it)

Version: 5 Date: 12 June 2014

Author’s response to reviews: see over
1. Explain quasi-random case selection - Page 9. Does this mean that sometimes the consultant on call did not have an iPad and so could not review the images? Were all children during times when a consultant did not have an iPad available excluded from the study? Or does this mean something else entirely? Please expand this sentence to provide a more detailed meaning for the statement.

*** We have revised the sentence accordingly.

2. The manuscript states that each child served as their own control. For each child did the on call consultant first receive a phone call from the paediatrician (Phase I) followed by the x-ray images on the iPad (Phase II) as soon as the consultant recorded their judgement for Phase I? Was the order of Phase I followed by Phase II always the same? This is important since if Phase I was always immediately followed by Phase II the consultant had prior knowledge about the patient and their first decision when they view the images in Phase II. It is likely that they knew what their previous decision was so they did not have to evaluate the case from the beginning, but rather only review the correctness of their previous decision to go to the hospital and whether or not other services should be activated.

*** This study aimed at comparing the standard communication to the “additional” availability of the xRay. We have further clarified this in the abstract and in the text).
- Phase I : standard approach (i.e. verbal communication only)
- Phase II: standard approach plus XRay (in addition to standard)

We have also further clarified the sequence in between Phase I and II (i.e Phase I was always before Phase II).

Phase I is the standard, and phase II is what happen when in addition to the standard orthopaedic also receive the X Ray.
What it is important here is that in most cases the decision from Phase I to Phase II did change i.e the orthopaedics changed their mind after having received the X-ray.

(Note that the sentence “each child served as his/her own control” was removed at the stage of the first resubmission on 30 May).

3. In the Results there were 32 cases in Phase I where the on call consultant decided to go to hospital and 16 cases in Phase II. Was every one of the sixteen cases for Phase II in the set of 32 cases for Phase I? If this the case it would imply that the decision was switched from "go to the hospital" to "stay home" in those cases. If this is true it has important implications for how the images affected the decision. This issue should be addressed in the Discussion and possibly limitations of the study.

*** Yes, this is the correct interpretation. We have further clarified this in the text, expanding also the discussion section.
4. The time measure used in this study required a more detailed explanation (page 1). When did the timing start for each phase and when did it end? The first sentence says that it is the time to make a decision but the end of the paragraph refers to the standard 45 minutes to get to the hospital. Was this 45 minutes include in the time if the on call consultant decided to go to the hospital? Regardless the resulting averages seem very long. This needs to be addressed and explained in the discussion.

*** We have revised this paragraph and we hope that now it is clearer. We are referring here to time to decide on case treatment. This time seems to us as clinicians the standard time when the consultant on call is outside the hospital. In most cases when the X-ray was not available the consultant decided to travel to the hospital (where he/she could assess the X-ray). We have further clarified this in the text.

5. If 2 above is a correct representation of this experiment, then caution is needed in interpreting the impact of teleconsultation on the time needed to make a decision. Since the task for Phase II does not appear to require a completed evaluation of the case since Phase II has already provide much of that information. Rather in Phase II, the consultant may be simply evaluating whether the decision in Phase I was correct. This should take less time than evaluating the case from the beginning. It may be in this case that the images do not shorten the decision time as the researcher found but rather help evaluate a decision already made. If the experiment has randomly used an order of Phases, then one could be much more confident that having the images did reduce the time to make a decision. The author should address this in the limitations of their study.

*** Please see answer to point 2. We could not randomise the sequence Phase 1 before or after Phase 2 because Phase II meant to provide additional information in comparison to Phase I. This was a pragmatic experiment mirroring exactly a real situation, when the orthopaedic was given the X-ray in addition to the standard information.

Time to deliver the information was not included for the calculation of time in Phase I, neither in Phase II and so it does NOT affect the results on times. Most of time in Phase I is indeed time to travel to the hospital to see the X-ray.