

Use of mobile phones to improve follow-up rates

Dear editor:

I read with interest your article titled, "Assessing the feasibility of mobile phones for follow-up of acutely unwell children presenting to village clinics in rural northern Malawi," by Hardy et al.¹ It is indeed enlightening to know that concrete efforts are being made to ensure follow-up for acutely unwell kids below the age of five years, with the aid of modern technology using mobile phones. A 2015 World Health Organization (WHO) report revealed that half of all under-five deaths (totalling 3 million) occur in Africa.² The WHO further reports that half of these mainly preventable deaths were due to infectious diseases, including pneumonia, malaria, meningitis, diarrhoea, human immunodeficiency virus (HIV), tetanus, and measles.² The study reported by Hardy et al. was therefore timely and appropriate, and there is an urgent need for such work to continue.

Previous studies have endorsed the use of technology to improve follow-up and adherence rates in an African setting, but mainly related to adult populations. Pop-Eleches et al., in 2011, reported improved adherence to antiretroviral therapy among patients with human HIV by use of short messaging service (SMS) reminders, even in a resource-limited setting in Kenya.³ Kunutsor et al. (2010) reported that 70% of HIV-infected patients who missed their prescription refills came back within a mean of 2 days after receiving a mobile phone reminder.⁴ A 2013 systematic review reported that SMS reminders improve appointment attendance and may be feasible to be integrated into a wide range of healthcare systems.⁵

Despite less than 30% accountability by mobile phone in Hardy et al.'s study, effort should be made to encourage the use of modern applications to improve the overall quality of healthcare delivery in Africa. The only queries I have about this study are: what precisely was meant by "acutely unwell" children, and were attempts made to visit those children whose parents may have resorted to more conservative methods of treatment, such as "wait and see", or those who were treated with herbs, plants, and other traditional medicines?^{6,7} Nevertheless, I understand that in such a setting it may not be that easy to define an acutely unwell child, as this involves a comprehensive history and physical examination (including vital signs), and lack of time and resources may preclude consistently thorough assessments of all children.^{8,9}

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Competing interests

The authors declare that they have no conflicts of interest.

Authors' reply:

Thank you for your response requesting clarification of the term 'acute illness' in our recent study, and for underscoring the broader applicability of mHealth for improving patient follow-up in low- and middle income countries (LMICs).

We used acute illness to refer to the onset of signs/symptoms related to the presenting illness episode (including acute exacerbation of chronic conditions) within the previous four weeks (28 days), as reported to Health Surveillance Assistants (HSAs) by guardians of children under-5 presenting to village clinics. CCM encourages a clinical history of the presenting complaint to be recorded, including the presence of 'sick' and 'danger' signs, and duration. The time period we used to define acute illness whilst imperfect, is consistent with those used in observational studies relating to infection in children.¹

Conduct of a physical examination is integral to CCM assessment and incorporates the measurement of a single vital sign (respiratory rate). Whilst there is some debate about the evidence-base for existing age-related reference values for respiratory rate,² CCM utilizes the standardized World Health Organization definition of fast breathing in children aged 2 months up to 12 months as ≥ 50 bpm, and ≥ 40 bpm amongst children 12 months up to 5 years.³ Although assessment of sick children under CCM might not be as thorough as the assessment a clinician would conduct,

it is as detailed as is available at present for use by HSAs in Malawi.

The focus of this paper was to describe the proportion of guardians in our sample with access to a mobile phone that could be contacted. We aimed to measure the impact of the mHealth intervention on referral, re-attendance and hospitalization rates in a subsequent clinical trial. Therefore, our immediate priority was to establish whether and how (i.e. self-report or medical records) patient outcome data could be collected, and if this could be facilitated using mobile phones. We attempted to follow-up all guardians by mobile phone or in-person, regardless of health seeking approach for their child, and we report on the proportion we were able to contact using this modality.

We agree that moving forward defining the role of mHealth for enabling frontline community health workers to follow-up children under-5 will be important, especially in settings where patient compliance to follow-up recommendations is constrained by guardians' capacity to travel large geographical distances to health facilities (amongst other factors).⁴

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