# Mobile-based Applications for Newborn Care

We read with interest the 'Journal Club' section in the September 2016 issue of *Indian Pediatrics*, which commented on a randomized controlled trial on association between the Safe Delivery App and quality of care and perinatal survival in Ethiopia [1]. The commentary from an evidence-based-medicine viewpoint [2] rightly suggests that there are limited randomized controlled trials and systematic reviews on the efficacy of m-health, but we disagree with the viewpoint mentioned in the neonatologist's perspective [3] that the utility of a mobile-based application is limited, and it cannot be applied to the current health system.

We would like to share that the management of common conditions in sick neonates has been created as point-of-care tool on Android devices, meant for health-care professionals, by the World Health Organization Collaborating Centre (WHO-CC) for Training and Research in Newborn Care, All India Institute of Medical Sciences (AIIMS), New Delhi. This 'App' has already been tested for content reliability and validity at WHO-CC. Its efficacy in sick newborn care has been reported among the nursing students [4], and amongst the physicians involved in the direct management of sick newborns at district hospital level [5].

The importance of revamping education of health care professionals using information technology has been a new global mantra [6]. There has been an ongoing emphasis on competency-driven approach and use of digital media. There is also evidence of increasing use of smart phones and mobile apps in recent times. In the light of our study and increasing usage of these mobile devices, this avenue may serve as a simple, bed side useful tool for improving clinical practices, and also as a refresher tool for continuing education of health care professionals for evidence-based management of sick neonates.

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# The Fast Growth of Neonatal Lung Ultrasound

We read with great interest the excellent and comprehensive review [1] on point-of-care neonatal ultrasound. Due to the breadth of the topic and the high speed of its evolution, the authors might have overlooked a couple of issues concerning lung ultrasound, a rapidly expanding topic [2], which readers deserve to know:

The authors rightfully underline that tension pneumothorax is indeed one of the most rewarding applications of lung ultrasound in adult emergency medicine. Unlike reported by them [1], recent neonatal data are indeed available both as a case report [3] and as a published, prospective study [4].

The diagnostic accuracy for transient tachypnea of the double lung point has been recently questioned in the large series by Liu, *et al.* [5], where sensitivity was only 49.5%. To solve this clinically relevant question, another

prospective study is currently underway by the same international consortium of scientists called NeoLUS (Neonatal Lung UltraSound) who published the pneumothorax data .

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## AUTHORS' REPLY

We greatly appreciate the readers for their valuable suggestions pertaining to lung ultrasound. As mentioned in the letter, it is a fact that lung ultrasound is a rapidly expanding topic with frequent new addition of research publications.

As far as pneumothorax is concerned we are aware of recent publications, which showed neonatal lung ultrasound to be more sensitive than chest *X*-ray, transillumination and clinical evaluation [1]. All these studies were published recently, after we had reviewed the literature.

We agree that transient tachpnea of newborn (TTN) part in our review is not very comprehensive because of the numerous topics we were covering under one heading. Double lung point has a very high specificity and sensitivity in diagnosing TTN as per the two prominent studies by the same group of authors [2,3]. Liu, *et al*. [4] in his earlier study in 2014 showed that double lung point has a sensitivity and specificity of 76.7% and 100%, respectively in the diagnosis of TTN. In his recent publication [5], sensitivity and specificity of double lung point in diagnosis of TTN was 45.6% and 94.8%, respectively. Liu, *et al*. [4,5] have not elaborated on the duration of mechanical ventilation, surfactant need, gestation of infants and its relation with ultrasound finding. The authors have also not mentioned about the timing and number of ultrasounds, and the interpreter was not blinded to the clinical diagnosis. TTN is often a diagnosis of exclusion. Copetti, *et al*. [2,3] in their studies had fewer infants with probably less severe TTN, which resolved within 72 hours. We attribute this discrepancy in ultrasound finding in studies by two different groups to the different definitions of TTN. However from the available studies, it appears that severe TTN may have an ultrasound picture close to the ultrasound picture of respiratory distress syndrome. Ultrasound diagnosis of TTN and its differentiation from respiratory distress syndrome is of operational importance so that infants with mechanical ventilation need may be transferred to a tertiary-care center with available facilities. Hence, we still believe double lung point has its relevance in the diagnosis of TTN.

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