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## Letter to the Editor

# Table-top exercises to prepare for neonatal resuscitation in the Era of COVID-19

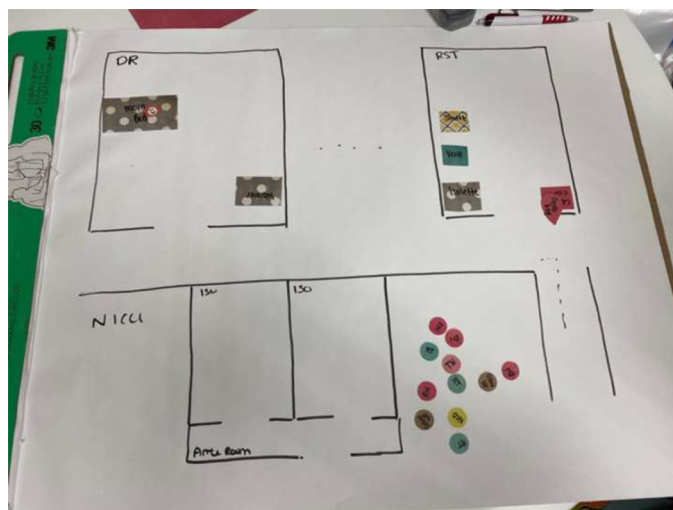


Although COVID-19 mainly affects older adults and people with significant co-morbidities,<sup>1</sup> there are increasing reports of affected pregnant women with the potential of neonatal infection either via perinatal or vertical transmission.<sup>2</sup> Neonatal resuscitation procedures including mask ventilation and endotracheal intubation are aerosol generating medical procedures (AGMPs) that pose a risk to health care providers (HCPs). Therefore, HCPs must alter their practice when attending deliveries of mothers with suspected or confirmed COVID-19. Furthermore, the safe transport of COVID-19 exposed neonates from the delivery room (DR) to the neonatal intensive care unit pose additional logistical challenges. The available data on COVID-19 is rapidly evolving and neonatal HCPs could use simple simulation tools to help design and modify management of these neonates. Using table-top exercises (TTX), a low-technology alternative, we adapted DR resuscitation protocols for infants born to women with suspected or confirmed COVID-19 infection. TTX i) supports the development and testing of new protocols, ii) is defined as a facilitated discussion of emergency situations in an informal, low-stress environment, and iii) is designed to elicit constructive discussion between participants, to identify and resolve problems, and to refine existing operational plans.<sup>3,4,5</sup>

Based on a multidisciplinary team TTX approach, we used an informal round table format using pen, paper, and paper tokens to

represent the healthcare spaces, patients, HCPs, and equipment (Fig. 1). Through TTX, specific problems including personnel (i.e., anticipation of neonatal resuscitation, number of team members), physical space (i.e., DRs were not designed to contain aerosols nor have designated PPE donning and doffing areas), and communication (i.e. between obstetrical and neonatal teams, and between the neonatal team members) were quickly identified and solutions developed. This was followed by in-situ walkthroughs with the neonatal and obstetrical teams. During walkthroughs, several additional physical constraints were discovered including: i) suboptimal location of DR designated for COVID-19 positive or suspected laboring women, ii) the need of route planning for incubators to ensure an open path without obstructing HCP and equipment in case of maternal complication(s). Finally, careful delineation of PPE doffing areas and choreographing of team movements were needed to ensure that transfer of infant from the resuscitation warmer to the clean transport isolette was done without cross contamination.

Problems were also encountered for the operating room. The designated COVID-19 operating room had main doors, and doors via the sub-sterile anteroom. To minimize contamination, a one direction entrance and exit plan was devised, except for the infant transfer in the isolette to the unit. In-situ simulations identified additional problems with communications between the obstetrical and neonatal teams and



**Fig. 1** – Tabletop exercise using pen, paper, and paper token.

between the neonatal team members inside and outside the operating room was identified. These were mitigated with time-outs and two-way communication devices.

TTX provide a low-technology, low-cost, rapid-cycle tool for response planning during COVID-19. Subsequent in-situ testing using walkthroughs and real-time simulations tested the feasibility of protocols devised using TTX.

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