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Quality of neonatal resuscitation and impact of interdisciplinary and interprofessional in situ simulation training

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Background/Aims: Resuscitation of newly born infants after birth is a high risk, low occurrence event. In situ simulation training, i.e. training in the real healthcare environment, allows to analyse and improve healthcare delivery as well as to identify latent safety threats. However, it has only been shown for a few medical disciplines if, and to what extent, in situ simulation training improves healthcare delivery and patient outcome. Therefore, we investigated in this prospective monocentric observational study (ethics committee number 27-014 ex 14/15) if in situ simulation training was associated with improved postnatal management and superior neonatal outcome.

Method/Results: We delivered a total of 41 in situ simulation trainings, each involving two to five physicians and/or neonatal nurses, over a four-month-period at the Neonatal Intensive Care Unit, Medical University of Graz. These trainings targeted both technical and non-technical skills, such as communication, leader-/followership, decision making, situational awareness, and task management. Two months before and after these trainings, actual neonatal resuscitations were video-recorded. For the primary study outcome of teamwork during postnatal stabilization and resuscitation, an independent, blinded neonatologist rated all available videos (12 before and 13 after the training intervention, respectively) in random order using the Anaesthetists' Non-Technical Skills (ANTS) score (Br J Anaesth 2003;90(5):580-8). When comparing the pre- and post-training period, there were no differences in the four major ANTS categories Task Management ($p=0.769$), Team Working ($p=0.252$), Situation Awareness ($p=0.608$), and Decision Making ($p=0.813$).

Conclusion: Based on the analysis of the first video assessor, in situ simulation training was not associated with an improvement in the non-technical skills domain. A potential reason could be the already high level of non-technical skills during the pre-training period.