1090-004207

Use of simulation to design a procedure and train a dedicated airway "SWAT" team for Covid-19 intubation

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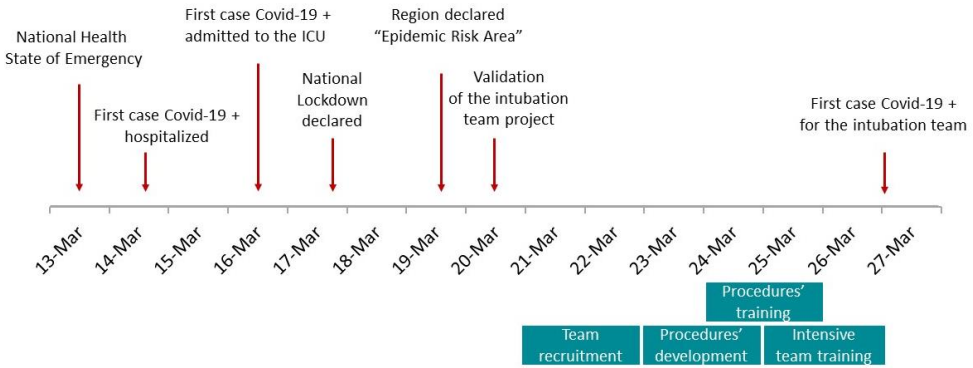
Context

The occurrence of the Covid-19 pandemic involved adaptations of organizations and healthcare teams to face new risks. Intubation of suspected or confirmed Covid-19 patients was the subject of recommendations aimed at protecting caregivers from the risk of contamination related to the procedure.[1,2] One possible strategy in this context was to set up a team dedicated to Covid-19 intubation.[3] This makes it possible to concentrate expertise, benefit from a codified procedure, optimize the safety of caregivers and preserve ICU time and resources. Simulation was, for us, the ideal tool for the design of the procedure and the training of this "swat" airway team.

Methods

A dedicated team strategy implied to guarantee its safety, its efficiency and also allowed the use of more complex equipment (suit) and more advanced training. For this we used an intensive simulation program for the development (2 days) and training (2 days) of this team (5 anesthesiologists and 6 CRNA). The team members developed this program. They were dual skills as simulation instructors and anesthesiology staff. This had the advantage of a mastery of non-technical skills, which was an important element in the success of the program in its development, training and application stages; and that also allowed merging the development and the training stages.

Figure : Time line for events, setting, development and training of the airway Covid-19 intubation team.



Results

During development stage the team designed the steps of the intubation procedure in procedural simulation, adapted a difficult intubation algorithm, adapted the management in case of cardiac arrest, built the checklists for material, donning, procedure sequence and doffing. The 2 days of training in high-fidelity trinomial simulation (airway manager, ventilator and drug manager, and indoor runner) allowed final adaptations and the appropriation of the procedure by the whole team. Feedback from the simulation helped to reinforce the concepts of "clean and dirty hands" and the distribution of tasks between the workers to limit the risks of contamination. The role of the indoor runner, monitoring the situation, was reinforced even though it had not initially appeared so crucial. By the end of the training period, intubation time (room entrance to intubation) decreased by 35%, compliance with procedure's steps increased by 15%, hygiene "mistakes" decreased by 84%, and ANTS[4] score stayed high (>3).


Training procedure


Real life procedure

Discussion

The use of simulation for the design of a specific intubation procedure linked to the constraints of the Covid-19 pandemic made it possible in a very short time to develop, test, evolve according to the experience gained in simulation and finally to standardize a high-risk procedure whose mastery was important. This would not have been possible without simulation (and the linked debriefing) and would have required exposing caregivers to imperfectly controlled risks. We have shown that the use of simulation allows new procedures to be developed and made operational quickly. It therefore seems appropriate in the future to consider using simulation at an early stage to deal with new situations even when time is short.

References

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