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Letter to the Editor

Perceived challenges during resuscitation of in-hospital cardiac arrests in the COVID-19 era



To the Editor,

COVID-19 is a challenge for in-hospital cardiopulmonary resuscitation (CPR).¹ A meta-analysis showed increased 30-day mortality of in-hospital cardiac arrest (IHCA) cases with COVID-19 compared to non-COVID-19 patients.² Several studies have raised concerns about challenges due to donning personal protective equipment (PPE),^{1,3} but these challenges are speculated, and real challenges perceived during real resuscitation attempts are unknown. We report the first data on the challenges experienced by cardiac arrest team members during IHCA resuscitation of isolated/COVID-19-patients.

We performed a post-hoc analysis of a prospective multicenter clinical study identifying barriers and facilitators perceived by designated cardiac arrest team members during IHCA across 6 Danish hospitals.⁴ In brief, we used an immediate after-event, asynchronous survey of individual cardiac arrest team members following 924 resuscitation attempts (Oct 2016–Jan 2021). We collected a total of 3698 survey responses, including 2095 narrative comments on CPR quality, teamwork, and communication. As the initial analysis revealed barriers related to PPE, we conducted a post-hoc deductive selection of all responses related to isolated/COVID-19-patients, followed by an inductive thematic analysis.

We identified 25 survey responses from cardiac arrest team members from 24 IHCA resuscitation attempts relating to isolation/COVID-19. Thematic analysis revealed 4 isolation/COVID19 related themes: delay of treatment, communication, teamwork and “other” (Table 1). Delay of treatment was due to procuring or donning PPE or if medication and equipment were placed outside the patients’ room. Communication was related to challenges of hearing and understanding each other when wearing PPE and team members

being divided into separate rooms. Teamwork challenges included *too few* resuscitation personnel in the patient room and the inability to identify individual team members and their roles due to PPE. Other comments included team members not being aware of the isolated status of the patient.

The 4 major themes relating to isolated/COVID-19 patients are a subset of the 24 themes identified in the overall cohort of 924 resuscitation attempts previously reported: loud and clear speech, role allocation, crowd control, and arrival time of team members. Specifically, isolation/COVID-19 posed a unique challenge as crowd control relates to lack of hands as opposed to over-crowding.⁵ Our findings exemplify the importance of continual organizational evaluation and highlights the need for contextualized in-situ training.^{6–8} Simulation can be used to improve teamwork and compliance of donning PPE rapidly, and enhancing communication while wearing PPE with team members being separated in different rooms. Additionally, our findings reveal important organizational decisions that might include: Who should wear PPE? Who should support PPE donning team members? Should sstickers be used to identify team members’ roles while wearing PPE? Does the placement of important resuscitation equipment need to be changed?

Notably, this study is limited by its reliance on subjective comments. The quantitative impact of isolation/COVID-19 on CPR quality and survival outcomes remains unknown. Overall, our findings suggest the importance of continuous process of care evaluation of organizational structures augmented by immediate after-event clinical debriefings and in-situ simulations, and the potential for this methodology to ensure best practices, as challenges evolve.

Table 1 – Themes specific to isolation/COVID-19 events.

Number of responses	Subtheme	Barriers
8	Delay of treatment	Procuring and donning PPE Medication/equipment outside of the patient room Altered placement of equipment due to isolation/new premises
9	Communication	Team divided with some members outside of the patient room PPE, especially masks
9	Teamwork	Not being able to identify the roles of team members Too few people
4	Other	Not identifying the patient as COVID-19-risk patient

PPE: Personal Protective Equipment.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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