Education to save lives: C19SPACE, the COVID19 Skills PrepAration CoursE

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Health systems across Europe were overwhelmed by the first coronavirus disease 2019 (COVID-19) wave [1–3]. While initially media and governments focused on shortages of ventilators, devices, and drugs [4, 5], the European Society of Intensive Care Medicine (ESICM) leadership immediately focused the attention on intensive care unit (ICU) teams and competencies of healthcare workers in case of ICU surges [6, 7]. The message the ESICM delivered globally was that a ventilator is not an ICU bed [8]. The European Commission (EC) was sensitive to the requests and needs of clinical teams around the European Union (EU). In particular, for ICU teams, the EC asked the ESICM to develop a training program. The aim of the program was to prepare healthcare workers who do not work regularly in ICUs for a deployment to an ICU during another pandemic wave. The EC asked to train more than 10,000 people across Europe. This was financed through the Emergency Support Instrument. ESICM accepted this assignment and created the COVID19 Skills PrepAration CoursE (C19_SPACE). The vision was to create an educational toolkit that could help both healthcare workers deployed to ICU, and ICU teams working better. The course consists of an online component and on-site training, which was self-organized by local trainers. We hypothesized that the C19_SPACE program would increase knowledge of ICU basic clinical knowledge.

The C19_SPACE consists of two tracks with two pathways of 24 h training: a nursing and a medical doctor (MD) track with common and separate components (Fig. 1). The common lectures were on (1) Personal safety, donning and offing of personal protective equipment, (2) Introduction to the ICU and the ICU patient: general aspects and admission sequence as well as (3) Team Care. Separate nurse and MD components were provided for (1) Basics of respiratory support, (2) Basics of hemodynamic monitoring, (3) Sepsis and infections and (4) Other aspects of ICU care (e.g., delirium). Participation in the online-self learning part (16 h) was voluntary if a pre-test was passed with ≥ 65% (MDs) or ≥ 60% (nurses) correct answers. The face-to-face meeting consisted of four clinical cases workshops and two clinical cases using virtual reality (VR) technology. VR technology used a smartphone app and VR goggles which were sent out for free to the training centers. If no goggles were available, the VR could be accessed from a web browser on personal computer. The topics of the clinical cases were (1) Basics of hemodynamic monitoring, (2) Basics of respiratory support, (3) Sedation in the ICU and (4) Sepsis and infection.

From 10.10.2020 to 09.05.2021, 17,494 trainees registered and 12,086 received the final certification with the help of 2060 active trainers. Only three countries had not trainees at all (Denmark, Luxembourg, and the Netherlands). In absolute numbers, Spain (n = 7573), Romania (n = 1862) and Greece (n = 1394) had most trainees participating. Compared to the countries’ population Croatia, Estonia and Spain had the most participants (Fig. 2).

The training had a significant impact on the participants’ knowledge. Correctly answered questions increased significantly from the pre-test to the post-test (nurses: 63.5–82.2%, p < 0.0005; MDs: 62.6–84.9%,
p < 0.0005; overall: 63.1–83.6%, p < 0.0005). Trainees were further asked to evaluate the overall impression as well as the usefulness of the online and face-to-face training. The online training was rated excellent by 46%, very good by 45%, fairly good by 8%, poor by 1% and very poor by 0%. The usefulness of the online training was assessed as extremely useful by 48%, useful by 44%, fairly useful by 6%, not useful by 1% of trainees and without answer in 1% of cases. The local training had even better ratings, i.e., was rated excellent by 55%, very good by 37%, fairly good by 7%, poor by 1% and again very poor by 0%. The usefulness of the local face-to-face training was assessed as extremely useful by 52%, useful by 40%, fairly useful by 6%, not useful by 1% trainees and without answer in 1% cases.

This kind of ICU preparation program was unprecedented as was the COVID-19 pandemic. The ESICM was able to implement a high-quality training program for health care workers potentially deployed to work in the ICU in a pandemic setting within a very limited time. This was possible thanks to the enthusiasm and engagement of more than 70 experts who helped to create the content, more than 2400 local trainers and a dedicated technical team. The training was a response focused on people rather than just devices and drugs. The success of the training program is a testimony to the need for leadership to help front-line clinical staff with knowledge that can make them feel more competent and better team members.

The program was successfully scaled up throughout Europe, training more than 70% more health care workers than expected by the EC. Furthermore, the program was able to increase participants knowledge in the basics of care provided in the ICU. One limitation was the restriction of the program to EU countries only. This led to a complex registration process and rejection of requests from other countries that we would also have liked to support. Although the EU initially owned the rights over the program, it has transferred them to the ESICM to continue the training and dissemination outside the EU, given its enormous success. ESICM has recently reopened the program freely available for all healthcare workers worldwide.

In conclusion, the C19_SPACE program excelled the expectations of the EC as well as of the participating trainees. The program was able to increase basic knowledge of critical care significantly.
Supplementary Information
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C19_SPACE experts are listed in the appendix.

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Declarations
Conflicts of interest
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