

## Review Article

# The Fundamentals of Critical Care Support: local experience and a look into the future

Keith Killu 

Henry Ford Hospital, Detroit, Michigan

Fundamentals of Critical Care Support (FCCS) is an educational course offered by the Society of Critical Care Medicine (USA) to provide and augment the basic knowledge for individuals managing critically ill patients. More than 10,000 clinicians every year throughout the world attend FCCS courses, preparing non-intensivists to manage critically ill patients for the first 24 h until a consultation can be secured. The most important emphasis of the FCCS course is to learn the basic principles and the adaptation of multidisciplinary approaches to managing the critically ill. The curriculum consists of integrated lectures and skills stations helping to provide the knowledge and guidance in decision making. This article is an account of one institution's experience in offering this course for over 12 years.

**Key words:** course, critical care, education, fundamentals of critical care support, skills station

## INTRODUCTION AND HISTORY

SINCE THE INCEPTION of the first critical care unit/intensive care unit (ICU) and possibly the initiation of the multidisciplinary service by Dr. Bjørn Ibsen, in Copenhagen in 1953,<sup>1</sup> advancements in the management of critically ill patients continue to evolve. In the early 1970s, the pulmonary artery catheter was introduced by Drs Swan and Ganz,<sup>2</sup> which ushered in the era of bedside hemodynamic monitoring for critically ill patients and expanded the role of ICUs in caring for patients.<sup>3</sup> This led to more patients being admitted to the ICU for closer monitoring and complex direct care. Over the last four decades, advancements and changes in patient care have led to the development of multiple specialty ICUs to address the needs of certain patient cohorts, such as neurological, neurosurgical, neonatal, cardiothoracic, and transplant patients. Despite this growth and expansion, and with all the newer technologies, the multidisciplinary approach has proven to still be of great importance when it comes to managing ICU patients.

The concept of multidisciplinary care of critically ill patients has been emphasized significantly by the Society of

Critical Care Medicine (SCCM) in the USA and is an important basis for the Fundamentals of Critical Care Support (FCCS) course. In addition to providing the optimal structural environment, staff–patient ratio, equipment, and medications, we always strive to provide the best possible care and up-to-the-minute care to those who need it most. This can happen when all efforts are combined and focused to deliver the best care.

Almost 25 years ago, a group of critical care physicians in the SCCM realized the need to create a curriculum as a training tool for those who are non-specialists yet still care for ICU patients and who practice critical care. The aim was to deliver training and education on how to recognize and stabilize critically ill patients early. The FCCS purpose statement summarizes this concept and it states “the FCCS curriculum is intended to introduce principles important to clinical care of critically ill/injured patients to physicians in training, nurses and other healthcare providers who may or may not be skilled in critical care but must care for such patients during early stabilization and in anticipation of the arrival of an intensivist, specialist, or pending transfer the patient to a tertiary center”.<sup>4</sup>

For this, an FCCS committee was created that included leaders in critical care from across the globe at that time. The educational material, including a first edition textbook, lectures, slide presentations, and skills stations were developed, and the first FCCS course was offered in 1995. Since then, many editions of the textbook have been updated; the latest is the sixth edition published in

**Corresponding:** Keith Killu, MD, FCCM, Henry Ford Hospital, 2799 W. Grand Blvd, CFP-1, Detroit, MI 48202. Email: kkillu1@hfhs.org.

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2017. The lectures material with slide presentations and skills stations have been updated throughout the years with the advances in critical care to cover the needs of this ever-expanding field.

The FCCS textbook has been translated into multiple languages to reach audiences and learners throughout the world. The SCCM has been very diligent in translating the text with the help of its own members within the society from different countries and continents.

The FCCS curriculum has been studied in many countries throughout the world, and some have evaluated it and studied its effectiveness compared to other curriculums and the effect it had on obtaining and retaining knowledge, and effect on practice.<sup>5–7</sup> Most of these studies have revealed a positive impact.

### HOW TO ESTABLISH A COURSE: LOCAL EXPERIENCE

**B**EFORE STARTING THE FCCS course, or any other course, it is highly recommended that a needs assessment be undertaken for such an educational process. This can be done by looking at needs in the community, through communication with experts in the field, looking at the practice of standards, and through searches of published works and research.

We started offering the FCCS course in our institution in 2006. The need was identified to supplement the educational material for the residents that rotate in our ICU. We considered that studying the contents of the lectures and skills stations would contribute significantly to the education of our residents. Initially, we started offering the course over a few days, in which we gave lectures in the morning and dispersed to skills stations throughout the week. The assessment and testing were done at the end of that week. Through adjustments in residents' rotations, we were able to offer the course in a 2-day period, and we have been doing so since late 2006. We offer the FCCS course almost every month that we have new residents rotating in our ICU. The advanced-level providers as well as the nursing staff in our ICU also form a big part of the FCCS courses we offer; initially the course was optional, and now all attend the FCCS training and many participate in teaching as well. Many community and local physicians and hospitalists have attended the course as well.

We are fortunate to have had a dedicated group of staff physicians who have obtained and maintained their instructor status from the SCCM and volunteered to give lectures and teach the FCCS course. They were doing this voluntarily without expectation of any reimbursement. We also had dedicated respiratory therapists, pharmacists, and nurse

practitioners who helped us jump-start this process and keep it successful over the years.

### Identify course goals and objectives

The goals and objectives of the FCCS course have already been defined by experts in the SCCM. Over 10,000 clinicians every year throughout the world attend FCCS courses, preparing the non-intensivists to manage critically ill for the first 24 h until consultation can be secured.<sup>4</sup> To start our FCCS course, we asked the following questions:

1. Identify the learners:

Any practitioner in an acute care setting. Staff that work in the ICU as nurses, pharmacy specialists, respiratory therapists, medical students, residents, or physicians. In our institution, the initial need was to educate residents, which later expanded to nursing and advance practitioners and non-ICU physicians.

2. Needs assessment:

The needs assessment has to be individualized for each institution, hospital, clinic, or group. Is there a need to train individuals and obtain the FCCS certificate in that institution, and are there certain gaps that need to be filled to improve patient care for better outcomes? In our experience, we needed to augment the residents' education.

3. Facility and finances:

Making sure the facility where the course is being conducted can accommodate courses and have available space for a certain number of learners. The facility does not have to be state-of-the-art or have a high-fidelity simulation center, but it is necessary to have the environment and space for giving lectures as well as undertaking skills stations with the ability to interact with the learners, and the ability for debriefing as well.

It is important to make sure that enough financing is available at least to jump-start the project. Running an FCCS course is not necessarily profitable but maintaining standards and offering courses to teach individuals with small amount of financial gain can be done and that can be reinvested into the course and the process and help implement improvements.

4. Faculty:

We were fortunate to have faculty dedicated and committed to the process by consistently helping with lectures and skills stations on a monthly basis, for years. Most of our faculty have an instructor status. The course has to have at least two instructors, including the course director, as dictated by the SCCM.

5. Learner outcomes:

Many of the outcome objectives are to have the learners be familiar with the basic concepts of critical care

medicine and learn how to stabilize and manage acutely ill patients until an intensivist is consulted or the patient can be transferred to a facility where they can be managed.

6. Creating a curriculum:

The curriculum for the FCCS is already done, and it has been designed, updated, and reviewed by international experts in the field of critical care. Wherever the material is taught, it has to be identified as the property of SCCM.

7. Methods for assessment:

Pretests and post-tests are designed by the SCCM and available for the learners. The pencil and paper method of administering the test is the most common. We have chosen to administer the test and assessment in a more interactive way. We have programmed the questions into an audience response system and during the test we go over the questions one by one and critique it after the audience has chosen their answers one question at a time. We have found that this is an effective way to involve the whole audience into doing the test together and also to reinforce the material learned during the course.

8. Provider courses and instructor courses:

Any health-care professional can attend a provider course. Those who attend provider training and wish to maintain active certificates will have to renew every 4 years by attending a new provider course. For the instructor course, the candidates have to meet certain criteria, like having a 50% practice ratio in critical care, and they have to achieve a higher percentage of scoring on their post-test. The instructor course and components can be integrated in any provider course. Often, the SCCM will offer instructor-only courses during their annual congress. The FCCS instructor status has to be renewed every 2 years and the instructor must teach at least one course during those 2 years.

9. Administrative requirements:

(i). Course consultant. There are national and international course consultants and mentors that are assigned through the SCCM. When establishing and offering our first course, we invited a local consultant to observe. After the course consultant attended the initial course, he gave his approval that our facility and course preparation and administration met the SCCM standards.

(ii). Course director. One of our faculty members who was an instructor became the course director for our first course. Throughout the years, we have had multiple directors that assume the role and share the responsibilities. Those directors dedicate all their time for a 2-day period at a time and beyond as

needed to address all the needs of the FCCS course and its participants. We have offered over 110 courses over the last 12 years. This was only possible because of the dedication of our institution instructors, lecturers, and directors.

(iii). Course coordinator. It is imperative to have a course coordinator assigned to the process. There is a great deal of paperwork, correspondence, and follow-up material that needs to be addressed, for which the course coordinator is responsible. We recognized this need from day one and have been fortunate to have a wonderful staff to help us with these tasks.

10. Course layout. As mentioned, in our institution, and our services, we found that the best way to offer the course is over a 2-day period. This can be different in different institutions; as long as the lectures, skills stations, and educational material are not being compromised, tailoring the schedule is up to the individual institution. There is also now the option of doing the online version of the FCCS course, where learners can review the lectures and attend live skills stations.

11. Course material. There are certain lectures and skills stations that are mandatory and have to be taught during the course, and some that are optional. For example, if our audience includes learners who have all obtained their advanced cardiac life support credentials, we do not necessarily give the cardiopulmonary resuscitation lecture. A list of the core lectures can be found on the SCCM website.<sup>4</sup>

Skills stations can be done through a high-fidelity simulation center or, if you choose, using a pencil and paper. All skills stations are designed in a way so that they can be offered to learners in a simple manner. It is more important to integrate the material learned from the lectures with the skills stations and have a continuous discussion with questions and answers than focusing on the method of delivering the skills stations.

All skills stations are frequently being updated by members of the FCCS committee in the SCCM. Combining many skills stations from the past and creating integrated skills stations with scenarios resembling real-life situations and emergencies have made learning and knowledge acquisition easier. The learners are presented with real-life scenarios involving critically ill patients and are asked to resolve problems and address different crises, which will help them learn how to treat and stabilize patients early in the disease process.

The FCCS courses are offered internationally. The family of the fundamentals of critical care support has expanded

extensively throughout the years. Critical care medicine has evolved over the years and expanded. We no longer have one aspect of critical care medicine, ICUs have evolved and are focusing on specific specialties, especially in larger centers and institutions. The FCCS adult products have been updated to match these changes, and many expansions have been done over the last 2–3 years and more are being developed. The SCCM is now offering courses that combine the fundamentals with added-on material. One example is the new FCCS tropical disease course, which focuses on the management of critically ill patients in the tropical disease environment. Another new course, which is a part of the fundamentals family, is FCCS obstetrics, launched in 2018 during the SCCM's annual congress in Texas, USA. This will serve as a teaching tool for practitioners involved in managing critically ill obstetric patients and fetal medicine. Other products are being prepared and studied by the society. Most of the FCCS material can be taught and obtained in an online format as well, so that many practitioners can obtain the knowledge at their own pace, and then attend the skills stations in a live course.

All these educational materials are being created by volunteer members of the SCCM, who dedicate their time away from their work and family and contributing their expertise in critical care to craft the best possible educational product, to help others care for their patients.

Teaching FCCS for many years reminds me each time of the basic concepts of managing the critically ill, that is, if we choose to practice critical care, we must devote all our time, energy, and mind to that patient. For many patients this could be their final stand, we should make it count.

## DISCLOSURES

Approval of the research protocol: N/A.

Informed consent: N/A.

Registry and registration no. of the study/trial: N/A.

Animal study: N/A.

Conflict of interest: None.

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