Research

New technology creates stressful and demanding situations: Critical care nurses' experiences with Impella® support

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ABSTRACT

Background: The use of Impella® support has resulted in better survival in critically ill heart patients. Impella® is an advanced heart pump used in, among other conditions, cardiogenic shock, and the use of this treatment is increasing. Critical care nurses have a central role in this support, and it is important to be professionally up-to-date. Studies show that more knowledge about intensive care nurses' experience with Impella® treatment is needed.

Aim: To explore critical care nurses' experiences with intensive care patients undergoing Impella® support.

Methods: The study has a qualitative research approach. Data was collected through two focus group interviews with eight critical care nurses who had varied experiences with Impella®. Knodel's practical four step approach was used to analyze the data.

Results: The study identified three main themes. 1: Stressful and demanding situations for critical care nurses when caring for patients with Impella® support. 2: Lack of standard guidelines for Impella® support including practical and theoretical education for critical care nurses. 3: Teamwork and the allocation of responsibilities reduce stress for the staff involved in the Impella® support.

Conclusion: There is a lack of procedures for practical and theoretical education. Critical care nurses need structural training and clear guidelines to ensure high quality care to maintain safety for patients receiving Impella® support. Standard guidelines and checklists may contribute to reduce risk of errors. Impella® support can be physically and psychologically stressful for both the patients and critical care nurses.

Keywords: cardiogenic shock, critical care nurses, heart-assist device, intensive care nurses, intensive care unit, microaxial flow pump, myocardial infarction

INTRODUCTION

The use of Impella® has increased in the last few years, and it has been associated with improved survival treatment of patients with cardiogenic shock and STEMI compared with standard care (Dittman, 2019; Møller et al, 2024). Several mechanical circulatory support platforms have been developed and adopted to varying degrees in clinical practice over the past decade (Kapur et al, 2020). As escalating inotropic therapy is often futile, early intervention is essential before impaired perfusion progresses to irreversible metabolic failure. Management algorithms for cardiogenic shock therefore recommend early use of advanced mechanical circulatory support platforms, with device selection tailored to the patient's hemodynamic profile (Kapur et al, 2020). For decades, the intra-aortic balloon pump (IABP) was the only short-term mechanical circulatory support device available for patients with cardiogenic shock (Salter et al, 2023). Studies showed that IAPB did not improve survival in acute myocardial infarction with cardiogenic shock (Thiele et al, 2012). The persistently high mortality of this patient group, despite the use of IABP and medical therapies, was a major driver behind the development of more advanced mechanical circulatory support devices, including the Impella®. Adverse events are higher in patients with Impella® support (Saito et al, 2023), and are associated with a higher risk of complications (Subramaniam et al, 2019). It is crucial that mechanical circulatory support devices are used for the shortest duration, daily protocols for device weaning, limb assessment, and review of clinical progress (Subramaniam et al, 2019).

Impella® is inserted percutaneously via the femoral artery, sometimes the axillary artery, cross the aortic valve, and continuously pumps blood from the left ventricle into the ascending aorta to achieve ventricular unloading and maintain systemic perfusion (Salter et al, 2023). The Impella® device reduces ventricular workload and provides temporary mechanical circulatory support, allowing the heart time to recover and restore adequate cardiac function. Patients with cardiogenic shock are among one of the groups experiencing significant benefits from this support that reduces ventricular activity and provides circulatory support (Glazier & Kaki, 2019). Cardiogenic shock can lead to severe organ failure or death, and it occurs in up to 10% of patients immediately following an acute myocardial infarction. The mortality rates are estimated to be nearly 40% during the first month and 50% during the first year (Samsky et al, 2021).

Patients receiving Impella® support are critically ill, and so **c**ritical care nurses (CCNs) need special skills. This requires CCNs to keep up to date in order to carry out best practice treatments in addition to practical and theoretical education. It is essential that they hold a high level of competence and good skills in order to provide excellent and safe nursing. The healthcare organization has the responsibility to ensure that the CCNs receive appropriate training according to national guidelines. Studies suggest that institutions should establish

dedicated "shock teams" to ensure that patients with suspected cardiogenic shock are rapidly identified and assessed by qualified practitioners. This approach helps to mobilize resources quickly and initiate timely decisions regarding recovery potentials, durable mechanical circulatory support or transplant candidacy. These teams are recommended to include interventional cardiologists, heart failure specialists, intensivists, and cardiac/vascular surgeons along with perfusionists and critical care nurses (Kapur et al, 2020). A CCN's lack of competence can compose a risk to the patient. Stress among the CCNs related to complex patient situations with advanced technology can increase risk for errors (Tlili et al, 2021). Several complications can be avoided or their impact minimized if recognized and managed immediately (Kapur et al, 2020). The workday of CCNs is characterized by precision, intensity, high awareness, and the ability to prioritize (Aitken et al, 2019). According to Benner's five step model for the nurse's competence development an expert must have relevant experience and an intuitive and deep understanding of situations, which means that the nurse is confident and quick in her assessments (Benner, 2001). Novices presented to this new advanced technology will depend on working according to rules and guidelines and may be limited by this. Patients undergoing Impella® support are often unstable, and the CCNs must be prepared for the worst-case scenario. Little is known about the CCNs' experience with this new technology, and studies have shown that more knowledge about CCNs' experience with intensive care patients undergoing Impella® support is needed (Simko, 2022). Impella support is not described in the current curriculum for CCNs' education in Norway, and most prior research is mainly related to the technology itself. The purpose of this qualitative study was to learn about the CCNs' experience with intensive care patients undergoing Impella® support. The findings from this study will increase the knowledge about CCNs' experiences with Impella® support and be helpful for nurses and other health professionals in planning the treatment and care of these patients. The results may also be helpful in planning the practical and theoretical education prior to implementing Impella® in clinical practice.

Ethical approval

Voluntary participation was ensured through written informed consent where the participants were informed about their right to withdraw from the study. The Regional Committee for Medical and Health Research Ethics concluded that the study did not require approval (19/48724). The study was approved by the Norwegian Center for Research Data (NSD) (19/955206), and was approved by the data protection officers at the Norwegian University Hospital.

METHODS

This qualitative study used focus groups to explore and describe the CCNs' experience with intensive care patients undergoing treatment with Impella®. Little is known about the

CCNs' experience with this new technology, and it is said that more knowledge is needed (Simko, 2022). Exploratory qualitative research is described to be a suitable method to provide knowledge in areas where little is known.

Setting and sample

The study was conducted in an intensive care unit (ICU) at a University hospital. We contacted the Head of the ICU, who further invited all the critical care nurses in the unit based on the following inclusion criteria: qualified as CCNs and currently working in an ICU unit with experience with the Impella® device. Information about the study was posted in the break room, and the staff members were informed about this study in a staff meeting.

Participants

Two focus group interviews were conducted in a hospital conference room including eight participants with four CCNs in each group and included men and women. This decision was based on practical considerations, as it is limited number of ICUs that provide Impella® support, which restricted the pool of eligible participants to eight.

Table 1: Overview of participants

Participants	Work experience as an intensive care nurse	Experience with Impella®
A	> 20 years	Long experience
B	<5 years	Moderate experience
C	>20 years	Long experience
D	>20 years	Long experience
E	<5 years	Scarce experience
F	>20 years	Long experience
G	<20 years	Scarce experience
H	>20 years	Long experience

Two intensive care master students conducted the interviews. The first author conducted the interviews, and the second author observed and made field notes. (Appendix 1. Interview guide used). Both of the students had, at different times, completed clinical placements in the unit. One of the students had started working in the unit shortly before the interviews were conducted. Another author, who served as co-supervisor during the master thesis, had been employed in the unit for several years but did not participate in the interviews. A pilot interview where the last author attended was performed to ensure that the themes in the interview guide covered the aim of the study. The last author had no connection to the clinical unit. Reflexivity was practiced by continuously examine own assumptions, biases, and positions by actively questioning the authors own perspectives.

The themes included their experiences with Impella® support including education and training, observation and special challenges regarding these patients. The guide was used flexible to guide the discussions and the participants were encouraged to expound on any other issues important to them. Their responses were sometimes repeated to ensure that they were correctly understood. Two audio recorders were used for each focus group, which lasted between 70 to 90 minutes. The interviews were transcribed by the first and second author, and names and identifiable data were converted into pseudonyms.

Data analysis

The data were analyzed using Knodel's practical four step approach (Knodel, 1995). First, obtain an overview of the material by listening to the audio file, reading the transcription repeatedly, and mapping and coding the transcription. The data were then coded and grouped under different main themes ensure that those topics that were not a part of the guide were also included. Then, preliminary themes were transformed into a descriptive abstract of the group discussion. Finally, after considering the differences and similarities, more minor themes that the participants were most focused on were extracted. The coding as well as the identification of the themes were discussed between all female authors during the entire analysis. The qualitative research program, NVivo, was used in the coding and organizing process of the qualitative data. NVivo is described to assist qualitative researchers to sorting, organizing, and analyzing data (Dhakal, 2022).

RESULTS

Three main themes were identified and included: 1: Experiences of stressful and demanding situations when caring for patients with Impella® support, 2: Lack of standard guidelines for Impella® support including education and training, 3: Teamwork and allocation of responsibilities reduce stress.

Theme 1: Experiences of stressful and demanding situations when caring for patients with Impella® support.

This main theme includes two sub-themes: (1) need for continual observations to prevent and reduce complications and (2) patients who are not sedated are very challenging.

Sub-theme 1: Need for continual observations to prevent and reduce complications

The participants point out that the combination of dealing with critically ill patients and being responsible for Impella® treatment can be extra demanding. Sometimes, many alarms occupy their time, and the CCNs do not know why these alarms are initiated:

> *"Yes, I always find it unpleasant when alarms are initiated, and you do not quite understand what the Impella device is doing. So, when you get suction in connection with turning the patient*

over, you realize that it is because you are turning, but when it suddenly starts beeping for no reason, it is a bit like "ho," what is this? Are we doing the right thing?" (B).

These intensive care patients need constant close attention. Sometimes, the CCNs experience that there is not enough time, which makes them afraid to unwillingly ignore essential issues. The participants expressed relief when the new shift arrived, and that the same nurse did not have to work double shifts. They often needed a new pair of eyes, as they sometimes see themselves blinded at the end of the eight-hour shift. When they are alone with patients, the CCNs' pulse can become relatively high. They must be alert and always prepared for the "worst-case scenario". The participants emphasized the importance of being calm around the patient and pointed out that the body language of the CCNs is crucial for good nursing care:

"The interpersonal aspect is the most important and so, of course, you have to know everything else as well, but it is significant for the patient. It is crucial for the treatment that the patient is calm and feels taken care of; that is perhaps the most crucial thing (H)."

The CCNs expressed that they sometimes find themselves in challenging psychological situations because many of their patients do not make it through the treatment. It seems particularly hard for the nurses with limited experience. However, the participants pointed out that this patient group can be challenging, but they also find it satisfactory to use their competence. Several of these complications are very serious and can harm the patient or, in the ultimate consequence, lead to the patient's death. The participants imply that the CCNs must know what is expected to "pick up" on the abnormal occurrences during Impella® treatment. They work according to the ABCDE principle with every patient. If the patient is awake, the CCNs must ensure that the patient lies still and does not bend their foot:

"It isn't a once-an-hour check. It is more like a continuous check on the Impella pump itself, the patient, and the insertion site, and to ensure that it is in a good position." (D).

Some CCNs are afraid to change the patients' position because of the risk of dislocation. In that case, the patients can develop complications, such as pressure ulcers and pneumonia, which can lead to a more extended hospital stay. Other complications are bleeding, dislocation, and ischemia in the foot. The patients often bleed from the insertion site due to the blood-thinning medication:

"I have experienced standing at night and compressing a bleeding Impella patient for hours. It does bleed. Yes, I still remember the night shift I stood and compressed that Impella, and it was bleeding, really bleeding, and that was many years ago. I will never forget it" (D).

Insufficient blood flow to the foot ischemia is another feared complication. One of the participants talked about an unfortunate incident at night, which resulted in the amputation

of the patient's foot. Sometimes, it can be difficult for the nurse to find the foot pulse to ensure good circulation, even using an ultrasound device, Doppler.

Sub-theme 2: Patients who are not sedated are very challenging

The CCNs expressed that they are more alert when patients are awake versus those who are sedated:

> *"When you have a sedated person, you have much more control over whether they move on that foot. Then, it is under control. You do not have to be responsible and be afraid of it all the time"* (B).

The participants discussed patient getting out of bed and the pump dislocated. After this unfortunate incident, continuous observations were implemented for all intensive care patients receiving Impella treatment, and the CCNs' are very happy for this action:

> "*If they suddenly wake up, it is almost scary. They do not know where they are; they are confused."* (C).

Nevertheless, the participants elaborate that they would rather sedate the patient lightly than put them on a ventilator because of the risk of complications. They also emphasize the advantages of having the patient awake, such as the opportunity for patients to give feedback.

> "*Then, the patient can tell me that their foot is very painful and very cold, which is something you cannot do when you are sedated."* (H).

> *I had someone who was scared to death when she was lying with Impella, and she was just wholly awake. She just held me and clung to me. I could not leave, do my job, or make observations* (B).

According to the CCNs, they experience patients becoming delirious or psychotic due to strict restrictions. The patients must lie still and cannot move as they want to and the longer the patients are treated with Impella®, the more impatient they become. The CCNs spend much time informing, explaining, and occasionally arguing with the patient as to why they still have the pump and that it is in their best interest:

> "*Yes, it is like, it is actually a bit of torture or psychological torture. You cannot turn around, and you can't bend your foot. And then you have to lie flat day after day after day after day."* (E).

Most of the patients want to cooperate, but the patients can forget and unconsciously bend their feet. The patient may also reach a point where they cannot cooperate anymore and get an intense urge to move.

Theme 2: Lack of standard guidelines and procedures for Impella® support including education and training

The first intensive care patients receiving Impella® support at the unit made some challenges for both the CCNs and doctors. The participants said that they did not get any training on the Impella® pump before the patient came to the ward. One of the participants was present that night and said that two CCNs received training while caring for the patient. The doctor also lacked the necessary skills, and the uncertainty related to the treatment was most apparent. One of the CCNs told that there was almost a fight in the room because the doctors were not agreeing about the treatment:

> *At least we have learned that it is good to be ahead of getting new equipment, in terms of the nurse's comfort zone, safety, and everything, so that it does not just suddenly fall into our lapse".* (F)

Some of the CCNs had been placed alone in a room with intensive care patients receiving Impella® support with very limited training and insufficient competence. Others had experienced CCNs to assist them. The ward strives to have experienced CCNs to assist, especially if there are new CCNs, but the needed resources are not always available:

> *"I really feel that I didn't have any training then. After all, I have had lessons at school, and it has also been on internal education day. But it was sort of just… yes, but you take care of the Impella patient… you call if you need help."*(E)

It becomes clear that that experience is important to feel confident in the practice of nursing care for intensive care patients receiving Impella® treatment. Several participants describe it as challenging when a long time passes between these patients because skills diminish, and periods with several admissions in a short time that then improves their competence. The participants claim that training creates increased safety. They point out that increased knowledge gives increased respect for the Impella® pump. A participant said:

> *"You become humbler the longer you work, and more afraid too because you realize how serious the complications are that can arise."* (C)

Theme 3: Teamwork and allocation of responsibilities regarding Impella® support reduce stress

Lately, there has been an improvement in training and the allocation of responsibilities. The multidisciplinary team at the hospital in this study consists of an invasive cardiologist, a doctor from the ICU, a perfusionist, and CCNs. The CCNs express that the collaboration between the professions has considerably improved in the last year. The participants believe that this is due to new routines for the doctors and more explicit rules for responsibilities. The new routines make the doctors more available for the ICU. The perfusionists are always

available by phone and visit the patient daily:

"So, it is much safer and easier to find a doctor today than a year ago. They can, well, they are more skilled. They have more knowledge." (A)

This new arrangement made the CCNs feel safer and has lowered their stress levels, and procedures are developed in a folder called "the Impella folder". The CCNs are very optimistic about this folder and use it to refresh their competence and thereby they do not risk forgetting observations or measures.

DISCUSSION

The participants reported demanding work situations and stress, lack of systematic practical and theoretical education, procedures, and standard guidelines when nursing patients receiving Impella® support. However, teamwork and allocation of responsibilities seem to reduce stress. The CCNs described demanding work situations and stress associated with high-risk patients undergoing Impella® device treatment. One aspect that is highlighted is the frequent and uncertain alarms on the Impella pump. The participants describe that these alarms create stress for the CCNs and patients. Many false alarms can cause a "reduced alarm reaction" for the CCNs and, at the same time, increase stress for the patient (Aitken et al, 2019). If there is too much focus on the Impella® pump, the relation to the patient can be affected when the CCNs' attention is directed more toward the technical aspects rather than the patients. It is said that stress related to the complex patient situation with advanced technology can be associated with a delayed response to alarms and the potential for errors (Tlili et al, 2021). This is also in line with Valera (Valera et al, 2016) who also highlights that stress can compromise the health of workers and thereby the quality of care.

The participants also pinpointed the fear of missing crucial observations. The fear of making mistakes can be seen in the context of the complexity of the treatment. It is said that CCNs' desire systems that can prevent and reduce harm and errors (Tlili et al, 2021). CCNs continuously monitor the patient and therefore, it is essential that they have specialized knowledge about the Impella® function (Dittman, 2019). It is reported that it is necessary to provide competence and skills in quality of care and patient safety to ICU personnel by including patient safety culture into health professionals' curriculum and as well continuing education after graduation (Tlili et al, 2022).

Our study pinpoints several aspects of Impella® treatment that can affect the CCNs' experience of stress and coping. Antonovsky's *'sense of coherence'* tries to explain how the individual tries to adapt to a constant changing in everyday life (Antonovsky, 1996). Sense of coherence comprises three dimensions: comprehensibility, manageability, and meaningfulness. Manageability is defined as the individuals perceived resources to deal with

stressful situations or disease. Recording by way of Antonovsky theory – and in this case knowledge and skills regarding Impella® – will help the CCNs cope with the situation and reduce the stress (Antonovsky, 1996). Related to how marginal the patients are and how complex and demanding the tasks are, the risk of making mistakes increases (Rothschild et al, 2006). In fact, adverse events and medication errors are more often in ICU compared to other hospital units (Tlili et al, 2022). During their ICU stay, one in four critically ill patients experience an adverse event (Gorman et al, 2024). Due to the patients' fragile medical condition and the complexity of care, the ICUs are high-risk areas for adverse events and medical errors (Tlili et al, 2022).

However, structured procedures and proper training can reduce mistakes and increase patient safety (Reason, 1995). According to Sameera et al., (2021) no one is immune to error but by maintaining constant vigilance, optimizing working conditions, and using cognitive tools such as checklists the errors can be reduced (Sameera et al, 2021). The CCNs stated how they have to provide care for the critically ill intensive care patients while having a lack of practice and systematic training. They could in these situations have benefited from standard checklists and practical education. It is said that checklists help the CCNs so that they do not have to rely on memory and previous experiences in rare and unpredictable situations (Turkelson & Keiser, 2017). According to Haugen et al., (2019), many studies refer to the fact that using a checklist can improve patient outcomes, and further claims that the checklists influenced the operating room work processes, reduced equipment errors, improved communication, and reduced complications which can reduce the patients' concurrent length of stay(Haugen et al, 2019). Arriaga (2021) supports the idea that using a checklist will strengthen patient safety in different settings, including the ICU(Arriaga, 2021).

The participants expressed concern about the dislocation of the Impella®. Simko confirms that proper placement of the Impella® device is a major nursing concern (Simko, 2022). By reviewing the anatomical placement and mechanics of the Impella®, the CCNs can anticipate the patients' hemodynamic response and avoid complications and thereby improve the patients' clinical outcome (Asber et al, 2020). Due to the risk of dislocation, the CCNs regards that the awake patients as more stressful than the sedated ones. It could also be quite a burden for the patient to be awake during this treatment. Delirium is expected in the ICU and can be triggered by the physical and psychological stress that the patients experience (Morton & Thurman, 2023). The respondents find that the Impella® treatment is mentally and physically demanding for the patients, and therefore, are particularly at risk for delirium. It is described that it is common for delirious patients to become psychometrically restless and these patients may try to get out of bed or take off the equipment with fatal consequences (Morton & Thurman, 2023).

The CCNs' described varied education and practical training. If there are no intensive care patients receiving Impella® treatment in the unit, the CCNs will not have optimal practice. The risk of errors that could harm the patient increases significantly with a lack of training and a lack of possibilities to practice in a safe environment (Turkelson & Keiser, 2017). Studies emphasize the importance of simulation-based training in crisis resource management and imply that also non-technical skills are improved after simulation-based training (Jensen et al, 2023). Simulation can improve outcomes and safety by helping nurses to identify potential sources of error (Lopez et al, 2024). Sufficient competence is also essential to minimize complications (Turkelson & Keiser, 2017). Impella® requires the expertise of well-educated CCNs and these patients should be assigned to nurses with training and prior experience with Impella® (Simko, 2022). This is in line with what Benner says about competence development (Benner, 2001). If there is little training on the Impella®, it may be difficult for the CCNs to reach the level of an expert, which according to Benner (Benner, 2001) is step five in her model for the nurses' competence development. An expert must have relevant experience and an intuitive and deep understanding of situations, which means that the nurse is confident and quick in their assessments. Unfortunately, there are many who are "thrown" into the care of these patients without proper training. On the other hand, it was said that you learn more by being in charge of the patient. The CCNs expressed that, in these situations, it helps to have someone with experience to assist. According to Alastalo, working experience in a critical care unit is strongly associated with patient observation skills (Alastalo et al, 2019). The CCNs can maintain knowledge and keep up to date by using procedures. According to ICN (International Council of Nurses, 2021), the development and quality of procedures are essential for patient safety.

The CCNs' work closely in the treatment with the doctor and perfusionist. New routines for the doctors and more explicit rules for responsibilities are described in procedures. The participants described how teamwork and allocation of responsibilities seemed to reduce stress after new routines were implemented. Team strategies in communication is, therefore, necessary to avoid adverse events (Dietz et al, 2014)The participants refer to the Impella®-folder as a useful tool that helps them work in a knowledge-based way. The folder highlights the procedures and makes a more precise division of responsibilities. The folder can also be used by the CCNs to check whether the most critical task and observations related to the Impella® treatment have been performed. They insinuate that the "Impella® folder" contributes to the impact of patient safety.

Strength and limitations

The data collection was carried out by focus group interviews, giving the study a deeper and richer understanding of the phenomenon. All authors were involved in the analyses, and the

themes and subthemes were discussed between the authors during the entire process. NVIVO, was used to organize and code the data. This may have strengthened reliability (Dhakal, 2022). To avoid losing the meaning, the quotes have been translated from Norwegian to English by English-speaking people, but there is still a slight possibility that this process could have changed the meaning of the quotes.

A limitation to this study may be that all the participants in the study are from a single ICU and, therefore, the experience and knowledge are obtained from a small homogeneous group. It is said that rich and nuanced data may describe the phenomenon better than the number of participants (Hennink & Kaiser, 2022) and according to Toner (Toner, 2009), a small sample size can provide very rich data. Sims et.al. (Sims & Cilliers, 2023) claim that the most important is the meaning and the relationships between the codes and the trustworthiness of the explanations they provide not the number of participants. The term of data saturation is rooted in the method grounded theory, and one should be aware of the danger of this concept imposing itself into qualitative research in general (Sims & Cilliers, 2023).

CONCLUSIONS

This study has identified that critically ill patients undergoing Impella® support can be challenging. The CCNs need theoretical and practical skills to provide safe care for the patients and for feeling comfortable and secure in the practice of nursing. The study points out a lack of structured procedures for both theoretical and practical education, standard guidelines, and checklists to safely care for critically ill patients with Impella®. This should be provided prior to implementing Impella® support. The CCN needs structured training and clear guidelines to ensure high quality care and maintain patient safety for patients receiving Impella® support. Teamwork and allocation of responsibilities regarding Impella® support seem to reduce stress among healthcare workers.

Patients receiving Impella® treatment who are not sedated is challenging both for the patients and the critical care nurse, and special attention should be given to these patients. Standard guidelines and checklists for Impella® treatment may contribute to reduce risk of errors.

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Appendix 1. Interview guide

	Questions	**Follow-up questions**
1.	Tell me about the last time you cared for a patient with Impella® support.	
2.	Can you describe your experience of caring for a patient with Impella® support?	
3.	What are your thoughts about training?	What training have you received on the Impella®? Is there a training plan? Do you have manuals or procedures available?
4.	What observations do you consider important when caring for a patient with Impella® support? Why? Please provide examples from patient cases.	How do you provide care for patients with Impella® support?
5.	What differences do you perceive between caring for patients with and without Impella® support?	Are there things you pay more attention to in a patient with Impella® support compared to another ICU patient?
6.	What challenges do you face when caring for a patient with Impella® support?	
7.	What do you consider to be "good" nursing care for patients with Impella® support? What would you consider "poor" nursing care for patients with Impella® support?	

8.	Can you describe a positive situation you have experienced? Can you describe a negative situation you have experienced?	
9.	Can you tell me about any adverse events you have experienced?	How does this affect you when you come home from work? Do you bring it with you or are you able to leave it behind?
10.	Previously, patients with Impella® support were deeply sedated; now they are more often awake. What are the differences in nursing care between awake and sedated patients?	How do you experience caring for an awake patient?