

# Implementing mixed nursing care teams in intensive care units during COVID-19: A rapid qualitative descriptive study

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## Abstract

**Aims:** The goal of this study was to gain insight into the views and experiences of an intensive care team working in a new nursing-care delivery model during the COVID-19 waves. A new model of care was implemented to augment nursing capacity and provide sufficient intensive care beds.

**Design:** A qualitative monocentric study using rapid qualitative descriptive methods was reported in line with the COREQ checklist.

**Methods:** Nurse, ward manager and physician participants were purposively recruited between January and March 2021 in a tertiary university-affiliated hospital in the Flemish-speaking part of Belgium. Semistructured interviews were conducted and analysed using thematic analysis methods.

**Results:** The participants were seventeen expert nurses, twelve supporting nurses, seven ward managers and four physicians. A central theme of ensuring safe, high-quality care emerged from the findings. There was a sense of losing one's grip on clinical practice when working in the mixed nursing-care teams. Different underlying experiences played a part in this sense of losing control: dealing with unknown elements, experiencing role ambiguity, struggling with responsibility and the absence of trust. Several coping mechanisms were developed by the nursing-care team to deal with those experiences, including attempts to create stability, to strike a balance between delegating and educating, to build in control and to communicate openly.

**Conclusion:** In this rapid qualitative descriptive study, the implementation of a new nursing-care delivery model during a pandemic was seen to lead to several challenges for all members of the care team. Coping mechanisms were developed by the team to deal with these experienced challenges.

**Impact:** When rethinking nursing-care delivery models, the findings of this study may help guide the process of implementing mixed nursing-care teams. Special attention needs to be paid to clarifying roles, sharing responsibility and clinical leadership. Other significant influences (such as moral distress) should also be taken into account.

## KEYWORDS

Covid-19, experiences, implementation, nurses, nursing, nursing-care delivery model, pandemic, qualitative study

## 1 | INTRODUCTION

The COVID-19 pandemic created several challenges in healthcare internationally, including a need to rapidly reconfigure hospital care to manage large volumes of critically ill patients diagnosed with COVID-19, and potential shortages of experienced nurses (Teti et al., 2020; Vindrola-Padros et al., 2020). For example, intensive care unit (ICU) staffing needed to be reorganized and bed capacity expanded to deal with the influx of both COVID-19 and other patients (Collange et al., 2020). During the second wave of COVID-19 in Belgium, from October until December 2020, our university hospital introduced a temporary new team nursing-care delivery model in the ICU, with the aim of expanding patient care capacity. However, the introduction of such thoroughgoing changes in working structures can have unintended consequences that warrant evaluation from the perspectives of clinical team members.

### 1.1 | Background

Several nursing-care delivery models exist in hospital settings, of which the most widely known are primary nursing, individual patient allocation, team nursing and functional nursing (Fairbrother et al., 2015). In the ICU we studied, a primary nursing model is used—meaning that all nursing care for a patient is managed by a single nurse during a given working period. This primary nurse is responsible for coordinating care among different providers and for ensuring the fundamental physical and relational needs of the patient and is also accountable for patient outcomes. Given the high level of accountability and collaboration in the multidisciplinary ICU setting, professional growth is frequently stimulated (Boni, 2001; Brilli et al., 2001; Fairbrother et al., 2015). Team nursing is a care model in a group of people led by an expert nurse, relying on a complementary mix of skills and delegation. During the COVID-19 pandemic, team nursing emerged in many ICU settings as a possible solution to staff shortages. This was made possible by the temporary closure of some units, such as operating rooms, and the redistribution of nursing staff to a 'supporting' role in the ICU. However, uncertainties have emerged about the quality of ICU patient care in units that have been rapidly reconfigured to a team nursing model, given the unstable nature of critically ill patients and the frequent use of invasive technology (Geltmeyer et al., 2022).

Most ICU nurses working in Belgian hospitals have a bachelor's degree in critical and intensive care, as well as a bachelor's degree in nursing. Additionally, in normal circumstances, new ICU nurses are provided 2 months of apprenticeship, involving supervision by an experienced ICU nurse, before assuming a primary nursing role. In the context of the COVID-19 pandemic and the shift to team nursing, these educational and apprenticeship routines were circumvented. Instead, 'supporting' nurses—specifically non-ICU nurses from different hospital wards—were rapidly transitioned

to ICUs. In the new nursing-care delivery model, the expert ICU nurse took on the highly technical and invasive nursing tasks typical of a tertiary centre (e.g., invasive mechanical ventilation, dialysis, extracorporeal membrane oxygenation [ECMO], etc.), while also playing a delegatory and supervisory role in the ICU multidisciplinary team. Basic nursing care was distributed to the supporting nurses by means of task delegation, with no overall responsibility for the supporting nurses (Geltmeyer, 2022). This change in model included a shift from a primary nurse–patient (N:P) ratio of 1:2 to an N:P ratio for the expert nurse of 1:3, or 1:4 with help of a supporting nurse. In addition, new temporary ICU units were created in the studied hospital to take care of a greater number of patients than usual, further reconfiguring care in new physical settings.

In attempting to gain greater insight into the team members' perspective on working in this new model of mixed nursing-care teams (consisting of both ICU and non-ICU nurses), qualitative research is suitable for capturing and understanding how participants make meaning and sense of work organizational changes during a pandemic. More specifically, the use of rapid qualitative methods during a pandemic can highlight context-specific issues that need to be addressed locally and organizational challenges in response planning and implementation (Johnson & Vindrola-Padros, 2017). To our knowledge, limited data are available on the experiences of care teams working in new nursing-care delivery models, both during normal times and during a pandemic. This knowledge is vital for preserving quality of care and patient safety, and might also guide strategic decisions on the implementation of a new nursing-care delivery model over time.

## 2 | THE STUDY

### 2.1 | Aim

The aim of this qualitative study was to gain insight into the views and experiences of an intensive care team working in a new nursing-care delivery model during the COVID-19 waves. A new model of care was implemented to augment nursing capacity and to provide sufficient intensive care beds.

### 2.2 | Design

A qualitative study was carried out using rapid qualitative descriptive methods, with the aim of gaining insight into the views and experiences of a care team working in a new nursing-care delivery model. A qualitative descriptive approach is applicable when information is required directly from the subjects who experience the phenomenon being studied in their natural setting—here, mostly nursing-related phenomena (Bradshaw et al., 2017; Kim et al., 2017). This study attempts to create an understanding of the views and experiences of the care team about working in a

new nursing-care delivery model by assessing the meanings ascribed by participants to them, from a naturalistic approach. In addition, a qualitative descriptive approach is useful when time and resources are limited and when findings may be of interest to practitioners and policy makers (Bradshaw et al., 2017)—both important aspects during the COVID-19 pandemic. As such, a qualitative descriptive approach was merged with elements of rapid qualitative research, such as a short timeframe (weeks or months) and an iterative process of data collection and analysis, through which emerging findings shape the data collection process (Vindrola-Padros et al., 2020). The study is reported according to the COnsolidated criteria for REporting Qualitative research (COREQ) (Tong et al., 2007).

### 2.3 | Context

The supporting nurses were active nurses in the hospital, and came from various nursing departments, such as the haematology and stem cell transplantation unit, neonatology, head and neck surgery, urology, gynaecology and plastic surgery, reproductive medicine, neurosurgery, medical oncology and operating theatres. Due to a scaling down of nursing activity in certain nursing wards at the hospital, a workforce of supporting nurses became available. Some supporting nurses were allocated on a daily basis to the ICU, while others were allocated for a longer period of time. Supporting nurses who were allocated for a longer period of time did so on a voluntary basis. The supporting nurses offered their help during the second COVID-19 wave in Belgium, from October until December 2020. In advance, they were given the opportunity to follow a European e-learning tool that addressed subjects such as mechanical ventilation, medication, etc. (ESICM, 2020). Given the lack of time, no prior practical training was given to the supporting nurses.

The expert nurses were qualified, experienced ICU nurses. They worked in a range of ICU subunits: the medical ICU, the surgical ICU, the cardiac surgery ICU and the paediatric ICU. Ward managers from different ICU units and newly created units participated in the study, as did physicians from the medical and surgical intensive care units. Ward managers were responsible for organizing the existing and newly created ICU units, as well as for personnel management.

During the summer of 2020, before the start of the second COVID-19 wave, ICU nurses were invited to contribute to the development of the new nursing-care delivery model. Three meetings were held at which ICU nurses were asked to brainstorm about the implementation of the new nursing-care delivery model in practice—and more specifically, about the tasks supporting nurses could take on. A list of tasks was developed that could be used by supporting and expert nurses (see Table 1). This list was introduced to several expert nurses on two separate occasions. As described above, expert nurses could use this list to delegate tasks to supporting nurses. Task delegation was a new approach for the supporting nurses, as

TABLE 1 Examples of tasks authorized for supporting nurses

Tasks authorized for supporting nurses	
1.	Blood gas measurement
2.	Preparation of low-risk medication
3.	Mobilization of a patient with an ICU nurse
4.	Oral care of a non-ventilated patient
5.	Answering the unit telephone
6.	Nutritional supervision
7.	Care for peripheral venous catheter, central venous catheter and arterial line
8.	Washing a ventilated patient (everything except the head)
9.	Washing a non-ventilated patient (CAVE; optiflow, respiratory distress)
10.	Bladder catheterization

they had been used to working in a model of primary nursing in their original nursing department.

### 2.4 | Sample/participants

The study was conducted in a university hospital in Flanders, Belgium. The hospital consists of 1049 beds and has 58 ICU beds for adults and children. During the second COVID-19 wave, six burn-unit beds were also used as ICU beds, and fourteen extra beds were created in these new ICU subunits. All ICU subunits, including the newly created ICU subunits, implemented the new nursing-care delivery model. Participants who had worked with the new nursing-care delivery model were invited to participate via a monthly newsletter and e-mail. A purposive sample of nurses, ward managers and physicians was selected for variety in age, work unit and work experience. During the iterative process of data collection and data analysis, recruitment strategies were adjusted when certain groups were found to be missing from the sample. For example, additional supporting nurses with limited experience in their own ward were sought, as were those who were obliged to help, and those who only went for a short period of time. Expert nurses who worked with an N:P ratio of >1:2 and those from the cardiac surgery ICU were also recruited.

### 2.5 | Data collection

Data collection took place from January 2021 until the beginning of March 2021. Semistructured interviews were conducted, as these are often the primary source of data collection in the qualitative descriptive approach (Bradshaw et al., 2017; Kim et al., 2017). Interviews were conducted via telephone ( $n = 8$ ), online ( $n = 1$ ), or in person ( $n = 31$ ), depending on the preference of the participants and taking into account COVID-19 restrictions. An interview guide (see Table 2) was used flexibly, and the interviews followed the input of the participants. Interviews were performed one on one. Although

TABLE 2 Interviewguide

**Overall opening question**

How has working in a mixed care team been for you as ... (expert nurse, supporting nurse, ward manager, physician)?  
Can you tell some more about it.

**Expert/ supporting nurses**

1. What did it mean for you to have been assigned the role 'expert/ supporting nurse'?  
What helped you in taking on this role? What did you find difficult?
2. What did it mean for you to work as an 'expert/ supporting nurse'?  
What helped you to work in a mixed care team? What did you find difficult about working in this manner?
3. Only for expert nurses: Roles in clinical leadership (clinical expertise – effective communication – flexibility – sense of responsibility – vision of the future)

**Ward managers**

1. Which role did you, as a ward manager, have in working with the mixed care teams?
2. How did you experience the staff planning of mixed care teams?
3. The starting point for staff planning were tasks and assignments. What was your experience with that? How did you deal with that as a ward manager?
4. Nurses were separated in levels (expert vs. supporting). How did you deal with that in staff planning?
5. Which (other) criteria were important for you in planning and deploying mixed care teams? And why?

**Physicians**

1. What did it mean for the collaboration between physicians and nurses?

**Everyone**

5. If working in mixed care teams would happen again, how do you think this would best be handled?
6. If working with mixed care teams would be widely implemented in the hospital, what would be important for you?

participants were explicitly requested to come alone to interviews, more than one participant was present in two interviews. These extra participants were not excluded, as all nurses present insisted on allowing the interview to continue in this way, stating that they could speak freely with each other. The interviewers guided the course of these multiperson interviews, using the interview guide to ensure the interview did not turn into a group discussion. Sample size was determined by thematic saturation; when no new themes arose, and no further content was generated on these themes, a further two interviews were conducted per group, to ensure that the sample size was sufficiently large to answer the research question (Bradshaw et al., 2017). Two of the interviews planned with physicians were not conducted, as the participants were on sick leave. Three researchers conducted the interviews separately. Interviewer 1 (RN, PhD) is a nursing researcher and was not known to any of the participants. Interviewer 2 (RN, MSc) works part time as a researcher and part time as a paediatric intensive care unit nurse. Interviewer 3 (RN, MSc) is a head nurse in the paediatric intensive care unit. As

interviewers 2 and 3 were relatively less experienced in conducting research interviews, interviewer 1 closely monitored their interview skills. Feedback was given on the formulation of questions, on the use of open questions, and on how to deepen the interviews. All interviews were audio-recorded; the duration of interviews varied from 21 to 58 min.

## 2.6 | Ethical considerations

The study was approved by the local Ethical Commission at the university hospital (B6702020001049). Participants were informed of the purpose of the study, both in writing and orally. They were asked to sign an informed consent form prior to the interview, reminding them of their right to withdraw at any time. As the participants' experiences of working under a new temporary nursing-care delivery model were being questioned, and given the connections of two of the researchers with the ICU department, confidentiality and anonymity were emphasized at the beginning of each interview. During the study, audio recordings were stored in a password-protected location.

## 2.7 | Data analysis

Most qualitative descriptive studies use qualitative content analysis or thematic analysis (Bradshaw et al., 2017; Kim et al., 2017). In this study, thematic analysis was used to grasp the experiences of the care team working with mixed nursing-care teams in the new temporary nursing-care delivery model, by identifying, analysing and reporting the themes found in the data (Braun & Clarke, 2006). Braun and Clarke (2006) describe six phases of thematic analysis, a process which has been clarified and revised over the years, and which they now prefer to call reflective thematic analysis (Braun & Clarke, 2019). Data collection and analysis continued iteratively throughout the whole research process, and the following phases described here did not occur in a linear process. In the first phase of the analysis, three researchers familiarized themselves with the data by listening two to three times to the audio recording of the interviews. Due to the limited time available for conducting a study during the pandemic, a preliminary first transcript draft was produced to facilitate rapid analysis, and to provide rapid recommendations for practice (Vindrola-Padros et al., 2020). In a second, parallel phase, the content of each interview was summarized as one narrative per interview, with important patterns identified by the researcher and important quotes added to the narrative. Every interview was reanalysed by a second researcher, and additional findings were added to the narrative. In the third phase, all the gathered data were searched for potential themes, and the analysis document was updated several times based on this. A fourth researcher who did not conduct interviews helped in the process of analysis. Weekly meetings took place between researchers 1 and 2 to discuss the themes that had been generated. In phases 4 and 5, the themes were checked against the data and the specifics of each theme were refined. During the

process of analysis, two meetings organized with all four researchers were organized. Researchers 3 and 4 were asked to listen to certain interviews, and then the generated themes, the analysis document and the research process were discussed in the group; this all led to the last phase, in which the final analysis report was produced; this presented the story that the data told, including sufficient evidence of the themes in the data (Braun & Clarke, 2006).

During the data collection and analysis process, adjustments were made to the recruitment and questioning strategies (see Appendix 1). For example, when researchers noticed how important themes of responsibility and liability were for the expert nurses, the supporting nurses were from then on asked specifically how they experienced their responsibility.

## 2.8 | Rigour

Several strategies were used to establish the trustworthiness of the study process. First of all, researcher triangulation was considered an important aspect. As such, four different perspectives were used to examine the experiences of the care team. Including multiple researchers in the data collection and analysis process gave more depth to the analysis and enhanced its trustworthiness (Carter et al., 2014). Second, data were collected and analysed iteratively, which led to data-informed sampling decisions and adjustments of the interview guide. These data-informed sampling decisions may have led to a better balance between heterogeneity and homogeneity of participant characteristics, which supports the transferability of the findings (Bradshaw et al., 2017; Wheeler & Holloway, 2010). Third, reflexivity was also of great importance, as two researchers had a professional background in the ICU and were directly involved in the new nursing-care delivery model. The researchers critically reflected on their own preconceptions, and avoided existing relationships with participants by not interviewing them, to assure the confirmability of the findings (Bradshaw et al., 2017; Johnson et al., 2020). Researcher 2, who works as an ICU nurse in the paediatric intensive care unit, only interviewed the supporting nurses and the expert nurses from other ICU subunits. Researcher 3, a head nurse in the paediatric intensive care unit, only interviewed physicians from other ICU subunits. Finally, an attempt has been made to describe the study process in sufficient detail, by using the COnsolidated criteria for REporting Qualitative research (COREQ) to establish the dependability of the findings (Johnson et al., 2020; Tong et al., 2007).

## 3 | FINDINGS

In total, seventeen expert nurses, twelve supporting nurses, seven ward managers and four physicians were interviewed. The participants' characteristics are presented in Table 3.

The analysis of data brought forward one important common theme with a priority for care, which was specified by all care team members—namely 'Ensuring safe, high-quality care' (Figure 1). Next

TABLE 3 Demographic variables

	Supporting nurses (N = 12)	Expert nurses (N = 17)	Ward managers (N = 7)	Physicians (N = 4)
Gender				
Women	11	13	4	2
Male	1	4	3	2
Work experience (in years)				
0–3	0	6		
4–10	5	2		
>10	6	9		
Missing	1	0		

to this common theme, there were five experiences that were more or less present in all groups of the care team, with small differences between individuals, rather than between groups. The experience of 'losing one's grip on clinical practice' was an overarching one, with different underlying experiences playing a part in it: dealing with unknown elements, experiencing role ambiguity, struggling with responsibility and the absence of trust. To deal with these experiences, several  *coping mechanisms*  were created by the care team in working with the new temporary nursing-care model: in particular, they attempted to create stability, to strike a balance between delegating and educating, to building in control and to practice open communication (see italic text in Figure 1).

## 3.1 | Ensuring safe, high-quality care

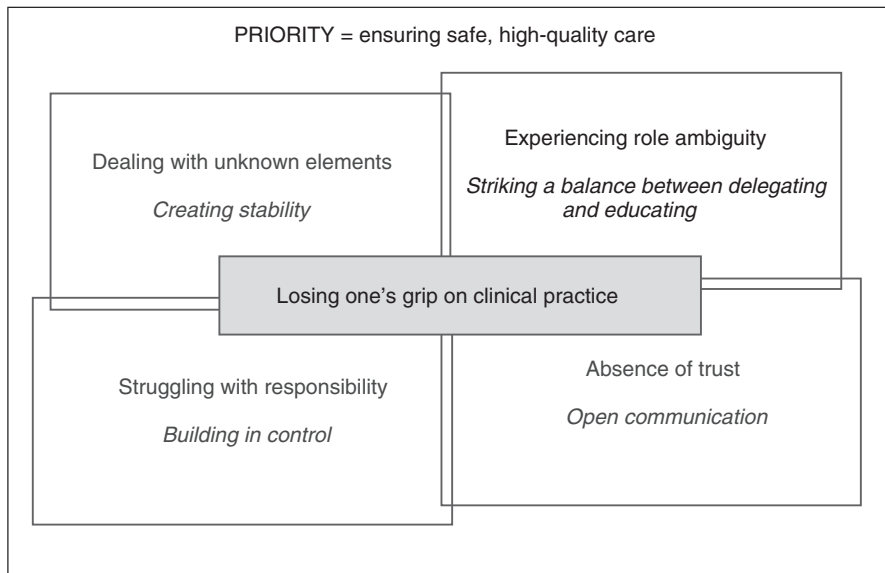
Ensuring safe, high-quality care during the COVID-19 crisis while implementing a new nursing-care delivery model was a priority for all participants. Expert nurses, supporting nurses and ward managers did not want patients to experience any disadvantage as a result of the crisis. Ward managers specifically indicated the importance of communication and of setting boundaries between supporting and expert nurses, with the aim of ensuring safe care.

"Ensuring a good mix [of supporting and expert nurses] to guarantee safe care." (ward manager 3.03)

Quality of care had to be maintained even through the introduction of a new nursing-care delivery model. One physician did not agree when certain people said that the quality of care suffered under the new nursing-care delivery model: doing things differently than normal does not necessarily mean that care is executed in a qualitative worse way.

Boni" It bothered me when people said quality of care suffered under it [the new nursing-care delivery model], I really don't agree." (physician 4.04)

"We don't want the patient to get worse-quality care just because different nurses are being deployed. I



**FIGURE 1** Schematic overview results (regular text = experiences, italic text = coping mechanisms)

didn't have the feeling that the patients I helped take care of received worse-quality care." (supporting nurse 2.01)

"I'd rather work twice as hard than have someone with me." (expert nurse 1.17)

### 3.2 | Losing one's grip on clinical practice

Supporting nurses and expert nurses felt that they lost their grip in planning and implementing care. Expert nurses felt they were unable to perform their job properly, which one described as a feeling of not being a good nurse anymore. ICU nurses are used to taking care of all aspects of patient care, which allows them to have an overview of their patients. In working with the new nursing-care delivery model, they had to let go of certain aspects of care—which proved challenging for some of them. The expert nurses stressed the importance of being able to anticipate the care of their ICU patients, but now felt unable to do so because they felt they had lost their grip on clinical practice.

The supporting nurses also reported a feeling of losing their grip on their clinical practice. They found they had to adapt to a new environment where they were expected to follow the orders of expert nurses; they were not used to this, as they also previously worked in a model of primary nursing.

"How certain I normally feel at work, and how uncertain I felt there [the ICU unit]." (supporting nurse 2.02)

The new nursing-care delivery model initially brought chaos and doubt, which led to additional stress for the expert nurses because of the ongoing crisis, the new patient population, the need to follow up on the supporting nurses, the need to remain alert to prevent dangerous situations, etc. Many nurses had to go beyond the familiar, which was not easy.

"I'm not going to say it was bad to work with those people, but it wasn't easy." (expert nurse 1.07)

Ward managers and physicians also noticed the challenges nurses were having. One physician thought it would be better to spread care and to let go of entrenched ideas. Certain tasks do not necessarily have to be performed by expert nurses, and performing a certain task less often or differently does not necessarily cause the care to be of lower quality or unsafe, according to the physician.

"I have the feeling that the 1:3 [N:P ratio] concept is very difficult to accept for nurses. They have the feeling that they don't have 100% control over their patients... that is a kind of letting go, and this is sometimes very difficult for an ICU nurse." (physician 4.03)

The loss of grip on clinical practice was an overarching experience in which different underlying experiences played their part. The care team had to deal with unknown elements, which led to role ambiguity. In addition, they struggled with their responsibilities and with building trust in the mixed nursing-care team. The data indicated that several *coping mechanisms* were developed to deal with those experiences.

#### 3.2.1 | Dealing with unknown elements

Working with mixed nursing-care teams brought several unknown elements into nursing care. The nurses had to work with unfamiliar colleagues, in an unknown environment, following a new nursing-care delivery model, and with unknown patient populations—such as ICU patients, patients with COVID-19, adults instead of children and ECMO patients. With the increased number of variable factors, more challenging care was experienced.

At the early stage of implementation of the mixed nursing-care teams, many supporting nurses were deployed over different ICU



subunits. The daily variety in allocation of supporting nurses made it difficult for the care team to get to know the supporting nurses. Each day the new supporting nurses needed to be trained by the expert nurses, which made it impossible to build on previously acquired knowledge and skills.

“Pretty soon a negative connotation grew about supporting nurses, which is a shame because they came to help.” (expert nurse 1.01)

Ward managers found the multitude and diversity of supporting nurses sometimes difficult to manage. It was unclear and confusing who was assigned which tasks.

“You suddenly get a bunch of people.”  
(ward manager)

In the beginning, expert nurses wondered what help supporting nurses could offer in a highly specialized ward like an ICU ward. Several supporting nurses also wondered how they could be of help, seeing the high level of specialization involved.

“What will it [the new nursing-care delivery model] do? Are they [supporting nurses] going to be useful?” (expert nurse 1.03)

“Am I going to be useful, am I going to be of any significance there?” (supporting nurse 2.05)

“They [expert nurses] got extra hands—but they were only extra hands.” (expert nurse 1.05)

Supporting nurses found themselves in an unknown environment, but this also affected some expert nurses who were deployed to other ICU subunits or to newly created ICU subunits. One expert nurse and one physician indicated that at least one person should be familiar with the unit, so that necessary material is available quickly during critical situations. The creation of new ICU subunits led to concerns among ward managers about continuing to provide safe care and sufficient support to expert and supporting nurses.

“If a crisis occurs now, I have no idea where to find my material. And then I thought, this is not okay.”  
(expert nurse)

“You go beyond your own borders.” (ward manager 3.03)

### *Creating stability*

In dealing with these unknown elements, the care team tried to create stability that would enable continuity of care. An important development in working with mixed nursing-care teams to allocate supporting nurses for a fixed period of time, instead of on a daily

basis only. Ward managers tried to assign supporting nurses to a fixed unit with one or more expert nurses as a mentor.

“We just started working together, and I could ask what I wanted. He [the expert nurse] continuously gave explanations about the patients, about what I saw.” (supporting nurse 2.01)

“As ward manager, it is crucial to immediately anticipate, communicate, and consult other ward managers.” (ward manager 3.01)

### 3.2.2 | Experiencing role ambiguity

Despite the help provided by some expert nurses in developing the process of the new nursing-care delivery model, it seemed that the intent of the new model was not clear to supporting and expert nurses. The implementation of mixed nursing-care teams created role ambiguity.

Both supporting and expert nurses needed clarification about their role in the new nursing-care model. In the new care model, supporting nurses were expected to perform tasks solely to support the expert nurses, while the role of expert nurses changed from providing integrative nursing care to a more supervising role involving task delegation. When necessary, they also had to take care of more patients, with an N:P ratio of 1:3 or 1:4, rather than 1:2.

“Sometimes it is easier to do it [care for the patient] all by yourself than to maintain a helicopter view over some colleagues.” (expert nurse 1.03)

“Some nurses [expert nurses] were more open than others to supervising a supporting nurse.” (supporting nurse 2.09)

Some expert nurses missed out on support when supporting nurses were allocated to expert nurses and patients. Some ward managers organized the allocation of supporting nurses to expert nurses, while others did not.

In addition, some expert nurses had limited ICU experience (2–3 years), which made it challenging to take on a more supervising role, especially when the supporting nurses had more experience than the expert nurse.

Ward managers experienced role ambiguity too. When the new ICU units were created, it was done with a lack of ownership: it was not always clear who was responsible for the new unit and who should take care of coaching and personnel management.

### *Striking a balance between delegating and educating*

Because of this role ambiguity, expert nurses filled in their own roles. Several expert nurses took up their training role towards the supporting nurses, which they were familiar with from training new

colleagues or students. In addition, a supporting nurse indicated that, although she knew she had a supporting role, she expected to be trained in a manner that would allow her to independently take care of patients.

Some expert nurses noticed that it would be better to not take up the training role, because it was not feasible, and ultimately not desirable, to train supporting nurses. Imparting theoretical knowledge and insights in an ICU ward requires a lot of energy of the expert nurses, which they did not possess during the crisis.

"You become more direct with people, you give less explanation, you fall less into that training role, and you give direct orders. [...] 'I am going to do this and that', and not explaining anymore why I did it in a certain way." (expert nurse 1.04)

"Taking over tasks to the extent of their knowledge and ability."; "Being careful not to take as an objective that you have to take care of the patient in a certain amount of time." (expert nurse 1.10)

Some expert nurses also found it difficult and disrespectful to delegate tasks to the supporting nurses, which is why the supervising role suited them less.

"That is not fun to do. You'd rather work together with someone than delegate to them the whole time." (expert nurse 1.10)

"It is very educational and fascinating to see what's possible, but at that moment the information [about ECMO] was just a little too much in a short time." (supporting nurse 2.06)

### 3.2.3 | Struggling with responsibility

Expert nurses are used to working in a model of primary nursing, where they have the final responsibility for their patients. In the mixed nursing-care teams, this responsibility was emphasized and extended to a responsibility over supporting nurses. By emphasizing this responsibility, expert nurses considered their legal liability more carefully.

"You know that the final responsibility lies with you... then I find it [task delegation] difficult." (expert nurse 1.03)

When recruiting supporting nurses, it was emphasized that they were not expected to take on any responsibility. One supporting nurse indicated that she did not have to prove anything; she did not have to show that she could do it on her own. But some supporting nurses indicated that they wanted to take responsibility for certain tasks that they were used to performing in their own wards (e.g., tube feeding,

wound care, cannula care, etc.). Some supporting nurses expressed a wish to grow professionally. They missed taking responsibility at the end of their experience of working with mixed nursing-care teams. It gave them more job satisfaction to take responsibility themselves instead of performing tasks.

"A month is fine but it shouldn't last longer; after that I'd like to go one step further and have final responsibility." (supporting nurse 2.01)

#### *Building in control*

Several expert nurses indicated that they felt like they needed to have a complete overview of the patient if they were to take final responsibility. For some expert nurses, this meant performing all the tasks themselves, while for others this was not necessary. Several expert nurses felt the need to check all the tasks supporting nurses performed.

"You go check behind their back." (expert nurse 1.12)

Some supporting nurses indicated that, after a period of time, they were able to take responsibility for certain tasks from their own set of competences. Supporting nurses communicated this to their expert nurse. This led to a form of shared responsibility between several supporting and expert nurses. This was also made possible when there was increased stability, where expert nurses had the chance to get to know the supporting nurse better.

"I would not want to take any responsibility I am not able to take, because I'd have the feeling of letting the patient down." (supporting nurse 2.01)

"Taking responsibility means that if you don't know something, you have to ask." "It's only when you don't feel safe to communicate something like that in a group that it gets dangerous." (expert nurse 1.05)

"When you get a lot of explanation about something, you feel safer taking responsibility for it." (supporting nurse 2.11)

### 3.2.4 | Absence of trust

As stated earlier, there were many unknown elements in working with mixed nursing-care teams. At the beginning of the collaboration, mutual trust was lacking between the supporting and expert nurses. The expert nurses experienced difficulties in building trust because they had never worked with supporting nurses before. They experienced it as helpful when supporting nurses clearly communicated which tasks they performed and gave feedback on their performance. Communication with the supporting nurse helped to maintain their overview.



Ward managers also experienced a search for trust in the new care team. There was a loss of control over and knowledge of their coworkers, because of all the new people in the unit. Physicians emphasized that they trusted the expert nurses and they believed in the value of the new care model.

"I have faith in it, I thought it went well. Sometimes I got feedback from nurses that they had the feeling of not having it under control... but I didn't have that feeling." "For me what happened was okay, patients were treated correctly. I did not have the feeling that a patient suffered under the system." (physician 3.03)

#### *Open communication*

The creation of stability allowed trust to grow. The expert nurses indicated that keeping control over the supporting nurses from a distance and maintaining an overview only succeeded when trust grew in the supporting nurse. Many expert nurses indicated that it was helpful when supporting nurses indicated their professional boundaries. Expert nurses found it important for supporting nurses to communicate when they were not certain about something. Interaction and communication were the keys to trust for both the supporting and expert nurses.

"You have to be able to create a bond of trust, I think, before you can outsource tasks. I don't think this is possible from day 1. I am x, *nice to meet you, do this and that.*"

(expert nurse)

Supporting nurses who chose to offer help had a greater willingness to learn and absorb information, according to expert nurses. Collaboration with supporting nurses, who did not choose themselves to offer help, was perceived as difficult by some expert nurses, ward managers and physicians.

"I was amazed how people from other departments can and want to absorb things so quickly." (expert nurse 1.05)

"Some employees were pretty much put there [in the ICU unit]... they're standing there all shaken up." (ward manager 3.02)

## 4 | DISCUSSION

In our qualitative analysis of nurse, manager and physician perspectives on working in a new model of mixed nursing-care teams (containing both ICU and non-ICU nurses), we identified an overarching theme which described a shared priority to ensure safe, high-quality patient care during the COVID-19 pandemic. The views and experiences of the care team working in a new nursing-care delivery

model showed several challenges that need to be taken into account when implementing nursing-care delivery models. These challenges included perceptions of loss of control over care, working with unknown colleagues and in unknown settings, role ambiguity, struggles with responsibility and an absence of trust.

Firstly, the introduction of the new nursing-care delivery model initially brought chaos and doubt to nurses, which led to additional stress, on top of the ongoing crisis. Supporting nurses, expert nurses and ward managers initially experienced a loss of control over their clinical practice. The introduction of the nursing-care delivery model can be seen as a recurrent change, because colleagues, supervisors, workplaces and tasks changed (Verhaeghe et al., 2008). Coping mechanisms were developed by the care team to deal with the recurrent changes posed by the new nursing-care delivery model. Some expert and supporting nurses perceived the nursing-care delivery model as a threat, which involved a negative appraisal, while others perceived it as a challenge, which involved a positive appraisal (Verhaeghe et al., 2006). Although there have been some studies on the experiences of intensive care nurses during the COVID-19 pandemic (Cadge et al., 2021; Fernández-Castillo et al., 2021; LoGiudice & Bartos, 2021), only one described the introduction of a new staffing model with additional physicians in the ICU unit, such as non-ICU clinicians and trainees (Vranas et al., 2021). Many countries used similar strategies to scale up workforce and bed capacity but to our knowledge, no studies have been conducted about the experiences of a care team with a defined nurse-staffing model (Winkelmann et al., 2021). One study conducted before the COVID-19 pandemic shows that, when ICU nurses experience recurrent changes as a threat and when there is low supervisor support, increased level of distress are the outcome (Verhaeghe et al., 2008). While some expert nurses indicated that the ward managers were present, others missed out on support in the interpretation and practical implementation of the nursing-care delivery model, which could also have led to additional distress. When implementing change, the role of ward managers in providing information and maintaining morale cannot be underestimated (Cadge et al., 2021; Verhaeghe et al., 2008); furthermore, it is essential if staff are to remain willing to provide care in the midst of a health crisis (Lord et al., 2021). As described by Cadge et al. (2021), other elements of nurses' experiences while working on COVID-19 ICU subunits included the challenges of working with new coworkers and teams, as the data show. In addition, the challenges of maintaining existing working relationships and the importance of institutional-level acknowledgement of their work were described (Cadge et al., 2021).

Secondly, the role of all members of the care team has to be made clear. As was the case in this study, Cadge et al. (2021) indicated that nurses struggled with the lack of defined roles while working during the pandemic. Role clarification seems an important aspect in making a new nursing-care delivery model function. When working with task delegation, supporting nurses should have a predefined and extensive task package, so that supporting and expert nurses can easily rely on the task package when working with each other. Although a task package was provided, it either lacked information

or was unknown to the supporting and expert nurses. When possible, supporting nurses should be trained before arriving on the work floor. The study of Caillet et al. (2020) shows that the incidence of anxiety (48%) was high among nurses working on COVID-19 ICU units, especially when they were not being trained in intensive care medicine (Caillet et al., 2020). In our study context, supporting nurses had the option to use a European e-learning tool, though on a non-mandatory basis. No prior practical training was provided. While several other countries (Denmark, England, Germany, etc.) provided additional in-person and/or online training to re-skill health professionals to redeploy them to ICU's (Winkelmann et al., 2021). An additional problem that can occur is the finiteness of task delegation for supporting nurses. Some supporting nurses indicated that, after a certain period of time, they missed having final responsibility over full patient care, while others indicated this was not the case. We might explain this finiteness of task delegation for supporting nurses by their already existing specific 'expert' function in their usual job. The development of a supporting nurse from a novice to a competent or proficient nurse could happen faster because of their existing clinical expertise (Benner, 1984). To our knowledge, no other studies have described this finiteness of task delegation for supporting nurses, which is why further research on this topic may be necessary.

Thirdly, some expert nurses felt they could not deliver care in the way they were familiar with, due to the absence of trust and differences in responsibilities between supporting and expert nurses. A study by Beckett et al. (2021) shows that team effectiveness depends on people helping each other, good communication skills and the availability of mentor support. The data also indicated that communication was an important factor for expert and supporting nurses to build trust to be able to work together. Although studies indicate that mutual trust and respect among nurses is of importance for team effectiveness (Beckett et al., 2021; Goh et al., 2020), little is known about the mechanism of building trust between nurses. The study by Fernández-Castillo et al. (2021) describes how care teams create an environment of safety and trust to cope with the physical and psychological burden of working during COVID-19, but no indication was given of how this trust is created (Fernández-Castillo et al., 2021). In our study, it seemed that trust needed to be able to develop personally or professionally—for example, through the development of stability. In some limited cases, when trust grew between supporting and expert nurses, a form of shared responsibility could develop. The supporting nurses then communicated to the expert nurses which responsibility they were willing to take. In this way, the expert nurses could be less controlling and were able to let certain aspects of care go, while still supervising the patient. In addition, mentor support played an important role in the delivery of care because the supporting nurses found it helpful to have a mentor for a certain period of time.

Fourth, we observed that not every expert ICU nurse had an interest in delegating or supervising other nurses. Nurses with ineffective delegation skills may have undesired effects on patient safety and care (Beckett et al., 2021). While the rapid emergence

of the pandemic meant that expert nurses received no prior training in delegating tasks and supervising supporting nurses, education about delegation could improve delegation competency, decision-making and communication skills (Beckett et al., 2021). However, we did not detect large differences between the experiences of the groups of the care team in working with mixed nursing-care teams in this study. It was remarkable that physicians were used to the supervising role and quickly indicated that doing a certain task less or differently does not immediately impact the quality of care; this was difficult to grasp for some expert nurses, which suggests room for improvement in clinical leadership among expert nurses. Elements attributed to clinical leadership, which were also found in the data, included effective communication, a focus on clinical excellence and quality of care, mentorship, being team focused and being approachable (Stanley & Stanley, 2018). Those elements still needed increased depth and growth for expert nurses in the new nursing-care delivery model, which is why clinical leadership is a topic that needs further exploration in the future.

Finally, this study describes the experiences of the care team in working with a new nursing-care delivery model during the COVID-19 pandemic. The impact of the pandemic itself on the care team cannot be underestimated, even if the introduction of a new nursing-care delivery model is not considered. Although our study did not generate specific themes concerning the psychological well-being of nurses, other studies have shown that the pandemic led to psychological problems among nurses and other care team members, especially young nurses with limited work experience (Shen et al., 2020). The daily activities of nurses outside work were compromised, reducing sleep and increasing anxiety among these professionals (Fernández-Castillo et al., 2021). It seems important to take these elements into account, as targeted interventions on moral distress can improve mental health and job retention rates among ICU professionals (Donkers et al., 2021). When implementing a new care delivery model, whether in a pandemic or during normal times, the impact of other possible influencing factors, as described above, should be taken into account.

## 5 | LIMITATIONS

During the pandemic, it was important to analyse the interviews in depth, but also to provide rapid feedback on the results to ward managers and the care manager. We thus decided not to transcribe every interview in detail, to save time. Audio analysis can lead to the loss of data (Vindrola-Padros et al., 2020); this risk was reduced by listening multiple times to each interview, and by analysing each interview with two researchers. Two out of three interviewers were relatively unexperienced in the conduction of interviews. This could have led to a loss of data, but this issue was reduced with the guidance of an experienced researcher. Data collection and analysis went on iteratively until thematic saturation was reached, to assure transferability of the findings. Lastly, the transferability of our findings might be limited to nontertiary care settings, as the study was

conducted in only one tertiary hospital, which may have differences in training, organization, patient population and availability of ICU staff compared with other hospitals.

## 6 | CONCLUSION

In this rapid qualitative descriptive study, we found that the implementation of a new nursing-care delivery model during the pandemic led to several challenges for supporting nurses, expert nurses, ward managers and physicians. Providing safe, high-quality care was the absolute priority for all members of the care team, who had to deal with unknown elements leading to role ambiguity. They also struggled with responsibilities and the absence of trust in working with mixed nursing-care teams. Coping mechanisms—such as developing stability and building in control—were employed to deal with these challenges. When rethinking nursing-care delivery models, the findings of this study may be useful in guiding the process of implementing mixed nursing-care teams. Special attention is needed for role clarification, shared responsibility and clinical leadership. In addition, other factors influencing the implementation of a new nursing-care delivery model (such as moral distress) should also be taken into account.

### AUTHOR CONTRIBUTIONS

All authors have contributed to the article. Klara Geltmeyer, Dries Neyrinck, Simon Malfait, Dominique Benoit, Hilde Goedertier en Veerle Duprez have contributed to the conception and design of the study. All authors gave final approval for the submission of the manuscript in this form. KG, DN, DB, SM, HG, VD, Made substantial contributions to conception and design, or acquisition of data or analysis and interpretation of data; KG, DN, DB, SM, HG, VD, Involved in drafting the manuscript or revising it critically for important intellectual content; KG, DN, DB, SM, HG, VD, Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; KG, DN, DB, SM, HG, VD, Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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No conflict of interest has been declared by the authors.

### PEER REVIEW

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### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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