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## CPR-Directive Conversations in the Emergency Department: The Opinion of Elderly Patients

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### ABSTRACT

<b>Background</b>	The average age of patients admitted to the emergency department (ED) continues to rise. Many face difficult discussions about cardiopulmonary resuscitation (CPR) and end-of-life decisions.
<b>Objectives</b>	This study aimed to determine which healthcare professionals that elderly patients admitted via the ED preferred to discuss their CPR directive with and their opinion about the ED as a setting for discussing their CPR directive.
<b>Methods</b>	A mixed-methods study with an explanatory sequential design was conducted. A questionnaire was administered to 100 patients >65 years of age admitted to nursing wards via the ED that had a CPR-directive conversation during admission 24-48 hours earlier. Patients who indicated that they preferred to discuss their CPR-directive conversation with a physician working in the ED were invited for follow-up semi-structured interviews.
<b>Results</b>	General practitioners (GP) were the most preferred healthcare professionals for a conversation about CPR directives (64%). However, physicians working in the ED were the second most preferred medical professionals (51%) along with medical specialists (51%). Only 6% of patients did not consider a physician in the ED as a suitable option for these conversations. Interviewed patients saw a physician consultation in the ED as an opportunity to: 1) check and update their CPR directive, 2) get information about the content and consequences of CPR considering their current health status, and 3) prevent the use of undesired medical treatment during admission.
<b>Conclusions</b>	Although GPs were the most preferred healthcare professionals with whom to discuss CPR preferences, an unexpectedly large proportion of the investigated population preferred to discuss their choices with a physician working in the ED. These patients considered these discussions to be a crucial part of patient-centered healthcare.

### INTRODUCTION

The reported incidence of in-hospital cardiac arrests (IHCAs) varies in the range of 1.51 per 1000 in Italy, to between 2.33 and 3.73 per 1000 in the United States, and 17.5 per 1000 admissions in Beijing. The incidence peaks in the morning hours the day after admission.<sup>1-3</sup> Whether CPR should be performed during an IHCA should therefore preferably be checked and decided upon as early as possible during hospitalization. In most hospitals, the emergency department (ED) is the primary source of patient admissions and therefore the first opportunity to start a conversation about CPR with hospitalized patients.<sup>4</sup>

The ED can however be considered a suboptimal location to address this topic. It can be a fast-paced environment with little time for patients and physicians to establish a patient-clinician relationship. Physicians can experience a significant workload, leaving less room to focus on the emotions that accompany these conversations. ED patients can be mentally occupied with when and if they will recover, and less open to the discussion of end-of-life issues such as CPR. This topic is becoming even more relevant as the average age of patients admitted via the ED continues to rise.<sup>5</sup> Extended comorbidities in combination with an acute decline in health before admission can make the benefits of CPR questionable for elderly patients, their families, and healthcare providers. At the same time, communication might be hampered due to illness or pre-existing comorbidities, leading to difficulties in shared decision-making.

These issues have led to an ongoing debate in the literature about where and how CPR-directive conversations should be conducted.<sup>6</sup> Some authors have warned about the risk of miscommunication, fear, and misunderstanding when patients were faced with this question in the ED.<sup>7</sup> The perspective of patients in regards to the ED as an environment for CPR-directive conversations has however insufficiently been systematically evaluated. In 2019, an integrative review was published about CPR decision-making conversations. It found only two articles that referred to the optimal setting from a patient perspective of which none included patients that had a conversation about CPR in the ED.<sup>8</sup> More research focused on the experiences and opinions of patients after a CPR-directive conversation during an admission via the ED is necessary. Results from patient-centered research could lead to improvements in patient communication, medical education, and health policy.

The following research questions were therefore postulated to evaluate the experience and opinion of elderly patients admitted via the ED:

- With which healthcare professionals do patients prefer to discuss their CPR directive?
- Do patients consider the ED as a suitable setting for this discussion, and if so, why?

## METHODS

### *Research Setup*

A mixed-method study with an explanatory sequential design was conducted. A paper questionnaire was administered from January to September 2020 to 100 patients > 65 years admitted via the ED to the nursing wards in the Elisabeth-Tweesteden Hospital in Tilburg (the Netherlands). As in all hospitals in the Netherlands, every adult patient admitted to the nursing ward who does not have a registered CPR directive is expected to have a CPR-directive conversation with a physician in the ED. From December 2020 to March 2021, patient opinions about CPR-directive conversation in the ED were evaluated in follow-up semi-structured interviews.

### *Questionnaire*

The questionnaire contained multiple-choice questions with multiple and single choice answers about:

- the preferred setting to discuss their CPR directive.
- whether a CPR directive had been discussed with a general practitioner (GP) or medical specialist before admission.
- knowledge and information sources used to decide their CPR directive.
- demographic and socio-cultural variables (**Appendix 1**).

The comprehensibility of the questionnaire was assessed for the targeted population by a communication consultant in our hospital (EvEV). Three ED nurses in training (JL, TvG, and JV) and two ED resident physicians (KHK, MM) administered the paper questionnaires to patients on the nursing wards. Patients were screened based on an ascending list of electronic health record numbers

and were eligible for study inclusion if they were admitted into the hospital via the ED in the previous 24- 48 hours and were > 65 years of age. Patients were excluded if:

1. a CPR directive had not been discussed during admission.
2. DNR code status was discussed by one of the researchers during admission.
3. the patient was admitted to the intensive care, cardiac care, or psychiatric unit after assessment in the ED.
4. a diagnosis of dementia was present.
5. symptoms of traumatic brain injury or delirium during admission were noted.
6. there had been a cerebrovascular accident in the past or as a reason for admission that caused communication problems.
7. the patient had been discharged before researchers had the opportunity to ask the patient to participate.

To prevent the spread of COVID-19, the study was interrupted during the first wave of the COVID-19 pandemic in 2020. Patients suspected of COVID-19 were also excluded from participation outside this period.

Before filling in the questionnaire, patients were informed about the purpose of the research and cognitively assessed with the Abbreviated Mental Test 4 (AMT-4). The AMT-4 is a screening tool for acute and chronic cognitive disorders and has a sensitivity of 80% and a specificity of 88% in detecting cognitive impairment and a score lower than four was used as an exclusion criterium.<sup>9,10</sup> To avert bias in the answers to questions in the questionnaire, the researchers were instructed to not wear uniforms that could reveal their job identity, to refer to themselves as a “researcher” and not use their occupational title, and to stay with the patient completing the questionnaire to prevent patients from using the internet or other persons for support in answering questions.

### ***Semi-Structured Interviews***

To obtain more insight into why patients preferred a physician in the ED as a healthcare professional to discuss their CPR directive, the patients who had noted that they wanted to participate in a follow-up study and had indicated that they also preferred to discuss their CPR directive with a physician in the ED, were invited to participate in follow-up semi-structured interviews via telephone communication. The following open-ended questions were asked:

1. What do you think is important in discussing CPR preferences?
2. How did you experience the conversation in the ED?
3. What was the most important reason you chose the ED as a setting for discussing CPR preferences in the questionnaire? (**Appendix 2**).

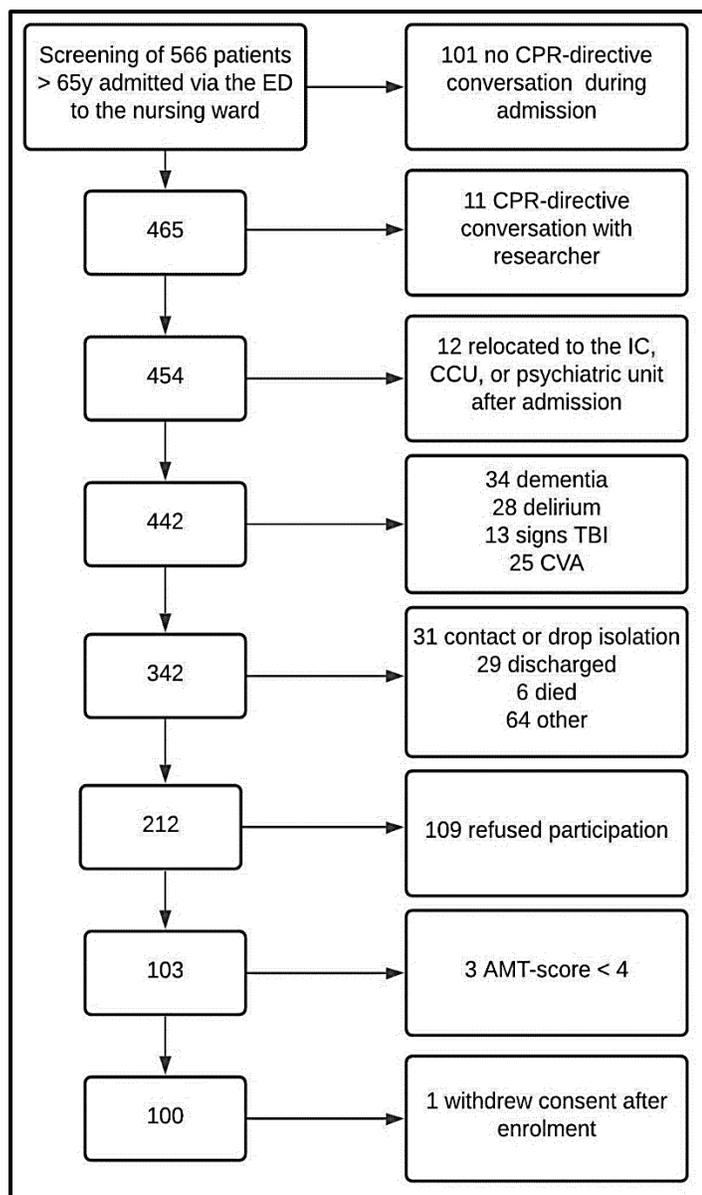
The interviews were conducted, recorded, and transcribed by two authors (KHK and RdH). A thematic analysis was performed according to the six-step framework of Braun & Clarks.<sup>11</sup> Both researchers read all interview texts and independently attributed codes to the statements made by patients. The codes were discussed and developed into themes and subthemes until there was consensus that all different perspectives of interviewed patients were portrayed within the themes and subthemes. Microsoft Word was used for the transcription process and Google Sheets was used for the thematic analysis.

### ***Ethical Approval and Consent***

The regional medical ethics review committee approved the questionnaire and interviews. Medical managers and head care managers of the different nursing wards provided written approval before study initiation. Patients were only enrolled after they provided written informed consent during the distribution of questionnaires and only interviewed after they gave permission to record the conversation.

## RESULTS

### Questionnaire



**Figure 1:** Flowchart demonstrating the inclusion of patients into the study examining patients' preferences regarding CPR-directive conversations in the ED. CPR = cardiopulmonary resuscitation, IC = Intensive Care, CCU = Coronary Care Unit, TBI = Traumatic Brain Injury, CVA = Cerebrovascular Accident, AMT = Abbreviated Mental Test.

### Patients Characteristics

Between January 2020 and September 2020, 566 patients were eligible for inclusion (**Figure 1**). After exclusions, 100 patients were enrolled in the study. Subsequently, one patient withdrew their consent. The median age of the remaining patients was 76 years (range 66-92 years) (**Table 1**).

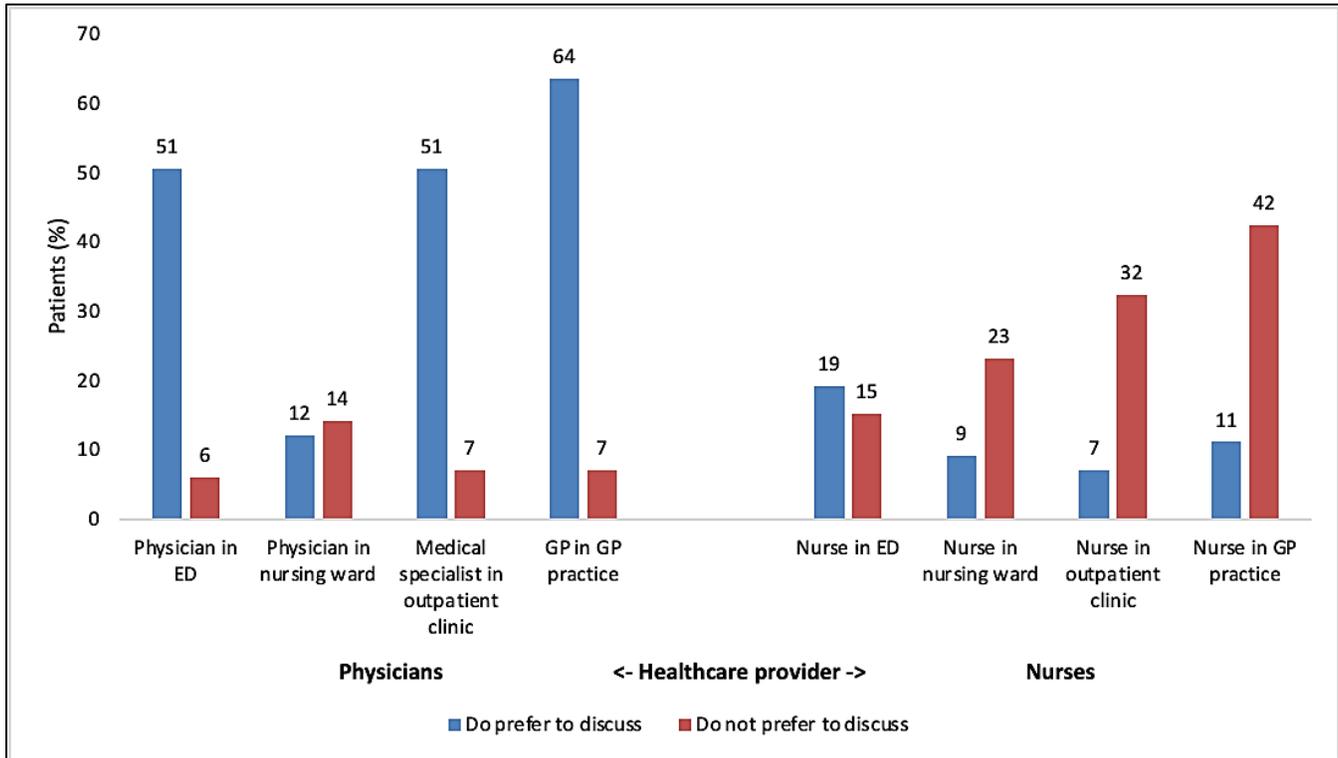
Table 1: Patient Characteristics		
<b>Age</b>		
<b>66-75 years</b>	<b>76-85 years</b>	<b>&gt;85 years</b>
48	38	13
<b>Number of Used Medications</b>		
<b>≤5</b>	<b>5-10</b>	<b>&gt;10</b>
31	35	33
<b>Education</b>		
<b>Secondary vocational education</b>	<b>Higher professional education</b>	<b>Higher academic qualification</b>
70 %	25 %	4 %
<b>Migration Background</b>		
<b>Yes</b>	<b>No</b>	<b>No answer</b>
3	94	2
<b>Religious</b>		
<b>Yes</b>	<b>No</b>	<b>No answer</b>
60	28	11

40 patients (40%) had a DNR order. The median age of patients who did not have a DNR order was 74 years (range 66-90 years), compared to 82 years (range 66-92 years) in the group with a DNR order. Five patients (5%) had a registered DNR order but remembered choosing a do-resuscitate order. One patient (1%) had a registered do-resuscitate order but remembered choosing a DNR order.

70% had completed secondary vocational education, 25% completed higher professional education, and 4% completed a higher academic qualification. Three patients reported to have been born outside the Netherlands. 60% of patients identified themselves as religious.

## Preferences Regarding CPR Discussions

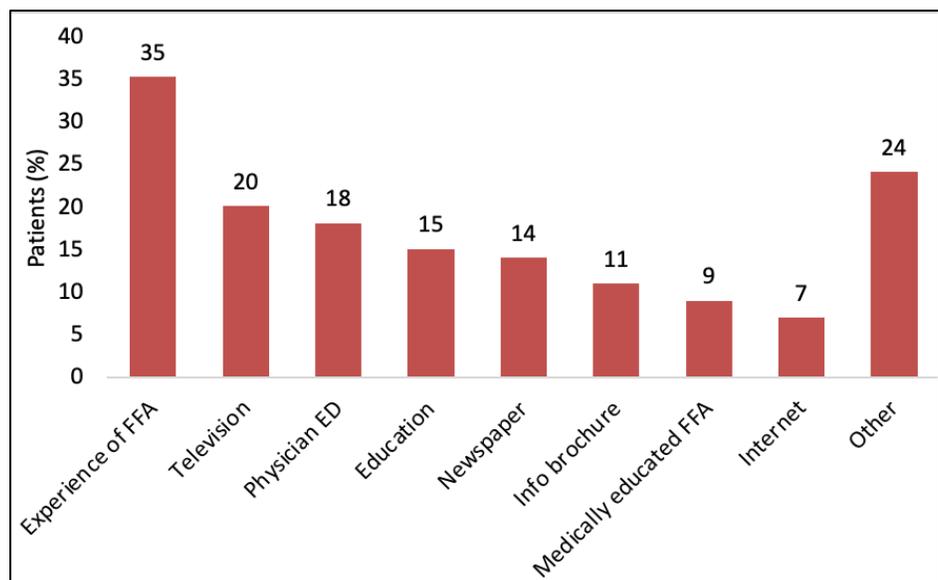
Most patients (64%) indicated that they preferred to discuss their CPR choices with a GP, followed by either a medical specialist (51%) or an ED physician (51%) (**Figure 2**). 6% answered that they would prefer not to discuss their CPR preferences with a physician in the ED. Between 7-19% of the patients indicated that they would also prefer to have a CPR-directive conversation with a nurse, in which ED nurses were the most preferred. Furthermore, 15-42% preferred to not discuss their CPR directive with a nurse.



**Figure 2:** Patient preferences in regard to the healthcare professional discussing CPR directives. ED = emergency department, GP = General practitioner.

## Information Sources

24 patients noted that they had had a conversation with a medical specialist about the subject and 17 patients had a conversation with their GP. The most frequently reported source of information that influenced their CPR preferences was experiences from family, friends, and acquaintances who had received CPR (35%). Television was reported as the primary source of information in 20% of cases and ED physicians in 18% of cases (**Figure 3**). Information brochures were used in 11% of cases. 67% had used one, 22% had used two, 7% had used three, and 4% reported to have used more than three information sources.



**Figure 3:** Sources used to obtain information to reach a decision on CPR-directive. FFA = Family, friends, and acquaintances.

## **Patient's Background Knowledge about CPR**

The median estimated survival rate to discharge after IHCA was 55% (interquartile range [IQR] 35-75%). Their survival estimates after IHCA decreased as patients aged; 65% for 66-75 years, 55% for 76-85 years, and 45% for 86-95 years. The median number of knowledge questions answered correctly was 54% (IQR 38-69%). Knowledge decreased as patients aged from 62% (66-75 years) to 54% (76-85 years), and 50% (86-95 years). Educated patients tended to get more questions correct: 54% for those who completed secondary vocational education, 62% for higher professional education, and 69% for those with a higher academic qualification.

## ***Semi-Structured Interviews***

### **Patients**

Of the 51 patients who preferred to discuss their CPR preferences with a physician in the ED, 35 consented to participate in follow-up research. Two patients could not be contacted, five patients refused the interview, and five patients died. The remaining 23 patients were interviewed telephonically using a semi-structured interview methodology.

### **Thematic Analysis**

The thematic analysis led to five main themes:

1. physician competencies
2. experience of the conversation
3. presence and influence of loved ones
4. indifference
5. purpose of the conversation

The complete list of themes and sub-themes can be found in Appendix 3.

### **Physician Competencies**

Three sub-themes were identified related to the competency of the physician conducting the CPR-directive conversation. These competencies were not all specific to physicians in the ED.

The first subtheme, communication, primarily emphasized empathy and being direct in asking the question:

*"...that it shouldn't be a very cold approach, that it should be warm and humane." (2)*

*"...that they ask it really really clearly. That seems to me the most important. Just ask straight: "if something happens to you, do you want CPR to be performed?" (5)*

The second sub-theme was medical background knowledge. Patients thought it was important that the person who discussed CPR with them had the right background knowledge about CPR and understood their current health status and how this might influence survival chances:

*"I think that an emergency doctor, yes, such a person of course has the know-how" (14)*

*"Yes, the emergency doctor, it kind of has to do something with the thing you need the most in your body, your heart" (13)*

*"Because that person can probably estimate the chance that you will survive CPR" (10)*

The third sub-theme, trust, was mentioned in several ways. A physician could earn trust because of the above mentioned medical knowledge, their role as an authority figure, and because of a longstanding prior relationship, as was the case with GPs:

*"Well, I would rather talk with my GP about that. It's not that I'm so well-known with the GP, but that person is closer. This makes it easier to talk about these things. If it ever gets to that point that I have to answer if I want CPR or not, I would rather choose the GP." (5)*

### **Experience of the Conversation**

Nine patients answered that they remembered their conversation in the ED about CPR. Although these conversations always carry a certain weight, all these patients answered that they had experienced the conversation as positive during the interviews. An exception was one patient who indicated that she did not remember what was discussed in the ED:

*"I do know that I also talked to a doctor about it in the ED, but then you were right because very little got through to me." (6)*

One patient further indicated that the conversation about CPR in the ED caused a stress response but was followed by relief:

*"I found it difficult at first, but we had it [the conversation about resuscitation], and then I was glad that I had it [...] so to speak." (11)*

### **Presence and Influence of Loved Ones**

Patients mentioned that it was important that the CPR directive was discussed with loved ones and that loved ones had the opportunity to influence decision making:

*"I've discussed it with my daughter and daughter-in-law." (17)*

*"I myself said I wouldn't do it, but I do have a bit of a problem because my husband wants to." (12)*

### **Indifference**

A theme that came to the foreground through the conversations with just two patients but was not compatible with other themes was indifference about with whom the conversation took place:

*"I don't care who does it." (18)*

### **Purpose of the Conversation**

Several sub-themes emerged that were related to the way patients perceived the purpose of the discussion. First, patients mentioned that they wanted to check their CPR directive during admission and update it if necessary:

*"Well, I have to say that, at that moment, I was in a kind of depression. [...] we have the children next to us. I enjoy it so much now, I make things for Christmas and also for the family. This was totally not part of the picture back then. You think differently now." (12)*

*"Well, if I were lying there, I would like to have a conversation about it, with the attending physician, or the specialist or something, if I were there. By then, the situation may have changed in the meantime." (2)*

Second, patients stated they wanted more information provided about CPR and the effect it would have on their health:

*"First of all, that they inform me well about what happens during CPR." (12)*

*"Yes, yes, definitely the chance of survival. That's the most important thing to me. How do you end up." (22)*

The third sub-theme related to the purpose of the conversation was communicating preferences and consisted of making their wishes clear to health providers when the topic became more relevant to

them. Patients recognized that the moment of admission was associated with a significant deterioration in health:

*"...the chance is higher that you actually experience more serious things in the emergency room than at the GP, so that subject seems to me to be typical for emergency departments." (3)*

And understood that this was related to an increased risk of life-threatening events:

*"Yes, I think that's very indicative of the situation. With the thought, it certainly won't happen, will it." (22)*

Considering the increased risk of life-threatening events during admission, it was sensible that the topic of CPR was discussed by the physician in the ED. This was how they could express their desire for life-prolonging interventions and prevent unwanted medical treatment:

*"...but if you simply end up in a critical condition, it is important that it has been discussed so that the healthcare providers know: yes or no." (2)*

*"To avoid any potential discussion: I, as a patient, want to clearly indicate why I actually want this step or why not." (3)*

## DISCUSSION

Elderly patients admitted to the ED face difficult questions about life and death. This study examined the opinion of elderly patients that had discussed their CPR preferences during admission to the ED. A mixed-methods study consisting of a paper questionnaire followed by a thematic analysis of in-depth follow-up telephone interviews was conducted.

Most patients (64%) indicated that they preferred to have a CPR-directive conversation with a GP. This is in line with the intuitive feeling that patients would want to discuss intimate topics with somebody they know rather than a physician in the ED. This also confirms earlier research that identified the GP as a preferred healthcare provider for this conversation.<sup>8</sup> Only 17% of respondents in this study population had discussed the matter with their GP, suggesting that this is a potential opportunity for healthcare interventions.

Against expectations, around half of all included patients noted that they favored discussing their CPR preferences with a physician in the ED. The follow-up interviews revealed several important reasons for this finding. First, their decline in health increased their awareness of potentially fatal health-related events. Patients expected a physician to take up the task of evaluating patients' personal preferences regarding CPR before CPR could become necessary during further health decline. Physicians in the ED meet the patient at the start of the hospitalization period. Therefore, they were seen as the appropriate person to check their CPR directive at a time when this topic became more relevant to them.

Second, patients emphasized the importance of checking and updating their CPR preferences. The dynamics of the private lives of patients and their families can lead to time-dependent differences in preferences regarding CPR that might be relevant at the time of admission via the ED. This is in line with the results of a study that evaluated factors associated with a change in CPR directives and found that improvement of depression influenced the preferred CPR directive.<sup>12</sup> Being confronted with the question in the ED was an opportunity to discuss a possible change in perspective on the topic and consequently re-confirm or change the registered CPR directive.

Third, patients wanted more information from a physician about how CPR would impact their life and their prognosis based on their current state of health. A need for better patient education was also confirmed in the paper questionnaire; patients overestimated their chance of survival to discharge after an IHCA (55% compared to 10-20% reported in the literature), a finding that has been replicated in several other studies.<sup>13-15</sup>

## ***Opportunities for Improvement***

Nurses may be important healthcare professionals that could help in reducing physician workload by fulfilling the above-mentioned needs of a check and update of CPR directives and/or education in advanced care planning. Unfortunately, only a low percentage noted they would prefer to discuss their CPR directive with a nurse and, compared to options of the different physicians, a relatively high percentage indicated they would prefer not to discuss this topic with a nurse. Future studies are necessary to evaluate whether these numbers change if patients have positive experiences with a specialized nurse trained in these conversations or whether patients are for instance more willing to talk with nurses that explore remaining questions and give additional health education after the initial conversation in the ED with a physician.

An online solution could also partly support these tasks. A digital registration system could help patients register their wishes after they have read relevant, reliable, and updated information about IHCA and after they have included loved ones in their decision-making process. This could also be upscaled geographically, giving patients the ability to have an updated version of their preferences available to healthcare providers nationally, or even globally. However, only 7% of the participants had used the internet as a source of information, a not surprisingly low number considering their average age. Research focused on whether elderly patients, family members, and caregivers are able and willing to use these more easily scalable information resources could be of contributive value.

The human empathy that should accompany a CPR-directive conversation has led to transformations in the method of patient communication about this topic in the U.S.A, Canada, U.K., and Australia.<sup>16,17</sup> The introduction of the “goals-of-care” framework has led to the replacement of “Do Not Resuscitate” and “Do Not Attempt Cardio-Pulmonary Resuscitation” orders with conversations about providing the optimal care considering current health status. Authors have argued that this can reduce patient and physician discomfort in deciding on CPR directives and positively affect outcomes regarding treatment quality and mortality.<sup>18–21</sup> While the application of this framework is becoming more common within the aforementioned countries, in the Netherlands and presumably other regions around the world, it has not received the attention it deserves. We, therefore, want to emphasize the importance of this paradigm shift in research and on the work floor and hope that future studies on CPR directives in the ED can be conducted in environments that have adopted this framework.

## ***Limitations***

There are limitations to the interpretation of the results. First, only patients older than 65 years who were not admitted to the ICU, CCU, or psychiatric unit at presentation to the ED were included. The response of younger or respiratory/hemodynamically unstable patients could be different. Second, although the questionnaire was checked for comprehensibility by a communication specialist, there was no extensive validation process of the knowledge questions before the start of the study. Third, Dutch culture is known for its directness in communication.<sup>22</sup> This limits the generalization of our results to other cultures that have more indirect forms of communication. More studies are necessary to assess the responses of patients with a more diverse background. Fourth, during the inclusion process, approximately one-third of patients were excluded because they had not given consent which could have led to participation bias. Lastly, the group of interviewed patients was a subgroup of all those who had noted in the questionnaire that they wanted to participate in a follow-up study. We did not explore the rationale of patients who consented to follow-up but did not think the ED physician was suitable for these discussions. Nonetheless, interviews with all included patients would not have changed the finding of a neutral to positive response to the ED as a location for a CPR-directive conversation in a group of patients.

## CONCLUSION

In conclusion, this study demonstrates that elderly patients admitted to a hospital ward via the ED identified their GP as the most preferred health professional with which to discuss their CPR preferences. However, a significant part of the study population answered in our questionnaire that they also prefer to discuss this topic at the time of admission with a physician in the ED. Interviews showed that a conversation with a physician in the ED was primarily considered suitable based on their decline in health before admission and the expected level of expertise in acute care of the physician in the ED. The results suggest that the topic is on average less repulsive for elderly patients than healthcare providers might think and that, for a significant part of elderly patients, engaging in these conversations is a key aspect of patient-centered healthcare.

## KEYWORDS

Ethics, emergency department, patient education, CPR, mixed-methods research

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## CONFLICTS OF INTEREST

The authors have no conflicts to report.

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