




ORIGINAL



# How doctors manage conflicts with families of critically ill patients during conversations about end-of-life decisions in neonatal, pediatric, and adult intensive care

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## Abstract

**Purpose:** Intensive care is a stressful environment in which team-family conflicts commonly occur. If managed poorly, conflicts can have negative effects on all parties involved. Previous studies mainly investigated these conflicts and their management in a retrospective way. This study aimed to prospectively explore team-family conflicts, including its main topics, complicating factors, doctors' conflict management strategies and the effect of these strategies.

**Methods:** Conversations between doctors in the neonatal, pediatric, and adult intensive care unit of a large university-based hospital and families of critically ill patients were audio-recorded from the moment doubts arose whether treatment was still in patients' best interest. Transcripts were coded and analyzed using a qualitative deductive approach.

**Results:** Team-family conflicts occurred in 29 out of 101 conversations (29%) concerning 20 out of 36 patients (56%). Conflicts mostly concerned more than one topic. We identified four complicating context- and/or family-related factors: diagnostic and prognostic uncertainty, families' strong negative emotions, limited health literacy, and burden of responsibility. Doctors used four overarching strategies to manage conflicts, namely content-oriented, process-oriented, moral and empathic strategies. Doctors mostly used content-oriented strategies, independent of the intensive care setting. They were able to effectively address conflicts in most conversations. Yet, if they did not acknowledge families' cues indicating the existence of one or more complicating factors, conflicts were likely to linger on during the conversation.

**Conclusion:** This study underlines the importance of doctors tailoring their communication strategies to the concrete conflict topic(s) and to the context- and family-related factors which complicate a specific conflict.

**Keywords:** Intensive care, Communication, Patient representatives, Conflict resolution, Clinical decision making, Qualitative research

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## Introduction

In intensive care (IC), patients are often unable to participate in decisions regarding their life-sustaining treatment (LST). Consequently, patients' families function as their surrogate decision-makers [1]. Conflicts, such as disagreements, disputes or differences of opinion between doctors and families commonly occur in this setting [2–7]. Accordingly, conflict mediation has been identified as an essential competency needed by IC-doctors to provide high-quality care to patients and their families [2, 8–10].

Team-family conflicts seem to be reinforced by factors that are inextricably linked with the IC setting: the life-threatening situation of patients, the ensuing emotions of families, and the difficult decisions regarding (dis)continuation of LST. The lack of a longer lasting relationship between doctors and families and the constant stress families have to endure further increase the risk that conflicts will arise [11]. The incidence of team-family conflicts seems to differ per IC setting. Healthcare professionals reported conflicts in up to 48% and 31% of patients, respectively in adult intensive care units (ICU) and pediatric intensive care units (PICU) [3–5, 7, 12]. By contrast, conflicts have been reported in 12% of patients in neonatal intensive care units (NICU) [6]. However, these percentages may well be an underestimation, as healthcare professionals seem less likely to identify conflicts in comparison to families of critically ill patients [5].

Team-family conflicts mainly concern the following topics: disagreement about the treatment, discordant ideas on what is best for the patient, poor communication, inappropriate doctor or family behavior, and the unavailability of legal surrogate decision-makers [3, 4, 7, 12]. If conflicts remain unresolved, they may incite feelings of regret, distress and distrust in families and reduce families' satisfaction with the provided care [3, 13, 14]. Likewise, unresolved conflicts have been shown to contribute to feelings of anxiety and moral distress, as well as the risk of burnout in healthcare providers [13, 15–17]. It is therefore important to identify effective ways to manage team-family conflicts in the NICU, PICU, and ICU. Several studies have retrospectively investigated conflicts by interviewing healthcare providers or family-members [3, 7, 12, 16, 18]. Few studies have examined these conflicts in real time [19, 20]. Also, none of these studies compared the NICU, PICU, and ICU.

We qualitatively explored conflicts concerning patients' current or future health or treatment that arose in real-life conversations between doctors and families in three IC settings. We aimed to (1) identify the main topics of team-family conflicts, (2) explore the factors further complicating these conflicts, (3) investigate the strategies doctors use to manage these conflicts, (4) establish which

## Take-home message

Four factors appear to complicate the management of frequently occurring team-family conflicts in neonatal, pediatric, and adult intensive care: diagnostic and prognostic uncertainty, families' strong negative emotions, families' limited health literacy, and families' burden of responsibility. While doctors mainly use content-oriented strategies to resolve these conflicts, empathic strategies appear to be more effective, especially if conflicts linger on.

strategies appear to be (in)effective in managing conflicts and (5) explore the possible differences between the three IC settings.

## Methods

### Design and setting

This qualitative exploratory study was part of a larger research project (FamICom) on communication about end-of-life decisions with families in IC [21]. Data were derived from audio-recordings of family conferences (henceforth: conversations) in the NICU, PICU, and ICU of the Amsterdam University Medical Centre.

### Population and sampling

Families of 36 patients and 71 doctors participated. Table 1 lists their characteristics. Maximum variation was sought regarding patients' age, sex, diagnosis, disease progression and course of treatment, and families' ethnic background, level of education, and religious beliefs. 'Families' refers to family members or close friends who attended the conversations.

### Recruitment

Prior to data collection, all IC-doctors and IC-nurses received oral and written information about the study and were asked for their consent to participate. All doctors and all but one nurse gave this consent.

### Data collection

The inclusion period lasted from April 2018 to December 2019. Families were eligible to participate from the moment that doubts arose whether continuing LST was still in the patient's best interest. The attending doctor or nurse introduced the study to eligible families. Interested families were further informed and asked for their oral and written consent by a member of the research team or the attending doctor. All but one family decided to participate.

The conversations were almost always planned beforehand on initiative of the doctor and almost never on request of families. Only incidentally conversations took place because patients' situation acutely deteriorated. From the moment of inclusion, all conversations were

**Table 1 Main characteristics of included patients, family members and doctors**

Characteristics	Patients (N = 36), n (%)	Family members (N = 104), n (%)	Doctors (N = 71), n (%)
<b>Setting</b>			
Neonatal intensive care unit	12 (33)	33 (32)	22 (31)
Pediatric intensive care unit	12 (33)	30 (29)	35 (49)
Adult intensive care unit	12 (33)	41 (39)	14 (20)
<b>Age (years)</b>			
Premature	11 (30)	–	–
0–1	6 (16)	–	–
1–4	1 (3)	–	–
4–12	2 (6)	–	–
12–16	2 (6)	–	–
16–21	2 (6)	–	–
21–35	–	–	–
35–50	3 (8)	–	–
50–65	5 (14)	–	–
65+	4 (11)	–	–
<b>Gender</b>			
Male	17 (47)	41 (39)	28 (40)
Female	19 (53)	63 (61)	43 (60)
<b>Main diagnosis</b>			
Prematurity	5 (14)	–	–
Prematurity + congenital disorder + acute illness	1 (3)	–	–
Perinatal asphyxia	4 (11)	–	–
Congenital disorder	13 (36)	–	–
Acute illness	11 (30)	–	–
Cancer + acute illness	2 (6)	–	–
<b>Neurological damage</b>			
Yes	24 (67)	–	–
No	12 (33)	–	–
<b>Total duration of care in the intensive care unit</b>			
0–24 h	5 (14)	–	–
1–7 days	10 (28)	–	–
1–4 weeks	16 (44)	–	–
1–3 months	5 (14)	–	–
<b>Relation to the patient</b>			
Parent	–	46 (44)	–
Grandparent	–	8 (7)	–
Partner	–	7 (7)	–
Child	–	9 (9)	–
Sibling	–	8 (7)	–
Brother in law/sister in law	–	2 (2)	–
Aunt/uncle/cousin	–	10 (10)	–
Friend	–	4 (4)	–
Other	–	5 (5)	–
Unknown	–	5 (5)	–
<b>Medical specialty</b>			
Neonatologist	–	–	14 (20)
Pediatric intensivist	–	–	9 (13)
Pediatrician	–	–	15 (21)

**Table 1 (continued)**

Characteristics	Patients (N = 36), n (%)	Family members (N = 104), n (%)	Doctors (N = 71), n (%)
Pediatric neurologist	–	–	7 (10)
Pediatric cardiologist	–	–	3 (4)
Metabolic pediatrician	–	–	2 (3)
Pediatric pulmonologist	–	–	1 (1)
Intensivist	–	–	9 (13)
Anesthesiologist	–	–	4 (6)
Internist-hematologist	–	–	1 (1)
Neurosurgeon	–	–	3 (4)
Neurologist	–	–	1 (1)
Unknown	–	–	2 (3)
<b>Role</b>			
Resident	–	–	20 (28)
Fellow	–	–	13 (18)
Staff	–	–	36 (51)
Unknown	–	–	2 (3)

audio-recorded by the attending doctor until a final decision was made. All conversations took place seated around a table in one of the conference rooms on the unit. At least one nurse was present during most of the conversations. However, due to nurses' minimal (verbal) engagement in these conversations, this study focuses solely on the communication between doctors and families.

#### Data analysis

The audio-recordings were transcribed verbatim and anonymized. We then coded and analyzed our data, thereby using a deductive approach. This process consisted of four phases, as illustrated in Fig. 1. Coding and analysis of the transcripts were performed with MaxQDA 2020.

#### Ethical considerations

The Amsterdam UMC institutional review board waived approval of this study (W17\_475 # 17.548). Informed consent was acquired from one representative on behalf of the whole family. Consent could be withdrawn at any time.

#### Results

Team-family conflicts occurred in 29 out of 101 conversations (29%), concerning 20 out of 36 patients (56%). Table 2 provides additional details.

Conflicts evolved around one or more of the following topics: (1) treatment decisions, (2) timing of the decisions and/or decision-making conversations, (3) patients' current health status, (4) patients' future health status, (5) decision-making responsibility, and

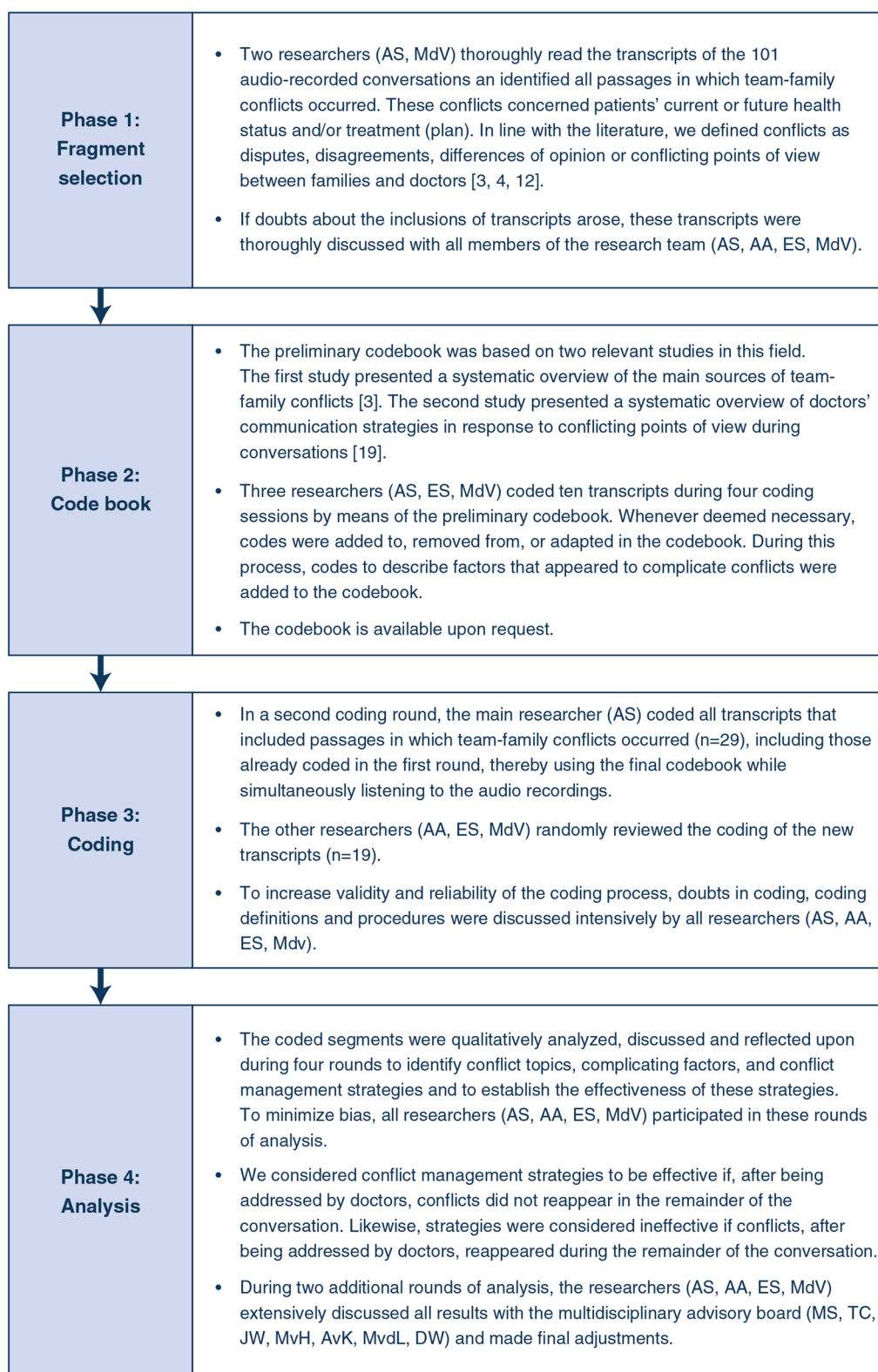
(6) patients' (presumed) wishes. Table 3 and supplementary table A provide additional details. Most conflicts concerned a combination of these topics. In the NICU, conflicts about treatment decisions often co-occurred with conflicts about future health status, particularly future quality of life. In the PICU, conflicts about treatment decisions often co-occurred with conflicts about current health status or the timing of decisions. In the ICU, conflicts regarding treatment decisions often co-occurred with conflicts about the timing of the decision or the patient's (presumed) treatment wishes.

#### Complicating factors

We identified four factors, either context- or family-related, that complicated and deepened conflicts that arose during conversations. First, uncertainty regarding patients' diagnosis or prognosis appeared to reinforce conflicts. We noticed that when high levels of uncertainty were present, families appeared to be reluctant to follow or accept decisions proposed by the doctors.

Second, conflicts appeared to intensify if families became highly emotional. This always concerned the expression of negative emotions like fear, guilt, anger, distrust, or hostility. These emotions were expressed explicitly or implicitly, for example, by a changed tone of voice or snorting. Often it remained unclear whether conflicts triggered these emotions or vice versa.

Third, limited health literacy of families added to the complexity of conflicts. We observed that several families had a hard time understanding medical information provided by doctors, as became clear from their



**Fig. 1** Four phases of coding and analysis

**Table 2 The total number of families and conversations and the number of families and conversations in which team-family conflicts occurred per intensive care setting**

Patient	Conversations		Conversations with team-family conflicts		Number of patients with team-family conflicts Per setting (n; %)	Number of conversations with effectively managed conflicts/ total number of conversations with conflicts	Final decision	Outcome <sup>a</sup>
	Per patient (n)	Per setting (n)	Per patient (n)	Per setting (n; %)				
<b>NICU (n = 12)</b>								
1	3	52	0	12 (23%)	8 (67%)	–	Withdrawing LST	Died the same day
2	3		1			0/1	Withholding LST	Died more than a week later
3	1		1			1/1	Withdrawing LST	Died the same day
4	3		1			1/1	Withdrawing LST	Died the same day
5	4		1			1/1	Withdrawing LST	Died within a week
6	9		5			2/5	Withdrawing LST	Died the same day
7	3		0			–	Withdrawing LST	Died the same day
8	1		0			–	Withdrawing LST	Died the same day
9	12		1			1/1	Continuation of LST	Still alive
10	1		1			1/1	Withdrawing LST	Died the same day
11	9		0			–	Withdrawing LST	Died the same day
12	3		1			1/1	Withdrawing LST	Died the same day
<b>PICU (n = 12)</b>								
13	5	33	2	11 (33%)	6 (50%)	2/2	Withdrawing LST	Died the same day
14	6		1			0/1	Withdrawing LST	Died the same day
15	3		2			2/2	Withholding LST	Died more than a week later
16	1		0			–	Withholding LST	Died more than a week later
17	1		0			–	Continuation of LST	Still alive
18	1		0			–	Continuation of LST	Still alive
19	1		0			–	Withdrawing LST	Died the same day
20	5		3			1/3	Withdrawing LST	Died the same day
21	2		1			1/1	Withholding LST	Still alive
22	1		0			–	Continuation of LST	Still alive

**Table 2 (continued)**

Patient	Conversations		Conversations with team-family conflicts		Number of patients with team-family conflicts Per setting (n; %)	Number of conversations with effectively managed conflicts/ total number of conversations with conflicts	Final decision	Outcome <sup>a</sup>
	Per patient (n)	Per setting (n)	Per patient (n)	Per setting (n; %)				
23	3		2			2/2	Withdrawing LST	Died the same day
24	4		0			–	Continuation of LST	Still alive
<b>ICU (n = 12)</b>								
25	1	16	0	6 (38%)	6 (50%)	–	Withdrawing LST	Died within a week
26	2		1			1/1	Withdrawing LST	Died the same day
27	1		0			–	Withdrawing LST	Died the same day
28	3		1			1/1	Withdrawing LST	Died the same day
29	1		1			1/1	Withholding LST	Died within a week
30	1		0			–	Withdrawing LST	Died the same day
31	1		0			–	Withdrawing LST	Died the same day
32	1		0			–	Continuation of LST	Died the same day
33	1		0			–	Withdrawing LST	Died the same day
34	2		1			0/1	Withdrawing LST	Died the same day
35	1		1			1/1	Withdrawing LST	Died within a week
36	1		1			1/1	Withdrawing LST	Died within a week
<b>Total</b>								
36		101		29 (29%)	20 (56%)			

ICU intensive care, NICU neonatal intensive care unit, PICU pediatric intensive care unit, ICU adult intensive care unit

<sup>a</sup> Measured when the data inclusion ended

**Table 3 Number of conversations in which one or more conflict topics were identified per intensive care setting**

Conflict topics	NICU (n = 12)	PICU (n = 11)	ICU (n = 6)	Total <sup>a</sup>
Treatment decisions	10	9	4	23
Timing	1	2	2	5
Patient's current health status	4	4	2	10
Patient's future health status	8	1	1	10
Decision-making responsibility	4	0	1	5
(Presumed) wishes of the patient	0	0	2	2

NICU neonatal intensive care unit, PICU pediatric intensive care unit, ICU adult intensive care unit

<sup>a</sup> One conflict could be related to multiple topics

inability to summarize or to answer questions regarding this information. We noticed that in several conversations families' misinterpretation of information coincided with their disagreement with the proposed treatment decision.

Fourth, families' burden of responsibility added another layer of complexity. Families occasionally provided cues, both implicit and explicit, that they felt disproportionately responsible for the treatment decisions that were made. For example, in one case in which a mother disagreed with the doctor's proposal to withdraw LST, this conflict was deepened by her explicit assumption to be solely and ultimately responsible for the decision to let her child pass away. In another case, a mother underlined that she felt highly burdened by her feelings of responsibility. At a later point in the conversation, she added that she could not agree with the decision to withdraw her child's LST because of her religious convictions. This was the only conversation in which religious convictions played a role in the arising and deepening of a conflict.

Complicating factors often co-occurred. For example, diagnostic or prognostic uncertainty seemed to reinforce the burden of responsibility that families experienced. Additionally, families' burden of responsibility often co-occurred with strong expressions of doubt and guilt. Families' limited health literacy was often accompanied by expressions of anger and frustration.

#### **Doctors' conflict management practices**

We identified four overarching strategies that doctors used to manage conflicts: content-oriented, empathic, moral, and process-oriented strategies. Table 4 provides an overview of these strategies, their sub-strategies, and illustrative quotes.

To manage conflicts, doctors predominantly used content-oriented strategies, i.e. strategies focusing on the provision of or a request for information. These strategies specifically concerned extensive clarifying and explaining. Doctors used empathic strategies to a lesser extent. Moral and process-oriented strategies were least often used.

In contrast to the ICU, doctors in the NICU and PICU more often used empathic strategies. Yet, in most instances, short empathic responses were followed by lengthy explanations and clarifications.

Moral strategies were evenly applied in the three IC settings. Interestingly, doctors never directly inquired about families' moral values, but solely introduced their own moral standpoints. Moral strategies often co-occurred with the content-oriented sub-strategy arguing.

In all units, doctors occasionally used process-oriented strategies, especially postponement, often combined with a content-oriented or empathic strategy. For instance,

one doctor proposed to postpone the decision, clarified that this was done to give the family more time, and then acknowledged how hard the situation had to be for the family.

#### **Effective management of conflicts**

Content-oriented strategies appeared to be effective in managing conflicts regarding one topic. If this was the case, doctors could easily identify and address disagreements on a rational level. In more complicated conflicts, an effective approach consisted of the acknowledgment of the complicating factor(s) in an empathic and understanding way. For example, if prognostic uncertainty played a prominent role, acknowledgment of this uncertainty and the resultant burden on families appeared to nip conflicts in the bud. In conversations in which families became increasingly emotional, it proved to be effective if doctors not only uttered an empathic remark, but also took the time to explore what families were going through and how this made them feel. In this way, doctors constructed a common ground for a content-oriented follow-up. In this follow-up, doctors not only gave additional information, but also verified families' viewpoints by asking them to expand on them. However, doctors only occasionally applied this combination of empathic and content-oriented strategies. If doctors explicated their own viewpoints, which rarely occurred, this appeared to open up a dialogue about the viewpoints and emotions of both doctors and families. This often appeared to create a common ground with families, which resulted in the resolution of conflicts. When doctors, despite the use of empathic strategies, were unable to create this common ground and the conversation threatened to end in an impasse, it often proved helpful to postpone the decision and transfer this topic to the next conversation.

#### **Ineffective management of conflicts**

In a minority of conversations, doctors' strategies appeared to be ineffective as indicated by the fact that conflicts kept reappearing throughout the conversation. These lingering conflicts predominantly occurred in the NICU and PICU as opposed to the ICU.

We identified two distinct patterns, both resulting in the perseverance of conflicts. In the first pattern, doctors did not acknowledge and respond to families' cues indicating the presence of one or more complicating factors. For instance, several families clearly hinted that they felt burdened by the prevailing diagnostic or prognostic uncertainties and/or by their responsibility for the outcome of the decision to discontinue LST. Instead of acknowledging and addressing this dual burden, most doctors kept using content-oriented strategies, especially



**Table 4 Overview of the (sub)strategies doctors used to manage a conflict**

Type of strategy <sup>a</sup>	Definition	Illustrative quotes
<b>Content-oriented strategies</b>		
Arguing <sup>b</sup>	Arguing for or against, (dis)agreeing with or defending, a specific course of treatment or treatment decisions	<p>Doctor: When you see that the colostomy starts to work [...] Erm, and the belly gets flatter. And you see it is all getting better. Then that's a good moment. We know from various studies and from our experience, that is the right moment to start feeding again. (NICU)</p> <p>Doctor: If we don't look at the acute problems, but at the long-term problems, your son not being able to live a healthy happy life, then we think it would be best for him to stop treatment. (NICU)</p>
Acknowledging <sup>b</sup>	Explicitly recognizing the existence of conflicting views or recognizing someone else's opposing view on the course of treatment	<p>Doctor: Yes, that's the hard part for us. I think—that's, I think we feel differently about this. We don't think he's doing that well now. (NICU)</p> <p>Doctor: But—but (.) the thing is we could differ about what we feel is <u>best</u>. (NICU)</p>
Clarifying <sup>b</sup>	Providing factual information, illuminating one's views without being judgmental, segmenting information	<p>Doctor: Sometimes you see this in patients with a serious neurological issue. That they squeeze their eyes as a kind of reflex. But we don't really count squeezing as real interaction. (ICU)</p>
Recalibrating <sup>b</sup>	Reframing so that two sides of contradictions no longer seem oppositional	<p>Doctor: What is really our goal here? That's of course what we've been talking about, right? Our goal, of course, is to get X seizure free or at least reasonably free. (PICU)</p>
Reaffirming <sup>b</sup>	Recognizing that both sides of a contradiction have value and that contradictions are ongoing and are not likely to go away	<p>Doctor: [...] Erm, and I don't want to give you a bad, erm, bad news, but I also want to be honest and tell you that we're having concerns. (NICU)</p> <p>Doctor: [...] And I agree with you, I can never say we are 100% certain, because I cannot look into a crystal ball. But our concerns are so serious that we wonder whether the treatment we are now giving in the ICU is in the best interest of X. (NICU)</p>
Reformulating	Repeating or rephrasing what the medical team or the family previously said	<p>Doctor: It's good that you tell us 'Okay, but you were wrong before.' Right. Let's put it like this: 'Why not this time?' Because that's actually what you're saying, isn't it? (PICU)</p> <p>Doctor: It's what I said before. That we consider doing an MRI. And I think... we think it could help us in making the right decision. (PICU)</p>
Requesting more information	Posing an open question in order to identify the specific content of a conflict	<p>Doctor: When we say: 'He has a disability, or he is disabled.' What are your thoughts about this message? What do you imagine? (NICU)</p>
Checking in	Posing a question in order to check whether family has correctly understood the provided information or has any more questions	<p>Doctor: Following our yesterday's conversation, are there things I have told you that are still unclear to you? (NICU)</p> <p>Doctor: [...] Is that right? (NICU)</p>
<b>Empathic strategies</b>		
Acknowledging emotions	Acknowledging families' emotions and emotionally straining situations	<p>Doctor: Because this really is an impossible situation for you. (NICU)</p> <p>Doctor: You know, it feels so different for a parent to stop feeding; because it's such a basic thing to feed a child, right? (PICU)</p>
Encouraging	Encouraging families to share their views and emotions	<p>Doctor: You can tell me anything, you know. (NICU)</p>
Supporting	Providing families with emotional support	<p>Doctor: There's no question, you know, about you having a part in her life and that, you know, you know what's best for her, so let's be clear about that. (ICU)</p>
<b>Moral strategies</b>		
Making a moral appeal	Putting forward (argumentative) moral statements	<p>Doctor: We shouldn't do that to him. (NICU)</p> <p>Doctor: We are wondering if we'd—the treatment [...] is in the best interest of X. (NICU)</p>
<b>Process-oriented strategies</b>		
Postponing	Postponing the conversation and/or the decision	<p>Doctor: [...] Erm.. I'd like to suggest (.) that we try to buy a little more time. To keep in touch, and to give you some time to process what I've told you just now. And to gain a little more clarity about this. But mostly for you, if I understand you correctly. (NICU)</p>
Recentring <sup>b</sup>	Moving away from the contradiction and directing the conversation to another topic	<p>Doctor: But before we get to THAT stage, I think we first need to conclude that we're that far. And if I understand you correctly from what you're telling me now, we're not yet there at all. (NICU)</p>

**Table 4 (continued)**

Type of strategy <sup>a</sup>	Definition	Illustrative quotes
Giving in	Coming to a compromise or complying with an oppositional view	<i>Doctor: Yeah, that's good, that's good. Let's incorporate your standpoint in our discussion as doctors. And it's a very clear point of view from you both, I think. And we have two things that potentially may change our plans. If not, it's also okay to say no. (PICU)</i>
Offering secondary resources	Offering special support or a second opinion	<i>Doctor: Have you—have you ever felt it yourself? The—the blowing of the ventilator, it's not as uncomfortable as you think it is. [...] It's a good idea to see how it feels yourself. (PICU)</i>
Requesting cooperation	Requesting the family to participate in the conversation	<i>Doctor: Could you—Can you look at me for once? (NICU)</i>
Avoiding <sup>b</sup>	Not directly responding	<i>Mother: Rather be selfish and have the good Lord do it than that I do it myself and carry the guilt for the rest of my life. That I took my child's life. Something I never wanted to do Doctor: Ah, like that, I see. (NICU)</i>

<sup>a</sup> Doctors who employed these strategies did not necessarily do so in a premeditated matter, but most likely did this rather intuitively

<sup>b</sup> These strategies were part of the preliminary codebook, based on Hsieh, Shannon, and Curtis' (2006) findings [19]

extensive and repeated explanations. By effect, conflicts persevered and even deepened.

In the second pattern, doctors first employed content-oriented strategies after conflicts arose and then, when conflicts lingered on, switched to a moral strategy. To illustrate, in several conversations doctors stated that they would not resuscitate the patient if his or her heart would suddenly stop, because “this was not what good healthcare providers should do”. This appeared to fuel the disagreements and transform them into full-blown conflicts. In another conversation, after a doctor had stressed that withdrawing LST was “what must be done in the child’s best interest”, the mother kept repeating, more and more desperately, that she would not allow him to kill her child.

## Discussion

In this study, we found that team-family conflicts regularly—and evenly—occurred in the NICU, PICU and ICU. Four specific factors, namely diagnostic and prognostic uncertainty, families’ strong negative emotions, limited health literacy, and burden of responsibility, appeared to complicate and deepen conflicts. Most conflicts were effectively dealt with by means of content-oriented strategies on the condition that the conflict was unambiguous and uncomplicated. In the presence of one or more complicating factors, empathic and process-oriented strategies proved to be more effective. By contrast, doctors’ moral strategies seemed to add to a further escalation of conflicts.

Our incidence rates of team-family conflicts in the ICU and PICU are in line with the rates reported in former studies [3–5, 7]. In the NICU, we found an even higher rate of conflicts than previously reported [6]. Conflicts may add to a careful decision-making process and to the

quality of the ultimate decision [22, 23]. Yet, if this discussion is not well managed and it does not result in a decision that is agreed upon by all parties involved, disagreements may become full-blown conflicts. Such conflicts may well cause feelings of anxiety, anger, and moral distress in families as well as in healthcare providers [13, 16, 17, 24].

A striking finding in our study is that doctors generally kept explaining and clarifying their points of view without inviting families to ask questions or share their thoughts. This disproportionate explaining and clarifying appeared to silence families, which may heighten the risk that conflicts remain under the surface.

Empathic strategies, especially acknowledging emotions, seemed effective to prevent conflicts from escalating. It appeared to create a safe environment for families to share their emotions, expectations, wishes, and beliefs. Previous studies have also stressed the importance of empathic approaches in resolving conflicts and addressing uncertainties [25–29]. Although nurses in our study did hardly participate in the recorded conversations, we cannot rule out that they contributed to conflict resolution in other ways, for example by further exploring families’ viewpoints or emotionally supporting families during informal bedside conversations. This is an interesting topic to explore in future observational studies [30, 31].

In line with previous research, postponing appeared to be a last resort if other strategies to manage a conflict had failed [6, 32–35]. This was especially the case in conversations in which diagnostic or prognostic uncertainty played a prominent role, as was most common in the NICU and PICU. Postponement will give families more time to reflect on all information provided to them and to come to terms with the unthinkable outcome that the

patient will not survive [11, 26, 32, 36]. Moreover, it gives more time to do additional tests and carefully observe the patient's situation, thereby getting more certainties [4, 6, 37].

Doctors in our study seldom introduced moral appeals to manage conflicts. Yet, if they did, this often led to an escalation or resulted in a 'deadlock.' It may well be that families feel overruled and less able to advocate for their dear one when confronted with strong moral statements by the medical team. This feeling of powerlessness might be further strengthened by doctors' appeal to authority and the power imbalance between doctors and families [38–40].

Dutch guidelines regarding end-of-life decision-making in the NICU, PICU and ICU advise doctors to timely discuss with families which role they wish to have in the decision-making process [41, 42]. Doctors who participated in our study did not apply this practice [21]. Yet, we observed that several families felt highly burdened by the idea that they bore final responsibility and that this deepened the conflict. It could be hypothesized that if doctors clearly, timely and empathically discuss with families to what extent they can and wish to participate in the decision-making process, this may prevent conflicts from escalating and even from arising.

We found that lingering conflicts appeared more frequently in conversations in the NICU and the PICU than in the ICU. This may be explained by the specific nature of the parent–child relationship and—consequently—parents' highly felt responsibility for their child's well-being. Previous studies have shown that although many parents were convinced that they should bear the final responsibility for end-of-life decisions, they felt highly burdened by this responsibility at the same time [43–45]. The higher frequency of conflicts in the NICU and PICU may also be explained by the fact that prognoses tend to be more uncertain in critically ill babies and children than in adult patients. This increases the possibility that a child will survive against all odds. This may further increase parents' sense of responsibility for whatever decision is made. In sum, doctors need to be attentive to the role of uncertainty and the burden of responsibility in the NICU and PICU.

Our results underline that families with limited health literacy are extra prone for the arising and deepening of conflicts. There is growing evidence that limited health literacy and low socio-economic status negatively affect patients' active participation in medical decision-making [46, 47]. It has also been shown that doctors primarily use instrumental instead of empathic communication with this group of patients [48]. In our study, we observed the same tendency.

Although previous studies suggest that religious convictions play a prominent role in team-family conflicts, this was apparent in only one emerging conflict in our study [3, 6, 23, 35–37]. This discrepancy raises the question whether doctors in retrospect overestimate the role of religion in the conflicts they experience. Yet, our result may also be due to selection bias despite our effort to include a wide variety of families, including their religious beliefs. A second limitation of our study is that we used audio-recorded conversations to minimize the intrusiveness of the data-collection. We were therefore unable to investigate the non-verbal communication between families and doctors. Third, this study only explores the practices in one NICU, one PICU and one ICU within one medical center. Fourth, our analysis may be colored by personal interpretations. For this reason, we discussed the emerging patterns with our group of main researchers and with our advisory board in multiple rounds. Fifth, we did not ask families and doctors how they experienced the (management of) conflicts that arose. It would be interesting to further investigate whether families, doctors, and nurses experience the conflict management strategies we identified in our study to be helpful, both in the short and longer term. The main strength of our study is that we audio-recorded and meticulously analyzed real-life conversations. Furthermore, we collected a large dataset of 101 transcripts, thereby pushing for maximum variation.

When conflicts arise, doctors' awareness of the topics these conflicts really concern and of the factors which complicate them are key [9, 49]. The use of empathic strategies deserves special attention, as our study and previous research indicate that these are most effective in resolving complicated conflicts and may even prevent them from arising [50–52].

#### Supplementary Information

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## Author contributions

ASS, AA and MAV had full access to the data and bear final responsibility for the integrity of the data and the accuracy of the data analysis. ASS, AA, EMAS, MJS, TGVC, JBMW, MH, AHK, ML, DLW and MAV contributed to the concept and design of the study and critically reviewed and revised the manuscript for important intellectual content. ASS, AA, EMAS, MJS, TGVC, MH, AHK, ML, DLW and MAV contributed substantially to the data analysis and interpretation. The first draft of the manuscript was written by AS and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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## Declarations

### Conflicts of interest

The authors declare that there is no conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Compliance with ethical standards

The Amsterdam UMC institutional review board waived approval of this study (W17\_475 # 17.548). Informed consent was acquired from one representative on behalf of the whole family. Families could withdraw their consent at any time.

### Data management and sharing

Data and coding books are available upon request.

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