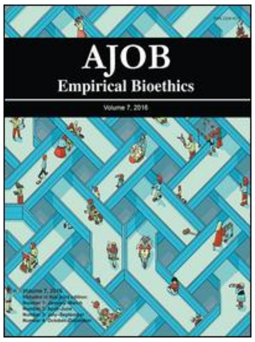
Decision making in pediatric oncology: Views of parents and physicians in two European countries

Badarau, Domnita O; Ruhe, Katharina; Kühne, Thomas; De Clercq, Eva; Colita, Anca;
Elger, Bernice Simone; Wangmo, Tenzin

How to cite

BADARAU, Domnita O et al. Decision making in pediatric oncology: Views of parents and physicians in two European countries. In: AJOB Empirical Bioethics, 2017, vol. 8, n° 1, p. 21–31. doi: 10.1080/23294515.2016.1234519

This publication URL: https://archive-ouverte.unige.ch/unige:111113
Publication DOI: 10.1080/23294515.2016.1234519



AJOB Empirical Bioethics

ISSN: 2329-4515 (Print) 2329-4523 (Online) Journal homepage: http://www.tandfonline.com/loi/uabr21

Decision making in pediatric oncology: Views of parents and physicians in two European countries

Domnita O. Badarau, Katharina Ruhe, Thomas Kühne, Eva De Clercq, Anca Colita, Bernice S. Elger & Tenzin Wangmo

To cite this article: Domnita O. Badarau, Katharina Ruhe, Thomas Kühne, Eva De Clercq, Anca Colita, Bernice S. Elger & Tenzin Wangmo (2017) Decision making in pediatric oncology: Views of parents and physicians in two European countries, AJOB Empirical Bioethics, 8:1, 21-31, DOI: 10.1080/23294515.2016.1234519

To link to this article: https://doi.org/10.1080/23294515.2016.1234519

AJOB EMPIRICAL BIOETHICS
2017, VOL. 8, NO. 1, 21–31
http://dx.doi.org/10.1080/23294515.2016.1234519

ARTICLE

Decision making in pediatric oncology: Views of parents and physicians in two European countries

Domnita O. Badarau[a], Katharina Ruhe[a], Thomas Kühne[b], Eva De Clercq[a], Anca Colita[c], Bernice S. Elger[a], and Tenzin Wangmo[a]

[a]Institute for Biomedical Ethics, University of Basel; [b]Department of Pediatric Oncology and Hematology, University Children's Hospital Basel; [c]Department of Pediatric Hemato-oncology and Bone Marrow Transplantation, Fundeni Clinical Institute

ABSTRACT
Background: Decision making is a highly complex task when providing care for seriously ill children. Physicians, parents, and children face many challenges when identifying and selecting from available treatment options. **Methods**: This qualitative interview study explored decision-making processes for children with cancer at different stages in their treatment in Switzerland and Romania. **Results**: Thematic analysis of interviews conducted with parents and oncologists identified decision making as a heterogeneous process in both countries. Various decisions were made based on availability and reasonableness of care options. In most cases, at the time of diagnosis, parents were confronted with a "choiceless choice"—that is, there was only one viable option (a standard protocol), and physicians took the lead in making decisions significant for health outcomes. Parents' and sometimes children's role increased during treatment when they had to make decisions regarding research participation and aggressive therapy or palliative care. Framing these results within the previously described Decisional Priority in Pediatric Oncology Model (DPM) highlights family's more prominent position when making elective decisions regarding quality-of-life or medical procedures, which had little effect on health outcomes. The interdependency between oncologists, parents, and children is always present. Communication, sharing of information, and engaging in discussions about preferences, values, and ultimately care goals should be decision making's foundation. **Conclusions**: Patient participation in these processes was reported as sometimes limited, but parents and oncologists should continue to probe patients' abilities and desire to be involved in decision making. Future research should expand the DPM and explore how decisional priority and authority can be shared by oncologists with parents and even patients.

KEYWORDS
pediatric oncology; decision making; children; adolescents; Switzerland; Romania

Decision making for pediatric patients is no longer a practice solely based on a clinician-centered model (Charles et al. 1999; Gillam 2015; Laine and Davidoff 1996; Whitney et al. 2006), but features collaboration between three parties (Lipstein et al. 2014; Whitney 2008; Whitney et al. 2008). Known as shared decision making, this model is the guiding process in all physician–patient–parent interactions in health care (Committee on Bioethics 1995; Spinetta et al. 2003). It requires adequate communication of medical information and options, while engaging all parties to contribute their views and identify values and preferences in order to reach a decision that is best aligned with the patient's best interest, parents' values and rights, and the child's wishes (Elwyn et al. 2012; Fiks et al. 2010; Gillam 2015; Whitney 2008; Whitney et al. 2006).

Shared decision making is increasingly complex and challenging when providing care for seriously ill children (Berlinger et al. 2013; Committee on Bioethics 2013; Gabe et al. 2004; Lipstein et al. 2014). Cancer in particular is a context in which decision making is charged with uncertainty and emotions (Hinds et al. 1997; Levine et al. 2012; October et al. 2014; Parsons et al. 2012). It is not only a lengthy but also a dynamic process across the illness's trajectory. It often requires striking a fine balance between maintaining hope and sharing responsibility for very difficult decisions (Levi et al. 2000; Mack et al. 2007; Miller et al. 2014; Valdez-Martinez et al. 2014). Retrospective research investigating parental experience and roles for children suffering from cancer reveal parents' willingness to be included in decisions and their struggle with constraints such as insufficient information, time pressure, and poor communication with physicians (Levi et al. 2000; Mack et al. 2011). Parents usually want to share responsibility with physicians for decisions being made. They are less likely to trust physicians and may even experience regret if they perceive their role as marginal (Mack et al. 2011). Especially when it comes to making very difficult decisions at the end of life, studies report that physician–parent collaborative decisions provide parents with a sense of having made the right choice (Hinds et al. 2005).

Studies on children's engagement in medical communication and decisions concerning cancer care show that children appreciate receiving information and being involved, though preferences about the degree of participation vary (Hedström et al. 2004; Young et al. 2003). Qualitative studies describe how involvement of children and adolescents in decision making is often limited (Coyne et al. 2014; Young et al. 2003). Due to the

CONTACT Domnita O. Badarau ✉ domnita.badarau@case.edu Institute for Biomedical Ethics, University of Basel, 28 Bernoullistrasse, CH-4056 Basel, Switzerland.

nature of cancer treatment decisions, which often involve standardized diagnostic, therapeutic, and follow-up protocols, patients do not have a real choice and eliciting preferences is many times futile (Coyne et al. 2014). Studies have shown that patients may not always be encouraged to ask questions, parents tend to shield children from information they deem difficult, and physicians give children short and technical answers (Clemente 2007; Young et al. 2003). These tactics in turn may lead to exacerbation of children's uncertainty and to children imagining something worse than their actual condition (Clemente 2007; Stewart 2003).

At present there is no standardized blueprint for how the triad should operate and collaborate in making decisions (Andre 2006; Berlinger et al. 2013; Whitney et al. 2006). This may explain data showing difficulties faced by parents, physicians, and children themselves when engaging in treatment discussions. Given the preference for shared decision making and the difficulties it poses in clinical practice, this study was conducted to explore decision-making processes for children with cancer at different treatment stages and from two European countries. As decision making is influenced by context, we selected countries with different cultural and institutional norms, and diverse legal prescriptions regarding treatment consent for minor patients. While Romanian law supports parental permission and for adolescent patients recommends assent, Swiss regulations stipulate that patients possessing capacity can provide consent, regardless of age (Hostiuc 2012; Ruhe et al. 2015b). However, in both countries a treatment refusal can be overruled based on the child's best interest standard. The aims of this article are to examine the perspectives of parents of children with cancer and the children's physicians on their experiences with participation in decision making. Furthermore, clinician and parental views and attitudes regarding minor patients' participation in discussions regarding treatment choices are also investigated. Child and adolescent wishes and views were sought only in Switzerland and are reported separately (Ruhe et al. 2015a). Based on our findings we propose new elements to be factored in when mapping decision-making processes for children diagnosed with cancer. Study results are therefore framed within the Decisional Priority in Pediatric Oncology Model (DPM) (Whitney et al. 2006).

Theoretical framework: The decisional priority in pediatric oncology model

In discussing treatment options, the DPM considers two characteristics—cure probability and superiority of each option—and distinguishes decisions based on availability of choices that can potentially lead to higher patient benefit. Decisions are classified in three categories based on (1) whether the superiority of a choice is undetermined, (2) whether the two options are fairly equal, or (3) whether a choice requires significant trade-offs between chances of cure and quality of life (Whitney et al. 2006). Depending on how the two characteristics of any treatment option combine for a given clinical case, the decisional priority can rest with one of the parties involved. That is, the physician or family can take the lead in identifying a preferable choice, assuming priority in decision making. For most decisions, the model recognizes the reality of physician's priority and allocates more space for parents and patients in decisions that have higher uncertainty regarding cure and when choices are similar in relation to expected outcomes. However, authority for approving the implementation of an identified choice (decisional authority) is recognized as belonging to parents, while children's opinions should weigh more heavily as they mature (Whitney et al. 2006).

Methods

This study presents data from participating parents and physicians in Switzerland and Romania, which were collected as part of a larger project investigating views and attitudes on child and adolescent capacity in health care in Switzerland. Interviews with minor patients were conducted only in the Swiss pediatric oncology setting and were previously published (Ruhe et al. 2015a). Research involving minor patients, labeled vulnerable by most research guidelines (Declaration of Helsinki 2008; Code of Federal Regulations 2009), was more challenging in Romania and unsuitable due to the fact that the researchers were in the first stages of establishing a collaboration. The study took place in eight pediatric oncology centers in Switzerland and three pediatric oncology centers in Romania. Four participating centers in Switzerland are university-affiliated pediatric clinics, while the remaining centers are within the cantonal pediatric hospitals. These centers are located in three different linguistic regions (German, French, and Italian) of the country. The three participating centers from Romania are university affiliated and are located in two distinct regions of the country. These centers care for children from all Romanian counties diagnosed with either solid tumors or oncological/hematological illnesses. The study was approved by the responsible ethics committees in Switzerland and the institutional ethics committees of participating centers in Romania.

Participant recruitment

The study sample was a nonrepresentative, purposive sample of volunteer participants of parents/proxies[1] and treating physicians caring for children (8–18 years) suffering from cancer. Participants were eligible for the study if they spoke English, German, French, or Italian (in Switzerland) and Romanian or English (in Romania). Recruitment of proxies was based on physician selection of patient cases that met the study inclusion criteria. Physicians informed the family about the study and asked whether participants would agree to be approached by a member of the research team. Given the sensitivity of the study topic, proxies were informed of the study by collaborating physicians at the earliest 3 weeks after the diagnosis disclosure. In Switzerland, after obtaining proxy permission, the physician would forward their contact details to the research team. In Romania, once the proxies agreed, the physician would introduce them to the researcher in the hospital on the same or following days.

---

[1] Parent(s) and proxy are used interchangeably in text to mean the adult, legal representative in charge of the minor patient's medical care.

The research team gave proxies detailed presentations about the study and invited them to participate in an interview. If they accepted, a day and time for the interview were agreed upon. For each proxy interviewed for the study, the treating physician's participation was subsequently requested to discuss corresponding patient cases. Interviews with physicians usually took place in their offices, while those with proxies were carried out mostly in a private hospital area.

Sample

Interviews were conducted with 63 participants, 35 (16 physicians and 19 parents) in Switzerland and 28 (10 physicians and 18 proxies) in Romania (Table 1). The total number of physicians participating in this study is lower because five physicians in Switzerland and five in Romania discussed more than one case. Most of our proxy sample included parents, with the exception of three grandmothers in Romania. These grandmothers were involved in patient care from diagnosis onward and were accompanying the patient during hospital stays, and therefore were interviewed as patient proxies. Participants were interviewed only once and the discussions took place either at 3 weeks, several months, or at a maximum of 2 years after the initial diagnosis of cancer in Switzerland and 5 years in Romania. Two parents in Switzerland and one in Romania were interviewed after their child had relapsed or a secondary tumor was diagnosed. In the case of one patient in Romania the tumor was inoperable, and two more proxies were interviewed after being informed that their child developed metastasis. At the time of the interviews patients were still undergoing therapy with a curative goal. Participants' characteristics from Romania were previously described (Badarau et al. 2015).

Data collection

Three members of the research team conducted the interviews (one in Romania; two in Switzerland). Physicians in Romania invited 21 proxies to participate, 3 of whom declined participation due to their child's advanced illness or disinterest in the study's topic. In Switzerland, as parents were selected by physicians and only those interested in the research contacted the study team, the exact number of initial families is not known. Interviews were audio-recorded, except for four in Romania where participants declined and for which detailed notes were taken. Proxy interviews lasted from 25 to 80 minutes and physicians' interviews ranged from 20 to 123 minutes. Interviews followed the same semistructured interview guide that was developed by the researchers based on empirical research conducted on decision making in pediatric oncology by Hinds and colleagues (Hinds et al. 2001). The guide was divided into three sections, covering general information about the patient's situation; treatment options; and discussions and decision making and patient's participation in discussions (see appendix).

Data analysis

Tape-recorded interviews were transcribed verbatim in the language in which they were conducted, except for those in Romanian, which were directly translated into English during transcription. Romanian interview translations were checked by an independent researcher fluent in both languages. Transcript quality was double checked by one member of the research team. Interviews were analyzed using a thematic analysis approach (Braun and Clarke 2006) and employing MAXQDA 11 software (1995–2015 VERBI GmbH product) for qualitative data. Swiss interviews were transcribed in the original German, French, Italian, or English language and the researchers conducted the analysis on multilingual material. In a first step, three members of the research team open-coded three transcripts to build a coding scheme (Braun and Clarke 2006). For this step, researchers were fluent in all languages of the transcripts that were analyzed in a group of three: English for the Romanian interviews, and French and English for the Swiss. Thereafter, two members fluent in each of the transcript's languages coded most of the interviews together using the coding scheme. For the Swiss interviews one pair of researchers fluent in Italian and French and another pair fluent in German and English carried out this step. One researcher was fluent in all four languages and conducted all Swiss data analysis. Throughout the coding process, new codes were added where needed. In a final step, all codes were checked and grouped together under specific topics such as Medical Communication, Decision Making, Inclusion of Children, Lived Experiences, and Hope and Spirituality. All coders came together to

Table 1. Participant characteristics ($N = 63$).

	Proxies ($n = 37$)			Physician ($n = 26$)		
	$n = 19$			$n = 16$		
Switzerland	Age (years)	Gender		Age* (years)	Years of experience in pediatric oncology*	
	44.6 (range 33–52)	Male	$n = 4$	43.6 (range 36–54)	>12	6
					9–12	3
		Female	$n = 15$		5–8	3
					0–4	2
	$n = 18$			$n = 10$		
Romania	Age*	Gender		Age	Years of experience in pediatric oncology	
	43.3 (range 34–60)	Male	$n = 1$	45.3 (range 30–62)	>12	4
					9–12	1
		Female	$n = 17$		5–8	4
					0–4	1

*Not all participants provided this information.

discuss the topic of decision making in pediatric oncology to agree upon data interpretation. Thereafter, all coded segments of the 63 interviews related to decision making were sorted out and further categorized. Discussions among researchers led to the development of three main categories and subcategories. Representative texts for this final analysis step were chosen and where necessary translated from German, French, or Italian to English by two researchers, and were checked by one fluent in all languages. Fictitious child names followed by patient's actual age accompany the quotes.

Results

Our thematic analysis resulted in three main categories that describe how decision making occurred in pediatric oncology: heterogeneous decision making at diagnosis; elective decisions; and decisions outside standard protocol.

Heterogeneous decision making at diagnosis

In both settings, at the time of diagnosis, proxies and physicians described there being little or no room for making a decision. Physicians and their expertise usually played a major role at this time. However, in the course of illness greater parental input and collaboration took place. Parents' and sometimes children's participatory role increased when prognosis was poor or patients were diagnosed with rare cancers with no standard treatment.

Standard protocol as the sole decision

At the time of diagnosis, most parents felt they had no or little choice concerning essential decisions that determine health outcomes. For most cases, the only reasonable treatment option was to follow established treatment protocols for that particular oncological illness (Quote 1 in Table 2). Parents and oncologists reported that if a decision were to be made, then theoretically, it had to be between having and not having treatment. The latter was not considered an option since they were dealing with a life-threatening illness. Likewise, opting for treatment meant following the standard protocol (Quote 2 in Table 2). At the same time and in relation to the option to follow a protocol, for parents the decision to start treatment was essential, as this had real consequences for likelihood of cure. As one mother put it, it was the "only chance to get to a good result" (Melissa, 10-year-old, Romania).

Parental challenges in considering the treatment protocol

Irrespective of type of cancer, parents and oncologists in both Switzerland and Romania mentioned how treatment decisions, even for standard protocols, bear complex levels of uncertainty. Families were ill situated to interpret all factors that go into determining the best treatment. Parents emphasized difficulties with participating in health care decision making and viewed oncologists' guiding role as paramount. Equally, they appreciated being listened to by physicians when decisions were made (Quotes 3 and 4 in Table 2).

Exercise of therapeutic privilege in decision making

Oncologists' views on decisions considered essential included their primary role in identifying best options. In few centers, physicians reported that at the time of diagnosis they discussed therapeutic choices among colleagues in order to select the protocol to propose to parents. This was regarded as an a priori step in decision making, before involving parents, and was more likely to take place for patients diagnosed with rare tumors. Oncologists described subsequent parental participation as not influential, but necessary in authorizing treatment administration (Quotes 5 and 6 in Table 2).

Table 2. Heterogeneous decision making at diagnosis.

Standard protocol as the sole decision	
1 Jake's mother (Patient age 12, Ch)	"There was no, like options. They said, he's at this stage […], he has a high risk group for this, and this is […] the treatment, this is the protocol."
2 Melissa's physician (Patient age 10, Ro)	"In general … 100% of the cases, parents want to go through with the treatment because they know that this is the only solution. Without the treatment, the consequences are clear."
Parental challenges in considering the treatment protocol	
3 Desiree's mother (Patient age 11, Ro)	"I don't have the sufficient knowledge to decide … from a medical point of view what it is best for my child. I understood that there is a protocol, standardized, worldwide and do I personalize it? On what basis?"
4 Charlie's mother (Patient age 14, Ch)	"They [the physicians] took the decisions, they knew, they have the competence, but they listened to us, when I said: […] I have noticed this, they made their considerations, they evaluated things, but they listened."
Exercise of therapeutic privilege in decision making	
5 Tyler's physician (Patient age 17, Ro)	"Well, when it comes to decisions, I think that the subsequent participation [of the parent] is not significant because essentially when you get the diagnosis, the decision is taken [to follow a specific protocol] … So they [parents] are the ones who make the decision [to authorize the treatment]: 'Yes, sir, let us begin.'"
6 Zoe's physician (Patient age13, Ch)	"The parents were involved a little bit […] But in the end the parents were not confronted with the questions: Do you want Option 1 or Option 2, but we [physicians] came up with our recommendation, which was developed 'halfway-together.'"
Shared decision making: poor prognosis at diagnosis	
7 Zoe's physician (Patient age 13, Ch)	"[…] overall it is a rather bad prognosis. And indeed also a really unusual tumor and that was also what bothered the parents […] very much. […] we also collaborated with professor [specialist for that tumor] … and we actually developed the therapy."
8 Tyler's physician (Patient age 17, Ro)	"Of course, we had a discussion. The parents came in without him [Tyler]. But after that, I had a triadic open discussion with him, together with. […] since this was also a very serious case. And precisely because it is so serious and rare, the treatment has to be extremely harsh. And when it comes to these rare tumors, there is no protocol for them in the world."

Note. Ro, Romania; Ch, Switzerland.

Shared decision making: Poor prognosis at diagnosis

For three patients, physicians described how at diagnosis treatment was completely outside standardized protocols due to the gravity and rarity of the type of tumors in children. Decision making for these cases required specialist collaboration and team efforts to come up with a treatment plan. Under these circumstances parental involvement in decision-making processes heightened as more discussions took place before arriving at a decision (Quotes 7 and 8 in Table 2).

Elective decisions

Participants reported that once treatment was established, parents and children were provided with opportunities to take charge of so-called elective choices that included two categories: those that concerned quality of life and those medical in nature. Elective decisions were distinguished from the protocol decision based on the fact that the health outcome was independent. These optional choices did not have a direct impact on therapy results, unless they meant postponing treatment.

Improving quality of life during treatment

Elective decisions regarding the modality of administering the treatment (orally or through an intravenous line) and adjusting sessions around holidays had the purpose of improving quality of life during treatment. They were made available by physicians as long as they did not interfere or impact the cancer-directed therapy (Quotes 9 and 10 in Table 3). Oncologists also mentioned choices that were in children's hands, such as what devices to use for administering medication. They reported that such involvement of children gave them some control over what was happening (Quotes 11 and 12 in Table 3).

Medical choices

Some elective choices involved more intricate considerations. With respect to cancer therapy's immediate or late side effects, parents and children were confronted with several medical options. However, these choices, though of a medical nature, posed lower degrees of complexity, and were deemed to be safe if made by parents and patients as they did not interfere with the cancer-directed therapy. One mother mentioned her son experiencing some side effects from the medication prescribed for his heart condition. After consulting with the cardiologist he decided between two drugs (Quotes 13 and 14 in Table 3).

In four Swiss cases, participants discussed the option of undergoing fertility preservation therapy. Parents noted that choices to undergo procedures for fertility preservation weighed a great deal on their adolescent children and three of them clearly expressed the desire to become parents. Despite it being an elective choice, the patients' role was sometimes challenged when parents viewed it as too hasty or likely to delay cancer treatment (Quotes 15 and 16 in Table 3).

In contrast to Switzerland, where fertility options were discussed, one oncologist from Romania mentioned that measures for storing sperm and eggs are usually not addressed with parents and patients. The limited capacity to offer this treatment and the technique's associated costs were considered restrictive (Quote 17 in Table 3).

Table 3. Facultative decisions.

Improving quality-of-life during treatment	
9 Jessica's physician[a] (Patient age 16, Ch)	"We try to let them decide where they can, in the sense that, we try to find compromises on how the therapy is implemented: on the checkups, visits, maybe on the nutrition, on going to school, outside activities. But on the other hand, we do not ask: do you want to do the treatment or not. If we think that the treatment is worthwhile, we do not leave the choice, we explain why we will do the treatment in the hope they understand."
10 Dillan's mother (Patient age 14, Ch)	"On his birthday he could stay at home. That he could do. That was an option [we were given] […]. Normally we would have started on Friday, but then we began on Saturday."
11 Aaron's physicians (Patient age 14, Ro)	"[Aaron asks] what is the treatment? How many days does he have to do it, how are the drugs called and especially when he has to have a puncture done and when he can go home?"
12 Carrie's physician[b] (Patient age 14, Ro)	"'I [Carrie] am afraid of the catheter, physician. Don't put it.' I tell her: […] But look, see? You cannot even see your veins anymore. It would be much easier if you had a catheter or a port." And I [physician] say: 'Ok, we will think about what treatment you will have after all and we will decide what to do.' In the end, there was no need for the port anymore because she will start the metronomic therapy."
Medical choices	
13 Tyler's mother (Patient age 17, Ro)	"[The physician] said that he [Tyler] should take which one [of the drugs] he wants out of the two because both are good. And then he [Tyler] asked him [the physician] and took [the drug]. So, he [Tyler] got informed about the specific drug. But regarding the cytostatic sessions, it is much more complicated."
14 Cristiano's mother (Patient age 15, Ch)	"There were two choices: it is a medication that one can, I believe, take four times or ten times. And we opted for the shorter path because Cristiano just wanted to be done. […]… This is a bit more intensive but not the longer treatment course."
15 Ben's mother (Patient age 14, Ch)	"I was astonished because he started to cry right away and said that he wanted to have children. [and asked] Will I not be able to have any children now?"
16 Angelina's mother (Patient age 18, Ch)	"With regards to that decision (ovum preservation), she really wanted to do the operation … I, as a parent, also listened to the advice of the physicians, what they thought about this. Thus, I understood that the health of my daughter was at risk there. So, I decided that she would not do the operation, that she starts the chemo."
17 Tyler's physician (Patient age 17, Ro)	"They [parents] might ask especially in the case of girls, but also in the case of boys, especially for the testicular cancer cases. We take out a testicle. But … it happened that they asked questions. […] Unfortunately in our country, the methods of preservation so to speak are still in the initial stages. That is, abroad you can collect sperm, eggs etc. to freeze them even before you start the cytostatic treatment. Here, these types of banks are limited, so to speak, when it comes to money."

Note. Ro. Romania; Ch, Switzerland.

[a] Jessica's physician also discussed Charlie's diagnosis and treatment.

[b] Carrie's physician also discussed Lisa's and James's diagnosis and treatment.

Decisions outside standard protocol

Some participants were confronted with decisions involving a choice between the standard protocol and a research protocol or clinical trial. For some, such an option was given early after diagnosis, while for others research participation choices arose when standard protocols failed. These decisions differed from those made at the time of diagnosis not because of the point in time when choices were presented, but due to physicians' medical assessments. In proposing research participation, oncologists either considered the research protocol to be equally effective to the standard one or evaluated a clinical trial to be superior to attempted standard therapies.

Choosing between standard or research protocol

In the Swiss sample, several patients and parents were asked quite early in their treatment to choose between standard and research protocols. Mia's mother (patient age 14, Switzerland) explained, "They [the physicians] said there is either the standard arm or a [research] study on the side. In the end, she [Mia] is in the standard arm." However, she also reported that this was not viewed as a decision to be made by parents (Quote 18 in Table 4). Another parent highlighted the choice made in collaboration with the child to enter a research protocol after the completion of the standard treatment as an additional measure to reduce relapse chances (Quote 19 in Table 4).

Decisions to step out of standard protocol were also made in a few cases as a result of a patient's poor response to therapies. In such circumstances, physicians described how they looked for alternative solutions that could increase the patient's sensitivity to treatment (Quote 20 in Table 4). In contrast to the Swiss data, parents in Romania did not discuss participation in research in a straightforward manner. The research option was not identified overtly, but some parents did mention children undergoing treatment that was not the standard protocol. Cody Ray's mother (Patient age 10, Romania) mentioned that her child "did not respond to treatment like all the other children"

Table 4. Decisions outside standard protocol.

Choosing between standard or research protocol		
18	Mia's mother (Patient age 14, Ch)	"But speaking about making treatment decisions, I would say, in the end, we as parents, did not really make a decision, the treatment is already there, that's it."
19	Sam's father (Patient age 10, Ch)	"After the first nine cycles [of chemo] plus radiotherapy plus surgery, we could decide whether we wanted half a year of oral cytostatic drugs [as part of a research protocol]. […] During the first part [of the treatment], he [Sam] and we, already decided that we wished to take part in this study."
20	Angelina's physician (Patient age 18, Ch)	"It was a [diagnosis] without metastasis, and with a relatively good prognosis but dependent also on the tumor response. And she did not respond well, she then belonged to the poor responders. Then we discussed with her [that] there is this choice to treat her according to the standard arm [of protocol] or to use a chemotherapy that is part of a study, with the aim to intensify [the chemo]. We made the decision together with her to treat using the standard therapy."
21	Cody Ray's mother (Patient age 10, Ro)	"So for around two weeks, even with cytostatics, he did not respond to the treatment. Finally yes, but the risk of relapse is very high (sobbing). […] I do not know too much. So how the treatment will be … So … My understanding is that the next treatment will be, so it will not be like the one [standard protocol] for the others."
22	Tyler's physician (Patient age 17, Ro)	"So there are [different] therapeutic groups … […]So there are protocols of phase 4, meaning well established. And there are those of other phases that are less well proven (evidence-based). Of phase 3, 2, and 1 (phase 1 clinical trials), which are experimental. So the problems arise when you don't have a 4 phase protocol that is well established and that you know that leads to results between certain percentages and that has well proven results on thousands of children already."
Stepping into the unknown after several treatment decisions		
23	Celine's physician (Patient age 13, Ro)	"What happened is that the second time she [Celine] had a relapse, she [the mother] refused a new surgery, claiming that the surgery risks are too high. […] But she said, that she [Celine] has to have the chemotherapy and radiotherapy. Ok, I told her that we do not have that many chances if the surgeon does not take it out from there. But, in the end, she [the mother] agreed to the treatment [chemotherapy without a second brain surgery]."
24	Cristiano's physician (Patient age 15, Ch)	"[After the second relapse] then it is a very experimental treatment. […] Well we were not going to give up. Another option would have been that we do palliation, gentle chemotherapy, as long as possible to hold a good quality-of-life. That was something that we [as physicians] would have had to accept also … But it was clear for the parents: we are going to try this possibility [experimental treatment]. I think, the parents talked with him about it [also]."
25	Christiano's mother (Patient age 15, Ch)	"[He asked] 'Mum, what was the third [option] that he explained to us? I did not quite understand that.' And then I said: Well, I don't know how to explain that to you … And then he said: 'Right? I did get that right, they would just let me die; and I don't want to die yet …' And he clearly told the physicians and they […] said: 'Yes, I think we are dealing with a fighter.'"
26	Tyler's physician (Patient age 17, Ro)	"So the problems arise when you have exhausted the [standard] protocol or he [the patient] had a relapse and in that moment you have to use the second or third line (therapies). From that moment onwards you step into … problems because the second and third lines are not proven so clearly. There are more options and in that moment … indeed, in that moment the parents' decision regarding those proposals is more significant, no?"
27	Serena's physician (Patient age 14, Ch)	"Well, we evaluated if we could operate again. […] But the neuro-surgeons said that they did not want to operate because that would cause more harm. And one option, of course, would have been not to do anything … But that was out of question for everyone. […] She (patient) was present. But I think I presented the option not to do anything when the patient was not present."

Note. Ro, Romania; Ch, Switzerland.

and that the physician had to try something different with her child. However, she did not perceive it as a decision, but as an exercise of physician's expertise (Quote 21 in Table 4). Comparable to parents' reports, physicians in Romania did not discuss proposing as treatment option a research protocol besides the standard one. They only talked about improvements in cancer therapies for children in general. Oncologists in Romania mentioned different standardized protocols based on the country where they were developed and that they differ in small ways. They further elaborated that the change in the line of therapy took place when the standard treatment did not render the expected results in a patient (Quote 22 in Table 4).

Stepping into the unknown after several treatment decisions

As treatment continued, for 14 patients (7 in Switzerland and 7 in Romania), events arose where additional essential decisions became necessary. Participants in both groups mentioned that these situations often arose in case of treatment failure, relapses, and when standardized options were no longer available. These decisions were made collaboratively with parents and sometimes children (Quotes 23 and 24 in Table 4).

Evident from participants' accounts was parents' and physicians' unwillingness to let go even when the illness took a downward turn where the patient's demise could be anticipated. Thus, both parents and oncologists felt that all should be done to make sure that patients got all chances to fight against their odds (Quote 25 in Table 4). Typically, oncologists believed that in these complex situations the decision had to be more up to the parents and patients. However, the grim circumstances and the unlikely cure were not always openly discussed with patients (Quotes 26 and 27 in Table 4).

Discussion

Results from this study highlight decision making's complex and heterogeneous nature in pediatrics (Gabe et al. 2004; Hinds et al. 1997; Lipstein et al. 2014; Spinetta et al. 2003). At the time of diagnosis, physicians' guiding role was dominant as they identified the appropriate treatment and a suitable protocol for the particular cancer and advised starting the treatment. However, in the case of rare malignancies, decisions outside standard protocols were made that required not only consultation with different specialists, but also more discussions with families, highlighting their participatory role in decision making. Additionally, for elective decisions, many times parents and patients had a prominent role. Therefore, there was a shift in control from physician to family when choices affected quality of life without jeopardizing treatment outcome. The heterogeneity of decision-making processes is illustrated by the choices offered to some families to opt for research protocols when prognosis was poor.

Our research shows that the central focus of decision making in both countries and in reference to essential and elective choices was the child's best interest. Parents and sometimes patients made various choices regarding treatment, medical tests, or care procedures. They distinguished decisions based on the number of options offered by physicians—only standard protocol or opting between research and standard treatment—and based on their content and significance for health outcomes—essential decisions versus elective ones. These constitute different decisional levels, at which decisional priority is assumed by one party or shared, depending on context and available choices. These levels can be incorporated into Whitney's two-dimensional decision plane (Whitney et al. 2006), which also describes decision making as heterogeneous. Based on the study's results, we explore how the model fits the reality of clinical practice and challenge decisional priority and authority roles attributed to parents and/or physicians. A standardized blueprint for triadic decision making has to be more sensitive to switches in decisional priority and authority among parties. In decision making for pediatric oncology patients this must also encompass more strengthening of patient involvement in this process.

At diagnosis, for most patients decisions were perceived as a "choiceless choice" (Carroll et al. 2012) situation for parents and children. Oncologists proposed a standard protocol because, in their view, it was the best treatment available for the specific cancer diagnosis. Interviewees described these decisions as essential insofar as they had a direct impact on chances of cure. Coyne and colleagues (Coyne et al. 2014) describe them as "no real decision." This raises questions because parental authorization of treatment is still necessary even when decisional priority lies with oncologists (Whitney et al. 2006). In considering physicians' leading role in treatment selection at diagnosis, it should be emphasized that families still participate in voluntary decision making. What appears a "choiceless choice" for families is not the result of physician constraint or preexclusion of other similarly good options, but the consequence of a constraining context (Nelson et al. 2011). In pediatric oncology, decision making is an ongoing process and participants identified several instances in their children's illness when they were faced with one or more essential decisions. As such, reflections on a model of decisional priority and authority should not obscure parties' interdependency, particularly that of parents and oncologists. Our results reflect this potential conflict: Parents discussed their challenges with authorizing decisions and simultaneously described physicians' roles as inextricable to parental permission for treatment. Parents expressed how they trusted physicians and how medical expertise was crucial in making treatment decisions. This is consistent with previous research reflecting the influences of social factors on decision making (Carroll et al. 2012; Coyne et al. 2014), which is subjected not only to determinations of risk and benefits, but to a broader social interaction context in which relationships and trust factor in (Carroll et al. 2012). This expands the notion of physicians' decisional priority in relation to chances of cure at the time of diagnosis as framed by the DPM. Whitney's model acknowledges the pivotal role of oncologists in prioritizing the treatment option based on medical assessments (Whitney et al. 2006) when, in fact, parents invest and support oncologists with decisional priority through their trust and appreciation of their professional recommendations.

Some parents and patients were confronted with making essential decisions when they had to opt between standard and research protocols. This finding complements research on how, in pediatric oncology, parents and children could realistically make only small decisions (Coyne et al. 2014). Additionally, for other patients for whom therapy failed, decisions had to be made in consideration of how invasive or aggressive the treatment should be. Choices included experimental treatment and palliation with low doses of chemotherapy. These decisions were subsequently characterized by increased family involvement, especially in view of the lack of choice at diagnosis. Parents and sometimes children had greater input in late phases of the illness. This greater sharing of decisions in the context of relapse or terminal illness is observed in studies investigating end-of-life decision making and transition to palliative care (Hinds et al. 2005; Hinds et al. 2001; Tomlinson et al. 2011). The DPM (Whitney et al. 2006) includes such essential decisions, termed "no best option." These decisions depend on context and must be shared between families and physician or may be fully assumed by either parents or patient. These elements proportionately define the benefit margin to be expected to result from choosing one option over the other, as the medical superiority of the available treatment options is not clear (Whitney et al. 2006).

Families had opportunities to make elective decisions, similar to nursing or care procedures identified in other research (Coyne et al. 2014). They were confronted with several decisions involving at least two options about how and when care would be delivered. These decisions mainly consisted of elective choices, usually whether to take drugs orally or intravenously, that paralleled the more complex cancer-related treatment. Participants described how patients were encouraged to make such decisions or their preferences were accommodated as much as possible. The leeway parents and particularly children had to opt for something was greater because the final decision would not interfere with cancer therapy. In Swiss interviews, fertility preservation was one of the available elective decisions. These decisions were significant and of higher complexity than daily care options. However, patients' role was overshadowed in some cases when final decisions were more a result of parental persuasion. Adolescent preferences can be swayed by parents' and oncologists' prioritizing the start of treatment over desires to undergo fertility preservation. Young females may receive disparate support for fertility preservation decision making compared to males. This can partially be explained by the relatively uncomplicated technique to collect and preserve sperm as opposed to egg and ovarian tissue (Kohler et al. 2011; Peddie et al. 2012). These elective options, especially complex ones, and the decisional priority clash that may emerge are not explored by Whitney's model (Whitney et al. 2006), which overlooks that in the course of illness parents and patients are likely to face multiple decisions outside cancer-directed therapy. These options may be important in giving patients back some of the sense of control that usually is lost in the context of a cancer diagnosis (Coyne et al. 2014; Hedström et al. 2004). The DPM also does not address the more difficult decisions around opting for medical procedures that are highly personal (fertility preservation) and can impact health outcomes, or who should give authorization for them.

Regarding opportunities for treatment decisions, we observed some differences between countries. Fertility preservation was an elective choice discussed only in our Swiss data, which may be explained by the existence of a Swiss therapeutic network since 2010 (Wunder et al. 2012). In Romania, fertility preservation is available, but offered only in private hospitals and practices (E-fertilitate.ro 2016), and, as mentioned in Swiss interviews, physicians and parents may discourage such treatments when they cause delays to cancer therapy. Additionally, the procedures for preserving fertility are expensive, which would restrict access for Romanian patients, but also poses a barrier in Switzerland, where oncofertility is not covered by health insurances (Wunder et al. 2012). In Swiss interviews both oncologists and parents mentioned choices regarding research participation, whereas in Romania participants did not openly address such options. The latter appear to have fewer opportunities to make or participate in essential decisions. This finding has a twofold consequence for the DPM. First, the threshold for requiring patient assent may be higher in research than clinical care—and patient dissent is ethically binding (Committee on Bioethics 1995). Therefore, for these decisions authority may be equally shared between parents and children, who can even make the final decision, provided they are mature enough (Joffe et al. 2006). One of the DPM's pillars refers to the decisional priority and authority necessary to reach a decision and which is assigned to oncologists, parents, and sometimes patients (Whitney et al. 2006). While the priority in selecting an option is presumably shifting between parties, the DPM fails to explore whether the authority to decide truly lies with parents only or should be shared with oncologists and even with children (Andre 2006). Regarding research participation, differences between Swiss and Romanian legislation about recognizing patient assent significantly influence the sharing of decisional authority with patients. Under Romanian legislation, children's interests are promoted by parents (Hostiuc 2012) and, similar to the United States, it is only when parents are neglectful that the patient's wish can weigh more heavily in medical decision making (Ross 2009). Swiss law supports the self-determination of competent patients, independent of age (Ruhe et al. 2015b), and therefore promotes minors' participation and decisional authority when it comes to research also based on the requirement of voluntariness.

Second, research suggests that decision making may be influenced by factors such as institutional organization and differences in clinical communication (Albrecht et al. 2008; Joffe et al. 2006; King and Moulton 2013). In our study, it appears that families in Switzerland were explicitly offered opportunities to participate in essential decisions concerning research. This difference may partially be the result of varied practices of informing patients about and offering them clinical trials (Albrecht et al. 2008), of seeking permission or assent and supporting patients and families in making decisions (Joffe et al. 2006; Miller and Joffe 2009). It may also be the result of a conflation of protocols for standard and experimental therapy, as many standard protocols have some research component (de Vries et al. 2011; Dekking et al. 2015). The research topic was more prominent in Swiss interviews, as only some physicians in Romania mentioned research trials in general, while parents rarely talked about different or new protocols. This country difference may reflect research capacities and infrastructure imbalances within Europe and disparities in access to the newest clinical trials (Vassal et al. 2014). It could also stem from lack of protocols for communicating with families about research, limited capacities in terms of multidisciplinary support (such as a research nurse, ancillary personnel), and physician lack of time due to high number of patients (Clarke and Fletcher 2003; Dove et al. 2016; Vassal et al. 2014). These issues can be observed even in countries that have well-developed health care systems, but are more likely to affect smaller, regional clinics or crowded hospitals in both countries. However, decreased research infrastructure and increased patient burden per physician are typical of Romanian hospitals. Such contextual issues are not fully explored within the DPM, thus limiting its usefulness for diverse clinical situations or settings.

Furthermore, the model fails to recognize external influences, such as consultation with other family members to identify choices, which shape decision making and go beyond evaluations of medical facts (Carroll et al. 2012). It overlooks potential for disagreements or open conflicts between not only physicians and parents, but parents and patients (Andre 2006). As our data suggest, lack of consensus may occur even when deciding on elective choices, and it is more likely that patient's voice will dim when it does not match parents' and physicians' views (Ross 2009). As such, it seems intuitive that in a theoretical decision-making model, patient role should be considered independently of parents' and not merely collapsed under that of the family (Andre 2006).

Study limitations

This study's results need to be interpreted in view of its strengths and limitations. Data analysis was conducted on multilingual materials (English, French, German, and Italian), which may be challenging for interpretation. However, all coders were fluent in English and the Swiss data coders were always grouped in language pairs according to fluency, with one researcher proficient in four languages conducting all stages of analysis. Additionally, all other researchers in the team have very good knowledge in all languages. They participated in discussions on data and conducted the final analysis for the decision-making topic. Interview participants are from two distinct European countries with different health care systems, disparities in infrastructure, and care services provided within pediatric cancer units (Vassal et al. 2014). Despite these differences, participants in both countries described decision-making processes in similar ways, and patterns across the data overlapped to a great extent. Additionally, the study captures both parental and oncologist perspectives and therefore offers a comprehensive representation of the communication and experiences of making decisions regarding cancer for minor patients. Perhaps in view of some parents' refusal to participate due to their child's being at the end of life, the results are more representative of decision making for patients for whom treatment has a curative goal, including cases of poor prognosis. We did not include patients' voices, which might have given a clearer and perhaps more comprehensive portrayal of decision making. However, interviews conducted with child and adolescent patients in Switzerland, published elsewhere (Ruhe et al. 2015a), support the decision-making processes described in this study. Parents and physicians did mention instances of patient participation in expressing preferences, choosing options, or making elective decisions. The results may be biased by the fact that we interviewed participants about decisions and experiences that in some cases took place as long as 12 months or more in the past. Additionally, participant inclusion may be biased by personal views and interest in interview topics. Social desirability may have also played a role in the way participants described certain situations. Innate to the design of qualitative methodology, results are not generalizable to all pediatric oncology settings. Nevertheless, the diversity of pediatric oncology units included in this study, from university-affiliated hospitals to smaller clinics belonging to two European countries with different health care systems, is likely to be representative of oncology care in pediatrics in both high- and medium-income countries. Results also represent a deep exploration of experiences around decision making in these two settings.

Conclusion

Overall, results from our study show that decision making in pediatric oncology evolves along a continuum, with families and physicians having to sometimes make decisions at diagnosis based on a sole choice, only to be presented later in the illness' course with other decisions involving more options and of different complexity. These processes match Whitney's DPM (Whitney et al. 2006) and point to its adequacy in guiding clinical practice. However, in moving forward to empirically support a decision-making framework in pediatric oncology, researchers need to consider its flexibility to accommodate contextual differences and potential cultural nuances. Clinicians, ethicists, and researchers should broaden the concept of collaboration to bring the focus not on who makes the decision, but how a decision is being made. Elements such as the distinct roles of patients, parents, and oncologists, diverging opinions and conflicts, and the existence of different types of decisions have to be incorporated. Taking into account the different constraining factors—no choice or difficulties in distinguishing between several choices, uncertainty, and time pressure—communication and sharing of information among the three parties seems to be the optimal manner of increasing both parental and patient participation in these processes. The DPM is a good starting point and reflects the constraining context of a cancer diagnosis, but fails to recognize the many ways oncologists can share decisional priority and/or authority with parents and even patients. Future endeavors to improve decision-making frameworks should place more emphasis on physician–parent–patient collaboration and the support families need to enhance their role in these processes. Additionally, the importance of communication in reaching decisions with which all parties can comply and adhere to needs more acknowledgment.

Acknowledgments

We thank all participants in this study and their families for sharing their stories with the researcher and devoting time and energy to this study. Additionally, we are most thankful to our collaborating physicians and all other medical staff at each of the centers for their generous support for the project.

Author contributions

Domnita O. Badarau conceived the study in Romania, drafted and reviewed the data collection instruments in Romania, supported the design of study tools in Switzerland, collected and analyzed data from Romania, supported the collection and analysis of data from Switzerland, conceptualized the article, wrote the first draft, revised it several times, and approved the final article as submitted. Katharina Ruhe collected and analyzed the data from Switzerland, assisted in analyzing the data from Romania, and revised and approved the final article as submitted. Thomas Kühne assisted with the conception of the study in Switzerland, supported the recruitment for the study in Switzerland, supervised the study in Romania, critically revised the initial article, and approved the final article as submitted. Eva De Clercq collected and analyzed the data from Switzerland, assisted in analyzing the data from Romania, and revised and approved the final article as submitted. Anca Colita assisted with the study conception in Romania, facilitated the recruitment for the study in Romania, and revised and approved the final article as submitted. Bernice S. Elger conceived the study in Switzerland, drafted the design for Switzerland, provided critical input for the conception of the Romanian study, supervised the data collection in Switzerland and Romania, and revised and approved the final article as submitted. Tenzin Wangmo drafted the study design for Switzerland, provided critical input for the conception of the Romanian study, drafted the data collection instruments, supervised data collection in Switzerland and Romania, analyzed the data in Switzerland and assisted in analyzing the data from Romania, and critically revised and approved the final article as submitted.

Funding

The authors acknowledge the financial support provided by the Botnar Grant, Basel, and the HEMMI-Stiftung, Basel, Switzerland, that supported the project in Romania. The Swiss part of the project was funded by the Swiss National Science Foundation (SNF) grant (National Research Programme 67 "End of Life," number. 406740_139283/1).

Conflicts of interest

The authors have indicated they have no potential conflicts of interest to disclose.

Ethical approval

The conduct of this study was first approved by the leading ethics committee at the researcher's institution (Basel Ethics Committee EKBB, No. 51/12). Subsequent approval mandated by law was obtained from the ethics committees at every study center in Switzerland (Zürich Cantonal Ethics Committee KEK-ZH-Nr. 2012–0270, St. Gallen Ethics Committee EKSG 12/071, Lucerne Cantonal Ethics Committee EK-Nr. 12039/2012, Geneva Central Ethics Committee CE-NR. 12–136 (matped 12–030), Ticino Cantonal Ethics Committee CE-Nr- 2615/2013, Vaud Cantonal Ethics Committee for research with human participants 11/13) and Romania (from 12.12.2012, number 19295/09.11.2012 and number 12781/27.09.2012).

References

Albrecht, T. L., S. S. Eggly, M. E. Gleason, et al. 2008. Influence of clinical communication on patients' decision making on participation in clinical trials. *Journal of Clinical Oncology* 26(16): 2666–73.

Andre, N. 2006. Decisional priority in pediatric oncology revisited: Involving children in decision making. *Journal of Clinical Oncology* 24(13): 2131–32.

Badarau, D. O., T. Wangmo, K. M. Ruhe, et al. 2015. Parents' Challenges and physicians' tasks in disclosing cancer to children. A qualitative interview study and reflections on professional duties in pediatric oncology. *Pediatric Blood & Cancer* 62(12): 2177–82.

Berlinger, N., R. Barfield, and A. R. Fleischman. 2013. Facing persistent challenges in pediatric decision-making: New Hastings Center guidelines. *Pediatrics* 132(5): 789–91.

Braun, V., and V. Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77–101.

Carroll, K. W., C. J. Mollen, S. Aldridge, K. R. Hexem, and C. Feudtner. 2012. Influences on decision making identified by parents of children receiving pediatric palliative care. *AJOB Primary Research* 3(1): 1–7.

Charles, C., T. Whelan, and A. Gafni. 1999. What do we mean by partnership in making decisions about treatment? *British Medical Journal* 319 (7212): 780–82.

Clarke, J. N., and P. Fletcher. 2003. Communication issues faced by parents who have a child diagnosed with cancer. *Journal of Pediatric Oncology Nursing* 20(4): 175–91.

Clemente, I. 2007. Clinicians' routine use of non-disclosure: Prioritizing "protection" over the information needs of adolescents with cancer. *Canadian Journal of Nursing Research* 39(4): 19–34.

Code of Federal Regulations. 2009. Title 45, Public welfare. Part 46, Protection of human subjects. Available at: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html (accessed August 7, 2014).

Committee on Bioethics. 1995. Informed consent, parental permission, and assent in pediatric practice. American Academy of Pediatrics. *Pediatrics* 95(2): 314–17.

Committee on Bioethics. 2013. Conflicts between religious or spiritual beliefs and pediatric care: Informed refusal, exemptions, and public funding. American Academy of Pediatrics. *Pediatrics* 132(5): 962–65.

Coyne, I., A. Amory, G. Kiernan, and F. Gibson. 2014. Children's participation in shared decision-making: Children, adolescents, parents and healthcare professionals' perspectives and experiences. *European Journal of Oncology Nursing* 18(3): 273–80.

Declaration of Helsinki. 2008. Ethical principles for medical research involving human subjects. Available at: http://www.wma.net/en/30publications/10policies/b3/ (accessed August 15, 2014).

Dekking, S. A., R. van der Graaf, M. C. Kars, A. Beishuizen, M. C. de Vries, and J. J. van Delden. 2015. Balancing research interests and patient interests: A qualitative study into the intertwinement of care and research in paediatric oncology. *Pediatric Blood & Cancer* 62(5): 816–22.

de Vries, M. C., M. Houtlosser, J. M. Wit, et al. 2011. Ethical issues at the interface of clinical care and research practice in pediatric oncology: A narrative review of parents' and physicians' experiences. *BMC Medical Ethics* 12: 18.

Dove, E. S., D. Townend, E. M. Meslin, et al. 2016. Research ethics. Ethics review for international data-intensive research. *Science* 351(6280): 1399–400.

E-fertilitate.ro. 2016. Fertilitatea dupa tratarea cancerului. *E-fertilitate*. Available at: http://www.e-fertilitate.ro/fertilitate-info/metode-de-fertilizare/fertilitatea-dupa-tratarea-cancerului.html (accessed April 28, 2016).

Elwyn, G., D. Frosch, R. Thomson, et al. 2012. Shared decision making: A model for clinical practice. *Journal of General Internal Medicine* 27 (10): 1361–67.

Fiks, A. G., A. R. Localio, E. A. Alessandrini, D. A. Asch, and J. P. Guevara. 2010. Shared decision-making in pediatrics: A national perspective. *Pediatrics* 126(2): 306–14.

Gabe, J., G. Olumide, and M. Bury. 2004. 'It takes three to tango': A framework for understanding patient partnership in paediatric clinics. *Social Science & Medicine* 59(5): 1071–79.

Gillam, L. 2015. Fifty years of paediatric ethics. *Journal of Paediatrics and Child Health* 51(1): 8–11.

Hedström, M., I. Skolin, and L. von Essen. 2004. Distressing and positive experiences and important aspects of care for adolescents treated for cancer. Adolescent and nurse perceptions. *European Journal of Oncology Nursing* 8(1): 6–17.

Hinds, P. S., D. Drew, L. L. Oakes, et al. 2005. End-of-life care preferences of pediatric patients with cancer. *Journal of Clinical Oncology* 23(36): 9146–54.

Hinds, P. S., L. Oakes, W. Furman, et al. 1997. Decision making by parents and healthcare professionals when considering continued care for pediatric patients with cancer. *Oncology Nursing Forum* 24(9): 1523–28.

Hinds, P. S., L. Oakes, W. Furman, et al. 2001. End-of-life decision making by adolescents, parents, and healthcare providers in pediatric oncology: Research to evidence-based practice guidelines. *Cancer Nursing* 24(2): 122–34.

Hostiuc, S. 2012. Informed consent and competence in pediatrics: Opinions from a sample of Romanian physicians in training. *Jornal de Pediatria (Rio J.)* 88(6): 518–23.

Joffe, S., C. V. Fernandez, R. D. Pentz, et al. 2006. Involving children with cancer in decision-making about research participation. *Journal of Pediatrics* 149(6): 862–868.e861.

King, J., and B. Moulton. 2013. Group Health's participation in a shared decision-making demonstration yielded lessons, such as role of culture change. *Health Affairs* 32(2): 294–302.

Kohler, T. S., L. A. Kondapalli, A. Shah, S. Chan, T. K. Woodruff, and R. E. Brannigan. 2011. Results from the Survey for Preservation of Adolescent Reproduction (SPARE) study: Gender disparity in delivery of fertility preservation message to adolescents with cancer. *Journal of Assisted Reproduction and Genetics* 28(3): 269–77.

Laine, C., and F. Davidoff. 1996. Patient-centered medicine. A professional evolution. *Journal of the American Medical Association* 275(2): 152–56.

Levi, R. B., R. Marsick, D. Drotar, and E. Kodish. 2000. Diagnosis, disclosure, and informed consent: Learning from parents of children with cancer. *Journal of Pediatric Hematology/Oncology* 22(1): 3–12.

Levine, D., K. Cohen, and D. Wendler. 2012. Shared medical decision-making: Considering what options to present based on an ethical analysis of the treatment of brain tumors in very young children. *Pediatric Blood & Cancer* 59(2): 216–20.

Lipstein, E. A., W. B. Brinkman, A. G. Fiks, et al. 2014. An emerging field of research: Challenges in pediatric decision making. *Medical Decision Making* 35: 403–8.

Mack, J. W., J. Wolfe, E. F. Cook, H. E. Grier, P. D. Cleary, and J. C. Weeks. 2007. Hope and prognostic disclosure. *Journal of Clinical Oncology* 25 (35): 5636–42.

Mack, J. W., J. Wolfe, E. F. Cook, H. E. Grier, P. D. Cleary, and J. C. Weeks. 2011. Parents' roles in decision making for children with cancer in the first year of cancer treatment. *Journal of Clinical Oncology* 29(15): 2085–90.

Miller, F. G., and S. Joffe. 2009. Limits to research risks. *Journal of Medical Ethics* 35(7): 445–449.

Miller, V. A., J. N. Baker, A. C. Leek, D. Drotar, and E. Kodish. 2014. Patient involvement in informed consent for pediatric phase I cancer research. *Journal of Pediatric Hematology/Oncology* 36(8): 635–40.

Nelson, R. M., T. Beauchamp, V. A. Miller, W. Reynolds, R. F. Ittenbach, and M. F. Luce. 2011. The concept of voluntary consent. *American Journal of Bioethics* 11(8): 6–16.

October, T. W., K. R. Fisher, C. Feudtner, and P. S. Hinds. 2014. The parent perspective: "Being a good parent" when making critical decisions in the PICU. *Pediatric Critical Care Medicine* 15(4): 291–98.

Parsons, S. K., D. L. Fairclough, J. Wang, and P. S. Hinds. 2012. Comparing longitudinal assessments of quality of life by patient and parent in newly diagnosed children with cancer: The value of both raters' perspectives. *Quality of Life Research* 21(5): 915–23.

Peddie, V. L., M. A. Porter, R. Barbour, et al. 2012. Factors affecting decision making about fertility preservation after cancer diagnosis: A qualitative study. *BJOG* 119(9): 1049–57.

Ross, L. F. 2009. Against the tide: Arguments against respecting a minor's refusal of efficacious life-saving treatment. *Cambridge Quarterly of Healthcare Ethics* 18(3): 302–15; discussion 315–22.

Ruhe, K. M., D. O. Badarau, P. Brazzola, H. Hengartner, B. S. Elger, and T. Wangmo. 2015a. Participation in pediatric oncology: Views of child and adolescent patients. *Psychooncology* 25(9): 1036–42.

Ruhe, K. M., T. Wangmo, D. O. Badarau, B. S. Elger, and F. Niggli. 2015b. Decision-making capacity of children and adolescents—Suggestions for advancing the concept's implementation in pediatric healthcare. *European Journal of Pediatrics* 174(6): 775–82.

Spinetta, J. J., G. Masera, M. Jankovic, et al. 2003. Valid informed consent and participative decision-making in children with cancer and their parents: A report of the SIOP Working Committee on psychosocial issues in pediatric oncology. *Medical and Pediatric Oncology* 40(4): 244–46.

Stewart, J. L. 2003. "Getting used to it": Children finding the ordinary and routine in the uncertain context of cancer. *Qualitative Health Research* 13(3): 394–407.

Tomlinson, D., U. Bartels, J. Gammon, et al. 2011. Chemotherapy versus supportive care alone in pediatric palliative care for cancer: Comparing the preferences of parents and health care professionals. *Canadian Medical Association Journal* 183(17): E1252–E1258.

Valdez-Martinez, E., J. Noyes, and M. Bedolla. 2014. When to stop? Decision-making when children's cancer treatment is no longer curative: A mixed-method systematic review. *BMC Pediatrics* 14: 124.

Vassal, G., E. Fitzgerald, M. Schrappe, et al. 2014. Challenges for children and adolescents with cancer in Europe: The SIOP-Europe agenda. *Pediatric Blood & Cancer* 61(9): 1551–57.

Whitney, S. N. 2008. Whose decision is it? The microstructure of medical decision making. *Zeitschrift für Evidenz, Fortbildung und Qualität Gesundhwesen* 102(7): 423–25.

Whitney, S. N., A. M. Ethier, E. Fruge, S. Berg, L. B. McCullough, and M. Hockenberry. 2006. Decision making in pediatric oncology: Who should take the lead? The decisional priority in pediatric oncology model. *Journal of Clinical Oncology* 24(1): 160–65.

Whitney, S. N., M. Holmes-Rovner, H. Brody, et al. 2008. Beyond shared decision making: An expanded typology of medical decisions. *Medical Decision Making* 28(5): 699–705.

Wunder, D., L. Perey, C. Achtari, et al. 2012. Fertility preservation in cancer patients. Review of the French speaking part of Switzerland and recommendations for different situations. *Swiss Medical Weekly* 142: w13645.

Young, B., M. Dixon-Woods, K. C. Windridge, and D. Heney. 2003. Managing communication with young people who have a potentially life threatening chronic illness: Qualitative study of patients and parents. *British Medical Journal* 326(7384): 305–9.

Appendix. Examples of questions from the semistructured interview guide for parents and physicians

Parent Interview Guide

General information about the patient's situation

Let me start by asking you about your family. Could you tell me about them?

Please briefly describe the circumstances regarding your child's diagnosis?

Was your child present during the diagnosis discussion? Why or why not?

How did you feel about your child's presence in regards to the diagnosis communication?

Since the diagnosis was made, have you informed your child about the diagnosis? How did you do so? Could you tell me the words you used? For example: what was the first sentence you used to start the discussion?

Treatment options, discussions, and decision making

What were the treatment options?

Who was present when treatment options were discussed?

How were these treatment options described to you and/or your child by your physician?

If your child was not present during treatment discussions, have you discussed treatment or non-treatment options with your child?

Patient participation in discussions

In your previous response, you stated that your child was present (absent) during treatment discussions. Could you explain the reasons for this?

Why do you think it was necessary/appropriate to include (exclude) your child from these treatment decisions?

Under what conditions would you absolutely include (exclude) your child in such discussions? Please explain these conditions.

Physician Interview Guide

General information about the patient's situation

How long have you known the patient and his or her family?

Who did you disclose the diagnosis and prognosis to? If your patient was not present, please indicate why.

What was the parent's reaction when the diagnosis and prognosis were made?

If you discussed the diagnosis/prognosis with the child, what was the child's reaction?

Who initiated this discussion related to diagnosis and prognosis with the parents and/or the child? How did you feel during the discussion?

Treatment options, discussions, and decision making

What were the treatment options?

Who did you discuss the treatment options with?

How did you describe the treatment options to the child and/or the parents?

How comfortable did you feel discussing treatment options? Please explain.

Patient participation in discussions

In your previous response, you stated that the child, i.e., patient, was present (absent) during treatment discussions. Could you explain the reasons for this?

Why do you think it was necessary/appropriate to include (exclude) the patient from these treatment decisions?

Under what conditions would you absolutely include (exclude) patients in such discussions? Please explain these conditions.

Generally, when parents include (exclude) their child from making or taking part in such decisions, what kind of reasons, for example values and attitudes, do they give you?