ETHICS SECTION

Original Research Article

Ethical Decision-Making: Do Anesthesiologists, Surgeons, Nurse Anesthetists, and Surgical Nurses Reason Similarly?

Alex Cahana, MD, DAAPM, FIPP, MEthics,* Henrik Weibel, MAS,* and Samia A. Hurst, MD†

*Postoperative and Interventional Pain Unit, Department Anesthesiology, Pharmacology and Intensive Care, University Hospitals of Geneva; and †Institute for Biomedical Ethics, Geneva University Medical School, Geneva, Switzerland

ABSTRACT

Background. Principle-based ethical theory is currently available to guide health care professionals in clinical decision-making when they face ethical dilemmas. These principles include respect for autonomy (RA), nonmaleficence (NM), beneficence (B), and distributive justice. It is, however, unknown which principles, if any, guide physicians and nurses in this decision-making. The goal of our study was to explore how anesthesiologists, surgeons, nurses, and nurse anesthetists reason in the face of a moral dilemma.

Methods. By an anonymous survey we asked: Would you give a blood transfusion to a young, ASA I, Jehovah’s Witness who clearly refused transfusion, in a case of a life-threatening bleeding? What ethical principle did you apply in your decision? We presented this question before and after a 1-hour ethical tutorial about these principles.

Results. Twenty-nine anesthesiologists, 41 surgeons, 21 surgical nurses, and 33 nurse anesthetists participated in our survey. We found that 59%, 30%, 29%, and 36% of anesthesiologists, surgeons, surgical nurses, and nurse anesthetists, respectively, would give a blood transfusion despite the patient’s demand. Nurses used B, surgeons NM, and anesthesiologists B and NM to justify transfusion. However, two among 11 anesthesiologists and five among 12 surgeons did not explain their choice. Those who tend to withhold blood transfusion overwhelmingly used RA as the principle behind this decision. Nine participants changed their view before and after the tutorial. There was no correlation between gender, age, and professional experience with the choice of principle. The average interest score for the tutorial was 74/100 for all participants after this ethical course.

Conclusions. Anesthesiologists tend to transfuse Jehovah’s Witness patients more than did the others. Together with surgeons, they explicitly justify their decision-making less frequently when compared with nurses and nurse anesthetists. Further education in ethical theory is appreciated and needed.

Key Words. Ethics; Bioethics; Autonomy; Beneficence; Jehovah witness

Introduction

Physicians are often in doubt about the best and correct action to take for a patient in a specific situation not only from a medical point of view, but from an ethical perspective as well [1]. These ethical dilemmas concern not only what
Ethical Decision-Making, Anesthesiologists vs Surgeons

ought to be done in ethically challenging situations but also why, because physicians have to choose between alternative actions. Frequently, none of the alternatives have entirely positive outcomes and the physician is left to choose the lesser “evil” [2]. Because a sense of “moral intuition” may not always provide the necessary coherence and consistency when facing these difficult issues, the development of moral reasoning through standardized tools, such as principle-based theory, may equip physicians with the appropriate skills to deliberate these problems systematically [3]. The question “can knowledge of ethical principles enhance clinical practice” remains under current debate [4], and the association between moral reasoning and actual or intended action may not be strong [5,6]. However, studies underline the importance that a health care provider should be able to identify the ethical issues in question before attempting to decide what is the best action to follow [7].

In addition, physicians are seldom trained to distinguish between empirical, formal, and philosophical questions [8] and confuse between them during clinical deliberation. Empirical questions (from Greek “experience”) are questions that can be answered through scientific inquiry because they concern observation and experimentation. Formal questions are questions that can be answered by applying a formal (e.g., mathematical, logical) system and may not require any prior observation or experience. Philosophical questions, on the other hand, include practical questions that make sense but cannot be answered either empirically or formally. Thus, a question such as, “is it morally right to transfuse a patient against their belief,” is in fact philosophical in nature and, frequently, poorly argued by health care professionals [9]. Indeed, exactly how they are argued remains largely unexplored, as moral reasoning is seldom examined in real-life clinical practice [10]. Studies exploring how physicians face ethical difficulties show that their goals include both normative and practical goals [11].

Principle-based theory is currently available to guide health care professionals in clinical decision-making when they face ethical dilemmas. These principles include respect for autonomy (RA), nonmaleficence (NM), beneficence (B), and distributive justice (DJ). Thus, the goal of our study was to explore the response of anesthesiologists, surgeons, nurses, and nurses anesthetists to a specific given moral dilemma, how they reason in facing this moral dilemma, and to assess any differences between them.

Methods

Participants were anesthesiologists, surgeons, nurses on the surgical ward, and nurse anesthetists, who are all involved in regular direct patient care. We presented an anonymous survey before and after a 1-hour tutorial about principle-based theory. The tutorial included the following: a theoretical introduction on what are ethics and bioethics (10 minutes); what are the principles of biomedical ethics according to Beauchamp and Childress (20 minutes); practical exercise on how to analyze a case; (15 minutes) and question time (15 minutes). Participation was voluntary and did not involve the collection of personally identifiable information. Informed consent was obtained from all participants.

Using a questionnaire (Figures 1 and 2), we collected the following data:

- demographic data (year of birth, gender, profession, years of professional experience);
- participation in a previous course in bioethics (yes/no); and
- the interest of having a course in bioethics using a 100-mm visual analog scale (0 = no interest, 100 = great interest).

We then presented the following clinical situation: A 40-year-old woman, ASA I, Jehovah’s Witness, is scheduled for an elective excision of a large hemangioma in her right forearm, to be followed by a latissimus dorsi muscle flap transplant. After her preanesthetic consultation this patient understood the procedure and clearly refused the possibility of a blood transfusion. Based on the biblical admonition to “keep abstaining from blood” based on Acts 15: 28, 29. Baptized Witnesses who violate the prohibition on blood are considered to have revoked their membership and are shunned. (Muramoto O, Bioethical aspects of the recent changes in the policy of refusal of blood by Jehovah’s Witnesses BMJ 2001;322(7277):37–39.)
Figure 1 Questionnaire on ethical decision-making.
A 40-year-old woman, ASA I, Jehovah’s Witness, is scheduled for an elective excision of a large hemangioma in her right forearm, to be followed by a latissimus dorsi muscle flap transplant. After her pre-anesthetic consultation this patient understood the procedure and clearly refused the possibility of a blood transfusion.

Question (before tutorial):

Would you give blood to this patient in case of a life-threatening bleeding? (yes/no)

Because of:

- a. respect of autonomy (respect patient’s explicit desire)
- b. principle of nonmaleficence (do no harm to the patient)
- c. principle of beneficence (promote patient’s ‘wellness’)
- d. principle of justice (assure equality between patients)
- e. other

8. Are you interested in receiving a tutorial in bioethics? (VAS: 0—none; 10—extremely)

Question (after tutorial):

Would you give blood to this patient in case of a life threatening bleeding? (yes/no)

Because of:

- f. respect of autonomy (respect patient’s explicit desire)
- g. principle of nonmaleficence (do no harm to the patient)
- h. principle of beneficence (promote patient’s ‘wellness’)
- i. principle of justice (assure equality between patients)
- j. other

10. Are you interested in receiving a tutorial in bioethics? (VAS: 0—none; 10—extremely)

Thank you for your participation.

**Figure 2** Questionnaire on ethical decision-making (English translation). VAS = visual analog scale.
If yes or no: what ethical principle(s) did you apply in your decision?
- Respect of autonomy (respect of patient’s explicit desire)
- Nonmaleficence (to do no harm to the patient)
- Beneficence (to promote patient well-being)
- Justice (assure the equity of treatment to this patient)
- Other: (free text)

After a 45-minute tutorial about principle-based ethical theory, we repeated the two questions:
- In this case would you give a blood transfusion to this patient if there was life-threatening bleeding?
- If yes or no: what ethical principle did you apply in your decision?

The follow-up questionnaire also included an item assessing participants’ satisfaction with the bioethics tutorial, using a 100-mm visual analog scale (0 = no interest, 100 = great interest).

After survey collection, a 15- to 30-minute discussion about the tutorial and the case was conducted.

Data are expressed as mean. The response to the ethical question, the choice of the ethical principle, and the satisfaction score were compared before and after the tutorial using bivariate correlations with Pearson chi-square test. We selected a significance level of 0.05 (two-tailed).

### Results

Twenty-nine anesthesiologists, 41 surgeons, 21 surgical nurses, and 33 nurse anesthetists participated in our survey (Table 1). The response rates of participants in the lecture were 82%, 91%, 86%, and 86%, respectively. There was no significant difference in participants’ age between the groups. Surgeons had a lower median of clinical experience (3–10 years), and more frequently having previously participated in bioethics courses, but this was not statistically significant. Nurses were more likely to be women. Anesthesiologists were more likely than nurse anesthetists, nurses, and surgeons to report that they would transfuse this patient despite a clear wish not to be transfused in a life-threatening situation (Table 2).

Anesthesiologists and nurse anesthetists who would transfuse against a patient’s will use the principles of B and NM in coming to their decision, whereas surgeons use NM and surgical nurses use B. Two among 11 anesthesiologists and five among 12 surgeons did not explain their decision (Table 3a). The vast majority of those who would not transfuse apply the principle of RA. Two among 16 anesthesiologists did not specify why they would not transfuse blood in this case (Table 3b). There was no correlation between gender, age, and professional experience with the choice of principle.

Nine participants (7% of total) changed their ethical point of view before and after the tutorial, applying a different principle to their decision. None were anesthesiologists (Table 4).

### Table 1  Demographics

<table>
<thead>
<tr>
<th></th>
<th>Anesthesiologists</th>
<th>Surgeons</th>
<th>Nurse anesthetists</th>
<th>Surgical nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 29</td>
<td>n = 41</td>
<td>n = 33</td>
<td>n = 21</td>
</tr>
<tr>
<td>Age (average years)</td>
<td>39</td>
<td>38</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>14/12</td>
<td>22/7</td>
<td>4/19</td>
<td>3/18</td>
</tr>
<tr>
<td>(not answered)</td>
<td>(3)</td>
<td>(12)</td>
<td>(10)</td>
<td></td>
</tr>
<tr>
<td>Years professional experience</td>
<td>3–10</td>
<td>3–10</td>
<td>&gt;10</td>
<td>&gt;10</td>
</tr>
<tr>
<td>Participated course in bioethics</td>
<td>8</td>
<td>29</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 2  Would you give blood to this patient?

<table>
<thead>
<tr>
<th></th>
<th>Anesthesiologists</th>
<th>Surgeons</th>
<th>Nurse anesthetists</th>
<th>Surgical nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 29</td>
<td>n = 41</td>
<td>n = 33</td>
<td>n = 21</td>
</tr>
<tr>
<td>Yes (%)</td>
<td>16 (59%)*</td>
<td>12 (30%)</td>
<td>12 (36%)</td>
<td>6 (29%)</td>
</tr>
<tr>
<td>No (%)</td>
<td>11 (41%)</td>
<td>28 (70%)</td>
<td>21 (64%)</td>
<td>15 (71%)</td>
</tr>
<tr>
<td>(not answered)</td>
<td>(2)</td>
<td>(1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* P < 0.05.
The average interest score for the tutorial was 74/100 for all participants after this ethical course. Surgeons tended to be less satisfied than the rest from the tutorial (Table 5).

Discussion

Over 82% of participants responded to our survey, of which two major findings are noteworthy. First, anesthesiologists are more likely than others to report that they would transfuse a Jehovah’s Witness in a life-threatening situation, despite clear refusal of the patient for this act. Second, two among 11 of them did not specify why they would do so. Expression of moral reasoning was also missing among approximately 42% of surgeons who reported that they would transfuse the patient, while nurses cited B and nurse anesthetists cited B and NM as the rationale behind their decision. How can we explain these findings? Why do anesthesiologists tend not to follow a patient’s will, at times without any explicit reason to support their decision?

In principle-based theory, Beauchamp and Childress [3] define autonomy as “personal rule of the self, free from both controlling interferences by others and from personal limitation that prevent meaningful choice.” This definition derives from two essential conditions: agency, the capacity for an intentional action, and liberty, the independence from controlling influence. However, the authors underline that agency is not self-choice,

| Table 3 What principle would you use (a) if you transfuse and (b) if you do not transfuse? |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                | Anesthesiologists | Surgeons | Nurse anesthetists | Surgical nurses |
| (a)                            |                  |          |                  |                  |
| Respect of autonomy            | 9.1%             | 8.3%     | 8.3%             | 8.3%            |
| Nonmaleficence                 | 25.7%            | 33.3%    | 27.8%            | 8.3%            |
| Beneficence                    | 39.4%            | 16.7%    | 40.3%            | 83.3%           |
| Distributive justice           | 7.5%             | 0.8%     | 15.3%            | 0.0%            |
| Not specified                  | 18.2%            | 41.7%    | 8.3%             | 0.0%            |
| Total                          | 100%             | 100%     | 100%             | 100%            |
| (b)                            |                  |          |                  |                  |
| Respect of autonomy            | 76.9%            | 94.6%    | 76.2%            | 85.6%           |
| Nonmaleficence                 | 8.1%             | 3.6%     | 21.4%            | 8.9%            |
| Beneficence                    | 2.5%             | 1.8%     | 0.0%             | 3.3%            |
| Distributive justice           | 0.0%             | 0.0%     | 2.4%             | 2.2%            |
| Not specified                  | 12.5%            | 0.0%     | 0.0%             | 0.0%            |
| Total                          | 100%             | 100%     | 100%             | 100%            |

* N was calculated by summing the opinions of the respondents. To answer one of these four items, counts as 1 point to the corresponding opinion item. To answer two of these four items, counts as half a point to the corresponding items. To answer three of these four items, counts as a third a point to the corresponding items, and to answer 4, counts as a fourth to each item.

Table 4 Did you change your mind after the course?

<table>
<thead>
<tr>
<th></th>
<th>Anesthesiologists</th>
<th>Surgeons</th>
<th>Nurse anesthetists</th>
<th>Surgical nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes to no</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NM to RA</td>
<td>NM to noR</td>
<td>B to RA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>noR to RA/mN</td>
<td>B to RA/B</td>
<td>B to noR</td>
</tr>
<tr>
<td>No to yes</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RA to B</td>
<td></td>
<td>NM to B/DJ</td>
</tr>
</tbody>
</table>

8 participants did not answer after the tutorial course.
9 participants changed their mind.

Table 5 Were you satisfied from this course?

<table>
<thead>
<tr>
<th></th>
<th>Anesthesiologists</th>
<th>Surgeons</th>
<th>Nurse anesthetists</th>
<th>Surgical nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before tutorial</td>
<td>73</td>
<td>64</td>
<td>73</td>
<td>83</td>
</tr>
<tr>
<td>After tutorial</td>
<td>74</td>
<td>62</td>
<td>80</td>
<td>89</td>
</tr>
</tbody>
</table>

VAS = visual analog scale.
because people without the capacity to self-governance may still continue to perform some autonomous choices.

To respect an autonomous agent is at minimum to acknowledge that person’s right to hold views, to make choices, and to take actions based on personal values and beliefs. This is translated in reality to consent or refusal of decisions. This consent, which shapes the doctor–patient relationship, can be expressed overtly, tacitly by silence or omission, or implicitly from inferred action. It can sometimes be presumed, based on what we know about a particular person’s choice or value.

In order to understand what can render patients incompetent to decide, we must focus on what constitutes the capacity for an autonomous choice, even in extreme physical and psychological conditions. Competence means the ability to perform a task. Conversely, the inability to perform certain tasks constitutes incompetence. Health-related decision-making capacity includes the patients’ understanding of the relevant information, their appreciation of the significance of this information for their circumstances, their ability to reason with the relevant information and weigh options logically, and their ability to express a choice [12]. Evidently, these abilities are not yes/no abilities, but rather interconnected and part of a continuum of capacities. Importantly, the assessment of decision-making capacity is not based primarily on what the patient chooses, but on how he or she chooses. Refusal of beneficial treatment does not mean that a patient lacks decision-making capacity.

In the qualitative analysis of our survey, many anesthesiologists explained their decision to transfuse despite the patient’s explicit wish, by stating that they were not convinced that “the patient really understood what it means to die.” Thus, anesthesiologists in this study associated competence with the relative risk of the situation, suggesting that a Jehovah’s Witness who is capable of deciding personal matters may be, in fact, incompetent when it comes to his or her own health, because the harm that might follow their decision is too serious. Does this mean that agency and competence is understood as a relative context-sensitive capacity? It has been argued that in determining the necessary threshold of understanding and reasoning ability, physicians should indeed consider the degree of risk to the patient if his or her wishes are followed [13]. Perhaps anesthesiologists, more than surgeons or surgical nurses, are aware that these patients are at a substantial increased risk of death [14].

Alternately, anesthesiologists may have been applying an altogether different framework. Ethical reasoning can be understood not only in its decision-making perspective but also in its relational context. A relational-ethic perspective means reflecting on the challenges we encounter in relationship with others, and how best to fulfill our obligations [15]. Thus, for an anesthesiologist being a good professional is not only to be competent but also to be a compassionate “advocate” for the patient. Although respect and trust in the physician–patient relationship has eroded recently [16], many anesthesiologists continue to see patients in their extreme existential need and not surprisingly have difficulties to simply “obey them” in the name of RA. As anesthesiologists are more likely than others to make the decision to transfuse, and as nurse anesthetists and surgical nurses are not held legally responsible for these cases in our institution, this may explain in part why the decision to withhold transfusion and “respect” patient’s autonomy seemed easier for the latter to apply.

Anesthesiologists and surgeons are not alone in finding the application of these principles in ethically challenging situations difficult. Others regard principle-based theory as “ethical fundamentalism” and suggest alternative approaches [17] such as casuistry [18], pragmatism [19], neo-Aristotelian theory of virtue [20], the use of the precautionary principle [21], diverse deliberation methods [22], or narrative ethics where the whole illness experience is incorporated in the ethical deliberation [23]. Nonetheless, regardless of the theoretical grounding used, physicians can be more efficient and confident when addressing these challenges in a systematic fashion [24].

The limits of this survey are its nonqualitative, truncated, hypothetical nature, presenting a specific case of a Jehovah’s Witness. Thus, errors or confusions in moral reasoning, or why participants did not change their ideas before and after the tutorial, could not be evaluated. In addition, the design of the survey may not be applicable to other institutions and that perhaps the characteristics of principle-based theory itself may be too constrained to apply in extreme existential cases (such as life-threatening bleeding among Jehovah’s Witnesses). Strict application of principle-based theory and that its application can lead one to disregard ethical elements such as integrity, patient advocacy, and sympathy [25].

Finally, few participants changed their view before and after the survey (Table 4). Perhaps defending their choice was the reason. However,
it is difficult to interpret these findings without interviewing the responders and performing a qualitative analysis of these data. In the anonymous open remarks, the need for further education in bioethics was explicitly expressed and average satisfaction scores from the tutorial were high (Table 5). We thus proposed to continue these tutorials and offered the participants a practical algorithm to use, in order to simplify clinical ethical reasoning (Figure 3).

**Conclusion**

Physicians and nurses enter practice with their own ethical ideas about what sort of conduct is good or bad, right or wrong, praiseworthy or blameworthy. Much of the time, these ideas, rational and non-rational, are enough; however, sometimes practitioners run into problems that manifest as confusion and disagreement on the best course of necessary actions. In order to answer to these ethically challenging situations and subsequently perform “good” choices, a theoretical and systematic understanding of our moral life is necessary. However, choosing an ethical theory to apply, and applying it appropriately, can be difficult. Furthermore, deductive meta-ethical models based on pre-existing precepts may not suffice for particular cases, especially as unanticipated situations emerge with evolving medical technology.

Principle-based ethical theory in no way is an absolute dogma. It recognizes the dynamic character of medicine and biotechnology and presents its principles as *prima facie*. Despite the fact that this theory is subject to revision, and precisely because it recognizes the need for interpretation

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**Figure 3** Comparison between clinical reasoning and clinical ethical reasoning (adapted from Torjuul et al. [15]).
when applied to concrete situations, the principles of respect for autonomy; nonmaleficence; beneficence; and distributive justice are regarded as the basis of bioethics and serve as coherent guidelines for universal judgment in moral medical dilemmas. Nonetheless, we have shown that different professionals reason differently in regard to the same situation. This is in no case a sign of failure, but rather a catalyst for a continuing deliberation in order to develop better-founded beliefs for better practical decision-makings.

References