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The “four quadrants” approach to clinical ethics case analysis; an application and review

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ABSTRACT

In 1982, Jonsen, Siegler and Winslade published *Clinical Ethics*, in which they described the “four quadrants” approach, a new method of analysing clinical ethics cases. Although the book is now in its 6th edition, a literature search has revealed only one academic paper demonstrating the method at work. This paper is an attempt to start filling this gap. As a way of describing and testing the approach, I apply the four quadrants method to a detailed clinical ethics case. The analysis is interspersed with reflections on the method itself. It is hoped that this experiment will encourage ethicists and clinicians to devote more attention to this neglected approach.

For the clinical ethicist who is regularly confronted with cases, one methodological question stands out above the rest: how best to perform an ethics case analysis?

In *Clinical ethics*, Jonsen *et al* present the four quadrants approach to ethics case analysis in medicine.¹ Its aim is to provide clinicians and ethicists with a structured framework to guide them towards an informed, morally justified decision. Intrigued by their framework, I searched for articles in the medical and medical ethics literature which demonstrate the method at work. To my surprise, I found only one paper in a mental health nursing journal.² Why, nearly 25 years after its first appearance, is the approach virtually absent in the literature? This article attempts to fill part of this gap by introducing the method, applying it to a realistic clinical scenario, and examining some of its strengths and limitations.

The four quadrants approach

The four quadrants approach consists of four broad topics: medical indications, patient preferences, quality of life, and contextual features. Each topic represents one of the four quadrants, within which lie more specific questions. Rather than provide an arid description of the framework, I have chosen to illustrate the method by conducting an analysis of a case published in Ackerman and Strong's *A casebook of medical ethics*, which caught my attention due to its similarity to a case encountered a few days previously in a clinical ethics committee meeting.³ Aside from its realistic dimension, the case is rich in detail and plagued with the uncertainties that pervade much of clinical ethics. To give a better idea of the content of the quadrants, I have included some of the questions in brackets wherever appropriate.

Case study: previous refusal of treatment by a presently comatose patient

A 59-year-old male is brought to Accident & Emergency by his wife. Five weeks earlier, he started getting frequent headaches. When admitted, the patient was disorientated and hostile. He had bilateral papilloedema (swelling of optic disks often caused by raised intracranial pressure) and an emergency CT scan showed a large mass near the right lateral ventricle of the brain, with surrounding oedema (swelling). He was diagnosed with high-grade astrocytoma, a highly malignant brain tumour.

A few days later, the neurosurgeon told the patient that the tumour was probably malignant. He also told him that, without surgery, he was unlikely to live longer than 6 months. With surgery, radiation and chemotherapy, there was a 10–60% chance of surviving five or more years, depending on the grade of the tumour. The patient was also told that the operation carried a 5–10% risk of death or serious disability. The neurosurgeon recommended further diagnostic tests and surgery to remove the tumour. The patient refused both.

For the first two months of hospitalisation, the patient's mental status was usually impaired. He was often restless, hostile and combative, and refused to answer questions. He rambled and talked incoherently about friends, family and religion. Occasionally, he would discuss imaginary business transactions with staff. He appeared emotionally unstable, with sudden mood swings from sad and anxious to cheerful. He sometimes claimed not to know why he was in hospital.

These periods were interspersed with brief episodes of more “appropriate” behaviour. His family said that his behavioural problems were out of character.

Despite conversations with the consultant, the patient continued to refuse diagnostic tests and treatment, although he eventually accepted symptomatic treatment for his cerebral oedema. A few weeks later, the consultant asked a psychiatrist and neuropsychologist to assess the patient's competence.

The assessments took place when the patient's behaviour was relatively normal. The psychiatrist found his behaviour appropriate and noted that he talked sadly about his sister-in-law's long terminal illness after brain surgery and about his desire to avoid the same fate. He also feared complications of the arteriogram and surgery, and hoped God would provide a miracle cure.

The psychiatrist judged that the patient had not yet fully appreciated the seriousness of the

situation but that he was competent to decide on treatment. A neuropsychologist also judged the patient competent to make a decision regarding treatment, despite some socially inappropriate behaviour.

The consultant appealed to the patient's wife and son to change the patient's mind. After these family discussions, he consented to an arteriogram and agreed to participate in a research study involving radiation and chemotherapy followed by neurosurgery. During the first radiation treatment, however, the patient told the radiotherapist that he signed the consent form only to obtain the chemotherapy and radiation. He had no intention to allow the surgery.

Within 4 weeks, the radiation had to be stopped due to the patient becoming nearly comatose. Within a week, his neurological symptoms worsened and he lapsed into a coma.

A repeat CT scan was performed to determine the status of the tumour. Although the scan showed a low-density tumour similar to astrocytoma (the initial diagnosis), the homogenous appearance of the tumour led the radiologist to suspect meningioma, a usually benign tumour with a 60% chance of living at least 10 years.

The neurosurgeon felt in the midst of a dilemma. The patient's neurological status would probably not improve without surgical intervention and delaying surgery would exacerbate the damage from intracranial pressure. Also, surgery was the patient's only hope for long-term survival. His wife and son, now deeply upset by the patient's deterioration, were keen for further treatment. The neurosurgeon was confident that they would accept a strong recommendation for surgery. On the other hand, the patient had consistently refused surgery, despite knowing the grave risks of his refusal. The 5–10% risk of death or severe disability from surgery remained.

Four quadrants analysis

The order of analysis is as follows: medical indications, patient preferences, quality of life, and contextual features.

Medical indications

This quadrant is the starting point of any case analysis. It requires the clinician/ethicist to review the medical situation, identify the treatment options, and determine how the patient can be benefited, if at all, by treatment.

It now appears that the most probable diagnosis is a benign meningioma with a 60% chance of 10-year survival after surgery ("What is the patient's medical problem? History? Diagnosis? Prognosis?"). The risk of mortality or serious complications from surgery is unchanged.

A decision to forego surgery would result in an exacerbation of symptoms from the raised intracranial pressure followed by death in the short to medium term. The goals of treatment are thus threefold: confirmation of diagnosis, alleviation of symptoms and prolongation of life by excision of the tumour ("What are the goals of treatment? How can the patient be benefited by medical and nursing care, and how can harm be avoided?")

From a medical point of view, a strong case can be made for surgery. The treatment has a good chance of achieving its goals and is not so burdensome, especially given the patient's comatose state, that non-treatment is preferable ("What are the probabilities of success?"). The patient's intracranial pressure calls for urgent action to prevent further deterioration.

The emphasis on the concrete medical situation, on the nitty-gritty details of diagnosis and prognosis, grounds the ethical analysis on medical reality. It forces the clinician to articulate

the specific goals of treatment and to justify why one modality is preferable to the alternatives. Asking "What are we trying to achieve here?" can itself reveal confusions.

The phrase "medical indications" has a ring of authority about it, but it requires more than the gathering of relevant clinical details. Deciding on the best treatment option based on an evaluation of harms and benefits requires more than facts. It requires interpretation. What constitutes a harm or a benefit varies from person to person, not only because of the differing physiology and pathophysiology of patients but also because people have different values, beliefs and preferences. For this reason, the conclusion of this quadrant—the clinical "ought"—will not be final, but will depend on the analysis of the remaining three quadrants. So, medically, surgery appears to be indicated. It remains to be seen if the medical verdict corresponds with the ethical recommendation.

Although no quadrant will single-handedly settle the case, the position of "medical indications" as the first quadrant is logical. Its purpose is to obtain a clear picture of the medical facts and probabilities. We cannot ask for the patient's preferences if we do not know what options are available. Nonetheless, the conflicting diagnoses of the two CT scans in our scenario highlight the fact that there may be limits to the clarity of the clinical picture. Diagnostic uncertainties coupled with the subjective judgements and assumptions of the doctor may influence the determination of what is medically indicated.

Patient preferences

This quadrant focuses on the wishes of the patient if competent, and his presumed wishes if not.

The comatose patient cannot communicate his preferences about surgery for a suspected meningioma ("Is the patient mentally capable and legally competent?"). Although he expressed preferences in the past these were made with reference to a different medical situation ("Has the patient expressed prior preferences?"). To assess the relevance of the refusal to the present situation, we need to review the situation at the time of refusal and compare it with the present circumstances. Does the scope of the patient's prior refusal extend to the current situation? ("Is the patient's right to choose being respected to the extent possible in ethics and law?")

When the patient declined surgery, he most probably believed he had a malignant tumour and a life expectancy of approximately 6 months without treatment. Table 1 summarises the past and present medical situation.

As table 1 shows, the medical circumstances are clearly different, but these changes alone are not enough to determine whether the scope of his refusal encompasses the present situation. We need to examine the reasons underlying the decision ("What are the patient's reasons for refusing to cooperate with medical treatment?").

The patient's refusal may have been influenced by witnessing his sister-in-law's suffering following brain surgery and his consequent dread of postoperative complications. This traumatic experience may have caused an exaggerated fear and,

Table 1 Summary of medical situation at time of refusal and now

	Then	Now
Diagnosis	malignant tumour (astrocytoma)	benign tumour (meningioma)
Prognosis	10–60%, 5 year survival	60%, 10 year survival
Risks of surgery	5–10% death and sequelae	5–10% death and sequelae

combined with the mood-altering effects of his brain tumour, clouded his judgement. There are thus epistemological concerns linked to his competence and awareness of the situation's severity. His hope for a miracle by God suggests that he did not wish to die.

The patient refused surgery when his condition was not yet critical. It is possible that, realising the gravity of the situation, the patient would have changed his mind. This, however, is a frequent possibility in clinical practice and does not in itself invalidate a decision.

The two experts who assessed the patient concluded that he was competent to refuse treatment ("Is there evidence of incapacity?"). The patient's decision also appeared to have been made voluntarily and, arguably, with adequate information. The fact that the patient arrived at the same decision over a period of time, including in periods of relative lucidity, increases the likelihood of a decision representing a settled view. Despite concerns about the patient's potentially distorted belief about the severity of his condition and his exaggerated fear of post-operative complications, we could argue that there is sufficient evidence to affirm that his decision was valid.

Yet, even if we accept the validity of the initial decision, the altered medical circumstances and the consequent changes in the balance of potential harms and benefits are enough to surmise that the situation falls outside the scope of his earlier refusal. The patient plausibly decided that the harms of a 5–10% chance of death from surgery did not outweigh the smallish chance of prolonged survival. It is far from clear that he would arrive at the same conclusion now, when the survival rate is believed to be considerably higher. The probabilistic nature of our assessment of competence, the grave and irreversible consequences of foregoing surgery, the urgency of the situation, and the inferred belief that he does not want to die together lend additional support to the decision to operate.

Given our conclusion that the patient's prior refusal does not apply to the present situation, the doctor should act in the best interests of the patient. At this point, the doctor should involve the relatives—here the patient's wife and son—in assessing what the patient *would* have wanted if competent ("If incapacitated, who is the appropriate surrogate? Is the surrogate using appropriate standards for decision making?"). If the relatives were unable to speculate on this matter, it would in my view be morally acceptable for the medical team to explain their care plan and its rationale and ask for approval.

Quality of life

Medical interventions aim to maintain or improve a patient's quality of life. When evaluating the appropriateness of a treatment, it is thus important to consider how it will affect the patient's quality of life, and how likely it is to achieve the goals of treatment. In light of the strong subjective component to quality of life, this will be largely determined by the patient's own preferences. In the case study, it is not possible to obtain his current views on the matter. His willingness to undergo chemotherapy and radiation suggests that he wanted to get better, but we cannot rule out that his consent to these treatments, spurred by the pleas of his wife and son, lacked an adequate degree of voluntariness.

We can infer from the patient's presumed desire not to suffer the same fate as his sister-in-law that he attributed much importance to quality of life, preferring a shorter but higher quality life to a longer but less agreeable one. So will surgery lead to an unreasonably low quality of life? ("Is the patient's

present or future condition such that his continued life might be judged undesirable?")

Although some treatments may extend life without a corresponding improvement in quality of life, surgery for the patient does not fall in this category. The statistics point to a good chance of significant life extension with clear improvements in quality of life. Furthermore, the comatose patient will not feel any pre-operative anxiety. Surgery provides significantly better prospects for a return to the kind of life the patient enjoyed before his critical illness than non-treatment ("What are the prospects, with or without treatment, for a return to normal life?").

Contextual features

As the authors of *Clinical ethics* point out, every clinical encounter occurs within a larger context.¹ The final quadrant invites the clinician/ethicist to consider these contextual features and their relevance to the ethical analysis. These may include economic, religious and cultural factors, confidentiality issues, and the impact of the decision on the patient's family and medical team. It also encourages the doctor or nurse to reflect on any personal biases which might influence treatment decisions.

In our scenario, there are no notable contextual features affecting the case analysis. There are no extraordinary resource allocation issues and medical law is unlikely to prohibit any of the options considered. The situation would be different, however, if the patient's wife and son refused the surgery against medical advice, even though they may have no legal right to make treatment decisions on the patient's behalf. The doctor should then explore the reasoning behind their refusal and attempt to reconcile the opposing views, based initially on a discussion of what was important to the patient. If the relatives question medical facts or the doctor's clinical judgement, it may be helpful to offer them a second opinion. My own view is that only as a last resort should the disagreement be resolved by a court.

This final quadrant is less defined than the others. It is, in effect, a hotchpotch of potentially relevant issues, reflecting the wealth of considerations that might affect an ethics case analysis. I do not see this as a major problem, although I can envisage the possibility of sorting out the issues into broader themes and creating additional "quadrants".

Recommendation

What, then, has the analysis achieved? The application of the four quadrants approach has identified the major question for this case: does the scope of the patient's prior refusal extend to the present situation? I concluded that it probably did not, appealing to the significant change in prognosis and the knock-on effects on the balance of harms and benefit. I inferred from the patient's comments to the psychiatrist and neuropsychologist, and from his decision to undergo other forms of treatment, that he probably performed such a harms/benefit calculation himself and decided that the potential harms of surgery outweighed the potential benefits.

I also questioned the patient's decision-making capacity, given his neurological condition and uncharacteristic behaviour, but decided to respect the experts' conclusion that the patient was competent, at least some of the time. I also suggested that, in light of the combined weight of the remaining uncertainties about the patient's wishes and competence, the drastic and irreversible consequences of foregoing surgery, the patient's lack

of awareness, the urgency of the situation, and the wishes of his closest relatives, the surgeon would be justified in performing the surgery.

DISCUSSION

A long time aficionado of the “four principles” approach of Beauchamp and Childress, I was impressed by Jonsen, Siegler and Winslade’s down-to-earth approach to clinical ethics case analysis.^{1,4} This experiment in case analysis has confirmed my belief that the four quadrants approach could become a viable methodology for clinician/ethicists dealing with real-life ethical problems at the bedside. The approach is perfectly compatible with the four principles but, in the domain of clinical ethics and practical decision-making, it presents a considerable advantage over the latter.

The four quadrants operate very close to the action, asking questions of immediate relevance to the case at hand. It is, in this sense, a truly casuistical approach, sorting out the details before identifying the principal moral dimensions of the case.⁵ Like a surgeon, the clinician/ethicist immerses himself, elbow deep, into the clinical minutiae, before gradually retreating to obtain a broader look at the situation. The progression from quadrant to quadrant thus represents a growing distance from the medical facts, an increasing measure of abstraction. While the first quadrant—medical indications—focuses on the content of the patient’s medical notes, the final quadrant—contextual features—is a bird’s eye view of the clinical encounter and the health system as a whole. This is in sharp contrast to the mid-level principles of principlists or the top-down approaches of certain moral theories, which start at a higher level of abstraction and gradually zoom in on the specifics of the case.

From a practical perspective, it is generally easier for clinicians to move from the concrete to the abstract than vice versa. This progression from observation to analysis is, after all, used in diagnosis and prognosis. The four quadrants method is thus likely to resonate with clinicians, who will not experience so radical a departure from their usual way of thinking about medical problems.

While I would not claim to be an expert in moral philosophy, I have found that knowledge of moral theory does not translate into an ability to dissect and analyse a clinical ethics case. This realisation reminded me of a passage from William Osler’s essay *The fixed period*:

A student may know all about the bones of the wrist, in fact he may carry a set in his pocket and know every facet and knob and nodule on them [...] and yet when he is called to see Mrs Jones who has fallen on the ice and broken her wrist, he may not know a Colles’ from a Pott’s fracture, and as for setting it *secundum artem* [according to art], he may not have the faintest notion, never having seen a case.⁶

I believe this gap between theory and practice also exists in clinical ethics. An encyclopaedic knowledge of the works of the great moral philosophers will not necessarily translate into a helpful and insightful case analysis of the neurosurgical case above. I suspect few clinical ethicists apply Kant’s categorical imperative to a clinical ethics problem.⁷ Aside from the

difficulty of explaining the mode of analysis to clinicians and the well-known problems with the categorical imperative itself, it can only be applied once the case has been dissected and the main ethical issues identified.

The method of case analysis must be tailored to clinical reality, including the time constraints of decision-making. The case study patient’s deteriorating condition from intracranial pressure requires a swift decision. Ideally, the method should be comprehensible to non-philosophers, as this allows the ethicist to explain the rationale for the decision and clinicians to use the method in their own practice.

The four quadrants approach cannot single-handedly resolve moral dilemmas in clinical ethics. Unlike the categorical imperative and consequentialist moral theories, it does not offer a clear account of right action. Neither is it directly concerned with the validity of ethical theories. Rather, it is a framework designed to facilitate systematic identification and analysis of clinical ethics problems. It is a kind of ethical stethoscope, increasing the clinician/ethicist’s ability to see what is morally relevant while revealing, at the bedside, the moral dynamics of the case. The judgement and justification needed to resolve the specific problems, such as the scope of a prior refusal of treatment, are not included in the model. This is why the approach could be fruitfully combined with a theory such as principlism and the associated methods of specification (ie, “filling in” principles to increase their relevance to a given situation) and balancing (ie, determining the moral weight of competing principles and assessing which takes priority). A discussion of a possible synthesis between the two approaches is beyond the scope of this paper.

Although the four quadrants approach is widely used by healthcare practitioners and ethics committees in the United States and indeed in some parts of the United Kingdom, it has been neglected in the medical and medical ethics literature, overshadowed by the mighty (though much-maligned) four principles. I have here demonstrated the method at work and commented on several aspects of the approach. It is a first and modest step. I hope it will encourage others to consider the approach both as a decision-making tool and an object of scholarly attention.

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