WEB PAPER

The development of the CoRE-Values framework as an aid to ethical decision-making

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Abstract

Background: Ethical analysis frameworks can help to identify the ethical dimensions to clinical care and provide a method for justifying clinical decisions. Published frameworks, however, have some limitations to easy, practical use.

Aims: The aim was to identify a comprehensive yet easy-to-use framework that clarifies ethical decision-making, suitable for use by medical learners and clinical educators.

Method: A literature search identified published frameworks that define the components of ethical clinical decision-making. On this basis, a new framework, the ‘CoRE-Values Compass and Grid’ was constructed. This was formally evaluated during a medical school interprofessional teaching session.

Results: For 88% of 228 medical and nursing students, the new framework was easy to understand; 85% reported it as easy to use. The framework improved awareness of the ethical dimensions to a clinical scenario for 97% of students and the ability to systematically identify ethical aspects for 83%. Students and instructors reported that the framework helped to link ethics theory with clinical practice. The framework was described as a useful educational tool by 85% of students and 95% of instructors.

Conclusions: The ‘CoRE-Values Compass and Grid’ is a new framework, shown to aid the systematic identification and consideration of ethical aspects to clinical cases.

Practice points

- Ethical considerations are part and parcel of clinical decision-making.
- Use of a framework can help identify the ethically important aspects to a clinical situation and provide a method for justifying clinical decisions.
- The contextual factors underlying ethical aspects of clinical care fall into four essential domains that correspond to the principal systems of guidance for clinicians: moral/personal values, professional codes of conduct, ethical principles and the law.
- In the educational setting, the new ‘CoRE-Values Compass and Grid’ framework has been shown to aid awareness and the systematic identification of ethical dimensions to clinical scenarios, as a basis for further contemplation and discussion.
- As well as an educational tool, the ‘CoRE-Values Compass and Grid’ framework has potential as a decision-making tool in clinical practice.

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2012; 34: e258–e268

© 2012 Informa UK Ltd. DOI: 10.3109/0142159X.2012.660217

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analytical framework can help to identify the ethically important aspects to a clinical situation and provide a method for explaining and justifying decisions (Jonsen et al. 2002; DuBois 2008).

Traditionally, medical students learn Beauchamp and Childress’ (2001) ‘Four Principles’ (or ‘principism’) approach to ethical reasoning. This framework reminds the clinician to consider and balance the principles of justice (the distribution of benefits, risks and costs fairly), beneficence (the provision of benefit or good), non-maleficence (avoidance of harm) and respect for autonomy (the enablement of the patient’s own choices). These principles are intended to represent a core set of fundamental moral ideals relevant to any society, regardless of culture, forming a system for moral reasoning and ‘guidelines for professional ethics’ in medicine (Beauchamp & Childress 2001). Although relatively easy for medical learners or clinicians to remember, the Four Principles framework has been criticised as a practical tool for case analysis, being too abstract and isolated from the particulars of a clinical case (Artmack & Dimmitt 1996; Illis 2000). This was noted as a problem during a long-established interprofessional teaching session at Dundee University Medical School. In Year 2 and again in Year 3, medical and nursing students together discuss case scenarios involving ethical issues, in small groups. Students had been encouraged to use the Four Principles framework as a structure for case discussion, but this meant that important areas (such as the need to tell the truth or to attend to legal obligations) were not considered in student deliberations. In addition, it was noticed that Year 5 medical students, in writing case analyses on ethics and law, tended to miss out discussion of professional and legal guidance, because the Four Principles framework did not explicitly encompass these key factors. A literature search was initiated to find an alternative framework to aid student analysis of the ethical aspects to clinical cases. This article describes:

- the literature search for an ethical analysis framework that would be easy for learners and educators to use yet facilitate consideration of the broad range of factors relevant to clinical decision-making;
- the limitations to frameworks found in the published literature;
- the subsequent design of a new ethical decision-making framework, the ‘CoRE-Values Compass and Grid’;
- the evaluation of this new framework to assess its usefulness as an educational tool in the context of the medical school interprofessional ethics teaching session.

**Literature review**

A literature search was conducted between September 2008 and March 2009. The library search tool incorporated Medline, Scopus, Intute, Wiley, Web of Knowledge and Google Scholar. Search terms included: ‘ethic*’ and ‘medic*’, combined with ‘reasoning’, ‘decision-making’, ‘template’, ‘framework’, ‘model’, ‘analysis’, ‘tool’, ‘awareness’ and ‘sensitivity’. Sources written in English and published since 1990 were searched and reference lists from relevant articles as well as books and internet sources accessed. Authoritative books on ‘clinical decision-making’, ‘clinical reasoning’ and ‘clinical problem-solving’ were consulted. Articles describing specifically the components and/or processes underlying the ethical aspects of clinical decision-making in health care were selected. An identical search was repeated in September 2010, to capture papers published while the new framework was being designed and evaluated. In all, 21 relevant literature sources were identified. Those articles representing the spectrum of components and processes underlying the ethical domains of clinical decision-making are listed in Table 1. Frameworks with significant similarity to those shown in Table 1 have not been included in the table.

**Scope of published frameworks**

All the published frameworks were written by scholars based in the United States of America, United Kingdom, Australia and Canada, except for the ‘Medical Ethical Reasoning Model’, which also incorporated components relevant to physicians in Taiwan (Tsai & Harasym 2010). In constructing their respective frameworks, two scholars built on the Four Principles components to make certain contextual factors more explicit: Gillon (1994, p. 184) proposed the ‘four principles plus attention to scope’ approach, ‘scope’ being a consideration of ‘to what or to whom we owe the moral obligations’, and Tuohey (2006) added professionalism requirements. Additional frameworks shown in Table 1, intended for use by clinicians or clinical ethics committees to aid case analysis, attempt to embody the relevant tasks involved in ethical reasoning (e.g. ‘clarify facts’, ‘develop options’, ‘evaluate your argument’) or contextual factors (e.g. patient preferences, the law, risks/benefits). Models such as the ‘Ethox Approach’ (United Kingdom Clinical Ethics Network, n.d.) combine both tasks and contextual factors. Seedhouse’s ‘Ethical Grid’ (2009) has a broader stated function than simple clinical case analysis, as a structure for personal and public reflection, discussion and the justification of ethical issues in health care. Two recently constructed models were developed specifically to inform the curricular design of ethics education programs or training sessions, rather than for case analysis purposes: the ‘Structured Learning in Clinical Ethics’ method (Roff 2008; Norman & Roff 2010) and the ‘Medical Ethical Reasoning Model’ (Tsai & Harasym 2010).

**Lack of empirical basis**

The literature review demonstrated the dearth of empirical studies identifying the factors involved in ethical decision-making in clinical practice. Instead, the majority of published frameworks were devised on the basis of clinicians and/or ethics experts identifying from their own experience the
<table>
<thead>
<tr>
<th>Name of framework, Author</th>
<th>Key components</th>
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</table>
| ‘Four Quadrants’ (or ‘Four Topics’), Jonsen et al. (2002) | A four-box grid listing questions for each of four topics:  
Medical indications: diagnosis and treatment options  
Patient Preferences: patient’s values  
Quality of life: aim is to improve this  
Contextual features: wider context, e.g. patient’s family, hospital policy, the law, health system, etc. |
Gather additional information  
Identify personal and professional values  
Identify values of key persons  
Identify conflicts in values  
Determine who should decide  
Identify the range of actions with their anticipated outcomes  
Make a decision  
Take action  
Evaluate the outcomes |
| ‘Five Steps’, Brody (1981) | Perceive the problem and take action  
List alternative solutions  
Analyse the strengths and weaknesses of each solution  
Select alternatives with the highest value  
Make an ethically correct choice |
| ‘So Far No Objections’ (SNFO), Dubois (2008) | Stakeholders: Who are the stakeholders?  
Facts: What facts are relevant?  
Norms: What ethical principles, norms or values are at stake?  
Options: What actions or policies deserve consideration? |
| ‘CARE’, Schneider and Snell (2000) | What are my Core beliefs and how do they relate to this situation?  
How have I Acted in the past when faced with similar situations?  
What are the Reasoned opinions of others about similar situations?  
What has been the Experience of others in the past when faced with similar situations? |
| ‘Ethox Approach’, UK Clinical Ethics Network (n.d.) | A flow chart and worksheet:  
Clinical/other facts relevant to the case?  
Appropriate decision-making process? (who? when? what are the procedural rules?)  
Morally significant features of each option (consider patient preferences, capacity, best interests, consequences)  
What does the law say?  
Moral arguments regarding each option  
Choose an option  
Evaluate your argument: can it be rebuffed?  
Make recommendation  
Review recommendation and learn from it |
| ‘Ethical Grid’, Seedhouse (2009) | A ‘four layer’ diagrammatic grid:  
Autonomy/respect layer: Create/respect autonomy, respect persons equally, serve needs  
Deontological layer: address moral obligations (tell truth, do good, minimise harm)  
Consequentialist layer: identify the most beneficial outcomes  
External considerations, e.g. the law, wishes of others, codes of practice, available resources |
| ‘Ethical Decision-making Tool’, Schwartz et al. (2002) | A work-sheet, listing questions, with spaces to write answers:  
Get the story straight: information, stakeholder values, clinical and social issues  
Clarify your position: initial reaction  
Consider differences between ethical and medical issues  
Duties and outcomes: conflict between caregiver’s duties and required outcomes?  
Alternative courses of action: risks/benefits of each  
Relevance of ethical principles to alternative courses of action  
Legal and professional requirements  
Reflection so far  
Decision: articulate a resolution  
Justify your decision  
Anticipate criticisms and costs  
Implement and document  
Reflect and evaluate impact  
Reconsider |

(continued)
factors they considered important in ethical reasoning. Tsai and Harasym’s (2010) Medical Ethical Reasoning (MER) Model is the exception in that its design is based on both empirical evidence and a literature search, rather than on expert opinion alone. Qualitative interviews of 16 physician–ethicists around clinical vignettes illuminated the factors underlying ethical decision-making, and these factors were incorporated into the final MER Model (Tsai & Harasym 2010). The complicated format of the MER Model, as a labelled diagram with three levels and four steps, does represent a comprehensive summary of factors relevant to ethical decision-making. However, this complexity means that the model’s practical use as a tool for analysis of clinical cases is problematic: the MER Model is more appropriate as a curricular planning device, as Tsai and Harasym (2010) recommend.

Not only is there a lack of empirical evidence underpinning the design of published frameworks, but there is a lack of evidence as to the effectiveness of these frameworks in educational use or in clinical practice – a phenomenon also noted by Tsai and Harasym (2010).

**Simplicity versus complexity**

There were obvious limitations to the use of many of the published frameworks as practical case analysis tools. Although ostensibly easy for users to remember, the simpler frameworks (like the Four Principles approach) lacked the breadth of context necessary for ethical decision-making, omitting important factors such as legal issues or hospital policy. On the other hand, frameworks showing more detailed inclusion of contextual factors, such as Seedhouse’s (2009) ‘Ethical Grid’, tended towards a complexity that would seem to compromise ease of use: to create enough familiarity for practical use by the student or clinician requires substantial prior reading around the framework, the need to carry around a diagram or explanation of the framework and/or regular use.

Given these limitations, the information derived from the literature review was used to construct a new framework, aiming for ease of use as well as inclusion of the range of contextual factors underlying ethical decision-making.

**Table 1. Continued.**

<table>
<thead>
<tr>
<th>Name of framework, Author</th>
<th>Key components</th>
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</table>
| ‘Medical Ethical Reasoning (MER Model), Tsai and Harasym (2010)’ | A labelled diagram showing three levels and four steps:  
  Three levels:  
  - Medical and Ethical Knowledge  
  - Attitudes: consider: belief/value/character/moral development; conflicts; involved parties/consequences  
  - Skills: within ‘Skills’, four steps:  
    - Step 1 Problem identification and information-gathering  
    - Step 2 Decision-making  
    - Step 3 Planning for treatment/management  
    - Step 4 Action (observed clinical behaviours)  
  ‘Attitudes’ and ‘Skill’ domains are linked to a ‘Justification’ domain: encompasses consideration of probabilities, best evidence, theories, rules/principles, professional codes, beliefs, values, guidelines, consequences, comparable cases, prior experience |
| ‘Modified Four Quadrant/Four Principles’, Tuohey (2006) | Clinical Integrity: professionalism issues, e.g. truth-telling, disclosure and conflict of interest  
  Autonomy: also includes patients’ coping skills and the influence of faith, culture, race, ethnic background and life experience  
  Beneficence: includes consideration of the quality of patient’s life activities  
  Non-maleficence: duty to protect the patient and also third parties (e.g. a staff member) from harm  
  Justice: legal, ‘public order’ concerns |
| ‘Structured Learning in Clinical Ethics’ (SLICE), Roff (2008) | Conscience: evolving one’s moral/ethical positions as clinical experience grows  
  Compliance: with laws, regulations, social conventions/consensus  
  Concurrence: practising alongside others’ religious, cultural and social context  
  Conversation: being able to dialogue with patients, carers, peers about ethical/moral issues  
  Conversion: negotiating acceptance of a particular view/action whilst respecting others’ views |

**Design of new framework**

**Defining the framework’s content**

It was evident that the contextual factors identified as important from the published literature could be simply distilled into four domains: expectations of appropriate professional behaviour; legal requirements; ethical principles; and personal/moral values. These domains are described in more detail in Table 2.

It was thought important to retain Beauchamp and Childress’ four principles within the new framework, because of the foundational importance and relevance of these to the
ethics of health care (well-established in the literature) and because health professionals and educators are already familiar with this as an analytical framework. These four principles, plus consideration of ‘Utility’ are included in the ‘Ethical Principles’ domain of the new framework (Table 2) as a minimum for consideration. Individuals may opt to include other guiding theories/principles within this domain, if this helps to progress thinking about the case. Communitarian considerations, or the need to act for the greater good, are represented in this domain by ‘Utility’: this is intended to encourage reflection on the relevance of health care costs to the clinical case, an important component of everyday clinical decision-making often omitted from published frameworks. Although ‘Utility’ has a broader philosophical meaning, use of this term was thought to be justifiable within the framework, to enhance ease of understanding and ease of use. It was also considered important to emphasise the law in the new framework, as an explicit domain for consideration.

It is recognised that the four domains shown in Table 2 are not well-circumscribed and that there is overlap; for example, ethical principles underlie professional codes of conduct, as does the law. Since the aim is that the framework should enable systematic identification of the important factors to the case, the overlap reduces the likelihood that a key factor is missed. Interestingly, these four domains represent not only the important values systems at play within the clinical interaction (personal, professional, ethical and legal), but also the principal systems for guidance available to clinicians when deliberating on an ethical course of action (personal/moral mores, ethical/philosophical theories, professional codes of conduct and the law). As such, the title ‘CoRE-Values’ was applied to the framework. Conveniently, this title also represents a mnemonic: if users of the framework are able to remember the title, ‘CoRE-Values’, then the mnemonic is intended to ease recall of the four domains.

### Table 2. Four domains of contextual factors underlying ethical decision-making.

<table>
<thead>
<tr>
<th>Codes of professional conduct</th>
<th>The law</th>
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<tr>
<td>Guidelines for professional behaviour and responsibilities, developed by professional organisations in nursing and medicine (e.g. the General Medical Council’s ‘Good Medical Practice’, the Nursing and Midwifery Council Code of Conduct or the Human Fertilisation and Embryology Authority guidance).</td>
<td>Legal obligations (and other stringent regulations, such as hospital or health board policies).</td>
</tr>
<tr>
<td>Ethical principles&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Personal/moral values</td>
</tr>
<tr>
<td>Justice: the distribution of benefits, risks and costs fairly; the act of being fair or impartial in action or judgement; the principle of fairness that like cases should be treated alike; or the administration of law according to prescribed and accepted principles.</td>
<td>The values/beliefs/ideology of:</td>
</tr>
<tr>
<td>Beneficence: the act of doing good and helping people; the provision of benefits.</td>
<td>● the patient;</td>
</tr>
<tr>
<td>Non-maleficence: the requirement do no harm.</td>
<td>● the involved health professional/s;</td>
</tr>
<tr>
<td>Respect for patient autonomy: enabling a person to be self-determining and self-governing: to make their own reasoned choices.</td>
<td>● other stakeholders in the outcome, such as the patient’s family, the hospital, the health system, health care funding organisations, the government or other employers of the health professional (e.g. private organisations or the Armed Forces).</td>
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<tr>
<td>Utility: the needs of an individual, balanced with the needs of many: acting for the good of the greater community.</td>
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<sup>a</sup>Definitions from Schwartz et al. (2002).

CoRE-Values:

- **Co** Codes (i.e. codes of professional conduct)
- **R** Regulations (i.e. the law, and any other stringent policies that dictate appropriate action)
- **E** Ethical Principles

Values

- **Values** (i.e. the personal/moral/institutional values, beliefs or ideologies of the key stakeholders)

**Defining the framework’s format**

A compass graphic was designed to house the four CoRE-Values domains, creating the ‘CoRE-Values Compass’ (Figure 1). This builds on the idea of a ‘moral compass’, and the analogy fits with the metaphorical goal to find the best pathway forward in resolving the clinical problem. Incorporating a graphic like this is also designed to enhance memory recall of the framework through visual learning. The CoRE-Values Compass represents a simple thought template, for easy ‘portability’ by users in educational settings. Thinking about each of the four CoRE-Values domains is intended to help medical learners and clinical educators identify quickly and systematically the relevant contextual factors underlying any clinical case, as a basis for further contemplation and discussion.

To complement the CoRE-Values Compass, the ‘CoRE-Values Grid’ was also designed, as a written worksheet that walks the learner or clinician through a structured process for ethical decision-making (Figure 2). This was based on the ‘Ethical Decision-making Grid’ described by Schwartz et al. (2002), which was simplified and adapted to include the four contextual domains of the CoRE-Values Compass as well as the key ethical reasoning tasks identified from the literature review. Although the finalised Compass and Grid share the same foundation of CoRE-Values domains and are presented together as one framework, the Compass or Grid can be used independently, depending on the need for a thought framework or a written framework.
Evaluation of new framework

Method

The new ‘CoRE-Values Compass and Grid’ was evaluated during one of the interprofessional teaching sessions at the medical school. Groups of around 30 medical and nursing students in Year 2 of their training met for teaching, supervised by one instructor from a medical background and one from nursing. Students were divided into smaller groups of 4–8 and each small group of mixed medical and nursing students discussed one of the complex ethical case scenarios outlined in Appendix 1. Groups were instructed to identify and discuss the underlying ethical issues to each scenario, then to present these and a plan of action to the larger group at a plenary session. Study guides explaining the new framework were circulated to students a few days prior to the teaching session: this was the first exposure of these students to the

Figure 1. The ‘CoRE-Values Compass’

Figure 2. The ‘CoRE-Values Grid’
CoRE-Values Compass and Grid. Student groups were encouraged to use the framework as an aid to the analysis of the cases, although they could opt not to use the framework.

The majority of instructors had previously facilitated this teaching session and were already familiar with the case scenarios, but not with the framework. Prior to the teaching session, instructors were given a facilitator's guide explaining the new framework and summarising the ethical issues relevant to each case. Instructors were asked to allow students to identify the relevant ethical issues, initially without instructor input, but if any group omitted to identify an important area independently, the instructor could then steer the group to discuss this. At the end of the teaching session, students and instructors completed an evaluation questionnaire assessing: student awareness of and ability to identify the ethical dimensions to the case scenario; ease of student understanding of the framework, ease of recall and ease of use; whether or not the framework helped to link theory with clinical practice; and whether or not they would consider using the framework in clinical practice (Appendix 2).

Results
Of the 139 medical students and 89 nursing students attending the teaching session, all 228 students completed evaluation questionnaires (100% response rate). Sixty-nine per cent of all students had read through the information provided about the framework before attending. Of the 22 instructors, 8 had a nursing background and 14 were medically qualified. Seventeen (of 22) instructors were active clinical practitioners. The majority of instructors (21/22) noted that students opted to use the framework in their case analysis. Data were not gathered to formally ascertain whether students used the CoRE-Values Compass or the Grid. However, the author observed that the majority of student groups sketched out the CoRE-Values Compass onto flipchart paper and labelled each of the four domains (Codes, Regulations, Ethical Principles and Values). Groups would then discuss how the domains applied to the case, typically annotate the sketch with notes (Figure 3) and use this diagram as an aid to the group's final presentation of the ethical issues around the case scenario (Figure 4). In this way, students used the CoRE-Values Compass as a written structure on which to frame both their deliberations and presentations.

Table 3 summarises the results from the evaluation questionnaire. Over 80% of all students confirmed that the framework was easy to understand and to use, improving their awareness of and ability to identify the ethical dimensions to the case scenario. Around three quarters of students stated that the framework was easy to remember and that it helped to link theory with clinical practice. The majority of students and instructors endorsed the framework as a useful educational tool for learning about ethical analysis. Of the 17 instructors who were still active in patient care, 16 (94%) stated they would consider using the framework in real clinical practice and one was uncertain. None of the respondents disagreed with any of the statements on the questionnaire listed in Table 3.

Discussion
The aim was to identify a comprehensive, yet easy-to-use framework to aid the consideration of the ethical aspects of clinical cases, suitable for use by medical learners and clinical educators. Given the limitations identified in the published frameworks, it was considered necessary to design a new framework, aiming to incorporate the broad range of contextual factors involved in ethical decision-making, at the same time avoiding any complexity that would deter use as a practical tool for case analysis. Were these objectives achieved?

Contextual comprehensiveness
The literature search identified those factors underlying ethical decision-making considered important by experts in ethics
education (including physicians) and representing larger organisations of clinical experts, such as the Providence Ethics Consult Service (Tuohey 2006) and the United Kingdom Clinical Ethics Network (n.d). As the design of the new framework was based on this collective ‘wise man’ expertise, this suggests inclusiveness of the broad range of factors relevant to ethical decision-making.

Furthermore, the CoRE-Values components are in alignment with the available empirical data on the factors involved in real clinical decision-making, identified in the MER study (Tsai & Harasym 2010). The CoRE-Values Compass and Grid specifies all but three of the factors identified as important in the MER Model, these being: ‘Conflicts’, ‘Prior [clinician] experience’ and ‘Probabilities/evidence/medical knowledge’. Although these three factors are not expressly stated in the CoRE-Values framework, they are indeed already inherent to both the Compass and Grid. The need to consider ‘conflicts’ is a component of the weighing and balancing of each domain of values in the framework, and the ‘clinician’s prior experience’ directs the moral weight given by that clinician to the conflicting values. Consideration of (clinical) ‘probabilities/evidence/medical knowledge’ occurs through the balancing of beneficence and non-maleficence (benefits and risks) within the CoRE-Values ‘Ethical Principles’ domain, and the Grid also includes ‘consideration of clinical facts’ as one of its steps.

Moreover, it is self-evident that the CoRE-Values Compass is to be used in the context of medical and clinical knowledge without this having to be specified in the framework, as the framework’s purpose is to guide the analysis of clinical cases. This concurrence of the CoRE-Values components with the decision-making factors identified in the MER study provides further support for the validity of the CoRE-Values framework.

The face validity and content validity of the CoRE-Values framework are also supported by the results of the evaluation study: 83% of students and 86% of instructors reported that the framework helped to identify all the relevant ethical issues around the clinical scenario. It is recognised that the evaluation study, designed to cause minimal disruption to teaching, assessed outcome measures based on the subjective opinions of participants. Objective measurement of the ethical issues identified by students and, ideally, comparison with a control group would have given more accurate information on the framework’s content validity. However, the subjective data obtained, combined with the fact that the framework design was based on expert identification of relevant factors and consistent with empirical research on ethical decision-making, all strongly suggest that the CoRE-Values framework indeed incorporates the broad range of important contextual factors.

Ease of use

The CoRE-Values Compass and Grid framework design was based on a simple foundation of four domains. The four domains were set within a visual learning aid (a compass) and ease of recall of the domains prompted by a mnemonic. The simplest format, the CoRE-Values Compass, as a thought framework forms the basis of an optional written worksheet or Grid: these complementary approaches provide two potential uses for the framework, depending on need and setting. In the evaluation study, students opted to use the Compass as a framework for contemplation and discussion and as a method to organise and present their thoughts. Although the evaluation questions did not discriminate between whether students chose to use the Compass or Grid, it was evident that students seemed to value having the flexibility of choice. The majority of students and instructors reported that the framework was easy to understand and easy to use. In addition, students were able to use the framework with minimal training, on the basis of a written explanation in a study guide: this simplicity is attractive given the usual restrictions on curricular time and resources.

Study limitations

When asked if the four domains were easy to remember, 28% of students answered ‘uncertain’: it is possible that because there was no objective test of students’ ability to remember,

<table>
<thead>
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<th>Table 3. Responses to evaluation questionnaire.</th>
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<tr>
<td>Students in agreement with statement (Total N = 222)</td>
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<tr>
<td>Framework improved student awareness of the ethical dimensions to the case</td>
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<tr>
<td>Framework was easy for students to understand</td>
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<td>Framework was easy for students to use</td>
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<tr>
<td>Framework is a useful educational tool for learning about ethical analysis</td>
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<tr>
<td>Framework helped students to identify all the ethical issues relevant to the case</td>
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<tr>
<td>Framework helped to link theory with real clinical practice</td>
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<tr>
<td>Would consider using the framework in real clinical practice</td>
</tr>
<tr>
<td>The four domains of the framework were easy to remember</td>
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<tr>
<td>Students understood how to use framework without further explanation</td>
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respondents could not accurately state their ease of recall. Those students who stated that the domains were easy to remember (72%) had subjectively evaluated their impression as to the likelihood of easy recall. Objective outcome measures would have provided stronger empirical data in assessing both ease of recall and content validity, and these outcomes could be assessed in further studies. However, the subjectivity of the study data does not negate the strongly positive value of the framework perceived by these learners and their clinical instructors.

Scope of use of the framework
A quarter of students answered ‘uncertain’ regarding whether or not the framework helped to link theory with clinical practice. This could be explained by the lack of familiarity of these second-year students with ethics theory, or with the framework (having read about it for the first time just a few days before), and their lack of experience as to how ethical issues play out in real clinical practice. However, the majority of students (75%) and instructors (91%) thought that the new framework did help to link theory with real clinical practice. This is of value in teaching, as learners often view ethical theory as being distant from clinical practice and, as a result, the motivation to learn ethics theory is poor. The CoRE-Values framework presents ethical principles as an important form of guidance that integrates with other forms of guidance (moral, professional and legal) in a practical way, to help find a way forward in complex ethical situations. In this way, the new framework ties these threads of the curriculum together and demonstrates how knowledge of theory directly applies to patient care.

Developing an awareness of the often hidden ethical dimensions to clinical care (also known as ‘ethical sensitivity’) is an essential prerequisite to being able to proactively and transparently manage complex ethical issues in practice. Ethical awareness also helps learners understand the ubiquity of the ‘everyday’ ethical dimensions to clinical work, and recognising this ubiquity can potentially enhance learners’ motivation to engage in ethics education. A high proportion of students (97%) stated that the framework improved their awareness of the ethical dimensions to the case. Since ethical awareness can be a difficult skill to learn or teach, the CoRE-Values framework therefore represents a valuable educational adjunct in this respect.

Overall, students and staff considered the framework a useful tool for the analysis of the ethical aspects to a clinical case, demonstrating the framework’s effectiveness in this educational setting. Since the framework was designed on the basis of the opinion of experts from Western nations and in the case of the MER study, from Taiwan, the CoRE-Values model may have wider use as an ethical analysis framework in medical and nursing training in similar countries. It must be noted that although the framework worked well in the analysis of the three clinical cases presented during the interprofessional teaching session, its suitability across the spectrum of clinical work needs further assessed. However, the framework provides a foundational structure that could be adapted to incorporate additional factors relevant to local cultural context or to particular clinical care scenarios.

In addition to use as an educational tool, all but one of the clinical instructors (16/17, 94%) and the majority of students (170/228, 74%) indicated willingness to use the framework in real clinical practice. It is acknowledged that the sample of 17 clinical staff was small and the second-year medical students in this study had limited insight into clinical work. Whether or not this indication of clinical utility translates into actual use that confers benefit to clinicians requires further study.

Conclusions
Unlike previously published ethical analysis frameworks, which are based solely on the opinion of individual experts, the new CoRE-Values Compass and Grid incorporates factors and processes identified as important in ethical decision-making, derived from a comprehensive literature review and from published empirical evidence. In addition, the study presented in this paper provides empirical data supporting the validity and practical usefulness of the CoRE-Values framework in educational practice. The framework was not only easy to use but also enabled the systematic identification of the range of ethical aspects to clinical case scenarios, as a basis for further contemplation and discussion. The finding that the framework increased learners’ awareness of these ethical dimensions and helped to link theory with clinical practice contributes added educational value.

The CoRE-Values model has the potential to simplify real clinical decision-making in ethically complex cases and to provide clinicians with a method for the justification of decisions, based on well-considered moral, ethical, professional and legal grounds.

The CoRE-Values Compass and Grid does not aim to provide a prescriptive philosophical position as to which underlying moral systems are appropriate for any given case. It is also important to note that, although the need to balance conflicting values is inherent in the framework, the framework itself does not assist in the complex process of weighing up the relative moral weight of each domain: this would remain very much a product of the personal and professional experience of the clinician involved in the clinical case. As stated by Beauchamp (1994, p. 9), ‘No set of principles or guidelines can provide mechanical solutions or definitive procedures for decision-making about moral problems in medicine. Experience and sound judgement are indispensable allies’. Nor is the framework intended to be used in an overly-rigid manner, but as a tool to help bring relevant issues to scrutiny.

As well as an ethical decision-making framework, the CoRE-Values domains have provided a curriculum planning structure that organises the teaching of ethics and law at Dundee University Medical School. In Year 1, medical students work through a foundational course of e-modules that teaches sequentially on each CoRE-Values domain: the importance of values, professional codes of conduct, ethical principles and the application of the law in medicine. In Years 2–4, the CoRE-Values framework is used as an instrument to translate this fundamental knowledge into the practical clinical skill of ethical reasoning. In addition, Year 5 students are required to structure their written ethics and law case analyses around the CoRE-Values domains for the final portfolio exam.
the curriculum, clinical and academic educators are encouraged to use the CoRE-Values framework in their clinical teaching with students. Clinicians have also used the CoRE-Values Compass to present on ethics cases during Grand Rounds. In postgraduate ethics education, the framework has provided a structure for case discussions in the teaching of General Practice trainees, General Practitioners and General Practice educators.

The CoRE-Values framework is not intended to replace other published models, which may be appropriate for specific needs or to provide different perspectives on ethical analysis. Rather, the framework represents an option for learners, educators and clinicians to use in their clinical decision-making 'toolkit'. The multitude of contextual factors important to ethical decision-making, identified in the literature search, confirms the medical school’s experience that the Four Principles approach appears sparse when used alone as a practical framework for clinical case analysis. The CoRE-Values framework provides a more comprehensive option, integrating Beauchamp and Childress’ four principles with ‘theories, professional virtues and patient narrative’ (as recommended by Gillon 1995), and contextualising the four principles within societal moral precepts of professional codes of conduct and the law.

Many traditional clinical decision-making and consultation models entirely exclude ethical considerations, focussing on the so-called ‘technical’ aspects of problem-solving and reflecting the biomedical bias of medical education. In real clinical practice, however, ethical dimensions often introduce conflicting elements that can make it difficult to decide on the best course of action, influencing the choice and effectiveness of therapeutic interventions. Ethical decision-making frameworks must continue to be further developed and formally evaluated in order to better inform educational practice, to simplify this complex discipline for learners, and to assist clinicians in the resolution of complicated clinical cases. Research on the factors involved in normative ethical decision-making by health professionals in real clinical situations would provide a more meaningful basis for constructing and validating these frameworks. Ethical considerations are part and parcel of clinical decision-making and the frameworks used in teaching and learning need to reflect this.

Acknowledgements

Author thanks Dr Sean McAleer, Senior Lecturer in Medical Education, Centre for Medical Education, Dundee University, for guidance on questionnaire development and for comments on earlier drafts of the manuscript. The author also thanks Dr Suhail Nurbhai for providing editorial input and Steven Fraser, Learning Technologist, Medical Computing, Dundee University Medical School, for creating the Compass graphic.

Declaration of interest: The author reports no declarations of interest.

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References


Appendix 1
Outline of case scenarios in evaluation study

An 89-year-old female is resident in a Care Home. She takes oral medication for diabetes and osteoporotic pain, has limited vision and is becoming forgetful. She has been complaining that her pain is intolerable and says she wants to die. In her handbag, a Care Assistant finds several packets of paracetamol, brought in at the patient’s request by family and friends. Her prescribed medication already contains a paracetamol preparation at the maximum daily dose.

A 67-year-old female with a progressive neurological illness becomes unable to move independently, to communicate or to eat or drink. She receives food, fluid and medicines via a percutaneous endoscopic gastrostomy tube. She needs 24-h specialist nursing care to maintain skin integrity and basic comfort. She is spending increasing periods of time sleeping and makes no eye contact with staff or family members. The care team meet to discuss withdrawal of feeding.

An active 63-year-old man is diagnosed with early-onset Alzheimer’s Disease. He routinely walks every day with his wife and dog, but must be accompanied to ensure safety. He is admitted to a Dementia Assessment Unit for an appraisal of his 24 hour care needs. He becomes aggressive when confronted with the ward’s locked door and slaps a member of the nursing staff. His family arrive to find him slumped and sleepy in a chair, after he has been given anti-psychotic medication.

Appendix 2
Student and instructor evaluation questionnaire

STUDENT FEEDBACK FORM:
Your feedback on use of the CoRE-Values Compass will help us further develop this educational tool. Please tick the appropriate box.

<table>
<thead>
<tr>
<th>Nursing Student</th>
<th>Medical Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you a nursing or medical student? (tick box)</td>
<td>YES</td>
</tr>
<tr>
<td>Had you read through the information explaining the CoRE-Values Compass before coming to the teaching session?</td>
<td>YES</td>
</tr>
</tbody>
</table>

Regarding use of the CoRE-Values Compass during the Interprofessional Ethics Case Discussions, please mark your opinion:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions explaining the use of the CoRE-Values Compass framework were easy to understand</td>
<td>Use of the CoRE-Values Compass improved your awareness of the ethical dimensions to the case</td>
<td>The CoRE-Values Compass helped to identify all of the ethical issues relevant to the case</td>
<td>The CoRE-Values Compass was easy to use</td>
<td>The CoRE-Values Compass helps to link theory with real clinical practice</td>
</tr>
</tbody>
</table>

THANK-YOU FOR PROVIDING THIS FEEDBACK

FACILITATOR FEEDBACK FORM:
Your feedback on use of the CoRE-Values Compass will help us further develop this educational tool. Please tick the appropriate box.

<table>
<thead>
<tr>
<th>Nursing</th>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you a nursing or medical facilitator? (tick box)</td>
<td>YES</td>
</tr>
<tr>
<td>Did the student groups use the CoRE-Values Compass framework in the analysis of their cases?</td>
<td>YES</td>
</tr>
</tbody>
</table>

Regarding use of the CoRE-Values Compass during the Interprofessional Ethics Case Discussions, please mark your opinion:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students seemed to understand how to use the CoRE-Values Compass framework without further explanation</td>
<td>The CoRE-Values Compass helped the students to identify all of the ethical issues relevant to the case</td>
<td>The CoRE-Values Compass helps to link theory with real clinical practice</td>
<td>The CoRE-Values Compass provides a useful educational tool, for learning about ethical analysis</td>
<td>The framework is something that you would consider using to clarify and simplify cases in real clinical practice</td>
</tr>
</tbody>
</table>

THANK-YOU FOR PROVIDING THIS FEEDBACK