Intuition and Analysis in Decision Making and Choice

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Purpose: To discuss the need for a shift in focus from intuitive to more analytic ways of examining both the process and outcomes of professional decisions based on “best evidence.”

Scope: Different assumptions inherent in intuitive and analytic explanations of nurses’ decision making are outlined, and the two approaches are compared. The benefits and limitations of such approaches to decision making in nursing and health care are discussed, using available research evidence to show that in most instances the analytical approaches are more effective.

Conclusions: A systematic approach to decision making in health care is needed, so that both health professionals and patients have a means for knowing the basis of decisions about treatment.

Using Decision-Support Systems

A decision may be defined as a choice between two or more discrete options (Dowie, 1993). Decision-support systems may be viewed simplistically to highlight the potential of systematic analysis of problems and choices in nursing. Many researchers compare decision support with no decision support, and decision-specific training with no decision-specific training, in both nursing and medicine. This approach has limitations. First, decision support is most often applied to simple, easily structured problems. Many nursing decisions are “messy,” inhabiting what Schon (1988) referred to as the “swampy lowland” of professional practice and they often are tainted or mediated by the influence of other, more powerful, groups such as managers or physicians. However, areas of nursing exist in which simple structure and form are emerging in the ways clinical problems are framed and solutions derived so that nurses can function relatively autonomously. Examples include the management of wound care, pain relief, incontinence, and cardiac rehabilitation.

Another limitation is that this type of exercise may be viewed as Unrealistic and academic, because decision-support systems are not human and do not consider factors that real people bring to decisions. However, if one acknowledges the real possibility that these support systems, with all their limitations, could actually help nurses make better decisions, then perhaps they should be used more often.
inherent limitations, might still be able to out-perform human subjects in these limited situations, then one has to question the strategies deployed by human subjects under such conditions. Moreover, the use of decision-support tools is deliberate in that their limitations—their lack of values, beliefs, or subjective and relative opinions—make their use as an exemplar of “cold rationality” compelling. The exemplar may be extreme, but the focus remains on the use of rational and systematic approaches to decision making.

**Intuition: Clinical Forethought or Falsae Memoriae**

Many authors have suggested that intuition is a legitimate basis for decision making in health care, especially within nursing (Benner, 1984; Benner et al., 1999; King & Appleton, 1997). However, authors do not agree on the nature of intuition as a concept. Various definitions have been given, including: “understanding without rationale” (Benner & Tanner, 1987, p. 23); “a perception of possibilities, meanings, and relationships by way of insight” (Gerrity, 1987, p. 63); “knowledge of fact or truth as a whole; immediate possession of knowledge; and knowledge independent of the linear reasoning process” (Rew & Barron, 1987, p. 60); “immediate knowledge of something without the conscious use of reason” (Schrader & Fischer, 1987, p. 47); “process whereby the nurse knows something about the patient that cannot be verbalized, that is verbalized with difficulty or for which the source of knowledge cannot be determined” (Young, 1987, p. 52); and “lacking underlying conscious processes and as not being able to be explained in a tangible manner” (Cioffi, 1997, p. 204).

These differing definitions have in common an ambiguity about intuition as a type of knowledge and intuition as a mode of thought (Sarvimaki & Stenbock-Hult, 1996). If one considers intuition a type of knowledge, then one must consider the nature of that knowledge and how it affects decision making. A problem in regarding intuitive knowledge as a type of knowledge to be used in health care decisions is its lack of visibility. When intuitive knowledge is the basis for decisions, the beliefs and values which permeate all decisions in health care (Pitz & Sachs, 1984) are explicit only to the person making the decision. In an era in which nurses and policy makers advocate greater participation of patients in decisions about their care, then nurses’ intuitively based decisions are a problem.

This lack of explication may also be considered morally reprehensible, as Pellegrino pointed out:

> To resort to terms like “art” or intuition is to impede explication of a socially significant process. Whatever name we use to subsume the indefinable elements in the process, the effort to explicate them further is a moral as well as an intellectual responsibility. (Pellegrino, 1979, p. 187)

Further, intuitive decision making is not commensurate with the reflective learning strategies that proponents claim are the ways to “unlock” much of the benefit from practice-based, tacit, or intuitive knowledge of the “right” thing to do. If the outcome of drawing on particular intuitive knowledge is less than positive, little information is available to examine exactly a what point(s) the options chosen may have been less than “optimal.” Also lacking is insight into how the person reached the decision, because the process is largely invisible. Perhaps other ways of reaching decisions should be considered, so that professionals can not only explain to themselves how they make choices, but also can justify choices to the recipients of their decisions.

Despite the limitations of intuitive knowledge, it may be useful. Many studies of intuition have highlighted the accuracy of intuitive judgement in predicting risk to the patient (Benner, 1984; Benner et al., 1999). Cioffi (1997) illustrated this phenomenon with an excerpt from a study reported by Benner and Wrubel(1982):

> Another nurse recalled having a “bad feeling” about a patient whose observations had not changed much but who was becoming restless and vaguely complaining of not feeling good. She had called the medical officer and by the time he arrived the patient was having copious burgundy liquid stools indicative of a massive haemorrhage. (Cioffi, 1997, p. 205)

Similarly, Benner and colleagues (1999) referred to “clinical forethought” to describe the ability to

> Prepare the environment by anticipating possible clinical eventualities. These habits of practice guide thinking-in-action. Because clinical forethought is always embedded in particular situations, over time it becomes such a habit of thought and patterned way of approaching clinical situations that it becomes intuitive. (p. 64)

St. Augustine (Augustinus, 1968) coined the term falsae memoriae to refer to the phenomenon of déjà vu, or a sense of having been in a situation before. According to Benner and colleagues (1999), clinical forethought shapes responses to medical diagnoses, the range of clinical interventions available, and anticipation of the unexpected. Much of the research on intuition provides similar examples of how intuitive thought benefits judgement and decision making (King & Appleton, 1997; Schraeder & Fischer, 1987). However, many of these studies rely on the recall of “critical incidents” by participants, so that the influence of memory and hindsight means that they may recall only the incidents in which responses deployed were part of an effective strategy (Dawes, 1988). Subjects are highly unlikely to recall incidents of failure of their intuitive judgement, or times they missed patient cues altogether so that the patient suffered a worse outcome than might otherwise have been the case had a rational approach (in the form of decision support) been available. Regardless of hindsight bias in the recall of past experiences or memories, convincing evidence shows that even when faced with new or different evidence for revising ideas of hypotheses about what is wrong, what to do, or what to expect, nurses are cognitively cautious in the Bayesian sense. They fail to deviate much from already held ideas or opinions (Hammond, Kelly, Schreider, & Vancini, 1967), and therefore a more reliable alternative is required. Relying on the sense of falsae memoriae of intuitive thought is insufficient.
Analysis in Decision Making

Hamm (1988) suggested that intuition is only one of many different modes of thinking available to decision makers. Putting forward the concept of the “cognitive continuum,” he suggested that different tasks are catalysts for using different cognitive modes ranging from intuition to analysis. According to this argument, the decision maker should ensure that the cognitive mode is appropriate for the situation. Analysis in this instance is defined as: “slow, conscious, and consistent; it is usually quite accurate (though it occasionally produces large errors); and it is quite likely to combine information using organising principles that are more complicated than simple ‘averaging’” (Hamm, 1988, p. 81-82).

When a mismatch exists between the task structure and cognitive mode, then the outcome is likely to be less accurate for the decision maker (in this case the patient). This theory indicates that for ill-structured tasks, with a large number of cues and very little time, intuition is the most appropriate cognitive mode to use. In well-structured tasks, with few cues and a lot of time, then analysis is the favoured cognitive mode. However, most tasks are a mixture of ill and well structured, and therefore fall somewhere in the middle of the continuum. The most appropriate form of cognition then would be a mixture of analysis and intuition, perhaps exemplified by the use of systems to aid judgements and decisions (Figure).

Dowie (1996) suggested that the cognitive continuum framework be used to explain why research evidence is not used in decisions about health care practice. He suggested that most health care practitioners operate toward the intuitive end of the continuum, but most researchers toward the analytic end of the continuum. Practitioners may read and understand research but may not know how to accept or incorporate the results into practice and the relatively ill-structured tasks they face. This lack of application may result from the lack of analytical insight into the judgmental and decisional basis of current practice, again because of the predominance of intuitive thought.

The idea of a cognitive continuum implies that, when appropriate, practitioners should attempt to increase the amount of analytic thought in making decisions, instead of relying on intuition. This shift would match many of the task situations they face, and would allow health professionals and patients to have full insight into the knowledge and processes used in reaching decisions. It also would allow current research evidence to be used to improve practice.

Using Intuition or Analysis

Numerous researchers, albeit in limited situations, have compared the intuitive judgements of professionals with a variety of different types of systems designed to aid judgement, including policy-capturing models and systems based on Bayesian theory. Studies indicate that, by increasing the amount of analytic thought in making decisions, professional adherence to best practice and outcomes for patients often improve.

Dawes (1988) reported that research has consistently shown that statistical approaches are as good as, or better than, intuitive judgement. Examples include Elstein and colleagues (1988), who studied 50 community physicians’ intuitive decisions about whether to prescribe oestrogen therapy, compared to that of a decision analysis. Physicians’ subjective estimates of the risks and benefits to patients were incorporated into the decision tree, including perceived risk of endometrial cancer and benefits of preventing osteoporosis. The results indicated that the physicians’ intuitive decisions differed considerably from that of the model, with physicians less inclined to prescribe treatment. The authors suggested that this finding resulted from the physicians’ giving more weight to avoiding endometrial cancer than to the positive preventive effects on osteoporosis, even when the risk of cancer was very small and the benefits of treatment great (Elstein et al., 1988). This study was based on the provision of written case studies, and in reality physicians’ decisions may differ from those observed in the study.

DeDombal (1988) studied the results of introducing a computer programme in three hospitals to assist physicians in diagnosing patients admitted to hospital with abdominal pain. The benefits of this introduction included an increase in diagnostic accuracy, a decrease in the rate of perforated appendices, a decrease in the percentage of patients having a negative laparotorny, and a decrease in the number of patients kept in hospital for 24 hours, among all three sites. All of these outcomes were directly beneficial to patients, and were attributed to the systematic way in which professionals were forced to collect data for the computer programme, reducing room for error.

These studies indicate the potential benefits of decision-support systems. Many decision support tools are in the form of computerised systems which store health care knowledge.
most commonly medical, based on the accumulation of data from many patients. They also have the ability to “reason” in e form of a computer programme which uses patient data to lp select, display, and apply the relevant facts to the case hnt, Haynes, Hanna, & Smith, 1998). They are analogous the use of a research assistant who, given pertinent patient ta, searches textbooks and highlights the appropriate sections that patient. Often, they indicate suggestions or decision ernatives for clinicians to either accept, adopt, or reject. These individual studies are complemented by an extensive stematic review of the effects of computerised decision support systems (CDSS) on clinical decisions and clinical or patient outcomes. In a review of controlled trials Hunt and colleagues (1998) showed complex evidence of the benefits of computerised systems of decision support. These studies were specifically carried out in the areas of treatment selection primarily drug dosing), preventive care, management of pertension, management of incontinence in nursing homes, id diabetes care.

Other nursing studies have indicated that simply introducing construction on decision analysis and the use of decision trees aid decision making have improved both accuracy of diagnosis (Aspinall, 1979) and the ability of novices to reach decisions similar to those of experts (Shamian, 1991). Similarly, range and colleagues (1997) found that training nurse practitioners in diagnostic skills via a computerised system lown as ILIAD significantly improved their diagnostic asoning skills. Dawes (1988) suggested that these systematic ays of making decisions are superior because they are less rely to be affected by conscious or unconscious bias, the cisions can be explicated and debated, and most important at the rationale can be understood by those most affected by em.

Conclusions

In decision situations in health care, professionals choose tions that have direct effects on others. Patients and clients ave their values and beliefs, and a voice in the decision choice optimal for them. If professionals rely on intuitive knowledge id modes of thought to reach decisions, then neither patients r, increasingly in this age of clinical governance, other terested parties have a means of knowing the basis of decisions. By introducing a more analytic approach to decision making, the information explicitly used to make decisions comes known, allowing full explication of the choices and amination in relation to expected outcomes. Research has own that the introduction of a more systematic approach to atment decisions, including decision support systems, is beneficial to patient outcomes. Dowie (1996) summarised these

If practitioners do not know how their current judgements and decisions reflect what they currently know or believe, in relation to the subjects of a piece of research, how can they modify them in the light of learning about the particular findings emerging from it? The answer is ‘not very easily, if at all.’” (Dowie, 1996, p. 101

References

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