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Group decision making in health care: A case study of multidisciplinary meetings

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ABSTRACT

Recent studies have demonstrated that Multi-Disciplinary Meetings (MDM) practiced in some medical contexts can contribute to positive health care outcomes. The group reasoning and decision-making in MDMs has been found to be most effective when deliberations revolve around the patient's needs, comprehensive information is available during the meeting, core members attend and the MDM is effectively facilitated. This article presents a case study of the MDMs in cancer care in a region of Australia. The case study draws on a group reasoning model called the Reasoning Community model to analyse MDM deliberations to illustrate that many factors are important to support group reasoning, not solely the provision of pertinent information. The case study has implications for the use of data analytics in any group reasoning context.

KEYWORDS

Multi-disciplinary meetings; group reasoning; reasoning community; healthcare

Introduction

Multi-Disciplinary Meetings (MDM) in which medical and allied health care professionals consider relevant options and collaboratively arrive at a decision regarding diagnosis, prognosis or treatment for a patient have been found to lead to better decisions than those made by sole physicians (Lamb et al., 2011a; Ruhstaller, Roe, Thürlimann, & Nicoll, 2006). In a longitudinal study with a large cohort of cancer patients, Ruhstaller et al. (2006) demonstrated that treatment plans made by interacting health care professionals are more effective than those made by individual practitioners. In addition to more effective treatment plans, Lamb et al. (2011) found that MDMs also lead to increased communication between disciplines that are useful for training junior doctors. Ruhstaller et al. (2006) also found that specialists from one discipline understand the possibilities and constraints of other disciplines when exposed to other disciplines through MDMs. Kesson, Allardice, George, Burns, and Morrison (2012) reports that this translated into improved breast cancer mortality rates.

According to Lamb et al. (2011), though MDMs generate many benefits, meetings do not always lead to optimum decision-making as outcomes have been found to be highly

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inconsistent and largely dependent on the effective participation of the team members. Along a similar vein, Patkar et al. (2011) established that a lack of appropriate support for participants in an MDM was an important barrier to the quality of MDMs. Shulman, Bain, Raikundalia, and Sharma (2013) found that many participants in an MDM setting in Australia reported a large amount of time was wasted due to disagreements between participants. However, the same survey revealed that participants were still positive about the outcome of MDMs and believed that it led to better plans for care.

Although, MDMs are clearly a group decision-making process, few studies have explored MDM processes and outcomes from the perspective of group reasoning. Evidence from face to face groups for some time has revealed that participants face many barriers to sharing all of their information and effectively reaching a decision (Fisher & Ellis, 1980). Some participants dominate due to their authority or charisma, all information may not be fully shared, the groupthink phenomena described by Janis (1972) and power plays cloud judgments. Arnaudova and Jakubowski (2005) found that a lack of proper communication and interpersonal interaction can account for 70–80% of errors in health care.

MDMs are a relatively recent phenomena. Some approaches to evaluate their effectiveness exemplified by Ruhstaller et al. (2006) has followed an experimental methodology whereby decisions taken by an MDM are compared with those from single physicians. The experimental methodology is generally applicable for the evaluation of medical treatments or procedures, where the dependent variable is a measure of patient health. However, an MDM is not the same kind of intervention as a treatment or procedure. As a communication process, an MDM cannot readily be evaluated using the same approach as medical interventions. This view is consistent with that held by Shaw (2002) who found that information technologies in health care were often inappropriately evaluated using randomised clinical trial methodologies.

In this article, a case study approach is adopted with a particularly active MDM operated by the Grampians Integrated Cancer Service (GICS) in the state of Victoria, Australia. The case study draws on a conceptual model of group reasoning called the Reasoning Community model advanced by Yearwood and Stranieri (2012) to analyse MDMs broadly. The study reveals elements that are indicative of high quality MDMs and suggests that the provision of information alone will not necessarily enhance MDM deliberations.

In the following section of this article, an overview of the Reasoning Community model is provided before applying it to MDMs described in previous studies and to MDMs organised by the Grampians Integrated Cancer Service (GICS) in regional Victoria, Australia.

Reasoning community model

The Reasoning Community model advanced by Yearwood and Stranieri (2012) is intended to describe the activities that a group of stakeholders perform when reasoning to reach a decision. A reasoning community is defined a group of participants that reason individually, communicate with each other, and attempt to coalesce their reasoning in order to reason collectively to perform an action or solve a problem. Reasoning communities are viewed as broader and more encompassing than communities of commitment (Kofman & Senge, 1993) or communities of practice (Lave & Wenger, 1998).

The reasoning community model encompasses more of the context of reasoning than logic formalisms that focuses solely on the drawing of new inferences from old, argument

representations that focus exclusively on the dialectical exchanges or decision models that focus solely on the method to arrive at a decision. The model articulates phases in the whole process of a group coming together, exchanging dialectically, inferring and sharing new knowledge and ultimately reaching a decision. The reasoning community model is thus a broad and abstract representation of group reasoning. As such, it is suited to use as a template to assess MDM groups. The four key phases inherent in a reasoning community Engagement, Individual Reasoning, Group Coalescing and Decision-making are briefly described here.

Engagement

The Engagement phase involves the following tasks:

(1) The selection and recruitment of appropriate participants. Participants in a reasoning community are the people that agree on the issue and directly engage in reasoning to solve the problem or perform an action.
(2) the articulation of the issue to be resolved,
(3) the identification of the intended audience who will want to understand and perhaps replicate the reasoning,
(4) the definition of a communication protocol such as a set of rules that govern exchanges between participants.
(5) agreement on a decision-making protocol. A decision protocol specifies how the community will ultimately reach a decision; by voting, consensus or other mechanisms.

Individual reasoning

Each participant ascertains facts, makes inferences from facts to draw conclusions and, contributes reasons to a pool of reasons for the community. A key part of individual reasoning involves an individual's coalescing of reasoning. This is the process of juxtaposing background knowledge with reasons advanced by other participants in order to understand the issue and position his or her claims amidst the others. A participant's coalescing of reasoning involves making sense of reasons in order to assert their own claims or to understand the claims of others.

Group coalescing of reasoning

The coalescing of reasoning for the entire community involves organising the terms, concepts and reasoning advanced by participants to the community into an explicit, coherent representation. This is important for shared and democratic decision-making where decisions are made on the basis of reasoned debate. Further, group coalescing enables communities in the future to adopt coalesced reasoning as a starting point for their own deliberations in what Stranieri and Yearwood (2010) call re-use of reasoning. Most current reasoning communities perform individual coalescing but do not systematically perform group coalescing.

Decision-making

Making a decision requires making a choice between alternatives, actions or solutions considered. In a practical sense it involves the performance of an action or solution of a problem. The resolution of the problem requires the implementation of the decision-making protocols in order to reach a final decision.

Research methodology

An exploratory case study that employed the observation of MDMs and conduct of semi-structured interviews with the coordinators of these meetings was used. The meetings take place on a regular basis and the observer was like an audience in the meeting. There was no intervention in the meetings as a result of the presence of the observer. Yin (2013) identifies that factors like the nature of the group, the type of questions observed('how' and 'why'), a need to understand the context as being relevant to the phenomenon, no clear boundaries between context and phenomenon made case study the most appropriate choice. MDM groups have limited meeting time, and discuss each patient only briefly. The manipulation of MDM for more interventionist methodologies was not desirable. Further, the study asked 'How' questions about the context of the GICS MDMs which included a need to explicate the reasoning and communication context that characterise those MDMs. This also led to the case study approach as the most suitable.

Data collection and analysis

To explore the process of MDMs, the researcher attended MDMs that are taking place in the Grampians region. The study employed observation of 27 cases discussed in 3 different MDMs. The observations explored how the group coalescing and decision-making phase of the reasoning community model are conducted in MDMs. During the course of the meeting, the researcher took notes, observed behaviour of the participants and the extent of discussion in each case. Each meeting lasted for an hour discussing on an average 10 patients. A preliminary set of questions was prepared to help the researcher focus on the main areas.

Also, to get an insight into how the different phases of the reasoning community model are performed, semi structured interviews with the coordinators of the meetings were also conducted. The interview questions were framed around the coordinators' experience with the group and how well the group appeared to function. The use of semi-structured interviews allowed the coordinators to reflect on the current MDM process, express their viewpoint and offer their own unique experiences.

Qualitative analysis of the observations notes from the MDMs and the notes from the meetings with the coordinators were used to analyse the current MDM process and reflect on the deliberation model.

MDM case study

The Grampians Integrated Cancer Service (GICS) is an initiative for cancer reform from the Victorian Governments Fighting Cancer Policy of 2003 encompassing rural and regional

areas west of Melbourne, in Australia. GICS was tasked with creating and supporting effective multidisciplinary teams, establishing and strengthening multidisciplinary meetings.

Cases are submitted to an MDM by the primary treating clinician for private patients and predominantly by registrars and interns from the treating unit (surgical/ medical oncologist / radiation oncologist) for public patients. A referral to an MDM is made after obtaining the patient's consent. Meetings are generally held early in the morning before normal working hours. Each meeting has terms of reference establishing the quorum. For most tumour streams the quorum comprises a representative from surgery / medical oncology / radiation oncology / pathology and radiology. The meetings are held on a regularly scheduled basis – every two to four weeks depending on the tumour stream.

Typically, between 5 and 8 professionals attend a MDM; the majority in person and some by phone. The discussion time for each patient varies according to the complexity of the end of each case the agreed treatment plan or course of action is authorised by one or more clinicians present and documented by a designated member of the MDM team. The treatment recommendations and discussion notes are sent to the Health Information System of the relevant health care provider for filing in the patient's electronic or paper medical record at all the health services known to be associated with the case. Copies are also sent to the Private rooms, if applicable. The treatment plan is then discussed with the patient and is implemented only if the patient accepts and consents to the plan.

GICS MDMs were analysed from the perspective of the reasoning community model of group reasoning which was outlined in the previous section.

Analysis of GICS MDMs using reasoning community framework

Engagement phase

The first phase of a Reasoning Community model involves preparing for group reasoning. This phase is known as the Engagement phase and encompasses five major activities: problem specification, selection of participants, communication protocol and decision-making protocol and imagining the future audience that may reuse the reasoning.

Problem specification:

Most of the cases are submitted by the physician with a question regarding the optimal treatment or diagnosis. In a high proportion, cases submitted to the GICS MDM are earmarked with a specific but not a detailed problem for the MDM to collectively reason toward. None of the MDM studies published to date in the literature survey reports the extent to which a problem is specified for the MDM to reason toward. This is an important omission because, as Walton and Krabbe (1995) note, the types of discourse required for a group to arrive at a decision regarding the best action are quite different from the dialogue types required to share experiences.

Selection of participants

According to the Multidisciplinary meetings for cancer care: a guide for health service providers prepared by the National Breast Cancer Centre the participants are divided into two

groups: core team members and non-core team members. The core team consists of one or more pathologists, radiologists, surgeons, medical oncologists and radiation oncologists, along with general practitioners; supportive care (specialist nurse).The non-core team members include but are not limited to Genetic/hereditary counselling, Physiotherapy, Psychiatry/psychology, Nuclear medicine, Plastic surgery, Palliative care and Social workers. The GICS MDM Coordinator selects and invites participants to an MDM based on their expertise and the tumour stream being discussed. Most MDM studies do not report how participants are selected.

Communication protocol

In the GICS MDMs, participants are expected to communicate any views each may have regarding a patient verbally to all other participants at the time of the meeting. There is no expectation for participants to peruse the cases prior to the meeting, to advance a written perspective or to engage in dialogue outside the meeting. The communication protocol specifies that each meeting is chaired by a facilitator who regulates dialogue.

The GICS communication protocol allows for rapid reasoning however comes at some cost in that individual's reasoning is not recorded and cannot therefore be re-used. The implicit requirement for all dialogue to be open and broadcast to all engenders openness and trust but can come at a cost in that critiques of dominant views may be thwarted. The heavy reliance on a facilitator can be expected to link the skill level of the facilitator to the quality of deliberations as noted by Lamb (2011).

Intended audience

The intended audience of the GICS MDM describes individuals who will use the MDM group's reasoning. The intended audience in each GICS MDM is generally the group of physicians present at the meeting. The patient is advised of the MDM decision and deliberations by the submitting physician so can be thought to be obliquely part of the intended audience. However, deliberations are not intended to be seen by any future physician, there is no appeal process as in law with higher courts. Previous studies of MDMs do not describe who can be expected to view the reasoning of the MDM.

Decision-making protocol

The literature reports that most MDMs arrive at a decision by consensus. The extent to which the decision is binding on the submitting physician varies. In the GICS MDM, the MDM operates to provide advice and support to the treating physician so that its decisions or recommendations are not binding on it.

Individual reasoning

According to the reasoning community model, each participant performs individual reasoning to make personal sense of the material and reach a personally held decision if this is required. The individual reasoning phase is the phase where a participant makes sense of a case. If the case presents with a clear problem to solve, the participant may individually infer

a solution. This may be done by drawing directly on past experience or on guidelines if they exist and are known.

In the GICS MDM, participants are exposed to the case details at the meeting so the individual reasoning phase occurs at the time of discussion. Consequently, there is little time to draw on information outside the meeting. Individual participants are not required to express their personally reasoned view, and may in fact, not consciously make sense of a case at all. Only the chairperson and the radiologists have all the case details before the meeting. Submitting physicians are expected to come prepared with all relevant details. Treatment protocols are familiar to clinicians, although guidelines for rare conditions may not exist.

Group coalescing

The group coalescing phase in the reasoning community model is the phase in which participants share their views and arrive at a shared understanding of the phenomena. This is the phase where candidate solutions are canvassed and supporting arguments are advanced. During the group coalescing phase, an explicit representation of all participants' reasoning in the form of an argument map, a Delphi summary, a narrative, or some other format understandable to all, may be made.

In the GICS MDM, the group coalescing phase is performed in a synchronous meeting where some of the participants are typically face to face whereas others are present by telephone and occasionally video conference. Media richness theories advanced by (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987) advocate the use of face to face meetings with problem solving tasks that are complex and highly ambiguous and leaner media such as email when the problem solving tasks are less ambiguous. Shu-Chu Sarrina Li et al. (Li, Huang, & Liu, 2010) found that problem analysis, generating alternatives, and assessment of positive and negative consequences were critical. Face to face groups performed these tasks better than the virtual groups, thereby confirming the media rich theories.

A shared understanding is arrived at by having the intern or registrar introduce the case and/or problem. Other participants reflect on the case, bringing their own experiences and judgment to play and, express their belief. The extent to which the dialogue is eristic, persuasive, deliberative or indeed inactive relies a great deal on the skill and enthusiasm of the facilitator and each participant. The Coordinator of the meeting performs a group coalescing role in attempting to summarise the reasons for a decision to record in the MDM software

Decision-making

After deliberations and considerable information and knowledge sharing, a final decision is reached. The decision is the formulation of an effective care plan for the discussed patient. In most of the hospital settings the decision is taken by the patient's immediate doctor. The treatment plan is documented and is circulated amongst the participants. They can further add or reason on something that is not documented but was established during the meeting. In the GICS MDM, all comments are expected to be made at the meeting for consensus. Often, the problem is not specified explicitly and the case is presented for sharing, so there is no clear decision the MDM must make. If a participant raises questions about the next

step in the treatment course, the case may be deferred to a subsequent meeting. If consensus is not reached at the meeting, the reason is documented.

Ramifications arising from the analysis

Applying the reasoning community model to the MDMs we were able to identify some gaps by reflecting on the different phases and the group reasoning literature. These can be seen as factors that can be used to provide richer metrics for MDM evaluation or as policies for MDM practice. These reflections are based on gaps between the principle and the practice of group reasoning. The removal of gaps is likely to bring the MDMs closer to best practice ideals established by group reasoning theories.

Reflection on engagement phase

The selection of participants to form a diverse set of views is practical. Participants who share the same views are more likely to agree without questioning or advocating alternate conclusions. There is a group reasoning case for the inclusion of allied health professionals and patients into MDMs. Lamb (2011) recognises non- participation of the team members as a major obstacle to effective MDM. Making the communication protocol and decision-making protocol clear from the outset is likely to enhance an MDM. If the communication protocol and decision-making protocol are agreed upon in this phase, there is a strong possibility that it would lead to better discussion at the group meeting and a clearer way to make a decision.

Reflection on individual reasoning phase

As Kane, Luz, O'Briain, and McDermott (2007) and J.Li, Robertson, Hansen, Mansfield, and Kjeldskov (2008) note radiologists and pathologists' typically need to review each MDM case individually prior to a group meeting as much reasoning is based on their findings. However, other participants do not have the opportunity to reason individually about each case prior to most MDMs. There is a case for the circulation of all individual reasoning including that of the radiologists and pathologists prior to the group meeting. This provides an opportunity for each participant to access relevant information prior to MDM including past cases and guidelines.

Reflection on coalesced reasoning phase

A representation of the group's reasoning as a coalesced product in argument mapped or other form has the potential to enable MDMs reasoning to be clear to each participant and re-used by subsequent MDMs.

Evidence from face to face groups has demonstrated that participants face many barriers to sharing all of their information. Some of the barriers seem to be overcome in computer mediated groups; however a survey of the literature reveals information sharing is less than optimal in either forum. Campbell (2010) puts forward a strong case for the discovery of optimal ways to integrate face to face communication with computer mediated communication so that participants reason, share their knowledge, provide supporting guidelines or past cases to support their analysis.

The meeting facilitation occurs mainly during the coalescing phase and is challenging. Meeting facilitation is a skill that, unlike many other skills within health care, is not taught and does not have standardised and accredited qualifications. MDM meeting facilitation is likely to be enhanced if conducted by facilitators specifically trained to perform this role.

Reflection on decision-making phase

Many MDMs deploy a decision-making protocol that is implicit. Sometimes, the decision is not stated explicitly and the meeting secretary needs to infer the decision from the natural language group discussion. A protocol that results in a clearly articulated decision is likely to enhance MDM.

Alternate decision-making protocols, e.g. voting, decision by consensus etc. should be considered taking into account the situation and the nature of the problem being discussed. The documentation should explicitly specify the treatment plan and the methodology followed in the MDM to reach that decision.

Conclusion

The significant role that MDMs play in cancer treatment is clearly indicated by many studies. However, some flaws and obstacles have been identified in many MDMs. In this paper, we use a reasoning community model to identify the gaps and the insights from group reasoning literature to answer the drawbacks and the problems faced by the current MDM process. Identifying the problems in different phases facilitates the resolution of an issue at the point where it occurred. The paper makes some recommendations which may lead to more effective group reasoning. There is further scope for conducting an empirical study or action research to verify the suggestions advanced.

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