

TECHNOLOGY USE AND MANAGEMENT IN PALLIATIVE CARE

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ABSTRACT

Research in Australia into the management of innovation in multidisciplinary patient care teams in palliative care organisations is reported with regard to the application and management of technologies. Results of interviews in three palliative care case study organisations are combined with results of data analysis to provide a picture of the management and use of technologies in these organisations. A sometimes ambiguous environment is described, where the technologies acquired and applied to enhance or maintain a patient's quality of life during the end of life can at the same time provide stressors and uncertainty to the process. In this environment there is at the one time an implicit understanding of the broad view of technology as including a human aspect in application and a view of technology as applied science; as technological "things". Access to technologies has to be managed along with the application of technologies as the case study organisations do not own some of the sophisticated technologies, for example scanners, that they utilise and so they must schedule and transport patients into a queue at another location. High frequencies of ad hoc communications regarding patients' situations, required by persistent uncertainty about many aspects of those situations, drive an anthropocentric rather than technocentric view of care provision. This view is supported in the ethos of palliative care, which helps to ensure that "the technology is attached to the patient and not vice-versa".

Conference Track: Technological similarities and differences between healthcare delivery systems.

1. INTRODUCTION

There is little doubt as to the importance of technology in healthcare management and delivery. However, this importance stems not only from the ability of technologies to assist in the saving of lives and the management of chronic diseases, it relates also to the costs of healthcare provision and to the relationships between healthcare professionals and patients.

Newhouse and Mills (1999) discuss the use of technology in cost reduction while Friedman et al (2000) cite technology as a major cause of increasing healthcare costs and note that technology assessment can be a highly politicised process. Alemi (2000) discusses the challenges that accompany the need for management to innovate its practices so that new medical technologies can be optimally exploited. Grantham et al (1997) describes technology changes as a major driver of strategic and structural changes in healthcare and warns of the ability of technology diffusion to generate major issues such as increased information flow and increased pace of activity. Given the focus and nature of palliative care and palliative care delivery the following definition of technology was thought appropriate for the research:

Technology can be defined as ‘the tools, equipment or materials; knowledge and skills to use them; and coordinative mechanisms and patterns of activity utilised to accomplish the organisation’s work.’ (Jelinek, et al, 1984, p.171)

This definition is supported by Pérez-Bustamante (1999) who describes technology as an intangible cognitive asset consisting of applied knowledge and based firmly in people. Archibugi and Simonetti (1998) also support this definition when they describe technology as both the asset and the knowledge necessary to produce it. Henkelman and Dalinis (1998) described technology as an enabler of the application of the ethics of care and of optimising the utilisation of comfort measures in the last days of life. Schwarz (1999) provides a description of the concerns of some healthcare professionals about the burdens provided by medical technology with relation to end-of-life patients and issues of over-use of life-sustaining technology as prolonging patient suffering. Keaney (1999) describes the role of medical technology in the commodification of healthcare and the threats posed to more traditional views of patient-clinician relationships as a result of this process. Duffy (2000) maintains that without technology the work of maintaining and exploiting a knowledge base of any size, as required within the new integrative healthcare environment, would be almost impossible. With regard to medical innovation and its relationship to technology, Moskowitz (1999) notes that the range of new medical technologies presents administrators with the dilemma of what to pay for now and what to leave until more evidence is available regarding the efficacy of the technology. This is a real issue with regard to being perceived as wasting money on less than useful technology or over spending on inappropriate technology. The balance between over utilisation and under utilisation needs to be appropriately struck (Moskowitz, 1999).

Technology, as applied science, has helped progress the provision of palliative care in a range of ways, from MRI and CT scanners to specifically developed drugs and equipment that allows portable pain medication (Seely and Mount, 1999). The management of technology is recognised as important enough to require a specific organisational capability in some palliative care organisations (Davison and Hyland, 2003). Yet the provision of palliative care was often characterised as low-tech by palliative care professionals involved in the Australian research. Interviews with management teams regarding organisational capabilities revealed a view of technology that seems to place it well in the background, even characterised sometimes as a stressor for patients and professionals during the end of life process. Technology was not defined for these interview groups; they spoke of technology using their own concepts.

The concept of technology expressed in the interviews was that of applied science, not the more broadly based concept noted earlier in this paper from Jelinek et al (1984).

2. METHODOLOGY

Using the framework of the original CIMA model (Gieskes, 2000), a wide ranging literature review was conducted to establish an adaptation of the model suitable for palliative care. This adaptation then suggested a model for palliative care that could be tested at interview in the case studies. The literature review suggested sets of interview questions regarding organisational capabilities, management levers, individual behaviours in the teams and characteristics of configuration. A specific capability, managing technology, was suggested. The literature review also suggested a set of contingencies to be expected but these were not addressed at interview; rather, they were sought from the interview data.

The research used focused purposive interviews regarding structural resourcing for the multidisciplinary teams and the operations of the teams. While focused, these interviews

were semi-structured (Robson, 1996) or open-ended in Yin's (1994) terms, except Case Study 1 because, while following a formal set of questions derived from the research questions and theoretical framework, the research and the respondents were contextually based. This meant that there was a need to maintain an option for emergent topics and questions (King, 1995) during the progress of the interview. Structured interviews were used in Case Study 1, the pilot case, to test the theoretical framework and the appropriateness of the developed interview questions.

Two types of groups were interviewed in each case study organisation. Management teams, consisting of the senior member of each discipline represented at the case study organisation were interviewed about those things suggested from the literature as occurring or supplied at an organisational level to enable and facilitate the operation of the multidisciplinary patient care teams. In the terms of the model developed these were organisational capabilities and management levers. In addition the senior clinician or senior operational manager of each case study organisation was interviewed about the characteristics of configuration within which the care delivery model operated.

Multidisciplinary patient care teams were interviewed about individual behaviours within the teams. Case studies 1 and 2 provided inpatient and home care teams for their patients. Both types of team were interviewed in these case study organisations. Case Study 3 utilised home care teams provided by local hospitals. Ethics clearance was not obtained from these hospitals so these teams were not interviewed. Only representatives of the inpatient team were interviewed regarding individual behaviours, in this case study.

3. PALLIATIVE CARE: CERTAIN AND UNCERTAIN

The palliative care environment is described by McDonald and Krauser (1996, p.2) as one of, active and compassionate care primarily directed toward improving the quality of life for people who are dying, and toward supporting patients and families as they incur multiple losses

This environment is attended by a number of professions including nursing, medicine, pharmacology, physiotherapy, occupational therapy, social work, pastoral care, grief counselling and administration. This is a manifold environment where people are the centre, not diseases, where care results from the understanding of the causes of suffering (Barbato, 1999) and where multi-profession teams work collegiately so that the primary issue becomes and remains patient comfort (Meyers, 1997). The quality of life of people at the end of their lives is an issue of the relief of distress, whether the cause is physical, emotional or spiritual; known or unknown (McDonald and Krauser, 1996; Higginson, 1999; Witt Sherman, 1999). The patient is central in the ethics, philosophy and practice of palliative care (McDonald and Krauser, 1996; Meyers, 1997; Rasmusson and Sandman, 1998; Krishnasamy, 1999; Witt Sherman, 1999). The patient's end-of-life state and central role in efforts to manage that state make the patient a participatory member of the palliative care team who can maintain a level of autonomy and control in relation to the other team members (McDonald and Krauser, 1996, McGrath, 1998). The arrival of a patient at an end-of-life experience requiring palliative care brings the certainty that life will end, generally within a relatively short period of time. This single fact aside, uncertainty is the basis of the end-of-life experience. The uncertainty is generated from a number of sources.

According to Lazarus and Folkman (1984) uncertainty, as it is considered in the social sciences, can be said to fall into two categories, event-based and temporally-based; uncertainty about what will happen and what the results will be and uncertainty about when it will happen and how long it will take. Both types of uncertainty are capable of generating

confusion and helplessness, particularly in cases of physical illness and disability. Uncertainty is also capable of immobilising anticipatory coping and, therefore, the necessary decision making for dealing with the uncertainty being faced. At the end of life, changes occur at multiple levels, sometimes in parallel, without obvious causes, without notice and without clear causal linkages between change and the effects of change.

Uncertainty appears to pervade the palliative care environment. The uncertainty of the trajectory of the disease that is the end-of-life cause (Henkelman and Dalinis, 1998a; Rose, 1999) is one of these sources. Another source of uncertainty is a caution related to issues regarding the death, in care, of patients at the end of their lives. This is accompanied by issues of the conception of death, personal dignity and the making of informed decisions on the part of the patient and the carers (Henkelman and Dalinis, 1998a; Pierce, 1999). There is sometimes a likelihood that patients will specify interventions, made on their behalf by the professionals involved, to relieve the suffering of the patient or others, but not necessarily to prolong life. One of the results can be a level of confusion and discomfort for the healthcare professionals involved (McDonald and Krauser, 1996; Henkelman and Dalinis, 1998a). This source of uncertainty introduces the population of the patient's social support system into the palliative equation as both an extension of the field of responsibility for the professionals involved and a component for consideration in the patient's suffering and sense of loss (Rose, 1997b; Lewis et al, 1997). This grouping of supporters can comprise family, friends and acquaintances.

Another source of uncertainty, described by Lobchuk and Stymeist (1999), arises from the subjective and contextual nature of symptoms, where the patient's judgement of the characteristics of symptoms is based in a unique perception of the meaning of symptoms and illness. Janssens et al (1999) also refer to this uncertainty, noting that each patient brings individual history, culture and traditions to the end of life experience, as does every individual in the patient's support group. Lobchuk and Stymeist (1999) note that symptom meanings are formed as shared meanings among patients and their families and that the translation of that formed meaning into something useful to the provision of palliative care is a matter of contextually based negotiation on the part of palliative care professionals. Divergence or conflict in the process of translating the meaning of symptoms could lead to poor symptom management.

Higginson (1999) describes a source of uncertainty in the difficulty of assessing outcomes of palliative care using performance indicators such as the quality of care, quality of life, or quality of death and bereavement, in a system that concerns itself with a range of care covering physical, social and spiritual aspects. This is influenced by the fact that each patient represents a unique situation that is continually changing, requiring constant re-assessment (Rose, 1995).

Each of the sources of uncertainty described in the palliative care literature brings its own range of palliation requirements for individual patients. In addition to this each patient experiences the end-of-life on two distinct levels, the conscious and the unconscious, and the depth of the experience at each level varies from patient to patient (Kearney, 1992). Palliative care is an uncertain, dynamic environment with a certain conclusion. Prior to arriving at that certain conclusion it is the uncertainty that directs all attempts to provide care. For the professions involved, this creates a working environment requiring ongoing work-based learning, governed by an uncertain direction of care that follows a trajectory of need, of which the patient is the major informant (Henkelman and Dalinis, 1998b).

This learning is related to the multidisciplinary efforts to preserve or achieve a particular quality of life for the patient's end-of-life experience and includes the patient and informal

carers. This is work based cross-functional learning not discipline specific learning. The primary and necessary characteristic of this organic learning, in terms of its need to continue to grow and change to accommodate changing patient experiences, is collaboration. Despite their widespread use and popularity in many types of organisations, collaborative cross-functional teams do not automatically operate or function as well as intended (Jasawalla and Sashittal, 1999). In many cases, this underperformance produces economic, service or political consequences. In palliative care the consequences are reductions in the effectiveness of care, resulting in deterioration in quality of life of the patient and increases in the levels of uncertainty accompanying the patient. This has major implications for the carer team's group efficacy, a group's belief in its ability to perform effectively. According to Gibson (1999), team members in environments with high levels of uncertainty work independently and lower the collectivism of the team. This creates a separation between group efficacy and group effectiveness. On the other hand, when uncertainty is low, team members work interdependently and there is a positive relationship between group efficacy and group effectiveness. It is to the benefit of the palliative team, including the patient, to consciously work to lower the levels of uncertainty.

The persistence of uncertainty is noted in the description of constantly changing patients' situations, each of which is unique and requires constant re-assessment (Rose, 1995). Locating the majority source of uncertainty with the patient means also that the patient becomes the major informant of situational change (Henkelman and Dalinis, 1998b). This makes the palliative care professionals dependent on each patient's ability to explain what is changing, when and at what level and requires that the professionals be able to enable and understand that explanation. The use of multidisciplinary teams is a response to the levels of uncertainty noted above and to the range of palliation requirements that could be necessary for any given patient (McDonald and Krauser, 1996; Meyers, 1997). While the use of a multidisciplinary care delivery model is not unusual in healthcare generally and the use of multidisciplinary or multi-functional teams is not unusual outside of healthcare, the dynamics of the palliative care environment create a level of complexity in team operation. These dynamics of uncertainty appear to bear directly on the way in which multidisciplinary patient care teams operate.

Bottorff et al (1998), in describing everyday decision making in palliative care, specifically notes the complexity inherent in the inclusion of the patient in decision making. This is based in the "unfamiliarity, uncertainty, and unpredictability" of patient's lives when receiving palliative care and the need for patients to achieve a balance between choices made and the consequences of those choices. The opportunity to participate in decision making is described as valued by patients but the unpredictable nature of their illnesses means that participation does not guarantee successful consequences. This increases and complicates the workload of the nurses taking part in Bottorff et al's (1998) study as both decision making and decision consequences require constant monitoring, particularly with regard to unsuccessful consequences. Rose (1999), writing on the information needs of the informal carers of cancer patients in palliative and terminal care, describes the complexity and uncertainty inherent in professional carers attempting to understand these needs as described by patients and informal carers.

Uncertainty seems to play a large role as an influencer. It is described as the driver of the need for multidisciplinary delivery of palliative care, pre-eminent in the considerations of individuals and teams, requiring dynamic complexity in team structures and in care delivery processes and as fundamental in the end of life process. Uncertainty in palliative care appears dynamic and manifold, varying in the level and intensity of its influence. This lack of uniformity in uncertainty appears to multiply the range of potential responses that

multidisciplinary palliative care teams need to be able to offer. McCormick (2002, p.128) describes illness as containing uncertainty because it contains situations that include “ambiguous, vague, unpredictable, unfamiliar, inconsistent and unknown factors” and proposed that uncertainty needs to be considered as a neutral concept, not driven by emotion or values-based issues.

McCormick (2002, pp.129-130) then proposes that uncertainty contains three attributes; probability – “... the core underlying the questions a patient may have...”, temporality – “....how much time will be required until the ambiguity, unpredictability, or vagueness of a situation is clarified..” and perception – “.... people perceive patterns of occurrences that they are not able to link to an existing frame of reference and that are contrary to their expectations”.

4. APPROACHES TO TECHNOLOGY DRAWN FROM THE INTERVIEWS

Contained here are summaries of the relevant interviews from each case study. It can be seen that the suggestion of a specific organisational capability for the management of technology raised in the literature review was confirmed in each case study organisation. However, the mentions of technology were limited to that particular interview in cases 2 and 3. In case study 1 technology was also mentioned in the data with regard to two of the suggested contingencies; workforce and healthcare environment.

In the same interview in each case study organisation the organisational capabilities of managing information and managing knowledge were addressed and neither of these topics produced references to technology.

Case 1

Organisational Capabilities

Managing Technologies

This capability was described as existing and in use. One interviewee first made the point that the use of technology in palliative care was generally limited to drug technologies. This was countered by other interview participants who listed a number of commonly used technologies ranging from X-Ray, CT and MRI scanning technologies to lasers for acupuncture and aluminium walking frames. Some of these technologies were noted as not located within the case study organisation, for example X-Ray and scanning technologies. The primary users of technology were said to be doctors and nurses.

Technology was seen as a mechanistic thing, there was not a concept of a human inclusion in the definition of technology. Technology was not applied in an effort to reduce costs. However, the costs of utilising some technologies, primarily X-Ray and scanning technologies, to frequently confirm the inevitable progress of a patient’s end of life process, were an issue. It was noted that patient-based carers sometimes demanded frequent uses of these technologies to confirm perceived changes in the patient, with the aim of keeping themselves as well informed as possible or of providing a definitive answer to the timing of a patient’s impending death. Technology use in these circumstances did nothing for the patient management regime and so the value of its use was seen as questionable. Interview participants noted that their reference to costs was not exclusively a reference to monetary costs. Costs were also viewed in terms of a patient’s quality of life. Indeed, it was this cost that was referred to as the major cost.

The use of technology was said to increase the stress on staff at times. Two examples of this circumstance were given. The first concerned the application of technologies that extended life when a cessation would have enabled a peaceful death. This was generally done at the insistence of families that were having difficulty with the inevitability of the patient's end of life process. The second example given was one of using technology, at the patient's request, to improve the quality of life of the patient, when the application of technology caused the patient distress for the duration of the application. It was repeated that some staff found both of these circumstances stressful.

Interview participants concluded this part of the interview by noting that patient centrality was paramount, that their guide was the needs of the patient. This group was adamant that technology or technology cost must not control the patient care process and that technology must be used for the patient's benefit.

Contingencies

Workforce

During discussion on the management of technology interview participants stated that patient-based carers sometimes demanded the use of medical technology for purposes that could not save the patient but provided a level of comfort to the patient-based carers. These included repeated demands for scans or blood tests to track the progress of disease. It was noted that in these circumstances members of the multidisciplinary teams had to balance the use of expensive resources to test, transport and scan patients, for no return to the patient or the team, against the need to care for the patient-based carers. This sometimes led to conflict which had to be negotiated and managed. It was also noted that in these circumstances the cost was more frequently measured in the physical and emotional toll taken on the patient, multidisciplinary team members and patient-based carers, not dollars.

Healthcare Environment

In the management team's interview on Capabilities reference was made to the ability of other areas of the healthcare environment to mediate the level of care offered by the multidisciplinary teams. Two examples were given. In the first, during a discussion on managing knowledge and information, it was noted that when patients were being transferred from a hospital to the case study organisation the quality and amount of the information that accompanied could often depend on the quality of personal relationship that existed between the hospital staff and the staff of this case study organisation. In the second example, which arose during a discussion on the management of technology, it was stated as the availability of technologies not present in the case study organisation but at other locations in the healthcare environment. In situations where patients needed access to these technologies they needed to queue along with other types of patients. Combined with time taken to transport to and from the necessary technologies this meant that patients were away from the case study organisation, sometimes for lengthy periods of time.

Case 2

Organisational Capabilities

Managing Technologies

This capability was described as existing and in use. The first reference to the management of technology occurred during a discussion on equipment used by physiotherapists, where the major point was a need to keep up to date with developments in this technology, which was referred to as a “functional thing.”.

More generally, technology was viewed as capable of providing much comfort for patients. Technologies commonly referred to included drips, pumps, catheters and pain relief technologies including drugs. It was noted that more sophisticated technologies were available at the nearby acute hospital and that patients could be transported to them if necessary.

Technology was not applied in an effort to reduce costs. Technologies were managed from an anthropocentric view. Discussing the use of catheters and drips, interview participants described introducing patients to technologies from the point of view that the technology would be attached to the patient not vice versa; that the patient was the focus. Attempts to humanise the technology, even to disguise it so that it did not detract from the patient, were described. A simple example offered of this was the use of small knitted covers placed over catheter bags that were suspended from the bed frame.

Interview participants concluded this part of the interview by noting that patient centrality was paramount, that their guide was the needs of the patient. This group was adamant that technology must be applied to suit and benefit the patient.

Case 3

Organisational Capabilities

Managing Technologies

This capability was described as existing and in use, formally and informally. Interview participants described the case study as a low-technology organisation, in terms of investigations and treatments. The general view was put that computers were used for record keeping and data management. A particular view was put that patients at the end of their lives did not require high technology equipment or high levels of interactions with technologies. Technology was noted as being able to enhance care delivery in some ways. An example given was the use of the internet to access and retrieve information on grief and spiritual counselling practices in palliative care in the United States and the United Kingdom so that local practice could be compared and, if appropriate, improved.

Data management was described as a task that could benefit from the use of more sophisticated technologies than those currently in use. This was because of the large number of patients in the case study’s catchment and the fragmentation of effort resulting from dealing with a number of hospitals and the use of community care teams that did not belong to the case study. In care delivery the choice of technologies was predicated on the patient’s situation.

5. DISCUSSION

Analysis of the data from all interviews also produced four major themes: collaboration, learning, keeping the patient at the centre and ad hoc communication. When, as part of the analysis, a thematic view of the data was drawn then the management of technology was only located with the third major theme; keeping the patient at the centre. The contingencies drawn from the literature and supported in the data from the interviews were: uncertainty, workforce, patients, healthcare environment and change. A contingency driven view of the data resulted in the management of technology being most frequently utilised as a capability in response to the contingency of change. This seems generally reflected in the summaries above. It appears then that the picture painted in the interviews and in the analysis is one of the management and use of technology to keep the patient at the centre of the end of life process and this most frequently occurring in response to or anticipation of changes in the patient's situation.

Of interest in this described role of technology is the opinion expressed, in more than one case study organisation, of technology as an intrusion or even a stressor for most of the people involved in the end of a patient's life. While this was noted only in particular circumstances it seems somewhat surprising that the technologies designed, managed and utilised to enable or enhance the provision of care in this environment can, at the same time, provide stress and uncertainty. This often became the case when the use of technology prolonged a life without adding to the quality of that life or when that prolongation resulted in a diminution of the quality of that life. However, because the palliative care approach is an holistic one and patients and patient-based carers can be involved in decision making and team discussions it is difficult, when the potential of the technology is known, for palliative care professionals to deny the efficacy of the use of particular technologies on grounds with which non-professionals can be familiar. In other words, in a team comprising professionals and non-professionals and making decisions on the application of technology, the experience and knowledge of the professionals with regard to the use of technology in some situations will not necessarily be accepted as cogent by non-professionals who are highly emotionally involved in the outcomes of the decision making. It seems that in palliative care the application of technology is not only situational with regard to the needs of a patient's situation; within a patient's situation it can be driven by the emotional or even cultural requirements of at least some of the occupants of that situation.

The analysis of the research data also confirmed uncertainty as a driving force in palliative care that required collaboration and ad hoc communications as major responses and, sometimes, predictors. So not only does uncertainty drive the range of disciplines necessary in palliative care, it drives the requirement of members of those disciplines to work collaboratively and to devote time and energy to informal observation across discipline boundaries and the reporting of the results of observation, also across discipline boundaries, on an ad hoc basis. The most frequently noted method of this ad hoc communication is "corridor" conferences. Palliative care professionals commonly use face-to-face interactions to generate, enhance or substantiate information and knowledge about the situations of individual patients. This occurs within and between teams. The frequency of ad hoc communication is very high, as is the exchange and generation of information and knowledge. However, the use of technology any more sophisticated than a patient's notes, an informal observation book at a nurse's station that is checked in passing by every professional on a ward during a shift or a telephone, is rare. Knowledge management systems, then, are not technologically based but anthropocentrically based. There seem to be two reasons for this.

The first is mentioned in the interview summary for case 3 and that is the availability of technologies that enable or enhance information and knowledge generation and exchange. Here it can be seen that there is mention of the use of the internet to access some types of information internationally and a desire for more or better data management technology. Case study 3 was the first of the case study organisations to formally introduce internet availability for research and this occurred early in 2003.

The second reason is not mentioned in the interview summaries above but arises more broadly from the analysis and has to do with the nature of palliative care. The Australian research was concerned with the management of innovation in multidisciplinary palliative care teams. The research viewed innovation as exchanging ideas for the creation of a non-commercial value directly related to the care and wellbeing of people. Innovation as conceptualised in this research adapted Drucker's (1985) definition, leaving out the reference to economic potential. The definition of innovation used in this research then became,

the effort to create purposeful, focused change in an enterprise's social potential,
after Drucker (1985).

What Drucker did not do was define social potential. Mazzarella (2004, p.358) described social potential as "alternate social lives". Despite being a term often found in the literature, it was rarely defined and then not well enough for application in this thesis. Therefore, some small space must be devoted to coming to an understanding of the term.

Socialisation; an interaction between people in which sensemaking can occur, information and knowledge can be exchanged and where the subjectivity of individual realities is available as input to the generation of collective realities, is given a prominent role in the literature on Organisation (Weber, 1964; Berger and Luckman, 1967; March, 1989; Weik, 1995; Simon, 1996; Schein, 1997). This role is acknowledged in a number of contexts, ranging from technology innovation, to decision making, to an economic and social theory of organisations. The common theme in these contexts is the enabling and sharing of an awareness of others to create a common subjectivity, sometimes referred to as a common reality, through an understanding of the individual subjectivities involved in the social interaction. This frequently takes place as a face-to-face interaction. Berger and Luckman (1967) wrote that social interaction consists of sharing the reality of everyday life with others and face to face interactions are the most important social interaction because the subjectivity of all involved is available to all others involved. Burns and Stalker (1971, p.118), while describing the social context of decision making in management systems, wrote,

But in working organizations decisions are made either in the presence of others or with the knowledge that they will have to be implemented, or understood, or approved by others. The set of considerations called into relevance on any decision-making occasion has therefore to be one shared with others or acceptable to them.

Weik (1995, p.40) described sensemaking as,

...never solitary because what a person does internally is contingent on others. Even monologues and one-way communications presume an audience. And the monologue changes as the audience changes.

Further, "socialization is often the setting in which sensemaking is explored" (p.40). In describing social action Weber (1964, p.88) noted that,

Action is social in so far as, by virtue of the subjective meaning attached to it by the acting individual (or individuals), it takes account of the behaviour of others and is thereby oriented in its course.

In palliative care a patient's situation at any point in that patient's end of life process is a combination of physical, social, psychosocial and spiritual factors. An understanding of a patient's situation is the result of social interactions that occur between multidisciplinary team members, between teams, within and between disciplines, between team members and patients and patient-based carers. These interactions create and disseminate a shared understanding.

For the purpose of the Australian research social potential was described as,
the availability of relevant alternatives to an individual patient's situation during the end of life process.

The assessment and establishment of alternatives to a given situation is a result of social interactions between multidisciplinary team members and whoever else is required and generally follows the shared creation and dissemination of meaning and understanding concerning the patient's situation. An individual patient's situation may change a number of times during the end of life process. Not every change in situation will require a change in social potential. However, when the available alternatives no longer match the patient's situation the social potential must change, wherever possible. Sometimes this will be a proactive change and sometimes a reactive change. The determination of the change will be another result of the social interactions between multidisciplinary team members and whoever is necessary.

It is apparently the need to monitor, react to, or attempt to predict, the changes in social potential that provides the requirement for the immediacy of face-to-face ad hoc communications in palliative care and drives the frequency of these communications. This appears to dispose the palliative care professionals involved in the research towards an anthropocentric view of the place and management of technology. A range of technologies is commonly in use; from highly sophisticated drug regimes to aluminium walking frames. However, the status of the technology does not outweigh the status of the patient. There is a conscious awareness of the relationship between the patient and various technologies. It is noted specifically in case study 2 above, where there is mention that "the technology would be attached to the patient and not vice versa". In addition there is an implication here that not only are other professionals and their networks the best source of information and knowledge but they are the best source because the combination of circumstances providing a particular patient's situation can not be synthesised anywhere other than in the collective experiences of these professionals.

6. CONCLUSION

Palliative care is a place where patients always die. This is not a place where technology takes on a life-saving or life-preserving role. Subsequently, technologies are managed from a different perspective than the cure environments in healthcare. Technologies are described in the interview summaries here as capable of enhancing a patient's quality of life during the end of life process. At the same time, technologies are also noted as capable of providing stressors and uncertainties in the end of life process. Interestingly then, the management of technologies is most frequently in use to keep the patient at the centre of the care delivery process when dealing with or anticipating changes in the patient's situation and in that use has the potential to provide rather than relieve distress. With regard to the generation and exchange of information and knowledge, technology is rarely mentioned as being in application or requiring management and it is thought that this is because these things are anthropocentrically based as a matter of necessity.

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