The meaning of technology in intensive care

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Key Words: caring relationship ❖ critical illness ❖ intensive care ❖ nursing ❖ technology

SUMMARY

- This paper presents a discourse that focuses on the relationship between technology and caring in technologically intense environments.
- Despite being constantly monitored and observed, intensive care patients often express that they feel invisible. The patient and the surrounding equipment easily meld into a unit, one item to be regulated and read.
- From the patient's perspective, caregivers demonstrate keen vigilance over technological devices and measured parameters, but pay less attention to patients' stories and experiences.
- Technology, with its exciting lure and challenging character, seduces the caregivers and lulls them into a fictive sense of security and safety in which technical tasks take precedence or have more urgency than caring behaviours.
- The challenge for caregivers in intensive care units is to know when to heighten the importance of the objective and measurable dimensions provided by technology, and when to reduce the importance of the objective dimensions and magnifying the patients' lived experiences.

INTRODUCTION

Much of intensive care practice concerns the restoration and maintenance of disordered physiology. How do we juggle the seemingly impossible dualism: commitment to medical technology versus commitment to individualised personal care? During the past several decades, concerted efforts to develop equipment and procedures have made the modern intensive care unit (ICU) the hospital's most technologically advanced environment. This study focuses on the relationship between technology and caring in technologically intense environments. The purpose is to describe the meaning of care in the ICU, and to find a deeper understanding for the almost total dominance of technology there.

Since the 19th century, physicians have moved through a series of stages: from direct communication with the patient's experiences, based upon verbal techniques to direct connection with their patients' bodies through techniques of physical examination, to direct connection with both the experiences and bodies of their patients through machines and technical experts (Johannisson, 2004). One of the consequences may be a change of focus from the patient to his symptoms, diminishing diagnostic power. Modern medicine focuses on pathological processes, where organ failure and abnormalities tend to take up the health care providers' attention at the price of understanding the patient's reactions to his illness (Almerud, 2007).

Every patient begins his sickness with his own past and with his own expectations of the future (van den Berg, 1972). The patient's credibility is called into question by the Cartesian quest to determine whether the symptoms are 'real' and if they actually reside in the body and not in the mind. From the caring perspective any symptom must be both heard and attended to in its own right. Not just as evidence for an accurate diagnosis (Benner, 2001).

Within health care, the ache to heal seeks incessantly practical-material ways and means to realise its goal. But there is always the remaining need for the human touch (Almerud, 2007).

Technical activities are often seen as more important and stimulating than other nursing activities. This view of nursing is rooted in the assumption that the technical and mechanical aspects of nursing are 'real work'. In this tradition the 'basic' nursing care is seen as low status, less important than the technical tasks and can be done by anyone (Alasad, 2002).

The concept of technology

We have always had technology and perennially humankind has struggled to situate machines and technical gadgets within the larger space of existential and spiritual possibilities. Heidegger (1993) is clear: technology and the essence of technology (which he names Gestell) are not equivalent. And "the essence of technology is by no means anything technological" (p. 311). Technology is both "a means to an end" and "a human activity". The two belong together (p. 312). Heidegger's word for the essence of technology - Gestell - carries the sense of being framed, set up, or duped. It denotes sterility, mendacity, concealed matters, or obscurity. The technological attitude blurs a being's radiance, rendering it empty and tawdry. Under the domination of Gestell, all beings whatsoever are disclosed as stock or resource: objective, calculable, quantifiable, profitable or disposable. The values of profit and of efficiency for efficiency's sake, sabotage what by vocation we should shelter and safeguard (Heidegger, 1993).

The ICU environment

Sophisticated tools for coping with critically and seriously ill conditions, such as monitoring devices and an array of signal processors and reliable assessment displays, make the ICU the most technologically advanced environment in a hospital (Wikström,

2003). The tremendous progress made in medical technology has created an ever more complex environment with ever more sophisticated tools. Technology within nursing is both important and challenging due to its ubiquitous nature. The development and handling of new technological tools make the environment more complex and transforms the character of the ICU staff's everyday work. Almost all the technological tools are digital and in some way replace human activities. A tool performs activities usually carried out by caregivers before that tool was developed. Human knowing has thus been transferred to the machines (Almerud, 2007).

Being a patient in ICU

Treatment in ICU involves many and constant medical tests and observations plus a host of procedures. Almerud et al. (2007a) found that the essential picture of being a patient in ICU was that the threat of death from the critical illness or injury overshadows everything. It perforates the existence of the individual now confined in a frightening incomprehensible environment; one under the sway of machines, one that restricts and constrains, and one that fosters passivity and compromises integrity. Control over one's body withers; influence over one's situation disappears; freedom vanishes to determine daily life events. Unacknowledged and uncorroborated experiences trigger existential loneliness and dread. Once admitted and medically compromised, patients adapt and adjust to the environment and eventually to its routine.

At the start of treatment, patients do not question but typically trust the health care system and put their lives into the hands of the caregivers. On the one hand, this giving-oneself-over and trying-to-be-a-good-patient, promotes the sense of safety. On the other hand, it renders one extremely vulnerable. It soon becomes disturbingly evident that the 'good hands' into which a patient has put their life turn out to be mostly an extended arm of technology, and addressing the cardinal issue of the vital organs and their functions mostly preoccupies caregivers. The impact upon patients is dreadful. They apprehend themselves as objects of observation, scrutinised and monitored, subjected to rituals of power. Although competent supervision stabilises the biological body, nevertheless the patient feels marginalised; a stranger cared for by a stranger (ibid).

To care in ICU

Nurses and physicians alike receive specialised, advanced technical training so that they might monitor the patient's condition and immediately make optimally informed clinical decisions. Likewise, they must monitor the impact of the latest developed drugs upon vital functions. Technology is incorporated in the care of the patients and intensive care is, to a great extent, dependent on its technology (Wikström, 2003).

Nurses are trained and socialised to seize technical details using a powerful clinical glance (Nyström et al., 2003). If used too exclusively, this one-sided viewing may render patients invisible. Within medicine, the biological body is 'carved up' as an object of observation, supervision, review and control. They isolate observations such as pulse, temperature, and blood results (Foucault, 1989). Sometimes under difficult conditions, the ICU nurse not only has to know the best evidence-based practice and be able to use it, but also identify patients' responses, make clinical judgements and take any action necessary. This must often be done simultaneously while ensuring that several support systems for vital functions continues to be effective (Ashworth, 2000).

In ICU, a specific structure emerges, and a hierarchy arises. The caregiver sits atop; the patient knees on the bottom rung. From the human perspective, the price tag of this arrangement is expensive. Insofar as technology drives treatment and co-shapes care giving attitudes, it impedes any possible close encounter and sabotages the intention of developing health-inducing interpersonal relations. It also compromises the caregiver's vision and shackles her actions. The very act of responsibly reading and regulating instruments easily fuses the patient and the machinery. The act skews the balance between objective distance and interpersonal closeness. It is as if technology outmanoeuvres caring insofar as the effect of medicine and machinery management on patient care has become routine.

Machines mostly cater to organisational demands for safety, routine, control and efficiency. Sharp technological vigilance, however, renders the patient invisible and dialogue deteriorates into monologue. Technology, with its exciting captive lure and challenging character, seduces the caregivers and lulls them into a fictive sense of security and safety. At the same time, they are vaguely aware that the technological net into which they have been draw and can only exit with difficulty, is frayed (Almerud et al., 2007b).

The technological tools do not work by themselves, there needs to be skilled people working with them. Humans and tools are thus interwoven (Almerud, 2007). The tool in itself is of no interest, it is the interaction and communication between staff and tools that is important. Care in technologically intense environments and communicating 'through' technology is complex, and the caring relationship seems to be a challenge, especially when technology is taking part in the dialogue.

The attitude of technology in intensive care

Technology is a fact of life, and there is little point in discussing this further. The wise thing to do is to accept technology as a part of the ICU staff's everyday life and enlighten the fact that the Janus-faced technology affects us all. Then we can move forward and address the question as to how it affects us and to make us aware of and conscious about its effects (Almerud et al., 2008).

Technology should be like a catalyst; do its 'thing' and withdraw 'unnoticed'. The structure of medical treatment in no way grants either space or time for intimate dialogues and in ICU there is cognitive complexity and emotional intensity and caregivers are juggling a precarious handful of cards. The bottom line is that the screen must be monitored and every attempt made to guarantee that the top line does not go level. The status of the patient must be gleaned from screens and other objective parameters. Physicians treat bad laboratory test results, not sick patients. But a vicious circle ensues. The sharpness of technological vigilance makes the patient feel personally invisible and marginalised. But technology can never replace human touch, closeness and empathy. Both technology and caring relationships are of indispensable value and the role of the carer can never be substituted by any kind of machinery. Machinery provides useful tools, but does not replace the art of nursing and healing (Almerud, 2007).

REFLECTIONS

Both technology and caring relationships are of indispensable value. Continued polarisation of technology and humane care may comprise a discourse that is more in the service of maintaining a distinctive professional identity than of improving nursing care. Technology is thus not simply or necessarily a paradigm of care opposed to touch, but rather also an agent and object of touch. Maintaining a distinction between technology and humane care may reinforce or undermine stereotypes and prejudices concerning nursing and link dehumanisation with the presence of machinery and equipment (Barnard & Sandelowski, 2001).

Giving care in ICU is filled with contradictions, ambiguities and ambivalence that jostle and collide in the environment. Technology is two-faced, both master and slave. As master, it saves lives. Caregivers find security while 'reading' the patient. Not surprisingly,

technical tasks can take precedence or have more urgency than caring behaviour (Almerud et al., 2007b). As slave, one wonders what it saves lives as. Insecurity menaces the security of precise monitoring. Technical tasks serve as an ersatz for closeness. 'Classical' nursing activities, such as listening and inspiring trust and confidence, have become marginalised. However, there is a possibility of equal priority. Are not technological precision and care of indispensable value? The machine, to have any worth as a tool, requires human expertise. No machine can replace the art of healing.

It is not technology per se that determines dehumanisation, depersonalisation or objectification. Rather, it is how individual technologies operate in specific user contexts that matter. Take the stethoscope as an example: it is an instrument of diagnosis, an extension of the ear, and a symbol of science. But another extra-physical meaning is attributed to it. It makes a bid to a higher social status. A human and philosophical insight into the meaning of technology and its relationship to the world revels that it is the 'attitude of technology', Gestell, that skews the balance. Gestell is the cancerous proliferation of both gadgets and concepts that demand efficiency for efficiency's sake (Heidegger, 1993). In that relentless drive towards efficiency, care for human subjectivity gets bulldozed (Almerud et al., 2007a; 2007b). Clarification of the difference between technology - which we have always had with us - and Gestell, eschew the typical dualism of divinising or demonising technology as a practice. The clarification, however, provokes more general and challenging questions: is it possible to practice with technology without being seduced, outmanoeuvred and destroyed by the underlying attitude? How does one balance the twin tasks of the nurse: pushing the right buttons, reading the right indices and empathically caring (Almerud et al., 2008)?

Sandelowski (2000) argues that technology is minimising the nurse's role as empathetic 'toucher' and, furthermore, the nurse is becoming like a physician in that they both only touch the patient to obtain objective information. Care giving is a human act. Nowadays, humans are indoctrinated into the wonders of technology. Here is the burden. Technology has usurped the human touch and the bedside manner of the physician. So blind trust in technology is supposed to inspire confidence that one will be safe and eventually healed. Perhaps this is the irony in medical health care, especially in the ICU. The system absolutely requires that patients surrender to its ministrations, to its latest technological wonder tools. And, the more non-reflective the surrender, the better. Nothing constructive happens if the patient 'fights' their cure.

Information should tempt all senses

From a Cartesian understanding of symptoms, the mind receives and interprets the impressions and sensations from the body. Physicians may thus view symptoms as subjective interpretations of the body's real disease. The mind is considered less reliable when it comes to reporting symptoms than those that can be documented objectively with medical instrumentation and measurement (Benner, 2001).

There has been a transformation; a shift to vision and its reduction to a certain kind of vision (Ihde, 2002). More physiological, biochemical and radiographic data are collected from ICU patients than from any other group of hospital patients. In the modern ICU, the visual has become the 'truth' and it exceeds the value of the heard. For example, what a monitor shows is more 'true' than the patient's story.

Vital signs are accessed via screens, machinery is increasingly a component of a patient's care, and body systems are measured and assessed via technology. Practitioners step away from the people (bodies) to make judgements about ongoing care. The technology embodies a sense of control, of taking charge, of being with, but at the same time of being distant (Barnard & Sinclair, 2006). If we perpetuate this way of knowing that gives primacy to objective and detached knowledge, nursing epistemology will contribute to an impersonal health care system in much the same way as the biomedical model has. In the technological milieu, deeply subjective issues about illness lack a place. It is not that caregivers deliberately ice out existential dimensions - technological routines are by nature shallow.

The machine does not need to dominate the 'clinical gaze'. A patient does not have to be interpreted according to the readings of the machine. Care and technology are not inherently at odds. Nursing personnel might imbue whatever they do with a caring touch that senses, understands and responds to the other's suffering (Johns, 2005). Touch is invisible, almost never charted and never recommended in a nursing care plan.

Insofar as technology drives treatment and co-shapes care giving attitudes, it compromises the caregiver's vision, impedes any possible close encounter and sabotages the intention of developing health-inducing interpersonal relations. The focus is on technology and the optimal balance between objective distance and interpersonal closeness is skewed (Almerud et al., 2007a). Technology is being served, not another human being.

Technology in intensive care: a matter of life and death

Van den Berg (1972) calls death a symptom of life. He further claims that to deny a person the right to contemplate approaching death actually means denying him the right to see his life as a whole, to live it as a complete life. The status of the patient must be gleaned from screens and other objective parameters. The beginning of every serious illness is a halt. Normal life is at an end. Another life takes its place, a life of a completely unknown nature. The certainty of death may even make life very much alive (Van den Burg, 1972).

We both need and want what technology can generate. But we do not want to use it compulsively. We all fear death and illness. But we do not talk about it, neither to others, nor to ourselves. We escape from this discussion by acting as if illness and death did not exist. A patient may try to discuss the matters of death - for only a discussion can bring greater clarity to his thoughts. But he finds that no one can help him; often not even his doctor. Every healthy person frequently prefers a false optimism. An optimism that shuts the sick person out - he has simply ceased to be a part of the life outside the hospital. He is a non-participant - he is just a patient (Van den Berg, 1972).

The caring relation

Tools do not do anything themselves. They are resources for the skilled personnel. Tools are nothing but tools, and medicine and machines are minor tools. As soon as one recognises that the major tool is the tool-user - the caregiver - who speaks and listens, who draws near and touches, but who also sees from afar and acts with appropriate distance. It is a subtle dialectic of closeness-distance (Almerud, 2007).

In ICU, patient-caregiver interactions easily vibrate off kilter, indicating participation in illness mostly at the technical-mechanical level. Caregivers flaunt their specialty but hide behind routines and structures. With deep needs and anxieties unaddressed, and reduced to a nameless number on a plastic bracelet, the ICU patient feels lost and uncertain how to (re)act. Ambivalence prods the patient to strain harder to adjust to assumed caregiver expectations. In what is a wilful misunderstanding of the mandate at hand, the patient wishes to relieve the caregiver's burden. It is not supposed to be that way. It is counter-therapeutic (Almerud et al., 2007b).

Caring creates possibilities. Even the positive effect of medicine is never just a chemical matter. It is relational too; directly related to the physician-patient relationship. Brain-related practical skills, meshed with the skill to care from the heart, would form a unifying hyphen not

a splintering slash (Alapack, 1996). The modern medico-technical physician considers the association with the patient of secondary importance. Instead, he relies on the science of anatomy, physiology, chemistry and all the other 'discoveries' of the history in the discipline. This is not wrong, but it is incomplete (Van den Berg, 1978).

The nurse's attunement and engagement with the patient allows the nurse to notice subtle changes. Touch and other physical and emotional comforting measures are central to creating safe spaces where the patient and the caregiver can meet. The nurse-patient relationship sets up the conditions of possibility for patients to disclose their concerns, fears and discomforts. If the nurse is too hurried or too task-oriented to notice the patient's and families' experience, then the level of disclosure on the part of the patient or family will be constrained.

Care giving relationships may open up possibilities, or close them down (Benner et al., 1999). According to Benner (2005), seemingly soft sounding realities such as comfort, solace, being present and available and touch are per curative, even life-saving to a person in distress. They are part and parcel of the art of nursing. These phenomena get trivialised in a setting that is focused on highly technical curative techniques.

Caring shapes a world, and allows other beings to be noticed (Benner, 2001). Quality time, inherently immeasurable, is necessary for listening to patients. But listening in this context is not just being idly attuned, one must listen to capture how the patients really feel and what care they want and need. Not measured duration but the sharing of living time develops the deeper, truly care giving relationships. In this regard, 'babysitting' technology impedes any possible close encounter and sabotages the intention of developing health-inducing interpersonal relations. It compromises the caregiver's vision. What is supposed to be a useful tool, again, turns into an impediment to encounter and emotional contact. The human touch is not a luxury in the hospital setting; it is cost-effective (Almerud, 2007). Why cannot care take time? Why cannot touch take time?

CONCLUDING REMARKS

It contributes nothing to put the finger on these already well documented tensions. The enlightening act is to stop the polarisation. A first thoughtful step is to heal the separations, the divisions, the antinomies. In the 'hi-tec' wards, nursing and technology are of equal value, indispensable to one another. Put differently, they are part of a figure/ground unified structure. Assuming an irremediable tension between 'object-subject' and 'care-cure' in nursing merely burps in futility Cartesian dualism, and it is not compatible with caring sciences.

This paper points out the possibility of equalpriority. Technological precision and care are both of indispensable value. The machine, to have any worth as a tool, requires human expertise. No machine can replace the art of healing. A caring attitude that promotes healing must be the goal of every caregiver. The most important aim of caring science is to prevent suffering and to promote well being. This can not be done without knowing what each individual patient wants or needs.

Objective care, by itself, is no more effective in the long run than is subjective care alone. They must be integrated. Each must be equally valued. The way to value them equally, is to understand their essential belonging-togetherness. Instead of sharing a vibrant alliance with caregivers, the patient melds with the apparatus. The patient and the machine form a unit that consists of parameters and results, which the nurse and physician regulate and read. This describes the visible-invisibility ambiguity that hallmarks patients' experiences as alienating.

Somewhere along the way, we have come to believe that technology can solve all our problems. And, that a machine does it better than our closest 'instrument' -ourselves - thus underestimating our hands and our heart. Technology drives treatment, co-shapes care giving attitudes, impedes any possible close encounter and sabotages the intention of developing health-inducing interpersonal relations. However, armed with a double skill, the caregiver can flexibly decide what needs to be carved up, isolated and addressed as a specific problem, and what requires assemblage into a human whole. It is a question of balancing state-of-the-art technology with integrative and comprehensive care, and of harmonising the demands of subjectivity with objective signs.

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