

Nursing Care in A High Technology Era

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The purpose of this paper is to examine nursing's utilization and response to technology. After a brief discussion of the nature of technology and its effects both inside and outside of nursing, three aspects of nursing care will be discussed: (1) the character (or what nursing should *look* like), (2) the congruence (or what nursing should *act* like), and (3) the core (or what nursing should *be* like) in a high technology era.

The Character of Nursing will largely address nursing technology and advise on principles for the development and integration of technology into nursing. Under the heading of Congruence in Nursing, nursing's response to a society living in a high technology era will be discussed. Finally, under the section Core of Nursing, the immutable aspects of nursing care will be addressed as teachable qualities for all eras.

The Nature of Technology and Its Effects on Nursing and Society

High technology has been given a mixed welcome by both the health care professionals and society at large. For instance, technology has served as a vehicle for both increased and decreased costs. While the expense of caring for many chronic disease maladies has radically decreased as a result of in-home

ventilator and IV therapy, the cost of the MRI and its frequency of overuse has certainly added to overall health care expenditures. Technology has served as a vehicle for both increased and decreased efficiency. Many hospital billing and charting systems are now computerized, radically decreasing the amount of time manpower required to manage a system, however, the computer billing error or computer malfunction has added appreciably to consumers and operators frustration and social strain. Technology has both increased and decreased the power to save lives. The life-saving and sustaining power now possessed is gargantuan in comparison to the health care community's abilities even 20 years ago, however, the power afforded by technology has blurred the issue as to what is judged as a "life," and what it is, exactly, one is saved to or for, posing a number of serious ethical dilemmas in healthcare that remain to be solved.

Is technology good or bad? Neither. Technology must be recognized as a tool and not an ends in itself. It possesses no more inherently good or bad qualities than does a wrench. Wrenches can be used to accomplish good and wrenches can be used to accomplish bad. It is a matter of how we, the users, manipulate them. Technology serves the purposes of humans, it is not

self-guided. Therefore, humans must guide it. Nursing must devise principles to guide its use of technology.

For many reasons, ranging from cost to inadequacy to quality, the public has become highly suspect of health care in recent years. There is concern over the emerging health care environment, how it will be paid for, how will it be organized and what role technology will play in it, among others. To appreciate the effect technology has had on nursing and the health care consumer, it must be understood that technology has introduced an uninviting, impersonal, threatening, and bewildering environment for most consumers. In the typical hospital room, the scene can be overwhelming, with a host of tubes, lines, beepers, lights, and alarms all placing barriers between patients and their loved ones. In the home, this scene can be magnified as we ask caregivers to become responsible for monitoring such devices. Not only has technology brought changes quickly in health care, it has brought them in a shroud of mystery and inaccessibility for the average consumer. These realities have produced distaste, if not fear and alienation, in a large sector of society today.

Nurses are the link between technology and people. If nurses do not creatively and constructively approach the issue of nursing in a high tech era, they will render themselves as accomplices to the dehumanization of health-care, a phenomena that has already claimed too much of the ground that nursing has identified as its own. Nurses must be able to determine the role and usefulness of technology in their profession if they are to evolve in concert with the rest of the world as the 21st century approaches.

The Character of Nursing Care in a High Tech Era

Character refers to the defining qualities of a person, place or thing. Technological advancement and societal relevance should be the defining qualities of nursing in a high tech era. To be deemed technologically advanced, it is important that nursing technology be safe, patient-centered, innovative, and research-based.

Safety has always been a primary concern of nursing and it should be no less in the area of nursing technology. Never should any technology detract from the safety of patient care. On the contrary, it should add to it. Technology developed with the patient's safety in mind is the first step in developing "good" technology.

If *safety* is the first premise in developing "good" technology then *patient centered* is the second. Design of technology should be *purposeful* in that it meets a real need within a given culture or society. It should be *foresightful* in that it does not create new needs greater than the initiating need. And it should be *helpful* in that it does not add burden to either the recipient or giver of care.

Innovation is developed by thinking futuristically, that is, anticipating the health needs of society and engineering modern ways of meeting them. Ozbolt states, "When deep knowledge of nursing and profound commitment to patients unite in the mind of the nurse informatician with thorough understanding of information, science, and technology, the spark of creativity ignites, and better technologies are born" (Ozbolt, 1996, p.4). "Innovative" should become a characteristic associated with nursing technology.

Technological advancement in nursing needs to be research-based. This quality goes hand in hand with innovation. Research in

nursing enables us to identify real needs, innovation allows us to meet those needs. Nursing research has blossomed over recent decades and a respectable body of knowledge is being developed. Technology development that is not research-grounded and guided runs the risk of being useless, costly, and unsafe.

In order for nursing technology to be deemed societally relevant, it must promote quality, cost, and access, be culturally appropriate; aesthetic; and environmentally sensitive. Quality should be the hallmark of all technology associated with nursing. Again, technology is a tool, it cannot inherently possess quality, it is the designer of the nurse who will appropriate quality to the technology. Technology must not increase cost to consumers. Virtually all developed nations have had to reevaluate where they stand in terms of healthcare as a result of escalating costs. Technology devised for today's society must be both efficient and economical. Technology that complicates or decreases access is not good technology.

Technology that is culturally appropriate will obviously differ for different cultures. The underlying principle, however, does not. Nursing technology should be as unintrusive into a culture's norms, ways, and mores as possible. In-home computer access to nurses may be quite appropriate for many Western developed countries, however, the same intervention may be inappropriate for third world homes where there does not exist the supports for such an intervention.

As has become typical of much of the high tech era, nursing technology should be aesthetic. Many cultures have placed a priority on the introduction of things into their society that contribute to the overall quality of an environment. Technology must be designed

with regards to aesthetics and their value in making an environment more acceptable or livable (Gendron, 1988).

Lastly, in order for the use of technology in nursing to be societally relevant, it must be environmentally sensitive. That is, nursing must consider the effects of technology on the environment. Other than accomplishing its stated purpose, the "side effects" of nursing technology must be identified and quantified. The ramifications of technology on dimensions other than the physical are yet little understood and warrant our attention in nursing research. In this sense, nurses should be considering what the specific health needs of a technology-fatigued society are, and how best those needs can be met. In the next section of this paper, general principles will be considered for the guiding of nursing care in a high technology era.

Congruence of Nursing Care in a High Tech Era

Nursing care in a high technology era must be congruent with the society it serves (Gendron, 1988). The health needs of populations are changing as a result of the development of technologically advanced societies. If nursing care is reflective of, or congruent within, the society in which it is given, it will be characterized by two qualities: (1) multidimensionality in its approach to persons and societies, and (2) involvement in the training of all parts of a society to be health actualizing.

Society, as it is known to be today, rarely presents with a unidimensional problem. The societal problems that challenge nursing are complex, and in a parallel form our response needs to be complex. Complex not meaning confusing or hard to understand, but complex in the sense that nursing care responses are

deep, addressing the breadth of need in a multidimensional manner. Nursing care must be equal to the need.

Care must include the physical, psychological, emotional, social, and spiritual needs of humans. It must reflect an understanding of the rhythms and patterns of persons' daily lives, environments, and life ways (Gendron, 1988). This is important because the high technology environment in which our society lives tends to affect persons in all dimensions.

Related to the multidimensional needs of society is the necessity of teaching individuals, families, and communities to actualize their own health. As stated above, this requires an understanding of the daily lives of people.

Before teaching health actualization behaviors, assessment must take place. What practices are putting people at risk? What practices are supplementing their health? It is not enough that the individual is assessed. Individuals are part of multiple systems which they affect, the most basic and common being their families and their communities.

Teaching individuals to multidimensionally care for their own health can best be done in two modes of care—primary (preventive) and tertiary (rehabilitative). Both of these care mediums allow for the development of sustained relationships. In the acute care setting, this is rarely provided for any more. Multidimensional care almost always requires relationship and relationship requires time. Imagine nurses providing health care so comprehensive in nature that they are not only teaching the blue collar worker how to prevent lower back pain, but how to deal with the family disruptions caused by an unruly teenager. Or think of nurses training a group of middle-aged women how to organize, design and implement a special program for teenage mothers. In these exam-

ples, individuals are serving communities and families as well as actualizing their own health needs. These examples demonstrate the empowering potential of true health actualization in individuals, families and communities. In societies that are lacking interconnectedness, despite their increase in ideological and geographical proximity, nurses have a great role to fill as teachers in multidimensional communal health.

Core of Nursing Care in a High Tech Era

The core of nursing is care and it must always remain so (Leinenger, 1984). Caring will remain the unique identifier of the nursing profession, setting nurses apart from the physician, the technician, and the social worker. Beyond this, however, caring is the nurse's unique healing power. The power to heal is steeped in the interaction and exchange of humans through the medium of caring. This perspective recognizes the holistic view of persons associated with the nursing approach.

Caring, or a high touch environment, has not always been made priority in the high tech era, regardless however, the envelopment of today's world in high technology is inevitable. Nursing will, consequently, not only adopt technology into its practice but will serve those who are suffering from the realities of a high tech world. What is not consequential is the carry-over of nursing's core, caring, into the technology era. "Intentional" is the word that describes the effort that nurses must make to bring nursing's essence into the technology era. Apart from the deliberate action of nurses to incorporate caring into their care, the transmittal will not happen. Nursing will be reduced to the work of any low-skill technician and nurses will be consequently replaced by people who can do the

job for less money. Healthcare will become more impersonal, the human touch more rare and persons needs for care will go unmet.

Roach (1984) has identified the attributes of caring with the following five terms: (1) compassion, (2) competence, (3) confidence, (4) conscience, and (5) commitment. All five components are essential to caring and build on one another. Compassion is an attitude. It is feeling what others feel. Nurses can possess it as they possess their stethoscope. A compassionate attitude will contribute to the healing of the patient. When nurses acts with compassion, they recognize the needs of their patient and are inspired with courage to meet them. This attitude, compassion, is the first building block of care.

Competence is the second important attribute of caring. Nurse must be knowledgeable in the human and social sciences. They must also possess the ability to assess, diagnose, plan, implement and evaluate as well as maintain excellent skills. Most importantly, a nurses must possess the ability to learn quickly as this will ensure their continued competence. Nurses cannot be expected to be any more safe than they are competent. Competence is the second block. All though compassion is basic to care, it can be misguided if not yoked with competence. Competence if separated from compassion is empty ritual.

Confidence is the third attribute of care. Confidence can be thought of as a result of the union of compassion and competence. The confident nurse is so, because she understands the foundation of her care (compassion) and how to skillfully utilize it (competence). Confidence is a wonderful quality in that it frees nurses to fully engage in their work and be creative. This confidence instills hope in both patient and nurse by providing them both with the sense that care is being given

in the very best manner possible. The patient is aware of a nurse's confidence and it adds to their comfort.

Conscience relates to ethical matters of caring. The nurse who is compassionate, competent, and confident is equipped to make conscientious decisions about care. Throuth compassion, the nurse is invoked to act as advocate, through competence, the nurse is appraised of the facts and realities of a situation, and through confidence, the nurse is rendered emotionally and intellectually stable to deal with ethical decisions in a professional yet personal way. Nurses displaying these four qualities of care lack only one thing-commitment.

Commitment ensures that the nurse will always employ each aspect of caring in a right and good manner. It is the string from which the other four qualities hang. commitment is what warrants a public servant licensure. It is not the paper license that public trusts in but the commitment that it represents. In a era of high technology, nursing care should be characterized by compassion, competence, confidence, conscience, and commitment.

Can a person be taught or socialized into such a paradigm? Or is it only secondary to large quantities of experience, meaning that only old nurses are good nurses? Or are certain people born as nurses, with the innate tendency to care? After reading Roach's (1984) comments on care one is still left with a sense of abstractness. When nurses on the floor of a hospital recognize that Mrs. B needs "good TLC" and communicate this to each other, what is it that they are actually saying? In desiring to demystify the concept of care even further, a study of caring and its components was taken up from a historical view, looking at caring as it has developed

through the years, both inside and outside of the profession. From this study, I developed a model that further delineates what "caring" is. This model can be used to facilitate the development of quality caring. This model is called Holistic Nursing Care Technique (HNCT) (Kim, 1996). HNCT is comprised of eight techniques or skills that are inherent to caring and are as teachable as palpating a pulse. I believe that these skills can be taught and nurtured in a nurse.

The eight techniques of caring are as follows: (1) noticing, (2) participating, (3) sharing, (4) holistic listening, (5) companioning, (6) encouraging, (7) comforting, and (8) hoping.

Noticing is akin to continuous multidimensional assessment. It represents the nurse's ever-awareness of her patients condition, having cognizance of every change, whether it be in the social, physical, intellectual, emotional or spiritual dimensions (Benner & Tanner, 1987). This can be compared to the attentiveness of the mother's ear to her baby. She not only hears the cry, she understands it, whether it represents a desire for food, a wet diaper, or simply a call for attention. To perform this function in a professional and knowledgeable manner, the nurse must be well-trained in the human and social sciences. The real learning, however, takes place, ideally, through a mentor or role-model.

Participating represents the nurse's duty in taking an active role in the life of the patient. It involves the commitment on the part of the nurse to not stand at a distance from the patient and their experience, but to enter into the experience with them. This technique has little hope of being practiced apart from an attitude of compassion on the part of the nurse. It also requires that the nurse have an understanding of the patient's unique position

in life as well as the principles of human response.

Sharing encompasses a concept different that "giving." Giving involves a one-way exchange of whatever the commodity is that is being transferred. Sharing, on the other hand, involves a two-way exchange or a dual-ownership. The nurse not only gives knowledge and information to the patient through teaching, but receives knowledge through listening and learning, this develops a common body of knowledge that both the client and the nurse share (Kim, 1979). The nurse also shares their will, their power, their feeling and their love. When nurses share their will with a patient who can no longer see the way to health, they share life with that patient. This is often, perhaps, the most needed thing on the part of patients. The same is true when the nurse shares any of the other qualities of being human (i.e. power, feeling, love, etc.) Through sharing, the nurse becomes the advocate of the patient on a new level, a partnership is developed with the single goal of maximizing the health potential of the particular system being interacted with.

Holistic listening concerns the total engagement of the nurse in the listening process. In this technique, listening is attributed to more than one sense. Listening will take place with the eyes, the body (as evidenced by its gestures and language), and the heart, as well as with the ears. Holistic listening requires that nurses be fully present and fully interested in their patients.

Companioning involves a drawing alongside of the client, whether it be an individual, family or community. It is more than standing on the bank and shouting directions of what rapids to avoid, it is climbing into the raft with them and helping paddle. It is one thing

to be a coach, another to be a cheerleader, but an entirely different role is assumed by nurses when they join their client on the field. When nurses expose themselves to the same barriers, challenges and successes that their clients experience, they truly companion them.

Encouraging means to be about the work of building. It can be differentiated from supporting because it does more than maintain a system, it adds to it. Specifically, encouraging is building *up*. Nurses encourage by multidimensionally adding to the health potential of patients. This technique can range anywhere from an apt word to a timely touch to teaching on an issue of importance to the client.

Comforting exemplifies the nurse's role as provider of strength or hope and reliever of pain, trouble, or anxiety. This technique, like the others, involves a holistic approach that recognizes a client's need for comfort in any number of dimensions. Physical pain has been the mainstay of most of nursing research on pain management. This approach fails to recognize the whole person. Clients suffer in many other ways that nurses have the training to address yet they fail, often, not to recognize the pain, but to approach and manage it.

Hoping is probably the simplest of the techniques mentioned here, but perhaps the most difficult to communicate. Often, all that is needed to communicate hope, to both the nurse and the client, is the smallest change of perspective. A simple shift in view or angle often allows persons to see around whatever obstacle there may be blocking their view. Instilling hope allows clients to consider all things possible, preferable, probable and plausible. Hope must not be misdirected or in vein, but realistic and appropriate given the context of a situation. Hope promotes

healing and should be used by the nurse as a technique with great frequency.

In nursing, technology is a force that must be reckoned with. Not only is it changing the characteristics of the populations nurses work with, it is changing the practice of nursing itself through the development of nursing technology. The question is not whether the tide of technology has or will come in, that is a forgone matter, the tide is coming in, the question is, "Will nursing choose to ride it or be overcome by it?" It is safe to say that technology will continue to be one of the major forces producing change in nursing in the next decade. By considering and appropriately altering the character, congruence and core of nursing care in a high technology era, nursing can continue to meet the health needs of societies.

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