Plenary Lecture

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Information technology and cancer nursing: How to combine technology and touch

W. Sermeus. *UZ Gasthuisberg, Belgium*

Information Technology (IT) is the domain of hardware and software tools used for the processing and exchanging of data, information and knowledge. Every day new hardware tools are developed to increase the speed and flexibility of processing and connectivity. Every day new software tools become available disclosing new domains of knowledge. However, it is not the technology itself but its impact to day-to-day lives that is of interest.

Until now, the impact of IT is still very limited. So far, the wide spread of computers hasn't changed drastically the way people where living or working. True, computers can speed work up but generally, hospitals have automated tasks that people once did by hand. The way hospitals and businesses in general are organised is based on the work of Adam Smith, philosopher and economist, who published "The Wealth of the Nation" in 1776. He recognised that the technology of the industrial revolution had created unprecedented opportunities for manufacturers to increase workers productivity. Smith's principle embodied his observation that some number of specialised workers, each performing a single step in the manufacturing process, could make far more in a day than the same number of generalists, each engaged in performing the whole process. The division of labour increased the productivity by factor hundred. Today, the larger the organisation the more specialised the worker and the more specialised steps in which the work is fragmented. This has lead to long chains for performing simple tasks in which no one is responsible for the whole process. It leads to many queues and waiting times. The process of taking an electrocardiogram is a good example. The whole process involves more than 7 people working all together more than 4 hours to perform a 10-minute procedure. It is estimated that only 16% of the time of spend by hospital workers, is related to the core-activity. All other time is spending in handling, communication, planning and control.

In the same way the industrial revolution has had impact in the way industry is organised, so will do information technology. Information technology is said to have disruptive power (Hammer & Champy, 1993). Shared databases, modern database technology, wideband, wireless data communication, automatic identification and tracking systems, etc. will transform the traditional hospital organisations to network healthcare organisations. Place and time will become inferior to service as we are moving to virtual organisations. The patient care process will be central.

IT will have high impact on nursing care. Nurses tend to organise around the workflow (Mintzberg, 1997). It is a job of continuous care, and its central concern is to co-ordinate the work of the plethora of specialists who converge on a single place, namely the patient in a bed. Nurses spend now about 20% of their time on communication and co-ordination. As length-of-stay is decreasing and cost containment programmes are pushing for more ambulatory care or day care, IT will be the first technology to realise smooth interdisciplinary and transmural co-ordination of care. A second impact of IT on nursing is on knowledge management. The health care is developing so fast, that nobody can keep track of the necessary knowledge to give appropriate care. It has been shown that this heterogeneity in individual knowledge of healthcare workers will become one of the major problems in health care. IT will help to develop organisational knowledge. Examples are the use of the WWW in which evidence-based protocols are widely and timely available. Expert systems are available for supporting the professional nurse in her work e.g. dose calculation, indication side effects of medication etc. A mass of patient information is available on the WWW that can be used for teaching. Knowledge sharing systems are developed by creating networks of oncology centres in which the outcome of nursing care on symptom control and functional status is exchanged and evaluated (Sermeus et. al., 1997). Another example is the development and use of a clinical pathway. IT helps by offering clinical pathways for a variety of patient conditions, giving the opportunity to document variances and analysing them in a systematic auditing process.

It is obvious that high touch is not in contradiction with high tech. Although many nurses feel differently. They feel that their job is in taking care of patients and being with their patients as much they can (Halloran, 1995). They are right. Most systems are not designed to support nurses in their precious work. Nurses are often used as data collectors for a wide range of users and purposes. But when designing patient oriented systems that support nurses in their daily work, they get excited and feel that it leads to more time to be with patients, more effective communication through the availability of patient information and a higher standard of professional practice. It is certainly worth the right investment.

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