University of Almustaqbal
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Professional Perspectives and Health Issues In Nursing

Technology and Increased Demands

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Technology and science are not the same thing: technology is tools for doing things, whereas science is a method of thinking and of examining nature that can lead to new knowledge. Science is a voracious user of technology, and frequently leads to technological advance, but is conceptually quite distinct from technology.

• Most experts believe that "technology" is the driving force behind the long-term rise of health care spending. In a survey of fifty leading health economists in 1995, 81% agreed with the statement, "the primary reason for the increase in the health sector's share of **Gross Domestic Product** over the past 30 years is technological change in medicine".

Sources of technology

Technology in health care may come from a variety of sources: Technology may be developed in response to a specific health problem (eg the current efforts into developing gene therapies for genetic diseases; the development of detection kits for HIV). Many technological developments result from clinicians in hospitals discussing their needs with technology developers.

Environments favor the development of new technology in health care

- Health care services that are research oriented, in that clinicians participate or direct research and where more fundamental research is in close geographic proximity to service delivery

- Health care services that have a wide spread of disciplines that facilitates the development of cross discipline linkages and collaborations

- Where high technology research and development activities are located close to major health care facilities, such as major teaching hospitals

- Where networks exist or have been encouraged to develop between health care services, research centers and industry partners

- Where opportunities for financial rewards are available for innovators in the public sector

- Where venture capital and intellectual property services are readily available, and tax and other public expenditures encourage innovation

From a societal perspective, the most desirable technologies are those that are highly effective and have low cost. Examples are vaccines, and, in developing countries, iron and iodine supplements to pregnant women and newborns.

E-health technology

- E-health technology applications are essential tools of modern information technology that improve quality of healthcare delivery in hospitals of both developed and developing countries.

- The perceived usefulness, belief, willingness, as well as attitude of healthcare professionals have significant influence on their intention to adopt and use the e-health technology applications.

The low cost means that they offer limited economic rewards. For example, while the marginal cost of manufacturing a technology such as a vaccine may be low, the low market price that would be obtained in relation to development costs (eg $2-300 million) can make development commercially prohibitive because it is not possible to recover this investment.

The public sector already funds significant levels of basic biomedical research that underpins the development of all new technology. The public and private sectors could develop joint ventures for research, development and clinical trials. Governments could provide market support such as dual pricing strategies, where public good prices are charged in developing countries and profit-making prices are charged in developed countries.

Defining Informatics

Process of using cognitive skills and computers to manage information

American Nurses Association (ANA) Definition of Nursing Informatics

- Specialty that integrates nursing science, computer science, and information science

- Manages and communicates information in nursing practice

- Facilitates integration of data, information, and knowledge

- Support patients, nurses, and other providers in decision-making roles

Administrative applications of information technology

- Computerized patient records

- Computerized admission data, accounting and billing

- Automated referral and training

- Electronic mail and other automated communication

- Managerial decision support systems

- Automated linkages between databases

- Automated hospital information systems

- Electronic networking with suppliers and regulators

Trends in Information Technology

❑Use of computerized medical records as tools

 for improving patient care

❑Electronic records

❑To improve patient safety

Information Management Roles for Nurses

- Collect clinical data

- Record data

- Interpret data to produce information

- Use information to produce knowledge

- Share knowledge with those who need it

Electronic Health Record

- Secure, real-time, point-of-care, patient-centric information resource for clinicians

- Electronic medical record has many advantages over a paper system

Healthcare Information Systems

❑**Clinical Information System (CIS)**

➢ **Patient care**

➢ **Administrative information system**

✓Manages billing, scheduling, and human

resources

Nursing Information Systems

- Part of CIS

- Support nurses by providing information they need
  to practice and document care

Clinical applications of information technology

- Telehealth and telemedicine

- Medical imaging and signal processing

- Neural networks and pattern recognition

- Smart cards

- Knowledge-based systems in clinical decisions

- Linkage to computerized patient records

- Automated clinical training and education

- Clinical intelligent support systems.

Privacy

o - Ways to protect confidentiality and privacy

o - Passwords

o - User authentication

o - Audit trail

o - Firewalls

o - Encryption (coding) of data