Advances in Technology

:what does this mean for Us?

John Hewitt, CSN,
Clinical project lead
Corporate Quality and Patient safety
What is this all about?

• What is a technological advance?
• Where nursing comes from?
• Where are we going to?
Technology in health
Many things to many people

The application of organised knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problems and improve quality of lives.

Includes pharmaceuticals, devices, procedures and organisational systems used in health care.

Includes the data, the research and how this can influence what we do.
Medical technology

• Started with the Egyptians. (Approx. 2,160 bc.)

• Imhotep was also the first known physician, medical professor and a prodigious writer of medical books. As the first medical professor, Imhotep is believed to have been the author of the Edwin Smith Papyrus in which more than 90 anatomical terms and 48 injuries are described. He also founded a school of medicine in Memphis, possibly known as “Asklepion”, which remained famous for two thousand years. All of this occurred some 2,200 years before the Western Father of Medicine Hippocrates was born.
TREPHINING IN ANCIENT PERU—reproduced here is one of a series of original oil paintings, "A History of Medicine in Pictures," commissioned by Parke-Davis.
• Hippocrates, 370 bc, Father of modern medicine
• Galen, 129 ad: Humorism, anatomy and dissection, brain and eye surgery
• Islamic Medicine 9th 12th century- The first encyclopedia of medicine in Arabic language was by Persian scientist Ali ibn Sahl Rabban al-Tabari's Firdous al-Hikmah ("Paradise of Wisdom"), written in seven parts, c. 860
• Medieval Europe “Dark ages” – Christianity banned anything other than Christian doctrine for 1000 years.
• 12th century – Schools of medicine started in Mediterranean countries influenced by Jewish and Arabic teachings, skills and knowledge
• Renaissance to Early Modern period 16th-18th century

Europeans gradually became experts not only the ancient writings of the Romans and Greeks, but in the contemporary writings of Islamic scientists. During the later centuries of the Renaissance came an increase in experimental investigation, particularly in the field of dissection and body examination, thus advancing our knowledge of human anatomy.

• 19th century: Rise of modern medicine

Medicine was revolutionized in the 19th century and beyond by advances in chemistry and laboratory techniques and equipment, old ideas of infectious disease epidemiology were replaced with bacteriology and virology. Bacteria and microorganisms were first observed with a microscope.
20th Century

- Drug to treat sickness: Some Vaccines, antibiotics
- Pacemaker, Structure of DNA 1950s
- Kidney transplant, Heart transplant 1960s
- Test tube baby 1978
- Human genome 2000
- Stem cells 2007
- Artificial organ 2014
All driven by technology

• But what does this mean to us as Nurses – where do we fit into all of this???

• What does it mean to the person experiencing healthcare??

• What's your biggest problem in your everyday work?
Nursing

• Started as Temple slaves helping Priests (the start of the handmaiden role)

• Went through the witch and Nun period
• Sisters of Mercy
• Florence
• Paradigms, models and philosophies
• Profession

• Technology cannot provide what nursing provides!!!!!
Health information

• We all use it
• We all need to add to it
• This is what will make our roles easier

• All about the therapeutic moment.
A definition of e-health

- e-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.

J Med Internet Res 2001;3(2):e20 doi:10.2196/jmir.3.2.e20
Why

The Ministry of Health is working to ensure:
  • New Zealanders are healthier and more independent health services are delivered better, sooner and more conveniently
  • the future sustainability of the health and disability system

South Island Alliance is working to ensure:
  • A commitment to taking a combined approach to delivering and improving information systems for the benefit of our health practitioners, their clients, and the community as a whole

CDHB is working to ensure:
  • The delivery quality healthcare in a rapidly changing environment
Drivers for action

• EQ - 2011
• By 2020 the population of Canterbury will have grown by 12% to approximately 600,000
• By 2020 more than 20% of our population will be aged 65 or older - this equates to an additional 46,000 persons aged over 65 than at present
• Canterbury has the largest population aged over 75 of any District Health Board
• Between 2006 and 2020 the Canterbury population aged over 85 will have doubled
Fig 1  Policy vision of specialist driven care shifting to patient driven care as information age replaces industrial age.
Wellness
Screening, immunisation, maternity, prevention of illness, public health

Shared Care Plan
Multiple people involved in your care e.g. long-term conditions, aged care

Community information
Health information from your GP, pharmacists, midwives, community nurses

Continuum of Care

Hospital information
Health information related to care in hospitals and by specialists

Common Clinical Information
Including laboratory results, medications, referrals, discharges

Foundation Health Information
e.g. your name and address, ethnicity, allergies, GP details
The fundamental principles of a Digital Health network are to

- Be patient-centric - use technology to support health workers to deliver patient care that is safe, effective, efficient and enhances the patient experience
- Integrate systems and technologies to facilitate improved communication between healthcare workers across the network
- Be Future-proof so that they are “long life, loose fit”
- Implement new technologies where there is a quantifiable clinical and business benefit
- Capture and analyse data to monitor and improve the performance of the system as a whole
Some current clinical “e” projects

- Clinical systems Integration
- Clinical Portal
- Electronic Medicines Management (eMeds)
- Electronic Referrals
- Regional PICS
- West Coast and Canterbury Network Integration
- Point of Care testing
- Regional Endoscopy Reporting

- Nursing Assessments
- Nursing Patient Observations
- Electronic whiteboard
- Tele-health
- Laboratory Information System
- BadgerNet
- ICNet
- SilhouetteStar
- South Island ECG
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