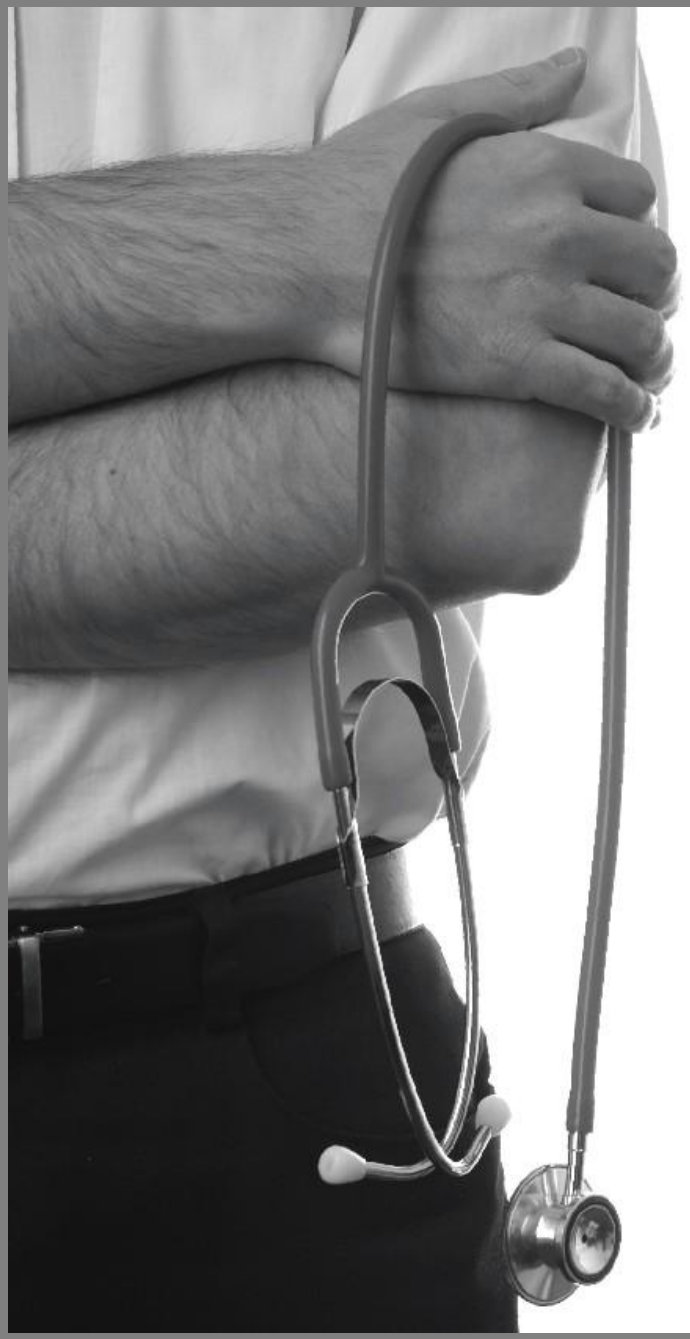


Cambridge University Hospitals NHS
NHS Foundation Trust

“Care Closer to Home – Where will the acute hospital fit?”

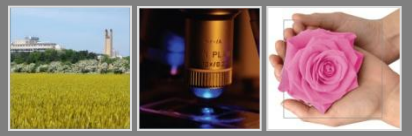
Peter Jarritt.



Addenbrooke’s and the Rosie Hospitals

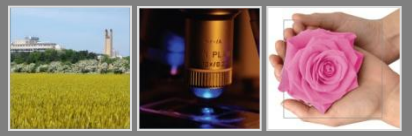
Innovation and Excellence in Health and Care

The Crystal Ball Exercise – DH Scenario X



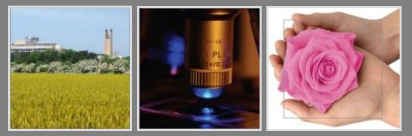
The Millennium Analysis

The impact of medical technologies on the future of hospitals. - Charles B Wilson; BMJ 1999;319:1287; Department of Neurosurgery UCSF.



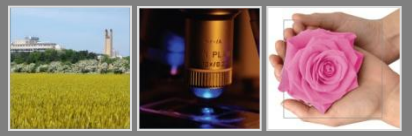
Robotics

- Expect robots to be deployed in hospitals over the next decade, running central supply services, filling requests and orders in the pharmacy, and carrying out a range of tasks.
- Supporting operations, remote surgery.



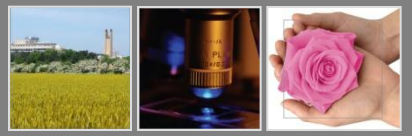
Sensors

- …… tables in the intensive care unit, private hospital rooms, operating rooms, and selected endoscopic units will be equipped with sensors linked to nearby and remote monitors. Inpatients may be implanted with tiny sensors as part of the admission process, and throughout the patient's hospital stay the chip will provide values instantaneously for the 40 or so laboratory tests that constitute 90% of a hospital laboratory's volume, thus changing the role of the central laboratory.
  - Pathology Transformation in the UK.
  - Artificial Pancreas.



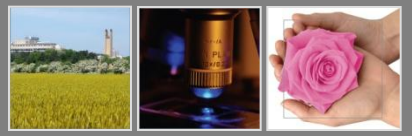
Sensors

- Hospital gowns or undershirts with embedded sensors may serve as continuous monitors for vital signs for ambulatory patients. Expect the next generation of transportable intensive care beds, such as the life support for trauma and transport unit (LSTAT, Northrop Grumman), to remove critically ill patients from centralised intensive care units.
- The same bed will be used in the operating room, the recovery area, and the satellite specialty intensive care unit.



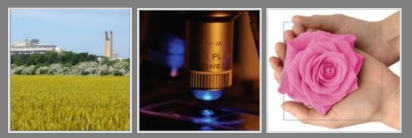
Imaging

- The availability of the same image in various places simultaneously will promote tele-radiology consultation, remote interpretation, educational conferencing, and other new means of interactive exchange through open links.
  - Image guided surgery.
  - Multi-modality imaging. Very expensive technologies bringing together anatomy and function.



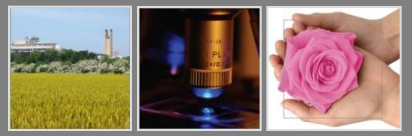
The hospital of tomorrow

- …… technologies will influence the incidence of diseases that today constitute an important proportion of hospital admissions. Others will require changes in the physical plant itself because today's hospital cannot accommodate the changes with only minor alterations. Large hospitals will be affected disproportionately more than smaller hospitals, but no hospital will be spared. In the future new hospitals will be built with a greater flexibility of configuration than in the past, architects realising that further changes are inevitable
  - Just in time equipment delivery and resource utilization.



Key drivers for change

- > 15m people are living with long term conditions (COPD, diabetes, heart failure etc)
- Many have multiple conditions (3-5 per patient).
- 72% of bed days occupied by persons with long term conditions.
  - Reduce admissions.
  - Provide earlier discharge
  - Promote independent living.
  - Deliver carer support

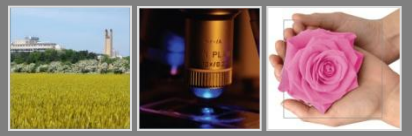


Equality and Diversity - Liberating the NHS

- Key messages:-
  - No decision about me without me.
  - Personal choice of ‘Care, Treatment and Provider’.
  - Care closer to home.
  - Self management of care.
  - Personal health budgets.
  - Any qualified provider.

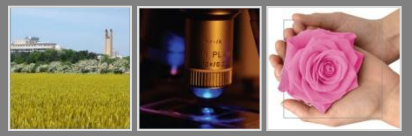
Equality and diversity – Liberating the NHS

– An information revolution.
  - For the patient.
  - For the carer.
  - For the healthcare professional.



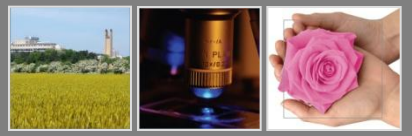
Scenario X – A sneak preview

- Hospital at Home
- Hospice at Home
- High street screening and diagnostics (50% of Trust business).
- Community activity and gym/re-enablement, rehabilitation and resettlement centres.
- Managed Care Centres. (Cancer/Stroke/Cardio/ Mental Health …..)
- A network of Foundation Trusts – Trauma Centres, Urgent Care Centres, Planned Care Centres, Nursing and Care Homes, Step Down/Convalescent Homes.



Scenario X – Investment Priorities?

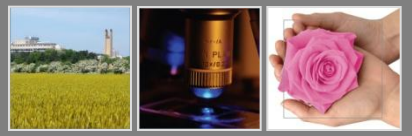
- Technology supported homes and communities.
- Advanced pharmacotherapeutics and genetic profiling.
- Technology supported clinical decision systems.
- Stem Cell research and new science.
- High speed informatics and cooling technologies.
- Proton Beam therapies and novel treatments.
- Prosthetics, regeneration and bio-engineering developments.



Implications for healthcare technology

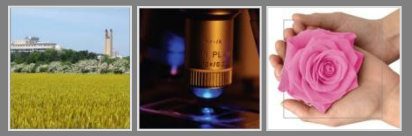
- Screening programmes will deliver preventative and curative treatments on a personalized basis.

- Genomics and proteonomics will drive personalized/stratified medicine. Why treat if the treatment won't work? This a huge challenge to the pharmaceutical industry but vital for improved treatments and outcomes.



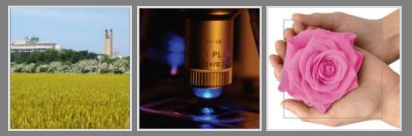
Implications for healthcare technology.

- Diagnostics will be delivered closer to home.
  - Point of Care testing will grow in all provider environments.
  - But:-
    - How will we control performance and quality of data? Safety and quality must be maintained.
    - How will we manage indefinite results? Bayesian statistics will rule the economics.
    - How will we obtain specialist advice?
    - How will we integrate the healthcare record?



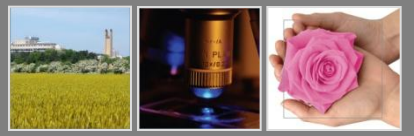
Implications for healthcare technology

- Management/self management of long term conditions.
  - Telehealth/Telecare. Supporting independent living.
  - Assistive technologies.
  - Enablement Services.
  - Patient focussed – what does the patient and the carer need?



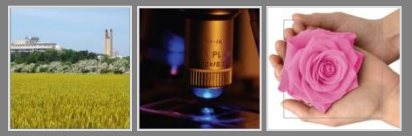
Government Initiatives

- DH - Whole system demonstrator
  - Cornwall, Newham, Kent. 6000 patients, 500 carers, >230 GPs.
  - Welsh experience of a RCT showed little impact on emergency admission rates.
  - Key issues; interoperability, standards, information management, lack of ‘patient pull’.



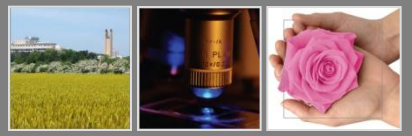
Government Initiatives

- Technology Strategy Group – DALLAS
  - Delivering Assisted Living Lifestyles At Scale.
  - Not a Randomized Control Trial.
  - Upwards of 50,000 people to be involved.
  - Will focus on connecting communities, products, services, lifestyle.
  - Long term conditions, wellness, health and well-being.
  - Only things that deliver benefit will survive.



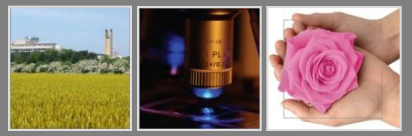
Important Technology Adoption Factors.

- Collaboration within and across organisations; a shared vision; strong leadership and engagement at every level; capacity and skills to do system redesign; quality standards, and investment in professional development and staff training. In other words, one cannot hope to make a success of tele-health without acknowledging that a fundamental shift is needed in the way in which care is delivered.



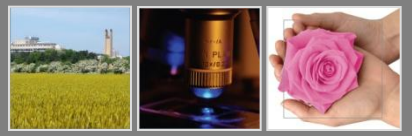
Future Service Imperatives

- There must be a mechanism for integrating care information – owned by the patient?
- There must be a new generation of decision support systems which analyse the data explosion which will inevitably occur through new sensors. Based on the whole care record not fragments.
- Technology must support integrated care across the health economy from social services to tertiary care.
- There must be a mechanism for delivering definitive care information to the public to enable choice to be effective.



The future

- The challenges will be for organisations to adapt to new ways of working, often in partnership with other organisations, and to respond quickly to the demand that will be created for high quality, low cost services.
- Personalized Care Plans, Stratified Medicine.
- Technologies not yet considered or developed!



Thank you