New Technology and Pathology: where next for UCL Hospitals?

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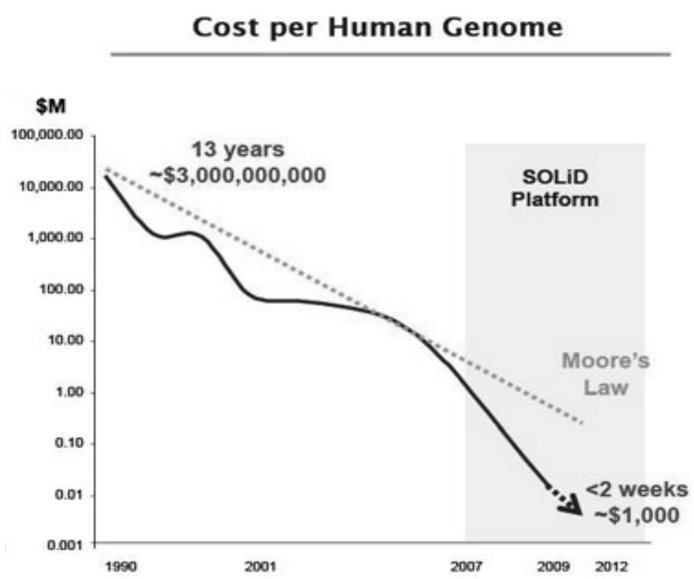
THE CHALLENGES

Technological developments are driving a shift away from basic diagnosis of established sickness, towards a paradigm of defining the lifetime health risks of individuals at birth. What are these developments, and how can UCLH Pathology departments adapt to this huge change, embrace the new technological advances, and yet still maintain current quality of service?

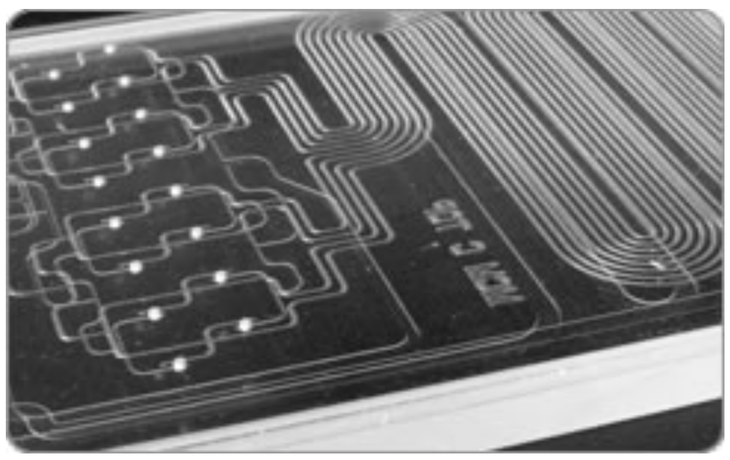
Next-generation sequencing

New technologies in DNA and RNA sequencing have drastically reduced both the cost and the time taken to sequence whole human genomes.



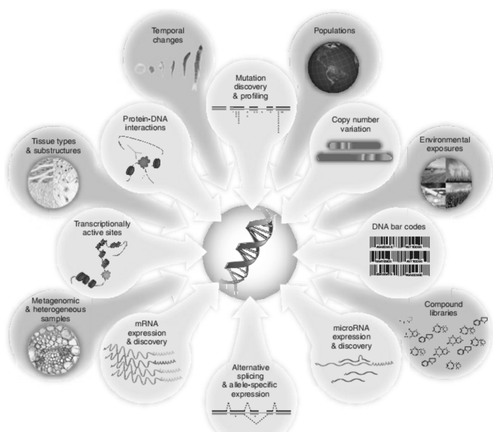
Testing for biomarkers

For screening and diagnostics assays, miniaturisation engineering can create virtual laboratories in a plastic wafer. These point-of-care tests will eventually supersede traditional 'brick & mortar' labs.



The consequences...

- Detailed screening of populations
- Identification of 'disease signatures'
- Delivery of personalised medicine
- Targeting of preventative measures
- Staged therapeutic interventions
- Large cost savings to the NHS.



THE APPROACH

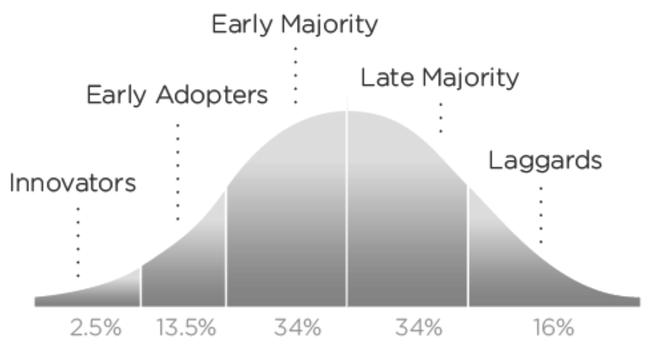
We cannot wait for the average of 11 years from a good idea to its widespread implementation in the NHS*. Need to consider collaborative working: the NHS funds translational research, which includes next-generation sequencing to build human disease signatures, plus the design & implementation of point-of-care tests. Aligning the UCLH vision with a Comprehensive Biomedical Research Centre will form a complementary link.

Leadership elements

- Reach outside 'Circle of Influence' (i.e. find an existing agenda to hijack)
- Seek to work with a good manager, and agree an 'end-in-mind' (Covey)
- Use this platform to promote further development of a vision
- Consider who are the main stakeholders to adopt and develop the vision
- Spend time thinking of how to generate motivation from within
  - 'Inevitability', as a driver for change, needs to be handled carefully
  - Appeal to scientists' basic instinct: they just want to play!
  - Remember most pathology managers are still scientists
- Prepare to observe and guide their strengths (Goleman leadership styles)
- Provide the framework and environment for discussions
- Ensure ownership of the project by the group is understood

Plan of Action

- Agreement from Path Gen Manager about group leadership
- Identify and contact likely stakeholders in Pathology (managers & scientists)
- Set up round table group meetings with these key individuals
- Identify common areas of current working
- Explore sharing of current equipment
- Build on medium-term goal of a unified molecular laboratory
- Visit institutions that have already integrated molecular services
- Decide where we want to be on the adoption diffusion curve



Progress to date

Two major meetings:

1. First meeting: introduction of group members.
   - Remit of group set: to explore the options for a unified molecular lab
   - Terms of reference agreed
   - Important statement of faith from Path Gen Manager that solution belongs to the group.
2. Second meeting: presentations from group members of their departmental work & interests, then discussion. Three work packages were identified from this meeting:
   - Local collaboration needed immediately to support a particular service at risk
   - Working towards a rationalised common molecular laboratory
   - Consider options for adopting next-generation sequencing
3. Now scheduled:
   - Visit to GOSH molecular facility
   - Expert CBRC speaker from UCL Genomics
   - Next-gen sequencing equipment on loan

*Wanless; NHS review 2002