



A look at primary care through a futurologist's prospectoscope, or: what's up, doc?

Never Stand Still

Faculty of Medicine

Australian Institute of Health Innovation

Professor Jeffrey Braithwaite

2011 AGPN National Forum

Melbourne Convention and Exhibition Centre

16 - 19 November 2011



Australian Institute of Health Innovation's mission

Our mission is to enhance local, institutional and international health system decision-making through evidence; and use systems sciences and translational approaches to provide innovative, evidence-based solutions to specified health care delivery problems.

<http://www.med.unsw.edu.au/medweb.nsf/page/ihi>

Australian Institute of Health Innovation

- **Professor Jeffrey Braithwaite**

Professor and Foundation Director, AIHI; Director, Centre for Clinical Governance Research

- **Professor Enrico Coiera**

Professor of Health Informatics, Centre for Health Informatics, AIHI, UNSW

- **Professor Ken Hillman**

Professor of Intensive Care, Simpson Centre for Health Services Research, AIHI, UNSW

- **Professor Johanna Westbrook**

Professor of Health Information Centre for Health Systems and Safety Research, AIHI, UNSW

Background - the Centre

*The Centre for Clinical Governance Research undertakes **strategic research, evaluations and research-based projects** of national and international standing with a core interest **to investigate health sector issues of policy, culture, systems, governance and leadership.***

<http://www.med.unsw.edu.au/medweb.nsf/page/ClinGov>About>

Part 1: The world over the next 25 years and beyond



The Futurology Timeline

***What the future has
in store for us?***

Population

- 7.7 billion people by 2020
- 10 billion people by 2050
- Most of the population growth will come from the developing world
 - Africa's population will rise from 1 billion in 2010 to 3.6 billion by 2100



The World Future Society 2011

Economy

- USA will remain the world's foremost power?
- Emergence of new [dominant?] powers?
 - China
 - India
 - Brazil
 - Russia
- The concentration of wealth in the US may lead to economic stagnation and political upheaval with a worldwide impact

Education



- By 2020 online education will dominate learning in universities and schools
- Paradoxically, learning will become more social and online gaming may replace textbooks in schools



The World Future Society 2011

Environment

- Two giant dust bowls are forming in Asia and Africa
- Bikes may dominate to combat:
 - Pollution
 - Our sedentary lifestyle



The World Future Society 2011

Environment



- Lunar-based solar power may be the best way to meet future energy demands
 - It is clean energy
 - It is a cheaper and more reliable option than gathering it on Earth



- Robotic earthworms will eat our rubbish to extract anything of value (metals etc) and process the rest into compost

The World Future Society 2011

Technology

- By 2030 we will have seen as much new technological development and progress as we saw in the whole of the 20th Century
- Robots will be driving cars
- It is imperative that robots cannot deliberately or accidentally cause damage to humans
- Asimov's three laws of robotics!





Surveillance



- Security will win over privacy
- By 2030 we will wear small cameras as a broach or lapel pin, constantly recording and transmitting our surroundings
- These will only be reviewed if there is an incident
 - Eg, Evidence of who is at fault in a car accident
 - Eg, Crime

Part 2: The world's health over the next 25 years and beyond



Health

- Health developments such as:
 - Stem cell research
 - Personal DNA mapping
 - New gene-therapy drugswill prevent illness and extend life



Hammond 2011

Health

- People living in 2030 will routinely live to 130
- Could you choose to never reach a biological age higher than 30 or 40?
 - Rejuvenation therapy could ensure that your skin, hair and internal organs regenerate themselves



Hammond 2011

Health

- In 2009 futurologist Ray Kurzweil said humans could become immortal in as little as 20 years time
- Nanotechnologies capable of replacing our organs may be available
- Artificial pancreases and neural implants are already available

Hammond 2011

Health



- Technology will push medicine to the preventative model
- The role of the patient and health care professional will change
 - Technology will give more power to the patient
- We will regularly monitor our own health, even when we are not ill
 - Blood pressure, blood-glucose level, cholesterol level

Health



- People will be wirelessly tagged
- Humans will constantly transmit their location
- Health data will be collected and transmitted so help will be automatically summoned in an emergency
- The tag could administer treatment eg. if someone had a heart attack

Hammond 2011

Health



- Nanotechnology offers hope for restoring eyesight
- Chemical brain preservation means people's memories and identities could be restored in computer form
- Scientists in Japan are currently developing robots to care for the elderly

Hammond 2011

Health

- We face a major problem in how to pay for future healthcare
- In most countries the wealthy will be healthy
- But others?



Hammond 2011

Potential IT risks

- The impact of uneven adoption of IT
- Security of electronic health information
- Sustainability of new IT funding models

McGowan et al 2011

Part 3: Primary care: current projections



Primary care context

- In 2006 the American College of Physicians warned that primary care is at serious risk of collapse
- Patients are increasingly dissatisfied with care and access to care
- Primary care doctors are unhappy with their jobs as they face a seemingly impossible task

Bodenheimer 2011

Primary care context

- Family physicians are expected to master skills exceeding the limits of human capability
- The scope of primary care is enormous
- Time constraints, knowledge bottlenecks
- Difference in pay between primary care physicians and specialists

Bodenheimer 2011

Primary care context

- Fixes:
 - Further GP specialisation
 - More support
 - Intelligent medical databases
 - Medical knowledge brokers
 - Multi-modal information distribution mechanisms

Bodenheimer 2011; Braithwaite 2011

Primary care context

- Fixes:
 - Jot down what you think
 - ... for discussion



Part 4: How to be a future-thinker



Seven techniques to be a future-thinker

1. Systematically scan the media and health literature
2. Analyse and extrapolate trends
3. Develop scenarios
4. Ask the experts
5. Use computer modelling
6. Use simulations
7. Create a vision



The World Future Society 2011

More techniques to be a future-thinker

8. Test your vision against your current reality
9. Revisit it over time, adjusting as you go
10. Be prepared to train, and retrain
11. We will all have multiple careers
12. And need therefore to be lifelong learners

Braithwaite 2011

Conclusion



- No-one can predict the future
- But we can observe and extrapolate
- What do you think?
- ... for discussion ...



References

- Bodenheimer T (2006) Primary care – will it survive? *NEJM*, 355: 861.
- Hall SA, Hartshorn CR (2004) Predictions – past and present (Letter). *British Journal of General Practice*, 54: 388.
- Hammond R (2012) The World in 2030.
- McGowan J, Cusack C, Bloomrosen M (2011) The future of health IT innovation and informatics: a report from AMIA's 2010 policy meeting. *JAMIA*, doi:10.1136/amiajnl-2011-000522.
- The World Future Society 2011 <http://www.wfs.org/>

Contact details

Jeffrey Braithwaite, PhD

Foundation Director

Australian Institute of Health Innovation

Director

Centre for Clinical Governance Research

Professor, Faculty of Medicine

University of New South Wales

SYDNEY NSW 2052

AUSTRALIA

Email: j.braithwaite@unsw.edu.au

Web: <http://clingov.med.unsw.edu.au>