Two great techno-revolutions will impact the future of health care: digital and genetic. The digital changes what we do -The genetic has the power to change who we are. Both together will transform every aspect of health services. Questions for a third millennium: How will people live and die? Will they die? The future of health care will not more of the same but basic human needs will be: physical, emotional, social and spiritual.

Post / video 2008 - full of accurate insights and forecasts by Futurist Keynote Speaker Patrick Dixon.

Future of biotechnology, genetics, health care, pharmaceutical industry

Dr Patrick Dixon lecture to biotech venture capital investors about future medicine and health care, gene therapy, biotechnology, and the pharmaceutical industry . Dr Dixon is a physician and trends analyst.

Digital Technology and Health Care Industry

• Huge rise in techno-medicine costs – eg diagnosis / imaging
• Better technology = greater resource conflicts
• B2B: contracting and supplies
o Huge centralisation of purchasing
o Instant price comparisons
o Total transparency on costs and results of care
o Quality control + process management
• Remote medical care
o Online clinical monitoring / specialist advice / video-links
o Robot- assisted microsurgery
o Online pharmacies – risk and benefits
o Patients get wiser – physicians overloaded with data
• Technology = even shorter hospital stays
o Complex diagnostics / intensive care /acute medicine
o Emergencies / micro-surgery growth
o Home nursing = save money
• Mobile technology = community care revolution
o Just-in-time medical data
o Real-time home monitoring

o Efficient visit rescheduling
• Robots will make more accurate decisions than most physicians
o risk of being sued if robot opinion ignored (!)
o Total rethink about physician training
o Surgeons become skilled technicians
o Nurses / paramedics extend roles
• Injectable chips and computers = enhanced bodies
o Restore hearing / blind begin to see / paralysed begin to move
o Remote control by thought alone
o It may work but do we feel comfortable about all this?
• Can digital technology harm health?
o Truth about mobile phones / repetitive strain injury

How scientists will slow down or stop ageing in humans - Video

[youtube:http://www.youtube.com/watch?v=loXJAeQKZl0]

Comment by Dr Patrick Dixon on science of ageing, health care, life expectancy, medical advances, pensions, retirement, lifestyles and government policy.

So much for the digital revolution in health care services – what about genetics in medicine?

The Genetic Revolution

• Most illness is influenced by genes
• Amazing progress in understanding and treating illness
• What can we expect in next decade?
• Universal code of life – what does this mean?
o Mix and match – Scorpion into cabbage, mouse into cotton, spider into goat and human insulin gene into bacteria…
o 1 million transgenic animals (two species combined) made in UK alone in last two years
• Predicting disease risk and response to medication – new specialty
• Gene targeting of cancer cells – predict, prevent, destroy, repair
• New vaccines - malaria / HIV / and more
• Genes into cells – how to do it
o Adult / child cells – die with the patient – no moral issue
o Sperm / Eggs – changes passed on forever – huge ethical questions
• Human cloning and stem cells for replacement tissues
o New treatments for brain / muscle disorders
o Diabetes “cure”
o How long till healthy baby clones are born?
o Do we want designer babies?

o Is science running ahead of our values and principles?
• Gene issues
o Tests for insurance / health cover / jobs
o Destruction of foetuses with disease genes
o Destruction of foetuses with possibly low intelligence or strength
o Humanising animals for medical research
o Creating a child to cure another
• How many human genes does a laboratory monkey have to have to win human rights?
• We now have the power to fundamentally alter the nature of human beings

Get ready for the biggest shift in values for over 50 years as people ask profound questions about the meaning of life, and our purpose on earth. These are in part a response to some of the more disturbing challenges presented by genetics, and other problems faced in our changing world today. These value shifts will have a deep and transforming effect on the way that all health care is conducted, in a very positive way, as we reconnect with what is important to us, recognising that we are more than complex machines, with a new emphasis on quality of life and the unique value of every person.

Conclusion: Digital and genetic technologies will totally transform every aspect of future health care ranging from treatments to team management. The process of change will accelerate, creating many new ethical challenges as well as delivering many medical miracles.