Antimicrobial Stewardship

What are the imperatives and why should we bother?
Imperatives

• We don’t want bugs to become resistant
• Antibiotics cost us a lot of money
Resource v Demand

Dark Side of the Moon?
The Dark side of the Moon
- the bit hidden from view
I’ll come back to this...
Let’s make some leaps!

- Space and time
  - quantum physics
    - entanglement theory

- Chaos and complex adaptive systems

- Healthcare
  - competing logics and paradoxes
The Universe’s Paradox

Conventional physics

Quantum physics
Or put another way...
Everything is relative!
Is there a parallel in Healthcare?

"You need to get more exercise. Blink twice if you understand."

Utility

Equity
Is there a parallel in Healthcare?

"You need to get more exercise. Blink twice if you understand."

Demand

Resource
Back to this…
The Eagle Nebula

- Complex
- Chaotic
- It works
  - It’s where stars are made

Sound familiar?
Chaos is everywhere

- music
- weather patterns
- cardiac dysrhythmias
- galaxy structures
- anatomy
- economics

We fail to acknowledge it at our peril!
Hang in there with me, this will all tie together soon!
Healthcare

• Complex
  – the most complex business on the planet

• Chaotic
  – responds to positive feedback
    • great capacity for self organisation and adaptation
  – modelled on fractals
  – interdependent on a fundamental level

• And it works
  – even if we don’t understand it
  – and despite the systems that run it
‘Entanglement’

• **Individual particles** (at a quantum level) bound in an indivisible whole
  • fundamental “particle” of healthcare is the [clinician/patient]

• **Large (classical) systems** have collective properties that arise from the components themselves
  • Healthcare systems should be built from/reflect their “fundamental particles”

• **Entangled particles** far apart still behave as a single entity
The Challenges

“Demand”
Healthcare in the 21st century

How will we cope with this?
How are we going to cope with this!

- Economic factors
- Political expectations
- Corporate expectations
- Clinician expectations
- Patient / consumer expectations
- Public expectations

You, me & our patient!
Here’s a challenge

Not sustainable

$\$\$’s invested

Time
Here’s an indictment!

Patient Harm

$$$’s invested

Not acceptable
We simply have to do better
-we have to change the way we provide healthcare
Think of it this way…

• Demand
  – government decide how much health care we as a society can afford

• Resource
  – Our job is to make that healthcare affordable
How on earth might we go about doing that?

Some ideas…
“You will never solve the problem with the mindset that created it”

Albert Einstein
“He who joyfully marches to music in rank and file has already earned my contempt.

He has been given a large brain by mistake, since for him the spinal cord would suffice.”

Albert Einstein
Healthcare is complex

• Complex adaptive (self organising) systems
  • rainforests
  • coral reefs
  • the human body
  • VISA

• non-mechanistic
  – unlike traditional organisational hierarchies
    • imagine a central control trying to run the body!
Self organising systems

• Encourage innovation

• Encourage *engagement and leadership* at all levels
Command and Control Systems

• Stifle innovation

• Prevent engagement

• Grow and grow and grow…
“Healthy organisations induce behaviour.
Unhealthy organisations compel it!”
Clinician Engagement

• Pivotal

• Clinical leadership
  – essential

• Rocket Scientists
• Rocket scientists should be the ones who build rocket ships

• …and clinical experts should build and run healthcare systems

  – bureaucracy has designed and delivered what we have …
…but for this to work we have to

• Take ownership of our business

• Be responsible and accountable for the outcomes we deliver

• We have to deliver healthcare more **effectively**

…so be careful what you wish for!
The Challenge

“The biggest threat to the American economy over the next 20 years is not the global economic crisis, it is the cost of healthcare reform”

Barack Obama
21\textsuperscript{st} Century Healthcare

• Focus on
  – effectiveness and productivity
  – outcomes

\textit{not}

  – efficiency and inputs
  – controls and constraints
Health reform

• Enable the system to function as it is meant to:
  – self organising
  – designed from the ‘bottom up’ by the experts
  – disruptively innovative

  …but there will be no reform if we don’t take up the baton and run with it
So go forth and steward antimicrobials

For the benefit of patients and the system alike
It needs to be done,

and who better to do it than you…

…the experts!
“There is no dark side of the moon really, as a matter of fact, its all dark”

Pink Floyd