

Leveraging Technology for Better Healthcare

Meabh Smith

**– Believer in Better
Healthcare for All**

BEAI

Clinical Engineer

Equipment Management

Business Continuity
– IT Health Information
Systems

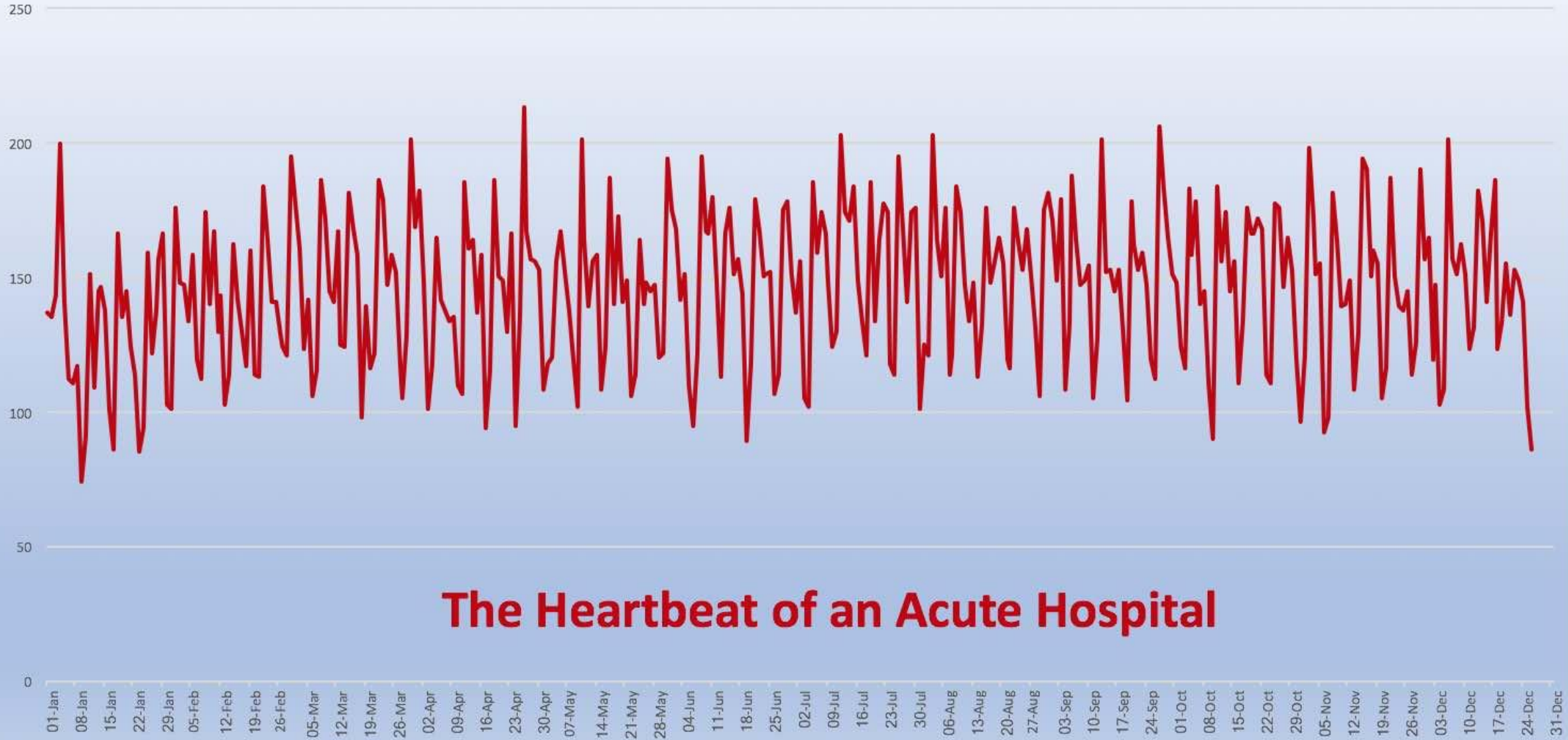


Vigilance/
Medical Devices Directive

Learning about Neuro
Engineering

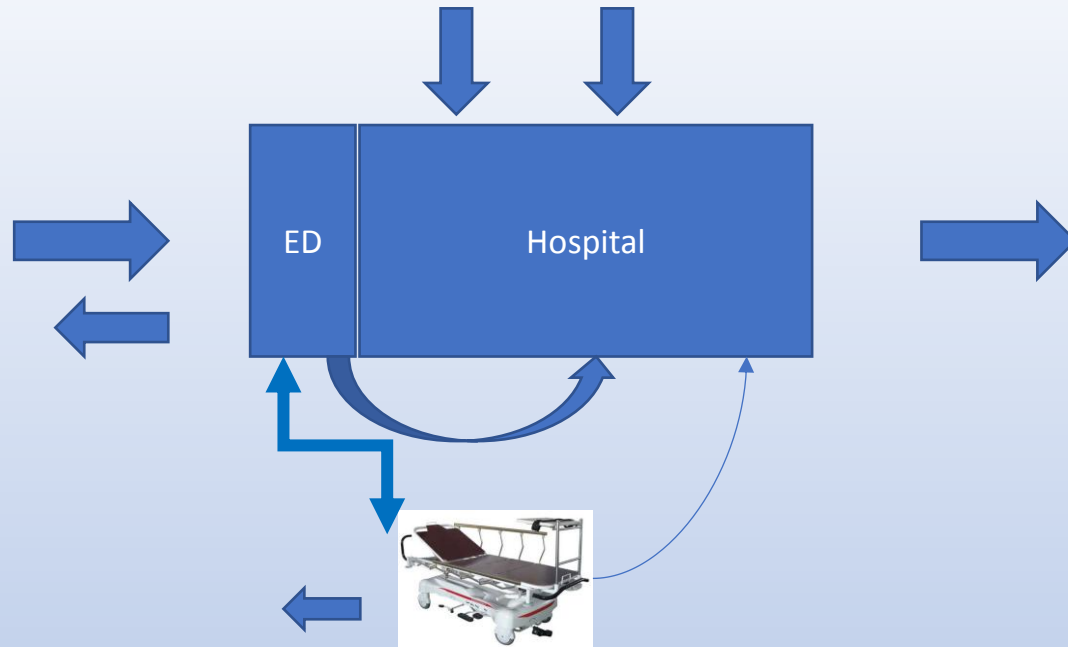
Chief Operations Officer

2016 ED Attendances



The Heartbeat of an Acute Hospital

2016



Day of Week
Weather
Date/Social
Demographic
Alternative Care Options
Access to diagnostics
Access to theatres
Transfers-specialisation

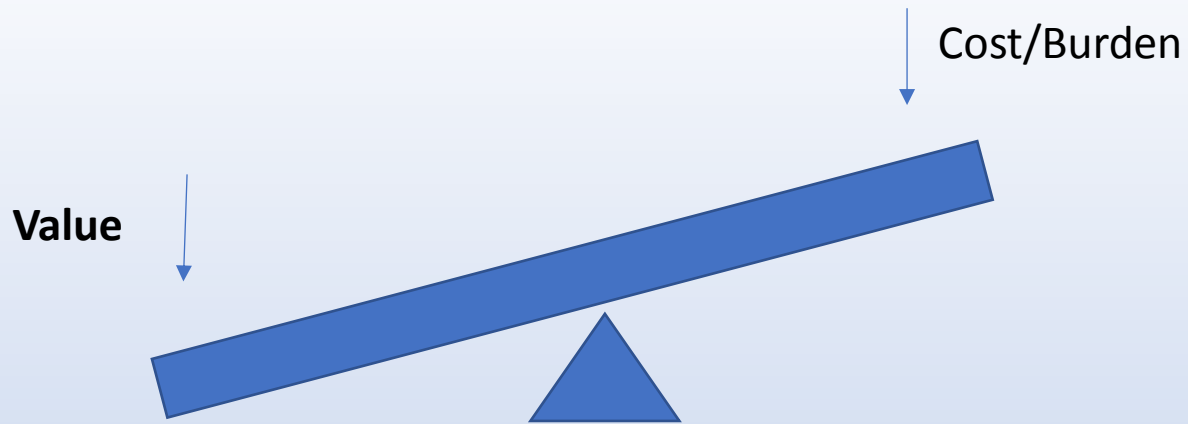
Discharges = fn (completion of care + possibility of continuing non-acute care + finance + social)

When the trolley count is high...

- Direct admissions esp scheduled care decreases or stops;
- Waiting list grows;
- By the time the patient is admitted or attends ED they are sicker requiring more intervention and longer Length of Stay (LOS);
- Capacity cannot be stored;
- Capacity neglected is capacity lost;
- Queuing theory for predictable but unscheduled service states that **80-85%** capacity is optimal, beyond that, harder to manage demand;
- Technology/drugs provide a key to more capacity.

The Ultimate Challenge in Healthcare

- To increase efficiency – faster, better;
- To reduce the numbers of patients attending acute hospital EDs by using current technology to support better care.
 - Reduce ED attendances
 - Reduce ED bed requests
 - Decrease Length of Stay
 - Support more efficient Elective Care



Value = outcome/cost - *Porter*

Value = outcome/burden – *Elton and O’Riodan (2016)*


Burden = Necessary & Unnecessary

Unnecessary: Waste - > Time and Resources -> Chaos

**Value in healthcare: Access, Accuracy, Time, Communication, Respect
at a fair price**

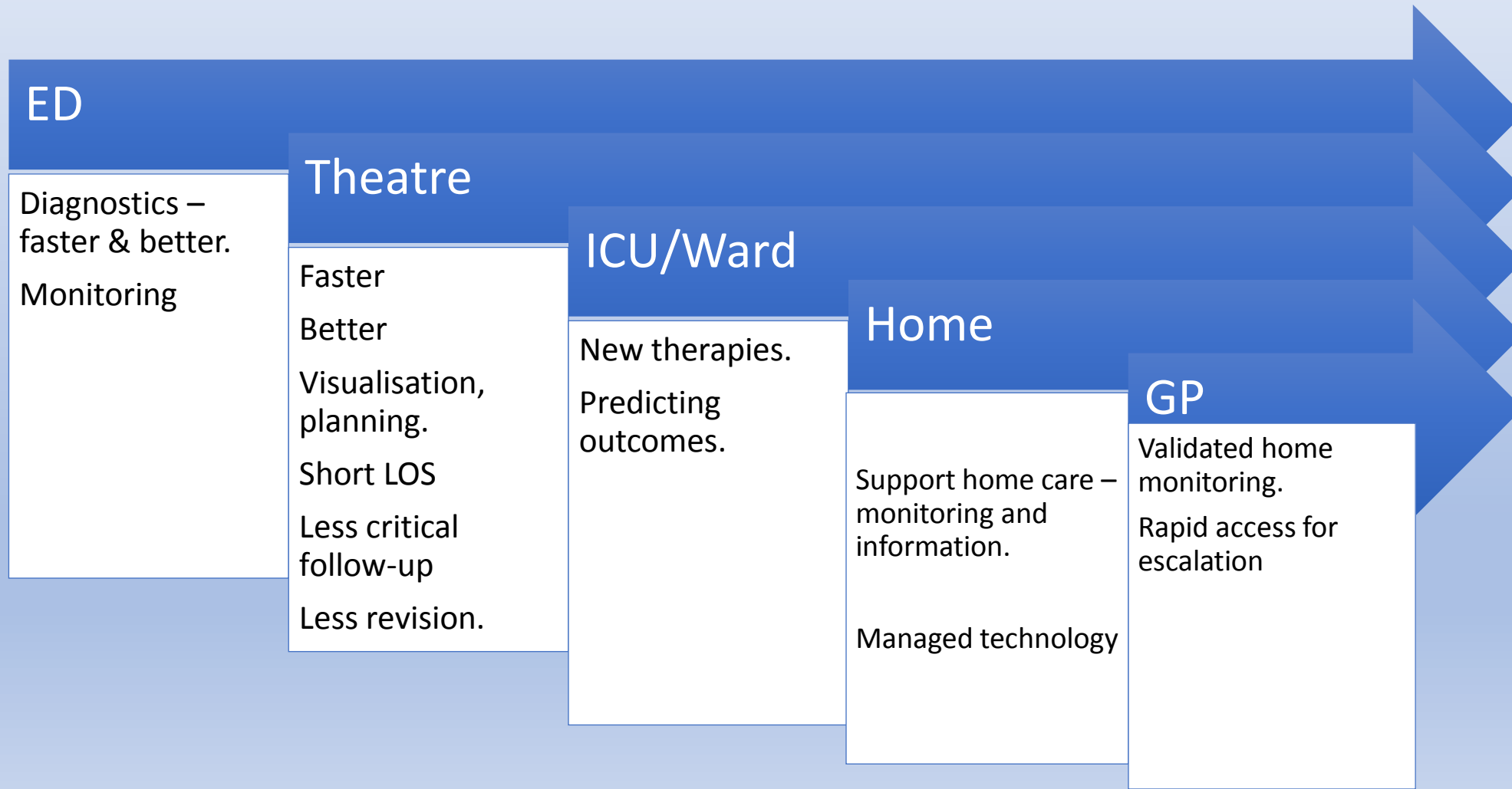
Critical Factors in Value-Based Decision-Making and Medical Technology

- Trolley count
- Waiting lists
- Money



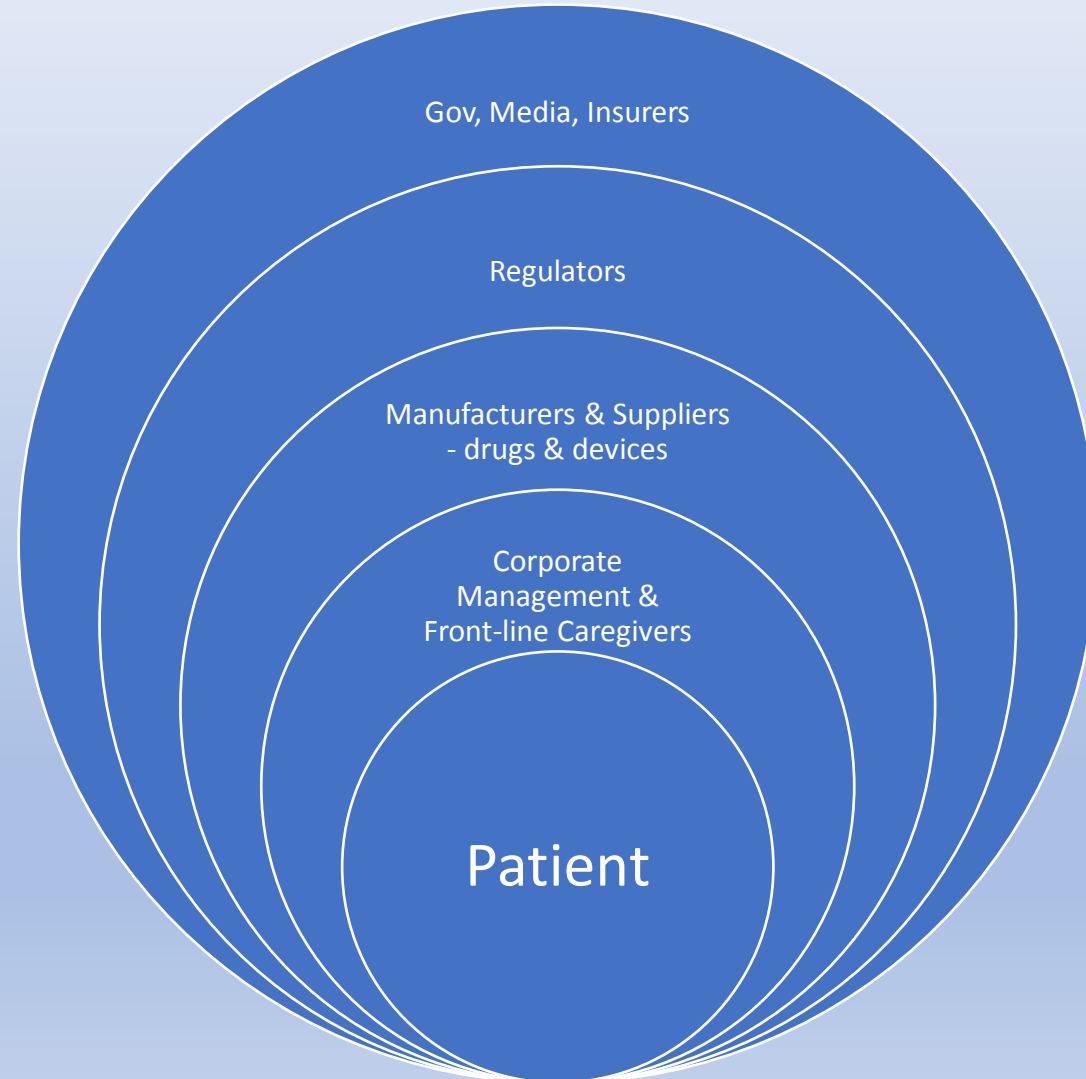
Quality and Safety for our staff and our patients

What can you do to eliminate waste?



**Knowing is not enough; we must
apply. Willing is not enough; we
must do.
GOETHE**

Who are our stake-holders?



Where Can Technology have an impact?

- Alternative care options
- Diagnostic results availability
- Completion of Care
- Continuing Care out of the acute hospital

Where should our focus be?



DALY: Disability adjusted life year – years lost
– disability, ill-health or early death

Incidence

Disability weighting

Av duration: case to remission/death

Number of Deaths due to the
Condition

Standard life expectancy at age of
death

Think about the patient journey – not just what your technology does.

- What's wrong with our patients?
- Understand the HPO, DRG, Activity Based Funding, capping - control rate of increase of costs - not about patient outcomes or productivity;
- HTAs: QALYs, DALYs;
- Collaborative cycle between hospital clinical, hospital technical, hospital corporate, innovation drivers;
- Home monitoring, Community-based care, wearables and non-medical devices supporting healthcare delivery..... Frugal medical devices;
- Cost of delays – safety, staff burnout, patient deterioration, reputation, patient trust;
- Could measure outcomes if we had an EPR – national or personal?
- Internet of Medical Things, EPR, Genomics, Wee Medical Devices (WMDs)?

Innovation

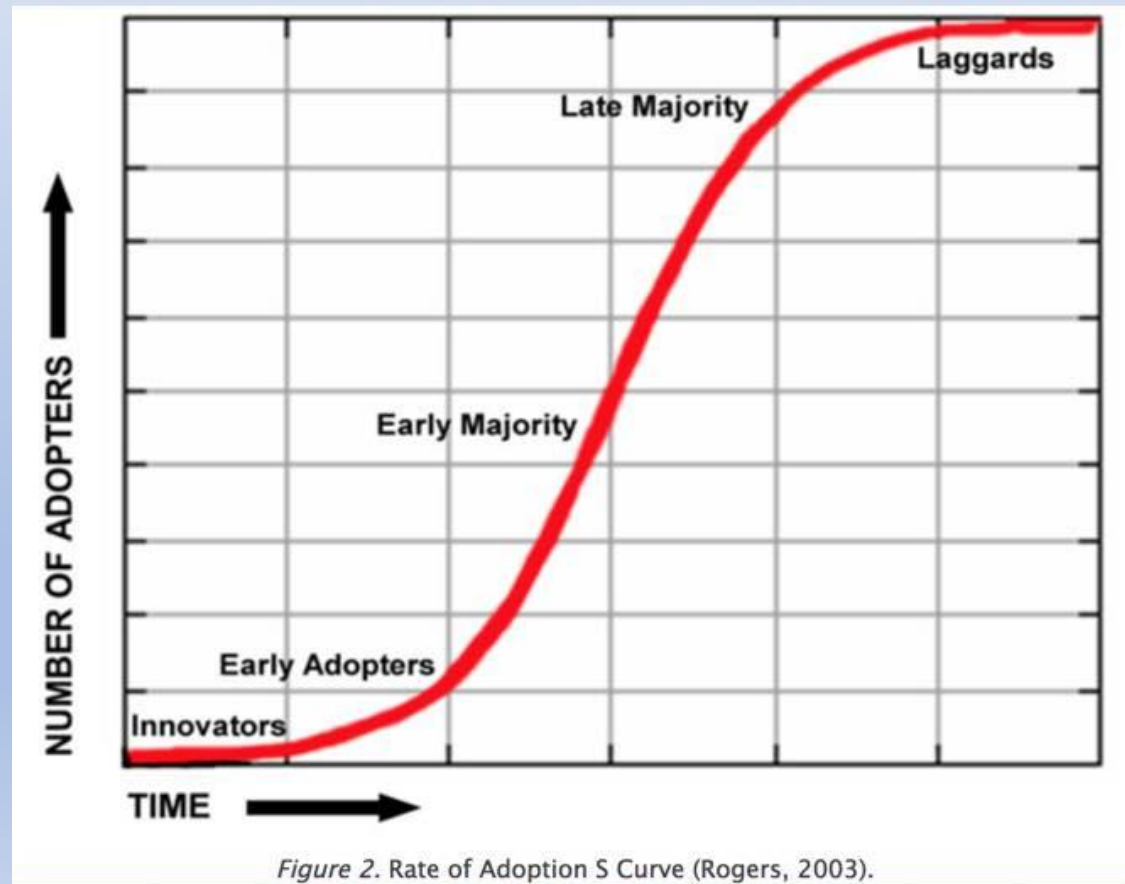
Innovation is a process cycle
of three major phases that feed into each
other:

discovery, development and delivery.

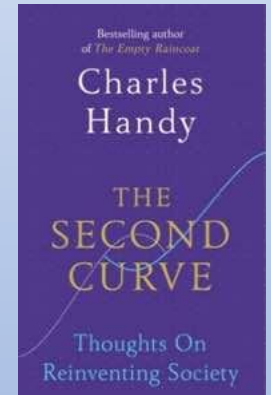
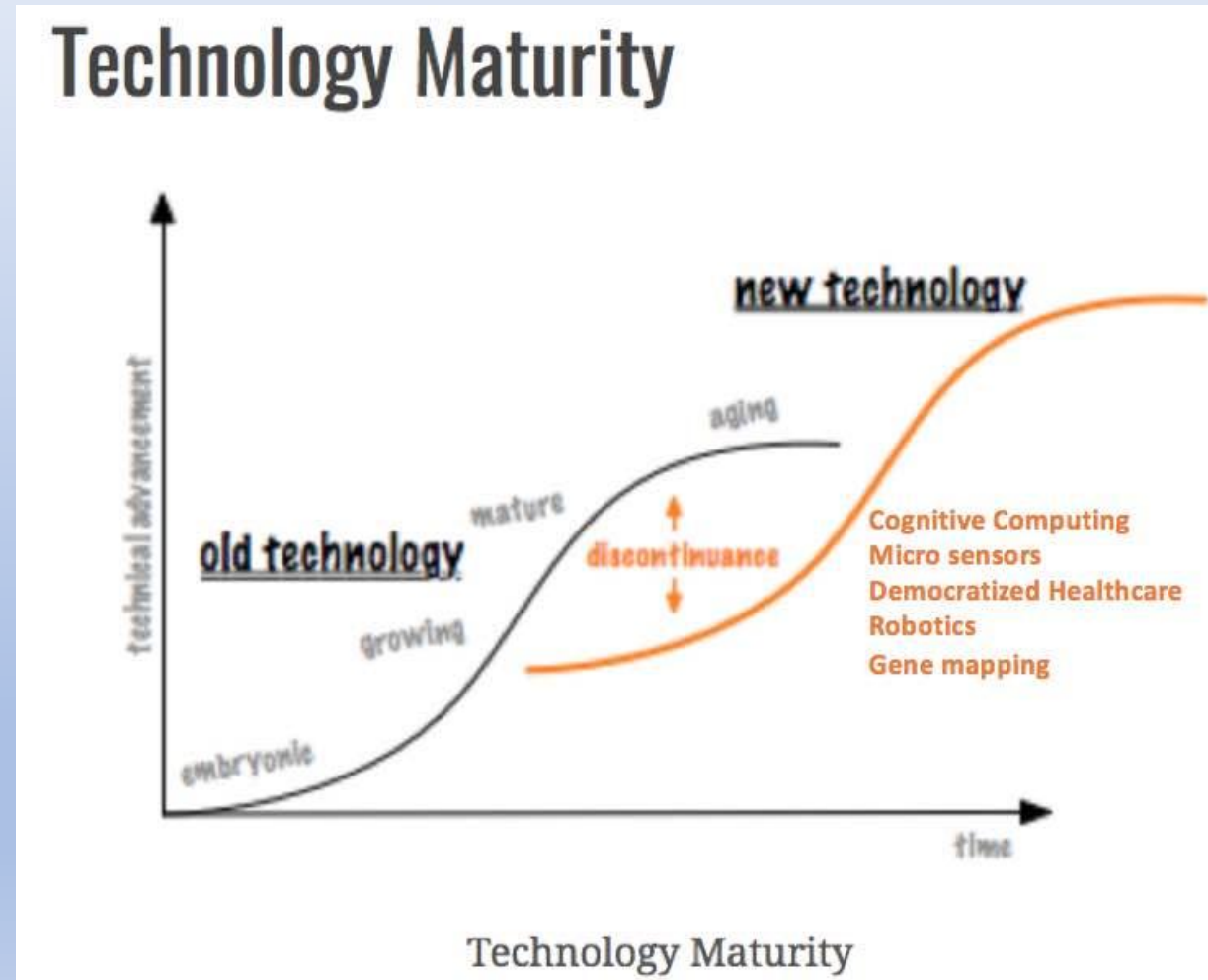
- If you are selling a solution**
- make sure the solution is for the right problem**
 - information (not just data).**

S-Curve – Disruption

- Examples: film camera, sail boat vs steam boat, letter, vinyl – cd – vinyl



Not just technology but how we deliver care...



<https://binnur.wordpress.com/2013/02/13/spot-technology-expectation-gaps/>

Our Patients – the horizon!

- Democratization of healthcare
- EPR - information
- Frugal medical technology, Wee Medical Devices (WMDs)
- Listening and seeing devices (plant and eg heart)
- (BYOD) Bring your own device – validation;
- 3D –printers;
- Surgical robots;
- Gene mapping;
- Closing the gap between clinical trials and reality;
- Changing value perception: not the numbers seen but the outcome.

Diagnostics – opportunity...

- Device availability – better, cheaper, faster, used optimally, minimal down-time – maximum safety;
- Device performance – benchmarking – dashboards – Internet of Medical Things – eg MRI, CT;
- Redundancy;
- Future planning;
- E-referrals, EPR: balance statistical info and patient specific info - prediction;
- Support data collection;
- Lab project in Beaumont.

Innovation

- Lean innovation;
- Around-the-patient innovation;
- Value-based innovation;
- Examples
 - Tractography
 - Lab project
 - Gene mapping
 - Inhaler project
 - Consumer devices in the clinical setting?

The Patient Journey - > The Opportunity

- Holistic view-point – less about the institution, more about the patient:
 - Science of discovery and clinical excellence;
 - Art of customer service/patient interaction;
 - Business of Execution - Not just about getting things done – understanding the things that are necessary to get things done.

The Value Proposition

Technology	Funder	Patient - Customer
Product - > Service	Quality, affordable flow	Access, accuracy, knowledge
Is it important or not so important		Lots of patients or just a few
Is it an extreme or moderate solution	DALYs	QALYs
Is it essential or nice to have	What's the gain?	

Our responsibilities

1. Do the right thing for the patient;
2. Do the right thing for the carers;
3. Do not confuse 1 & 2.
4. Do our jobs;
5. Do our jobs better;
6. Be conscious of our legacy.

Excellence is what we strive for, consistency is what we demand.
SPINOZA

**Insanity: doing the same thing
over and over again and expecting
different results.**

EINSTEIN or Rita Mae Brown,

It is time to disrupt the status quo...

*Read Eric Topol's, "The Patient Will See You Now"
And Elton & O'Riordan "Healthcare Disrupted"*