Real time monitoring and enhancing the patient practitioner relationship

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Safe Harbor Statement

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Explosive Data Growth

Harnessing insight from Big Data provides an opportunity to improve operational efficiency and effectiveness

Requires capability to rapidly:

- **Collect**
- **Understand**
- **Respond/Act**

**GIGABYTES OF DATA CREATED (IN BILLIONS)**

1.8 trillion gigabytes of data was created in 2011...

- More than 90% is unstructured data
- Approx. 500 quadrillion files
- Quantity doubles every 2 years

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Healthcare Data will be Big
Data explosion in coming decade will answer the hard questions

What is the correlation between the length of acute respiratory infection and the administered doses of different antibiotics?

Do our cardiac care reimbursements reflect our improved quality measures?

How do specific Hospital system members perform compared to their peers?

How is our nurse overtime policy affecting our ICU quality measures? Patient satisfaction?

What is the cost of treating those infections relative to the specific antibiotics prescribed?

Relative volume of Healthcare-relevant data for a given person

WHY Big Data?
INSIGHTS
Mine disparate data sources for actionable insights
- Costs
- Drug efficacy
- Compliance Rates
- Risk
- Utilization Rates
- Comparative Effectiveness
- Caregiver Performance
- Care Outcomes
- Patients
- Behaviour
- Populations
- Social Trends
Outcomes Matter

“The biggest influence of health reform is that there is no new money for health care delivery. There is money only for improved outcomes. You can explain it in four words: no outcome, no income. It’s that simple”

- David B Nash, Founding Dean of Thomas Jefferson School of Population Health
Where Do You See the HSCIC and the NHS Today?

- **Descriptive Analytics**
- **Diagnostic Analytics**
- **Predictive Analytics**
- **Prescriptive Analytics**

What happened?

Why did it happen?

What will happen?

How can we make it happen?

Information → Optimisation → Value → Difficulty
The Power of Habit:

It’s not enough just to put the patient at the centre

• “When a habit emerges, the brain stops fully participating in the decision making.... So unless you deliberately fight a habit- unless you find a new routines- the pattern will unfold automatically”

• “Change might not be fast and it isn't always easy. But with time and effort, almost any habit can be reshaped.”

• “Rather, to change a habit, you must keep the old cue, and deliver the old reward, but insert a new routine.”

• “It is facile to imply that smoking, alcoholism, overeating, or other ingrained patters can be upended without real effort. Genuine change requires work and self-understanding of the cravings driving behaviours.”
Patient Engagement - Lead by Example
Improve health outcomes for citizens with asthma

Today – Descriptive Analytics

- Hospital admissions for allergies up nearly eight per cent in a year (http://www.hscic.gov.uk/article/4764/Hospital-admissions-for-allergies-up-nearly-eight-per-cent-in-a-year)

- There were over 79,800 emergency hospital admissions for asthma in the UK in 2008-2009. Of these, 30,740 were children aged 14 years or under. (Asthma UK)

- There were 1,131 deaths from asthma in the UK in 2009 (12 were children aged 14 years or under). Asthma UK

- An estimated 75% of admissions for asthma are avoidable and as many as 90% of the deaths from asthma are thought to be preventable. (Asthma UK)

Asthma UK via www.patient.co.uk/doctor/acute-severe-asthma-and-status-asthmaticus#ref-7

Tomorrow – Prescriptive Analytics

1. Integrated Big Data:
   - A citizens healthcare data
   - Daily Pollen count data
   - Daily Pollution data

2. Change the Behaviour:
   - Notify patients and family members to take their inhalers, allergy medicine, etc on high risk days

3. Report & Review
   - Produce current statistics
   - Measure impact of change of behavior