Developing Effective Health Intelligence to Improve Quality

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Aims

- **To understand** the context and fundamentals of health data & intelligence

- **To explain** the unique assets of Scotland‘s data intelligence

- **To discuss** the importance of data intelligence in your professional roles

Better data, better lives, better healthcare system

Context

Healthcare Challenges

NHS National Services Scotland

Chronic Diseases

+

Elderly Population

+

New Technologies/drugs

+

Waste & Variation

NHS Quality / Outcomes

NHS National Services Scotland

Suffering no harm

Safety

Effectiveness

Receiving evidence-based treatment

Positive patient/carer experience

Experience

Fundamentals:

Health Data & Intelligence

Health Intelligence

- integrated approach of utilising data, people and tools (**inputs**) for converting health data into actionable information, evidence and knowledge (**outputs**)
- **Communicating** outputs to all those who need them
- **Monitoring** the impact of outputs on health services

Datasets

Primary: routinely collected health data

- GPs & Hospitals, Disease Registries, National & Local Audits Outputs, Mortality/morbidity

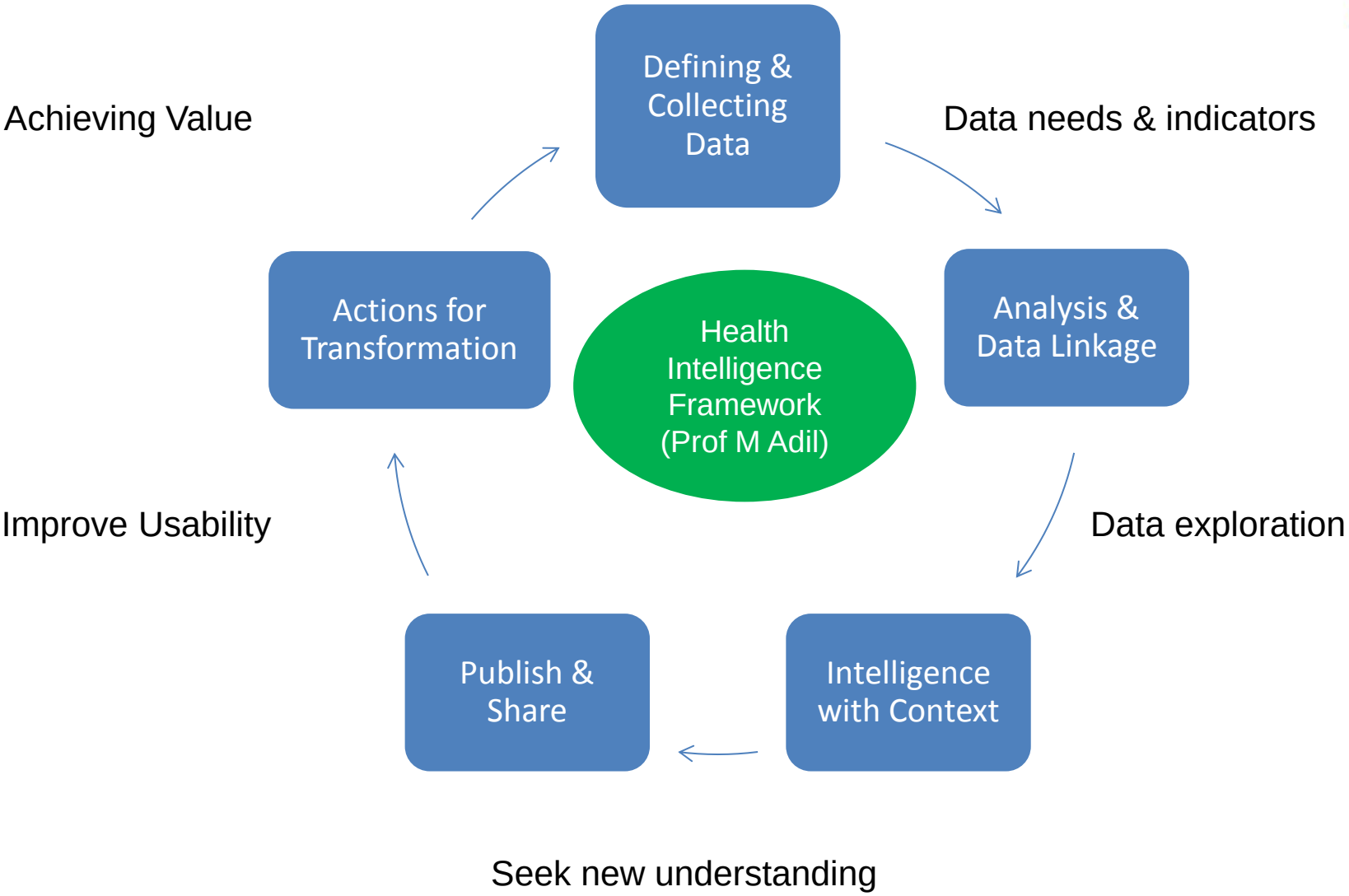
Secondary: adhoc and other health related data/information collected by other government departments

- Population projections & Census, National surveys, Transport

Tertiary:

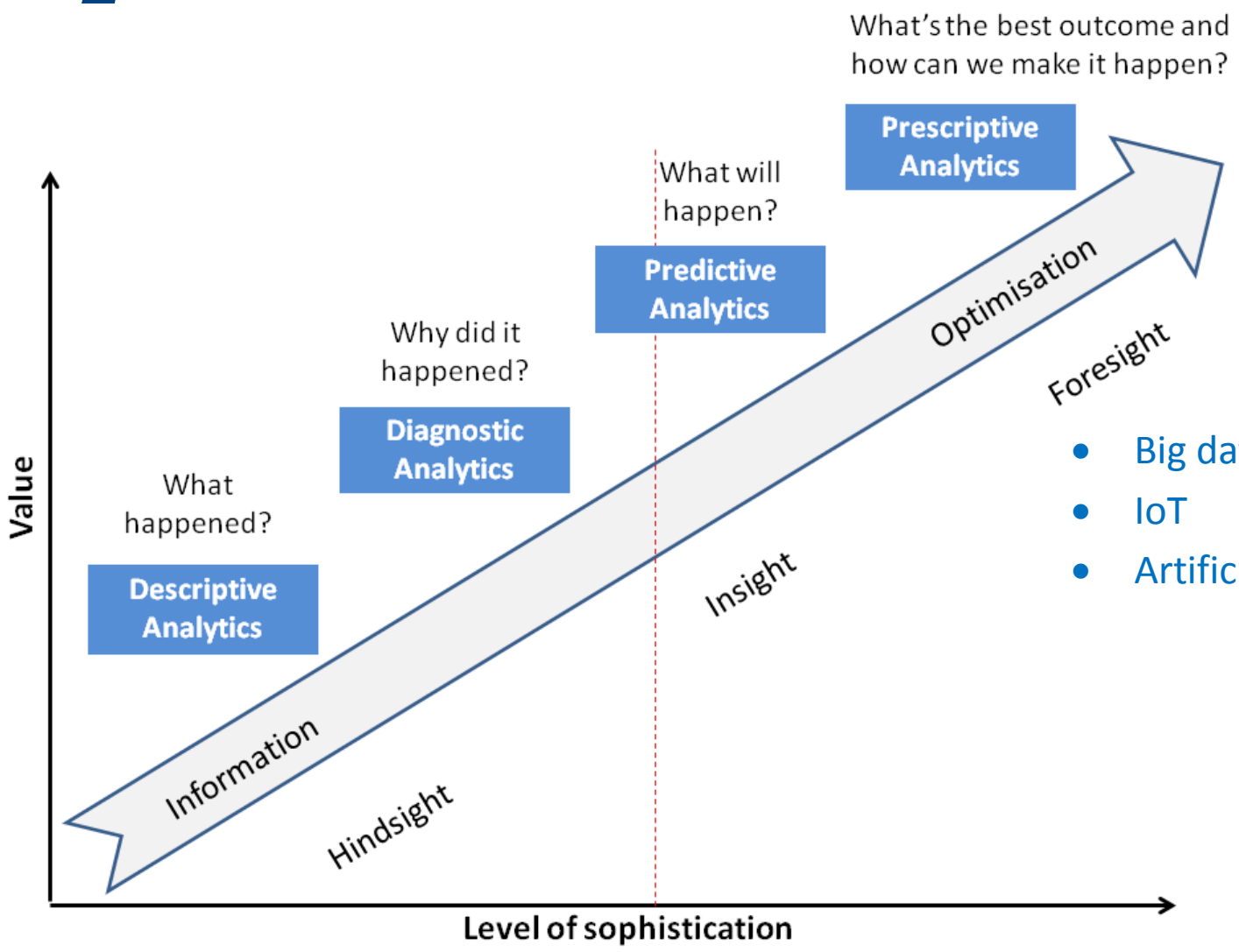
- WHO/World Bank (international disease rates)
- Research papers and unstructured data

Data to Health Intelligence



Achieving Value

1. Quality Improvement
2. Performance Management
3. Benchmarking (local, national, international)
4. Policy and planning
5. Innovation & Research



- Big data
- IoT
- Artificial Intelligence

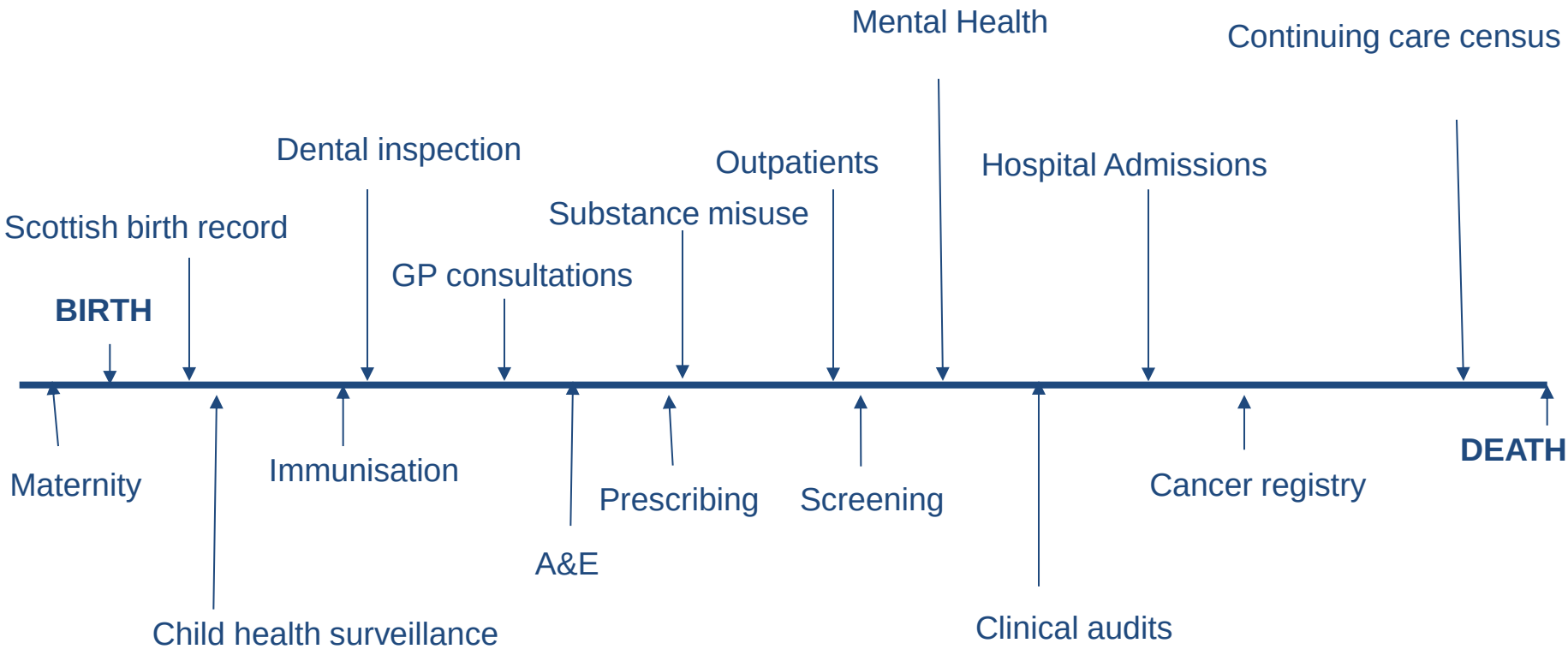
NHS National Services Scotland

Scotland's Health Data Assets

- **£13.0 B**
- **Population 5.3 M**
- **14 Territorial Boards (no purchaser-provider split)**
- **31 Health & Social Care Partnerships**
- **38 Hospitals, 1020 General Practices**

Data from cradle to grave

NHS National Services Scotland



Scotland has some of the best health service data in the world

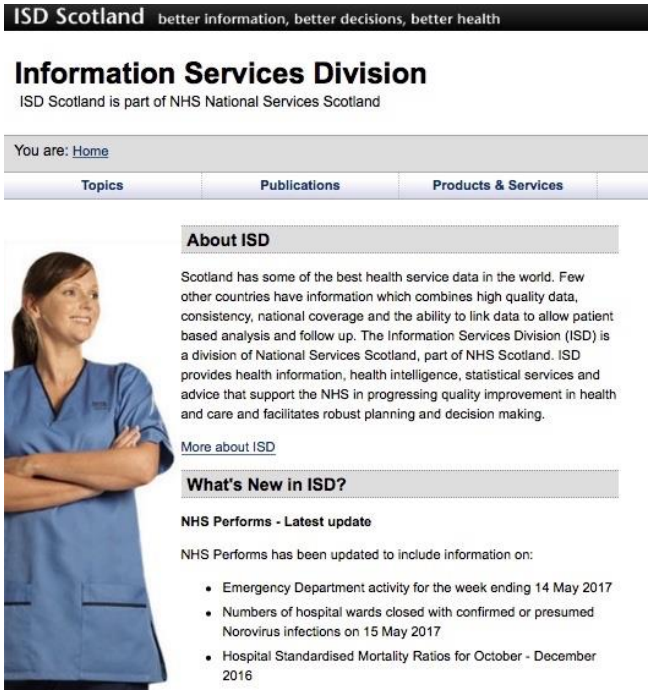
The data landscape

Every week in Scotland data are collected on around :

1,000 Births
15,000 Out of Hours attendances
20,000 Screened for cancer
30,000 Hospital discharges
30,000 A&E attendances
40,000 NHS eye exams & tests
90,000 NHS dental treatments
200,000 Outpatient clinic attendances
500,000 GP practice consultations
2,000,000 Drugs dispensed

ISD Scotland

http://www.isdscotland.org/



- Producer of Scotland's official health statistics
- Responsible for over 200 national datasets
- 600 staff with over 50 clinicians

We create value by transforming data into actionable intelligence

Health Intelligence
Our Strength in Scotland

NHS National Services Scotland

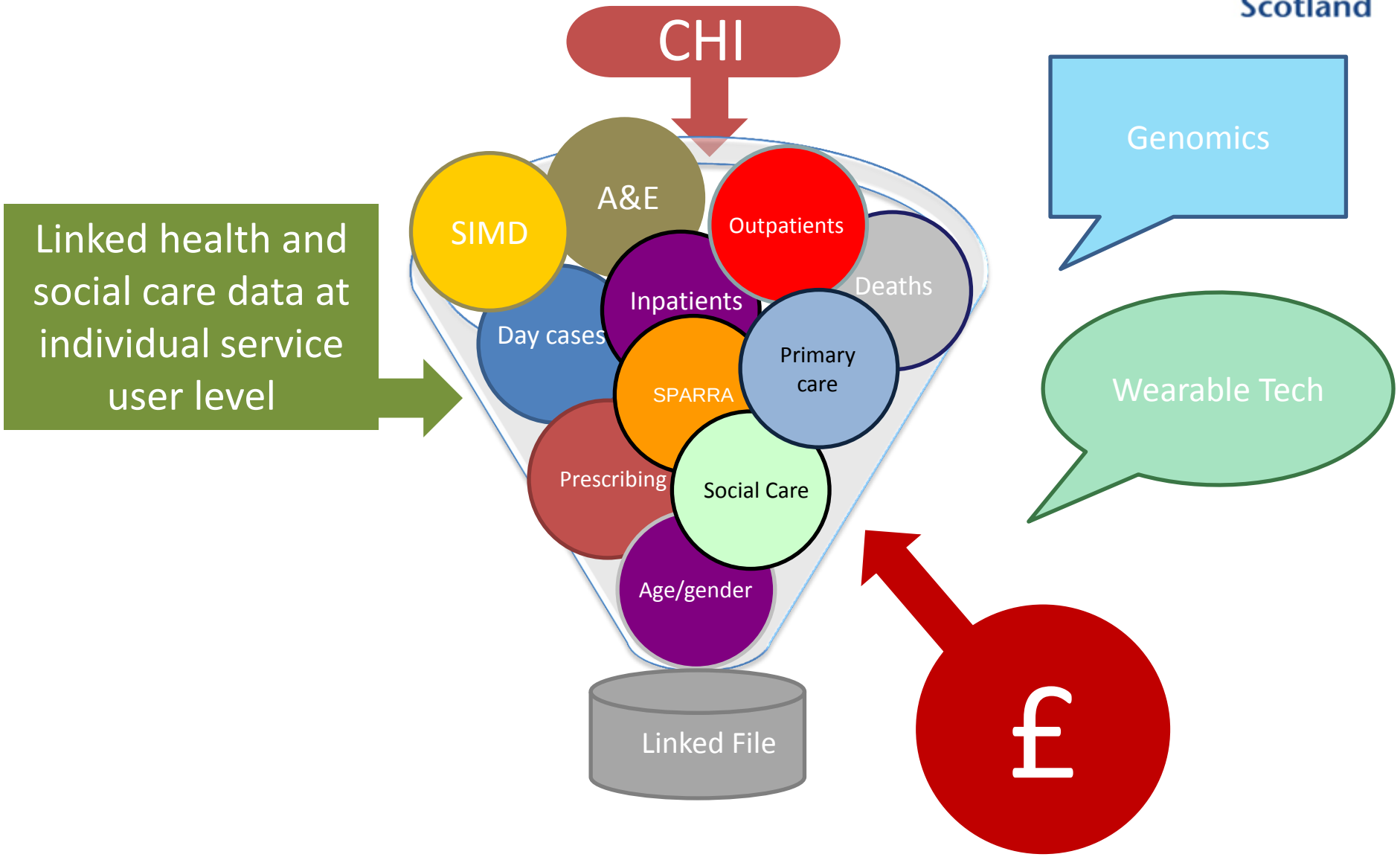
Community Health Index (CHI) Number

07 10 64 02 5 0

Date of Birth **Sex** **Check**

Integrated Data

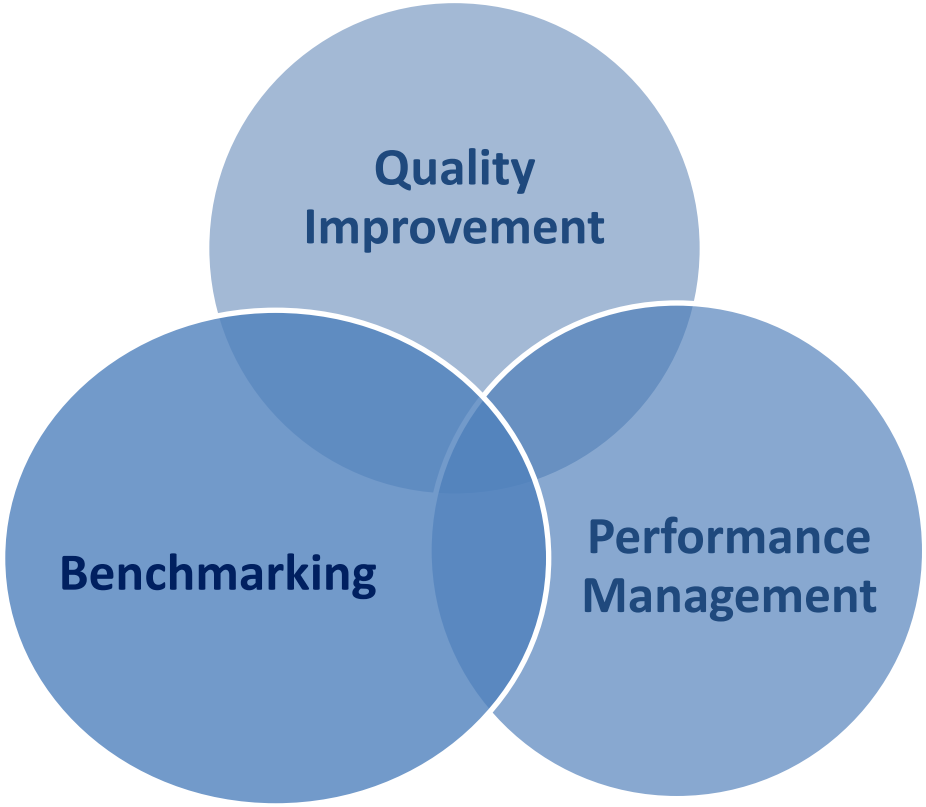
NHS National Services Scotland



Examples of Applied Intelligence

Improving practice, innovation & clinical quality

NSS Discovery

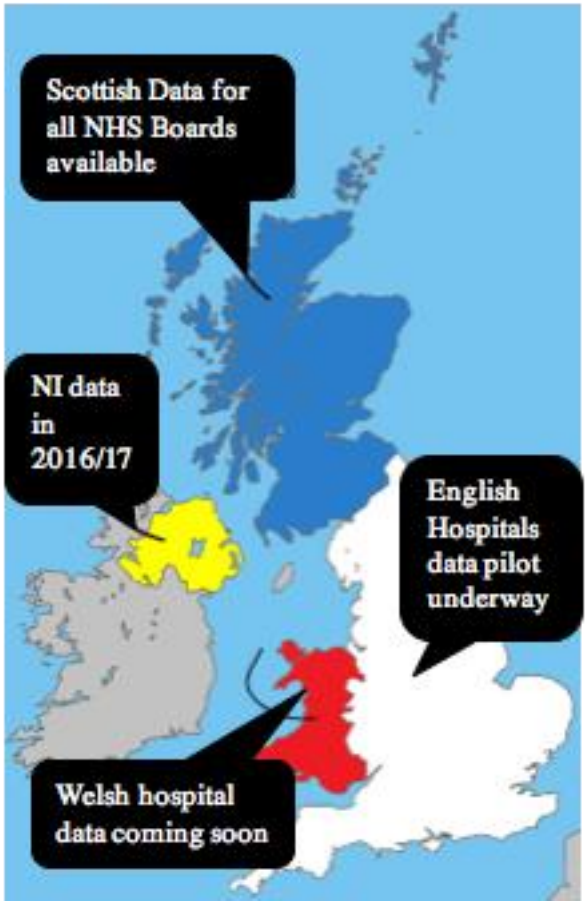


www.discoverydev.scot.nhs.uk/

NSS Discovery - What is it?

NHS National Services Scotland

Scottish and Home Countries Data



41 Indicators under 2020 Vision Quality Dimension

Three Data and Security Levels

Level 1
(Non Confidential – Strategic Overview)

Level 2
(Potentially Disclosive - Analytics)

Level 3
(Confidential – patient identifiable)

Clinical Outcome Indicators (Example)

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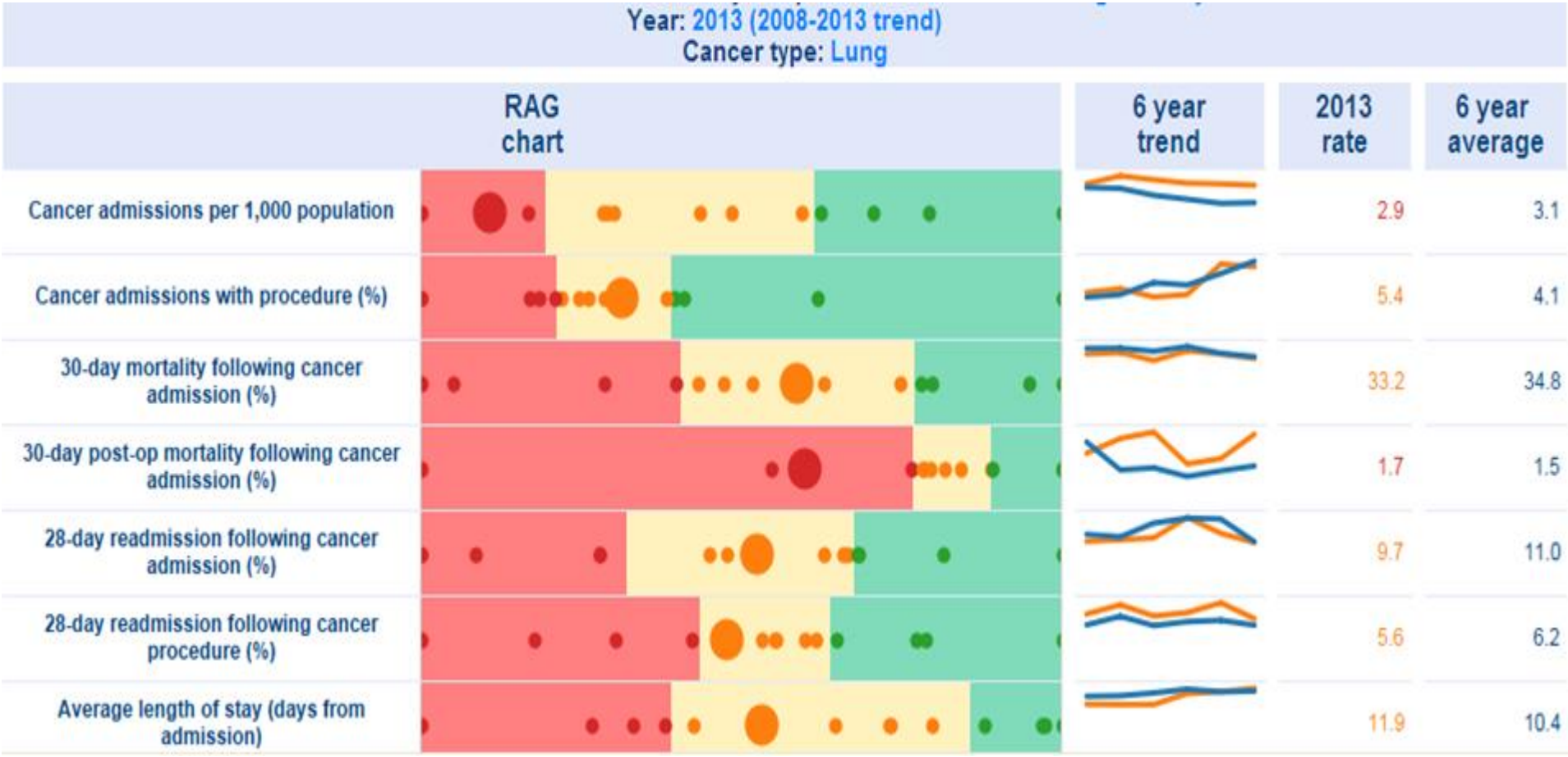
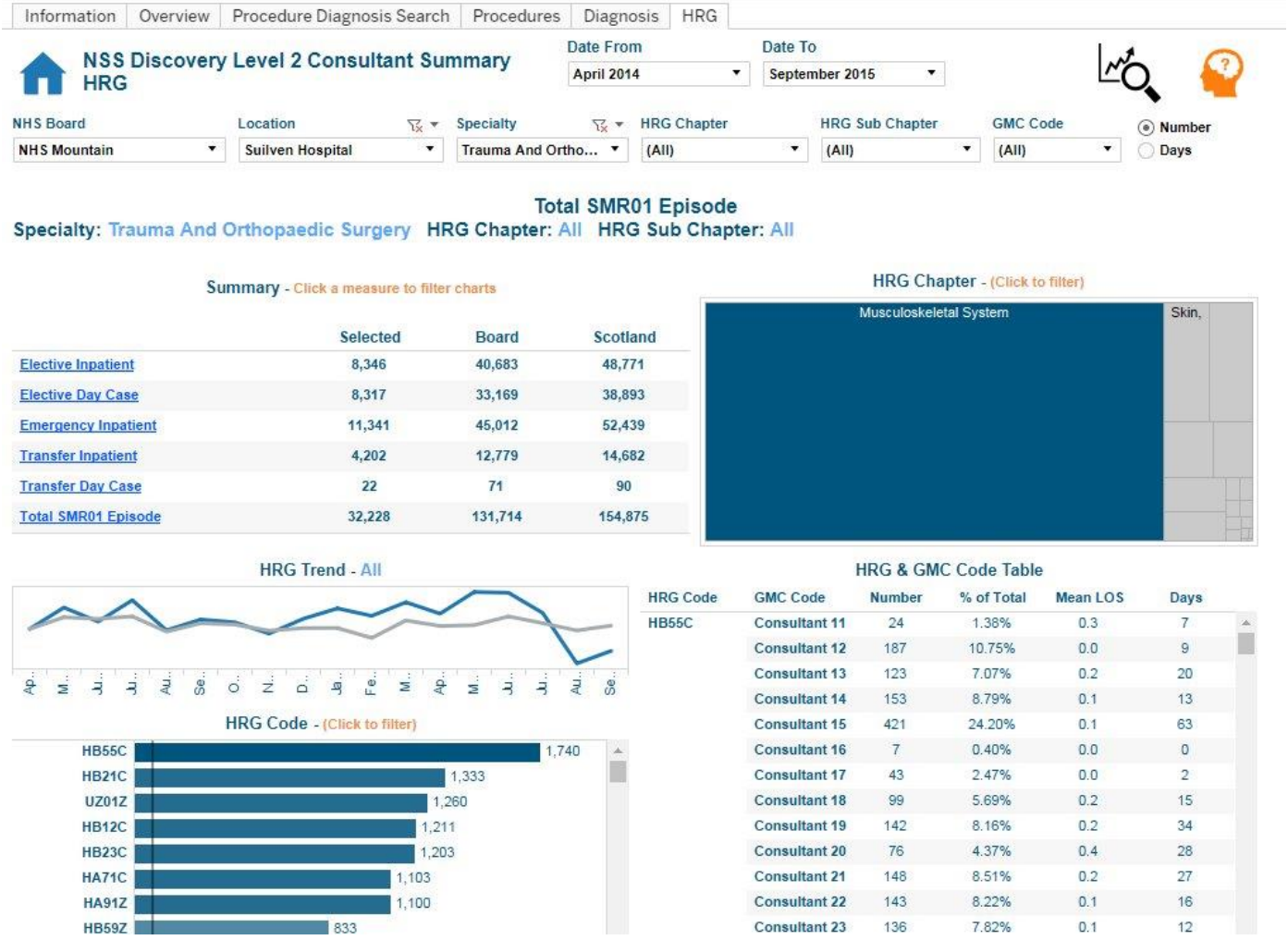
Lung Cancer – 2013
(Health Board of Residence View)

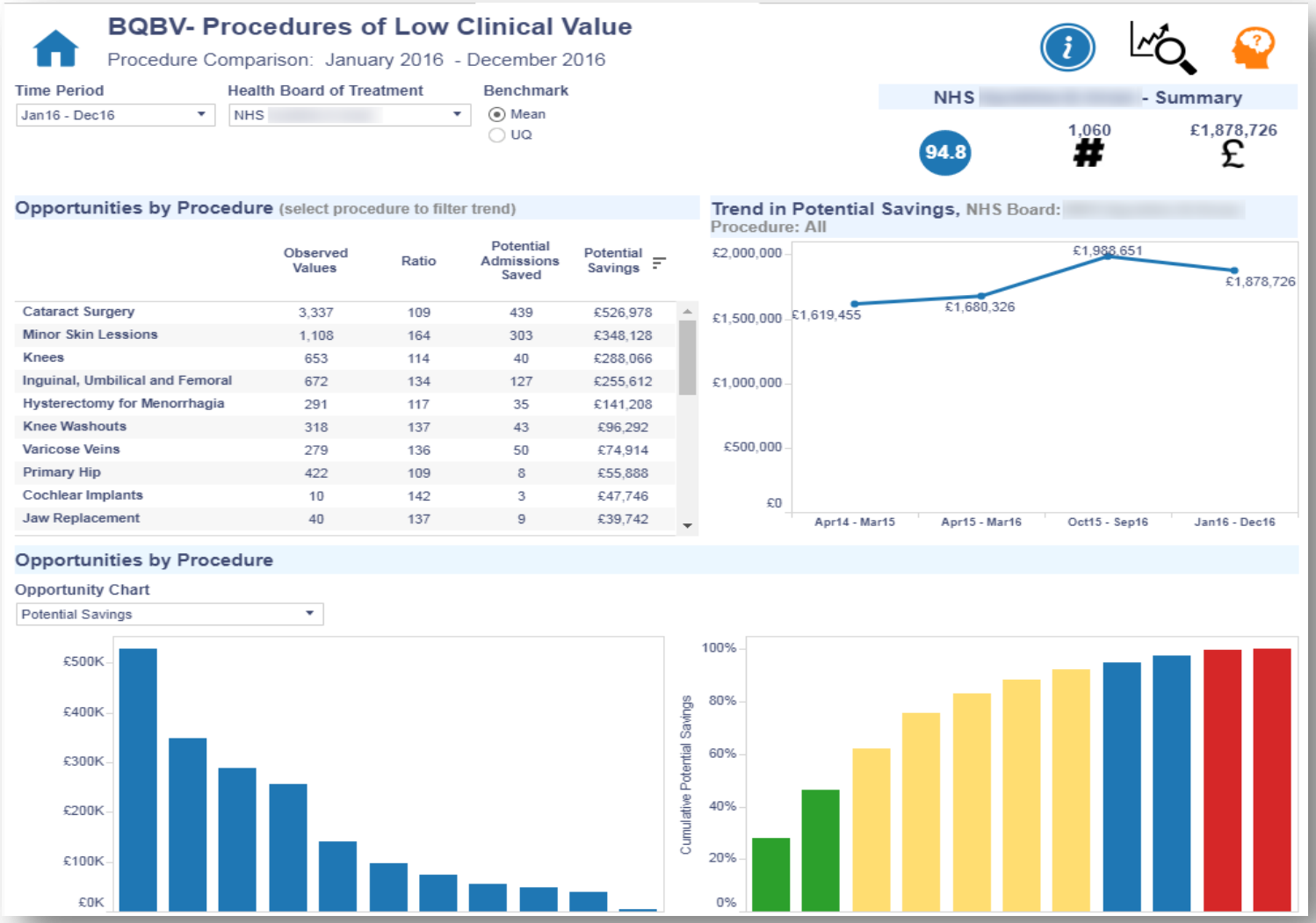
Year: 2013 (2008-2013 trend)
Cancer type: Lung



Consultant-Level Data
Trauma & Orthopaedic Surgery



Procedures of Low Clinical Value



5 biggest Harms (NHS Safety Thermometer)

NHS National Services Scotland

- In-patient falls
- Hospital acquired infection
- Medication errors
- Bed ulcers
- VTE

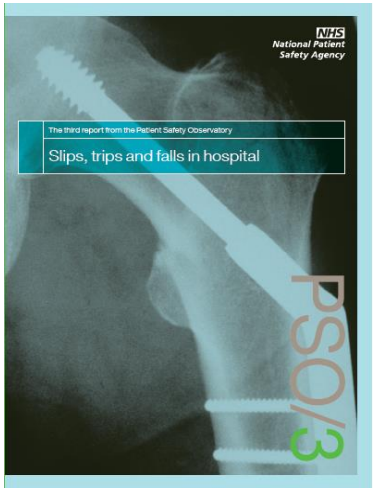
Nationally:

England & Wales

284,438 falls

1390 fractures
(840 #NOF)

83 deaths



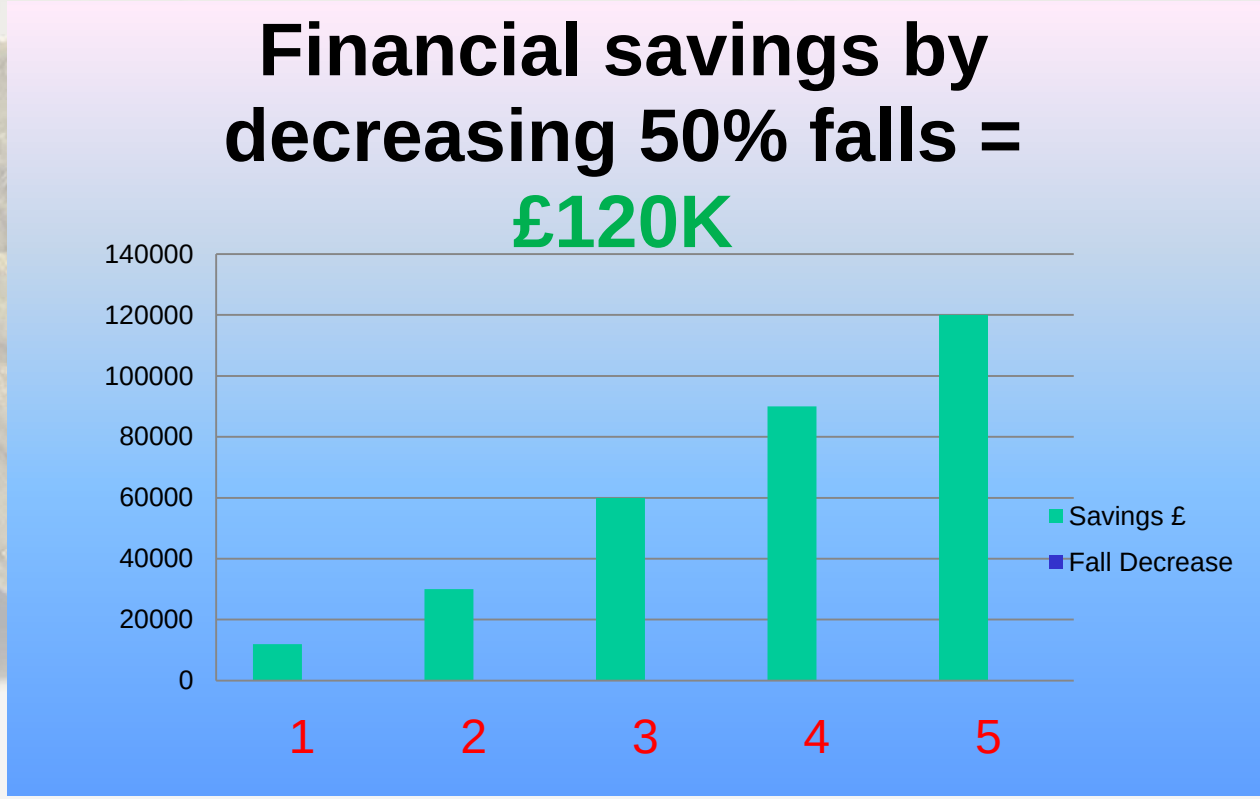
NHS In-Patient Fall Rate

Average = 6 /1000 bed days

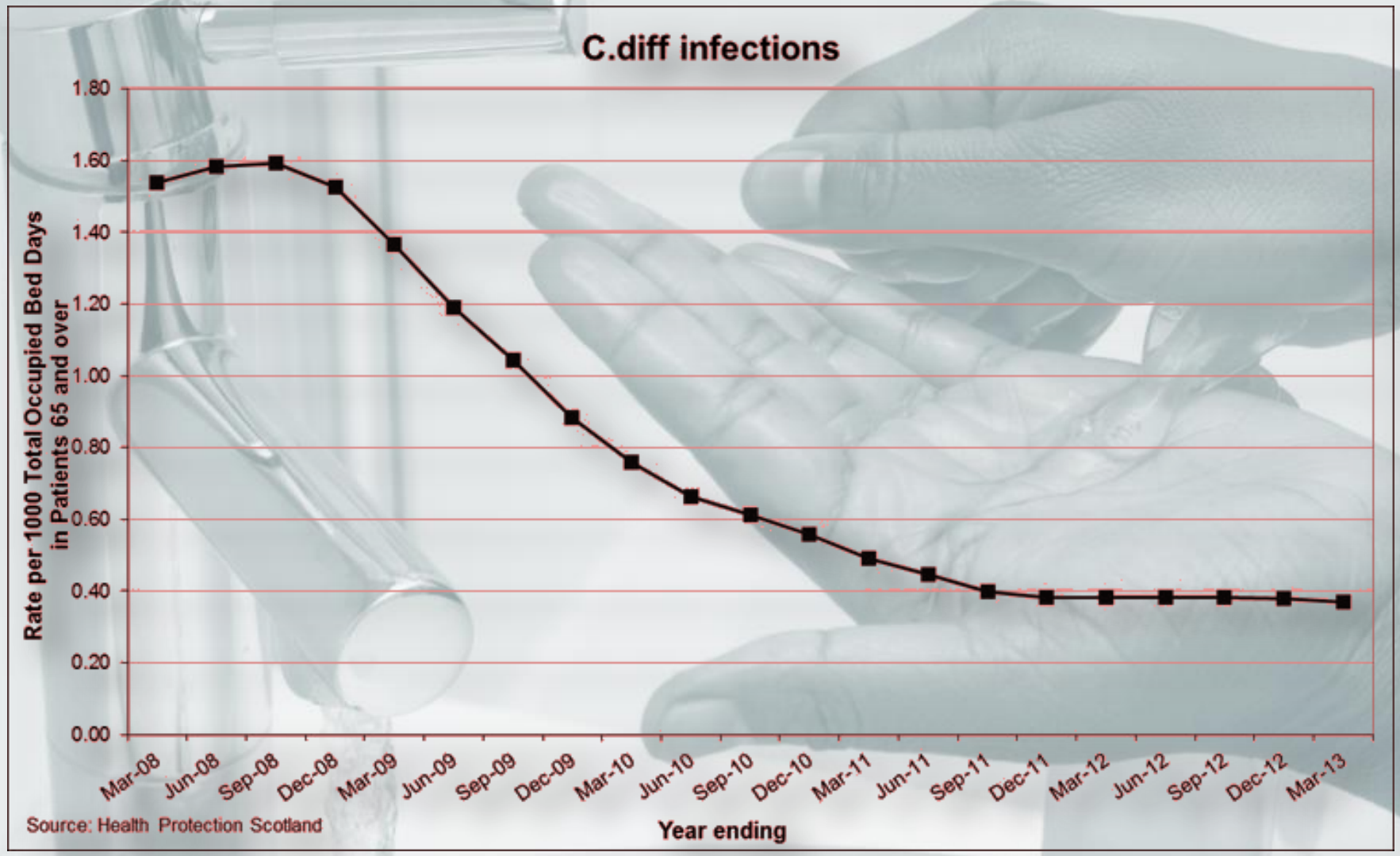
Range = 3 -12 /1000 bed days

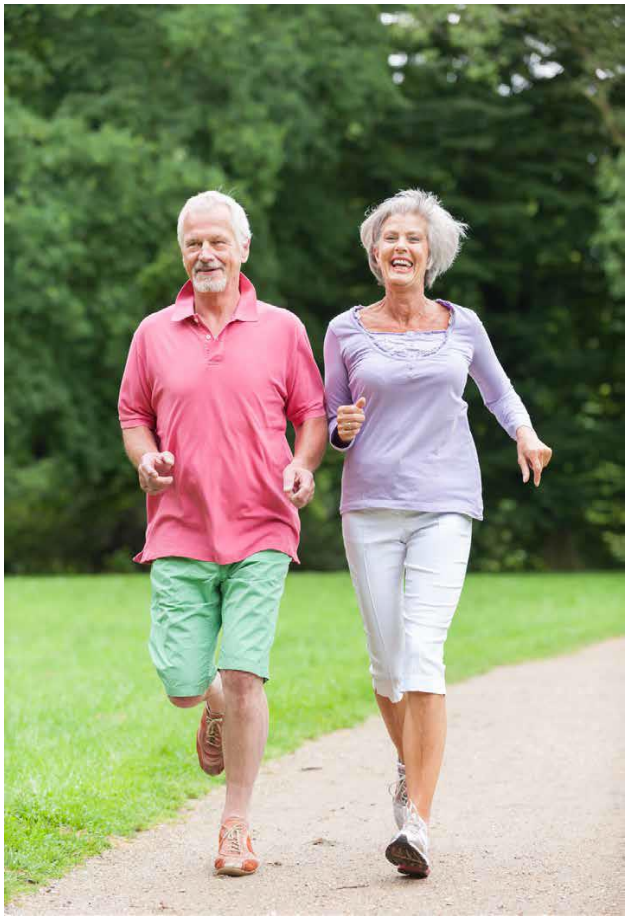
Business Case for Quality

Cost of Falls?	Cost of interventions?
£200,000/year	£15K + £5/year



Rate of identifications of CDI across NHSScotland was 0.37 per 1,000 occupied bed days among patients aged 65 & over (2008 – 2013)

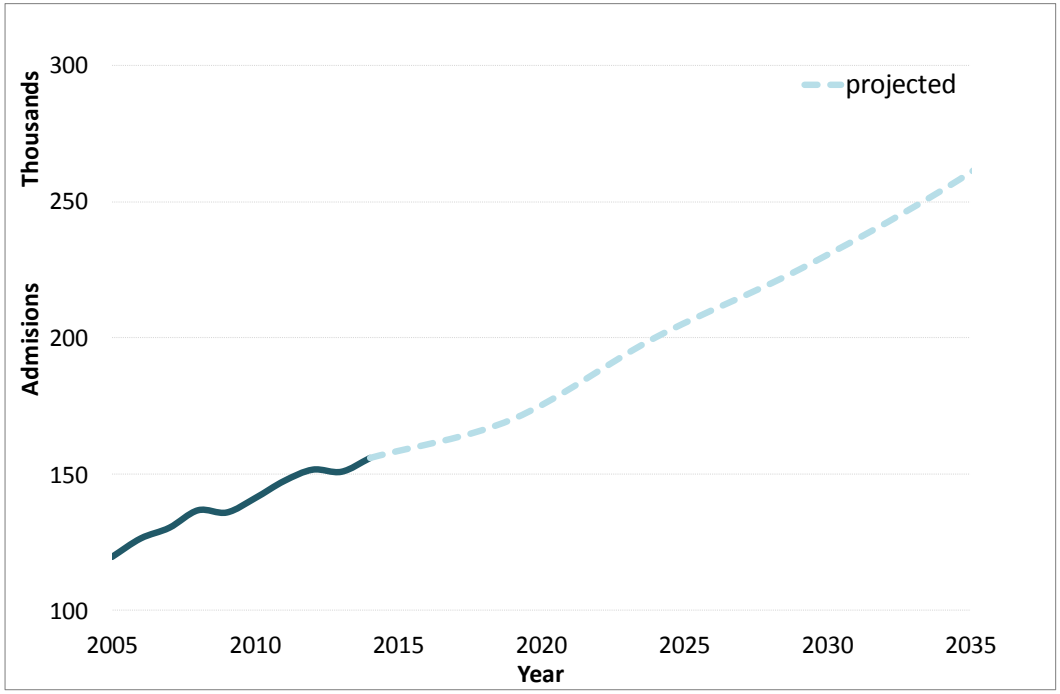


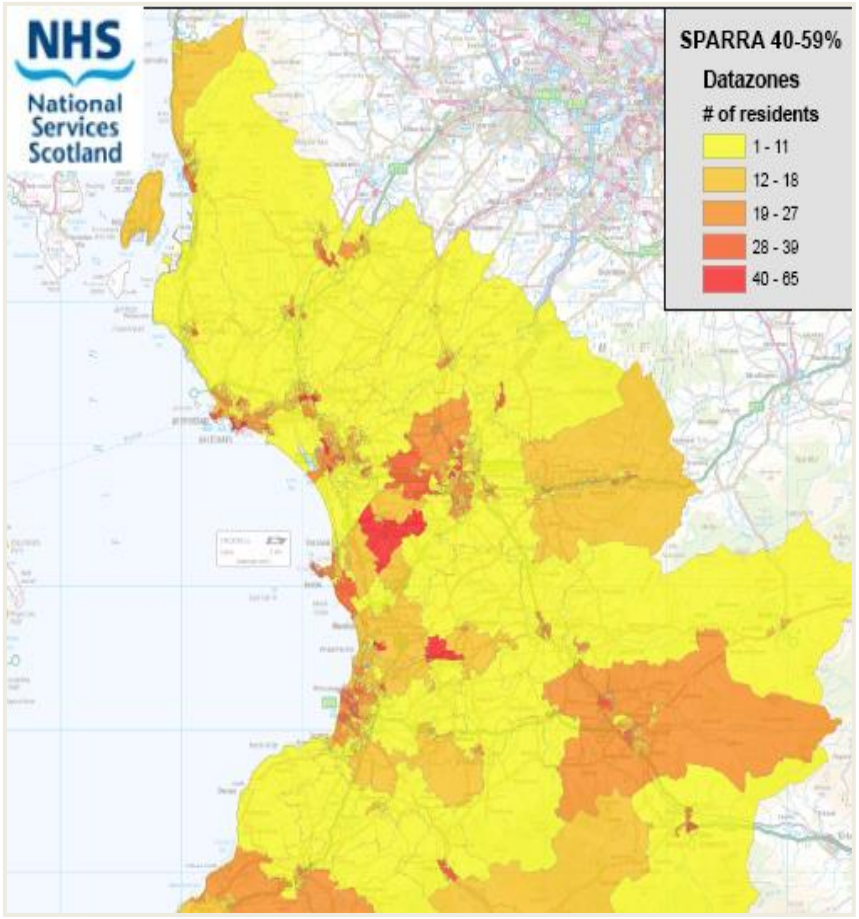


SPARRA

NHS National Services Scotland

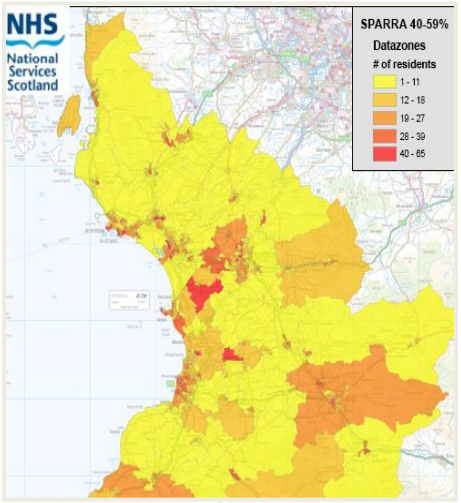
Scottish Patients at Risk of Readmission & Admission

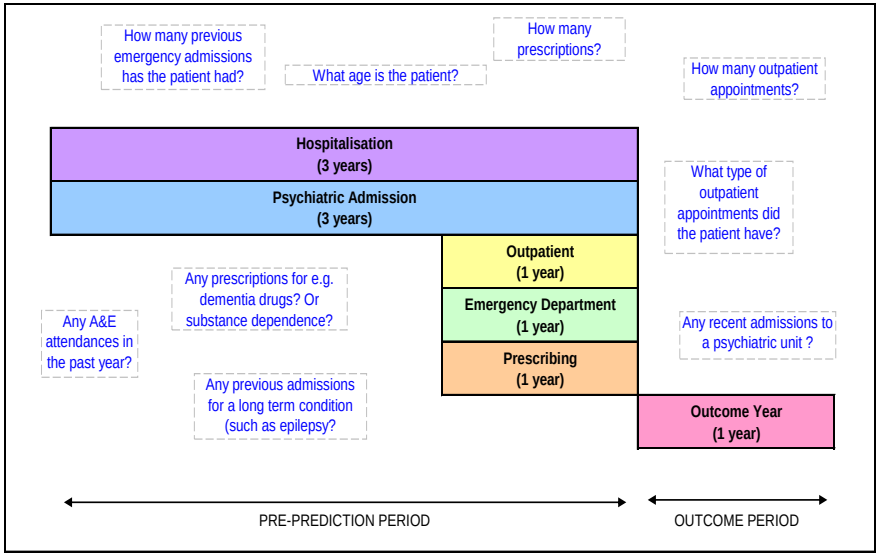


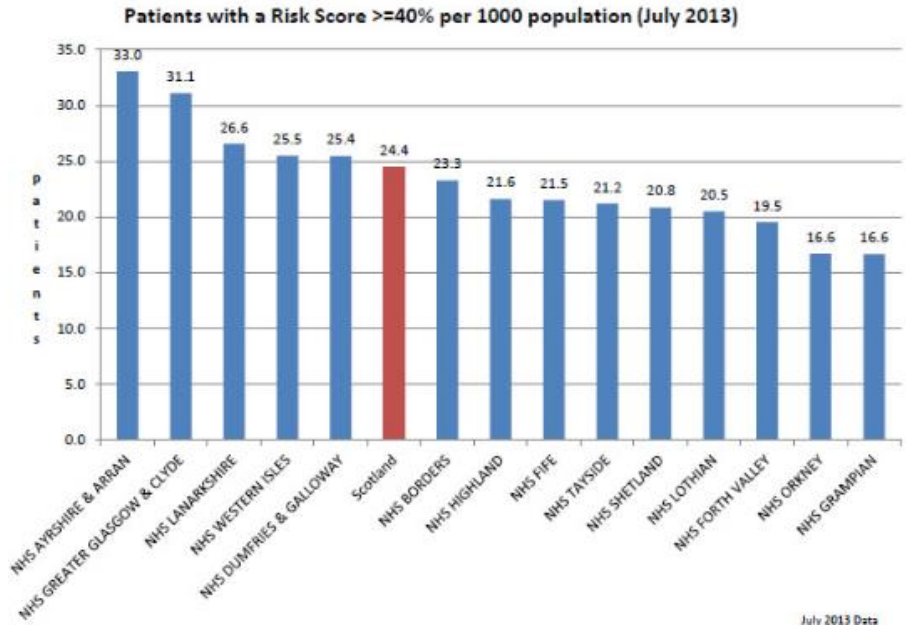


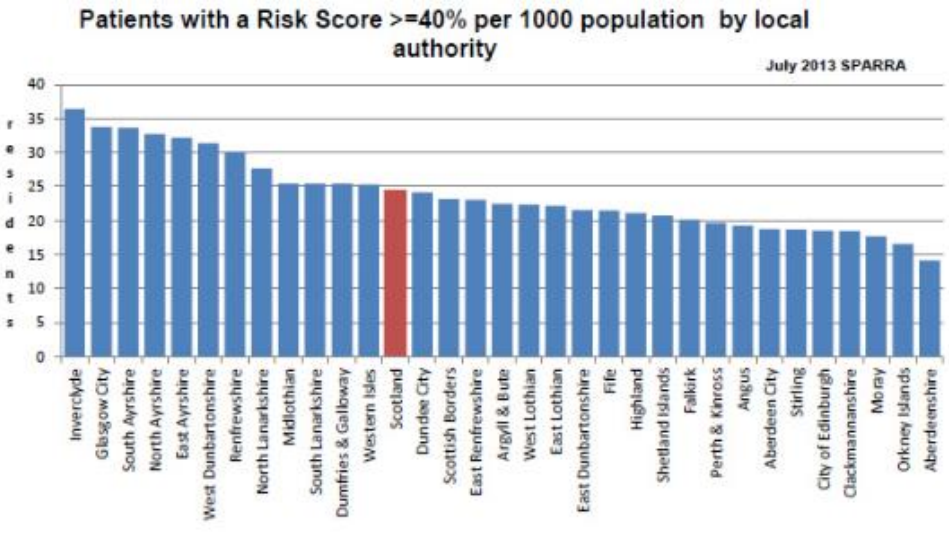
- **How many patients are at risk of having at least 1 emergency admission in the coming year?**
- **Who are they and what are their characteristics (age, LTCs, etc)?**
- **Where are they located - what GP are they registered with?**

Scottish Patients At Risk of Readmission and Admission (SPARRA)



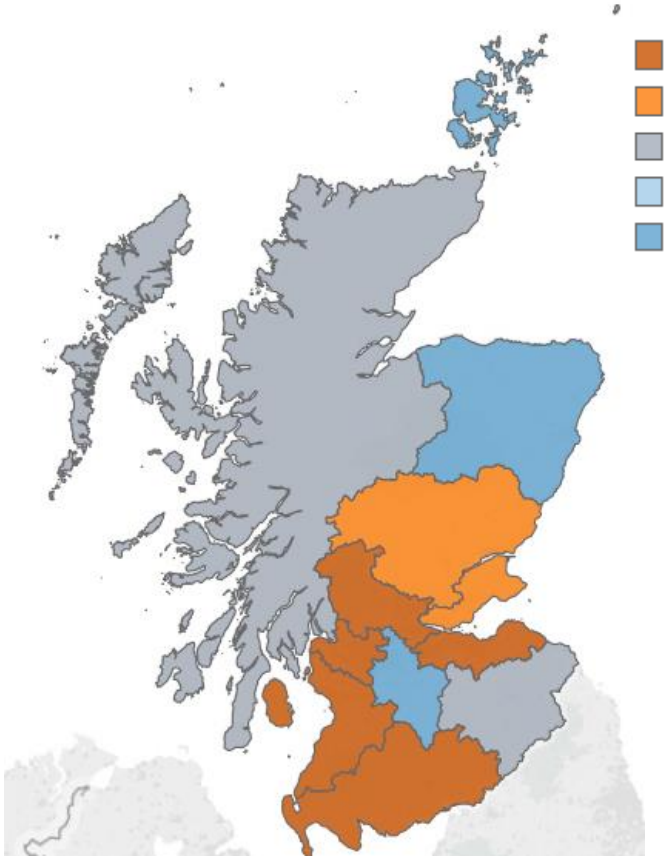




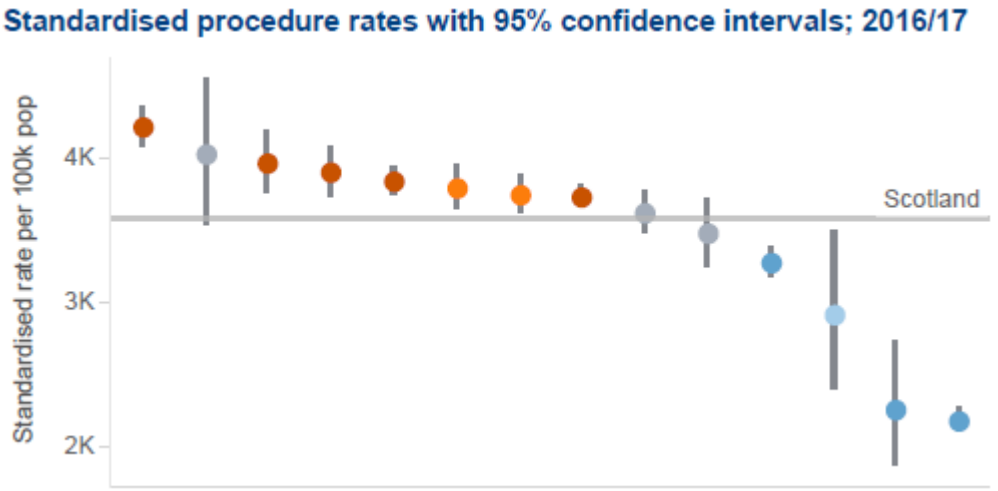


Scottish Atlas of Variation (Example)
Cataract (2016/17)

NHS National Services Scotland



- Significantly higher than Scotland at 99.8% level
- Significantly higher than Scotland at 95% level
- Not significantly different from Scotland
- Significantly lower than Scotland at 95% level
- Significantly lower than Scotland at 99.8% level

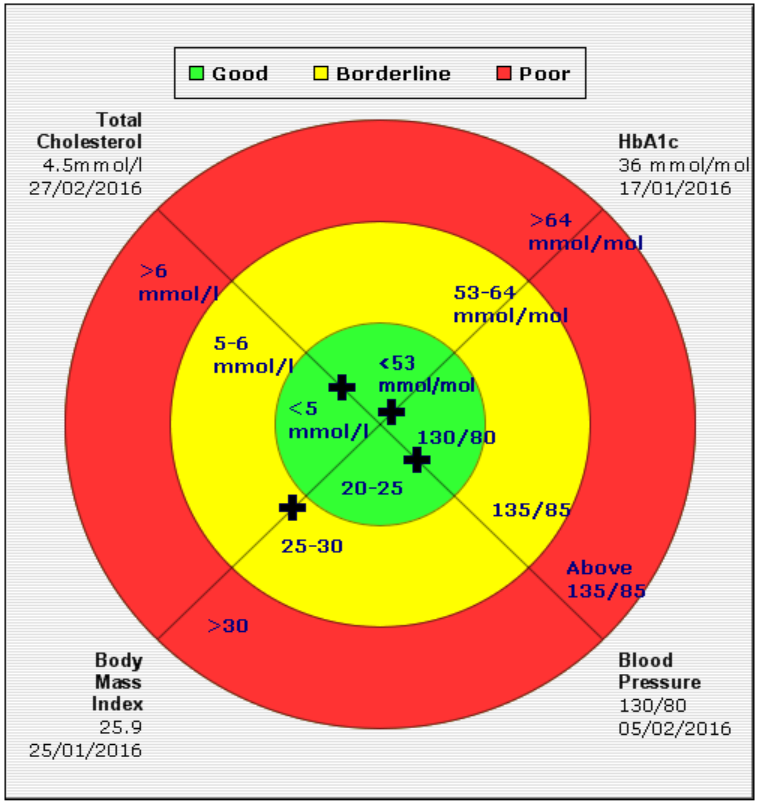


mydiabetes★myway
...my electronic diabetes record

NHS SCOTLAND

ARCHIBALD MACKIE

My Target Chart



- 300,000 patients (5.3%)
- 10% of health budget
- Variation in clinical outcomes

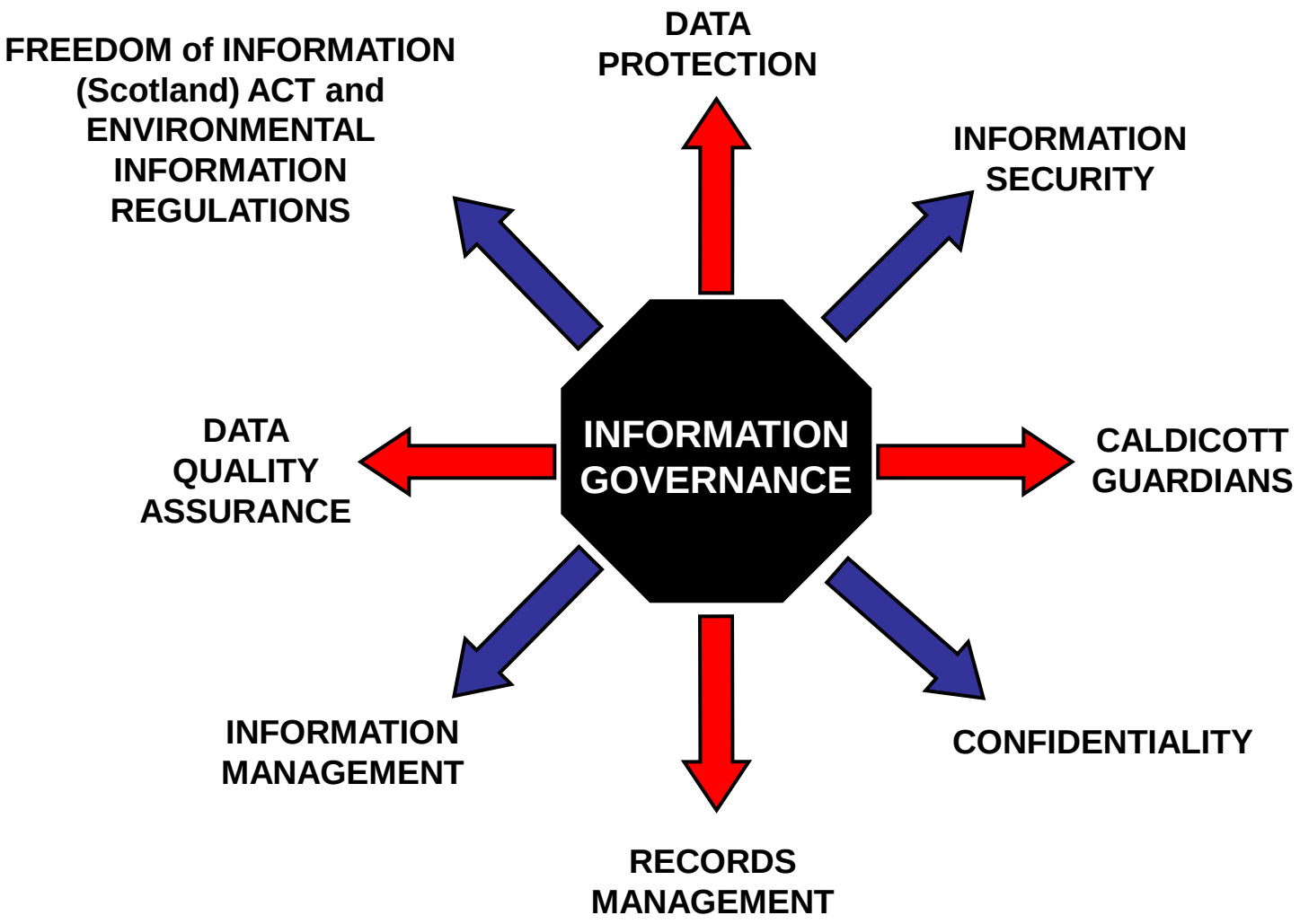
Transforming Publishing

Monifa - Doctor

I need thorough **#HSCData** that is relevant to my speciality so that I can improve clinical outcomes for patients.

I'm frustrated as it is not easy from me to get an overview of the data for my specialty.

Information Governance (IG)



My Hub

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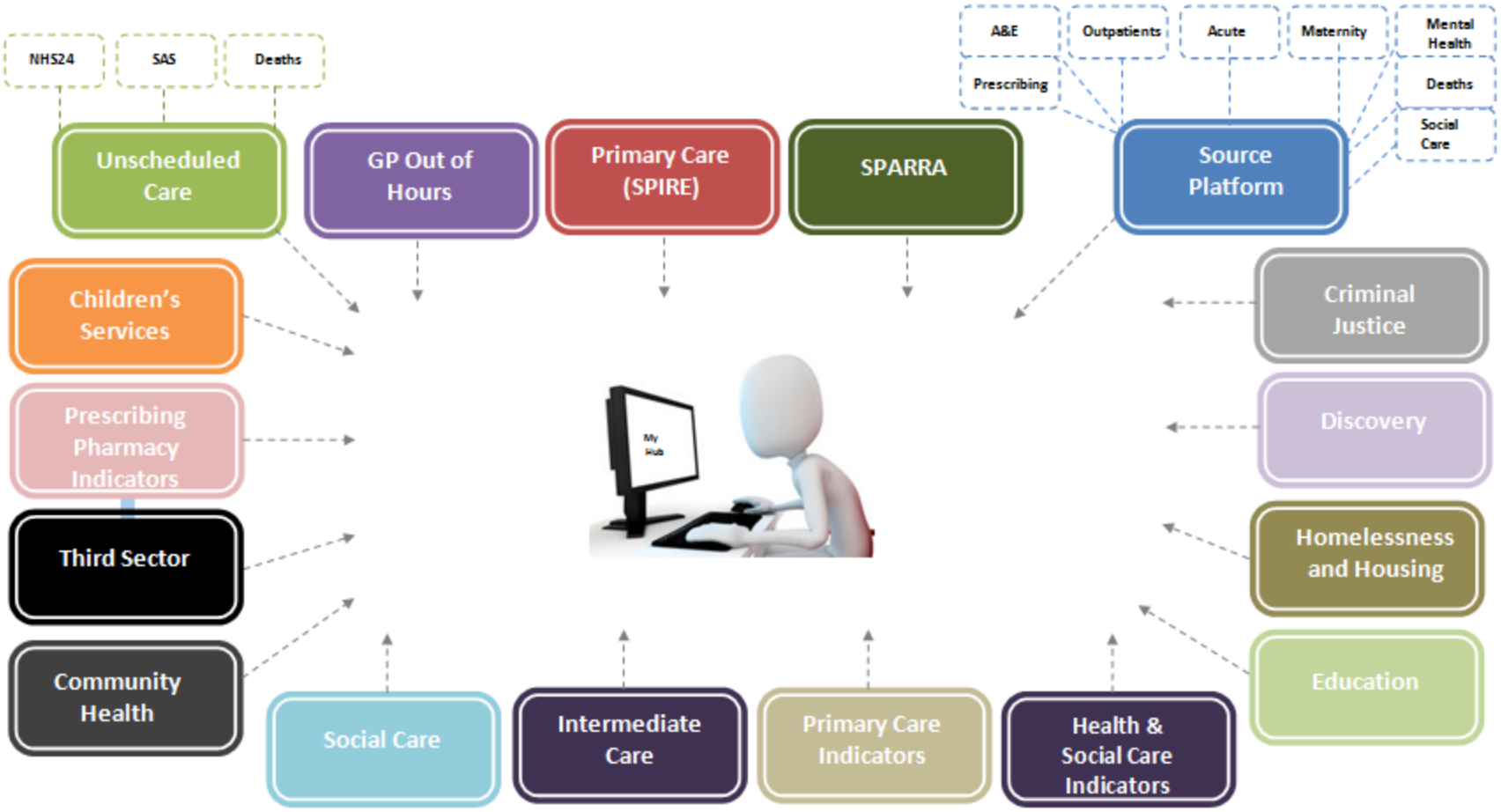
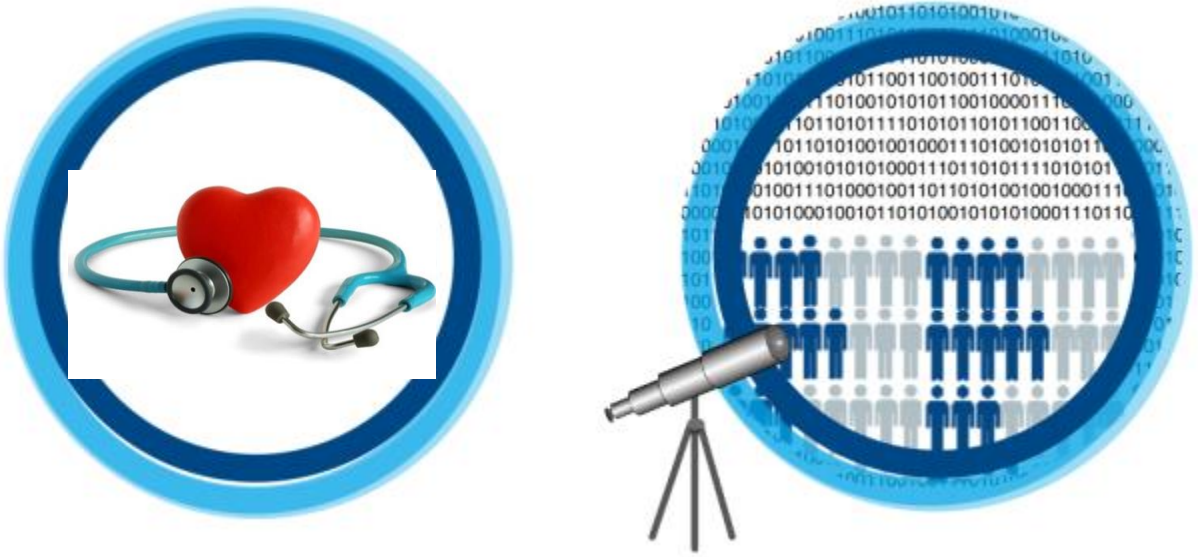


Your Leadership Role – Data & Intelligence

- **Professional**
- **Organisational**
- **National**

Stethoscope to Datascope



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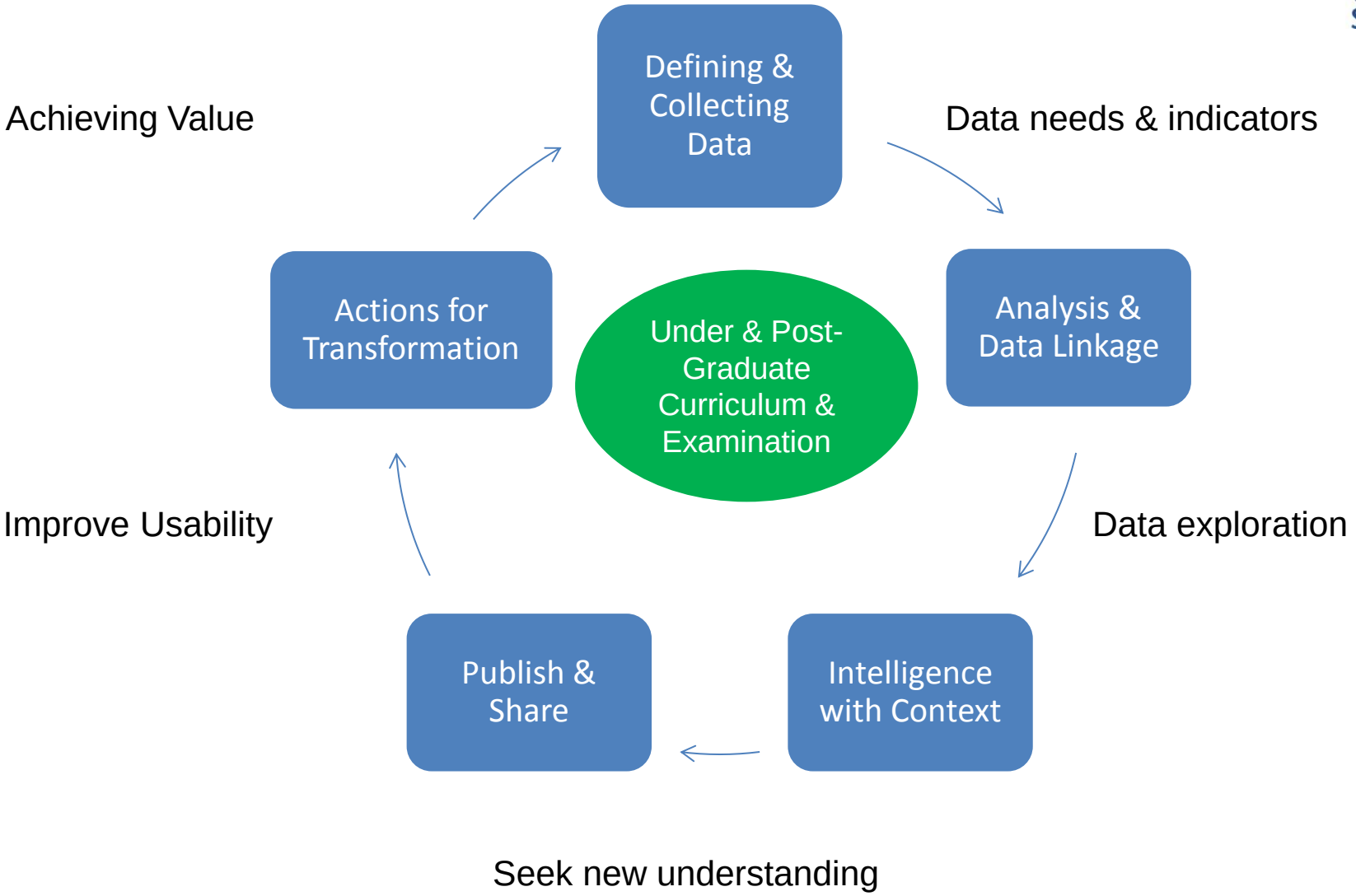
Future clinical workforce = Change agents & leaders

Resources & Cost

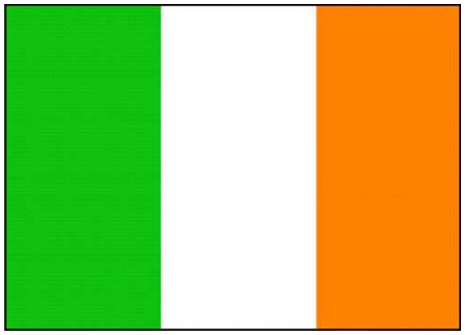
Data & Information

Quality & Innovation

Education & Training



Health System Mission



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1. Has Ireland got a systematic framework or strategy to produce health intelligence?
2. Who is currently producing health intelligence? Is it reaching to those who need it (right place, right time & right form)?
3. Have we got national and local professional leadership roles on health intelligence?
4. Have we got a common platform among organisations to share data and intelligence?
5. Are we applying the available intelligence?
6. Are we developing clinical workforce to comprehend and utilise health intelligence?

Rx

NHS National Services Scotland

Prescription for Success

- Comprehensive data and health intelligence are essential for effective health care system and organisations.

- Being a professional leader is about having an insight (with data and intelligence) to make the biggest difference in patient and population health.

- Data training in the development of the current and future clinical workforce is key to success.

- Better data, better lives, better health system.

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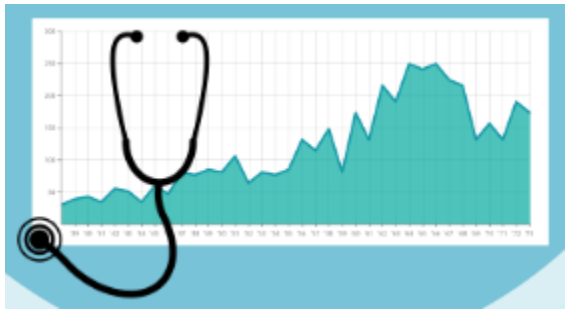
From Good to Great



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