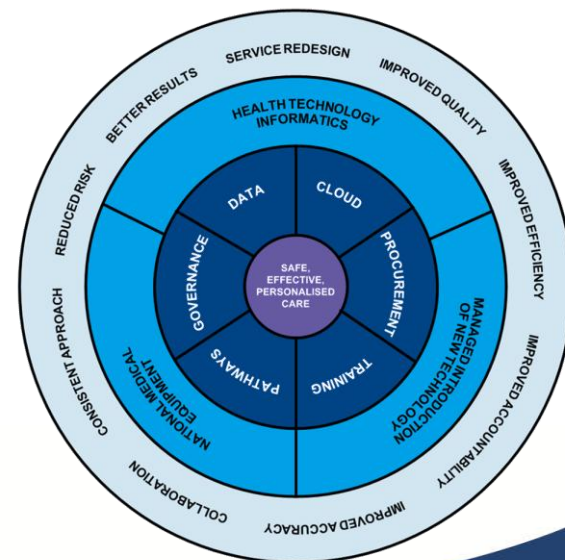


Shared Services National Clinical Engineering Programme

Healthcare Technology and Medical Equipment Management

Chris Leonard & David Keating

June 2018



Where we've come from

Positioning Paper
Dec '16

Update Paper
May'18

Approval to
proceed Jun '18

Chief Executives

- Endorsed the principles
- Approved the position
- Challenged to be 'more ambitious'

Chief Executives

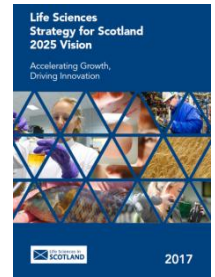
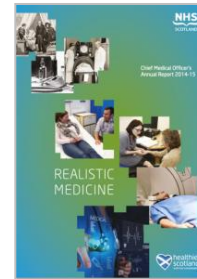
- Approved the case and funding to proceed

Drivers for Change

Shift from an episodic to anticipatory model of care

- Reduce bed days by 400,000
- Reduce hospital delivered outpatient appointments by 400,000

Alignment with National strategies



Regulatory and Legislative requirements

- Medical Devices Directive 2017
- General Data Protection Regulations (effective 28 May 2018)

The Programme in summary



Clinical Engineering Programme has undertaken three investigative projects into:

1. Developing a National Medical Equipment System

Differing approaches to medical equipment management being used across the equipment Life Cycle from procurement to disposal

2. Implementing a new Healthcare Technology Informatics development

A lack of relevant, real time data to allow the early detection of conditions, impacting on expensive acute care

3. Healthcare Technology and Medical Equipment implementation and management

Differing approaches within healthcare technology management and implementation, for example 3D printing

Findings show NHS Scotland faces significant challenges in undertaking regional and national management, planning and delivery of healthcare technology and medical equipment

1. Developing a National Medical Equipment System



The current problem:

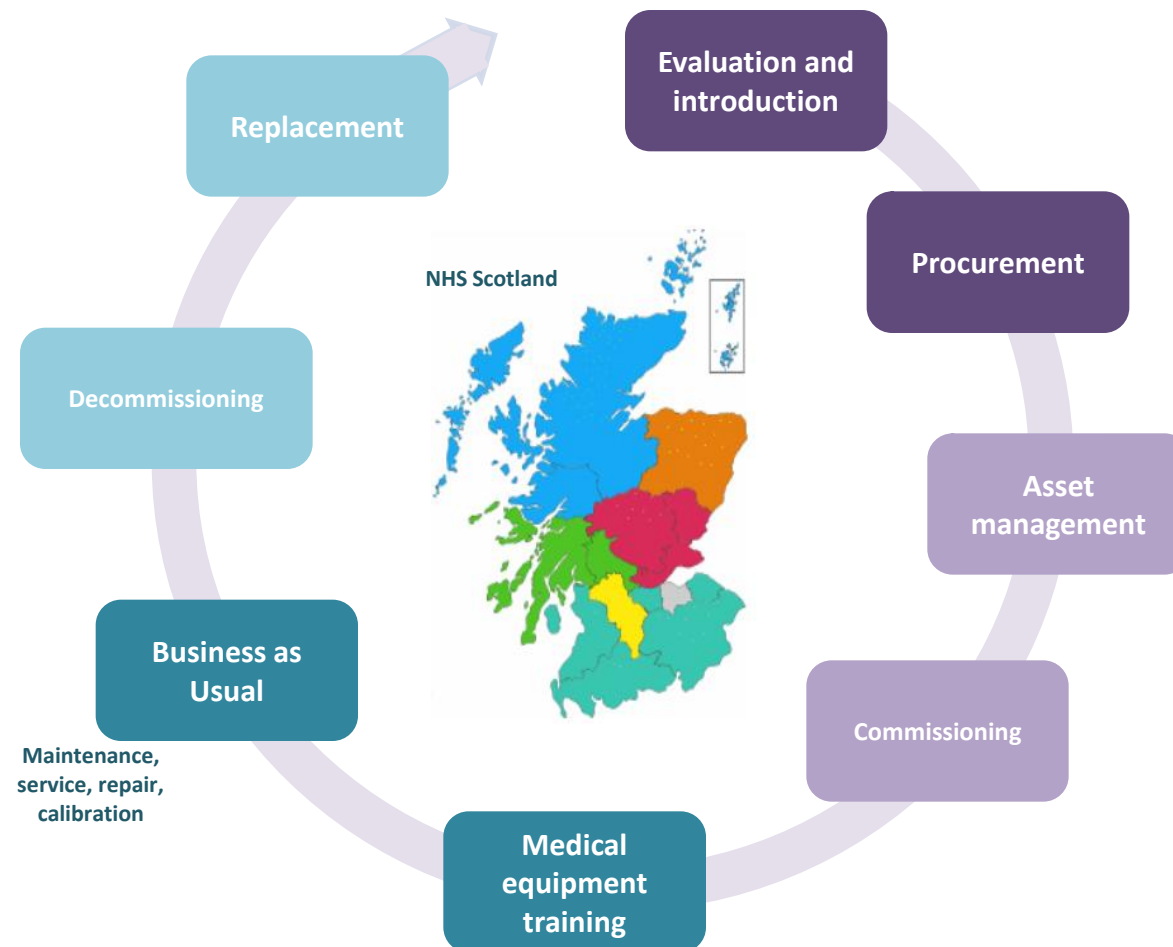
The **£1.3 billion** estimated medical equipment asset replacement value is currently managed by **16 separate database** instances in Scotland

There is currently **no overall view** of medical equipment estate in Scotland

This creates **inequality of service** for patients and clinicians

1. Developing a National Medical Equipment System

We have researched the following Medical Equipment Life Cycle and identified the following benefits :



- Procurement Management
 - Improvement in efficiencies and cost savings of re-procurement activities
- Risk Management
 - Improvement in patient safety through improved optimised, planned, preventative maintenance
- Quality Management
 - National compliance to a singular nomenclature standard and harmonisation of best practices
- Financial Management
 - Creation of savings through improved supplier and contractual management
- Clinical Management
 - Simplified organisational processes and equipment locating capabilities releasing more time to care

1. Developing a National Medical Equipment System



Next steps:

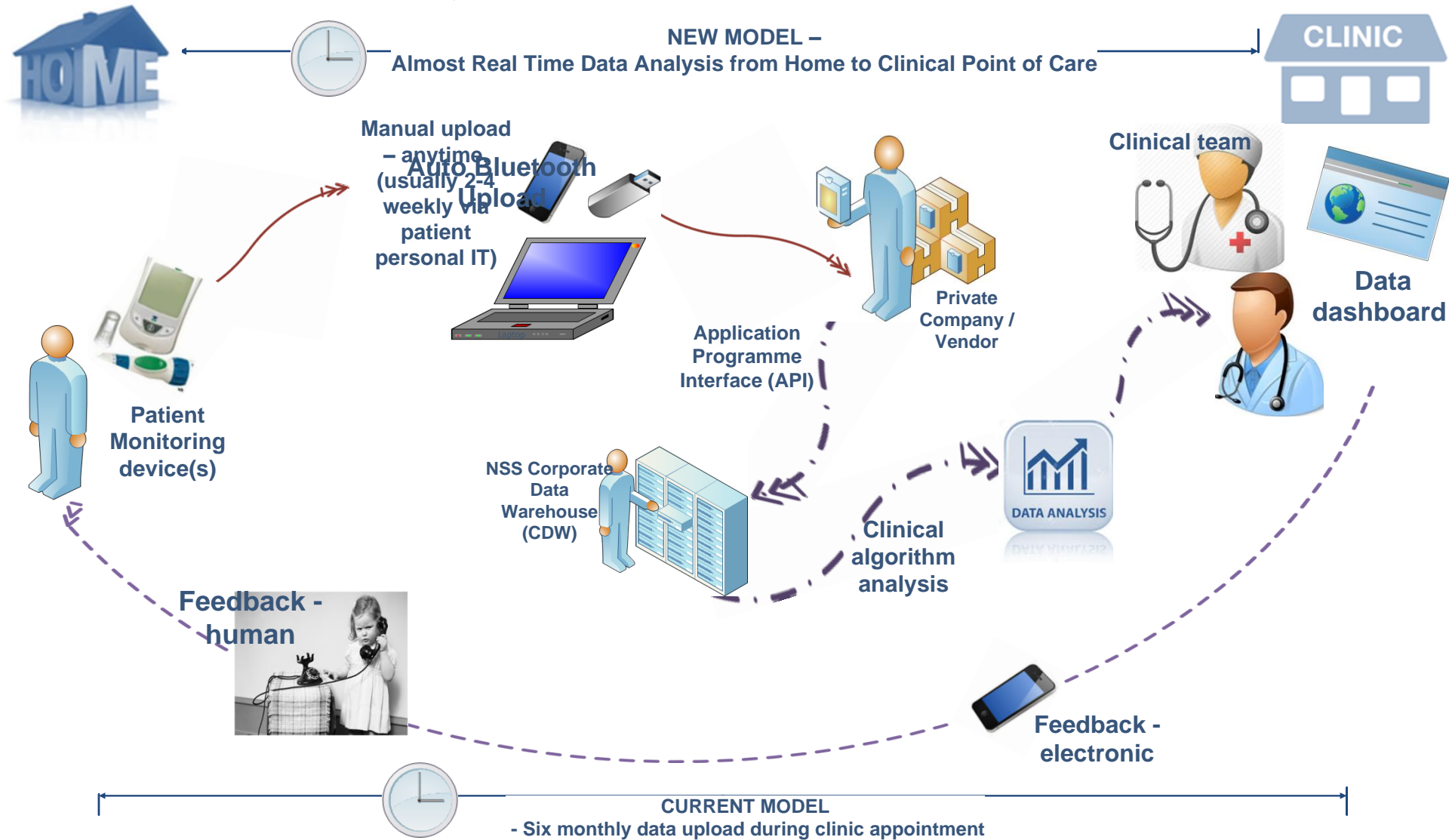
It is recommended that the development of a full business case for a National Medical Equipment System is undertaken.

This shall evaluate all options and link with other national initiatives.

Funding has been approved to deliver a business case in April 2019.

2. Implement a new Healthcare Technology Informatics development

A new healthcare technology solution that provides near real time data to support an anticipatory care model



3. Implement a new Healthcare Technology Informatics development



Key hurdles crossed:

- Data sharing legal agreements
- Adherence to Caldicott and data security requirements
- Establishment of a central data repository
- Development of APIs
- Adherence to all regulatory requirements

These are the challenges that other data pulling projects have not been able to overcome

2. Implement a new Healthcare Technology Informatics development



Areas along the patient pathway that this new solution could be applied to:

- Initial emergency contact points for patients
- At the roadside
- Accident and Emergency triage services
- Outpatient clinics
- Point of care testing

Examples of other conditions:

- Asthma
- Cardiology
- Chronic Obstructive Pulmonary Disease
- Inflammatory Bowel Disease
- International Normalised Ratio - INR (Warfrin)
- Multiple Sclerosis
- Scottish Ambulance Service (roadside)
- Stroke – Atrial Fibrillation
- Vital signs

2. Implement a new Healthcare Technology Informatics development



A patient's story – Type 1 Diabetes data for Test of Change

Prior to the Test of Change

- Patient 'x' is a teenager who works hard to manage their diabetes with support from parents and friends
- The data currently captured on their meter does not give Patient 'x' confidence to make changes to their own care
- Patient 'x' contact with their clinician is limited to one appointment every few months – limited discussion time

Patient benefits from the Test of Change

- Patient 'x' had renewed confidence in self management and making changes
- Patient 'x' felt supported in the knowledge their clinician was also viewing their data and, should a need arise, got in touch to provide advice
- This provided Patient 'x' with greater reassurance and renewed confidence, describing Test of Change development as a “**comfort blanket**”, a “**confidence builder**” and provided an ability to “**enjoy life a bit more**”

2. Implement a new Healthcare Technology Informatics development



A patient's story – Type 1 Diabetes data for Test of Change

Test of Change benefits to Patient 'x' parents

- Parents felt more confident about Patient 'x' safety and ability to self manage school, time with their friends and taking part in hobbies
- Both parents believed that Patient 'x' self management would improve in line with their understanding of their condition
- Belief that there would be a reduced chance of Patient 'x' suffering an adverse event that may require hospital treatment
- Belief longer term outlook for Patient 'x' was much better as a result of reduced likelihood of complications diabetes can lead to

Benefits to Patient 'x' clinician

Implementation of the new Healthcare Technology Informatics solution enabled Patient 'x' clinician to positively intervene, effectively gaining an improved confidence in their patients' ability to self manage and likelihood of an adverse event occurring.

2. Implement a new Healthcare Technology Informatics development



Next steps:

Following the completion of the Test of change it is recommended that the new solution is further expanded for diabetes care.

Further exploration should be undertaken to evaluate the next condition the new solution should be applied to.

Funding has been approved to further develop the system for the Libre CGM device.

3. Healthcare Technology and Medical Equipment implementation and management



Our research has found there is no singular approach to:

- How a decision to invest in a new healthcare technology is facilitated
- Funding protocols
- Procurement
- Implementation
- Ongoing management of healthcare technology

This continues to pose challenges to achieve clinically appropriate and affordable technological solutions

To understand the different approaches undertaken across Scotland, we explored an existing healthcare technology, 3D Printing

Based on this we have made recommendations to ensure new healthcare technology is implemented on a “Once for Scotland” approach ensuring all our patients benefit rather than the current disparate approach

3. Healthcare Technology and Medical Equipment implementation and management



A recommendation for a "Once for Scotland" approach to reduce patient geographic constraints and thus enable equity of access to 3D printing in maxillofacial surgery

An existing healthcare technology – Benefits of a 3D Printing service

- 3D printing is being used with more and more frequency as a tool to enable, safe, effective patient surgery
- It is useful within maxillofacial surgery where physical models and cutting guides are printed to match patient physiology
- Particularly useful for complex surgery and to remove sections of cancerous bone
- Reduces risk of infection
- Reduces bed stay days

3. Healthcare Technology and Medical Equipment implementation and management



A recommendation for a "Once for Scotland" approach to reduce patient geographic constraints and thus enable equity of access to 3D printing in maxillofacial surgery

An existing healthcare technology – Issues of current 3D printing service

- 3D is prioritised according to availability of printers rather than clinical demand
- Risk of litigation due to a number of disparate approaches, put in particular the lack of a consistent quality management methodology
- Patient care bound by geographical constraints
- Widespread use of unregulated software; freeware is a commonly used
- Innovative approaches to funding resulting in unregulated equipment procurement
- Lack of understanding and adherence to
 - patient data and image storage requirements
 - Caldicott principles
 - regulatory needs
 - governance requirements
 - medically certified software and hardware requirements
 - medical device management or prescription management

Next steps



1. **Develop a National Medical Equipment System**

Funding has been approved to deliver a business case for the implementation of a national medical equipment register by April 2019.

2. **Implement a new Healthcare Technology Informatics development**

Funding has been approved to develop the system for the Libre CGM device for diabetic care.

3. **Healthcare Technology and Medical Equipment implementation and management**

Following recommendations Scottish Government are undertaking a review of 3D printing in Scotland with a view to designing a service model which will provide the optimal national solution.

Clinical Engineers from GG&C are also working with SHTG to align how the effective evaluation of new technologies is undertaken.

How can you help?

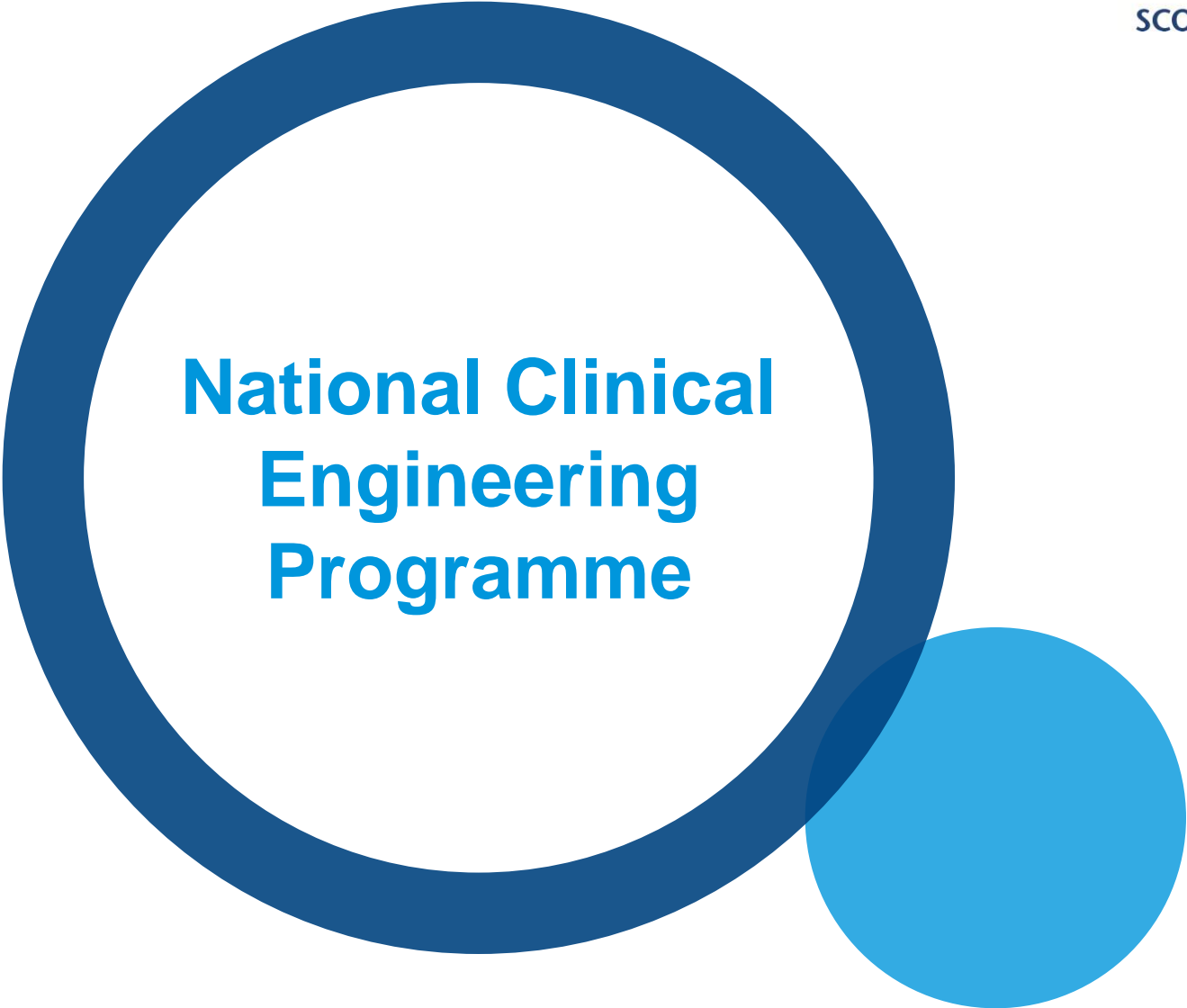


Horizon Scanning

What's coming?

What new technologies do you think would benefit patients, clinicians and the wider NHS in Scotland?

What benefits would they bring?

The logo features a large, dark blue circular ring. Inside the ring, the text "National Clinical Engineering Programme" is centered in a bold, blue, sans-serif font. To the right of the ring, there is a solid, light blue circle that overlaps the bottom-right edge of the ring.

**National Clinical
Engineering
Programme**