

Scotland's National Digital Platform & openEHR

- **Paul Miller**
Clinical Informatics Lead, NHS Education for Scotland Technology Service
Co-chair openEHR International Clinical Program Board
- **Daniel McCafferty**
Associate Director for Engineering, NHS Education for Scotland Technology Service

Presenters



Dr Paul Miller
Clinical Informatics
Lead



Daniel McCafferty
Associate Director for
Engineering

Agenda

The Health and Care imperative

- Background
- Approach
- ReSPECT

The technical reality

- What's in a 'platform'?
- Architecture
- Future

About the Scottish Parliament

Devolved and Reserved Powers

Find out about the powers of the Scottish Parliament and the UK Parliament.

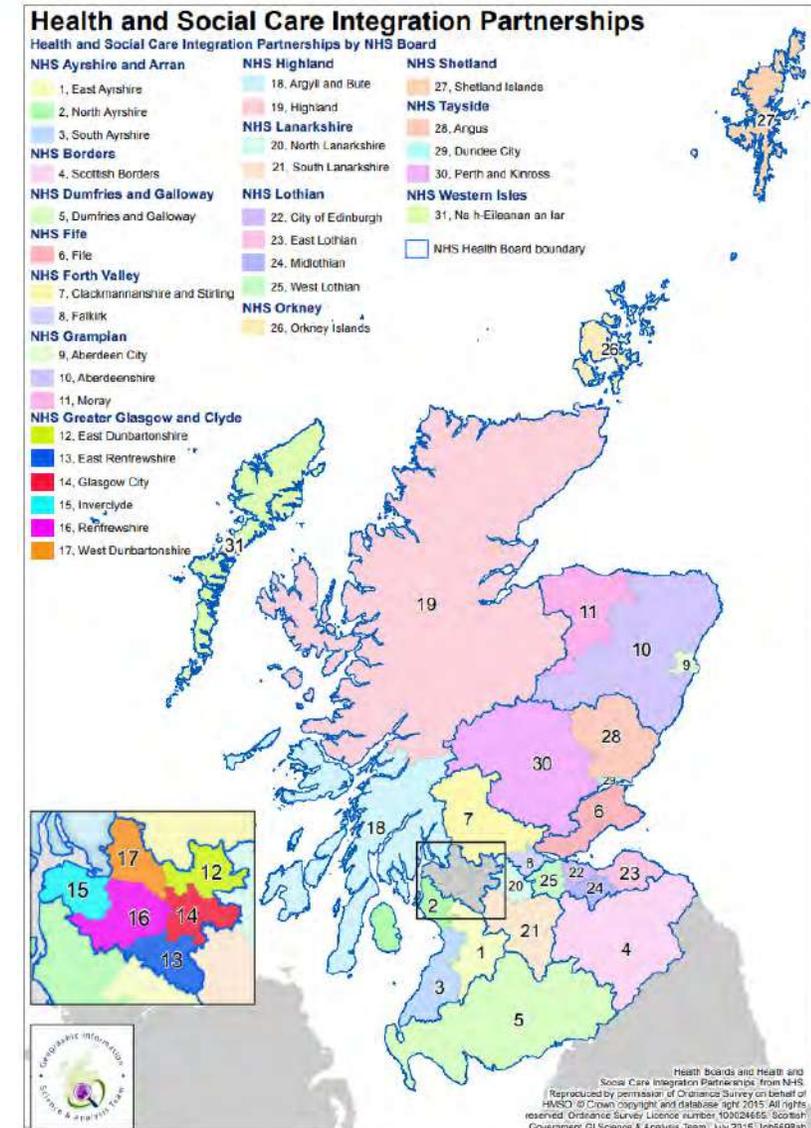
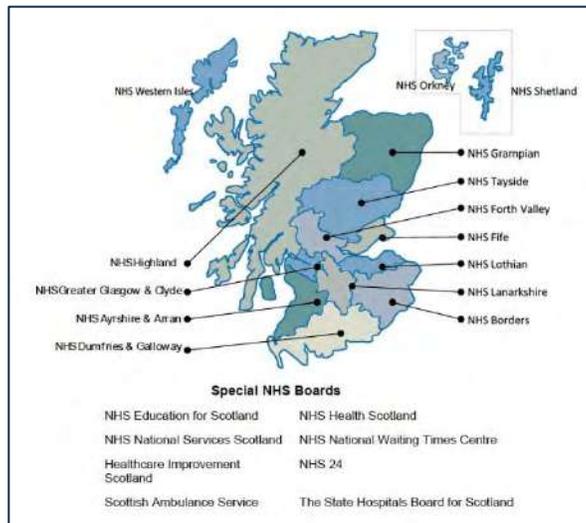
What can the Scottish Parliament decide?

The Scottish Parliament has power to make laws on a range of issues known as devolved matters.

Devolved matters include:

- agriculture, forestry and fisheries
 - benefits (some aspects)
 - consumer advocacy and advice
 - economic development
 - education and training
 - elections to the Scottish Parliament and local government
 - energy (some aspects)
 - environment
 - equality legislation (some aspects)
 - fire services
 - freedom of information
 - health and social services
 - housing
 - justice and policing
 - local government
 - planning
 - sport and the arts
 - taxation (some aspects)
 - tourism
 - transport (some aspects)
-

- 14 Regional Health Boards
- 32 Health and Social Care Partnerships
- 200+ Hospitals
- 900+ GP Practices
- 1000+ Care Homes
- 160,000+ Staff
- 5.5+ Million Residents





Digital Health
& Care Scotland

SCOTLAND'S DIGITAL HEALTH & CARE STRATEGY

ENABLING, CONNECTING & EMPOWERING

Joint Foreword



Digital Health
& Care Scotland



Shona Robison
Cabinet Secretary for Health and Sport



Cllr Peter Johnston
COSLA Spokesperson
for Health and Social Care

These are themes that are not particular to Scotland. We know that our approach to date – similar to almost every other healthcare system in the world – has resulted in an over-reliance on a small number of technology suppliers, an abundance of 'closed disparate systems' and information needed for high quality care is entirely restricted to individual systems, difficult to share. All evidence now suggests we need a new model that involves a more open and flexible approach that better enables the delivery of citizen-centred services, health and social care integration and self-directed care.

We know that our approach to date – similar to almost every other healthcare system in the world – has resulted in an over-reliance on a small number of technology suppliers and an abundance of 'closed disparate systems'.

National Digital Platform



- Clinical data at the point of care
- Common architecture to allow for innovation
- Data at scale for research and quality

“A collaborative and integrated approach to delivering cloud-based digital components and capabilities that will play a significant role in our health and care digital ecosystem, underpinning our commitment to improve the availability and accessibility of health and care information and services.”

New applications

Information Platform

Existing Systems and Data Sources







“If you build it they will
come...”

ReSPECT

Recommended Summary Plan for Emergency Care and Treatment

- Designed by the Resuscitation Council UK
- National approach
- Conversations
- Captured in 'the purple form'
- Interoperable across health and care

National Digital Platform

<https://www.resus.org.uk/respect>

ReSPECT Recommended Summary Plan for
Emergency Care and Treatment

NHS/CHI/Health and care number

1 8 1 2 7 2 9 9 2 1

1. This plan belongs to:

Full name

Lily Campbell

Date of birth

18 Dec 1972

Address

15/44 High Rise Grove, NK010AA

Date completed

23 May 2022

The ReSPECT process starts with a conversation between a person and a healthcare professional. The ReSPECT form is a clinical record of agreed recommendations. It is not a legally binding document.

2. Shared Understanding of my health and current condition

Summary of relevant information for this plan including diagnoses and relevant personal circumstances:

Lily has metastatic breast cancer; Lives at home with husband and 2 kids; teenage girls; Notworking at the moment; Still able to get out and about; Just having 6th course of chemotherapy

Details of other relevant care planning documents and where to find them. (e.g. Advance or Anticipatory Care Plan; Advance Decision to Refuse Treatment or Advance Directive; Emergency plan for the carer):

Never thought about future

I have a legal welfare proxy in place (e.g. registered welfare attorney, person with parental responsibility). If yes provide details in Section 8

Yes

3. What matters to me in decisions about my treatment and care in an emergency

What I most value:

Spending as much time with family; Spending as least time in hospital as possible

What I most fear/wish to avoid:

Dying in hospital

4. Clinical recommendations for emergency care and treatment

Prioritise extending life

or

Balance extending life with
comfort and valued out-
comes

G McNeill

Prioritise comfort

or

Now provide clinical guidance on specific realistic interventions that may or may not be wanted or clinically appropriate, (including being taken or admitted to hospital +/- receiving life support) and your reasoning for this guidance:

Discussed with Lily; Wish to spend time at home with family; See if time at dying what are priorities; expect getting home; explore time with family and location; Consider active treatments; what active treatments might be possible? For example, complications of Chemo e.g. infection treat with anti biotics; More severe - organ failure - more limited treatments.; CPR recommendation discussed with patient

CPR attempts recommended
Adult or child

G McNeill

For modified CPR
Child only, as detailed above

CPR attempts **NOT** Recommended
Adult or child



Digitising ReSPECT

Commission

Version: 1.0

15th November 2017

3.1 Objectives and Outputs

SCIMP are commissioned to oversee the development of the ReSPECT clinical template/archetypes. This work will be led by Ian McNicoll using the Clinical Knowledge Manager tool. It will use the Resuscitation Council (UK) agreed ReSPECT form as the basis of the development, and where possible, re-use clinical structures already agreed by PRSB.

2. Commissioned Organisations

The Scottish Government have commissioned SCIMP to:

1. Develop the ReSPECT clinical template using the Clinical Knowledge Manager tool.
2. Form an Oversight Group to oversee the development of this work. The Commission Oversight Group will consist of:
 - Libby Morris – Scottish Government Clinical Lead, SCIMP and PRSB Lead (Chair)
 - Ian McNicoll – SCIMP (Senior Supplier)
 - Ian Thompson – Scottish Government Clinical Lead, SCIMP
 - Tim Warren – Scottish Government
 - Blythe Robertson – Scottish Government
 - Johan Nolan – Scottish Government
 - Juliet Spiller – Palliative Care Consultant and co-chair of ReSPECT UK Expert Working Group (Subject Matter Expert)
3. To support the Commission Oversight Group, a Virtual UK-wide Editorial Group will also be formed to act as an editorial team for the wider PRSB consultation using the CKM tool. The group will consist of:
 - Ian Thompson <ian.thompson@nhs.net>
 - Libby Morris <libby.morris@nhs.net>
 - Phil Kozan <phil@theprsb.org>
 - Juliet Spiller <juliet.spiller@mariecurie.org.uk>
 - Ian McNicoll – SCIMP (Senior Supplier) <ian@freshehr.com>
 - Zoe Fritz – Chair of the UK ReSPECT Strategic Steering Group <zoe.fritz@addenbrookes.nhs.uk>
 - Peter-Marc Fortune – co-chair of ReSPECT EWG and chair of Digital subgroup
 - Catherine Baldock – ReSPECT project lead
4. Ensure engagement with PRSB throughout, leading to the eventual national adoption of the archetype.

Scottish Government eHealth will support the administration of the commission.



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Hospitals / Forth Valley Royal Hospital



NES Digital ReSPECT

- Single National System
- Accessible Web Application
- NHSS Office 365 login
- National demographics service
- Collaboration through Drafts
- PDF export
- Clinical portal integrations
- Export PDF to DMS

The screenshot shows the NHS ReSPECT V3 interface. At the top left is the NHS Scotland logo. At the top right, it says 'ReSPECT V3' and 'Logged in as Alistair Ewing'. A red banner below the header contains the text 'This is a test system (QA): do NOT use real patient data'. Below the banner, there are navigation links for 'Home' and 'Patient overview'. The patient's name 'CAMPBELL, Bonnie' is displayed, along with their birth date '9 Feb 1934 (88 years)', CHI number '0902346164', and address '23 Leafy Road, NK01 0AA'. The main content area is titled 'Patient overview' and includes a 'CPR recommendation' section with a yellow background, stating 'CPR attempts NOT recommended (adult or child)'. Below this is an 'Information summary' section with a purple background, stating 'The clinical recommendation is to prioritise comfort.' and providing additional clinical guidance. A 'Copy summary' button is located in the bottom right of the information summary section. The footer of the page indicates 'Bonnie Campbell's latest ReSPECT form was created 27 Apr 2022 09:40 (version 1)'.

Territorial Board Rollout



Now

NHS Forth Valley

NHS Tayside

NHS Western Isles

NHS Lanarkshire

NHS Dumfries & Galloway

Next

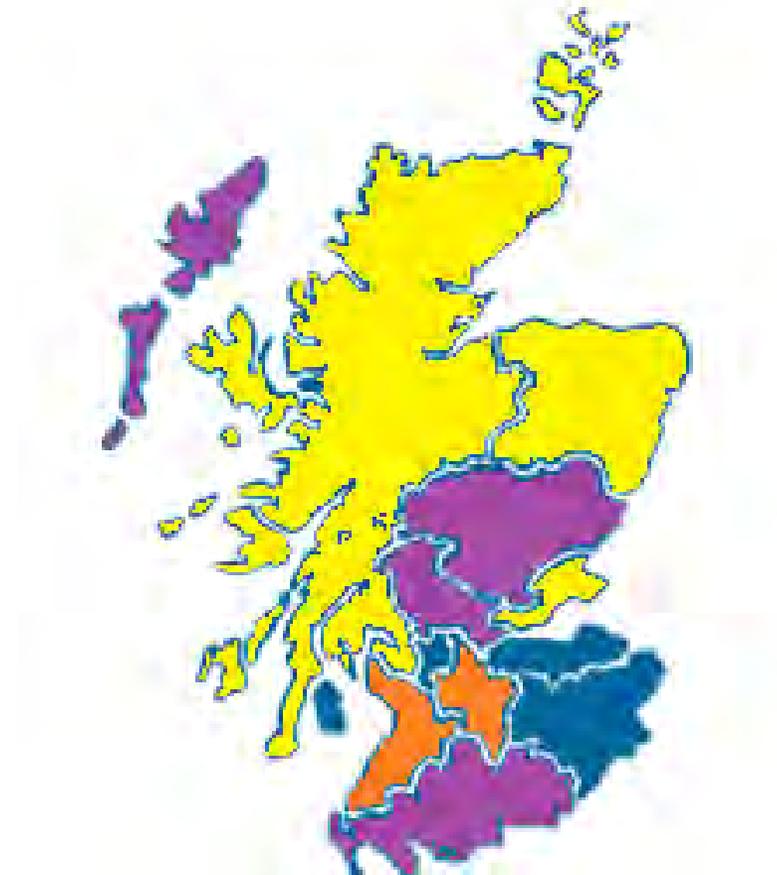
NHS Ayrshire & Arran

NHS Grampian

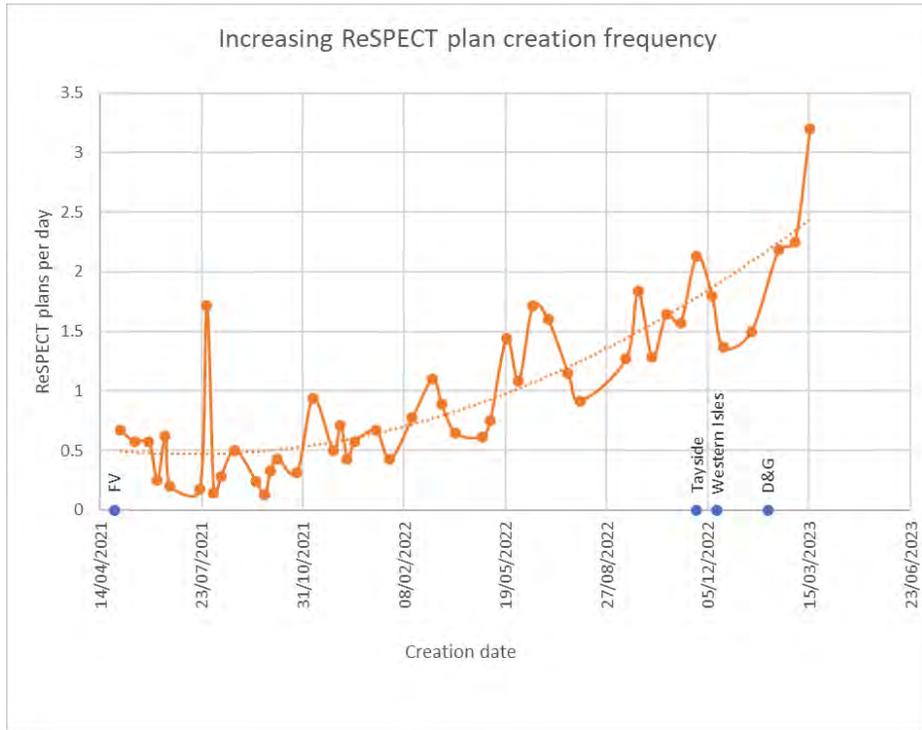
NHS Orkney

NHS Shetland

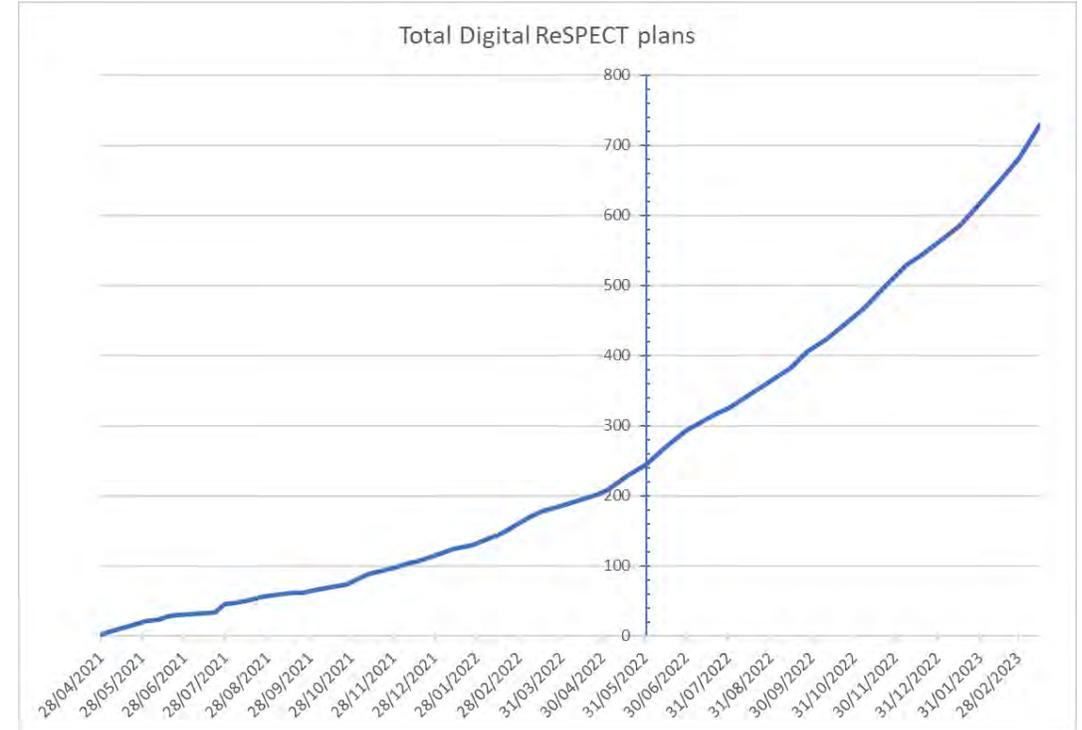
NHS Fife



Growth in Digital ReSPECT plans

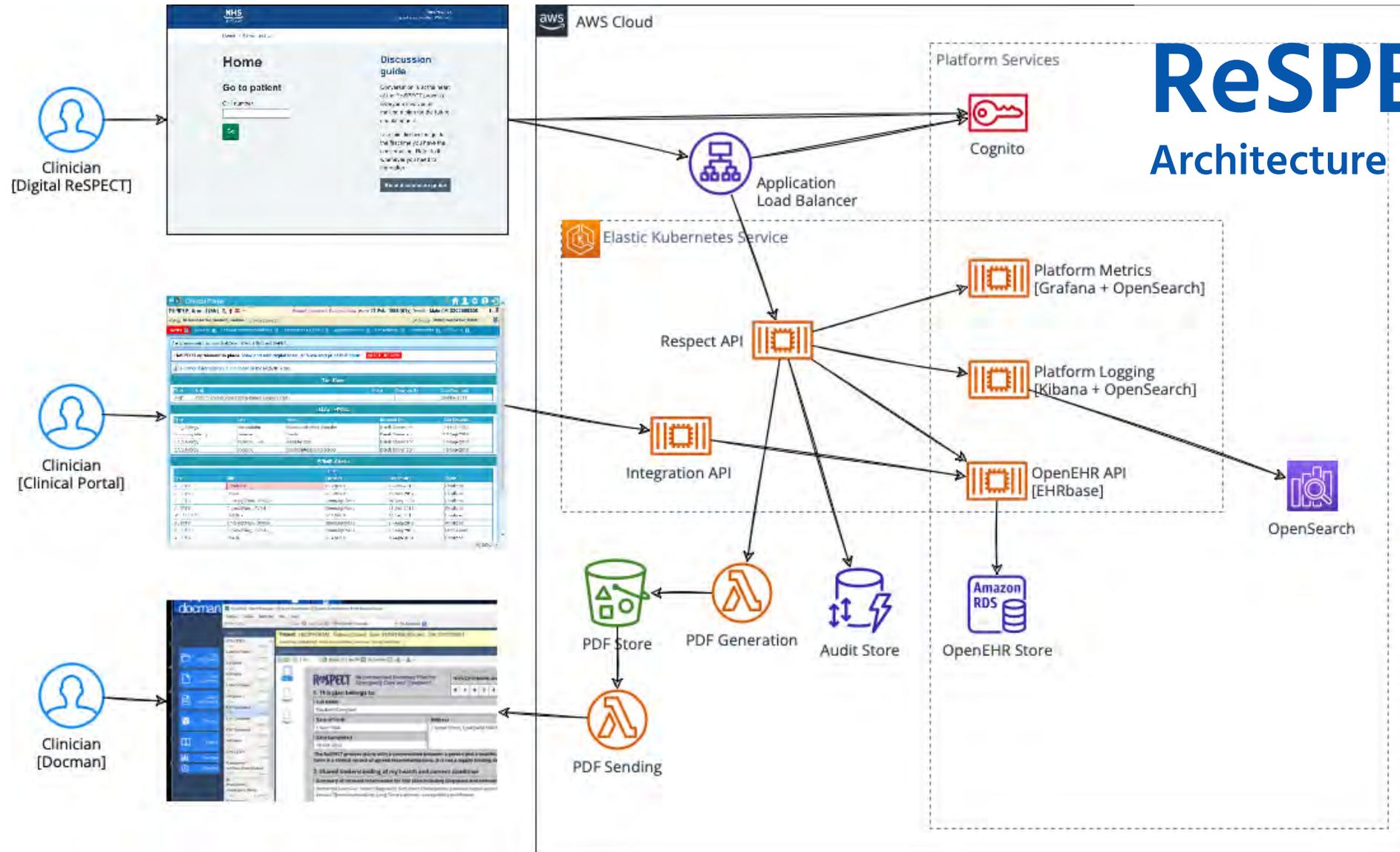


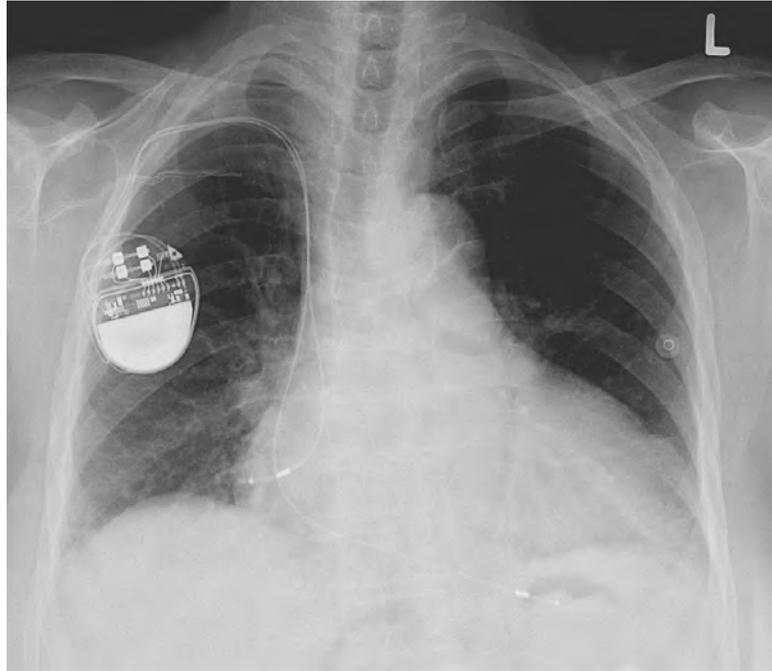
Increase in number of forms per day



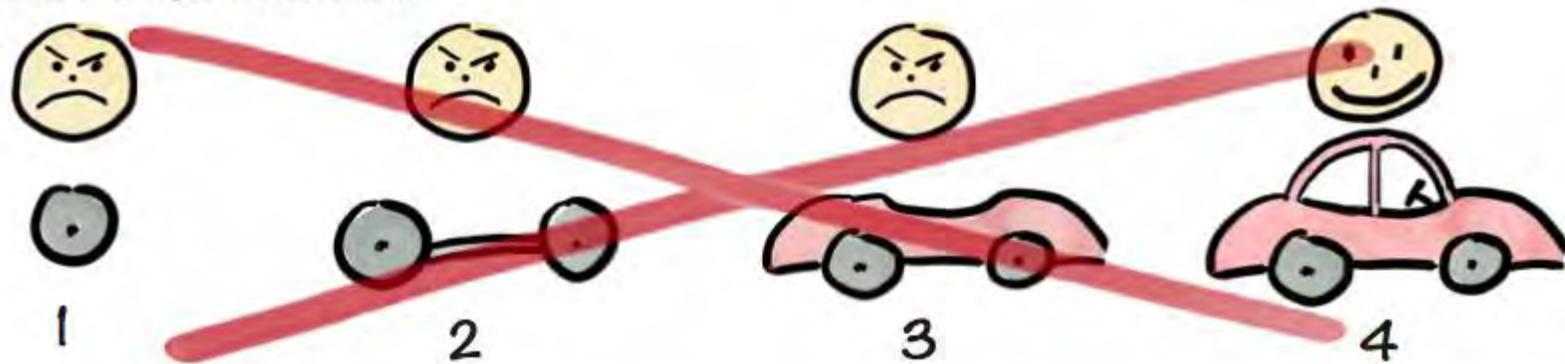
Total ReSPECT forms in platform

ReSPECT Architecture

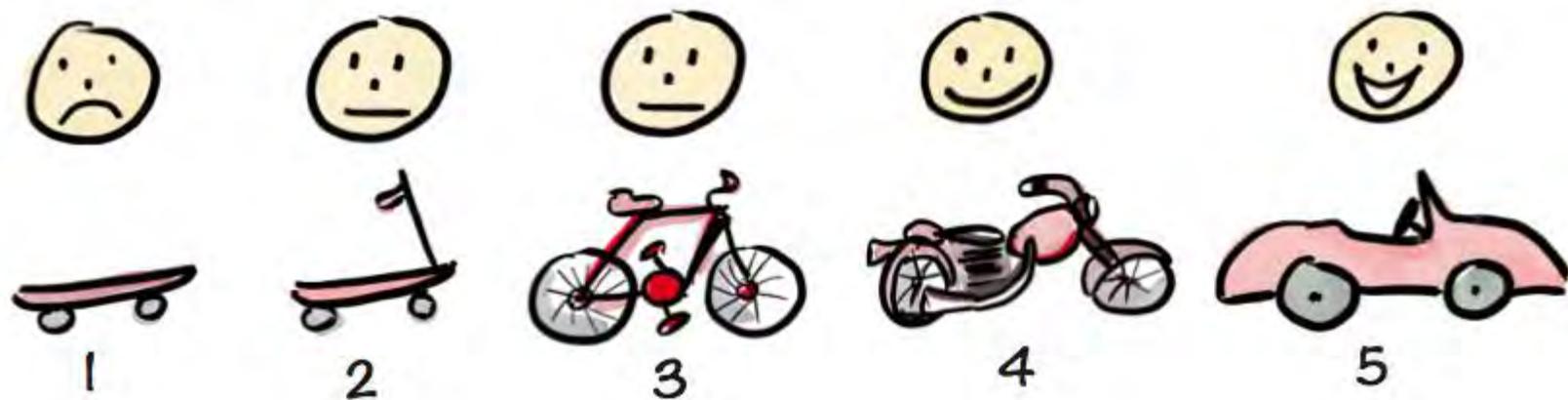




Not like this....



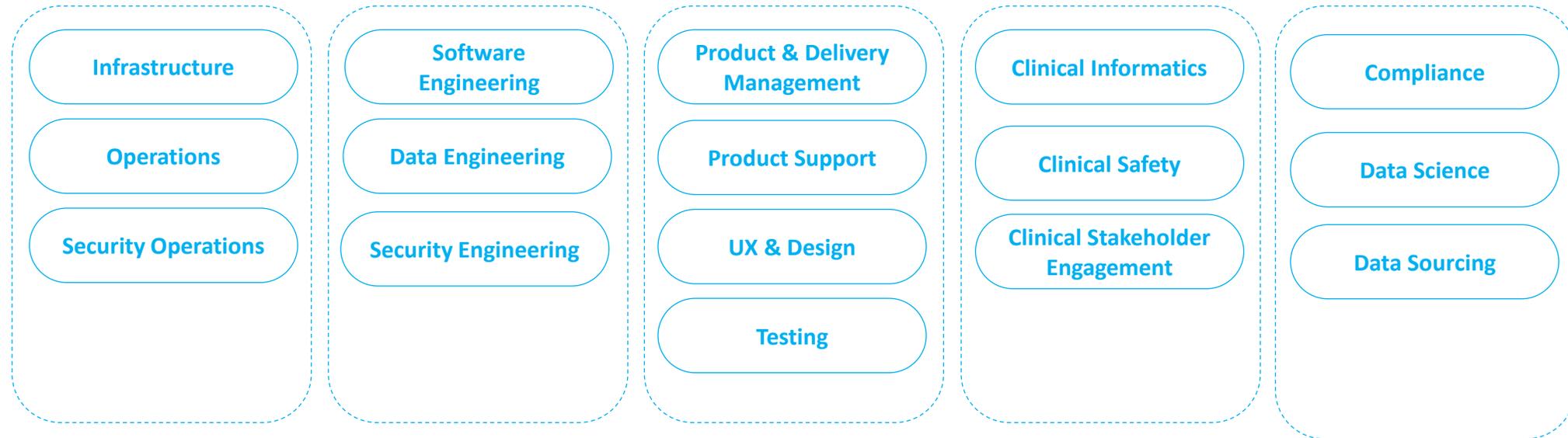
Like this!





NES Technology Service

- Formed in 2014 with 3 staff.
- Now have around 250 staff



Our approach

Value

- Clinical data at the point of care, decoupled from applications
- Common, reusable architecture to enable efficiency and innovation
- Data at scale for research, intelligence and quality

Open Standards

- FHIR - Interoperability
- OpenEHR - Persistence
- IHE-XDS – Unstructured data
- SNOMED – Terminology
- OIDC + OAuth – Identity & Access Management

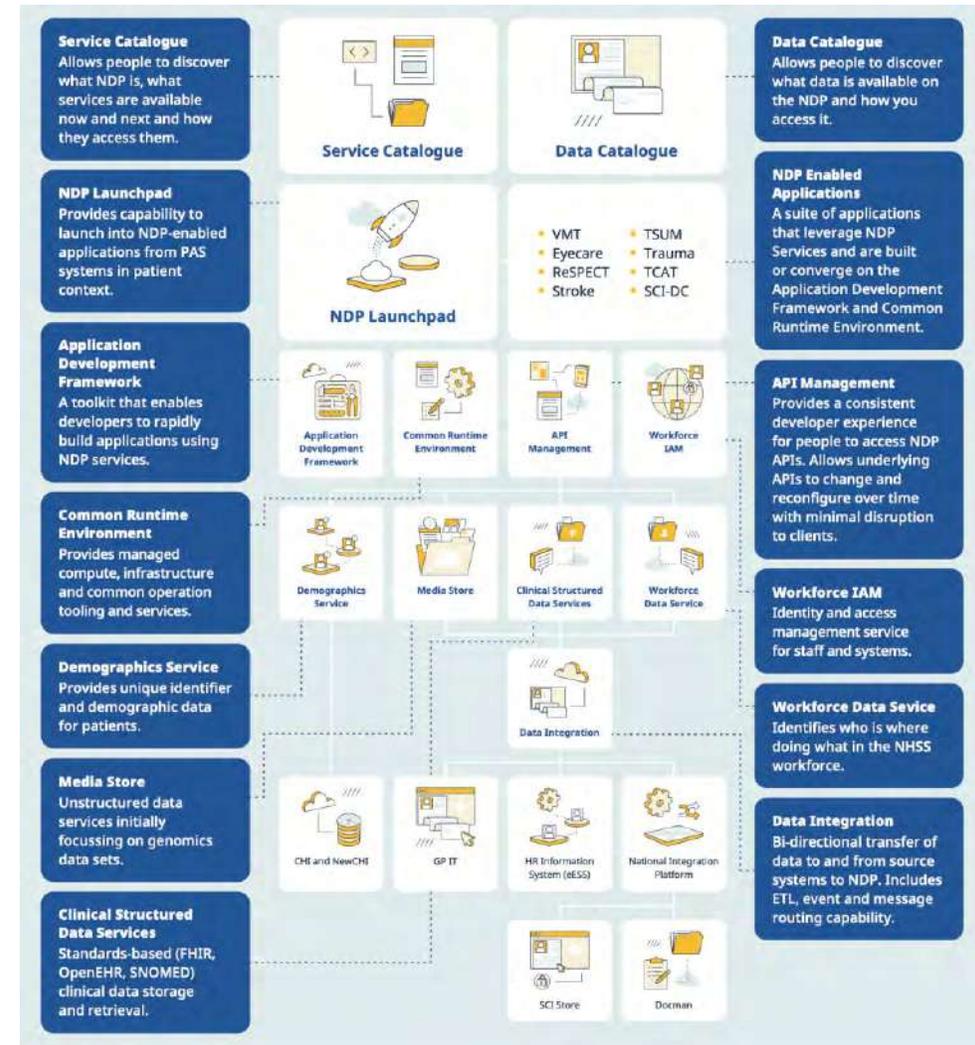
Platform mindset

1. Build solid foundations
2. Identify repeatable patterns
3. Draw together expertise nationally
4. Be flexible in architecture and approach to adapt to changes
5. Share your working

What we have

This is just the beginning

- Security
- Data
- Integration
- Infrastructure



Service Catalogue

Allows people to discover what NDP is, what services are available now and next and how they access them.



Service Catalogue



Data Catalogue

Data Catalogue

Allows people to discover what data is available on the NDP and how you access it.

NDP Launchpad

Provides capability to launch into NDP-enabled applications from PAS systems in patient context.



NDP Launchpad

- VMT
- Eyecare
- ReSPECT
- Stroke
- TSUM
- Trauma
- TCAT
- SCI-DC

NDP Enabled Applications

A suite of applications that leverage NDP Services and are built or converge on the Application Development Framework and Common Runtime Environment.

Application Development Framework

A toolkit that enables developers to rapidly build applications using NDP services.



Application Development Framework



Common Runtime Environment



API Management



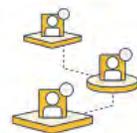
Workforce IAM

API Management

Provides a consistent developer experience for people to access NDP APIs. Allows underlying APIs to change and reconfigure over time with minimal disruption to clients.

Common Runtime Environment

Provides managed compute, infrastructure and common operation tooling and services.



Demographics Service



Media Store



Clinical Structured Data Services



Workforce Data Service

Workforce IAM

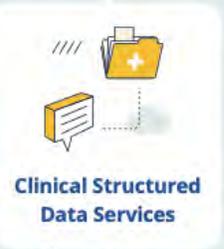
Identity and access management services

Common Runtime Environment
Provides managed compute, infrastructure and common operation tooling and services.

Demographics Service
Provides unique identifier and demographic data for patients.

Media Store
Unstructured data services initially focussing on genomics data sets.

Clinical Structured Data Services
Standards-based (FHIR, OpenEHR, SNOMED) clinical data storage and retrieval.



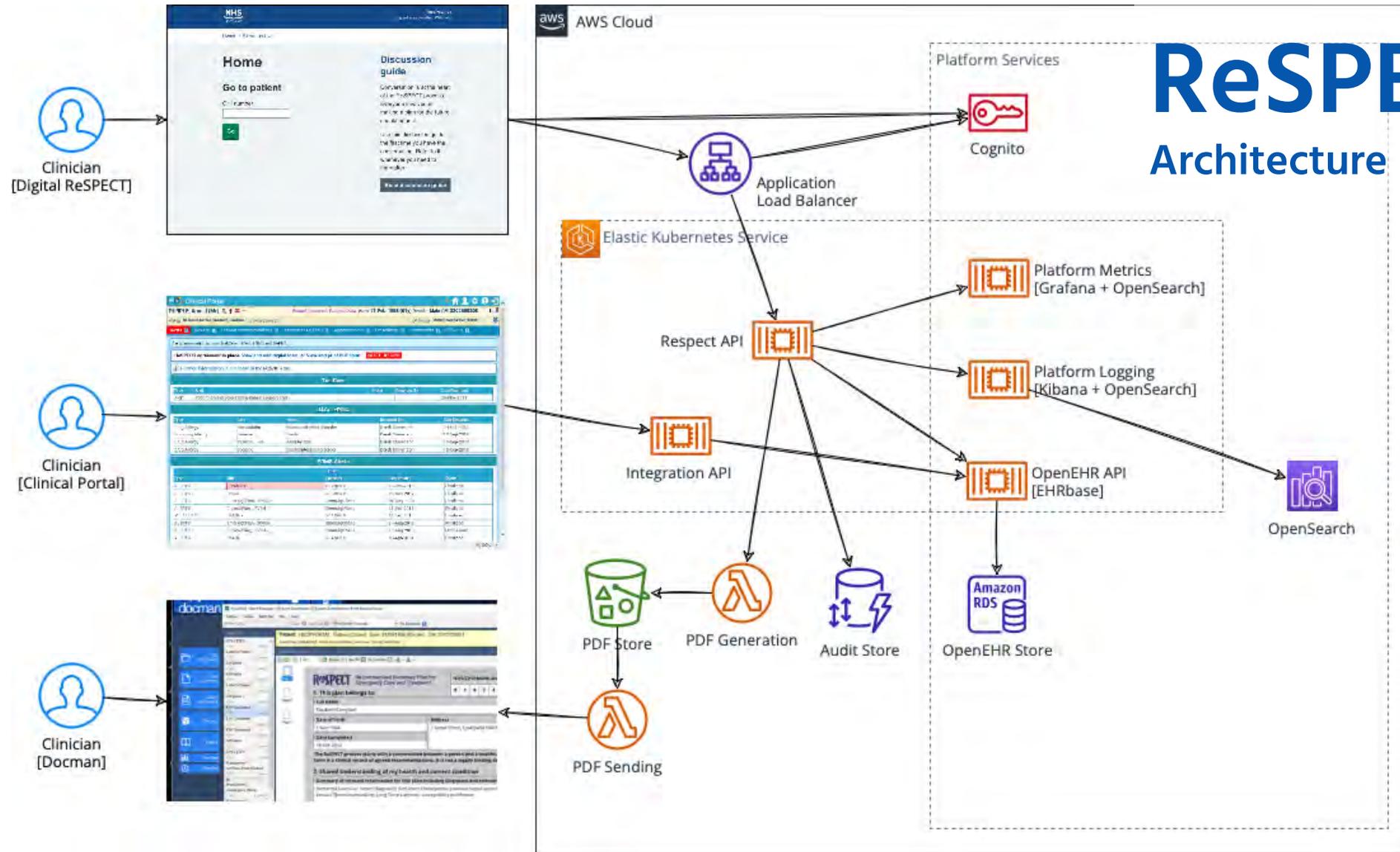
Ability to change and reconfigure over time with minimal disruption to clients.

Workforce IAM
Identity and access management service for staff and systems.

Workforce Data Service
Identifies who is where doing what in the NHSS workforce.

Data Integration
Bi-directional transfer of data to and from source systems to NDP. Includes ETL, event and message routing capability.

ReSPECT Architecture



Vaccines

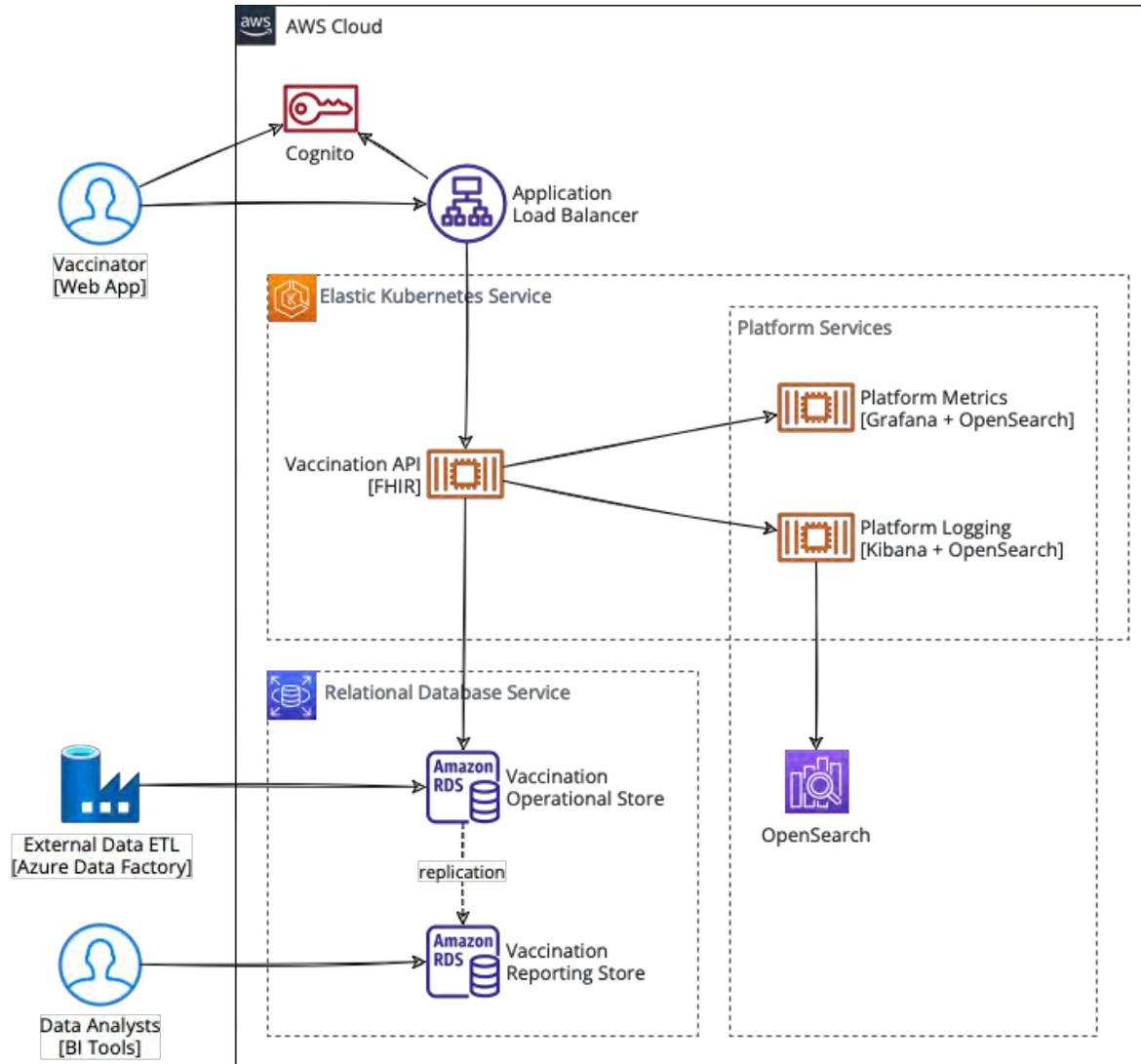
A single source of truth for vaccine records

- National single database
- APIs for reuse of data for:
 - Analytics
 - Direct care
 - Cohort generation
- Resilient and reliable
- Data and Analytics platform



Vaccines

Architecture



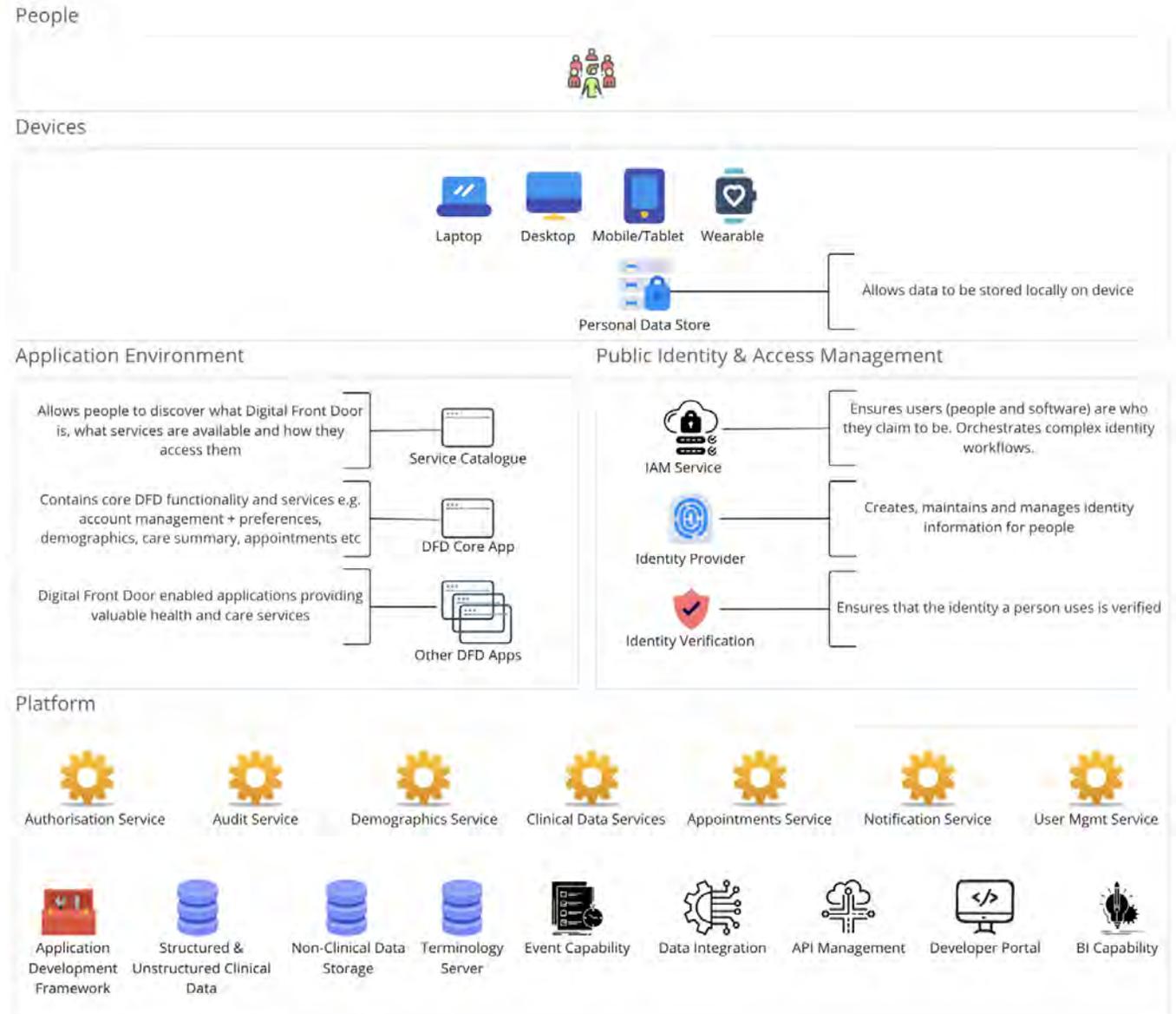
What's next?



Digital Front Door

Develop ... a safe, simple and secure app that will help people access services directly and own their own health information.

- SNP Manifesto 2021



Digital Prescribing & Dispensing

Key elements of the ideal future state



Fully **electronic**, eliminating a convoluted paper trail with attendant **financial savings** and **environmental benefits**



Prescribing will be **distributed** across the **multi-disciplinary team (MDT)** with all professional roles (GPs, Nurse, Pharmacy and AHP Prescribers) having seamless electronic **prescribing rights and permissions**



Most **prescriptions** will be **safely authorised** for a specific **duration** with no need to reauthorise and issue at specific intervals, **reducing bureaucratic workload** for both prescribers and non-prescribers and **releasing time** for **clinical care** and other **patient-centred activities**.



GP IT will deliver a **safe and secure streamlined workflow** for **prescriptions authorisation**



What's next?

...for OpenEHR on the NDP



New workloads

Multi-tenant
architecture



Scale

Cloud-native
architecture



Stability

Building
trust



Awareness

Empowering
clinicians

How?

...with a little help from our friends



Learning
...from those
that went before us



Partnerships
...with private
and public sector



Sharing
...what we learn
with the community

Thankyou!



Dr Paul Miller
Clinical Informatics
Lead



Daniel McCafferty
Associate Director for
Engineering