



How Covid-19 is changing health systems: A global perspective

Mark Britnell

Senior UK Health Partner and Global Healthcare Expert

KPMG UK

  @markbritnell

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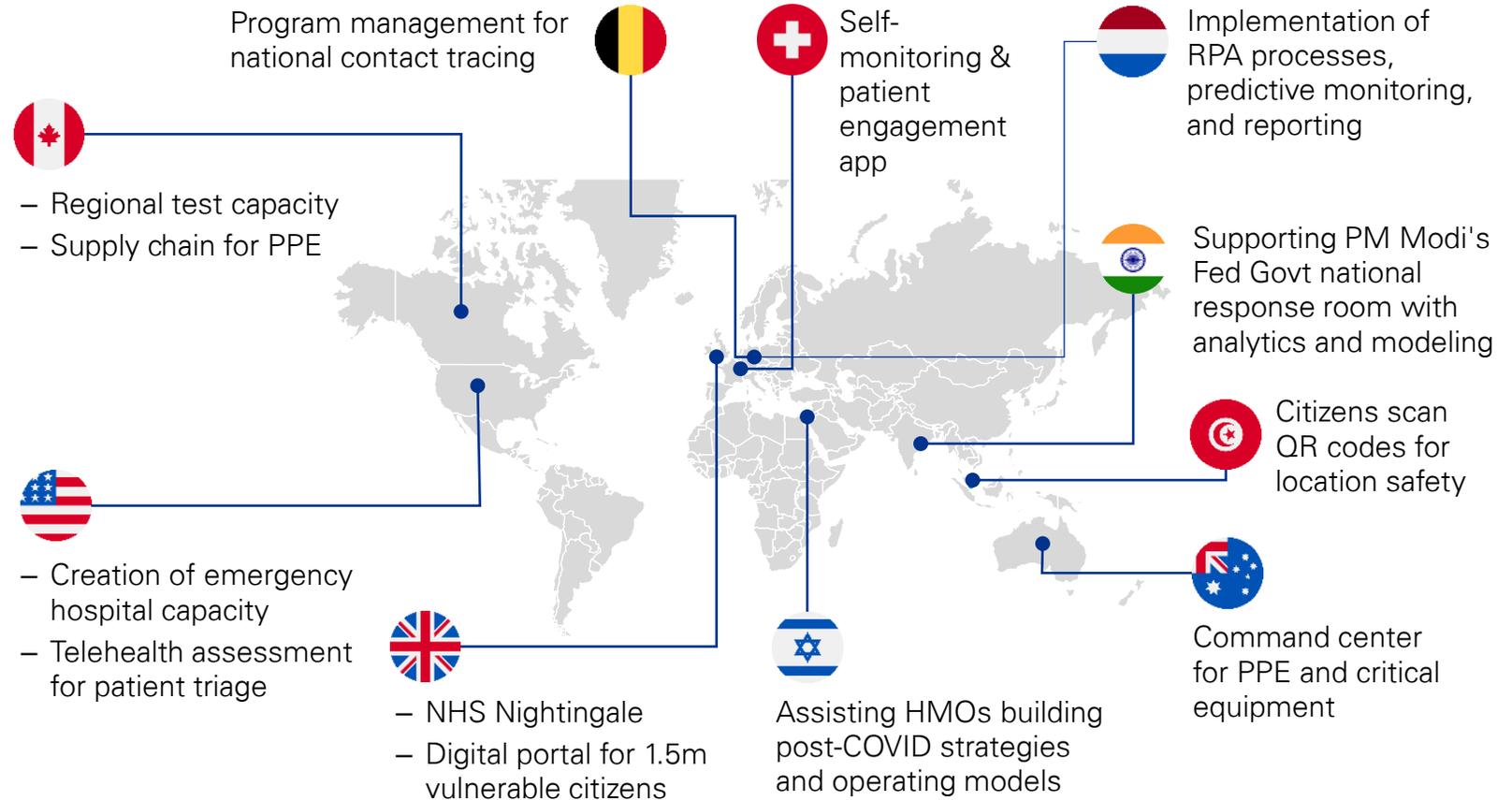
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Global reach in unprecedented times

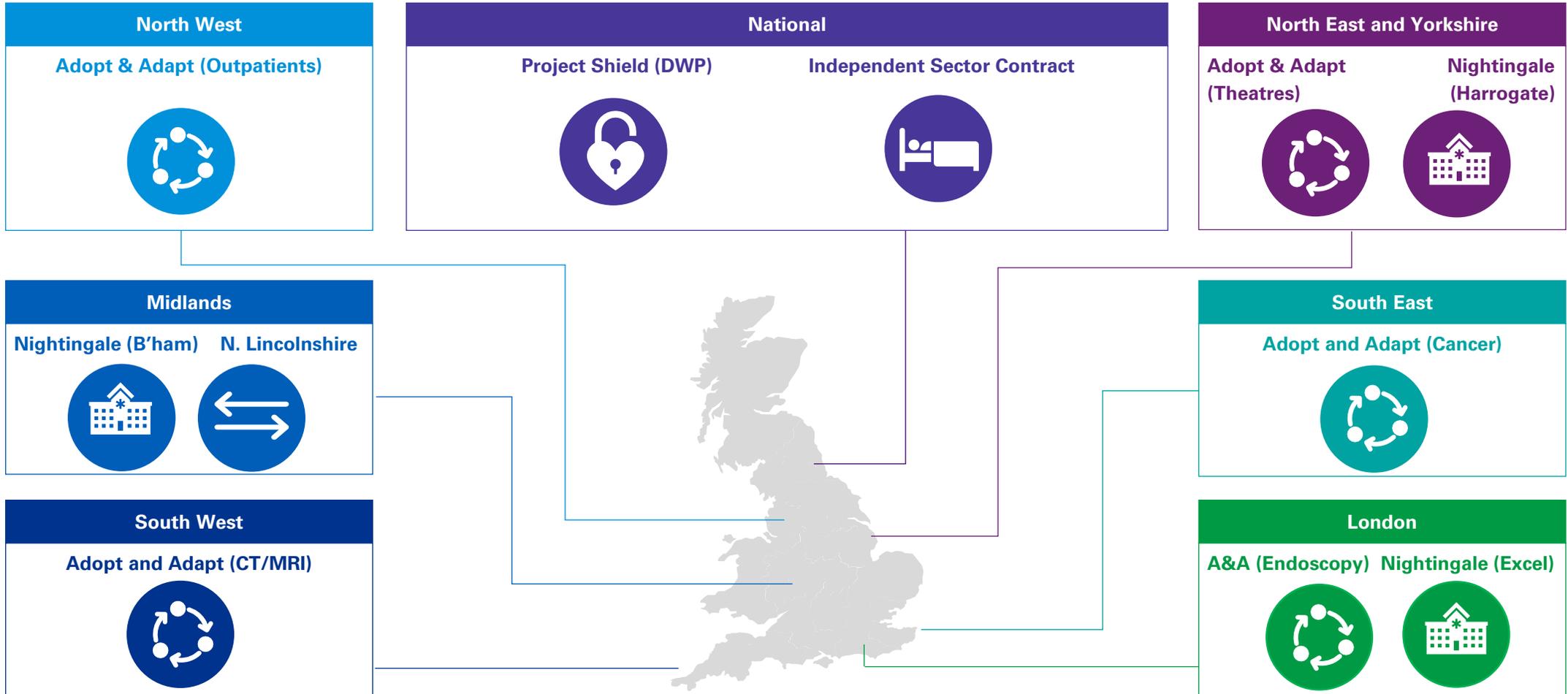
Since March 2020, our teams worldwide have been working closely with both clients and each other to rapidly scale support and share best practice globally.

95+

Engagements



The list of engagements is not exhaustive.



Adapting to the new reality

The 10 ways health systems are adapting to a new reality



- 1 Digital Front Door
- 2 Clean and Dirty Sites
- 3 Hot and Cold Sites
- 4 Scaled up primary care and centralised specialty services
- 5 Aged Care Services
- 6 Supply Chain Resilience and Back Office Scale
- 7 Command Centres
- 8 Agile Workforce
- 9 Institutional and Health System Governance
- 10 Project Management

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Digital Front Door

The only front door

Remote Consultations



- **Telephone hotline service** – protocolised and scripted navigation service
- **Chat-bots** - to manage online queries
- **Nurse triage** - for suspected C19 patients
- **Remote working** – for all staff (inc clinicians)



UK



NHS South East Adopt and Adapt Program (Cancer Services)

- **Tele-Dermatology** to speed up diagnosis
- **Cancer Pathway app** that allows patients and their clinicians to understand where they are including diagnostic test results

NHS England and NHS Improvement



Personal Health Records



- **Integrated:** primary and secondary care
- **Interactive:** with patient editing rights and secure messaging functionality
- **Inter-connected:** with fitness apps



Remote Monitoring



Home monitoring for LTC

Home monitoring of vital signs using Bluetooth to submit data via app



Home monitoring for C19

Remote monitoring of C19 patients recovering in isolation at home



Ping An Good Doctor

平安好医生

Global Medical Consultation Platform

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Separation of clean and dirty (Green and Blue)

Lincoln

Increases capacity to care

UK



Lincolnshire has achieved **pre-Covid activity** levels in **Chemotherapy** through regular testing of staff and strict rules governing movement of staff between green and blue sites. Since introduced, not a single patient has cancelled a session out of concern re Covid.

South Korea



South Korea was the first country to set up drive-through testing to avoid potential Covid positive patients coming into contact with other areas of the health system

Singapore



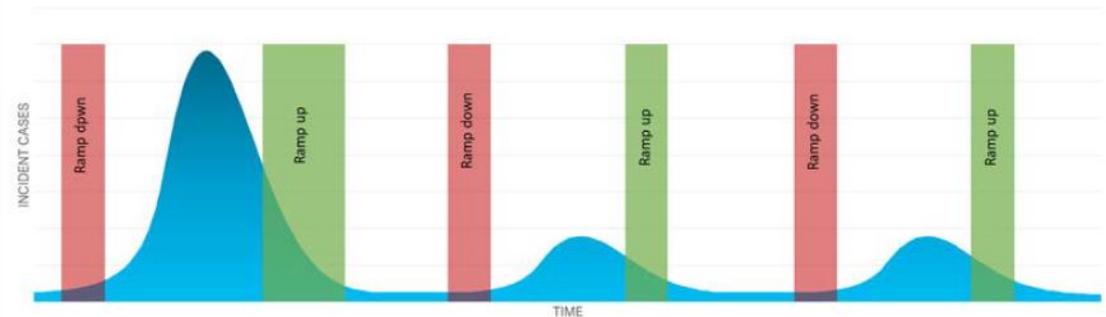
- **Facilities:** Fever tents outside ED's to triage patients
- **Equipment:** Portable X-rays, dedicated CT scanners
- **Staff:** Team working to lower potential transmission
- **Communication:** increased use of virtual channels

Conditions for re-starting elective care in hospitals:

- Sufficient inpatient space
- 30 day stock of critical supplies
- Adequate workforce
- 15% reserve capacity in acute care
- Regional sign-off



Hospital Surgical and Procedural Care



Hot and cold sites

New patient flows

Germany



Germany's federal government provided hospitals with compensation for lost income when they cancelled elective procedures:

- **€560 a day** for every acute bed they keep vacant for a Covid-19 patient; and
- **€50,000** for each additional intensive care bed

Since then, the occupancy rate of German ICUs has fallen from around **80%** to **50%**

Economic Imperative



1.4m US
healthcare jobs
lost in April 2020

Occupancy rates at
some state academic
hospital facilities now
as low as **60%**



estimates US
hospitals are losing
\$50bn a month

Occupancy rates will
continue to be affected
after lockdown due to
social distancing
measures

UK



Delivering endoscopy on a cold site (Grantham) has enabled Lincoln to achieve

130% pre-covid activity levels

NHS

Australia



Public Private Partnerships drawn up to ensure ongoing elective care at private care facilities

- 30,000 hospital beds
- 105,000 nurses and staff

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Scaled primary care and centralisation of specialty services

Size matters

Critical Care



Field hospitals to provide critical care for Covid-19 positive patients have been set up in many countries including the UK, the US and Spain, though China was the first. The Leishenshan hospital in Wuhan treated over 2000 patients with around one quarter of the capacity dedicated to critical care.

Cancer Care



The National University Cancer Institute, Singapore (NCIS) discontinued all Community Cancer Services during the epidemic, providing treatments only at its main site.



Primary Care

**Nightingale Hospital (Birmingham)
Primary Care Hub**

A move to remote working in general practice left a gap in the capacity to carry out face to face consultations. In just 3 weeks, a centralised primary care hub was developed in the UK in Birmingham, with capacity to see up to 1,500 patients a day, who had been triaged first via remote consultation.

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Aged care services

Achilles heel?

Global Best Practice



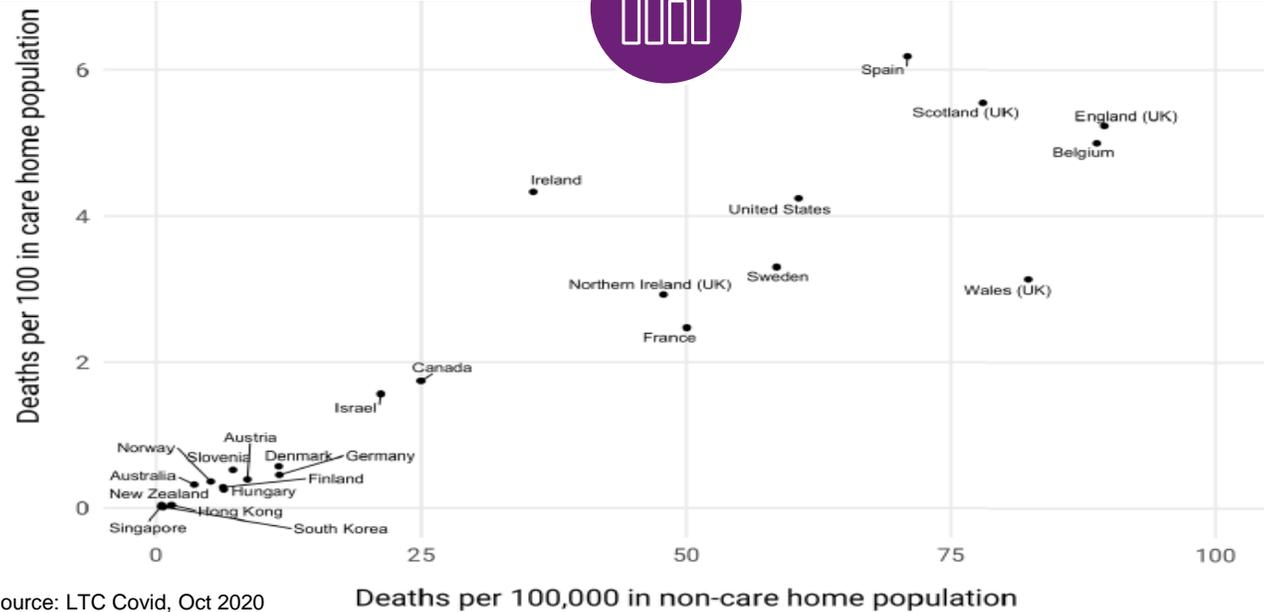
Singapore

- Care staff housed in private accommodation
- Staff testing every shift
- Testing of residents before admission

South Korea

- Dedicated quarantine facilities for self-isolation
- Regular temperature checks
- Restricted visitor access

Covid-19 mortality rates in care homes versus community



Source: LTC Covid, Oct 2020

Deaths per 100,000 in non-care home population

Countries with missing data removed

Historical Underinvestment



By **2050**, the number of people aged **80** or over worldwide will **triple**

The C19 **death rate** for social care workers in England is **double** that for their peers when adjusted for age and sex.

Supply chain resilience and back office scale

Scale matters

Domestic production



Repurposing of local manufacturing capacity to produce PPE (gowns and hand sanitizer)

FDA issued guidance on safe use of PPE made with

3D printing



Analytics and Modelling



Australian State Government

- Command Centre for State PPE supply chain
- Sophisticated D+A to model demand and supply
- Visualisation outputs to support purchasing and operational decision-making

Scotland



Test and Protect (Scotland)

- Go-live delivered on time and without service disruption.
- Creation of a single programme across Scotland.
- Design of the operating model, testing launch readiness and managing data flows between organisations, MI and reporting dashboards.

Digital Supply Networks



Rapid Supplier Connect

Helping to relieve hospital PPE shortages by rapidly verifying and on-boarding new suppliers, including smaller non-traditional ones

Use of blockchain and AI technology to provide real-time insights into inventories and relieve supply chain bottlenecks.

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Command centres

Flow managed by the system

National systems



The Helsinki and Uusima Hospital District (HUS) is a collaboration of academic hospitals in Finland, which share data to operate a “virtual hospital” – combining medical and digital healthcare.

The hospitals have a coordinated approach to the management of patients across a discrete number of clinical pathways.

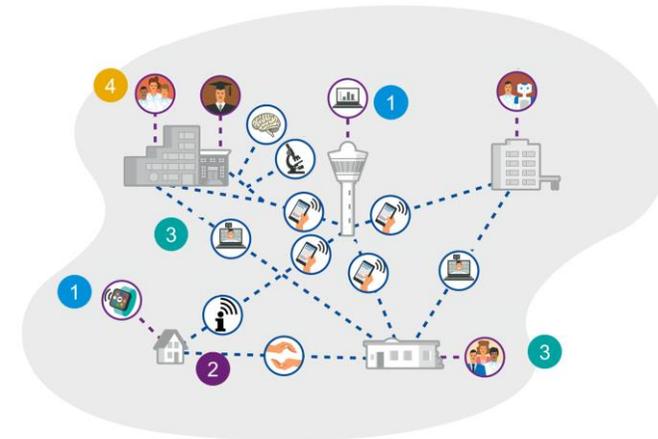


Regional systems



Ambulance Victoria use a command centre to manage their fleet of road and air ambulances over a 227,000 km2 area that includes 7 regions – both metropolitan and rural.

Combining real time data from hospitals, GPS and traffic data, Ambulance Victoria has managed to significantly improve operational efficiency and patient flow for a population of 5 million, operating 840,000 responses a year.



Hospital systems



78% reduction in cancelled operations due to bed unavailability



Functional effect of opening 16 additional inpatient beds



Agile workforce

Tasks not jobs

Remote Working



A large multi-site community hospital network in Canada used O365 and Microsoft Teams to facilitate:

- Virtual patient communication
- Remote staff communication

niagarahealth

Extraordinary Caring. Every Person. Every Time.

Flexible regulation



Waivers introduced to support increased use of telehealth and



expanded scope of practice

Multiple states have changed legislation to permit **cross-border** consultations and to allow Nurse Practitioners and Physician Assistants to **practice independently**, without supervision from a physician.

Top of licence



The Nightingale Hospital in London developed a **unique clinical model** that defined roles by **tasks and competencies**.

The ratio of ICU nurses to patients increased from **1:1** to **1:6**, with professions in less short supply supporting them. This included lay members of the public, who had received training.

Staff Wellbeing



JAMA

Lai et al, March 2020

Of **1257** health care workers in China:

34% reported insomnia

44.6% reported symptoms of anxiety

71.5% reported distress

Institutional and health system governance

Health systems not hospitals

Canada



Regional plans to restart elective surgery with sites varied according to local C19 prevalence and hospital preparedness



United States



A 2,000 bed field hospital was commissioned by the State of Colorado to provide extra treatment capacity for Covid-19 positive patients. Multiple providers cooperated on the project.



UK



NHS North East Adopt and Adapt Program (Theatres)

Low Volume / High Complexity cases shared across ICS via shared PTL to ensure equality of access by system, not provider



National Coordination



Taiwan

Taiwan's National Health Command Center (NHCC) acts as an operational command point for direct communications among the central, regional and local authorities

Singapore

Daily meetings occur between Regional Health System managers, hospital leaders, and the Ministry of Health to manage the epidemic

Exhibition Centre to Hospital



9 days
to equip and fit
500 beds



160+
contractors



200
army engineers
working up to
15 hour shifts

To create a hospital for...



4,000
patients



80
wards of 42 beds



16,000
staff,
200 per ward

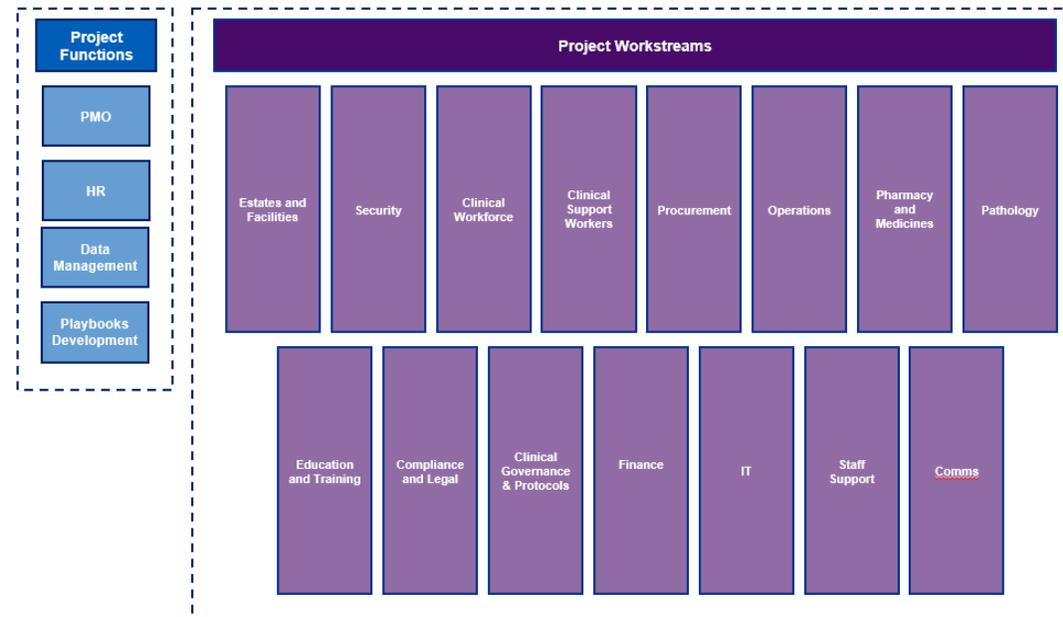


750
St John Ambulance
volunteers



Thousands
of Easyjet and Virgin air cabin
crew have been urged to help

Project Nightingale





The largest vaccination mobilisation in our history

