

**We help deliver,
de-risk and accelerate...**



**...your concepts into
successful products**

The 5G Healthcare Innovation Programme

Translating 5G innovations from concept to market deployment into healthcare settings



cpi



North East and
North Cumbria



Digital solutions are central to the NHS's response to operational pressures and resilience challenges



Bed blocking: NHS bottleneck puts patients at risk - report

7 September 2023



Patients face 'frightening' NHS backlog

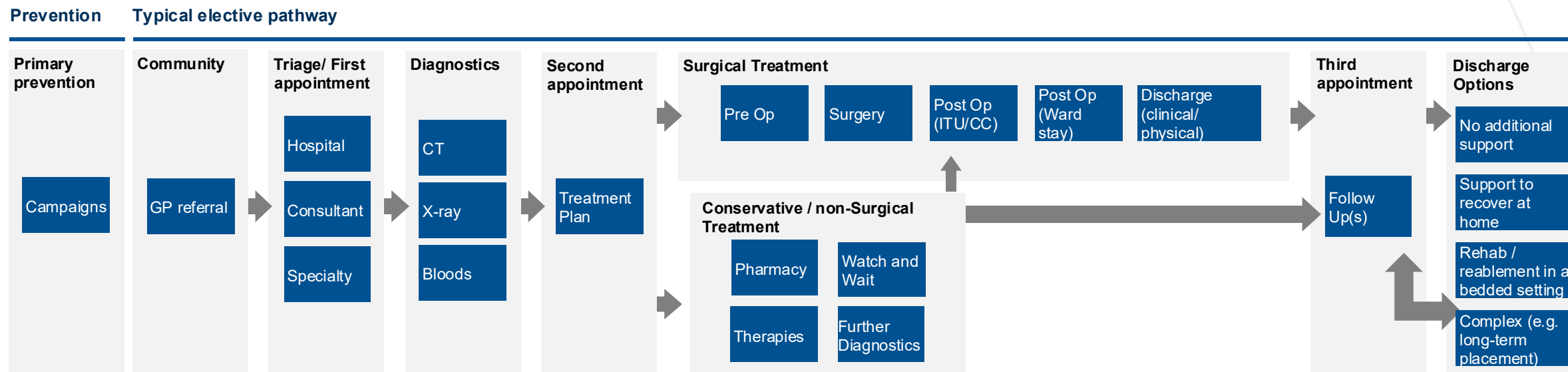
Denis Campbell
Health policy editor

Patients could be waiting up to two years for vital operations by the time of the next election because of a "truly frightening" backlog of care caused by the pandemic, NHS England's former boss has said.

undermines confidence amongst those people who fund the service - taxpayers," he added. Nicholson was the chief executive of the health service in England from 2006 until 2014, when Sir Simon Stevens took over. He is the chair of the Worcestershire acute hospitals trust, is about to take up the same post at the Sandwell and West Birmingham hospital trust, and is the chair of the NHS

How Thinking Differently Can Improve Patient Flow, Speeding Up Discharge Times

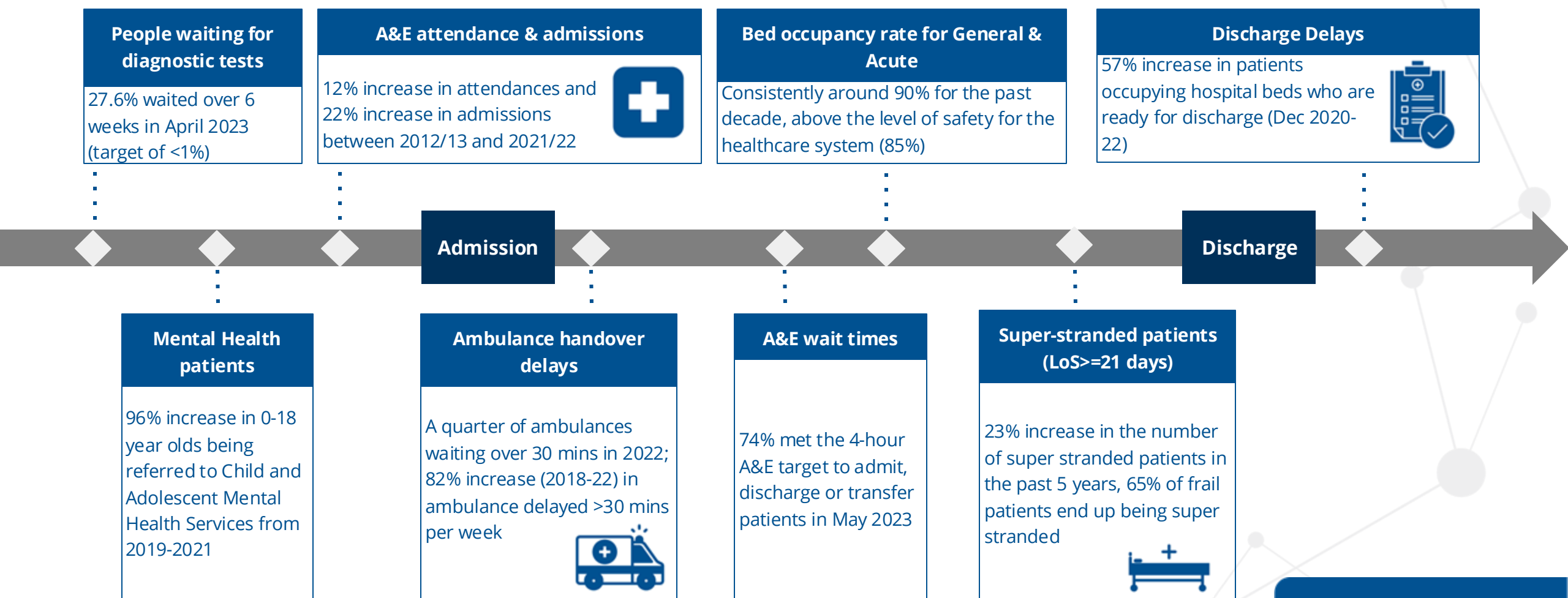
There are numerous challenges across a typical elective patient pathway



A number of **Key Performance Indicators (KPIs)** can be used to assess the patient flow challenges across a typical elective pathway, such as:

KPIs	<ul style="list-style-type: none"> Diagnostic test wait times 	<ul style="list-style-type: none"> A&E Attendance Ambulance handover delays A&E Wait times 	<ul style="list-style-type: none"> Bed occupancy rate & overnight bed availability Super-stranded patients (≥ 21 days) Actual vs expected length stay 	<ul style="list-style-type: none"> Delayed discharges Unmet social needs and community care services
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NHS performance has been challenging across several points in a typical patient journey



Increased demand, lower capacity and the elderly population highlighted as key drivers of issues



Increased demand for emergency care

- **A&E attendances rose 25.7% in the past decade** and whilst some of this increase can be attributed to **population growth** (especially patients with long-term conditions and the elderly), some of it is due to lack of availability of **primary care appointments**, increasing **waitlists** for elective surgeries causing deterioration in conditions, as well as NHS 111 or GP **referrals**
- These increases have a direct impact on patient flow across the system



Limited resources and capacity

- The UK has been ramping down bed numbers in the past decades and has a **much lower number of hospital beds relative to its population** compared to OECD nations
- The lack of capacity and **senior decision-making staff increases delays** in the A&E department and beyond, as patients are often clogged in the journey waiting for a bed in the appropriate setting to become available or waiting to be discharged
- The system cannot meet the **increased demand of young people with mental health conditions**



Ageing population

- The UK has an ageing population and the needs of this patient group are **complex** as they often suffer from **multiple ailments**
- The **over-65** group makes up **21% of A&E attendances** and, of those admitted, **~60% of over-75 year olds become super-stranded patients**
- The **shortage of social care staff and care home beds** limits the ability to look after these patients outside an acute setting in instances where they do not have carers and support at home

Point solutions are currently being deployed to try to address some of these challenges (e.g. remote monitoring solutions, health apps)

Digital health technology will play a key role in achieving the ambitions for the healthcare system



- By fostering digital health and technology, the UK will aim to address some of the **challenges faced by the NHS – collaboration** will be key to exploring new technologies across a range of areas
- A key priority for **technology funding** is to support health & care systems to **level up** their **digital maturity**, and help to ensure they have a **core level of infrastructure, digitisation and skills** by **March 2025**
- A new digital and technology **procurement framework** will also be introduced to **streamline** the process for both buyers and vendors, removing duplication and reducing costs
- To engage **smaller-to-medium sized companies**, a **Small Business Research Initiative healthcare award** programme has been established to support innovators and entrepreneurs
- **Guidance and favourable regulation on AI** and new technologies will also be essential to demonstrate that the UK's health service is leading in **innovation-friendly regulation**

A number of specific priority areas are consistently reinforced, such as:

1

Set up control centres/ICS level dashboards to support capacity management and planning

2

Rollout Electronic Bed Management Systems across providers

3

Digitised records (EPR) & Patient Portals to enable the proactive management of care

4

Use data to optimise waiting lists

5

Rollout Dynamic Discharge Solutions to plan and track hospital discharges

6

Use AI tools to address diagnostic backlogs

Patient Flow and Discharge Challenge Areas in Our Programme

Communication and Coordination: Streamline communication and collaboration between patients, staff, and providers to enhance the patient experience.

Tracking and Asset Management: Enable better tracking, access and management of assets within hospitals or care homes

Patient Flow Modelling/Demand Signalling: Digitally optimising patient flow modelling within hospitals, improving the coordination and movement of patients through various departments while ensuring the efficient use of hospital resources.

Remote Monitoring: Enable the remote monitoring of patient health and wellbeing in hospitals or care home settings

Data Sharing Innovation: Implement disruptive solutions to leverage secure, high-bandwidth data environments.

Innovator Examples (1/2)

- Streamlining **equipment tracking** in healthcare: Tracking patients, medical assets/equipment, and prescriptions across the entire care pathway.
- Device for **pain detection in premature babies** through computer vision and deep learning.
- Digital tools to help therapists and service users during **talking therapy treatment**.
- Apps/devices for care workers to **collect, monitor, and track voice notes** to log patient observations, and care activities in real time whilst delivering care at patients' home or community hospitals.
- Real-time **asset-tracking solution** designed specifically for healthcare settings. The solution streamlines asset location and collects data on usage patterns and device lifecycle management, enabling data-driven decision-making and aligning with NHS sustainability goals.
- **Non-invasive vital signs monitoring** system tailored for elderly residents, hospital patients and care home residents.

Innovator Examples (2/2)

- A technology-driven solution using advanced AI and computer vision to **detect motion and falls**, a common and serious risk for the elderly.
- **Monitoring of environmental conditions** in individual resident rooms in care homes can provide useful insight into comfort and indirectly to well being.
- Computer Vision and Machine Learning for **real-time movement tracking and feedback**.
- **Gait monitoring**: assisting stroke/orthopaedic rehabilitation to monitoring frailty.
- **Smart wound healing devices** and associated digital platforms.
- Digital health solutions to treat older people at **risk of falls** without the need of a highly qualified physiotherapist.
- **Stock management** devices and platforms.
- **Bed availability management** device and platforms for care homes and acute care.

An EU programme in Oulu University Hospital, Finland

Wireless wearable technologies for patient wards: With WICOAR HealthVision (smart glasses with augmented technologies), doctors and nurses will have instant visual access to critical patient data, enabling faster diagnoses and informed treatment decisions.

Mobile-app software for quick and reliable communication: WICOAR HealthAudio provides doctors and nurses with a reliable platform for swift communication.

Wireless wearable technologies for surgical theatres: During surgeries, surgeons can wear WICOAR HealthVision glasses to maintain constant visual access to patients' vital signs.



Remember, technology is just one aspect in the innovation journey

As interviewees have been reinforcing, there are **other factors to be considered** when driving the adoption of new technologies:



Digital maturity of organisations

ICSSs need to have in place **teams** with the **right capabilities** and **digital understanding** to drive forward **innovations** - the role of the **CIO** is key in setting the direction of travel



Focus on demonstrable results

Small and Medium Enterprises should have a **clear view of their value proposition** when engaging the NHS - what problem they are addressing, what are the **inputs** required (incl. change management) and what the **outcomes, outputs and impacts** delivered are



Governance

Systems and **products** that are being rolled out in the NHS must **seamlessly exchange** as well as make use of **data** and **information**, across **system** and **organisational boundaries**; they must also facilitate the **safe and secure management** and **sharing of information**



Support programmes for SMEs

The NHS is known for its **complex procurement processes and requirements**, which **smaller** businesses might find difficult to navigate. There is a need for dedicated **support programmes** that can offer **SMEs advice** on how to navigate the NHS, or SMEs can also consider **partnering with established companies** when first **entering** this new market for them



Change management

New system and product rollouts in the NHS usually come with a level of **organisational change** required, and the **organisational redesign** effort is determined by the **proportion of individuals** who **adopt the changes** and **operate** in the desired way; staff **training** and **support** to adopt new ways of working is key

Thank you