The Global Language of Business

**2nd December 2024**

Via email to changenhs@thinksinsight.com

**GS1 UK Response to: Change NHS consultation**

GS1 UK is a not-for-profit membership body that enables trusted data through global standards. Annually, our 60,000 members generate over £1tn worth of turnover in the UK. We were founded to enable the transformational barcode, which goes beep at the till more than ten billion times per day across the world.

**Commented [AC1]:** "Global adoption of barcodes". Just wonder if the uninformed reader could mistake transformation barcode for a special type

Our standards form the basis of a global business language that identifies, captures and shares key data on products seamlessly around the world. Our standards have been enabling data transfer and driving productivity gains across retail, construction, healthcare and all complex supply chains for over 50 years.

Our unique position as a global not-for-profit federation ensures that our standards are globally interoperable, facilitating data exchange across multiple and often competing systems, allowing complex data to be shared quickly and easily between non-propriety systems.

Across healthcare, GS1 standards underpin many of the productivity improvements that have been sought from successive governments. However, a failure to understand how these work and how they can be implemented has led to a series of central government failures to capitalise on these simple measures.

Many of the measures highlighted in this response are often cited as policy measures that should have happened years ago or are already believed to be happening across the NHS. In reality, these simple changes and practices are not common practice across the NHS and England risks falling behind, both in terms of productivity and patient safety.

Outside of secondary care, GS1 standards also underpin the food traceability supply chain. This means using the barcode and QR code to carry data about the nutritional value of products, as well as allergen warnings. With the development and industry roll-out of QR codes powered by GS1, there is greater opportunity for additional data to be carried on product (including batch numbers, expiry and, nutritional information). This means more data in the hands of consumers, allowing them to make better informed choices in relation to their diets.

We hope that you find these comments and evidence useful.

**Q1. What does your organisation want to see included in the 10-Year Health Plan and why?**

GS1 UK want to see a productivity strategy for NHS England that focuses on the simple measures that can make a big difference across the NHS. These are not the big picture projects that grab media attention, but a series of technical and practical improvements that have been shown to produce returns in terms of time, cost and lives.

For GS1 UK, this means putting interoperable data standards at the heart of information sharing across NHS England, allowing clinicians to spend more time with patients, and less time on paperwork.

For the NHS, this means introducing point of care scanning across every NHS trust in England. This automatically captures data as care is happening or being administered, and uses that data to populate a number of records and systems held across trusts, practices and the supply chain. This reduces the risk of transcription errors, improving quality care and reducing administrative costs.

This, along with many other improvements across NHS England, can only be achieved via the use of trusted, accurate, interoperable data. NHS England collects phenomenal amounts of data as patients move through a system. However, too often this data is collected manually, in an analogue format, isn't shared across departments or Trusts, and recaptured later again wasting time and resource.

Point of care scanning is the largest visualisation of what can be achieved when data is captured and shared via the use of interoperable standards and these practices are followed by clinicians. However, the principles involved in point of care scanning are not confined to NHS Trusts, but involve the wider supply chain including accessible and transferable patient records, enabling a 'wrap-around' health system across the whole of the NHS.

Introduction to Point of Care scanning in Operating Theatres

At a simple level, a clinician may scan their name badge, the room location, the patient wristband, any medicine administered, surgical tray, or implant used. This would automatically be captured and shared on patient records and inventory management systems; showing which clinician provided treatment, where the care was given and when, and what drug or implant was given or used on which patient – all without a single form having to be filled in manually.


A video broadly showing how this already works in some NHS trusts can be found in the reference below[1], however there are a number of steps Government must take to make this a reality across all NHS trusts in England.

Outside of theatre, this principle also helps track medicines, blood products and even provides data for live bed state and facilities management. By using GS1 standards for product identification, medicines can be traced through the supply chain directly to the patient. This works by scanning the barcode on the medication which is encoded with a Global Trade Identification Number (GTIN).

Each time the barcode is scanned, key product data (such as the batch number, expiry date, and dose of the medication), is accurately captured and recorded in near real time. This can then be held in a desired system (e.g. pharmacy system or electronic patient record), creating an audit trail of the product journey and use. In the footnote below we have linked to a video where robotics in pharmacy have used GS1 standards to speed up and automate some manual processes[2] .

[1] Explainer video: https://youtu.be/IIpfNeKz9Ck
[2] Robotic Pharmacy video - https://www.youtube.com/watch?v=ljGT39hqB-s

Before we can fully utilise GS1 standards in a healthcare setting, such as those highlighted above, there are a number of steps which must first be taken. We have laid out these steps across the timeline set out in the consultation document (1-2 years, 2-5 years, 5 years +). alongside some other recommendations such as falsified medicines directives which must be enacted by the UK.

**Q2. What does your organisation see as the biggest challenges and enablers to move more care from hospitals to communities?**

Providing care within an NHS trust places the patient within a controlled ecosystem where equipment is accessible, medicines available and data accessible (ideally). When care moves out of this controlled environment, there are several considerations which must be made and actions which ought to change.

For GS1 UK, the most relevant is the collection of data, record keeping, and integrating this with wider NHS systems. As we will set out, point of care scanning enables a much wider NHS ecosystem that brings benefits to clinicians, patients, those looking after budgets and the supply chain.

If a critical part of that ecosystem were to move from trust to community, due consideration must be given to how data will be captured and shared from the community back to the centre.

GS1 standards are, by design, interoperable and neutral. This means that they work across locations and can be used regardless of which service provider an NHS trust is contracted with. We would strongly encourage that any care in the community that would have otherwise occurred in a trust, to be treated with the same levels of data integrity and operability we wish to see rolled out across NHS England.

**Q3. What does your organisation see as the biggest challenges and enablers to making better use of technology in health and care?**

GS1 UK has long campaigned for the rollout of point of care scanning across the UK, with the NHS in Scotland and Wales already starting their journey. During this process, we have come up against a number of common but not insurmountable barriers in seeing this applied.

1) Resourcing:

While some NHS trusts have fully implemented point of care scanning, others lag far behind or have only implemented in part. Often this is attributed to a lack of the resources required to roll out fully and waiting for central government to fund the transition, rather than absorb the cost at trust level.

This is despite independently audited evidence from DHSC showing that across just six NHS trusts, this practice saved more than 140,000 hours of clinical time, saved £9m via non-recurrent inventory reductions and £5m of recurrent inventory savings[3].

Understandably, NHS trusts have competing priorities and demands so what is sometimes a "great thing to do" simply doesn't get done. The potential savings in terms of time, money and lives across NHS England are however significant, which highlights the case for centralised action rather than the slow rate of individual trust adoption.

Governments in Scotland and Wales have already begun to take the first steps towards implementing point of care scanning, with the NHS in Scotland recently completing its roll out of a national inventory management system[4]. There is a real risk of the NHS in England falling behind other nations in the UK if a centralised roadmap isn't put in place.

2) Coordination:

Fully implementing point of care scanning across NHS England requires a level of coordination that cannot be achieved by NHS trusts alone.

For example, the use of GS1 patient identifiers (wristbands) being reissued when transferring trusts, despite the data standard being interoperable. This is

[3] Scan4Safety evidence report: https://healthcare.gs1uk.org/scan4safety
[4] https://www.nss.nhs.scot/news/nss-completes-major-transformation-milestone-in-supply-chain-traceability/

because of the lack of use of a single patient identifier makes it challenging to match patient data to the right patient record. This makes it difficult to provide continuity of care and limits clinicians from having access to the right patient information when needed. We have gone into more detail regarding the case around patient identification below, but would stress that coordination across NHS England is a key factor in realising the full benefits.

**Q4. What does your organisation see as the biggest challenges and enablers to spotting illnesses earlier and tackling the causes of ill health?**

Empowering the public to make better health decisions using trusted data is critically important for a healthy nation. GS1 UK strongly believes in informing and protecting consumers, and has worked with industry to implement solutions to High in Fat, Salt and Sugar (HFSS) regulations.

HFFS Regulations often require the sharing of food data across the entire supply chain so that nutritional values are clear and retailors comply with restrictions on their promotions and placement.

GS1 standards allow for consistent identification of products and their movements through the supply chain. This includes uniquely identifying which products are in and out of scope for the HFSS regulations as the nutritional data has been captured and shared.

The arrival of QR codes powered by GS1 in the retail space also enables producers to encode more data, such as batch numbers and expiry dates, placing more information in the hands of the consumer.

We believe the move to digital labelling in this space will allow for more advanced information to be shared, and the public empowered to make healthier decisions.

**Q5. Please use this box to share specific policy ideas for change. Please include how you would prioritise these and what timeframe you would expect to see this delivered in, for example:**

- **Quick to do, that is in the next year or so**
- **In the middle, that is in the next 2 to 5 years**
- **Long term change, that will take more than 5 years**

GS1 UK want to see the adoption of point of care scanning across NHS England, however there are a number of steps that need to be taken in order to fulfil this ideal. Below we have set down a suggested order, including timelines of each of these steps, with practical implementation measures.

Within one year

- Ensure that all patients are uniquely identified using the NHS number by mandating it across the NHS

Once a patient's identity has first been established, healthcare providers should routinely reidentify the patient each time they are giving care. This is known as positive patient identification.

Positive patient identification across NHS England is often considered routine and one of the first steps before any treatment can begin. Knowing who the patient is should be quick, simple, efficient and effective, yet HSJ reported that in 2023 there were 12,482 incidents of patient misidentification, with 1,161 of these resulting in harm to the patient – wrong patient, wrong procedure / drug[5].

In part, this is due to the multiple identification methods used within individual trusts and a lack of interoperability across the NHS in England, thus causing confusion, a lack of robustness, and inefficiency.

[5] https://www.hsj.co.uk/patient-safety/hospitals-harm-hundreds-of-patients-a-year-by-misidentification/7037263.article#:~:text=Responses%20to%20Freedom%20of%20Information,with%20943%20leading%20to%20harm.

| NHS Trust A | NHS Trust B | NHS Trust C |
|---|---|---|
| Last name | Last Name | Full Name |
| First name | First Name | District number |
| DoB | DoB | DoB |
| NHS Number | Hospital Number | NHS number |

Above are the positive patient identification policies from three different NHS trusts, outlining the core data that must be captured on a patient wristband.

Although the use of names and DoB may be useful from a beside care view, they themselves are not secure enough and must be matched with more robust data. However, as visible in the table above, the use of an NHS number, district number, or indeed hospital number, creates variance and overlap.

These identification methods have additional implications when patients are transferred between trusts or when patient information is shared across systems – such as electronic patient databases or outside of acute care (care in the community).

For example, one identification policy states that "Patients transferred from other hospitals outside the Trust must be admitted as a new admission. Under no circumstances should hospital numbers from outside the Trust be used for care on site. NHS numbers should be checked as for a new admission and a new patient ID band will be required. Original band must be removed (to avoid use of inappropriate unit numbers). Primary or secondary identification confirmation must be gained whenever possible."

Reidentification upon transferring is essential, only because of the lack of interoperability between trusts in methods of identification.

This is especially frustrating as Information and Standards Board (ISB) specifies the four identifiers that must be included on NHS patient identity bands and the format for processing them (ISB:0099)[6].

[6] https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/isb-0099-patient-identifiers-for-identity-bands

The Healthcare Services Safety Investigations Body (HSSIB) released a national learning report[7] in 2024, following investigations into incidents of patient misidentification. The HSSIB makes several recommendations including setting requirements for what information is used for identification. Observations were also made as to how the use of NHS data standards (DCB0129, DCB0160 and DCB1077) can reduce the risk of errors.

NHS England data standards DCB1077, DAPB0108, and ISB0099, are mandatory standards in place to ensure the accurate unique identification of patients. These standards work in tandem to make sure patient identifiers are captured in a standardised format that can be used nationally.

DCB1077 uses the GS1 Global Service Relation Number (GSRN) – a globally unique identification number – alongside the NHS number and patient identifiable information, to significantly reduce the risk of incorrect patient identification.

All NHS trusts in England that have implemented, or intend to implement, Automatic Identification and Data Capture (AIDC) must adhere to DCB1077 requirements for compliance. This is intended for use alongside the standards DAPB0108 for Automatic Identification and Data Capture (AIDC) [8], and ISB0099 for Patient Identifiers for Identity Bands[9].

Having consistent patient identifiers, both within NHS trusts and with wider systems, helps reduce errors and dramatically improve the rate at which data can be exchanged – be it between departments, trusts, electronic patient records or even the NHS app.

The report "First do no harm" from 2020 also calls for the NHS number to act as a consistent data field enabling datasets to be linked across systems[10]. Enabling a consistent data field to be captured and recorded at every patient interaction with a healthcare service provider, enabling a "collect once, use often" approach across the NHS.

[7] https://www.hssib.org.uk/patient-safety-investigations/positive-patient-identification/
[8] https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/dapb-0108-automatic-identification-and-data-capture-aidc
[9] https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/isb-0099-patient-identifiers-for-identity-bands
[10] Page 43, First do no harm, https://www.immdsreview.org.uk/downloads/IMMDSReview_Web.pdf

This brings us to our second recommendation.

Within two to five years

- All electronic patient records (EPR) systems must use NHS data standards

We have already established the need for a secure consistent identification standard (NHS number) to be used to identify all patients and comply with existing data standards to enable interoperability. This is a critical element to enable an ambition held by multiple governments, the ability to quickly and easily access an up-to-date patient record anywhere within the NHS system, including by individual patients.

Currently NHS England has accredited eight suppliers of EPR systems that are used across most, not all, NHS trusts. This means that in most cases information on a patient's record can be shared, updated and accessed electronically within trusts. Whilst the use of EPR systems is to be heavily encouraged, for similar reasons to those highlighted above, they must be interoperable.

Currently there is no requirement for each EPR system to carry a consistent NHS data standard for patient identification. This makes sharing patient data across EPR systems slow and cumbersome, causing delays and inaccessibility, which can pose risks to patient safety. This is especially true where patients may be transferred between trusts, causing delays in care due to record transfer. This also extends to care in the community where patient records should also use the same NHS data standards to provide a single view of a patient's care journey

HSSIB have conducted numerous investigations over the years where the lack of EPR system interoperability has posed a risk to patient care[11]. We would particularly highlight two recommendations following the investigation around improving interoperability and accounting for human factors.

1) Lack of interoperability

A key finding in the report, which occurred in a number of investigations, was the overall lack of interoperability between EPR and other existing IT systems in the NHS. This means that when computer systems or software fail to exchange information in this way, there are real world consequences.

[11] https://www.hssib.org.uk/news-events-blog/electronic-patient-record-systems-recurring-themes-arising-from-safety-investigations

*"Ann, a 75-year-old, was discharged home taking two powerful blood thinning medications after a mix-up at her local hospital. We found a lack of interoperability between primary and secondary care systems, between secondary care facilities, between secondary and tertiary care, and between secondary care and community pharmacy."*

*"Pauline, a 54-year-old woman, was discharged from hospital on two separate occasions with a plan to follow-up in outpatient clinics. However, neither of the outpatient appointments were made. A key finding in this case was that the lack of interoperability between IT systems adds complexity and increases the likelihood of error in the outpatient appointment booking process"*[12].

Having a consistent, interoperable data fields across multiple systems can act as a linchpin to sharing data, not just in acute care, but across the wider health ecosystem. This helps improve transfers within the trust and could potentially assist with the Government's aim to move more care into the community.

2) Training and Human testing

Additionally, the act of scanning is quick, simple and something many of us have experience of – regardless of medical qualification. HSSIB cited that EPR systems should undergo human factors and useability assessments to better ensure their functionality. Scanning however allows for much of this to be automated, reducing input errors and lowering the threshold of use for care givers.

NHS trusts with EPR systems in place are currently tied into their contracts and for varying lengths of time. However, central government can issue procurement notices mandating that these EPR systems, when renewed or reissued, must conform to NHS data standards, enabling interoperability and data sharing across systems. This should include compliance and use of existing NHS data standards, with penalties for EPR system producers who do not comply.

[12] https://www.hssib.org.uk/news-events-blog/electronic-patient-record-systems-recurring-themes-arising-from-safety-investigations/

Within two to five years

- Every acute hospital must have a digital inventory management system, to enable a national picture of inventory across NHS England.

In 2016 the Department for Health awarded funds for six hospital trusts in England to investigate how consistent use of point of care scanning might improve efficiency and safety within the NHS. A central pillar to its implementation was the establishment of digital inventory management systems, underpinned by GS1 standards.

Although more than 50 per cent have implemented a digital inventory management system (IMS), there are still NHS trusts using paper-based inventory systems with manual ordering practices. This means that there is little understanding or central data of what products the trust holds, when they expire, how much they cost, or where in the hospital the products are.

Having full traceability of products through the NHS allows for better supply chain optimisation, record collection, patient safety and waste reduction.

Products entering the NHS supply chain are already carrying GS1 data standards, as mandated by 2014 NHS eProcurement Strategy[13]. This means that there is no additional requirement placed on industry and no packaging redesigns would be required.

Implementation of inventory management systems is an early step to achieving full point of care scanning.

Point of care scanning only works when implantable medical devices, consumables and medicines in the supply chain are captured electronically, as when scanned they can be allocated directly against the patient and managed at a stock level for reordering almost instantly.

At East Lancashire Hospital NHS Trust, A&E nurses were spending several hours managing stock control. Up to three times a day they had to refill emergency stock

[13] NHS eProcurement Strategy: https://assets.publishing.service.gov.uk/media/5a7ebfa3e5274a2e8ab47f34/NHS_eProcurement_Strategy.pdf

and conduct weekly checks on product expiry dates amounting to more than 160 hours' worth of work hours[14].

Introducing digital inventory management systems at trust level can streamline ordering and help minimise waste, going from "just in case" over ordering, to "just in time".

Once implemented, at the end of two-year trial;

- Leeds Teaching Hospital NHS trust saved £2.3m just from better stock management.
- University Hospital of Hartlepool saved £1,116,788 in orthopaedic theatres
- Salisbury NHS Foundation Trust saved £1.3m
- Derby and Burton NHS Trust saved £3.2m
- Across all 6 Trusts, more than 140,000 hours of clinical time were released back to patient care

As a result of the Scan4Safety evidence, other nations in the UK have implemented digital inventory management systems and have begun to see returns already. In 2021, NHS Scotland began to roll out inventory management systems with all health boards completed in March 2023.

Data from NHS Lothian shows a 16 per cent reduction in max stock level, with Golden Jubilee New Hospital saving approx. £84k in excess stock reduction.

There are significant cost and waste reduction savings to be made from the implementation of digital inventory management systems alone. When combined with the other measures outlined in this response, we begin to see significant improvements in patient safety, better record keeping, and greater interoperability across the whole system.

- National implantable devices register, using NHS data standards

The introduction of a national implantable devices register, underpinned by GS1 standards, represents a critical step in improving the safety, traceability, and overall quality of healthcare delivery. Implantable medical devices (IMDs) play a pivotal role in the treatment and management of a wide range of conditions, from

[14] https://www.gs1.org/system/files/gs1_uk_01_cases_studies_2024_final_.pdf

cardiac devices to joint replacements. However, the lack of standardised and robust systems for tracking these devices has led to challenges in patient safety, device recall management, and clinical decision-making. Scanning medical devices at the point of care provides accurate data that can be automatically uploaded into the IMS and EPR and into the registry. Uploading this information post procedure is manual and creates room for error.

In 2018, Baroness Cumberlege conducted a review into three medical interventions:

- Primodos (a hormone pregnancy test)
- Sodium Valproate (an anti-epileptic drug)
- Surgical mesh

The results of the review were published in the IMMDS Review, "First Do No Harm". The report identified failings, stating that the healthcare system is 'is disjointed, siloed, unresponsive and defensive', and that 'the system is not good enough at spotting trends in practice and outcomes that give rise to safety concerns'.

Nine key recommendations were made but recommendation seven highlights the need for national registries – 'A central patient-identifiable database should be created by collecting key details of the implantation of all devices at the time of the operation. This can then be linked to specifically created registers to research and audit the outcomes, both in terms of the device safety and patient reported outcomes measures'.

One of the primary concerns surrounding implantable devices is ensuring that they can be accurately traced throughout their lifecycle. In the event of a device-related issue, such as a defect, recall, or adverse event, it is vital that healthcare providers can quickly identify which patients have been affected and take appropriate action. A national register would allow for rapid and reliable identification of patients who have received specific devices.

GS1 standards, which provide a globally recognised framework for identifying, capturing and sharing information about products, would facilitate the accurate and efficient recording of device data. GS1 standards could be used to label devices, ensuring that each item has a unique device identifier (UDI). This identifier would

link directly to the patient's medical records, enabling seamless tracking and timely intervention when necessary.

- More than five years' time

Embed GS1 standards into the new hospital build program

The need for new hospitals is widely recognised, both to increase capacity and to replace deteriorating buildings. We believe that when these new hospitals are designed, they should be embedded with GS1 standards including GTINs, GIAIs and Global Location Numbers (GLNs). This enables construction product data to be captured and shared across the supply chain (in much the same way we have already discussed) with reference to a specific location.

This means that, along with the full adoption of point of care scanning, we will be able to know exactly where a care event took place within a hospital.

For Estates, by using a GLN to identify all location from Hospital to bed space, locations can be scanned to provide real time information of where an asset is located.

For clinical engineering, identifying every asset and location means that each asset can be located at any point, preventing delays in patient care. This all supports the creation of the accurate data required for the National Equipment Tracking Information System led by the DHSC and the Med Tech Strategy and the NMEMS programme by NHS Scotland.

By scanning a bed space and patient wristband, Trusts can see which bed spaces are available at any time. Knowing which beds are available is critical for improving patient flow.

For Facilities management, uniquely identifying every fixed asset at every location means that by identifying the member of hospital staff or contractor, the asset and location, there is real time information on where which asset has been maintained and where.

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