

HEALTHCARE

Integration

Patient-centric
information flow
Process improvement
Clinical safety
Lean thinking
Integrating to
NPfIT solutions

Integration
starts with good
patient-centric
information flow

why

wci

**“we put the
patient at the
centre of our
solutions and
use technology
to support
integration and
automation”**

Healthcare is complicated. Even a small Trust will have dozens of systems and databases to support the specialist needs of its different departments or functions. And because healthcare is complex, applications tend to be complex too. They contain vast amounts of valuable and specialist information about patients, their treatment pathways, test results and those who have contributed to the care to date. However, no single application contains the 'whole story'. Many applications hold discrete information about the patient or focus on providing specific information. To a degree these applications entrench clinical behaviours – clinicians focusing on their departmental or specialist functions.

Seeing the whole patient, taking the holistic view of the care programme is not easy when elements of information are invisible to the user.

Involving clinicians is important

Historically, the challenge for integration has been to join systems together to support patient care and business process flows. In an Acute environment, for example, this will include connecting the PAS (Patient Administration System) to all the different departmental systems via ADT (Admission Discharge Transfer) and Orders and Results information flows.

Integration is traditionally seen as the domain and responsibility of the IS Department. When one of the systems needs to be upgraded or replaced, there is technical work to ensure that all the 'plumbing' connections to the new system work and to prove that they still work to support safe patient care. This way of thinking may mean managers and clinicians

are missing out, or being excluded from, decisions that will affect and influence the way they work and perform, but most importantly the ease with which they are *enabled* to plan and execute the care of their patients.

There are two vital prerequisites for successful integration: the involvement of clinicians and clinical managers *and* a mechanism for exchanging data. With new internet technologies making it easier to connect information across the health organisation (indeed the whole economy), new opportunities arise to serve staff with the information they need to support better patient care. In short, clinicians and clinical service managers must be included in teams charged with applications and system integration.

Structuring information – the foundation for integration

Healthcare has a long legacy of successful systems integration and some of the richest standards of any industry. The Health Level 7 (HL7) organisation has promoted healthcare integration and interoperability since 1987. Its origins come from a group of American hospitals and their suppliers who recognised the value and benefits of linking hospital systems such as Patient Administration Systems (PAS) with laboratories, order communication systems and billing systems. HL7 now produces the world's most widely used standards for healthcare interoperability.

The NHS is one among many participants in this worldwide standards effort, helping to ensure that systems from different suppliers can successfully talk to each other. The HL7 V2 standard underlies many of the interfaces working in the

NHS today, and now there is a new kid on the block – HL7 V3 – which promises to support future needs while leveraging the new language of the internet, XML.

Whichever standard or technology is chosen, there are a set of fundamentals that need to be in place to ensure successful integration. The key is to establish a common frame of reference and common content for the systems communication. Without these, the message sent will be meaningless – or worse still, misleading – when received at the other end. At the detailed level, this means agreeing common vocabularies, common datasets and common identifiers for patients, specimens, healthcare professionals and other elements that are key to the communication. At a higher level, it means understanding the patient information flow or business process that needs to be supported, setting the terms of reference and agreeing the standards to be used. As will be discussed below, these are challenges for management and clinical staff, not just technicians. And if there are challenges in agreeing these between departments in one Trust, can you imagine how much harder it must be to agree them across different Trusts?

The New Healthcare Economy

How much simpler life would be if the patient's journey started and ended within a single Trust! But of course this has never been the case – information must follow the patient as they move from GP to Special Interest Clinic to Social Services to Acute Trusts and back. Accurate and up-to-date information is vital to delivering high-quality patient care. Seen this way, the integration issues move from within the Trust to the question of how to connect

“we combine cross-industry best practice with our 20 year NHS experience”

these multiple Trusts and other organisations together. Certain local best-practice examples aside, the NHS has been poor in the past at moving beyond paper and fax to address the challenge of sharing key clinical data across organisations.

Today there are new challenges: Practice-based Commissioning, 18-week Referral to Treatment (RTT) targets, and a mix of new providers, including Independent Sector Treatment Centres and GP Out-of-Hours. Administration of clinical patient information across the healthcare economy is vital to progressing care and for Commissioners seeking to define the right services and track performance against targets.

The 18-week RTT target, in particular, drives the need for a real-time view of the patient journey across all providers involved. Increasingly, health organisations that act as good citizens in this chain (providing high-quality and timely patient information, in a form that the Commissioner can use) will be preferred as partners.

Solutions can be simple

The changes needed can be quite simple, but their impact significant. An example of integration and flow of information is at a Trust in the south of England. The Trust and its commissioning Primary Care Trust put the patient ‘at the heart’ of an integration project that improved the care pathway for patients being discharged from hospital back into the community.

WCI helped staff to identify 12 different discharge summary documents used across different departments. The multi-part stationery in use meant that the bottom copy, which was sent to the GP, was often illegible and more often never

received at all. The information flow was inefficient, slow and too unreliable to support good patient care. WCI helped the Trust to simplify the disparate processes into a single flow of information and then support it, with electronic creation and distribution of discharge summaries. The Trust now benefits from greater efficiency and a reduction in duplicated processes, and the referring GP receives the Discharge Summary information instantly in a standard, legible and timely electronic format. The Acute Trust is serving its commissioner with high-quality, timely patient information, improved information flow between clinical providers and most importantly has helped improve the safety of patients.

The technical solution uses an internet portal and electronic forms to deliver the critical patient information securely to where it is needed. This is a different technology approach from the ‘deep’ systems integration of the HL7 standards. Where an HL7 solution might have been prohibitively expensive and slower to implement, this newer technology can support the pathway information flow in a cost-effective and flexible way. Implementation of the National Programme for IT (NPIIT) along with HL7, is starting to provide a view of emerging national standards, so that local solutions can be built with one eye to the future. The Trust and its partners in the pathway can move towards an HL7 solution, perhaps later co-ordinated and planned with the roll out of systems from NPIIT.

Trusts need to take their destiny in their own hands and increasingly they are doing so by implementing pragmatic solutions at a local level, just like the successful electronic discharge summary project.

“we are experts in integrating and simplifying health systems”

Model for Success – Patient-centred integration

How can Trusts ensure their integration efforts deliver the right results and value for money? WCI believes best-practice integration is patient-centred – clinicians, systems and technologists coming together to produce truly joined-up systems based on joined-up problem-solving and thinking *about the patient and care pathways*.

The first and most important principle is *understand the clinical pathway you’re trying to support and inform*. This means involving the frontline staff and pathway managers who will be affected by the change. To engage them, take a process improvement approach and apply lean principles. One of the greatest pitfalls is to embed poorly functioning processes into a system.

In many ways the process is king. If the process doesn’t deliver the required result, output, service or care it needs to be changed. Our experience is that many processes are ‘lost’ within the healthcare organisation. Often the process has evolved and changed over time, embedding inefficiencies and constraints imposed by current systems – there appears to be with little or no regard for the service to be delivered. As a result, variation in the outcome of the process is commonplace and resources are deployed inefficiently – capacity isn’t directly linked to demand.

A ‘Lean’ process, on the other hand, contains only those steps that are required to deliver the desired output. Work flows through the process and is visible to all staff involved. Resources are matched to the flow of work and demand. Quality is



**Simplify what you do
to reduce waste and improve patient care**

built in to produce a repeatable result. Only once the lean process or pathway has been designed should work start on the integration solution.

WCI principles of good integration

- Understand the clinical pathway the system/application supports – involve clinicians and pathway managers
- Lean the patient pathways to improve outcomes for patients, clinicians, health organisations and IT design
- Define the scope of the information that needs to be recorded and shared

- Design a systems integration model that enables and supports care pathways. Base integration on a standard message format
- Consider the future – design a flexible solution that can support new or improved patient pathways

It's about People and Process, not just technology

The Lean process approach has two further advantages; the process will define the scope for the technical work, and the Lean approach naturally involves front-line staff. The implementation of a Lean

process needs to involve all staff within that process. Through short, sharp workshops the staff work together to find their own solutions to problems. Where the process spans multiple Trusts, staff from all organisations will need to be involved. Involving them in the design ensures common understanding, buy-in and take-up of the new solution.

Once the new process has been designed, the questions of scope and reach of the integration solution become much more evident to everyone. Pragmatic decisions can be made about the degree of systems support needed by the new process and trade-offs made with existing systems infrastructure. The detailed work of defining the information content, datasets and standards becomes much easier (and more pertinent) when it involves clinicians and other staff from the outset. The IT team can then focus on delivering a robust and secure solution that meets the need of the patient and the clinical team.

Conclusion

Integration is not just a technology problem, it's a clinical care issue, and a business issue. Smart Trusts will look to connect with their partners to deliver better patient care and tie in their commissioners. Don't wait for the National Programme to deliver for you; look to build pragmatic, local links using the emerging national standards wherever possible. Integration means building Lean pathways then supporting them with the appropriate information flow enabled by technology. It's a team effort that delivers great results!

Patient-centred Integration Model

