



Enabling the
information society

BCS Interoperability Guidance for Health and Care Networks

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2 Introduction

As technology evolves and demand for health and care services increases, provider organisations are increasingly implementing IT solutions for storing patient information and ensuring the highest possible standards of care. However typical patient journeys span multiple provider organisations who all have their own IT systems and England will increasingly move to new models of care across clinically integrated networks. It is therefore critical that patient information is able to flow seamlessly between these IT systems to support and enhance the patient journey, ensuring that clinicians always have the right information in the right place at the right time to make clinical decisions, and to support new integrated care models. In England, this need has been recognised by the National Information Board who recently called for national and local commissioners to develop roadmaps for the introduction of interoperable digital records and services by providers, to be published by April 2016.¹

The purpose of this report is to provide guidance to care networks: groups of provider organisations who are participating in networks of care delivery or collaboration with other organisations, where information must be shared across multiple IT systems. We are off the starting blocks in England and experience is growing in assisting technologies such as Health Information Exchanges but there are also a number of pitfalls. This Interoperability Guidance has been put together by the BCS to share emerging best practice and provides an overall information sharing framework so that care networks understand the different dimensions involved in sharing information. Pitfalls are highlighted and lessons learnt shared.

3 An Information Sharing Framework

In order to share health and care information, organisations need to take into account a number of factors, which we have combined in this section and presented as an **Information Sharing Framework**. Adopting such a framework is critical to the success of an interoperability programme as it emphasises the holistic, multi-faceted nature of interoperability.

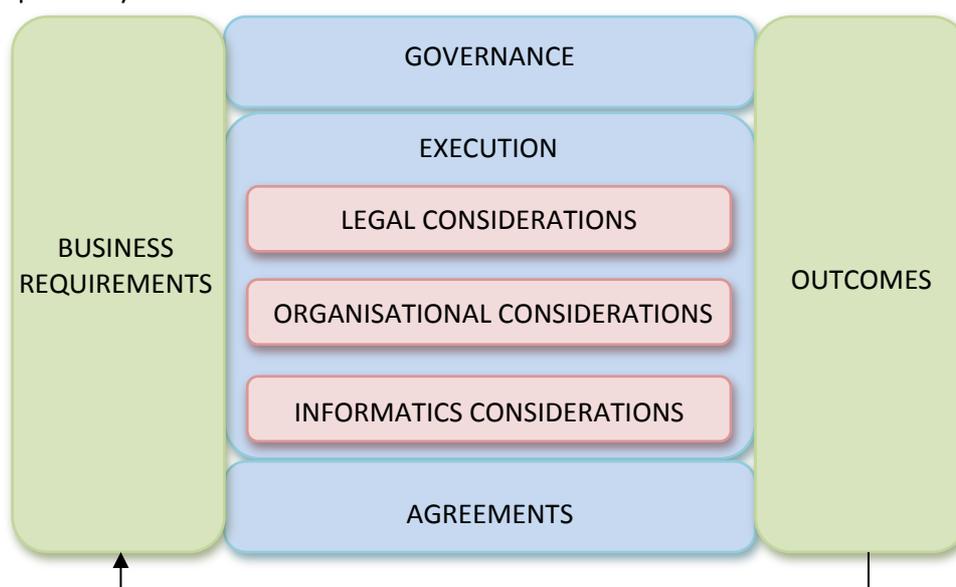


Figure 1: BCS Information Sharing Framework for Health and Social Care

¹ *Personalised Health and Care 2020 – Using Data and Technology to Transform Outcomes for Patients and Citizens*, NHS National Information Board, November 2014

3.1 Business Requirements

The first step in an information sharing journey is to understand the destination: what are the sharing organisations trying to achieve? Is the focus primarily a patient safety one to get the right information in the right place at the right time? Is it to build trust in the care network for care providers working together? Is it to underpin the move to delivering new integrated models of care? This should be documented both at a high-level in terms of desired strategic objectives, and at a detailed level in the form of Business Requirements. NHS England is working with local organisations such as the Integration Pioneers on identifying key and common information sharing requirements, using the concept of “business capabilities” i.e. key pieces of information sharing functionality such as care plans, discharges, referrals and assessments. Organisations can use these as the basis for identifying and engaging with their local stakeholders on what the priorities areas of focus are for that locality. Use of capabilities provides a way of engaging on what functionality is needed to meet strategic drivers without diving straight into very detailed requirements discussions.

Key Considerations

- 1. Manage roadmaps and expectations – understand what each provider wants to achieve, prioritise as a network and be transparent on what will be delivered when**
- 2. Ensure you engage clinicians to establish a good clinical layout when presenting patient information**
- 3. Bear in mind that evolving understanding of business requirements is inevitable - plan for this by adopting an agile delivery approach whenever possible**

3.2 Outcomes

Define what the expected benefits will be for establishing information sharing across the care network and establish a benefits management programme to track progress against these outcomes. This is required by Trusts that were successful in NHS England’s Integrated Digital Care Fund in order to demonstrate a Return on Investment. As outcomes are achieved and prior investments validated this will facilitate commitment to progressing with the roadmap and informing the next set of Business Requirements in an iterative fashion.

Key Considerations

- 4. Establish a benefits realisation programme from the outset**
- 5. Choose benefits that are measurable, consider ones that are patient-, safety- and/or business-centric where possible e.g. reduction in admissions of the frail elderly**
- 6. Choose one of the emerging maturity models (e.g. NHS England’s²) to assess and plan your progress against your interoperability objectives**

3.3 Governance

Governance is the high level function that provides leadership, ensuring organisational structures and processes are fit for making interoperability work. In designing the Governance function for the interoperability programme across the care network, organisations should take into account the range of stakeholders who need to be involved in the programme, and ensure the appropriate executive sponsorship for the programme.

² <http://www.england.nhs.uk/ourwork/tsd/sst/cdmi/>

Key Considerations

7. **Establish an overarching steering group with representation from each organisation in the care network**
8. **Be aware that governance challenges arise even when differing organisations have the same IT systems**
9. **Only consider allowing cooperating organisations to automatically write to each other's records when there is a contractual arrangement of services between the specific organisations e.g. Out of Hours contract with a GP practice**

3.4 Agreements

The NHS is at an early stage of learning how to manage consent and information governance across care networks wishing to share information. At present Information Sharing Agreements are required to grant permission for the sharing of patient data between each care provider. Early adopters have learnt that establishing Information Sharing Agreements takes considerable time but are a vital step on the critical path. Agreements are necessary but carry overheads as the numbers of stakeholders and specific types of agreement have to be managed. Much of the burden can be reduced if appropriate standardisation can be leveraged; for example NHS England has *de facto* standard information sharing agreements. Furthermore, work is already commenced through the NHS England Interoperability programme in working with local integration projects on providing guidance on key aspects to be covered in information sharing agreements.

If you choose to utilise data extraction instead of exchange in circumstances where an information system does not conform to informatics standards for sharing, bear in mind that you may need a Data Processing Agreement. If you are sharing information with patients or asking them to take an active role in consenting to the sharing of the information, such as in an Personal Health Record, then you will need to support patients to understand a balanced view on when to share their information.

Key Considerations

10. **Begin negotiating Information Sharing Agreements a long way in advance of starting the technology enablement project**
11. **Think ahead with Information Sharing Agreements as it is much easier to include future scope at the outset than it is to add information sharing scope later on**
12. **Use existing standards and templates for Information Sharing Agreements**
13. **Provide support to patients controlling their data, and consider using the DH-BCS Guideline "[Keeping your online health and social care records safe and secure](#)" on NHS Choices**

3.5 Legal Considerations

It is important that care networks understand their legal obligations as far as information storage and sharing is concerned. In England there is the recent Health and Social Care Act, the Data Protection and Freedom of Information Acts and associated legislation. There are also several EU Directives that need to be complied with where appropriate. Another key consideration is whether you can establish what information a clinician saw at a point in time they made a clinical decision for medico-legal purposes. This is an area where organisations should always seek professional advice and expertise, and utilise the Information Governance Toolkit provided by NHS England.

Key Considerations

14. **Ensure each provider has a policy in place regarding access to patient data**
15. **Ensure that an Information Governance lead for each provider is represented in your governance forum and working on the project**

3.6 Organisation Considerations

Introducing interoperability across multiple organisations impacts both the way people perform their individual jobs, end-to-end workflows, and organisational culture. If this is not understood and planned for then the opportunity to leverage the information that is available will be dramatically diminished. Clinicians and carers will need training and help to understand when they use this information in their workflows and what they can achieve with it. For example checking a patient's primary care record in A&E could help save admissions, checking in outpatients could save toing and froing with the GP before medication changes are made, or using as an inpatient tool to expedite discharge plans and considerations for patients.

Each organisation will have its own attitudes and culture surrounding information sharing and different levels of trust for the other parties in the care network. Accordingly when implementing an information sharing programme a care network should take into account the different kinds of organisation involved, and manage change appropriately.

Key Considerations

16. **Establish and hold patient and user forums**
17. **Ensure that all organisations in the care network have mechanisms in place so that only people involved in caring for a given patient have access to that patient's data**
18. **Build trust by starting simple and demonstrating value and utility**
19. **Keep continuity of the interoperability implementation team**
20. **Make sure you are not wholly dependent on third party vendor resources to progress and manage the project, addressing possible single points of failure**

3.7 Informatics Considerations

Health informatics covers the information, knowledge, systems, services and change practices required to make optimal use of information, communication and technology solutions for health and care. This is an evolving area with additional information and guidance regularly being issued by NHS England – they are for example current developing an Interoperability Architecture Framework.

Safeguarding and sharing information is challenging to implement, and standards are intended to reduce this burden. Where possible care networks sharing information should seek solutions that conform with both English standards such the NHS Interoperability Toolkit (ITK, a set of informatics standards, customised for use within the NHS, and organised by themes e.g. clinical correspondence), and International Standards such as Integrating the Healthcare Enterprise (IHE) used as a global standard by vendors to avoid the cost of local parochial standards. We anticipate and welcome increasing adoption of newer standards such as SMART with FHIR³ (Fast Healthcare Interoperability Resources from HL7) as these are being designed to be simpler to implement and are highly suitable for

³ <http://smartplatforms.org/2013/11/smart-fhir-and-a-plan-for-achieving-healthcare-it-interoperability/>

seamlessly embedding Apps into existing software and workflows. This approach not only helps data quality issues but speeds time to value and helps to avoid vendor lock-in.

Understand your options for federated vs centralised data storage - federated data pulled dynamically from source systems on demand can be easier from an information governance perspective, but centralised data can be easier from a technology implementation and user experience perspective. Usually a hybrid strategy is adopted.

Consider carefully how you will maintain security and information governance. Solutions often provide multiple ways to secure information such as user authentication, role-based access controls, patient permissions, and restrictions by organisation.

Key Considerations

21. **Not all data will be of the same quality across the care network - manage data quality expectations and plan for improvement**
22. **Seek software solutions that conform with International and National interoperability standards**
23. **Test, test and test! Each provider organisation should be involved in the testing process – do not leave solely to the software vendor**
24. **Remember organisational identity – register for a globally unique organisational ID with HL7 and consider having multiple OIDs across each organisation where it makes sense e.g. a Trust with both Acute and Mental Health services may choose an OID for each if they expect patients may not want to share across this boundary.**

4 Conclusions

Enabling interoperability across care providers will be an important underpinning to improving the quality and efficiency of existing care models, as well as an important underpinning to new models of care. As care networks embark on new information sharing projects there is a great opportunity to learn from the early adopters that have already embarked on this journey. This Guideline provides a framework to work against and a set of early learnings from others that are collated below for easy reference.

Business requirements

1. Manage roadmaps and expectations – understand what each provider wants to achieve, prioritise as a network and be transparent on what will be delivered when
2. Ensure you engage clinicians to establish a good clinical layout when presenting patient information
3. Bear in mind that evolving understanding of business requirements is inevitable - plan for this by adopting an agile delivery approach whenever possible

Outcomes

4. Establish a benefits realisation programme from the outset
5. Choose benefits that are measurable, consider ones that are patient-, safety- and/or business-centric where possible e.g. reduction in admissions of the frail elderly
6. Choose one of the emerging maturity models (e.g. NHS England's) to assess and plan your progress against your interoperability objectives

Governance

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