



**National Programme for  
Information Technology**

# **Integrated Care Records Service**

## **Part I – NATIONAL SERVICES**

### **Output Based Specification**

---

## Contents

Part I – Introduction to ICRS National Application Services.....	3
Visioning the NASP Services .....	3
Part I.1 – Functional Requirements.....	10
200 – Personal Spine Information Services .....	12
211 – Personal Demographics Service .....	18
360 – Transaction and Messaging Spine .....	29
350 – Spine Directory Services .....	38
370 – Workflow/Rules Services.....	40
380 – Terminology Service.....	52
311 – Clinical Spine Applications .....	56
385 – Secondary Uses Service .....	74
Part I.2 – Management Requirements .....	76
800 – Management Requirements – ICRS NASP .....	76
810 – Programme and Project Management .....	77
820 – Design and Build of Solution .....	80
830 – Testing and Acceptance.....	83
840 – Piloting.....	85
850 – Implementation .....	86
860 – Training.....	89
865 – New Systems and Services.....	92
870 – Development .....	94
880 – Operational Support .....	95
895 – Change Control .....	95

---

## Part I – Introduction to ICRS National Application Services

In line with the overall National Programme for IT (NPFIT) in the NHS, it is expected that the ICRS NASP will be directly involved with the design, construction, implementation and operation of the national patient care infrastructure (in particular, the Spine) and the supporting clinical spine applications which utilise the Spine (as described in Part I.1 of this OBS), together with the provision of associated IT services. These services will focus around the infrastructure tools required to ensure the efficient interchange of information with local operational systems and care records together with a range of services providing direct access to the information held on the Spine for appropriately authorised users.

An objective of both ICRS and the NPFIT is to provide an integrated care record for individuals, including non-NHS organisations which provide care, including Social Care. This will be delivered by providing interfaces between ICRS-compliant systems outside the NHS and the Spine (and potentially other ICRS applications). Users outside the NHS who have the appropriate level of authorisation will enjoy role-based access to information on the Spine.

There will be a clear role in ensuring interoperability between National Services and LSP Services, which will require close working with the Local Service Providers (LSPs), NISPs, and other NASPs (for example, the eBookings NASP) to ensure adherence to national common standards for the construction and interchange of information.

## Visioning the NASP Services

### *Overview*

This section of Part I of the OBS provides bidders for the ICRS NASP role with an overview of the detailed requirements that follow. It is included to help contextualise and frame bidders' proposed solutions and responses. Each bidder must respond to each of the requirements in this section, demonstrating:

- a good understanding of the requirement;
- credible solutions and approaches that fulfil the requirements; and
- commitment to working in partnership with the Authority to deliver the National Services.

Similarly, each bidder's response to this section must provide the Authority with an insight into the bidder's offering and demonstrating their ability to deliver the National Services.

Bidders' attention is drawn to the need to respond to the questions and the requirements which are contained in the bordered tables contained in this section. Where possible, within the tables, there is a cross reference to the main modules in Parts I and III that contain the detailed requirements.

### **The Role of the ICRS NASP**

The concept of ICRS is to provide integrated clinical information systems across the NHS. The conceptual architecture for the NPFIT illustrates how the national components (the Spine) bring together all the relevant systems and services. However, there is a gap between the current and target environment needed to support the concepts outlined in the document, "Introduction to the ICRS OBS". For example, there is a risk that today's national systems may fail to support care delivery at the point of care or may lack sufficiently close integration with the business and clinical processes. Bridging this gap will be done by the chosen ICRS NASP working in partnership with the Authority, other NASPs and LSPs. The ICRS NASP must have the capability and resources for delivering such complex and large-scale change.

### **A. The Role of the ICRS NASP**

Each bidder must provide an overview that summarises its understanding, commitment, approach and skilled resources to deliver the National Services. In doing this, each bidder must outline:

- how its chosen solution supports the concepts of ICRS;
- the in-depth expertise and approach it has for deploying solutions of this type;
- the range of skilled and experienced resources that will be made available;
- its ideas for sharing and managing risk; and
- its long-term commitment to the Authority and its approach for ensuring solutions are future proof by embracing innovation and change.

### **Full Scope of ICRS (National and Local Elements)**

Bidders must demonstrate their ability to deliver against the full scope of ICRS. It is recognised that it is unlikely that integrated solutions exist today that cover this 'full scope'. The ICRS NASP will need to design appropriate solutions which can demonstrate clear advantage to the Authority by presenting a coherent and comprehensive route-map that underpins a controlled development and change management programme deployed across complex and varied settings over a number of years. Similarly, bidders will need to demonstrate how, in relation to the conceptual architecture, their proposed solution will deliver the platform for other national information systems and services in the NHS.

Bidders must also demonstrate that they have the ability to deliver a full service with respect to analysis, design, implementation, and operation of the full scope of delivery. Therefore, bidders must clearly demonstrate that their offering includes all aspects of 'full service' delivery, and not just those that relate to software solutions.

### **B. Full Scope of ICRS**

- Each bidder must provide an overview of its proposed approach to service delivery for each of the following areas:
  - Personal Spine Information services (Modules 200, 350 and 311);
  - Person Demographic Services (Module 211);
  - Transaction and Messaging Spine (Module 360);
  - Workflow and Rules services (Module 370);
  - Terminology services (Module 380); and
  - Secondary use services (Modules 385 and 440).
- In addition, each bidder must provide a summary showing how all of these elements are integrated into a solution that is consistent and integrated from end user and technical architecture perspectives.
- Each bidder must describe how their proposed solution will support the range of other

national information services and systems which are proposed as part of the NPFIT, including eBooking and ETP.

### Strategic Fit and Clarity of Vision

The degree of modernisation envisaged in the national targets cannot be achieved without the effective support of information technology being used in new and innovative ways. Bidders must be able to demonstrate that they fully understand the business drivers and targets that ICRS is founded upon and show how their proposed solutions assist in the delivery of new patient-centric service models, service improvements and efficiency savings. They must clearly demonstrate how their proposed solutions will bring about radical change and deliver greater qualitative and quantitative return on investment that the Authority is making in information technology. However, technology is only one component and will need to be co-ordinated with process redesign, organisational transformation and improved facilities. The ICRS NASP should provide senior resources to work alongside those in the Authority to ensure the proposed solutions deliver the targets and value sought by the Authority.

#### C. Strategic Fit and Clarity of Vision

Each bidder must describe how it will work alongside senior managers within the Authority to ensure that the ICRS solution supports the current and future direction of the business. In doing so, the bidder must show how it intends to link strategic analysis with the development and implementation of new service delivery models. Each bidder must show how its approach includes process redesign, technology and innovation, organisational design, and the improved use of facilities.

### The Current Systems Environment

Some of the services described in this part of the OBS do not exist; others may exist in very localised areas; and some services, such as patient demographics registers, exist in nearly all systems at both the local and national levels. Therefore, it is important to illustrate the starting point and to be clear about some of the opportunities that exist. It is clear that radical changes to the system environment must be made in order to meet the business direction and drivers described. Bidders should explain how their offering will meet the following goals:

- **Rationalise the systems portfolio** – it is expected that, by 2010, there will have been a rationalisation of national and local person demographic systems;
- **Provide tighter process and data-integration** – it is essential that much tighter integration exists in the proposed solutions than is apparent in the systems of today, and it must be clear how the level of integration increases year on year as products and product sets develop;

It is recognised that the range and type of solution required are not currently available within single systems. Therefore, the solutions that are ready for delivery at the time of award of contract will be very different to those that will be being deployed in 2010.

It is essential that the Authority does not get locked into fixed solutions that constrain its ability to deliver new models of care and achieve the goals outlined in the various strategic documents described in the previous section.

#### D. Solutions Available at Award of Contract

- Each bidder must provide detailed descriptions of the constituent elements of its preferred offering that will be ready for deployment at the time of award of contract.
- Each bidder must provide a detailed description of why the products have been chosen

and describe whether they are interim solutions or long term solutions (e.g., some solutions may be interim for 2-3 years until more integrated functionality can be provided). If the bidder proposes to use interim solutions, it must describe its approach and rationale for phasing these out in the longer term and describe how it will manage this migration to minimise impact on the end users.

- Each bidder must provide details relating to this initial deployment, showing numbers of implementations (worldwide and by national jurisdiction), numbers of users (worldwide and by national jurisdiction) and brief descriptions of the products' pedigree and scope.
- For each product, each bidder must describe the amount of effort required to make any changes which are required to ensure that it meets the requirements specified in this OBS, and provide an estimate of the time when this work would be completed, tested and released for general use within the project.
- Each bidder must describe those elements of the NHS' existing infrastructure services that they propose to use as part of their proposal and identify any major changes that they expect to be made to those elements. Each bidder must identify any major issues associated with use of the existing national NHS infrastructure.
- For each product, each bidder must describe who will hold the intellectual property rights.
- Each bidder must describe the integration technologies that will be deployed and demonstrate the extent to which it provides data and process integration and provides users with a seamless environment, no matter where the service is accessed.
- Each bidder must describe how it can support the NHS' development environments, in which the NHS can build additional functionality, using its proven development tools and techniques. Each bidder must describe where this has been done before and confirm that the Authority would retain the intellectual property rights in these new developments.

### **E. 2006 and 2010 Deployment**

- Each bidder must provide detailed descriptions of the products it intends to use to cover the full range of services as at January 2006 and January 2010. Details must be provided that clearly show how the product set migrates over time. It should be clear why the various products have been chosen and how new products replace older products in previous deployment. Diagrams and text should be used to articulate the planned migration.
- Each bidder must describe how the products will be integrated at each point in time and what process and data integration technology and services will be used.
- Each bidder must indicate how users will log-on only once to a common environment and have access to all appropriate LSP Services and National Services.
- Each bidder must describe the relationship between the National Services solutions and the LSP Services solutions for ICRS and show how a user seamlessly navigates between them.

Where possible, evidence of lessons learnt should be used.

### **F. Future Proofing and Flexibility**

Each bidder must provide an overview of the types of business change it expects to see over

the following 5-7 years and provide evidence that its approach and solution set allows for:

- new national business initiatives to be incorporated; and
- an open standards and an open systems approach to ensure future interoperability.

### Architecture and Design

One of the fundamental skills that the ICRS NASP requires is to be able to architect and design a solution that is fit for purpose and can scale to the level required across at a national level (see Part III, Module 740 - Volumetrics, Scalability and Extensibility for details of the size and volume of activity). The tasks will include:

- ensuring there is consistent technical architecture across the whole solution set;
- ensuring that the architecture is capable of scaling nationally.
- integrating business process design and workflow optimisation within the overall approach;
- utilising integration technologies to link systems to ensure that the National Services solutions and LSP Services solutions are provided as a seamless solution to end users;
- ensuring that systems are conformant to standards specified by the NDA; and
- assessing the most appropriate technical configuration to provide solutions of the scale and complexity required.

#### G. Architecture and Design

- Each bidder must describe the skills and resources that it is proposing to design and architect its ICRS solutions on the scale that is required. Each bidder must describe:
  - the skills and resources that it would make available to architect and design the whole ICRS NASP solution;
  - how it will migrate to a consistent technical architecture over time and reduce the technologies inherent in its solution set;
  - how it proposes to integrate business process redesign and workflow optimisation in its overall approach to architecture and design, giving examples of where this has been done successfully in the past; and
  - the issues it perceives in linking local ICRS solutions to the National Services.
- Each bidder must indicate how it proposes to deploy solutions nationally whilst guaranteeing response times and availability targets for the number of transactions defined in Module 740 - Volumetrics, Scalability and Extensibility. Each bidder must describe the largest install base implemented to date and describe how it intends to deliver solutions that are fit for purpose at a national level.
- Each bidder must describe its technical architecture for the whole ICRS NASP solution as at award of contract and January 2010, showing the major components of the infrastructure, including hardware configuration, database configuration and its proposals to utilise the NHS N3 network.
- Each bidder must describe how it will manage changes to their designs/solutions.

---

## Proof of Concept/Proof of Solution

ICRS solutions will need to scale seamlessly to hold the data associated with an estimated 55 million people and be capable of delivering to defined service levels. As part of selecting which application vendors to use in their solution offering, it is expected that bidders will have undertaken a significant amount of technical due diligence to prove that the solutions they are putting forward are fit for purpose.

The Authority will also require a proof of solution using its own environment and will want to work with bidders to define appropriate elements to undergo proof of solution assessments.

### H. Proof of Concept

- Each bidder must provide details of the technical due diligence that it has undertaken as part of selecting all of the products that it is proposing as part of its initial offering. This should include work done to test the performance, scalability, and availability of each component of their solution.
- Each bidder must identify those elements/products of its proposal that it wants to put forward for proof of solution assessments.

## Implementation

It is expected that the ICRS NASP will play a major role, alongside LSPs and other NASPs, in the implementation of ICRS.

### I. Roles and Responsibilities

- Using its experience of implementing solutions on this scale by working collaboratively with other suppliers, each bidder must describe how it proposes to deploy resources, giving a summary of the main roles and responsibilities.
- Each bidder must provide estimates of the total number of people it would expect to be involved to implement its proposed solution as at award of contract, using a range of key roles (e.g., programme management, change management, clinical analyst, interface development and first and second line support). For each role, the bidder must define the number that, in its experience, are likely to come from the client and supplier sides, and state any assumptions that have been made.

The following paragraphs describe elements of implementation that are considered to be key.

## Benefits Realisation

In order to meet the stated objectives from the Authority's investment in ICRS, the selected ICRS NASP is expected to partner with each care community in using the systems as a catalyst to help achieve their business goals and to deliver the expected quantitative and qualitative benefits described in this OBS.

It is recognised that, in order to realise maximum benefits from ICRS, an integrated approach including people, process and technological changes is required. It is also recognised that purchasing these types of information systems is a long term investment: healthcare requirements change and evolve; technology and software will be updated and enhanced; organizational structures change; and increasing emphasis will be placed on business process improvement and business activity monitoring tools and techniques.

### J. Benefits Realisation

- Each bidder must describe its methods used in quantifying and delivering benefits in relation to healthcare information systems which is proven to work. Each bidder must describe the method and tools it will use and illustrate how and where these have been used in practice. Each bidder must show how this method has been used in relation to its chosen application product set and describe how methods will be integrated and enhanced over time. Each bidder must describe how the method is used over the whole life of a service such as ICRS.
- Each bidder must demonstrate that it has a full understanding of the types of benefits that will be delivered with its chosen product sets and methods. To do this the bidder should describe the types of quantitative and qualitative benefits it anticipates could be realised from the NASP set of services,
- Each bidder must describe its preferred approach for working with the Authority to help identify, quantify, and deliver a range of benefits. This should include the bidder's approach to partnering, descriptions of the potential numbers involved on each side, the high level roles and responsibilities, and an approach for joint working and success.

### Innovation

It is expected that the ICRS NASP will use innovative technology and ideas to deliver new solutions in areas that have not been commonly available or used in the past. These innovative solutions should address business issues such as:

- **Patient Access** – one of the big issues with current healthcare delivery is that patients cannot access their own records. New solutions must provide for eventual patient access and involvement via the NHS Direct Online myhealthspace.
- **Shifting the Balance of Power** – one of the key drivers that ICRS must assist in is the delivery of more healthcare locally. This means that much of the focus of ICRS needs to be around innovative solutions for the home, primary and community care delivery. Solutions must explicitly enable this shift in emphasis.
- **Prevention Rather than Cure** – much of today's focus is put on curing people when they become ill, rather than helping to prevent disease or catching it sufficiently early to make a difference. Solutions must assist in redressing this balance.
- **Patient Remote Monitoring** - solutions must provide the ability to monitor patients remotely for a range of conditions and in a range of settings. This information must be capable of being transferred to the patient's record automatically and for appropriate alerts and analysis to be undertaken on the information captured; and
- **Access to Knowledge** – traditionally, Patient Record solutions have provided the users with data and information in a limited range of formats. In future, solutions must provide knowledge and clinical support for the delivery of care. This will include, but is not limited to, clinical decision support, best practice guidelines, and knowledge repositories.
- **Emerging Technologies** – solutions must provide the ability to utilise emerging technologies in a cost effective manner.

### K. Innovation

Each bidder must demonstrate how its solutions will utilise innovative technologies and how these will be refreshed over the lifetime of the contract. As a minimum the bidder should use the headings above, but bidders are encouraged to think more broadly. The bidder must also

show how these new technologies will be incorporated and established in the Authority through process redesign and effective change management.

Part I (National Services) of the OBS is divided into two sections. The first is a set of modules that define the functional requirements, and the second defines the management services that the ICRS NASP will be expected to supply. Additional requirements for the National Services are specified in Part III of the OBS.

Bidders are reminded that, when responding to this Part I of the OBS, the "Required Response" column in each table found in a module contains statements of required responses. Whether or not a cell in this column has been left blank, bidders are required to state in their responses how they will meet the requirements specified on the same row for the "Requirement" column. Bidders are also required to provide each of the specific required responses, if any, shown in the "Required Response" column. Bidders are advised that all requirements are mandatory, irrespective of whether they are expressed using such terms as "should", "must", "shall" or "will".

## Part I.1 – Functional Requirements

### *Overview*

The requirements specified in this module are key to the implementation of a person-based Integrated Care Records Service for the NHS.

The requirements which are specific to the National Services are comprised within the areas identified below.

- **200 Personal Spine Information Services**

Personal Spine Information Services are person-based services designed to help ensure the integrity of the care provided to approximately 50 million individuals. Each person has common information, a summary of their health record held on the Spine, that is used by care providers to assist in providing for their healthcare and is the system of record for key information on an individual's care.

There are two sets of information services related to an individual:

- health record service; and
- care delivery service.

- **211 Personal Demographics Services**

This service supports the ICRS by providing a set of services that maintain an individual's demographic details and makes these available to authorised carers across care organisations.

- **360 Transaction and Messaging Spine Services**

The purpose of the Transaction and Messaging Spine is principally to allow the functional and semantic integration of data and process between elements of the ICRS, including both legacy and new, local, national and common systems and services.

- **350 Spine Directory Services**

Spine Directory Services are a set of directories and gazetteers of services to be provided by the ICRS NASP in order to publicise and link the range of services available.

---

- **370 Workflow/Rules Services**

The Workflow/Rules Services will provide generic workflow management and rules management services for National Applications and services.

The intention of the rules service is to permit users to specify both simple and complex rules for data validation, exception identification, decision support, alerts and notifications/reminders etc.

- **380 Terminology Service**

The Terminology Service will provide generic terminology management tools and provide terminology-related support for National Applications and services.

- **311 Clinical Spine Application**

The purpose of this module is to provide care professionals with applications to access personal information specifically provided by the Personal Demographics Service and the Personal Spine Information Services, plus the ability to enter new information onto the Spine.

- **385 Secondary Uses Services**

These services will provide the channels through which data will be sent for internal and external analytical services.

## 200 – Personal Spine Information Services

### **Overview**

Personal Spine Information Services are person-based services designed to help ensure the integrity of the care provided to approximately 50 million individuals. Each person has common information, a summary of their health record held on the Spine, that is used by care providers to assist in providing for their healthcare and is the enduring system of record for key information on an individuals care.

The Personal Spine Information Services comprise two functional areas:

- health record service; and
- care delivery service.

### **Scope**

#### **Components**

##### **Health Record Service**

The Spine Health Record is concerned with the health information and events that are important to inform individual care decisions across organisations and over time.

The information maintained will include the following.

- Summary or status information such as:
  - problem lists, diagnoses;
  - medication summary (previous and current);
  - allergies;
  - procedures (including immunisations)/interventions;
  - results; and
  - care plans.
- Event-based information such as:
  - referrals;
  - ordered services;
  - medication events;
  - Encounter summaries (e.g., discharge letters, district nurse home visits, out-of hours Encounter reports);
  - care pathway instantiations and events; and
  - life events (birth/death).
- Non-event related carer documentation such as:

- 
- family history; and
  - social history.

### **Care Delivery Service**

This service supports the current delivery of care to the individual and the continuity and coordination of that care:

- care relationship initiation and termination;
- provision of details of those currently providing care;
- support for the mediation of care and the transfer of care, such as referrals and investigation requests;
- support for the coordination of care through recording key events in the patient's care diary; and
- initiation of alerts to report exceptional conditions.

### ***Benefits and Outcomes***

#### **Current Situation**

These services do not currently exist in any consistent, coherent form in the NHS. The disparate systems have resulted in fragmented records of a person's health care.

#### **Benefits and Outcomes**

##### **To:**

##### **Patient**

- Ensure that appropriate parts of their past medical history are always available to patients and those who need them.
- Allow important patient safety information to be available as needed across the NHS.
- Ensure continuity and coordination of care.
- Save time and reduce inconvenience with fewer 'lost notes' and less waiting in out-patient departments.
- Promote confidence in the NHS and its healthcare workers.
- Promote choice and allow patients to grant access to their family members or carers.
- Provide privacy and allow the patient to restrict access for specific Episodes.

##### **Clinician**

- Provision of valuable information which the Clinician would not otherwise know was there unless it had been brought to their attention.
- Make full medication records available, promoting prompt recognition of conflicts and potential problems, as well as giving insight into patient compliance with drug regimens.
- Encourage healthcare workers to think beyond their immediate domain and promote the principles of team working.

- 
- Promote structured care planning.
  - Improve job satisfaction.
  - Save staff time and reduce frustration.
  - Reduce the time taken searching through existing notes for relevant information when a patient is seen for the first time.
  - Allow a rapid recall of important information as and when required.

### **Manager**

- Make patient safety and quality of care easier to monitor.
- Potentially reduce costs (e.g., from less 'down-time' in out-patients because of information failures).
- Potentially increase service capacity (e.g., by saving Clinicians' time).
- Improve progress to NHS Plan targets (e.g., reduced waiting times, more flexible treatment modalities, better clinical and performance data).
- Be seen as a nationally based improvement in information management that does not by necessity disadvantage local systems.
- Allow individual practices and hospitals to continue with their existing patient record systems with only summaries and key results being entered when a patient Episode is completed.
- Require a relatively modest level of commitment from, and training of, NHS staff.

### ***Delivery Expectations***

#### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

- Provision of Personal Spine Information Services: health record service and care delivery service.
- Health record service covers all classes of information identified in Transaction and Messaging Spine (see Module 360 – Transaction and Messaging Spine) as requiring communication with the Personal Spine Information Services; and extensibility for new classes with the minimum of application change.
- The first patient records are to be populated on the Spine; this will be governed by the capabilities of Local Systems to provide the required information.
- Link to rules-based processing to generate alerts and reminders.

#### **Minimum Level to Be Achieved by December 2006 (Phase 2)**

- The Personal Spine Information Services must be capable of supporting 100% of the records intended to be populated to the Spine, although the rate of population will be governed by the rollout of capabilities of Local Systems to provide the required information.
- Complex clinically authored rules-based interactions supporting the holistic care process.
- Workflow-based coordination of concurrent care pathways.

**Target for 2010**

- All people with NHS Numbers who have received some form of care via the NHS will have records on the Spine.

**Overview Requirements**

	<b>Requirement</b>	<b>Required Response</b>
<b>200.1</b>	<p><b>Overview</b></p> <p>Provide a health record service to store and provide information as indicated in the components section above.</p> <p>Provide a care delivery service to support the delivery of care to the individual and the continuity and coordination of that care through integration with rules and workflow services.</p> <p>The Personal Spine Information Services shall be extensible to support new classes of event with a minimum of application change.</p> <p>The Personal Spine Information Services shall be extensible to support new categories of summary with a minimum of application change.</p>	<p><i>Each bidder must describe its approach to delivering each of the requirements of this module.</i></p>
<b>200.2</b>	<p><b>Benefits and Outcomes</b></p> <p>Benefits and outcomes are described in the "Overview," above.</p>	<p><i>Each bidder must describe how it would deliver the benefits and outcomes from this module.</i></p>
<b>200.3</b>	<p><b>Implementation and Phasing</b></p> <p>The overview delivery expectations have been set out above. More specific implementation plans will be agreed with the ICRS NASP.</p>	<p><i>Each bidder must describe how it will meet the minimum requirements for implementation of Phase 1 functions.</i></p> <p><i>Each bidder must describe which additional functions it would be able to deliver during Phase 1.</i></p>
<b>200.4</b>	<p><b>Authority's Responsibilities</b></p>	<p><i>Each bidder must describe the responsibilities they would expect to be assumed by the Authority.</i></p>

**Detailed Requirements**

	<b>Requirement</b>	<b>Required Response</b>
--	--------------------	--------------------------

	Requirement	Required Response
<b>200.5</b>	<b>Personal Spine Information Services</b>	
200.5.1	The Personal Spine Information Services shall use the NHS Number as the single, unique, visible identifier to the information contained in each Patient Record held on the Spine.	
200.5.2	The Personal Spine Information Services shall hold all information relating to the patient defined in the communications which will be defined by the Authority and which are described in Module 770 - Clinical Communications as communications with the Spine.	<i>Each bidder must show how the data model used by its product can accommodate the information sets.</i>
200.5.3	The Personal Spine Information Services shall support requests for information retrieval, mediated by the Transaction and Messaging Spine, for communications that will be defined by the Authority, and which are described in Module 770 - Clinical Communications as communications with the Spine.	<i>Each bidder must describe the data management features of its solution that will facilitate information provision.</i>
200.5.4	The Personal Spine Information Services shall be extensible to support new classes of event with a minimum of application change.	<i>Each bidder must describe the mechanisms whereby its proposed solution is extensible to store additional classes of data or changes in their structure.</i>
200.5.5	The Personal Spine Information Services shall be extensible to support new categories of summary with a minimum of application change.	<i>Each bidder must describe the capabilities of its product to extend the types of summary data that are stored and processed.</i>
200.5.6	The Personal Spine Information Services shall cater for all relevant requirements defined in Module 730 - Information Governance.	<i>Each bidder must explain how the confidentiality, security, and other information governance requirements of Module 730 - Information Governance are satisfied in its implementation of the Spine.</i>
200.5.7	The Personal Spine Information Services shall support the establishment and termination of care relationships between the patient and healthcare teams within organisations, and between the patient and individual Clinicians.	<i>Each bidder must explain how care relationships will be maintained and the role of directory services in this context.</i>
200.5.8	The service shall integrate with the rules services to initiate workflows or alerts according to the active defined rules. (See Module 370 – Workflow/Rules Services).	<i>Each bidder must describe how its solution will achieve this.</i>

	<b>Requirement</b>	<b>Required Response</b>
200.5.9	The system shall facilitate the merging of the information from two or more patient records, for example when the records of the PDS are merged. When this is done, one of the NHS Numbers must become the only access point for that patient.	<i>Each bidder must describe how its solution will achieve this.</i>
200.5.10	The system shall facilitate the splitting of information for two or more patients when their patient records have been erroneously merged in the past.	<i>Each bidder must describe how its product implements the requirement to separate records that were viewed as one.</i>
200.5.11	When information in a Patient Record held on the Spine held on the Spine is split, then it must be possible to allocate information that has been added, since the records were merged, to each of the relevant patients.	<i>Each bidder must describe how its product implements the requirement to distribute the more recent data.</i>
200.5.12	Whenever information is received, if the NHS Number is not known to the PDS, then that patient's information shall be rejected.	<i>Describe how error handling will be done.</i>
200.5.13	When changes are made, the existing version of the data shall be retained and not overwritten by the new data.	<i>Explain how multiple versions of data are retained and managed.</i>
200.5.14	Data shall be marked to indicate whether the information has been superseded by new information, whether it is no longer current, or whether it remains current.	<i>Describe how this requirement will be met.</i>
200.5.15	It shall not be possible to make corrections to information from a different application from that which provided the original information.	<i>Each bidder must describe how its solution ensures integrity between source systems and the personal Spine information.</i>

---

## 211 – Personal Demographics Service

### Overview

The functionality specified in this module is key to the implementation of an NHS-wide electronic care support service, as one of the prime objectives in any care process is to identify who you are providing care to. The Personal Demographics Service (PDS) will provide health and Social Care users with a single point of entry for Service User demographic and associated data.

The prime unique identifier for Service Users will be the NHS Number.

The purpose of the Personal Demographics Service can be summarised as follows:

- to enable Service User identification and collaboration among all participants in the health and Social Care processes;
- to provide a comprehensive source of accurate and up-to-date demographic information which is fit for purpose;
- to support the delivery of integrated health and Social Care by enabling appropriate access to records and linkage of core data;
- to provide Service Users with access to their demographic information; and
- to provide secure access to Service User identifiable information ensuring confidentiality and privacy requirements are met.

### Scope

### Components

The core components of the PDS are as follows:

- retrieval of current Service User demographic details through common search functions;
- accessible by all users of the integrated service through their local system interface;
- interface with all functional components which comprise the ICRS solution;
- provision of access to up to date identification details for each patient for the purposes of identifying an NHS Number given an appropriate set of demographic data;
- provision of access to and amendment of up to date identification, demographic and contact details for each person including historic and future details (e.g., new address from 1st November, contact details whilst on holiday, phone numbers, etc.);
- registration of personal preferences such as:
  - language;
  - channel preferences for communications;
  - proxy/advocate contact details;
  - preferred appellation (i.e., what a person wants to be known as); and
  - personal and spiritual needs, etc.;

- 
- registration and updating of next of kin details;
  - recording of details of consent for Personal Spine Information Services utilisation and Secondary Uses Service (see Module 385 – Secondary Uses Service) utilisation; and
  - provision to record individual's registration to the Personal Spine Information Service.

### **Exclusions**

- Service Users who have not been allocated an NHS Number.
- The PDS will not keep a cross reference to other departmental/system identifiers.
- The PDS will not broadcast changes to other systems.
- Direct Service User access to the PDS will not be a requirement except as part of a summary clinical record or care pathway or via their personal myhealthspace (see Module 440 – Interfaces to/Use of Existing Health Services Infrastructure).

### **Assumptions**

- The NHS Number will be the common unique identifier for the Service User across systems.
- The PDS shall be the master Service User identification record for all health care interventions.
- For Phase 1, current systems and Messages will be used.

### ***Benefits and Outcomes***

#### **Current Situation**

Typically, each organisation holds demographic information on its own Service User register. In some cases, these registers are very closely linked and have been for some time; e.g., GP and NHAIS systems. Some have recently been integrated (e.g., NHAIS and NSTS) and others are not linked; hence, it is difficult to link Service User information across the various care communities.

Some "national" systems exist but are not fully utilised by all care communities, nor are they strategically aligned.

The NHS Number is still not fully used as the unique identifier in many systems.

#### **Desired Benefits and Outcomes**

The main benefits are as follows:

#### **To:**

##### **Patient**

- Ensure that the NHS maintains one master record of their personal demographic details that is made available to anyone with appropriate authorisation that is providing health and/or Social Care to them.
- Reduction in misdirected communications from organisations to individuals.
- Ensure continuity and coordination of care across organisations.
- Data consistency, timeliness and integrity of Service User identification data across systems.
- Promote confidence in the NHS and its healthcare workers.

- 
- Provide privacy and allow the Service User to exercise some choice.

#### **Clinician**

- Allow rapid identification of current demographic details as and when required.
- Promote structured care planning.
- Enable linkage between various healthcare records of an individual.

#### **Manager**

- Make Service User safety and quality of care easier to monitor.
- Reduce complaints due to misdirected information to individuals.
- Potentially increase service capacity (e.g., by saving Clinicians' time).
- Reduced duplication of information.

#### ***Delivery Expectations***

##### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

It is expected that the existing services of NSTS, NHAIS, and myhealthspace will provide some of this functionality and that the full PDS interfaces as defined in this OBS will be designed, agreed, built and implemented.

It is expected that most sites already have modules for a Service User register implemented within their organisations. In the interim, these will need to be integrated with the current infrastructure. However, for some sites, it might be necessary to replace existing systems with an LSP's chosen product set, and this will mean that product set meeting the requirements specified below.

##### **Minimum Level to Be Achieved by December 2006 (Phase 2)**

Full PDS interfaces, as specified, will be available to the NHS.

##### **Target for 2010**

Additional PDS functions to be available as required for day-to-day usage.

#### **Required Response from Bidders**

In the area of Service User registers, the NHS has several versions. Bidders are specifically asked to identify how they would utilise the existing infrastructure/systems (see also Module 440 – Interfaces to/Use of Existing Health Services Infrastructure), and how they propose to work with the existing suppliers of these systems. Responses are required at a general level but also need to be considered against the individual requirements listed below.

#### **Personal Demographics Service**

The PDS is expected to provide a number of interfaces via the Transaction and Messaging Spine, some of which will be of an interim nature for integration with legacy systems. However, the long term goal is to move to a single service for all Service Users.

**Overview Requirements**

	<b>Requirement</b>	<b>Required Response</b>
<b>211.1</b>	<b>Overview</b>	
211.1.1	The main aim of this module is to provide the underpinning NHS-wide demographics service. It is important to understand that this is to be used by all NHS systems to identify a Service User and supply that Service User's personal details.	<i>Each bidder must describe its approach to delivering this requirement.</i>
211.1.2	The implementation of the PDS will be a critical first step to the implementation of the ICRS.	<i>Each bidder must describe the benefits it could expect to achieve from PDS functions, and describe how it would provide "quick win" benefits whilst building the platform for the ICRS.</i>
211.1.3	The overview delivery expectations have been set out above. More specific implementation plans for use of the PDS functionality provided by the ICRS NASP will be agreed within each LSP contract.	<i>Each bidder must describe how it will meet the minimum requirements for implementation of Phase 1 functions.</i>  <i>Each bidder must describe which additional functions it would be able to deliver during Phase 1.</i>
<b>211.2</b>	<b>Authority's Responsibilities</b>	<i>Each bidder shall describe the responsibilities they would expect to be assumed by the Authority.</i>
<b>211.3</b>	<b>PDS Service</b>	
211.3.1	The service shall ensure the PDS can support the information needs of the entire health community and their local integrated care record services.	<i>Each bidder must describe how it would work with the NHS and LSPs to achieve this.</i>
211.3.2	The service shall provide future flexibility both in data items that can be recorded and in the searching algorithms used in the PDS.	<i>Each bidder must describe how it would achieve this.</i>
211.3.3	The ICRS NASP shall provide and support interfaces to a number of external systems for the provision of data to the PDS both for submission and receipt of batch data and for fast on-line access (using existing Messages for Phase 1.) (see Module 440 – Interfaces to/Use of Existing Health Services Infrastructure).	<i>Each bidder must describe how it would achieve this.</i>
211.3.4	The ICRS NASP shall provide and support interfaces via the Transaction and Messaging Spine, for approved systems to access PDS data in near real time.	<i>Each bidder must describe how it would achieve this.</i>

	Requirement	Required Response
211.3.5	The PDS shall provide a set of interfaces exposed via the Transaction and Messaging Spine to enable all information that it stores to be managed and retrieved.	<i>Each bidder must describe its approach to implementing these interfaces.</i>

#### **Detailed Requirements**

	Requirement	Required Response
<b>211.4</b>	<b>Service User Tracing</b>	
211.4.1	The PDS shall provide a set of tracing services as currently provided by phase 2b of NSTS.	
211.4.2	<p>The PDS shall provide a system to system (Service User trace) to retrieve one or more categories of current data from a Service User record.</p> <p>Functions which will be 'callable' or 'accessible' via system to system links will initially be those known as:</p> <ul style="list-style-type: none"> <li>• NHS Number Confirmation (Date of Birth).</li> <li>• NHS Number Confirmation (Post Code).</li> <li>• NHS Number Confirmation (Name, Date of Birth, Post Code).</li> <li>• Simple Person Trace.</li> <li>• Person Data Enquiry Extract (PDEE) (limited combinations and restricted responses only).</li> </ul> <p>These are the standard NSTS tracing functions.</p> <p>This is the core requirement. This will be extended over time according to demand.</p>	

	Requirement	Required Response
<b>211.5</b>	<b>Service User Demographics Look-Up</b>	

	Requirement	Required Response
211.5.1	The PDS shall provide an interface (full service user demographics) to retrieve an entire Service User record with full detail for all current and historical demographic information.	
211.5.2	The PDS shall provide an interface (Service User summary) to retrieve one or more items of 'current' data from a Service User record in near 'real time'.	
211.5.3	The PDS shall provide an interface (service user demographic history) to retrieve a summary of events against any combination of data items in the Service User record.	
211.5.4	For the Service User demographic history interface, examples would be: <ul style="list-style-type: none"> <li>• changes of GP;</li> <li>• changes of name;</li> <li>• changes of address;</li> <li>• changes of date of birth; and</li> <li>• changes of sex.</li> </ul>	

### Service User Data Masters

A basic principle for Service User data management in the PDS is the identification of the master feed systems for the Service User demographic data and ensuring their synchronisation with the PDS. The event data supplied by these 'master' systems shall be accepted as accurate by all receiving systems.

	Requirement	Required Response
<b>211.6</b>	<b>Overview</b>	
211.6.1	NHSCR is the master for the data items: name, NHS Number, date of birth, date of death, current PCT/Health Authority posting.	<i>See Module 440 – Interfaces to/Use of Existing Health Services Infrastructure on use of existing data flows and functionality in NSTS/NHAIS/NHSCR systems.</i>
211.6.2	NHAIS via GP systems are the master for the data items: main registered address, registered GP, and GP information.	<i>See Module 440 – Interfaces to/Use of Existing Health Services Infrastructure on use of existing data flows and functionality in NSTS/NHAIS/NHSCR systems.</i>

	Requirement	Required Response
<b>211.7</b>	<b>Maintain Service User Demographic Data</b>	
211.7.1	The service shall record Service User demographics, which can be utilised across all healthcare modules.	
211.7.2	The service shall provide a fully integrated PDS available for all users.	
211.7.3	The service shall provide fast, on-line data validation; e.g., the NHS Number shall not be entered twice, ages shall be valid and reasonable, and sex and title mismatches shall be prevented.	<i>Describe how the service will avoid duplicate record creation.</i>
211.7.4	The PDS functionality shall allow all Service User registration functions with facilities to add, revise, delete, merge, unmerge and undelete records. A full history of changes to all fields shall be supplied, together with a full Audit Trail.	<i>Describe how the system would support the merging of historic administration between records when duplicates occur. An example may be when a record is created due to insufficient or incorrect information which is later found to be linked to an existing record. How would these records be linked or merged?</i>
211.7.5	Provide a facility to record user defined data, mandatory or otherwise; e.g., dietary needs, special language needs, donor information, etc.	<i>Currently some of this is provided via other national systems. Each bidder must describe how it would work with or use these other systems.</i>
211.7.6	The system shall store the main NHS registered address as recorded by the GP at Service User registration. This will be the default correspondence address for the NHS to contact the Service User.	
211.7.7	The service shall allow for other addresses to be recorded that can be linked to a specific care event and/or for a period of time. This shall support the recording of future dates where addresses may be recorded in advance.	
211.7.8	The suppression of sensitive addresses shall be possible (e.g., prisoners) with the ability to re-route correspondence. Access to this sensitive data shall be supported by the access/security control framework.	
211.7.9	This shall include the ability to specify where correspondence shall be sent, as well as to specify where any copies shall be sent. E.g., if a copy needs to go to an individual specified in the contact details, such as a relative or carer.	
211.7.10	The system shall support the ability to record the first language choice for Service Users,	

	<b>Requirement</b>	<b>Required Response</b>
	including sign language.	
211.7.11	Contact details shall include next of kin, carer and other alternative contacts. The contact details shall be flexible allowing new types of contact channels to be defined (such as e-mail, mobile phone, etc).	
211.7.12	Start and end dates shall be recorded against each contact detail.	
211.7.13	There shall be the ability to rank contact details in order of importance.	
211.7.14	Dates of death shall be capable of being added and removed.	
211.7.15	All functionality shall conform to the NHS confidentiality and security requirements as defined in Part III, Module 730 – Information Governance.	
<b>211.8</b>	<b>Provide Facility to Search Register</b>	
211.8.1	The service shall include a flexible searching facility based on, but not exclusively, the current NSTS algorithms.	<p><i>Each bidder must describe its search mechanisms, including the functions for users to refine the search and to rank the criteria in order of importance/relevance.</i></p> <p><i>Each bidder must describe the functions of its proposed search engine (e.g., including transition of forenames, middle names and surnames in its matching).</i></p>
211.8.2	<p>The service shall support searching on the following criteria, both current and historic:</p> <ul style="list-style-type: none"> <li>• NHS Number;</li> <li>• surname;</li> <li>• maiden Name;</li> <li>• forenames;</li> <li>• middle names;</li> <li>• date of birth (with ranges);</li> <li>• date of death (with ranges);</li> <li>• gender;</li> <li>• postcode or part postcode;</li> <li>• address or part address; and</li> </ul>	

	<b>Requirement</b>	<b>Required Response</b>
	<ul style="list-style-type: none"> <li>aliases and "prefers to be known as."</li> </ul>	
211.8.3	The service shall provide sufficient detail of match results to enable easy identification of the correct Service User.	
<b>211.9</b>	<b>Post Codes</b>	
211.9.1	For addresses that are not postcoded the PDS shall attempt on a regular basis to identify one via the address service.	
<b>211.10</b>	<b>Ability to Provide Reports and Other Output</b>	
211.10.1	<p>The service shall provide facilities and reports to manage the PDS including:</p> <ul style="list-style-type: none"> <li>duplicates report, i.e., duplicate Service User and NHS Numbers;</li> <li>transaction log; and</li> <li>audit trace on all transactions and enquiries across all modules.</li> </ul>	
211.10.2	User-definable exception reporting shall be possible, on-screen, in print and electronically.	
<b>211.11</b>	<b>Provide User Alerts</b>	
211.11.1	Flexible and user-defined alerts and warnings shall be supported.	
211.11.2	There shall be warnings when amending any Service User demographic information, with the choice to record it as a correction or a change. A spelling correction shall not be recorded as a change, for example.	

	Requirement	Required Response
<b>211.12</b>	<b>PDS Registration and Management</b>	
211.12.1	There should be no temporary registrations on the PDS. However, locally there will be a need to record temporary registrations – see Part II requirements.)	
211.12.2	The service must ensure that the integrity of the PDS is maintained with NSTS/NHAIS/GP systems (see Module 440 – Interfaces to/Use of Existing Health Services Infrastructure).	
211.12.3	The service must only allow PDS fields to be updated from accredited sources. These will vary by individual field item.	
211.12.4	The service must not lead to the creation of duplicate or inaccurate Service User registrations.	
211.12.5	The service shall also allow users to flag instances in which one Service User could easily be confused with another.	
211.12.6	The service shall ensure that the Service User registration and associated events/interventions are as consistent as possible.	
211.12.7	The service shall be able to link Service Users who belong to the same family (or have some other reason to be linked).	
211.12.8	The service shall enable a link to be made between a mother and baby when a baby is registered.	
211.12.9	The service shall provide the following facilities to support register management: <ul style="list-style-type: none"> <li>• add, revise and (exceptionally) delete records, and retain the history of registrations; and</li> <li>• provide ability to merge/unmerge data and records if found to be duplicated for the same Service User.</li> </ul>	
211.12.10	On creating a new record or amending an existing record, the service shall ensure the information captured is validated against defined rules.	

	<b>Requirement</b>	<b>Required Response</b>
211.12.11	The service shall capture and manage a batch of closures as a result of regular receipt of lists of death registrations.	
211.12.12	The service shall provide a method to ensure that all systems and services for which the ICRS NASP is responsible use the PDS as their unique source of Service User demographic information.	
211.12.13	There shall be an interface to allow local systems to notify the PDS that Service User demographic information has changed as a result of a Service User interaction, where the local system is not defined as the master for that particular piece of information.	<i>Each bidder must describe how it would process these Messages.</i>
<b>211.13</b>	<b>Maintenance of Addresses</b>	
211.13.1	The service shall support the maintenance of all UK addresses.	
211.13.2	The service shall utilise the current national standard for UK addresses.	
211.13.3	The service shall provide facilities to maintain addresses, including full postcodes for all addresses.	
211.13.4	The service shall provide functions for maintaining UK addresses, allowing any authorised systems and/or users to access existing entries using flexible search, retrieve and select facilities; e.g., through postcode, part or whole of street name, etc. System to system functions should be provided, as well as an online look-up.	<i>Each bidder must describe how it would support functions for maintaining UK addresses and interface those with other parts of the ICRS service.</i>
211.13.5	The service shall allow for the addition of new addresses and the closure of existing addresses.	<i>Each bidder is asked to describe sources of address information.</i>
211.13.6	The service shall maintain details of the dates on which addresses are added and closed.	

---

## 360 – Transaction and Messaging Spine

### Overview

The purpose of the Transaction and Messaging Spine (TMS) is principally to allow the functional and semantic integration of data and processes between elements of the National Architecture, whether they are legacy or new system elements, and whether they are within the local domain or the national domain, as well as to systems and services which are common to the local domain and the national domain. This integration will provide both synchronous and asynchronous integration to support, for example, the interaction between users and National Applications and information delivery via messaging.

The TMS is called a service, rather than a system or a module of a system, because it is required to provide integration services in a wide variety of contexts. No assumptions are made about how the required functionality will be delivered; whether from one physical system, distributed or otherwise, or a variety of closely interoperating services. The requirements for the TMS should be read in conjunction with the requirements for other National Services defined within this Part I of this OBS and Part III of this OBS.

It is important that the deployment of the TMS should be able to be configured in a flexible manner such that it is able to meet emerging needs, whether national or local. It is also important that instances of the service shall be able to be managed independently but interoperate as one logical service.

The TMS is expected to provide facilities to design and generate interface logic in a variety of forms, without the need to code interfaces (i.e., possibly via the use of graphical tools), from high performance point-to-point interfaces (as might be used to link closely coupled components and services, such as the Personal Demographics Service and Personal Spine Information Service) to asynchronous interfaces, such as queue-based or hub-spoke interfaces. This is desired, not only to simplify initial interface building, but, more importantly, to allow changes in interfaces to be specified and implemented with the minimum of effort, allowing the TMS to be rapidly adapted to support business-driven change.

The nature of the systems to be linked or integrated as part of the TMS will vary widely. It is therefore important that the TMS is flexible as to how its functionality is harnessed.

### Scope

#### Components

Areas of functionality:

- Messages (including document/transaction) definition;
- Message structure transformation/mapping;
- lexicon/terminology management and translation;
- business rules/workflow/routing management;
- interface control and management;
- error handling and recovery; and
- Audit Trail production and inspection.

#### Exclusions

Interface management functionality of end systems required to interface to the TMS which are not

---

within the scope of the national domain of the ICRS NASP.

### Other Requirements

Integration within a local organisation, such as a GP practice or hospital trust, will be managed by the application provider chosen by each LSP. The local organisation may or may not make use of the TMS for such integration.

All inter-organisation interfaces, and interfaces with systems in the national domain or which are common to the national domain and the local domain, will be implemented via the TMS where not otherwise specified.

### Benefits and Outcomes

To:

#### Patient

- The TMS is invisible to the patient, but its effect is to support the delivery of joined-up care, minimising delays and avoiding errors.

#### Clinician

- The TMS enables more timely and complete information to support the coordination of joined-up, patient-centric care.

#### Manager

- The TMS saves duplicated effort in integrating systems, reduces the cost of interface development and maintenance, and minimises points of failure.

### Delivery Expectations

#### Minimum Level to Be Achieved by December 2004 (Phase 1)

All core interface management functionality is required in Phase 1. All required interfaces are to be implemented. See Module 770 - Clinical Communications.

### Overview Requirements

	Requirement	Required Response
<b>360.1</b>	<b>Overview</b>	
360.1.1	Bidders must state their general approach to the delivery of the TMS and interface management.	<p><i>Each bidder must give an overview of its approach to interface management and how this is reflected in its product and service offerings.</i></p> <p><i>Each bidder must state how:</i></p> <ul style="list-style-type: none"> <li>• <i>its product offering(s) are differentiated from their competitors' offerings; and</i></li> <li>• <i>how they are particularly suited to meeting this requirement.</i></li> </ul>

	<b>Requirement</b>	<b>Required Response</b>
360.1.2	Bidders must have a demonstrated capability to successfully deliver infrastructure which is similar to that required for the TMS.	<i>Each bidder must provide details of previous implementation of a similar infrastructure on a similar scale. Each bidder is also requested to detail issues that arose and how they were overcome.</i>

### **Detailed Requirements**

	<b>Requirement</b>	<b>Required Response</b>
<b>360.2</b>	<b>General Approach</b>	
360.2.1	The TMS must be able to be configured in a flexible manner, such that it is able to meet changing needs.	<i>Each bidder must describe the flexibility of its proposed solution with respect to meeting changing requirements.</i>
<b>360.3</b>	<b>Interface Mechanisms</b>	
360.3.2	<p>The TMS must be able to accommodate a variety of mechanisms to communicate with the systems to which it will be interfaced, including, for example:</p> <ul style="list-style-type: none"> <li>• processing of structured and flat files delivered by a file transport mechanism (e.g., FTP or HTTPS);</li> <li>• provision of facilities to send and receive data through SMTP;</li> <li>• provision of Web services, which may be called by systems to deliver or receive content, exposing TMS interface objects via SOAP;</li> <li>• exposing TMS interface objects directly e.g., as Enterprise Java Beans (EJB), CORBA, COM or DCOM; and</li> <li>• accommodation of low level (e.g., socket-based) connections to systems.</li> </ul>	<i>Each bidder must state the various mechanisms whereby its proposed solution may communicate with source and destination systems.</i>
360.3.3	Where adapters are available to simplify access to specific systems or provide generic interface support (e.g., flat files, access to certain databases), these should be employed where practical.	<i>Each bidder must state what system adapters are available in its proposed solution, what functionality these provide, and what limitations they impose.</i>

	Requirement	Required Response
<b>360.4</b>	<b>Data Transformation</b>	
360.4.1	<p>The TMS must provide facilities to specify data and Message transformations from one format to another, accommodating a wide variety of input and output formats and transformation types.</p> <p>As XML will be the principal encoding used, the system must provide strong support for XML and its related standards.</p> <p>As HL7 v3 will be the lingua franca in the TMS, particular support should be provided for managing HL7 v3 Messages and CDA documents.</p>	<p><i>Each bidder must describe the facilities provided in its proposed solution to allow definition of data transformations, specifying:</i></p> <ul style="list-style-type: none"> <li>• <i>what tools are available;</i></li> <li>• <i>how the tools are employed;</i></li> <li>• <i>what may be achieved graphically;</i></li> <li>• <i>what manually coding is required and how it will be effected;</i></li> <li>• <i>what input and output formats are supported;</i></li> <li>• <i>what particular support is available for the handling and processing of XML and related standards (e.g., XML schemas, XSLT, etc.); and</i></li> <li>• <i>what particular support is available for the creation and management of HL7 v3 Messages and CDA documents.</i></li> </ul>
<b>360.5</b>	<b>Lexicon/Terminology Management</b>	
360.5.1	<p>The TMS must be able to support the conversion from one classification into another (for example, Read Codes to SNOMED CT) as part of the data transformation process.</p> <p>The translation facilities should be scalable and capable of high-performance integration into interface processes.</p> <p>The code translation service should be provided by the Terminology Service (see Module 380 – Terminology Service).</p>	<p><i>Each bidder must explain how it would approach terminology translation using an external terminology service, including its proposed technical implementation and optimisations for high performance and scalability.</i></p>

	Requirement	Required Response
<b>360.6</b>	<b>Interface Processing</b>	
360.6.1	<p>The TMS must process the inputs received on each interface and generate successful outputs or, alternatively, appropriate error messages in accordance with process logic or business rules specified for that interface/input type. The following actions will be required to be performed:</p> <ul style="list-style-type: none"> <li>• validation;</li> <li>• Message structure transformation/ mapping;</li> <li>• terminology translation;</li> <li>• business rules/workflow/routing management;</li> <li>• interface control and management; and</li> <li>• error handling.</li> </ul>	<p><i>Each bidder must describe the interface process design facilities of its proposed solution, specifying what tools are available and how they may be employed to meet the requirements of this module.</i></p> <p><i>Each bidder must describe where workflow and rules elements of its proposed solution are provided natively; and, where they involve linking to the Workflow/Rules Service (see Module 370 – Workflow/Rules Service), the integration mechanisms must be explained.</i></p> <p><i>Each bidder must describe how business transactions and complete interfaces are modelled, as part of its solution, and how these models are translated into operational interfaces.</i></p>
360.6.2	<p>Where process logic needs to be specified to develop an interface, or to define the required processing with the TMS, this must be accommodated, wherever possible, by using rules-based tools rather than by manual coding. It is anticipated that complex, rules-based processing should be mediated via a link to the Workflow/Rules Service (see Module 370 – Workflow/Rules Service).</p>	<p><i>Each bidder must describe, for its proposed solution, how business logic may be described; where this may be achieved by graphical definition or rules-based definition; and where coding is necessary. Where coding is necessary, the applicable coding languages must be stated, as should those features of the proposed solution which are intended to simplify the process.</i></p> <p><i>Each bidder must describe how externally-specified rules processing can be incorporated into workflow processes.</i></p>
360.6.3	<p>The interfacing and processing elements of the TMS should provide for process modularisation, whereby common elements may be defined once and used many times in a number of workflows.</p> <p>Equally, a complex workflow must be able to be built up by the connection of several other workflows.</p>	<p><i>Each bidder must describe the facilities of its proposed solution for:</i></p> <ul style="list-style-type: none"> <li>• <i>modularisation of processes for reuse; and</i></li> <li>• <i>the graphical building of complex workflows from the assembly of other workflows.</i></li> </ul>

	<b>Requirement</b>	<b>Required Response</b>
360.6.4	In some cases, it may be necessary to process several interface transactions, potentially from different systems, in order to produce a single output to receiving systems.	<i>Each bidder must describe how its proposed solution accommodates building one output transaction from multiple input Messages, potentially from different systems.</i>
360.6.5	In many cases, a Message received by the TMS may need to be propagated to more than one destination system; potentially, in a different format and via a different communications mechanism.	<i>Each bidder must describe the facilities of its proposed solution for branching, in the graphical interface process designer element, to accommodate the propagation of Messages to more than one destination; potentially, in a different format and via a different communications mechanism.</i>
360.6.6	Interface processes must be able to be run in parallel, but with the ability to be synchronised at specified junctures.	<i>Each bidder must explain the facilities provided by its proposed solution for parallel processing of interfaces and their synchronisation at specified junctures.</i>
360.6.7	Interface processes must be able to cope with sequences which span long periods of time (e.g., days, weeks or months).	<i>Each bidder must confirm that its systems can manage long process sequences.</i>
360.6.8	Best practice would suggest that service providers implement operational monitoring and management tools to enable applications, services and infrastructure to be monitored in the live environment.	<i>Each bidder must state the facilities in its proposed solution to support this requirement.</i>
360.6.9	It must be possible to be able to specify and implement new interfaces and processes, or changes to existing interfaces and processes, with the minimum of effort, allowing the TMS service to be rapidly adapted to support business-driven change.	<i>Each bidder must state how its proposed solution supports this requirement.</i>
<b>360.7</b>	<b>Configuration Management</b>	
360.7.1	The TMS must be capable of supporting several versions of each interface and running them concurrently to allow a smooth transition from one interface version to another.	<i>Each bidder must describe the facilities in its proposed solution for versioning Message formats and interface processes, configuration management and a smooth transition between configurations.</i>
360.7.2	The TMS must be capable of being upgraded incrementally.	<i>Each bidder must describe the facilities in its proposed solution to support incremental upgrades.</i>
<b>360.8</b>	<b>Testing</b>	
360.8.1	Interface configurations must be able to be designed and tested without impacting current running processes.	<i>Each bidder must state in detail what facilities exist in its proposed solution to support interface testing.</i>

	<b>Requirement</b>	<b>Required Response</b>
<b>360.9</b>	<b>Specific Support for Local Integration</b>	
360.9.1	The ICRS NASP may be required to provide specific support for integration requirements with a Cluster, either to allow local system to system integration (data and process) or to provide local users with a mechanism to access regional applications.	<i>Each bidder must describe how the architecture of its proposed solution would allow for distributed deployment and specialisation, and for management and support of this requirement.</i>
<b>360.10</b>	<b>Management and Monitoring</b>	
360.10.1	The TMS must be able to be backed-up (interface rules), as appropriate, without affecting running interfaces.	<i>Each bidder must describe how its proposed solution is backed-up without impacting running interfaces.</i>
360.10.2	All components of the TMS must be able to be monitored and fully managed remotely.	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li>• <i>describe how its proposed solution is monitored and managed; and</i></li> <li>• <i>describe the tools and facilities provided for this purpose.</i></li> </ul>
360.10.3	The various elements of the interface function should be able to be reported (e.g., Message processing, errors, number of services active, etc.).	<i>Each bidder must describe the facilities in its proposed solution for interface management reporting.</i>
<b>360.11</b>	<b>Performance and Scalability</b>	
360.11.1	The TMS must support the performance, scalability and service level requirements, defined in Part III of this OBS.	<i>Each bidder must describe how its proposed solution satisfies this requirement.</i>

	Requirement	Required Response
<b>360.12</b>	<b>Error Handling and Recovery</b>	
360.12.1	<p>It is important that pre-defined exception logic can be invoked if process, communication, data or systems interface errors occur, such as:</p> <ul style="list-style-type: none"> <li>• an interface transaction is received by the TMS which is out of sequence;</li> <li>• an acknowledgement is not received from an interfaced system within a specified timescale;</li> <li>• a duplicate transaction is received;</li> <li>• a data element in a transaction is outside the allowable range, given the context;</li> <li>• a low-level systems error occurs; or</li> <li>• a Spine database transaction is rejected.</li> </ul> <p>This may involve holding back an interface transaction, logically rolling back several steps (where practical), or halting the interface as a whole.</p>	<i>Each bidder must describe how its proposed solution handles exceptions, errors and recovery, and what type of exception logic can be instituted.</i>
360.12.2	<p>Although the working assumption is that data errors should be corrected in source systems and re-sent, it must be possible to edit transactions in a fully auditable manner, should this be more practical.</p>	<i>Each bidder must describe how it is possible to edit interface Messages/transactions within the TMS, where this proves necessary.</i>
360.12.3	<p>Where user intervention is required, the TMS must notify defined users and follow an escalation path where confirmation has not been received from a user and the error condition has not been resolved.</p> <p>This requirement is only concerned with the notification of exceptions requiring business intervention, and not with how technical errors are notified.</p>	<i>Each bidder must describe how, in cases of errors requiring user notification and escalation, paths are implemented in its proposed solution.</i>
360.12.4	<p>The TMS should be able to guarantee Message delivery such that, should a severe error occur which causes system loss, transactions in process should be able to be recovered.</p>	<i>Each bidder must explain the facilities in its proposed solution to implement guaranteed delivery of Messages.</i>

	<b>Requirement</b>	<b>Required Response</b>
360.12.5	Where data is exchanged between the TMS and Local Systems and/or other National Applications, the ICRS NASP must maintain and publish any required referential and/or validation rules for each interface type. Further to this, as and when changes are required to these agreed rules, the ICRS NASP is responsible for agreeing with other NASPs and each LSP the required changes and an effective date for the changes to occur. Parallel operation of two rule sets may be required for a short period to support migration.	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li>• <i>describe its approach to publishing and maintaining interface referential and validation rules; and</i></li> <li>• <i>suggest how they would apportion responsibility for the resolution of errors that occur, where agreed protocols are not adhered to.</i></li> </ul>
<b>360.13</b>	<b>Maintaining an Audit Trail During Support, Maintenance and Error Recovery</b>	
360.13.1	<p>The TMS must produce an Audit Trail for each access to the TMS for support, maintenance or error recovery purposes.</p> <p>Audit Trails must be available for inspection by or at the direction of the Authority. Audit Trails must be subject to strict security controls.</p>	<p><i>Each bidder must describe the facilities provided in its proposed solution for production, inspection and management of the Audit Trail, paying particular attention to:</i></p> <ul style="list-style-type: none"> <li>• <i>flexibility in specifying when and how to write Audit Trails; and</i></li> <li>• <i>security control of inspection and editing Audit Trails.</i></li> </ul>

---

## 350 – Spine Directory Services

### **Overview**

The functionality specified in this module will be required to enable the maintenance and publication of both: (a) services provided by the Spine; and (b) systems/services being provided to the Spine. It is specified in Part I of this OBS, as these requirements are to be met by the ICRS NASP.

Other services that the Spine will need to reference and/or use are defined in Module 440 – Interfaces to/Use of Existing Health Services Infrastructure.

### **Scope**

#### **Components**

The core components are as follows:

- a directory of services provided by the Spine (see Module 200 - Personal Spine Information Services); and
- a directory of accredited systems<sup>1</sup> providing service information to the Spine (and, potentially, each other).

#### **Exclusions**

Those services that already exist and are being provided via existing contracts/organisations (for example, see Module 440 – Interfaces to/Use of Existing Health Services Infrastructure).

#### **Benefits and Outcomes**

##### **Current Situation**

Currently, the directory of services and the directory of accredited systems, referenced in the "Components" section above, do not exist. The requirement for them has arisen as a result of the Personal Spine Information Services requirement (see Module 200 – Personal Spine Information Services).

##### **Desired Benefits and Outcomes**

The main benefits are:

- the ability of health and Social Care systems to identify and link to Spine services; and
- the ability of health and Social Care systems to send data to the Spine.

##### **Delivery Expectations**

##### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

It is expected that all of the required functionality will be in place by the end of 2004.

---

<sup>1</sup> These will be existing national systems and local information systems.

**Detailed Requirements**

	<b>Requirement</b>	<b>Required Response</b>
<b>350.1</b>	<b>Spine Services</b>	
350.1.1	The ICRS NASP shall publish a directory of the set of services being provided by the Spine.	<i>Each bidder must describe the mechanism and process of how it will publish these.</i>
350.1.2	This directory is to be sufficiently flexible to allow publication of new and changed services without disruption of existing services.	<i>Each bidder must describe how it will make this flexible.</i>
<b>350.2</b>	<b>Accredited Systems</b>	
350.2.1	The ICRS NASP will be required to maintain a directory of those systems that have been accredited to provide information to the Spine. The information that the directory is required to contain includes but it not limited to: <ul style="list-style-type: none"> <li>• supplier details;</li> <li>• system version;</li> <li>• date of Accreditation;</li> <li>• approval status; and</li> <li>• details of Messages being supplied.</li> </ul>	<i>Each bidder must describe how the directory of systems will be maintained.</i>
350.2.2	The systems directory is to be available online to authorised users.	<i>Each bidder must describe how the systems directory will be published.</i>
350.2.3	The systems directory is to be used by the Spine to validate approved sources.	<i>Each bidder must describe how the systems directory will be used to validate approved sources.</i>
350.2.4	The systems directory is to be used by the Spine to record the "source system" of incoming Messages.	<i>Each bidder must describe how the systems directory will be used to record the source system of incoming Messages.</i>

---

## 370 – Workflow/Rules Services

### **Overview**

This module specifies the requirements for the workflow and rules services that will provide generic workflow management and rules management services for applications and services provided by the ICRS NASP and other NASPs.

The purpose of both workflow and rules services is to permit the separation of application logic from business logic. This is required to make applications very flexible to meet the specialist needs of the various participants in the healthcare delivery chain and adaptable to meet changing requirements.

The inclusion of the workflow service underlines the importance of managing clinical processes, rather than merely clinical data, in supporting truly patient-centric care. Although the initial scope of workflow is constrained, one of the key uses of the workflow service in the future will be to allow marshalling of concurrent processes managed by several discrete applications; e.g., coordination of a patient's multiple clinical pathways across organisational boundaries.

The intention of the rules service is to permit users to specify both simple and complex rules for data validation, exception identification, decision support, alerts and notifications or reminders, etc. It is intended that rules will be authored by non-programmers and, in many cases, Clinician end users, and the way that the rules are built should therefore reflect this.

### **Scope**

#### **Components**

Areas of functionality:

- business rules; and
- workflow.

#### **Exclusions**

Systems rules functionality within any Cluster.

#### **Other Requirements**

All applications and services to be provided by the ICRS NASP and other NASPs will use the common Workflow/Rules Service to provide workflow and rules to meet application and service requirements.

### **Benefits and Outcomes**

To:

#### **Patient**

- Improved care through better collaborative working.
- Decision support reduces risk and potentially improves care quality.
- Alerts and reminders to support self-mediated care.

#### **Clinician**

- Minimisation of discontinuity in the care process.

- 
- National applications and services provided by the ICRS NASP and other NASPs shall be configurable to meet specialist needs.
  - Decision support to reduce risk and support higher quality care.
  - Task lists and alerts to help ensure process continuity.

### **Manager**

- Minimisation of discontinuity in the care process.
- Decision support to reduce risk and ensure higher quality care.
- Better utilisation of resources.
- Swifter adaptation of applications and services provided by the ICRS NASP and other NASPs to changing requirements.
- Reduced expenditure on application modifications.

### ***Delivery Expectations***

#### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

All workflow and rules functionality is required in Phase 1.

### ***Detailed Requirements***

#### **Rules/Decision Support**

The goals of this component are twofold:

- to make the Spine flexible and able to respond to a changing technical and clinical environment (i.e., adaptation); and
- to ensure consistency between transactions that cross organisations, particularly those that require action from the patient (i.e., mediation).

There is no requirement for these goals to be met with the same physical component or rules engine, and bidders are encouraged to submit creative ideas that meet these goals in a cost-effective manner.

The rules to which this module relates are those that are foreseen as needed to manage the Spine. They do not cover all of the rules required to manage the Transaction and Messaging Spine.

#### **Adaptation Rules**

Three types of adaptation rules are foreseen:

- data entry;
- data validation; and
- data transformation.

The first of these, "data entry," covers checking that Messages and/or fields adhere to the correct standards for presentation and format. These standards vary from time to time, and it is necessary to be able to update the service quickly and cost-effectively.

"Data validation" refers to the checking of Message content, to ensure that the transaction described by the Message is both internally consistent and logically credible (i.e., consistent with external

assumptions and the current state of the Patient Record). These rules will improve the accuracy of the information held in the Spine, so it is necessary to be able to respond quickly where frequently occurring but avoidable errors are being made.

"Data transformation" rules enable information to be blended from multiple sources, in a flexible manner, to create a single, consistent view of each recordable event. Information systems across the NHS are going to be in a state of some flux for the foreseeable future, and it is necessary to be able to adapt seamlessly to this changing landscape. It is also necessary to have the flexibility to create multiple records from a single input event; for example, when a discharge summary is received and records must be generated for the various problems, medications, etc., that the discharge summary describes for the patient.

	<b>Requirement</b>	<b>Required Response</b>
<b>370.1</b>	<b>Overview</b>	
370.1.1	The service shall support adaptation, without application program change, of the following: <ul style="list-style-type: none"> <li>• data entry (format checking);</li> <li>• data validation (Message content); and</li> <li>• data transformation (event mapping).</li> </ul>	<i>Each bidder must describe how its solution supports dynamic application of configurable rules during data entry and Message handling.</i>
370.1.2	The service shall enable new adaptation rules to be introduced and implemented in a safe and timely manner. The process must include adequate measures for testing the impact of new rule sets and for rolling back in the event of unforeseen problems.	<i>Describe the process for introducing and rolling out new adaptation rules and illustrate the typical timescales for each step.</i>  <i>Show how the balance between safety and timeliness is managed.</i>
<b>370.2</b>	<b>Data Entry Rules</b>	
370.2.1	Data entry rules shall permit the flexible definition of expected Message and field formats for all inputs.	<i>Each bidder must describe the extent to which its solution can be adapted to different input formats at both Message (transaction) and field level.</i>
370.2.2	The service should permit the definition of variable formats that are discriminated by data values within the Message.	<i>Describe how variable format Messages and fields can be specified via data entry rules.</i>
370.2.3	The service shall support the definition of multiple versions of a given Message, for backwards compatibility.	<i>Describe how different versions of clinical Messages will be discriminated and the correct formatting rules applied.</i>
370.2.4	In the event that a data entry rule is violated, the service shall reject the corresponding field or Message.	<i>Describe the means available to information providers to understand the cause of rejection and to correct the problem.</i>
370.2.5	In the event that a data entry rule is violated, the service should give feedback to the user or client system at the earliest available point.	<i>Describe how users can receive near-immediate feedback of data entry errors.</i>

	<b>Requirement</b>	<b>Required Response</b>
370.2.6	Where a Message violates multiple data entry rules, the service shall report all root causes.	<i>Describe how error reports will be generated and prioritised to avoid reporting multiple violations from the same root cause.</i>
<b>370.3</b>	<b>Data Validation Rules</b>	
370.3.1	Data validation rules shall permit the flexible checking of the consistency and credibility of input events.	<i>Each bidder must describe the extent to which its solution can be adapted to provide different checks on the consistency and credibility of Messages (transactions).</i>
370.3.2	The service should permit the content of each field of an input event to be validated with reference to a combination of the following: <ul style="list-style-type: none"> <li>• fields from the same input event;</li> <li>• fields from the summative parts of the corresponding Patient Record (if any);</li> <li>• calculations;</li> <li>• database look-up;</li> <li>• evaluation of a built-in function; and</li> <li>• evaluation of a function supplied by an external component.</li> </ul>	<i>Describe how validation rules can be constructed.</i>  <i>It is assumed that validation rules will employ “spreadsheet” style formulae; but, if the bidder’s solution differs from this, it must explain the benefits.</i>
370.3.3	In the event that a data validation rule is violated, the service shall accept the corresponding transaction but generate an appropriate warning.	<i>Describe how the root cause of each warning can be communicated clearly to the end user or client system.</i>
370.3.4	Where a single transaction violates multiple data validation rules, the service shall report all root causes.	<i>Describe how warnings will be generated and prioritised, to avoid reporting multiple violations from the same root cause.</i>
<b>370.4</b>	<b>Data Transformation Rules</b>	
370.4.1	Data transformation rules shall enable the flexible mapping of external (input) events into a common internal (recordable) form.	<i>Each bidder must describe the extent to which its solution can be adapted to provide different mappings from input events to a common, recordable form.</i>
370.4.2	Data transformation rules shall enable the creation of multiple recordable events from a single input event.	<i>Each bidder must describe how its solution allows events to be analysed to extract implied events of other types; e.g., analysis of a discharge summary.</i>

	Requirement	Required Response
370.4.3	<p>The service shall enable the content of each field of a recordable event to be derived from a combination of the following sources:</p> <ul style="list-style-type: none"> <li>• fields from the original input event;</li> <li>• fields from the summative parts of the corresponding patient record (if any);</li> <li>• calculations;</li> <li>• database look-up;</li> <li>• evaluation of a built-in function;</li> <li>• evaluation of a function supplied by an external component.</li> </ul>	<p><i>Describe how transformation rules can be constructed.</i></p> <p><i>It is assumed that validation rules will employ spreadsheet style formulae; but, if the bidder's solution differs from this, it must explain the benefits.</i></p>
370.4.4	<p>In the event that a transformation formula fails to produce a valid result, the system shall substitute a well-defined and adaptable error value.</p>	<p><i>Describe how error values can be specified and adapted.</i></p>
370.4.5	<p>Where a transformation rule is applied to a coded value, the service shall retain both the input value and the resulting value.</p>	<p><i>Describe how users will be able to retrieve the original record; e.g., in the event that they wish to discover the cause of an error or to verify that a non-credible value was not the result of a faulty transformation.</i></p>

### Mediation Rules

Three types of mediation rule are foreseen:

- coordination;
- reminder; and
- alert.

The first of these, "coordination," provides assistance in the flow of information, generating appropriate notifications whenever a given type of event is received by the Spine (e.g., notifying a doctor when a test result is available for collection).

The second, "reminder," acts as a backstop for cases where the normal flow of a care transaction breaks down. It generates reminders when a given type of event is NOT recorded as expected (e.g., when a patient fails to pick up a prescription).

The third, "alert," addresses conditions where urgent action may be needed by a care professional; such as the prescription, by different people, of incompatible medications, or the return of significantly abnormal values in a test result.

These types of mediation rule are not intended to replace normal workflow procedures; they merely act to reduce the number of care transactions that do not complete as expected. However, their very existence may well improve existing workflows. It should also be noted that no provision is to be made within the Spine for regional or local variations in these business-support rules, as these can be

handled adequately within other information systems.

	Requirement	Required Response
<b>370.5</b>	<b>Overview</b>	
370.5.1	<p>The service shall support the definition and application of the following types of business support (mediation) rule:</p> <ul style="list-style-type: none"> <li>• coordination;</li> <li>• reminder; and</li> <li>• alert.</li> </ul>	<i>Each bidder must describe how its solution supports the dynamic definition and application of business-support rules.</i>
370.5.2	The service shall enable business support rules and workflows to be defined and managed by non-technical staff.	<i>Each bidder must describe the features that make its solution easy to use for staff who may have extensive clinical knowledge but whose IT skills may be more limited.</i>
370.5.3	Where rules have been described in standard syntaxes, it should be possible to convert these into the rule syntax of the rules service.	<p><i>Describe how rules may be imported and translated from one syntax to another, where this is necessary.</i></p> <p><i>Each bidder must describe the support of its proposed solution for standard-based rules' syntax (e.g., Arden syntax for clinical rules).</i></p>
370.5.4	<p>The service shall enable new business support rules to be introduced and implemented in a safe and timely manner.</p> <p>The process must include adequate measures for testing the impact of new rule sets and for rolling back in the event of unforeseen problems.</p>	<p><i>Describe the process for introducing and rolling out new business support rules, and illustrate the typical timescales for each step.</i></p> <p><i>Show how the balance between safety and timeliness is managed.</i></p>
370.5.5	Workflow processing must be able to be integrated with existing and new applications and services.	<i>Describe how workflow processing may be integrated into existing and new applications and services.</i>
370.5.6	Rules processing must be able to be flexibly utilised within workflow processes.	<i>Describe how rules and workflows work in concert to support business processes.</i>
370.5.7	The service shall support both the retrospective and non-retrospective application of business rules.	
370.5.8	Where a business rule is applied retrospectively, the service shall apply it both to previously recorded events and to any new events that are recorded while the rule is in force.	

	<b>Requirement</b>	<b>Required Response</b>
370.5.9	<p>Where a business rule is applied retrospectively, the service shall complete its application to all previously-recorded events in a timely manner without significant impact on the processing of new events.</p> <p>Note that there is an expectation that retrospective application of a rule should be completed within 48 hours.</p>	<p><i>Describe how the impact of retrospective application of rules on the processing of new events will be minimised.</i></p> <p><i>Each bidder must state the expected period for completion of processing of previously-recorded events. If the bidder believes that it is infeasible or not cost-effective to meet the required timing, it shall make an alternative proposal.</i></p>
370.5.10	<p>Where a business rule is applied non-retrospectively, the service shall apply it only to new events that are recorded while the rule is in force.</p>	
370.5.11	<p>Business rules shall carry an associated priority marking to distinguish those rules that must be applied immediately from those that are less urgent.</p> <p>Note that the processing of some actions can be deferred or batched in order to reduce overall impact on processing resources.</p>	<p><i>Describe how the priority system will ensure that urgent actions are taken quickly without incurring excessive resources.</i></p>
<b>370.6</b>	<b>Coordination Rules</b>	
370.6.1	<p>A coordination rule should consist of (i) a trigger event and (ii) a list of actions to be performed when the trigger event occurs.</p>	<p><i>Describe how coordination rules are constructed.</i></p> <p><i>Note the assumption that coordination rules have two, distinct parts. If, however, the bidder's solution offers a different perspective, the bidder shall describe the benefits of departing from this assumption.</i></p>
370.6.2	<p>The service shall enable the trigger event for a coordination rule to be defined by a combination of the following:</p> <ul style="list-style-type: none"> <li>• class of recordable event;</li> <li>• fields from an instance of the recordable event (if a class has been specified);</li> <li>• fields from the patient summary;</li> <li>• calculations;</li> <li>• database look-up;</li> <li>• evaluation of a built-in function; and</li> <li>• evaluation of a function supplied by an external component.</li> </ul>	<p><i>Describe how trigger events are identified.</i></p> <p><i>It is assumed that coordination rules will employ "spreadsheet" style formulae; but, if the bidder's solution differs from this, the bidder shall explain the benefits.</i></p>

	Requirement	Required Response
370.6.3	Where the trigger event for a coordination rule does not specify a class of recordable event, the service shall apply the rule on every type of recordable event.	
370.6.4	<p>The service shall enable the following types of action to be specified for a coordination rule:</p> <ul style="list-style-type: none"> <li>• invoke a workflow process;</li> <li>• send an alert;</li> <li>• invoke an external service (e.g., Web service);</li> <li>• evaluate a function supplied by an external component;</li> <li>• set (or potentially unset) a privacy marker on the event; and</li> <li>• insert values into a database.</li> </ul> <p>Note that the listed set is not intended to be exhaustive, and bidders are permitted to offer additional types of action where they feel that the actions are of value from a national perspective.</p> <p>Note, too, that the intent of setting a privacy marker is to conceal the information from users with non-clinical roles until it is released by an authorised Clinician.</p>	<i>Each bidder must specify the types of action that its solution supports.</i>
370.6.5	<p>The service shall enable actions to be qualified by parameters derived from combinations of the following:</p> <ul style="list-style-type: none"> <li>• fields from the qualifying instance of the trigger event (if any);</li> <li>• fields from the patient summary;</li> <li>• calculations;</li> <li>• database look-up;</li> <li>• evaluation of a built-in function; and</li> <li>• evaluation of a function supplied by an external component.</li> </ul>	<i>Describe how actions can be qualified by parameters.</i>

	Requirement	Required Response
370.6.6	Where a given recordable event qualifies for multiple coordination rules, the service shall apply each of the rules in a well-defined order.	<i>Describe how rules will be ordered so that any mutual dependencies are evaluated in a consistent manner.</i>
<b>370.7</b>	<b>Reminder Rules</b>	
370.7.1	A reminder rule should consist of (i) a trigger event, (ii) an expected event, (iii) a permitted time interval and (iv) a list of actions to be performed when the expected event is not recorded within the permitted time interval after the trigger event.	<i>Describe how reminder rules are constructed.</i>  <i>It is assumed that reminder rules have four, distinct parts. If, however, the bidder's solution offers a different perspective, it shall describe the benefits of departing from this assumption.</i>
370.7.2	The service shall enable both the trigger event and the expected event for a reminder rule to be defined by a combination of the following: <ul style="list-style-type: none"> <li>• class of recordable event;</li> <li>• fields from an instance of the recordable event (if a class has been specified);</li> <li>• fields from the patient summary;</li> <li>• calculations;</li> <li>• database look-up;</li> <li>• evaluation of a built-in function; and</li> <li>• evaluation of a function supplied by an external component.</li> </ul>	<i>Describe how events are identified.</i>  <i>It is assumed that reminder rules will employ "spreadsheet" style formulae, but, if the bidder's solution differs from this, the bidder shall explain the benefits.</i>
370.7.3	Where the trigger event for a reminder rule does not specify a class of recordable event, the service shall apply the rule on every type of recordable event.	
370.7.4	Where the expected event for a reminder rule does not specify a class of recordable event, the service shall execute the action on expiry of the permitted time interval.	

	<b>Requirement</b>	<b>Required Response</b>
370.7.5	<p>The service shall enable the following types of action to be specified for a reminder rule:</p> <ul style="list-style-type: none"> <li>• send an alert;</li> <li>• invoke an external service; and</li> <li>• insert values into a database.</li> </ul> <p>Note that it is permissible for the same set of actions to be supported for both reminder rules and coordination rules.</p>	<i>Each bidder must define the types of action that its solution supports.</i>
370.7.6	Where a reminder rule is applied retrospectively, the service shall not generate a reminder if the expected event has been recorded after the trigger event, even where the interval between these events would violate the rule.	
<b>370.8</b>	<b>Alerts</b>	
370.8.1	Where an action for a business rule identifies an alert to be sent, the service shall permit the intended recipient to be defined by a generic role in relation to the corresponding patient and event (if any).	<i>Describe the roles that it will be possible to identify in the action part of a rule, and identify how these will be resolved to actual users.</i>
370.8.2	The service shall permit each user to nominate how they prefer to receive alerts.	<i>Each bidder must describe how users are able to indicate their preference for the means by which they will receive alerts. Each bidder must identify the options (e.g., email, SMS, fax, etc.) which are available to users within the scope of its proposed solution and identify the cost of each option.</i>
370.8.3	Where patient alerts are generated, the rules service shall use the Personal Demographics Service to identify the most appropriate channel.	
370.8.4	The service shall allow each user to selectively block specified classes of alert.	<i>Describe how users can indicate their preference not to receive certain classes of alert.</i>
370.8.5	The service shall permit each user to create a standing instruction to forward copies of their alerts to another user.	
370.8.6	The service shall permit each user to review alerts that have been sent to them in the last 3 months.	

	Requirement	Required Response
370.8.7	The service shall automatically block alerts that would otherwise be sent to a patient for whom death has been recorded or to their carer.	
<b>370.9</b>	<b>External Functions</b>	
370.9.1	The service shall support the use of external functions which may then be called from rules.	<i>Each bidder must describe the mechanism included in its solution for supporting external functions.</i>
370.9.2	The service shall allow checking against standard reference sources for the check being performed; e.g., drug-drug compatibility, drug dosage, etc.	<i>Each bidder must show how its solution can support rules for checking the compatibility of different sets of medications for contraindications, overlap of function and so on.</i>  <i>Describe how the reference database supporting this function will be accessed and updated.</i>

### Configuration Management

It is expected that the Spine will support just one active set of rules but will have the capability to support a number of sets that are under development and others that have been deployed in the past. All of these sets need to be held under strong configuration management and version control, with the ability to roll back to prior versions and create new branches, as needed.

	Requirement	Required Response
<b>370.10</b>	<b>Overview</b>	
370.10.1	The service shall include comprehensive facilities for managing configurations of workflows and rules versions.	<i>Each bidder must describe the facilities included in its solution.</i>
370.10.2	The service shall permit concurrent development of multiple sets of rules.	<i>Describe how different development streams (branches) can be sustained. Explain how changes in different streams can be synchronised or merged.</i>
370.10.3	The service shall permit the evaluation of any configuration of workflow and rules in a test environment.	<i>Describe the facilities for testing rule sets during development or post-incident analysis.</i>
370.10.4	The service shall support the controlled promotion to active status of any configuration of workflow and rules.	<i>Describe how workflow and rule configurations are promoted to active status.</i>
370.10.5	The service shall provide a full history of versions of rules that have been promoted to a live state.	<i>Each bidder must describe how rule version history is managed by its solution.</i>

### Information Governance

The creation and management of rule sets must meet the requirements for information governance

---

described in Module 730 - Information Governance.

### Management Information

The service must contain measures to monitor and report on the quality of data being provided to the storage interfaces. In particular, it is necessary to report on source systems that persistently generate warnings or errors and on volumes and capacity.

	Requirement	Required Response
<b>370.11</b>	<b>Overview</b>	
370.11.1	The service shall provide flexible mechanisms for reporting exception conditions.	<i>Each bidder must describe the facilities in its solution for reporting unusual or exceptional conditions, such as persistent errors being reported from data entry rules.</i>  <i>Describe how these can be analysed to determine the source of the problem.</i>
370.11.2	The service shall provide statistical reporting about the application of rules.	<i>Each bidder must describe the facilities in its solution for analysing and reporting on the activity of the rules engine.</i>

## 380 – Terminology Service

### **Overview**

This module specifies the requirements for a Terminology Service to provide generic terminology management tools and terminology-related support for applications and services provided by the ICRS NASP, NASPs and each LSP.

### **Scope**

#### **Components**

Areas of functionality:

- terminology creation and maintenance;
- terminology mapping;
- application terminology services;
- terminology translation;
- assisted structured data entry;
- unstructured textual analysis and indexing; and
- terminology assisted information retrieval.

#### **Exclusions**

Local Systems terminology functionality.

#### **Benefits and Outcomes**

To:

##### **Patient**

- Patients are assisted in entering structured data into their records.
- Patients are better able to find health information of relevance from national sources through terminology-assisted search mechanisms.
- Patient care is safeguarded through precise codification of their Patient Record.

##### **Clinician**

- Structured Clinician data entry is facilitated by clinically-helpful terminology services.
- Health record coding is consistent and clinically relevant.
- More highly-structured health record data is available for decision support, alerts and secondary analysis.
- Clinical knowledge is more effectively shared.

**Manager:**

- Consistently-coded data is available for clinical and analytical purposes (subject to patient consent).
- Reduction of risk through decision support tools supporting clinical processes.

**Delivery Expectations****Minimum Level to Be Achieved by December 2004 (Phase 1)**

All core terminology management functionality is required in Phase 1.

**Overview Requirements**

	Requirement	Required Response
<b>380.1</b>	<b>Overview</b>	
380.1.1	Some of the required benefits of implementing the Terminology Service are mentioned above.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>how its proposed solution would be employed to realise the benefits mentioned; and</i></li> <li>• <i>what other benefits would be achievable through the appropriate utilisation of its proposed solution.</i></li> </ul>
380.1.2	A number of classifications and terminologies are currently employed in NHS systems, some of which are standard and many of which are locally-implemented. Tools must be available to set up and maintain classifications and terminologies and concept mappings.	<p><i>Each bidder must explain its general approach to terminology management and the facilities of its proposed solution, including:</i></p> <ul style="list-style-type: none"> <li>• <i>the tools available for terminology creation and management; and</i></li> <li>• <i>the approach to concept arbitration and terminology mapping.</i></li> </ul>

**Detailed Requirements**

	Requirement	Required Response
<b>380.2</b>	<b>Assisted Structured Data Entry</b>	
380.2.1	To assist Clinicians in entering structured/coded data, facilities must be available to derive standard concepts and terms from free text entry.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>its proposed solution's capabilities for lexical analysis of free text; and</i></li> <li>• <i>how these may be employed to assist structured/coded application data entry, including real-time interactive and batch services.</i></li> </ul>

	<b>Requirement</b>	<b>Required Response</b>
380.2.2	Facilities must be provided to allow searching and browsing through terminologies to locate and employ suitable terms in data entry.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>the terminological search and browsing capabilities of its proposed solution; and</i></li> <li><i>how these might be employed to assist clinical data entry.</i></li> </ul>
380.2.3	Where externally-managed specialist databases are available to meet specific clinical needs, the system should be able to incorporate these into the service as appropriate.	<i>Each bidder must describe how external classifications may be incorporated into its proposed solution.</i>
<b>380.3</b>	<b>Terminology Translation</b>	
380.3.1	The Transaction and Messaging Spine must be able to convert from one classification into another as part of the data transformation process.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>its solution's approach to and facilities for terminology translation; and</i></li> <li><i>how such facilities might be integrated into applications and services provided by NASPs.</i></li> </ul>
<b>380.4</b>	<b>Terminology Assisted Information Retrieval</b>	
380.4.1	Facilities must be provided for terminology-assisted retrieval of information.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>its proposed solution's approach to terminology-assisted information retrieval; and</i></li> <li><i>how its facilities can be integrated into applications and services provided by NASPs.</i></li> </ul>
<b>380.5</b>	<b>Unstructured Textual Analysis and Indexing</b>	
380.5.1	Where unstructured or poorly-structured data is available, semantic analysis facilities must be provided to better classify and structure this data.	<p><i>Each bidder must describe its proposed solution's approach to semantic analysis and automatic and assisted classification.</i></p> <p><i>Each bidder must describe its approach's practical uses and limitations, illustrating these with examples where its approach has been implemented successfully.</i></p> <p><i>Each bidder must describe how such facilities might be integrated into applications and services provided by NASPs.</i></p>
<b>380.6</b>	<b>Technical Requirements</b>	

	<b>Requirement</b>	<b>Required Response</b>
380.6.1	The Terminology Service should be scalable and capable of high-performance integration into both interactive user applications and services such as the Transaction and Messaging Spine.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>the architecture and technical implementation of its proposed solution; and</i></li> <li>• <i>its optimisations for high performance and scalability.</i></li> </ul> <p><i>Each bidder must describe the technical mechanisms for application and service integration.</i></p>

## 311 – Clinical Spine Applications

### Overview

The purpose of this module is to specify the requirements for a service to provide Healthcare Professionals with applications to access information specifically provided by the Personal Demographics Service and the Personal Spine Information Services, together with the ability to enter new information.

This will be used by Healthcare Professionals whose Local System is yet to be upgraded to provide information to and from the Spine, who do not have a Local System, or who are unable to use their Local System.

### Scope

#### Components

- Patient search.
- Display of and entry into patient summary and status, including:
  - patient summary;
  - problem list;
  - allergies; and
  - family history summary.
- Display of and recording of past events for:
  - requests;
  - procedure history;
  - referral status;
  - medication profile;
  - healthcare tracking; and
  - management reports.

#### Exclusions

This application is not required to provide the functionality to initiate actions such as:

- prescribing (including ETP);
- requests/bookings (including eBooking); and
- referrals.

Patient access to their personal details and their Personal Spine Information Services will be provided through the patient portal, myhealthspace.

#### Current Situation

Clinicians do not have access to a common source of patient-centred information.

---

**Desired Benefits and Outcomes**
**To:****Patient:**

- Providers of healthcare have access to the patient's common information wherever they are.

**Clinician:**

- Healthcare Professionals are able to access the Spine data, ahead of their Local System being upgraded, to display those data within the Local System.
- Healthcare Professionals are able to access the Spine data when away from their Local System (e.g., from home when on-call).

**Delivery Expectations****Minimum Level to Be Achieved by December 2004 (Phase 1)**

For those patients with information on the Spine:

- lists and display of details of events and patient status/summary data; and
- entry of patient status/summary data.

**Minimum Level to Be Achieved by December 2006 (Phase 2)**

Manual entry of event data.

Displays of trends in data over time. Graphical displays of groups of quantitative data over time.

**Target for 2010**

Full functionality as described in the requirements below.

**Overview Requirements**

	<b>Requirement</b>	<b>Required Response</b>
<b>311.1</b>	<p><b>Overview</b></p> <p>An e-GIF compliant application is required that can display all of the classes of patient-based information held in the Spine and all information made available through the Spine.</p> <p>The application will allow the input of those data that are not collected automatically (e.g., family history).</p> <p>Event-based information will normally reach the Spine automatically from clinical systems. However, this application will allow data about past events to be entered manually (for information purposes only).</p> <p>The information will be provided or stored by interfaces (e.g., Web-based services). The scope of these is covered in Module</p>	<p><i>Each bidder must describe its approach to delivering this module.</i></p>

	<b>Requirement</b>	<b>Required Response</b>
	770 - Clinical Communications.	
<b>311.2</b>	<p><b>Benefits and Outcomes</b></p> <p>The service shall deliver the following benefits:</p> <ul style="list-style-type: none"> <li>• Healthcare Professionals have access to Spine information; and</li> <li>• Healthcare Professionals have capabilities to enter some information;</li> </ul> <p>through an e-GIF compliant interface.</p>	<p><i>Each bidder must describe how it would deliver the benefits and outcomes from this module.</i></p>
<b>311.3</b>	<p><b>Implementation and Phasing</b></p> <p>The overview delivery expectations are in the "Overview" section of this module, above. More specific implementation plans will be agreed with the ICRS NASP.</p>	<p><i>Each bidder must describe how it will meet the minimum requirements for implementation of Phase 1 functions.</i></p> <p><i>Each bidder must describe which additional functions it would be able to deliver during Phase 1.</i></p>
<b>311.4</b>	<p><b>Authority's Responsibilities</b></p>	<p><i>Each bidder must describe the responsibilities it would expect to be assumed by the Authority.</i></p>

### **Detailed Requirements**

Existing applications used within healthcare communities will be modified to enable access to the Personal Spine Information Services in order to allow Healthcare Professionals to retrieve, create, update and delete data, subject to role-based access privileges.

While it is assumed that most Healthcare Professionals will have some form of computerised system that will eventually provide them access to the Spine data, this may not initially be the case. For this reason, a series of clinical applications will be required to provide a minimum level of functionality. These applications must be sufficient to support Healthcare Professionals until they obtain a computer system, or until their existing computer system is updated to support the Personal Spine Information Services.

The following sections detail the applications required to be available to a Healthcare Professional for this purpose. The sequence is based around a typical user session for the online applications.

The Healthcare Professional environment is assumed to be patient-centric. This means that, once a specific patient has been located on the Spine by the Healthcare Professional, access to the various Spine applications is based on that patient, until such time as another patient is located.

	Requirement	Required Response
<b>311.5</b>	<b>Standards and Approach</b>	
311.5.1	The applications detailed in this response shall be e-GIF compliant and served over a secure network connection.	<p><i>Each bidder must detail its solution architecture, including the client, middleware, server and network components.</i></p> <p><i>Each bidder must provide details of the options available for interfacing with other systems.</i></p> <p><i>Each bidder must provide details of its hardware and operating software platform, including sizing information.</i></p>
311.5.2	The solution shall be patient-centric.	<i>Each bidder must explain the capabilities of its application with respect to providing a patient-centric environment. Each bidder must explain how a user interacts with the solution to set and review the patient context (i.e., the currently selected patient).</i>
311.5.3	When adding patient summary information of a clinical nature, the solution shall use the Terminology Service to assist the Healthcare Professional in clinical coding.	<i>Each bidder must describe how its solution will integrate with the Terminology Service to provide a flexible and helpful clinical tool and maximise opportunities for semantic robustness.</i>
<b>311.6</b>	<b>Healthcare Professional Personalised Home Page</b>	
311.6.1	Each time that a Healthcare Professional logs on to the Spine, they are to be presented with their home page. This is required to be a user-modifiable screen that allows them to combine a number of other screens into a home page.	<p><i>Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how its solution will provide this facility; and</i></li> <li>• <i>the ways in which a Healthcare Professional can customise their home page.</i></li> </ul>
<b>311.7</b>	<b>Patient Search</b>	
311.7.1	The first operation a user will perform in relation to each patient is a patient search based on either a known patient identifier (e.g., an NHS Number) or known patient demographic details (e.g., name, date of birth, age, sex, telephone number or GP).	

	Requirement	Required Response
311.7.2	The application should provide a generic search facility that allows for the definition of searches without programming. These searches will allow for the definition of the search fields on which to filter data, the data returned for each record matching the search criteria, and default filter criteria. The application must provide facilities for an administrator to define filters using user interface elements, such as radio buttons, check boxes and drop-down lists.	
311.7.3	Examples of pre-defined searches that must be provided are: <ul style="list-style-type: none"> <li>• patient search based on demographics; and</li> <li>• patient search based on NHS Number.</li> </ul>	
311.7.4	The solution shall provide the ability to search against systems providing e-GIF compliant interfaces.	<i>Describe the integration capabilities of the search system.</i>
311.7.5	The solution shall provide a search mechanism that uses the Personal Demographics Service to retrieve personal details based on flexible search criteria, including name, date of birth, etc., and geographic location.	<i>Each bidder must describe how its solution would implement patient search capabilities.</i>
311.7.6	The solution shall allow a user to save a search with pre-configured search criteria.	<i>Each bidder must describe:</i> <ul style="list-style-type: none"> <li>• <i>how this functionality is provided, and</i></li> <li>• <i>the steps a user will take to save and recall a saved search.</i></li> </ul>
<b>311.8</b>	<b>Patient Summary</b>	
311.8.1	Upon locating a specific patient, a user must be presented with a single screen that provides the patient's core demographic details, health status information (e.g., allergies, chronic diseases, etc.) and a summary of the patient's data held by the Spine.	

	Requirement	Required Response
311.8.2	In addition, a controllable list of patient event data must also be provided. The user must be able to control their view of the list by grouping, sorting and filtering the events by reference to different attributes.	
311.8.3	Within the event list, visual clues should be used to indicate the status and/or content of a result or event record (for example, red to highlight an abnormal result, or bold to indicate a result that is still to be signed-off).	
311.8.4	The list entry for a given event must provide access to the details of the event: the report, result, letter, etc.	
311.8.5	<p>Patient data should be able to be displayed graphically over time.</p> <p>Data should be capable of display in a matrix of date/time by results parameters (e.g., blood sugar, sodium).</p> <p>Wherever possible, numeric and short text data can be trended on a single page.</p> <p>The same result types should be able to be trended together, regardless of source; however, adequate warning must be given whenever the sources differ.</p> <p>The reference range associated with a specific result value can be shown. Note that a textual warning must be provided whenever trended results have different reference ranges.</p> <p>Abnormal patient data values should be highlighted.</p> <p>Predefined sets of trended data should be provided for specific specialty views (e.g., diabetic trend, pregnancy trend, electrolyte trend, etc.).</p> <p>Trend data should be able to be printed.</p>	
311.8.6	<p>Patient data should be able to be displayed in a graphical format. The solution should meet the following requirements:</p> <ul style="list-style-type: none"> <li>• numerical data can be graphed with individual patient values being</li> </ul>	

	Requirement	Required Response
	<p>displayed on the graphs;</p> <ul style="list-style-type: none"> <li>reference ranges associated with specific result values can be shown, and a textual warning will be provided if results have different reference ranges;</li> <li>the user can change the graph scaling; and</li> <li>graphical data displays can be printed.</li> </ul>	
311.8.7	The initial screen that is viewed by a Clinician upon selecting a patient must provide a snapshot of patient clinical status from information derived from the Personal Spine Information Services and Personal Demographic Services.	<i>Each bidder must provide details of how its solution will provide this succinct snapshot of patient status.</i>
311.8.8	The Clinician must be able to configure the specific elements they wish to see.	<i>Each bidder must describe how a Clinician goes about configuring their dynamic view of patient data to meet their needs.</i>
311.8.9	The assembled clinical information must be able to be sourced from the Personal Spine Information Services.	<i>Each bidder must describe the interfacing capabilities of its solution for accessing data from the Spine and other sources (database, messaging, Web services, etc.).</i>
311.8.10	The individual detailed clinical data for a patient (e.g., documents, result data, orders, etc.) shall be presented in a manner that allows a Clinician to quickly and easily locate the item or items they are interested in.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>how its solution presents the list of clinical data related to a single patient; and</i></li> <li><i>how the user can interact with this list (by filtering, sorting, grouping, etc.).</i></li> </ul>
311.8.11	The solution should allow an administrator to define criteria controlling the appearance of items in the list to indicate their status (e.g., abnormal, overdue, signed-off, etc.).	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>the configuration capabilities of its software that can be used to define these criteria; and</i></li> <li><i>the available appearance attributes that can be set (e.g., colour, font, icons, etc.).</i></li> </ul>
311.8.12	The user shall be able to view data from across multiple similar Encounters (see 311.8 for further details).	<p><i>Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li><i>how its solution provides this type of data display; and</i></li> <li><i>the capabilities of it in light of the detailed requirements provided above.</i></li> </ul>

	<b>Requirement</b>	<b>Required Response</b>
311.8.13	The user shall be able to view graphed data from across multiple similar Encounters (see 311.8 for further details).	<p><i>Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li><i>how its solution provides this graphed data display; and</i></li> <li><i>the capabilities of it, in light of the detailed requirements provided above.</i></li> </ul>
<b>311.9</b>	<b>Patient Problem List</b>	
311.9.1	A summary of the current patient's problems should be capable of being recorded and displayed.	
311.9.2	Problems should be able to be added to the patient problem list manually by an authorised Clinician. To speed the assignment of problems, a Clinician-specific "favourites" list provides a quick-pick method of selection. Problems should also be capable of being searched by name.	
311.9.3	Medical reference information associated with a specific problem should be able to be accessed directly from the patient problem list via links to an online library.	
311.9.4	The solution should assemble a dynamic patient problem report and make it available to the user.	<i>Describe how the problem list will be assembled.</i>
311.9.5	A Clinician should be able to add problems to the patient problem list, either in free text or from a quick-pick list as coded items.	<p><i>Explain how a Clinician will add problems to the problem list:</i></p> <ul style="list-style-type: none"> <li><i>as free text; and</i></li> <li><i>from their quick-pick list as coded items.</i></li> </ul>
311.9.6	A Clinician must be able to maintain a list of problems available to them from a quick-pick list.	<i>Explain how a Clinician will use the system to maintain their quick-pick list of coded terms.</i>
311.9.7	Medical reference information should be linked to each problem in the patient problem list.	<i>Explain how these links will be created and maintained. (See Module 440 – Interfaces to/Use of Existing Health Services Infrastructure; note that use of NeLH is required.)</i>
<b>311.10</b>	<b>Patient Allergies</b>	
311.10.1	Allergies must be able to be added, edited, voided and reviewed by a patient or a patient's practitioner. An Audit Trail must be created when a user adds, edits, voids or reviews the allergy details.	

	Requirement	Required Response
311.10.2	The allergy information can either be entered as a coded allergy from the allergy master list or entered as free text. Only coded allergies will be involved in allergy checking.	
311.10.3	If an allergy to a medication is added, and, according to the patient medication profile, the patient is currently on the medication, an alert should be displayed to the user immediately.	
311.10.4	The coded allergies for a patient will be from data held centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>
311.10.5	The solution shall assemble a dynamic list of allergies for a particular patient as described in the patient summary section.	<i>Each bidder must describe how its solution presents the list of allergies data related to a single patient, and how the user can interact with this list (filtering, sorting, grouping etc).</i>
311.10.6	The solution shall allow authorised users to add, edit or void patient allergies.	<p><i>Each bidder must describe how its application allows updates. Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li>• <i>the mechanism through which allergies can be added, edited and made void;</i></li> <li>• <i>the interface supported by its application to update allergy data through Personal Spine Information Services; and</i></li> <li>• <i>how its solution manages provenance data.</i></li> </ul>
311.10.7	The solution should alert the user on creation of a newly coded allergy to a medication, if the patient is currently on the medication.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a rules engine for drug allergy interaction checking.</i></p> <p><i>Each bidder must explain how warnings are displayed to the user and what happens in the event of these being bypassed.</i></p>
<b>311.11</b>	<b>Patient Procedure/Intervention History</b>	
311.11.1	A list of procedures/interventions relating to a patient should be capable of being recorded and displayed.	
311.11.2	The list should be able to be automatically created, based on event data received from feeder systems.	

	<b>Requirement</b>	<b>Required Response</b>
311.11.3	<p>Procedures/interventions should be able to be added to a list manually by an authorised Clinician.</p> <p>To speed the assignment of procedures/interventions, a Clinician-specific “favourites” list must provide a quick-pick method of selection.</p> <p>Procedures/interventions should also be able to be searched by name.</p>	
311.11.4	The solution must assemble a dynamic list of procedures and interventions and make it available to the user.	<i>Describe how the procedure and intervention list will be assembled.</i>
311.11.5	The list shall be assembled from data held centrally on the Spine. Some will have been obtained from feeder systems and others will have been entered manually by Clinicians.	<i>Each bidder must describe how its solution manages provenance data.</i>
311.11.6	It should be obvious which procedures/interventions are based on data from feeder systems and which have been manually entered.	<i>Describe how a user will know which procedures have been derived from feeder systems and which have been manually entered by Clinicians.</i>
311.11.7	A Clinician should be able to add procedures to the list, either in free text or from a quick-pick list as coded terms.	<p><i>Explain how a Clinician will add procedures to the list:</i></p> <ul style="list-style-type: none"> <li>• <i>as free text; and</i></li> <li>• <i>from their quick-pick list as coded items.</i></li> </ul>
311.11.8	A Clinician must be able to maintain a list of procedures/interventions available to them from a quick-pick list.	<i>Explain how a Clinician will use the system to maintain their quick-pick list.</i>
<b>311.12</b>	<b>Patient Visit/Encounter Summary</b>	
311.12.1	A list of the patient's Encounters (including patient contacts, visits and admissions) must be recordable and displayed.	
311.12.2	The list should be able to be automatically created, based on event data held within the Spine. In addition, visit data should be able to be added to the list manually by an authorised Clinician.	
311.12.3	The solution should assemble a dynamic list of patient visits and Encounters and make it available to the user.	<i>Describe how the visit/Encounter list will be assembled.</i>

	<b>Requirement</b>	<b>Required Response</b>
311.12.4	The list shall be assembled from data held centrally on the Spine. Some will have been obtained from feeder systems and others will have been entered manually by Healthcare Professionals.	<i>Each bidder must describe how its solution manages provenance data.</i>
311.12.5	It must be obvious which visits and Encounters are based on data from feeder systems and which have been manually entered.	<i>Describe how a user will know which events or Encounters have been derived from feeder systems and which have been manually entered by Healthcare Professionals.</i>
311.12.6	A Healthcare Professional should be able to record visits and Encounter summaries against a patient's Patient Record.	<i>Explain how a Healthcare Professional will record a visit or Encounter summaries.</i>
<b>311.13</b>	<b>Patient Healthcare Tracking</b>	
311.13.1	A patient's progress toward goals must be capable of being measured through key indicator data entered during the Encounters. These data items will also be used to determine the future care needs of the patient.	
311.13.2	The Spine must indicate the current progress status, based on the last key indicator data compared to the initial data (i.e., baseline indicators).	
311.13.3	The solution must include the functionality to alert Clinicians when certain patient conditions occur, or when contraindications related to the ordering or prescribing of certain tests/exams occur. Evidence-based medical information must be able to be accessed for review when an alert is encountered. Clinicians may override these alerts, but an Audit Trail of overridden alerts must be maintained.	
311.13.4	A patient must be able to contribute observation data via myhealthspace.	
311.13.5	The solution must enable the tracking of a patient's progress over time, as measured through selected indicators captured during Encounters.	<i>Each bidder must explain the capability of its application to display this data.</i>
311.13.6	Patient indicator data will be assembled from data captured centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>

	<b>Requirement</b>	<b>Required Response</b>
311.13.7	The solution must alert Clinicians when certain patient conditions occur, or when contra-indications related to ordering or prescribing certain tests/exams occur.	<p><i>Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li><i>the capabilities of its application to alert the Clinician based on indicator data; and</i></li> <li><i>how interactions and contra-indications are identified.</i></li> </ul>
311.13.8	The solution shall record alerts displayed to the Clinician, along with the Clinician's action.	<i>Each bidder must describe the facilities of its application in detail, including details of the alerts notified and the actions taken by a Clinician.</i>
311.13.9	The solution shall make use of the central decision support system in order to use the latest indicator data captured to determine the future care needs of a patient.	<i>Each bidder must explain the capability of its application to interface with the decision support system.</i>
<b>311.14</b>	<b>Family and Social History</b>	
311.14.1	<p>The system must allow a summary of the patient's family and social history to be recorded, viewed and printed.</p> <p>The summary must be textual in nature, and authorised Clinicians and patients must be able to append further information to the summary.</p> <p>The system must indicate by whom and in what capacity the information has been entered.</p>	
311.14.2	The solution must assemble a dynamic family and social history report and make it available to the user.	<i>Describe how the family and social history list will be assembled.</i>
311.14.3	A Healthcare Professional must be able to add items to the family history as free text.	<i>Explain how a Healthcare Professional will add items to the family and social history.</i>
311.14.4	Some of the data in the family history may have been entered by the patient, rather than a Healthcare Professional. It must be evident to a user which information has been entered by a Healthcare Professional (and which Healthcare Professional) and which data has been entered by a patient or their advocate/personal carer (and who they were).	<i>Explain how the system will differentiate between data entered by a Healthcare Professional and that entered by a patient (or relative/carer).</i>
<b>311.15</b>	<b>Referral Status</b>	

	Requirement	Required Response
311.15.1	The Spine shall display the status of each referral or authorisation sent to it via an interface. This information must be able to be retrieved for a specific patient.	
311.15.2	Each referral or authorisation contains summary information, including the referral number, patient demographics, dates and times of referrals, and details of the referrer and referee. The details of each referral must be able to be viewed by selecting the referral from the referral summary screen.	
311.15.3	The solution must assemble a dynamic list of referrals for a particular patient, as described in the patient summary section.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>how its solution presents the list of referrals data related to a single patient; and</i></li> <li>• <i>how the user can interact with this list (by filtering, sorting, grouping, etc).</i></li> </ul>
311.15.4	The list shall be assembled from data held centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>
<b>311.16</b>	<b>Order Status and Results</b>	
311.16.1	The Spine must record the status of each order sent to the Spine in response to an event trigger. This information can then be retrieved for a specific patient by type of request, order status, etc.	
311.16.2	Each order placed must contain summary information, including the order number, dates and times of orders, and details of the person who made the order and the provider to whom the order was directed. The details of each order can then be viewed by selecting it from an orders summary screen.	
311.16.3	When results have been returned from the ordered service, these will have been linked to the corresponding order. The details of the results that have been recorded on the Spine must be able to be viewed.	
311.16.4	The solution shall assemble a dynamic list of orders for a particular patient, as described in the "Patient Summary" section of this module found at 311.8.	<i>Each bidder must describe how its solution presents the list of orders data related to a single patient, and how the user can interact with this list (filtering, sorting, grouping etc.).</i>
311.16.5	The list of orders shall be assembled from data captured centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>

	<b>Requirement</b>	<b>Required Response</b>
311.16.6	The solution shall enable the details of an order to be viewed.	<i>Describe how order details are viewed.</i>
311.16.7	For results that have been supplied, the status of each result shall be presented.	<i>Explain how result summary information can be displayed and related to an order.</i>
311.16.8	The solution shall enable the details of the results to be viewed (where these are available from through the Personal Spine Information Services).	<i>Each bidder must describe the capabilities of its solution to present the results of tests, investigations, procedures, exams, etc., of various types.</i>
<b>311.17</b>	<b>Patient Medication Profile – Medications</b>	
311.17.1	Medications must be able to be added to the patient profile by a patient or a patient's practitioner, or electronically through uploads from pharmacy fulfilment files. The medications must be able to be either entered as coded drugs, using the drug search, or as free text if the item is not in the formulary (e.g., herbs, vitamins, etc.).	
311.17.2	Authorised users must be able to edit or void the medications in the patient medication profile. Authorised users must be able to review, either online or printed, the medication information for both current and past medications, and the audit information. All modifications or viewing of the patient medication profile must be the subject of an Audit Trail.	
311.17.3	For a coded medication, the reference information contained in the master drug database can be reviewed or printed.	
311.17.4	The medication list should display the following information: <ul style="list-style-type: none"> <li>• medication name;</li> <li>• generic name (if applicable);</li> <li>• route;</li> <li>• dose; and</li> <li>• dosage form.</li> </ul>	
311.17.5	The coded medications for a patient will be from data held centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>

	Requirement	Required Response
311.17.6	The solution must assemble a dynamic list of medications (current and past) for a particular patient, as described in the "Patient Summary" section of this module found at 311.8.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>how its solution presents the list of medication data related to a single patient' and</i></li> <li>• <i>how the user can interact with this list (by filtering, sorting, grouping, etc.).</i></li> </ul>
311.17.7	The solution must allow authorised users to add medications to the patient's medication profile.	<p><i>Each bidder must describe the mechanism by which its application will allow a user to add medications to a patient profile.</i></p> <p><i>Explain the abilities for free-text entry, as well as coded entry, including interfaces to the Terminology Service and formulary interfacing capabilities.</i></p>
311.17.8	The solution must allow authorised users to edit or void medications in the patient medication profile.	<p><i>Each bidder must explain how a user will interact with the application to perform these editing functions.</i></p> <p><i>Each bidder must explain:</i></p> <ul style="list-style-type: none"> <li>• <i>the mechanism through which medications can be edited and made "void"; and</i></li> <li>• <i>how the interface supported by its application can update medication data on the Spine.</i></li> </ul>
311.17.9	The solution must provide links to reference information contained in the master drug database for coded medication.	<p><i>Describe:</i></p> <ul style="list-style-type: none"> <li>• <i>how this link to reference information happens; and</i></li> <li>• <i>the interfacing options available for viewing data in different formats (HL7, XML, MSWord, RTF, and PDF, etc).</i></li> </ul>
<b>311.18</b>	<b>Patient Medication Profile - Alerts</b>	
311.18.1	In order to ensure the quality of medication therapy, the Clinical Spine Application must provide the ability to perform the following automated drug utilisation checks and raise alerts. The checks can only be performed on coded items. Any free text allergies, medications or problem list items will not be involved in any of the checks below.	

	Requirement	Required Response
	Note that, at the time these checks are performed by the National Applications, prescribing and possibly dispensing and administration of the drugs have already taken place. For this reason, the user may not be able to prevent any indicated interactions; but the user will still need to be informed of such interactions, so that they can take appropriate action.	
311.18.2	All alert details sent to the user must be kept with a concise Audit Trail.	
311.18.3	The coded allergies list will be from data held centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>
311.18.4	The solution must warn the user of adverse reactions against a patient's known allergies.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a decision support system for drug allergy interaction checking.</i></p> <p><i>Explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how warnings are displayed to the user; and</i></li> <li>• <i>what happens in the event of these being bypassed.</i></li> </ul>
311.18.5	The coded drug list must be from data captured centrally on the Spine.	<i>Describe the interface methods available for obtaining this data.</i>
311.18.6	The solution should warn the user of adverse drug interactions between medications the patient is already on.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a decision support system for drug-drug interaction checking.</i></p> <p><i>Explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how warnings are displayed to the user; and</i></li> <li>• <i>what happens in the event of these being bypassed.</i></li> </ul>
311.18.7	The solution should warn the user if a drug which the patient is already taking is contra-indicated, based on the patient's disease.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a decision support system for drug-disease checking.</i></p> <p><i>Explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how warnings are displayed to the user; and</i></li> <li>• <i>what happens in the event of these being bypassed.</i></li> </ul>

	Requirement	Required Response
311.18.8	The solution should warn the user if any dose is lower or higher than the recommended therapeutic range.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a decision support system for sophisticated drug dose checking.</i></p> <p><i>Explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how warnings are displayed to the user; and</i></li> <li>• <i>what happens in the event of these being bypassed.</i></li> </ul>
311.18.9	The solution should warn the user if the patient is receiving another medication that provides similar therapy effects.	<p><i>Each bidder must explain the capabilities of its application with respect to interacting with a decision support system for duplicate therapy checking.</i></p> <p><i>Explain:</i></p> <ul style="list-style-type: none"> <li>• <i>how warnings are displayed to the user; and</i></li> <li>• <i>what happens in the event of these being bypassed.</i></li> </ul>
311.18.11	The solution shall provide the facility to reduce the number of "nuisance alerts." These are described as, "telling the user something that the users are already well aware of."	<p><i>Each bidder must explain the capabilities of its application to reduce the number of nuisance alerts without compromising patient safety.</i></p> <p><i>Describe the mechanism whereby Clinicians can override alerts.</i></p>
311.18.12	The solution shall record all alerts sent to the Clinician along with the Clinician's action.	<i>Each bidder must describe the audit facilities of its application in detail, including details of actions recorded and data captured.</i>

	Requirement	Required Response
<b>311.19</b>	<b>Management Reports</b>	
311.19.1	<p>It is vitally important for healthcare organisations to monitor their processes. Meaningful reporting tools will enable the NHS to quickly and easily find the statistics and trends it seeks to assess and improve Spine usage. The Spine must provide a number of reports for system usage and statistics, including, for example:</p> <ul style="list-style-type: none"> <li>• "Transaction Report" – lists the number of transactions for a specified length of time, and is used to measure, monitor and analyse the utilisation of the Spine;</li> <li>• "Transaction Summary by Access Group/List";</li> <li>• "Transaction Count by Access Group/List";</li> <li>• "Year-to-Date Summary by Access Group/List";</li> <li>• the number of days since a user has logged on;</li> <li>• a list and count of the Clinicians who are being provided with the systems and services;</li> <li>• "User Environment"; and</li> <li>• "Utilisation Management/ Case Management Reports" for Spine information transmittal to case managers.</li> </ul>	<p><i>Each bidder must describe the reports to be provided by its system, and include examples of these reports where possible.</i></p>
311.19.2	<p>These reports must be available online, as well as having the option to be printed.</p>	<p><i>Each bidder must explain how its solution will provide online access to these reports.</i></p> <p><i>Each bidder must explain how its solution will provide printing of these reports by all authorised persons.</i></p>
311.19.3	<p>These reports must be modifiable by system administrators without the involvement of specialists or third parties.</p>	<p><i>Each bidder must explain how its reports are developed and how a system administrator would modify them.</i></p> <p><i>Describe the training necessary for a system administrator to gain the necessary skills to modify these reports and create new ones.</i></p>

## 385 – Secondary Uses Service

### **Overview**

This module specifies the requirements for a service which is the channel through which to provide data for internal and external analytical services. See also Module 450 - Information for Secondary Purposes.

### **Scope**

### **Components**

Areas of functionality:

- the provision of services to control passing of specified sets of information, at specified periods or on certain events, to an external analytical service, subject to consent recorded in Personal Demographics Service; and
- the provision of a Pseudonymisation/Anonymisation service to preserve confidentiality for the service.

### **Other Requirements**

All National Services will use the Terminology Service (see Module 380 – Terminology Service) to meet terminology-related requirements.

### **Benefits and Outcomes**

To:

#### **Patient**

- Patients are reassured that their personal details are not being made available to other agencies without their consent.

#### **Clinician**

- More health record data is available for decision support and secondary analysis.
- Clinical knowledge is more effectively shared.

#### **Manager**

- Consistently coded data is available for clinical and analytical purposes (subject to patient consent).
- Reduction of risk through decision support tools supporting clinical processes.

### **Delivery Expectations**

#### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

All requirements below are required in Phase 1.

### **Overview Requirements**

	Requirement	Required Response
<b>385.1</b>	<b>General</b>	
385.1.1	Information held by the Personal Spine Information Services and Personal Demographics Services is required to be extracted for analysis and other management purposes. It must be available for periodic extraction to a separate environment. Analysis will not be carried out through the Personal Spine Information Services themselves.	

### Detailed Requirements

	Requirement	Required Response
<b>385.2</b>	<b>Patient Pseudonymisation/Anonymisation Service</b>	
385.2.1	The ICRS NASP shall provide a secure Pseudonymisation service, allowing selection of any Service User data item and providing a record of Pseudonymised Data to the requestor which contains a user-defined list of data items on a per Service User basis.	<i>Each bidder must describe how it would provide such a service.</i>
385.2.2	The ICRS NASP shall provide an Anonymisation service, allowing selection of any Service User data item and providing a record of Anonymised Data to the requestor which contains a user-defined list of data items on a per Service User basis.	<i>Each bidder must describe how it would provide such a service.</i>
385.2.3	The information in the above requirements could be provided as an extract; or it could be a request that, as transactions are received, they are also routed (suitably Anonymised/Pseudonymised) to the organisations requiring this information for secondary uses.	<i>Each bidder must describe how it would meet both the extract and routing requirements.</i>

## Part I.2 – Management Requirements

### 800 – Management Requirements – ICRS NASP

#### *Overview*

The purpose of this module is to provide bidders for the ICRS NASP role with a set of requirements for the range of services required to support the implementation of the national aspects of the ICRS. The ICRS NASP will have a vital role in ensuring the effective and efficient operational delivery of ICRS, at both national and local level.

#### *Scope*

##### **Components**

- Defines the services to be delivered by the ICRS NASP in relation to the Spine and supporting applications.
- Highlights the specific requirements to be met by the ICRS NASP for each service.
- Outlines the liaison required with LSPs to ensure conformance with national guidelines.

##### **Exclusions**

- These requirements exclude the specific services to be delivered by the LSPs associated with the delivery of local integrated care records.
- The requirements for NISPs for the delivery of infrastructure to ensure capacity and connectivity to the Spine are excluded from these requirements.

##### **Other Requirements**

- Effective communications and engagement with the LSPs and NHS stakeholders are required in the various implementation Clusters.
- Co-ordination with other NASPs and NISPs is required to ensure that an integrated approach is adopted across the whole NPFIT.

#### *Delivery Expectations*

##### **Minimum Level to Be Achieved by December 2004 (Phase 1)**

The ICRS NASP will be expected to have:

- planned and project-managed the design and build of a central Spine and associated National Applications to the requirements set out in Part I of this OBS;
- provided the testing, implementation and operational support services specified in this OBS, including the specification, provision and operation of requisite technology;
- ensured conformance to all required data standards, and worked with LSPs to identify common data requirements and quality measures;
- piloted the exchange of data with Local Systems (new and legacy) operated by the LSPs;
- provided application tools to allow browser access to the core data held on the Spine; and

- worked closely with the Authority and other NASPs and NISPs to ensure consistency with other aspects of the NPFIT.

### Overview Requirements

	Requirement	Required Response
800.1	<p><b>Overview</b></p> <p>The ICRS NASP will be required to provide a range of services in support of the design, development, delivery and operation of the Spine and supporting common user applications. Key services to be delivered for the whole life of the contract will be:</p> <ul style="list-style-type: none"> <li>programme management;</li> <li>analysis and requirements definition;</li> <li>the design and build of the Spine and supporting applications;</li> <li>testing and acceptance;</li> <li>piloting;</li> <li>implementation;</li> <li>user training;</li> <li>on-going development;</li> <li>operational support;</li> <li>security;</li> <li>integration and data input services; and</li> <li>change control/configuration management.</li> </ul>	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li><i>confirm its ability to deliver the services described; and</i></li> <li><i>respond to the detailed requirements section for each of these services.</i></li> </ul>
800.2	<p><b>Authority's Responsibilities</b></p>	<p><i>For each service area, each bidder must describe the responsibilities they would expect to be assumed by the Authority.</i></p>

### Detailed Requirements

#### 810 – Programme and Project Management

	Requirement	Required Response
810.1	<p><b>Overview</b></p> <p>NPFIT will require the highest-quality programme and project management to ensure delivery of the Spine and supporting applications, and integration with the LSP</p>	<p><i>Each bidder must describe its overall approach to programme and project management and programme governance. In particular, it must describe how it would</i></p>

	<b>Requirement</b>	<b>Required Response</b>
	Services delivered by LSPs and other National Application and infrastructure services.	<i>establish effective arrangements for working with the Authority, LSPs, other NASPs, NISPs and the NHS as a whole.</i>
<b>810.2</b>	<b>Appointment of ICRS NASP Programme Manager and Project Managers</b>	
810.2.1	The ICRS NASP shall appoint a programme manager with responsibility for service delivery. Due to the essential requirement for high calibre project management, this appointment shall be a joint decision of both the ICRS NASP and the Authority.	<i>Each bidder must indicate its agreement to this requirement.</i>
810.2.2	The ICRS NASP's programme manager and supporting project managers shall possess the necessary skills and experience to manage the national design, build, implementation and live operation phases of the project and engage with the local NHS stakeholders and LSPs.	<i>Provide actual experience of appropriate staff, actual CVs, etc.</i>
810.2.3	The Authority shall have the right to request that the ICRS NASP programme manager or other NASP project managers involved with the overall programme be replaced. This right will not be unreasonably exercised.	<i>Confirm that agreement to such a request will not be unreasonably withheld.</i>
<b>810.3</b>	<b>Role of Programme Manager</b>	
810.3.1	The programme manager shall be responsible for all the ICRS NASP deliverables and management of any ICRS NASP implementation staff and project managers engaged on the design, build, implementation and live operation of the Spine and supporting applications.	<i>Each bidder must describe how it would discharge this responsibility.</i>
810.3.2	The programme manager shall report to the NPFIT Board and be accountable for delivery of the contracted services agreed with the ICRS NASP. The programme manager shall ensure that project deadlines are met, resources are allocated accordingly and quality procedures and recommendations are implemented.	<i>Each bidder must describe the arrangements it would propose to ensure its accountability for delivery of programme objectives in line with the agreed contract.</i>
810.3.3	The programme manager shall work closely with the Authority in establishing the final design, and co-ordinating the build and implementation phases, of the Spine and supporting applications.	<i>Each bidder must describe its proposed arrangements for working with the Authority, and the division of responsibilities it would expect.</i>
810.3.4	The programme manager shall work closely with the Authority in ensuring that common data structures, interoperability requirements and standards are applied consistently across each element of the National	<i>Each bidder must describe its proposed arrangements for working with the Authority, and the division of responsibilities it would expect.</i>

	<b>Requirement</b>	<b>Required Response</b>
	Application.	
810.3.5	The programme manager shall manage the ICRS NASP's relationship with LSPs, as well as other NASPs, and will ensure appropriate governance mechanisms are in place to assure national and local conformance to national standards and requirements.	<i>Each bidder must describe its proposed approach to managing the relationship with other NASPs and LSPs. In particular, each bidder must describe the contractual mechanisms it would propose.</i>
810.3.6	The programme manager shall be the primary ICRS NASP point of contact regarding all programme matters for the Authority, other NASPs and LSPs.	<i>Each bidder must describe its proposed approach to managing the relationship with other NASPs and LSPs. In particular, each bidder must describe the contractual mechanisms it would propose.</i>
<b>810.4</b>	<b>Project Management Methodology and Governance</b>	
810.4.1	The ICRS NASP shall deliver the requirements of this OBS to industry standard project management and quality management methodologies.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li>• <i>its project management methodology; and</i></li> <li>• <i>how it compares with the PRINCE II methodology used by the NHS.</i></li> </ul> <p><i>Each bidder must also outline any relevant quality management processes utilised by it, and describe how it differs from ISO9000 and/or BS15000.</i></p>
810.4.2	The programme manager shall attend any NPFIT Board or other programme governance forum established by the Authority to provide progress updates against the agreed project plans.	
<b>810.5</b>	<b>Project Planning, Monitoring and Reporting</b>	
810.5.1	The ICRS NASP shall be responsible for the production, monitoring and reporting of the overall plans for the design, build, implementation and operation of the Spine and supporting applications. The plans shall define overall timescales and identify core project phases, milestones and tasks. The programme manager is required to agree these plans with the Authority prior to publication.	<i>Each bidder must describe its approach to project planning, monitoring and reporting. Each bidder must indicate its choice of project planning software and its approach to managing the plans.</i>
810.5.2	The ICRS NASP shall work closely with the Authority to produce a Project Initiation Document (PID).	<i>Each bidder must outline the typical structure headings to be incorporated within a PID.</i>
810.5.3	The ICRS NASP shall produce a programme quality plan defining the standards, procedures and methods to be used in the	<i>Outline the typical structure headings to be incorporated within a programme quality plan.</i>

	<b>Requirement</b>	<b>Required Response</b>
	implementation of the Spine.	
810.5.4	The programme manager shall prepare regular progress reports and end stage reports, and highlight any variance from the agreed plans.	<i>Each bidder must provide examples of its proposed approach to project reporting.</i>
810.5.5	The programme manager shall maintain and manage issue logs. Where required, outstanding issues will be escalated for resolution at any NPFIT Board or other programme governance forum.	<i>Each bidder must describe its proposed approach to logging and managing the resolution of issues.</i>
<b>810.6</b>	<b>Communications</b>	
810.6.1	The ICRS NASP shall be responsible for ensuring effective communications and co-ordination with the other parts of the NPFIT, including with LSPs, to ensure consistency of approach and adherence to required standards. The programme manager shall establish effective communications with the Authority to ensure optimal joint working.	<i>Each bidder must describe its proposed approach to communications and to ensuring consistency with other projects (e.g., eBooking).</i>
810.6.2	The ICRS NASP shall be responsible for ensuring appropriate “top-down” communications are in place to ensure that NHS staff are able to be engaged with and conform to the required national standards for data quality and data interchange.	<i>Each bidder must suggest how this might be best achieved.</i>
<b>810.7</b>	<b>Risk Management</b>	
810.7.1	The ICRS NASP shall undertake a risk analysis to identify and quantify areas of the National Services and the project that could be exposed to risk of failure.	<i>Each bidder must describe:</i> <ul style="list-style-type: none"> <li>• <i>its overall approach to risk analysis and risk management; and</i></li> <li>• <i>how it will work with the Authority to mitigate risks.</i></li> </ul>
810.7.2	The ICRS NASP shall produce a risk register highlighting key risks, the probability of occurrence and impact level, and an overall risk factor. Regular assessments of the risk register shall be undertaken by the ICRS NASP, which shall propose strategies to mitigate the risks.	<i>Each bidder must confirm its agreement to comply with this requirement,</i>

### **820 – Design and Build of Solution**

	<b>Requirement</b>	<b>Required Response</b>
<b>820.1</b>	<b>Overview</b>	
820.1.1	Based upon the functional specifications within this OBS, bidding ICRS NASPs shall	<i>Each bidder must describe its overall approach to the design and build of the</i>

	<b>Requirement</b>	<b>Required Response</b>
	provide an outline design for the Spine and supporting applications.	<i>Spine and supporting applications.</i>
820.1.2	Post-contract, the selected ICRS NASP will undertake detailed technical design and build a prototype of the solution for approval by the NDA and the Authority. These will incorporate the required NHS technical and data standards.	
<b>820.2</b>	<b>Analysis and Requirements Definition</b>	
820.2.1	From time to time, the Authority may require that the ICRS NASP provides advice, guidance, support and input into the development of any IS requirement.	<i>Each bidder must describe its approach to delivering this service and the different roles that it may undertake.</i>
<b>820.3</b>	<b>Design Phase</b>	
820.3.1	<p>The ICRS NASP shall design a solution for the operation of all elements of the Spine and supporting applications as defined in Parts I and III of this OBS, including database design and application design.</p> <p>The ICRS NASP shall work in collaboration with the NDA to produce Message definitions and application transactions.</p> <p>The design solution should include all working assumptions made, including but not limited to data and transaction volumes, and describe how these have influenced the design.</p>	<i>Each bidder must describe its overall approach to undertaking the design of the solution; including how it proposes that it will work with the NDA to collaborate on aspects of the design.</i>
820.3.2	Pre-contract, bidding ICRS NASPs shall be expected to demonstrate their design concepts.	<i>Each bidder must confirm its acceptance of this requirement and outline how it intends to demonstrate its design concepts.</i>
820.3.3	Post-contract, the ICRS NASP shall work with the NDA and the Authority to prepare detailed functional and technical designs and system architecture prototypes of the proposed solution.	<i>Each bidder must describe how it would work with the NDA to develop the design and architecture for the proposed solution.</i>
820.3.4	The ICRS NASP shall ensure that components of the technical design are compliant with existing relevant international technical standards. Please refer to Module 790 -Standards, in Part III of this OBS, for further details.	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li>• <i>confirm its understanding of these standards; and</i></li> <li>• <i>explain how it will ensure that they are met.</i></li> </ul>
820.3.5	In delivering a design solution, the ICRS NASP shall ensure it takes account of the appropriate NISP initiatives, including but not limited to:	<i>Each bidder must confirm its understanding of these initiatives and how it would take account of these as part of the design.</i>

	<b>Requirement</b>	<b>Required Response</b>
	<ul style="list-style-type: none"> <li>Wide Area Network and Broadband capacity – NHS N3;</li> <li>delivery of modern email services; and</li> <li>implementation of the NHS Directory Services.</li> </ul>	
820.3.6	The ICRS NASP shall ensure that LSPs are informed of the common data requirements to be incorporated into local solutions at the design stage.	<i>Each bidder must describe how it would work with LSPs during the design phase to ensure common data standards are in place across the NHS.</i>
820.3.7	The design shall be subject to approval by the NDA, whilst ensuring that design risk remains with the ICRS NASP.	<i>Each bidder must confirm its acceptance of this requirement.</i>
820.3.8	The design shall be capable of potential future expansion, review and modification to allow for development in the light of experience of operating the solution.	<i>Each bidder must describe how it would actively seek to improve the quality of the service or the benefits available to the NHS, and recommend to the NDA design changes to achieve this.</i>
<b>820.4</b>	<b>Build Phase</b>	
820.4.1	The ICRS NASP shall be responsible for building the Spine and supporting applications to the approved specification and design.	<i>Each bidder must describe its approach to the build phase.</i>
820.4.2	<p>The ICRS NASP shall make their designs available to the NDA for review.</p> <p>On no account shall the Authority, the NDA or any other part of the NHS take responsibility for the design of the Spine and supporting applications.</p>	<i>Each bidder must describe how it would involve the NDA in its design work.</i>
820.4.3	The ICRS NASP shall build prototype solutions, initially, and make these available for review by the Authority and NDA as required.	<p><i>Each bidder must describe:</i></p> <ul style="list-style-type: none"> <li><i>its approach to prototype development; and</i></li> <li><i>how it would involve the Authority and NDA in their development.</i></li> </ul>
820.4.4	During the build phase, the ICRS NASP shall notify LSPs and other NASPs of the common data structures to be held on the Spine to ensure conformance and integration of local solutions.	<i>Each bidder must describe how it would work with LSPs during the build phase to ensure common data standards are in place across the NHS.</i>
820.4.5	The ICRS NASP shall commit to timescales for building, testing and delivery of the Spine as agreed in advance with the Authority.	<i>Each bidder must confirm that it will contractually commit to agreed timescales.</i>

**830 – Testing and Acceptance**

	<b>Requirement</b>	<b>Required Response</b>
<b>830.1</b>	<b>Overview</b>	
830.1.1	<p>Initial testing of design concepts for the Spine and supporting applications will take place. A testing environment or "sandpit" will be established by the Authority to reflect a standard IT infrastructure for the NHS. This will be created, maintained and managed by the NDA on behalf of the NPFIT.</p> <p>Once selected, the ICRS NASP will be expected to demonstrate that the design concepts for the Spine are embedded in the development, build and operational versions of their solution.</p>	<i>Each bidder must describe its overall approach to testing and acceptance and how this links to the "sandpit."</i>
<b>830.2</b>	<b>Testing</b>	
830.2.1	<p>The ICRS NASP shall ensure that any applications and systems which have been designed, built and presented for any form of testing involving the NHS, its staff or agents, have undergone rigorous testing by their development and test teams to ensure that the applications and systems meet with agreed specifications and are robust enough to undergo user testing.</p> <p>Test records must be presented as an indication of the quality of the software presented for testing by the NHS.</p>	<i>Each bidder must describe how its approach ensures that applications and systems presented for user testing are fit for purpose.</i>
<b>830.3</b>	<b>The Acceptance Process</b>	
830.3.1	The ICRS NASP shall establish an acceptance process that ensures that the Spine and supporting applications are delivered for operational use in accordance with all aspects of the service specifications.	<i>Each bidder must describe how it proposes to achieve this.</i>
830.3.2	<p>The acceptance process shall be completed in stages, covering:</p> <ul style="list-style-type: none"> <li>• early phases of testing of the Spine and supporting applications;</li> <li>• pilot site testing of the Spine;</li> <li>• pilot site testing of data exchange with Local Systems;</li> <li>• pilot site testing of user access to the Spine;</li> </ul>	<i>Each bidder must outline its approach to the testing and acceptance process for each of these stages.</i>

	<b>Requirement</b>	<b>Required Response</b>
	<ul style="list-style-type: none"> <li>pilot site testing of end user applications.</li> </ul>	
830.3.3	The ICRS NASP shall obtain "sign off" from the Authority confirming user acceptance for each stage. This must be obtained prior to commencing the next stage. Bidders should be aware that, in every case, "sign off" and "acceptance" are without prejudice to any rights or remedies of the Authority. The ICRS NASP will remain responsible for all defects and deficiencies.	<i>Each bidder must describe how it proposes to engage the Authority in the acceptance process.</i>
830.3.4	The ICRS NASP shall co-ordinate the testing and acceptance process, ensuring the participation of the Authority throughout each stage.	<i>Each bidder must indicate how it will secure user participation.</i>
830.3.5	The testing and user-acceptance process shall be clearly documented by the ICRS NASP in a systems test plan for approval by the NPFIT Board or other governance forum established by the Authority.	<i>Each bidder must describe the characteristics of any test plan it would prepare.</i>
<b>830.4</b>	<b>Acceptance Criteria</b>	
830.4.1	The ICRS NASP shall develop acceptance criteria for each stage to establish whether the relevant service specifications are being met. These criteria shall include, but not be limited to, the functionality, availability, security and performance of the service. The Authority shall approve in advance the acceptance criteria for each major implementation milestone.	<i>Indicate examples of acceptance criteria used in earlier projects.</i>
830.4.2	The ICRS NASP shall ensure involvement of the Authority and NDA in specifying the acceptance criteria.	<i>Each bidder must indicate how it will ensure involvement of the Authority and the NDA in specifying any acceptance criteria.</i>
<b>830.5</b>	<b>Acceptance Tests</b>	
830.5.1	The ICRS NASP shall prepare an acceptance testing "script" for each stage of the acceptance process that can be used to verify the operation of the service. The script shall include test procedures and expected results. The Authority shall approve the test scripts prior to the commencement of acceptance testing.	<i>Provide an indicative template for acceptance testing.</i>
830.5.2	The ICRS NASP shall develop acceptance tests to evaluate the initial development build versions of the Spine and supporting applications against the acceptance criteria to the satisfaction of the Authority.	<i>Describe the acceptance testing process at development stage.</i>

	<b>Requirement</b>	<b>Required Response</b>
830.5.3	Following successful completion of acceptance testing at the pilot site, the ICRS NASP shall make the applications and/or systems available at an appropriate NHS site or sites identified by the Authority for user acceptance testing. The ICRS NASP shall ensure that a test data set is available for user testing within the "sandpit" test rig, which will represent a simulated NHS IT infrastructure environment. The ICRS NASP shall assist users in the performance of tests and logging of issues where results fail to satisfy acceptance criteria.	<i>Each bidder must describe the approach it would propose for user acceptance testing.</i>
830.5.4	Integration and performance testing shall be undertaken by the ICRS NASP, in co-operation with LSPs, NISPs and NASPs, to include the interchange of data with local ICRS solutions.	<i>Each bidder must describe its proposed approach to integration and performance testing.</i>
830.5.5	The ICRS NASP shall acceptance test all subsequent system updates prior to implementation, and undertake appropriate regression tests to ensure the ability to restore to an earlier version if required.	<i>Each bidder must describe its approach to acceptance testing and regression testing for all subsequent updates.</i>
830.5.6	All user acceptance testing shall be carried out by a representative group of users, following test scripts agreed by the users, and be auditable by the Authority.	<i>Each bidder must confirm that these requirements will be met.</i>

#### **840 – Piloting**

	<b>Requirement</b>	<b>Required Response</b>
<b>840.1</b>	<b>Overview</b>	
840.1.1	The complex design and testing process will require the identification of a beta test or pilot site where the approved development software releases can be performance-tested. This will be of particular value in the exchange and integration of data with the LSP sites. The ICRS NASP will be expected to lead this process and ensure conformance by LSPs.	<i>Each bidder must describe its overall approach to piloting the proposed solution at NHS sites.</i>
<b>840.2</b>	<b>Data Integration</b>	
840.2.1	Following development and initial acceptance testing of the core Spine functions, the ICRS NASP shall work closely with a pre-designated LSP to pilot the exchange and integration of data from a local ICRS solution.	<i>Each bidder must outline its approach to piloting the solution.</i>
840.2.2	The ICRS NASP and designated LSP shall jointly co-ordinate the testing and acceptance	<i>Each bidder must outline its approach to</i>

	<b>Requirement</b>	<b>Required Response</b>
	of local data extract routines, data transfer and central data input routines. The ICRS NASP shall manage this process and ensure that LSPs provide clear evidence of conformance to required national and NHS data standards.	<i>ensuring conformance by LSPs.</i>
<b>840.3</b>	<b>Interoperability and Performance</b>	
840.3.1	The ICRS NASP and LSP shall ensure that data extraction and transfer is piloted from both existing local legacy systems and new local applications.	<i>Each bidder must describe how it would work with the designated LSP and Cluster to pilot data extraction and transfer.</i>
840.3.2	Following this initial pilot, the ICRS NASP shall identify and work with an alternative LSP to ensure interoperability of data exchange with alternative local solutions.	<i>Each bidder must describe how it would work with alternative LSP and local health community to pilot data extraction and transfer.</i>
840.3.3	The ICRS NASP shall agree performance criteria with the Authority that will be used to evaluate the data exchange process and assess conformance to standards and data quality.	<i>Each bidder must describe the performance criteria it would be proposing to evaluate the data exchange process.</i>
840.3.4	The ICRS NASP shall work with the Authority and NDA, and shall obtain their approval to the piloting and authority to proceed with the implementation.	<i>Each bidder must describe its approach to working with the Authority and NDA to assure piloting performance.</i>
<b>840.4</b>	<b>Review and Modification</b>	
840.4.1	It is anticipated that the piloting will be an iterative process. The ICRS NASP should expect to undertake more than one cycle of piloting, review and potential design and build modification.	<i>Each bidder must confirm its acceptance with this approach, and outline any other factors which will need to be considered as part of the piloting process.</i>

### **850 – Implementation**

	<b>Requirement</b>	<b>Required Response</b>
<b>850.1</b>	<b>Overview</b>	
850.1.1	<p>The ICRS NASP shall be responsible for planning and implementing the Spine and supporting applications. It will be essential that, once the initial solution has been tested and piloted, it be implemented in a timely and efficient manner.</p> <p>The ICRS NASP will be expected to work closely with LSPs to ensure that local implementations are consistent with national common standards and that interoperability exists across the local solutions.</p>	<i>Each bidder must describe its overall approach to implementing the Spine and supporting applications across the NHS, and how it would work with LSPs and Clusters to achieve this.</i>

	<b>Requirement</b>	<b>Required Response</b>
<b>850.2</b>	<b>Implementation Planning</b>	
850.2.1	The ICRS NASP shall work closely with the Authority to produce an implementation plan. The plan will be used to manage and control the overall implementation. The implementation plan shall detail the delivery stages, effort, tasks and responsibilities of all parties for the implementation of the Spine and supporting applications across the NHS.	<i>Each bidder must describe its overall approach to implementation planning.</i>
850.2.2	The ICRS NASP shall produce an implementation plan covering all the key stages of implementation, including the following elements as a minimum: <ul style="list-style-type: none"> <li>• programme initiation and set-up;</li> <li>• assessment of local readiness – source data and systems, data quality, etc;</li> <li>• development and testing of messaging from source systems;</li> <li>• development and testing of data take-on of historical data (if required);</li> <li>• assurance of data integration and quality;</li> <li>• user interface and access to the spine; and</li> <li>• end user applications.</li> </ul>	<i>Provide an indicative outline implementation plan, identifying all the key stages involved in implementing the Spine and supporting applications.</i>
<b>850.3</b>	<b>Timescales</b>	
850.3.1	The ICRS NASP shall contractually commit to the agreed timescales prior to commencement of the National Services. The timescales for the implementation of each Phase shall be agreed during contract negotiations.	<i>Each bidder must describe how it would take responsibility for delivering to agreed timescales, and indicate its agreement to this.</i>
<b>850.4</b>	<b>Relationship with the NPFIT</b>	
850.4.1	The ICRS NASP shall be required to collaborate with other NASPs to achieve full implementation of the NPFIT. This will include, but is not limited to, the NASP for eBooking services. These other national services shall be required to exchange data with the Spine, as indicated by the "High Level Architecture" document. Implementation plans and timescales for the Spine shall reflect the interaction with these other NASPs.	<i>Each bidder must describe how it would work with other NASPs to jointly deliver the NPFIT, and the contractual or other mechanisms it would propose to support this.</i>
850.4.2	The ICRS NASP shall initiate and maintain close links with the NISPs with regard to the enabling infrastructure projects. (See section	<i>Each bidder must describe how it would work with NISPs to jointly deliver the NPFIT, and the contractual or other</i>

	<b>Requirement</b>	<b>Required Response</b>
	820.1.5). Implementation plans and timescales for the Spine shall reflect the interaction with these NISPs.	<i>mechanisms it would propose to support this.</i>
<b>850.5</b>	<b>Relationship with Local Service Providers</b>	
850.5.1	The ICRS NASP shall work with LSPs to agree plans for the roll-out of the Spine and supporting applications across the NHS.	<i>Each bidder must describe how it would work with LSPs to jointly agree implementation timescales, and the contractual mechanisms required to enforce this.</i>
850.5.2	The ICRS NASP shall assume a lead role in liaising with LSPs to ensure local conformance to the approaches, standards and interoperability issues associated with the implementation of the Spine and supporting applications.	<i>Each bidder must describe how it would ensure LSPs and the implementation of Local Systems reflect the agreed standards.</i>
<b>850.6</b>	<b>Benefits Realisation</b>	
850.6.1	The ICRS NASP must work with the Authority to identify the benefits expected to accrue from the programme. This will include end dates for delivery of the benefits and any identified financial savings.	<i>Each bidder must provide examples of the potential benefits it would expect to be realised from the implementation of the Spine.</i>
850.6.2	The ICRS NASP shall assume responsibility for delivery of benefits attributable to the introduction of the Spine and supporting applications.	<i>Each bidder must describe the processes it would put in place to ensure the delivery of benefits.</i>
850.6.3	The ICRS NASP shall accept a transfer of risk for benefits with an identified financial saving through the contract payment structure.	<i>Each bidder must confirm its willingness to take on benefits realisation risk, and any constraints or conditions it would place on this.</i>
<b>850.7</b>	<b>Implementation Monitoring</b>	
850.7.1	The Authority will monitor and track the progress of the Spine implementation and other services that are agreed between the Authority and the ICRS NASP. The ICRS NASP shall be responsible for producing regular progress reports against the implementation plans.	<i>Each bidder must describe how it will facilitate this monitoring process.</i>

**860 – Training**

	<b>Requirement</b>	<b>Required Response</b>
<b>860.1</b>	<b>Overview</b>	
860.1.1	<p>Effective training will be critical to the successful implementation of the Spine and supporting applications. The ICRS NASP will be expected to identify the training needs of staff groups who will need to access the Patient Record held on the Spine and utilise the clinical user applications based on the Spine.</p> <p>Over time, local operational systems are likely to provide the access route to the Spine; but, initially, many staff will require direct access to the Patient Record and will need training on the Spine applications that provide access.</p> <p>The expected outcome of this process shall be the preparation of a training plan by the ICRS NASP for agreement with the Authority.</p>	<i>Each bidder must describe its overall approach to the provision of training to support implementation of the Spine and supporting applications.</i>
<b>860.2</b>	<b>Identification of Training Needs</b>	
860.2.1	The ICRS NASP shall undertake an analysis of training needs by agreed user type and identify the most appropriate method of training delivery for each staff group.	<i>Indicate how the training needs of staff would be assessed.</i>
860.2.2	The distinct and specific training needs of clinical, management and administrative staff requiring access to the Patient Record shall be clearly defined and documented by the ICRS NASP.	<i>Each bidder must indicate its approach to training clinical staff.</i>
860.2.3	<p>The ICRS NASP shall identify the training needs of all relevant staff groups.</p> <p>The clinical staff groups requiring access to the Spine are likely to include the following:</p> <ul style="list-style-type: none"> <li>• consultants and other senior doctors;</li> <li>• junior doctors;</li> <li>• GPs;</li> <li>• nurses (hospital and community) and midwives;</li> <li>• pathologists, radiologists, pharmacists;</li> <li>• Allied Health Professionals (e.g., healthcare scientists, dentists, optometrists);</li> </ul>	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li>• <i>provide its own assessment of the groups of staff who are likely to require training in order to use the Spine and National Applications; and</i></li> <li>• <i>suggest the likely training needs for these staff groups.</i></li> </ul>

	<b>Requirement</b>	<b>Required Response</b>
	<ul style="list-style-type: none"> <li>• paramedics;</li> <li>• NHS Direct; and</li> <li>• non-NHS staff involved in delivering Social Care (e.g., Social Services).</li> </ul> <p>These staff groups will require common, patient-centred information, including: a medical history; a summary of illnesses/conditions, operations and procedures; a prescribing history; Encounter summaries; details of referrals; and diagnostic test reports (see the "Functional Specification" in Part I.1 of this OBS).</p> <p>In addition, a range of non-clinical staff may require access to the Spine. Non-clinical staff with authorised access are likely to require sub-sets of the patient-centred clinical information and statistical analysis regarding Spine usage.</p>	
<b>860.3</b>	<b>Training Plan</b>	
860.3.1	The ICRS NASP shall produce a Training Plan which identifies the preferred/recommended configuration of training and associated ICRS NASP training days.	<p><i>Based on the volume data set out in this OBS, provide a high level training plan for the Spine and supporting applications. As part of this, each bidder must indicate its preference for each of the following configurations:</i></p> <ul style="list-style-type: none"> <li>• <i>ICRS NASP provides and delivers all training courses;</i></li> <li>• <i>Cascade "Train the Trainer";</i></li> <li>• <i>ICRS NASP provides material for LSPs to deliver locally;</i></li> <li>• <i>Web-based training package;</i></li> <li>• <i>other distance learning methods (please specify); and</i></li> <li>• <i>any others (please specify).</i></li> </ul>
860.3.2	The Training Plan shall identify the resources required for delivery of the training (including the number of trainers; materials production; number, location and capacity of rooms; and infrastructure and equipment requirements). The Training Plan should identify the split of training responsibilities between the ICRS NASP, the Authority, LSPs and local NHS organisations.	<p><i>Provide indicative person-day estimates for the delivery of the high-level training plan, broken down by training configuration and the parties likely to be involved in delivery of training.</i></p>

	<b>Requirement</b>	<b>Required Response</b>
<b>860.4</b>	<b>Training Delivery</b>	
860.4.1	The ICRS NASP shall ensure that users are trained to a standard that provides the skills and knowledge required to access the core data held on the Spine and utilise the common user applications as appropriate for their role.	<p><i>Each bidder must:</i></p> <ul style="list-style-type: none"> <li>• <i>describe how it will ensure users are provided with the level of training required; and</i></li> <li>• <i>provide examples of training programmes for previous implementations.</i></li> </ul>
860.4.2	For training courses, the ICRS NASP shall provide a training system and database that is comparable to “real” data, is portable and can be “refreshed” as required.	<i>Each bidder must describe its proposed approach to the provision of a training environment for the Spine.</i>
860.4.3	Information on training courses which the ICRS NASP will supply should include: <ul style="list-style-type: none"> <li>• course content;</li> <li>• course duration and frequency;</li> <li>• class numbers – maximum, minimum;</li> <li>• delivery method – hands-on, classroom, documentation based, CBT, Web-based, or some other indicated method; and</li> <li>• delivery agent (NASP, Authority, LSP, local NHS staff, other third party).</li> </ul>	<i>Provide any indicative information available at this stage.</i>
860.4.4	The ICRS NASP shall provide all required training materials for the operation of courses, Web-based training and distance learning.	<i>Each bidder must describe the sorts of training materials it would propose to utilise.</i>
860.4.5	The ICRS NASP shall ensure that an assessment and evaluation process is in place to measure the effectiveness of training courses and/or remote learning.	<i>Each bidder must describe its proposed approach to the assessment and evaluation of training effectiveness.</i>
860.4.6	The ICRS NASP shall ensure that the training provided pays appropriate attention to the need for and mechanisms by which data quality, data protection and patient confidentiality is ensured.	<i>Each bidder must describe how it would achieve this.</i>

**865 – New Systems and Services**

	<b>Requirement</b>	<b>Required Response</b>
<b>865.1</b>	<b>Overview</b>	
865.1.1	<p>The introduction of the Spine and other National Services will entail a combination of:</p> <ul style="list-style-type: none"> <li>• the integration of some existing services;</li> <li>• replacement of some existing services; and</li> <li>• the implementation of new systems and services.</li> </ul> <p>It is also probable that, over time, new services will be introduced at the national (i.e., not merely at the Cluster) level that require new or innovative system solutions. Where this occurs, the ICRS NASP will be expected to implement, or integrate to, solutions that ensure improved levels of service and realisation of identified benefits.</p>	<p><i>Each bidder must describe its overall approach to meeting the requirement set out in this OBS; and, in particular, its approach to the delivery of new systems and services. It should identify the specific products it is proposing to meet the requirement, including any alternatives where these exist.</i></p>
<b>865.2</b>	<b>New Systems</b>	
865.2.1	<p>The ICRS NASP shall agree with the Authority a catalogue of systems and services required to deliver the services defined in this OBS. Where new systems and/or services are required, the ICRS NASP shall agree with the Authority a programme of implementation in line with national and local targets and phasing requirements. This may entail the implementation and operation of these new systems and services.</p>	<p><i>Each bidder must identify its approach to identifying the programme of implementation of new systems and services, and how it will decide on the preferred options.</i></p>

	<b>Requirement</b>	<b>Required Response</b>
865.2.2	<p>The new systems and/or services provided shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• project management;</li> <li>• design;</li> <li>• acceptance testing;</li> <li>• data migration;</li> <li>• user training;</li> <li>• security and access control;</li> <li>• service provision;</li> <li>• operational user and technical support;</li> <li>• system outputs; and</li> <li>• data exchange and integration with the Spine.</li> </ul>	<p><i>Each bidder must indicate its ability to provide these services in connection with the new systems.</i></p>
865.2.3	<p>The ICRS NASP shall be expected to manage and control the implementation of new systems and ensure that their consortium, if any, can collectively deliver all the products, services and skills required.</p>	<p><i>Each bidder must indicate how it proposes to provide seamless delivery of these products, services and skills.</i></p>
<b>865.3</b>	<b>Improved Service Levels</b>	
865.3.1	<p>Where new systems are implemented, the ICRS NASP shall be expected to demonstrate improvements in services across a range of measurable targets. These would be agreed during the negotiation process but are likely to include:</p> <ul style="list-style-type: none"> <li>• improved levels of access to patient information;</li> <li>• improved user interface and on-line help facilities;</li> <li>• improved quality and delivery of management information;</li> <li>• improved file and data structures to facilitate effective integration with national services including the Spine and the eBooking service; and</li> <li>• improved generation of returns, reports and other outputs.</li> </ul>	<p><i>Each bidder must describe how its proposals will seek to deliver these improved service levels.</i></p>

**870 – Development**

	<b>Requirement</b>	<b>Required Response</b>
<b>870.1</b>	<b>Overview</b>	
870.1.1	<p>The overall aim of the NPFIT is to appoint NASPs and LSPs who will become responsible for delivering services that will grow and develop over time.</p> <p>This will require NASPs and LSPs to work together on the co-ordinated implementation of the whole NPFIT vision, as it evolves both nationally and at local levels.</p>	<i>Each bidder must describe how it would approach the ongoing development of the Spine and supporting applications in order to ensure it continues to meet the requirements of the Authority.</i>
<b>870.2</b>	<b>System Updates</b>	
870.2.1	<p>The ICRS NASP shall provide software update releases to incorporate specified enhancements as agreed by the Authority. The frequency of enhancement updates shall be agreed during contract discussions. The ICRS NASP shall deliver any solution updates within an agreed period of time after specification. The ICRS NASP shall ensure that any solution updates have been fully tested prior to updating live system environments.</p>	<i>Each bidder must describe its approach to the production and release of solution updates.</i>
<b>870.3</b>	<b>Future Development</b>	
870.3.1	<p>The ICRS NASP shall work with the Authority and the NDA in jointly developing the initial Spine functionality over time.</p>	<i>Each bidder must describe its approach to the future development of the Spine and supporting applications.</i>
870.3.2	<p>The ICRS NASP should identify a number of potential future development areas. Any design concepts for future development shall be submitted to the NDA for agreement and must be in line with national priorities, guidance and standards.</p>	<i>Describe any views of potential future developments.</i>
870.3.3	<p>The ICRS NASP shall work with LSPs to ensure that the development of systems, services and business processes is consistent at the national and local levels.</p>	<i>Each bidder must describe how it would work with LSPs to ensure future developments take place in a co-ordinated manner.</i>
870.3.4	<p>The ICRS NASP shall ensure that future developments aim to protect any previous investment in infrastructure and equipment made by the Authority.</p>	<i>Each bidder must describe how it would ensure this is achieved.</i>
870.3.5	<p>The ICRS NASP shall ensure that non-NHS organisations involved in the delivery of care have access to ICRS services as specified by the Authority from time to time.</p>	<i>Each bidder must describe how it would extend the Spine concepts to other non-NHS organisations.</i>

**880 – Operational Support**

	<b>Requirement</b>	<b>Required Response</b>
<b>880.1</b>	<b>Overview</b>	
880.1.1	The ICRS NASP shall support the operational delivery of the Spine. Part III of this OBS outlines the detailed service levels and standards, including helpdesk and business continuity/disaster recovery requirements.	<i>Each bidder must describe its overall approach to the delivery of an operational service for the Spine and supporting applications.</i>
<b>880.2</b>	<b>Spine Service Functions</b>	
880.2.1	The ICRS NASP shall provide a managed computer services environment for the operation of the Spine, together with appropriate housekeeping and support functions.	<i>Each bidder must describe its approach to the provision of a managed service for the Spine.</i>
880.2.2	The ICRS NASP shall ensure that data on the Spine is backed up in a secure manner and that transaction histories are maintained enabling the Spine to be rebuilt in the event of any system failure.	<i>Each bidder must describe its proposed approach to securing data held on the Spine.</i>
880.2.3	The ICRS NASP shall work with the NDA to provide a data management service for all data held within the Spine.	<i>Each bidder must describe how it would work with the NDA to provide this service.</i>

**895 – Change Control**

	<b>Requirement</b>	<b>Required Response</b>
<b>895.1</b>	<b>Overview</b>	
895.1.1	The ICRS NASP will be responsible for managing a change control process which will provide procedures for either the Authority or service provider to propose changes to the IT service existing at that time. These procedures will include addressing any impact of changes on other service providers to the Authority. A jointly approved change request shall provide for an amendment to the existing service agreement.	<i>Each bidder must describe its overall approach to change control.</i>
<b>895.2</b>	<b>Configuration Management</b>	
895.2.1	The ICRS NASP shall be responsible for configuration management of all items produced.	<i>Each bidder must describe how it would manage configuration control of products.</i>