National Joint Registry
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National Joint Registry Minimum Data Set Version 7 Specification

SPECIFICATION

DCB1567 Amd 66/2017

Version 1.0
30 April 2018

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1.0	30 April 2018	Release version

Approvals:

Name	Organisation	Version	Date
Elaine Young	Healthcare Quality Improvement Partnership	1.0	30 April 2018

Data Coordination Board

This information standard (DCB1567) has been approved for publication by the Department of Health and Social Care under section 250 of the Health and Social Care Act 2012.

Assurance that this information standard meets the requirements of the Act and is appropriate for the use specified in the specification document has been provided by the Data Coordination Board (DCB), a sub-group of the Digital Delivery Board.

This information standard comprises the following documents:

- Specification
- Implementation Guide
- Change Specification.

An Information Standards Notice (DCB1567 Amd 66/2017) has been issued as a notification of use and implementation timescales. Please read this alongside the documents for the standard.

The controlled versions of these documents can be found on the NHS Digital website. Any copies held outside of that area, in whatever format (e.g. paper, email attachment), are considered to have passed out of control and should be checked for currency and validity.

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Glossary of Terms:

Term	Acronym	Definition
Arthrodesis	-	Complete fusion of a joint
Arthroplasty	-	A procedure where a natural joint is reconstructed with an artificial prosthesis
British Association of Surgery of the Knee	BASK	Specialist society of the BOA providing support to, and education for, knee surgeons
British Elbow and Shoulder Society	BESS	Specialist society of the BOA providing support to, and education for, elbow and shoulder surgeons.
British Hip Society	BHS	Specialist society of the BOA providing support to, and education for, hip surgeons
British Orthopaedic Association	BOA	Governing body of orthopaedic and trauma surgery in the UK
British Orthopaedic Foot and Ankle Society	BOFAS	Specialist society of the BOA providing support to, and education for, foot and ankle surgeons
Care Quality Commission	CQC	Responsible for the monitoring of standards of healthcare within both the NHS and independent sector and for licensing of independent sector hospitals. The NJR works closely with the CQC, assisting them in monitoring the quality of relevant orthopaedic services
Confidentiality Advisory Group	CAG	Part of the NHS Health Research Authority. Concerned with patient confidentiality and the use of patient identifiable data for research and analysis. Responsible for granting support under Section 251 of the NHS Act 2006 to the NJR which enables the NJR to collect patient identifiable data
Department of Health and Social Care	DHSC	The Department of Health and Social Care provides strategic leadership for public health, the NHS and social care in England.
Healthcare Quality Improvement Partnership	HQIP	A not-for-profit limited company involving the Academy of Medical Royal Colleges, the Royal College of Surgeons, and National Voices. Contracted by NHS England for the delivery of the National Clinical Audit and Patient Outcomes Programme.

Hemi-arthroplasty	-	Joint replacement surgery in which only one of the joint surfaces are replaced, in contrast to total joint replacement in which they are both replaced. The NJR records hemi-arthroplasty for shoulder procedures but not hip replacement procedures.
Hospital Data Manager	HDM	The person in a hospital who acts as the central point for matters relating to the NJR. The HDM has additional rights (eg editing) on the data entry application than an individual with a Data Entry roles.
Medicines and Healthcare products Regulatory Agency	MHRA	Responsible for monitoring all devices and medicines sold in the UK. The NJR works closely with the MHRA to identify poorly performing prostheses and enhancing the Agency's ability to undertake post-market surveillance of devices
Minimum Data Set	MDS	The data set used by the NJR, usually followed by a version number, eg. MDSv5
National Clinical Audit and Patient Outcomes Programme	NCAPOP	The NHS England funded programme for national clinical audit of which the NJR forms a part.
National Institute for Health and Care Excellence	NICE	Responsible for producing clinical guidelines to ensure high quality, evidence-based care for patients in the NHS. The NJR works closely with the NICE in the analysis of the economics/outcomes of joint replacement and the development of clinical guidelines, eg. chemical thromboprophylaxis
National Joint Registry	NJR	The National Joint Registry of England and Wales was established in 2002 and its purpose is to define, improve and maintain the quality of care of individuals receiving Joint Replacement Surgery across the NHS and the independent healthcare sector.
Orthopaedic Unit	-	Any organisation undertaking joint replacement surgery for joints that should be providing data to the NJR. This includes organisations in both the NHS and the independent healthcare sector.

Regional Clinical Coordinator	RCC	A network of 25 consultant orthopaedic surgeons with the responsibility of monitoring the relevance of the standard and making recommendation for changes to the NJR Steering Committee
Regional Coordinator	RC	A team of 8 coordinators employed by Northgate Information Solutions who are responsible for providing on-site support to hospitals, the provision of training, and monitoring of performance against a number of data quality indicators. Also assist with clinical audit in the investigation of issues if required
Thromboprophylaxis	-	Treatment to prevent DVT and PE. Can be mechanical or chemical.
Total Ankle Replacement	TAR	Total replacement of the ankle joint including hybrid techniques. Includes revision procedures.
Total Elbow Replacement	TER	Total replacement of the elbow joint including resurfacing. Includes revision procedures.
Total Hip Replacement	THR	Total replacement of the hip joint including resurfacing and hybrid techniques. Includes revision procedures
Total Knee Replacement	TKR	Total replacement of the knee joint including unicondylar, patella-femoral, and hybrid techniques. Includes revision procedures
Total Shoulder Replacement	TSR	Total replacement of the shoulder joint including resurfacing and hemi-arthroplasty techniques. Includes revision procedures.

Contents

1 Overview

1.1 Summary

Standard	
Standard Number	DCB1567
Standard Title	National Joint Registry Minimum Data Set
Description	The NJR started to collect data in April 2003 with the express purpose of improving patient safety and outcomes through the early identification of failing hip and knee prostheses. The NJR also monitors the performance of surgical teams and orthopaedic units and has established processes for the handling of suspected outlier performance for both implants and surgeons. The NJR collects data from both public sector and independent sector hospitals in England, Wales, and Northern Ireland. The NJR currently collects data on hip, knee, ankle, elbow, and shoulder joint replacement surgery and now monitors implant, surgical team, and hospital performance in order to ensure patient safety and provide stakeholders with information that will lead to improvements in outcomes. The outcomes of surgical practice are reported to clinicians and trust management. The NJR works closely with regulators: Medicines and Healthcare products Regulatory Agency (MHRA), the Care Quality Commission (CQC), and the National Institute of Health and Care Excellence (NICE). It also works with other organisations such as NHS Choices and the British Orthopaedic Association (BOA).
Applies to	The organisations affected by this change are: • NHS Trusts • NHS Foundation Trusts • Independent healthcare sector hospitals
Release	
Release Number	DCB1567
Release Title	Version 7
Description	Changes to ensure that the NJR can capture data about new procedures, technologies, and practices to ensure that it maintains its relevance monitoring the outcomes of joint replacement surgery. The NJR has been included in the NHS Standard Contract for Acute Services since 1 April 2012 and is now a mandatory data collection for all NHS Trusts and NHS Foundation Trusts undertaking hip, knee, ankle, shoulder, or elbow joint replacement surgery.

Implementation Dates	4 June 2018 – 1 January 2019

1.2 Supporting Documents

Ser	Reference	Title
01	Change Request DCB	NHS Data Model and Dictionary Service Change Request 1630
02	Implementation Guide	NJR Minimum Dataset Version 7 Implementation Guide

2 Overview of Submission

The NJR was established in November 2002 with the aim of identifying poorly performing implants. Data collection about hip and knee replacement started in April 2003. Since then, the NJR has also started to collect data about ankle, elbow, and shoulder joint replacement procedures and its aims have been extended to include the monitoring of clinical outcomes. However, the data collection burden for each joint procedure type has remained generally unchanged: it is the type of data collected that has changed.

The changes to the data set are due to the additional joint types being added, advances in orthopaedic device technology, and changes in clinical practice. Some of those changes in clinical practice and implant technology have arisen directly out of outcomes analyses undertaken by the NJR.

From 1 April 2012 the NJR was included in the NHS Standard Contract for Acute Services (Section 12.1.2), and is now a mandatory data collection for all NHS Trusts and NHS Foundation Trusts undertaking hip, knee, ankle, shoulder, or elbow joint replacement surgery. The NJR has always been mandatory for independent sector healthcare providers, and all procedures, including those funded by the NHS, should be submitted. The NJR data entry forms distinguish between NHS and privately funded procedures.

The changes reflect the data that is regarded as necessary for the NJR to meet its requirements in the monitoring and reporting of the outcomes of joint replacement surgery. The specific aims of the NJR are available from the NJR website. Analysed data is provided to multiple stakeholders including, but not limited to:

- Clinicians.
- Patients.
- The orthopaedic device industry.
- Trust and hospital management.
- Regulators, e.g. Care Quality Commission (CQC), the Medicines and Healthcare products Regulatory Agency (MHRA), and the National Institute for Health and Care Excellence (NICE).
- Researchers.
- Service commissioners.
- Procurement and supply chain.
- Related programmes, e.g. GiRFT (www.gettingitrightfirsttime.co.uk), Beyond Compliance (www.beyondcompliance.org.uk), the Orthopaedic Data Evaluation Panel (www.odep.org.uk).

3 Scope

The NJR provides a Bulk Upload service that enables units to upload data directly from a third party system (eg orthopaedic patient administration system) directly to the NJR, thus removing the need for double data entry. The transfer is enabled by the use of an XML messaging schema. The NJR has been in direct contact with the third party system suppliers since November 2017 and the new schema was provided to them in February 2018. The schema will be published on the NJR website following the publication of the Information Standards Notice (ISN) for any potential, new system providers.

This Specification and the associated Change Specification relate only to changes to the data entry system and its underlying database.

4 Health and Care Organisations

4.1 Requirements

The data requirements for the NJR data set are specified precisely within the NHS Data Model and Dictionary Change Request 1630. The following requirements stipulate the types of procedures for which records should be submitted to the NJR, the need to register, and the need to consent patients.

Ser	Requirement
	Registration and System Access
1	All users MUST be registered to use the data entry system before either entering data or accessing the reports available on the system.
2	All users MUST use the registration process outlined on the NJR website (www.njrcentre.org.uk).
3	Following verification of registration requests, users MUST supply a password and piece of memorable information as part of the registration process.
4	All users MUST enter data either via the NJR Data Entry System as described in the 'Data Entry User Guide' or by use of the Bulk Upload facility. Guidance for both can be found on the NJR website at www.njrcentre.org.uk
	Pre-Assessment and Patient Consent
5	Patients MUST be given information about the NJR either before or during pre-assessment clinics, using the NJR Patient Information Leaflet where available.
6	All patients MUST be offered the opportunity to consent to their personal data being recorded and stored by the NJR and MUST be given a copy of the NJR Patient Consent Form which is available either as hard copy from the NJR Centre or as a download from the NJR website (www.njrcentre.org.uk).
	Hip replacements
7	An NJR record MUST be submitted for each primary total hip replacement, hip resurfacing, hybrid hip replacement, or conversion of a hemi-arthroplasty procedure performed by the orthopaedic unit.
8	An NJR record MUST be submitted for each single stage revision, performed by the orthopaedic unit, of a hip replacement or hip resurfacing.
9	An NJR record MUST be submitted for each stage 1 of 2 stage revision, performed by the orthopaedic unit, of a hip replacement or hip resurfacing.
10	An NJR record MUST be submitted for each stage 2 of 2 stage revision, performed by the orthopaedic unit, of a hip replacement or hip resurfacing.
11	An NJR record MUST be submitted for each hip revision excision arthroplasty procedure performed by the orthopaedic unit.

12	An NJR record MUST be submitted for each hip revision Debridement and Implant Retention (DAIR) procedure performed by the orthopaedic unit.
13	An NJR record MUST be submitted for each hip revision a previous total arthroplasty or previous revision arthroplasty procedure performed by the orthopaedic unit.
	Knee replacements
14	An NJR record MUST be submitted for each primary total knee replacement procedure performed by the orthopaedic unit.
15	An NJR record MUST be submitted for each primary unicompartmental knee replacement involving unicondylar or patello-femoral (or a combination of both) replacements performed by the orthopaedic unit.
16	An NJR record MUST be submitted for each single stage revision, performed by the orthopaedic unit, of a total knee, unicondylar knee or patello-femoral replacement.
17	An NJR record MUST be submitted for each stage 1 of 2 stage revision, performed by the orthopaedic unit, of a total knee, unicondylar knee or patello-femoral replacement.
18	An NJR record MUST be submitted for each stage 2 of 2 stage revision, performed by the orthopaedic unit, of a total knee, unicondylar knee or patello-femoral replacement.
19	An NJR record MUST be submitted for each knee conversion to arthrodesis procedure performed by the orthopaedic unit as a revision of a total knee, unicondylar knee or patello-femoral replacement.
20	An NJR record MUST be submitted for each knee amputation procedure performed by the orthopaedic unit as a revision of a total knee, unicondylar knee or patello-femoral replacement.
21	An NJR record MUST be submitted for a partial replacement second compartment of knee (Uni-condylar or patello-femoral) performed by the unit.
22	An NJR record MUST be submitted for each knee debridement and implant retention (DAIR) procedure performed by the unit.
23	An NJR record MUST be submitted for any procedure including a modular exchange for reasons other than infection performed by the unit.
24	An NJR record MUST be submitted for any hybrid (not classified elsewhere) knee revision procedure performed by the unit.
	Ankle replacements
25	An NJR record MUST be submitted for each primary total ankle replacement procedure performed by the orthopaedic unit.
26	An NJR record MUST be submitted for each single stage revision of total ankle replacement performed by the orthopaedic unit.

27	An NJR record MUST be submitted for each stage 1 of 2 stage revision of total ankle replacement performed by the orthopaedic unit.
28	An NJR record MUST be submitted for each stage 2 of 2 stage revision of total ankle replacement performed by the orthopaedic unit.
29	An NJR record MUST be submitted for each ankle conversion to arthrodesis procedure performed by the orthopaedic unit as a revision of a total ankle replacement.
30	An NJR record MUST be submitted for each ankle amputation procedure performed by the orthopaedic unit as a revision of a total ankle replacement.
31	An NJR record MUST be submitted for each ankle Debridement and Implant Repair (DAIR) revision procedure performed by the unit.
	Elbow replacements
32	An NJR record MUST be submitted for each primary total elbow replacement or lateral resurfacing procedure performed by the orthopaedic unit.
33	An NJR record MUST be submitted for each primary radial head replacement procedure performed by the orthopaedic unit.
34	An NJR record MUST be submitted for each single stage revision, performed by the orthopaedic unit, of a total elbow replacement, lateral resurfacing or radial head replacement.
35	An NJR record MUST be submitted for each stage 1 of 2 revision, performed by the orthopaedic unit, of a total elbow replacement, lateral resurfacing or radial head replacement
36	An NJR record MUST be submitted for each stage 2 of 2 revision, performed by the orthopaedic unit, of a total elbow replacement, lateral resurfacing or radial head replacement
37	An NJR record MUST be submitted for each elbow conversion to arthrodesis procedure performed by the orthopaedic unit as a revision of a total elbow replacement.
38	An NJR record MUST be submitted for each elbow amputation procedure performed by the orthopaedic unit as a revision of an elbow replacement.
39	An NJR record MUST be submitted for each elbow Debridement and Implant Retention (DAIR) revision procedure performed by the orthopaedic unit as a revision of an elbow replacement.
	Shoulder replacements
40	An NJR record MUST be submitted for each primary shoulder resurfacing total arthroplasty and each primary resurfacing hemi-arthroplasty replacement procedure performed by the orthopaedic unit.

41	An NJR record MUST be submitted for each primary shoulder stemless conventional arthroplasty and each primary stemless conventional arthroplasty procedure performed by the orthopaedic unit.
42	An NJR record MUST be submitted for each primary shoulder stemless total reverse arthroplasty procedure and each stemmed total reverse arthroplasty procedure performed by the orthopaedic unit.
43	An NJR record MUST be submitted for each primary shoulder stemless hemi-arthroplasty procedure and each stemmed hemi-arthroplasty procedure performed by the orthopaedic unit.
44	An NJR record MUST be submitted for each primary shoulder interpositional (glenoid) procedure performed by the orthopaedic unit.
45	An NJR record MUST be submitted for each shoulder single stage revision, performed by the orthopaedic unit.
46	An NJR record MUST be submitted for each stage 1 of 2 stage revision, performed by the orthopaedic unit.
47	An NJR record MUST be submitted for each stage 2 of 2 stage revision, performed by the orthopaedic unit.
48	An NJR record MUST be submitted for each shoulder conversion to arthrodesis procedure performed by the orthopaedic unit as a revision of a total shoulder replacement or resurfacing, or shoulder hemi-arthroplasty or resurfacing hemi-arthroplasty.
49	An NJR record MUST be submitted for each shoulder excision arthroplasty procedure performed by the orthopaedic unit.
50	An NJR record MUST be submitted for each shoulder amputation procedure performed by the orthopaedic unit.
51	An NJR record MUST be submitted for each shoulder Debridement and Implant Retention (DAIR) revision procedure performed by the orthopaedic unit.

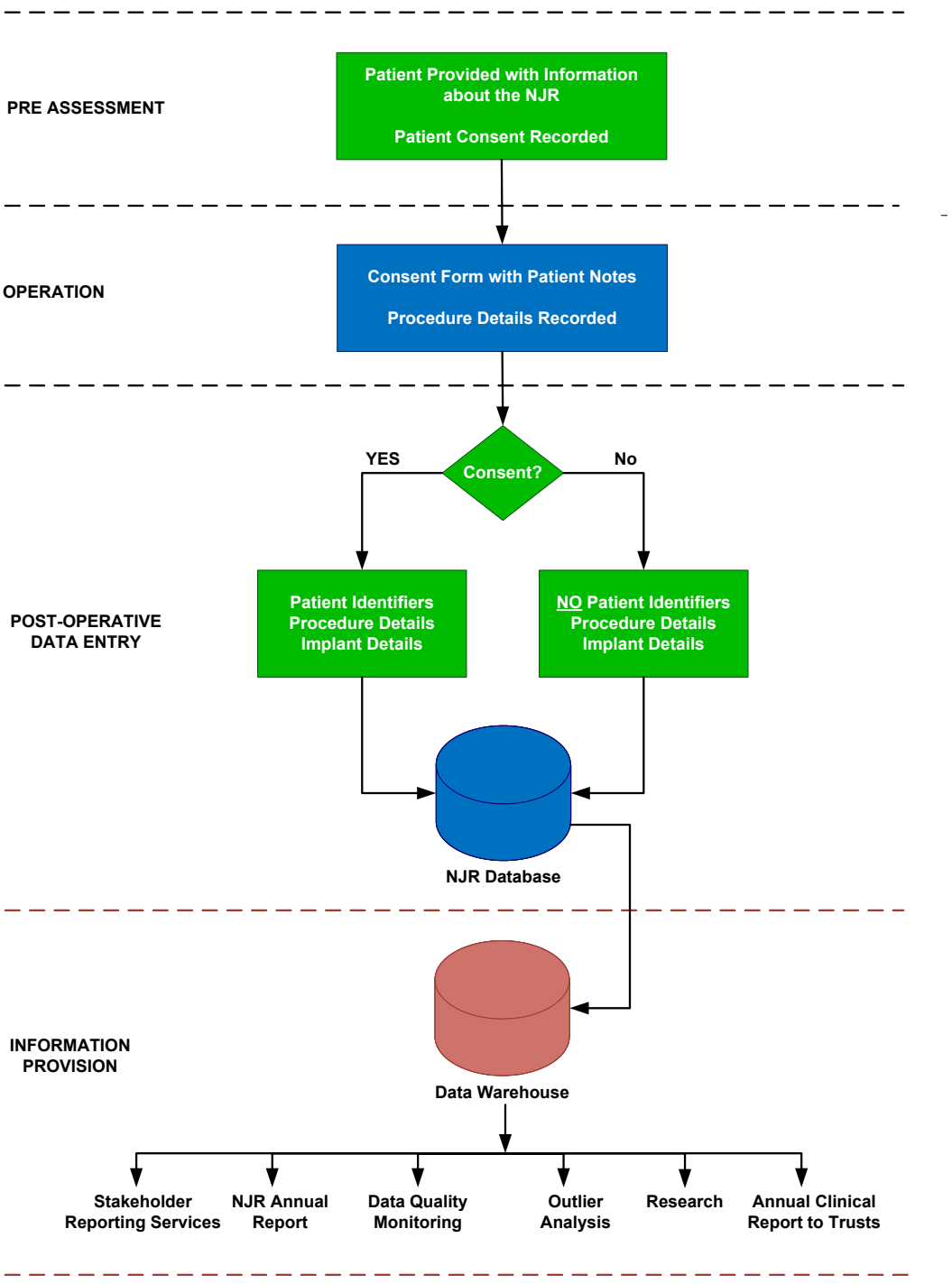
4.2 Conformance Criteria

Ser	Requirement
1	All users submitted a corresponding record to SUS+ within the timescales required by SUS+.
2	Where an acute NHS trust contracted to the independent sector for a joint replacement procedure, all users entered the correct provider code into the SUS+ entry for the procedure.
3	Consent was recorded on all submissions to the NJR as either ‘Yes’ or ‘No’ or ‘Not recorded’.

4	All submissions to the recorded a patient's NHS Number or Name, Date of Birth and valid postcode.
5	All users submitted procedure details within to the NJR within 28 days of the operation taking place.
6	All users cleared The Edit Stack for each hospital at the end of each calendar month.
7	All users sent an 'Implant Request' for all records that could not be submitted because the implant could not be found on the NJR's component database.
8	That all Trusts and hospitals completed the annual Data Quality Audit of the previous financial year's submissions to the NJR in the timescale required by the NJR.

4.3 Schematic

A diagram is included below to show the 'correct' process for collecting patient consent, submitting the data, and the subsequent use of the data.



4.4 Patient Consent

Patients consent to store the following personal data, all of which are regarded as patient identifiable or 'sensitive' data items by the Confidentiality Advisory Group (CAG):

- Name (first name and last name)
- Date of Birth
- Gender
- Postcode
- NHS/National Patient number

Patient consent can be recorded in one of three ways: 'Yes'; 'No'; 'Not Recorded'.

Where 'Yes' and 'Not Recorded' are indicated for consent, the system requires patient identifiable data to be entered. Whilst 'Name' and 'Date of Birth' are mandatory, either 'Postcode' or 'NHS/National Patient number' must be provided. The system validates the post code. The data set is regularly sent to the Patient Demographic Service for batch updating. This provides missing NHS Numbers, validates existing numbers, updates mortality status, and provides patient addresses.

The NJR has support under Section 251 of the NHS Act 2006 (PIAG 2-05(j) 2006) to obtain and store patient identifiable data where 'Not Recorded' is indicated for consent. This relates to approximately 9,000 records each year and is justified by the need to identify patients in the event of a Device Alert or Field Notice.

Where 'No' is recorded for consent, the system does not allow users to enter any patient identifiable data. Such a record can never be linked to another procedure for the same patient and its value is reduced to being simply a 'count' within the data base. It has no value for establishing revision rates or survivorship. The NJR's RCs monitor consent rates, in real time, at a local level and will step in and offer practical guidance and advice on how to improve patient consent levels. For the financial year 2016/17, the recorded consent rate for the NJR was 93%. Of the remaining 7%, 4% were 'Not Recorded', and 3% were 'No'. It is estimated that the majority of the 'No' submissions were due to poor processes within hospitals and not due to the patients actively refusing consent. Where proper processes are in place, most hospitals will achieve 100% consent rates.

It should also be noted that whilst records with 'Not Recorded' for consent indicated are used for analyses, they will not be used for studies involving patient follow up. Patients will only be contacted directly if consent has been recorded as 'Yes'.

With Section 251 Support, the NJR regularly links NJR data to other data sets using patient identifiers. The resultant data set will not include any patient identifiers. Patient identifiable data is only ever released for research that has been subject to full HRA ethical and Section 251 approval and evidence of that approval provided. Examples include the NJR's own Patient Reported Outcomes Measurement Study (PROMs), following up 50,000 patients at one, three, and five years following surgery, and the establishment of a pilot, national DNA Biobank for patients who have Developmental Dysplasia of the Hip (DDH) indicated as a reason for implantation.

The NJR is currently reviewing the patient consent form and patient information leaflet. This is to coincide with the commencement of the GDPR on 25 May 18. If amendment is required, a new consent form will be available with the launch of MDSv7.

4.5 Recording of Implants

With regard to the recording of implants, the data set only includes product catalogue numbers and Lot/Batch Numbers. These are, typically, provided as sticky labels on the packaging with spares that can be stuck into patient notes or, if the data is to be entered subsequently to surgery, onto a paper copy of the NJR data entry form. The format of these numbers (and the standard of the bar coding used) will vary from supplier to supplier and the system has been developed to account for these differences. Suppliers send product

catalogues to the NJR which includes the product catalogue number and the reference data (eg. size, material, etc) associated with each product. With the move to Unique Device Identifiers (UDI) most manufacturers are moving to the GS1 standard of barcoding which includes a General Trade Identification Number (GTIN) which is linked to the catalogue reference number in the NJR component database.

It is impractical to include each device in the data set as the component element of the NJR system currently holds the details of over 80,000 components and it changes on a daily basis. The reference data relating to the product catalogue number is held internally in the NJR system and does not form part of the data set. Implants are classified using a strict taxonomy so that they are placed into the correct class of device which ensure that subsequent analysis is accurate and can be more easily undertaken. NJR Centre staff enter all information relating to implant reference data to ensure that it is properly classified.

Once a user enters a catalogue number, the system will confirm to the user what product is being entered along with any other additional information necessary to correctly identify the implant, such as size. If entering the catalogue number does not return the correct implant, the user can then search by manufacturer and brand until the correct device is found. This approach sometimes means that the catalogue number does not need entering as the implant can be selected by brand, size, material, etc and the correct catalogue number is automatically generated. The lot/batch number will still need to be provided, however. Manufacturers may, occasionally, change the format of catalogue numbers and the format submitted to the NJR may not necessarily be the same as that included on the product labels. The addition of a '/', '-', or a prefix, for example, will necessitate minor changes to the system so that the numbers can be automatically recognised by the system, avoiding the need to search for the item using other identifiers.

In some instances, users may not be able to find the device at all because the data relating to the device has not been passed to the NJR Centre before the device has been introduced to the market. The requirement to give this information to the NJR forms part of a memorandum of understanding and there is no legislation to enforce it. Most suppliers are efficient at providing the data and all suppliers will provide the information when it has to be asked for. Where the implant is not on the data base, the user can automatically submit an 'Implant Request' to the NJR Centre via the system. These requests are monitored by NJR Centre staff and, where necessary, information is obtained from the suppliers and entered into the component database. Users are notified when the new devices have been added. The record will sit in the 'Edit Stack' and can be submitted once the device details have been added.

The NJR currently supports eighteen different barcode standards which means that the details of most implants can be scanned directly into the system. However, less than half of all hospitals use this approach, citing the cost of a hand held Windows scanner to be too expensive.

The component data base also contains complex and tight business rules surrounding the entry of component information. It is the only registry the world that has developed these rules. They are designed to ensure that compatible parts of a 'system' are recorded, eg. a modular head cannot be entered at the same time as a monobloc stem. There will, inevitably, be good clinical reasons for using a combination of implants that 'break' these

rules and users can use an 'Exception Override'. The user will be informed that they are about to break the rules and asks for additional confirmation. The system logs the use of all 'Exception Overrides' and provides real time reports to Regional Coordinators. Excessive use of the override will be investigated and reported upon.

The system will also identify mis-matched implants, e.g. different head sizes and cup/liner sizes for hips and right sided implants used in a left sided knee replacement. Users are warned that a mis-match has occurred and that they should confirm this with the consultant. All confirmed 'never events' are notified to the surgeon and Trust medical director. The NJR is working with the Healthcare Safety Investigation Branch on a solution to warn of an impending mis-match rather than recording it after the event.

4.6 Deployment

The NJR data entry system is a web-based data entry application and it is planned to go live with Version MDSv7 on 4th of June 2018. There will, however, be a period of dual running of the existing standard, MDSv6, with the new standard:

- **Creation of new MDSv6 records.** Users will be able to create new MDSv6 records following the go-live of MDSv7 but only for procedures carried out before that date. The ability to create new records in the older version of the data set will be disabled on 31 December 2018. This will ensure that any procedures completed before the go-live and which have been recorded using MDSv6 and not entered into the data entry system can be easily entered. There is a risk that some hospitals may not be prepared to obtain the data necessary to submit these procedures as MDSv7 procedures and they are, therefore, never submitted to the NJR. Although providers should submit data to the NJR within 28 days of a procedure taking place, some do take longer. This parallel running will enable these late submitting providers to enter pre-implementation procedures whilst being forced to use MDSv7 for all procedures carried out post-implementation.
- **Editing of submitted MDSv6 records.** Users will also be able to edit and re-submit MDSv6 records as MDSv6 records. Previous changes to the standard have enabled older versions to be edited and re-submitted using the newer version. MDv5 records could be edited and re-submitted as MDSv6 records, for example. However, dependent upon the data fields being edited, it is sometimes necessary for the NJR Centre's Data Quality team to make the changes at the database level, on behalf of the hospital, in order to overcome the data validation applied by the data entry system. However, the changes between MDSv6 and MDSv7 are of such significance in some instances, that the data validation rules will not permit an MDSv6 record to be re-submitted as an MDSv7 record. Additionally, the NJR now holds annual Data Quality Audits, based on the previous financial year's data submissions. This will identify both missing procedures and those submitted records requiring amendment. Given that the audit involves over 400 centres submitting data, it is not feasible for the Data Quality team to continue to make all necessary amendments following each annual data audit. Users will, for a period of

eighteen months following the implementation of MDSv7, be able to edit MDSv6 records and re-submit them in the older format.

5 IT Systems

5.1 Requirements

Ser	Requirement
1	The system MUST enable users to provide data to the NJR either by a web browser based forms solution that will work with standard web browsers and technology (NJR Data Entry System) or via an Internet enabled desktop PC solution that will enable users to integrate information from their hospital patient administration system (via Bulk Upload).
2	Both solutions MUST be built on the Microsoft .NET platform with the browser based forms using ASP.NET web forms and the desktop PC solution using Windows Forms.
3	All clients MUST meet the following, minimum hardware specification: • PC with a Pentium 2 style chip and 64MB of RAM. • Connection to the Internet/NHS Net (connection speed of 56 kilobits per second or greater). • Internet/NHS Net connection (and any hospital firewalls) must allow both the HTTP (port 80) and HTTPS (port 443) transport protocols.
4	All clients MUST meet the following minimum software requirements: • Web browsers - Internet Explorer 10 and later, Chrome Version 61 and later; Safari 5.1.7 and later. • The authorisation to allow scripting within the browser window.
5	All units experiencing difficulty SHOULD contact the NJR Centre and carry out the 'Hardware Health Check' as described in the document 'An Introduction to the NJR IT System' which is available as a download from the NJR website (www.njrcentre.org.uk).
6	Third party systems MAY use the Bulk Upload facility (further detail provided in Appendix 1 to this document) to upload data on hip and knee procedures only.
7	All systems using the Bulk Upload service MUST be registered with the NJR and MUST use the interface standard and guides available from the NJR website (www.njrcentre.org.uk).
8	All systems using the interface MUST be tested using the NJR Centre's test facility before deployment to a production system.

5.2 Conformance Criteria

Ser	Requirement
1	All systems submitting procedure details to the NJR via the Bulk Upload delivered the data according to the data specification.

The NJR system is web-based and cannot be altered or changed in any way by users. The processes used by the application are supported by a number of business rules that ensure that the correct data is entered in the correct format. Other validation, such as post code checking, NHS Number checksum validation, component validation rules also take place. A record cannot be submitted unless all the required data fields are completed using the correct format (the application will indicate mistakes for rectification to the user) and any incomplete record that is saved will be moved and stored on an 'Edit Stack'. The number of records in a unit's Edit Stack is monitored closely by the RCs.

Some of the business rules can be overridden using the 'Rule Override' facility. This may be necessary where, for sound clinical reasons, an unusual combination of implants is used. The use of the override facility is monitored by the RCs and excessive use will be investigated on site with the Hospital Data Manager (HDM).

The NJR provides service desk support to all users, and first and second line technical support is also provided. The application supports all popular web browsers and all that is required for data entry is a PC with a web-browser, connected to the Internet.

The NJR will also provide technical support to developers of third party applications wishing to use Bulk Upload. More detail of the Bulk Upload is provided at Appendix 1.

5.3 User and Support Documentation

All support documentation is managed by the development and Quality Assurance teams within Northgate Public Services and made available on the NJR website. This documentation relates to 3rd party systems requiring to submit data via the NJR's Bulk Upload system, the details of which are not included in this change request

http://www.njrcentre.org.uk/njrcentre/Healthcareproviders/Enteringdata/Dataentry/Bulkupload/tabid/112/Default.aspx

The user manuals and guides are maintained by the NJR's Regional Coordinator team who are responsible for training users. Although Hospital Data Managers will be given hard copy, the NJR 'Date Entry Guide is, again, available from the NJR website. For some aspects of system use, case studies are also provided.

http://www.njrcentre.org.uk/njrcentre/Healthcareproviders/Enteringdata/Dataentry/tabid/110/Default.aspx

Appendix A: Bulk Upload

The Bulk Upload facility was implemented to enable orthopaedic units to submit batches of NJR submissions directly from third party systems. These third party systems may be commercially available products purchased by units or systems that have been developed locally for use within that unit only. The main goal of Bulk Upload was to remove any need for double data entry within units. Currently, Bulk Upload is only for the registration of hip and knee procedures: the number of ankle, shoulder, and elbow replacement currently being reported do not justify the additional cost to individual units of updating 3rd party systems to be able to exchange messages with the NJR.

Units

Units have to register to use Bulk Upload via the NJR Service Desk so that unit IT departments can test the interface prior to uploading any data.

The Bulk Upload is accessed via the Data Entry system and prompts the user to upload an XML file that has already been created from the 3rd party system. Once the user has opted to upload the file, the file is then checked for structural errors. The checks ensure that the document is correctly formatted and has not already been uploaded.

Once a file has been uploaded, all records contained within it will be validated. Where there are no reported errors, the record will be submitted automatically to the database but, where there are errors, the records will be submitted to the Edit Stack. These can then be completed individually once the data has been corrected or added.

The Bulk Upload system does provide a report to users showing the count of successful uploads and the details, including reasons, for those that have failed validation.

System Suppliers

The core of the Bulk Upload facility is an XML message and an interface which will enable data from third party Patient Administration Systems (PAS) or orthopaedic management systems to be uploaded directly to the NJR using a manual process rather than a direct, systems integration.

In addition to Bulk Upload, the NJR also provides a web service which enables 3rd party systems to access, in real time, details of implants held in the NJR database. This ensures that the XML file containing the patient records for upload is complete and that the implant data is accurate.

The technical specification, XML message format, and integration requirements are all available via the NJR website. Third party system suppliers wishing to use the web service and Bulk Upload can access the necessary technical detail from the web and undertake their own development. However, they are required to register with the NJR and are required to undertake testing with a test system provided by the NJR. Support is also available from the NJR during the development phase. Once testing has been completed successfully, the unit wishing to use the Bulk Upload service will be required to register as describe above.

Bulk Upload XML Schema and Technical Information

The Schema used for the Bulk Upload, along with related information, is available to all software suppliers the NJR website.

Take-Up of the Bulk Upload

The take-up of the Bulk Upload is not large: there are currently six units using it. This represents four different providers, two of which are locally developed orthopaedic applications.

Appendix B: Joint Registry Minimum Data Set v7 Specification

B.1 Data common to all data entry forms

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
1.1	Patient details	NJR Patient Consent Obtained	Yes	Code list	N1	AN1		PATIENT CONSENT TO RECORDING DATA
1.2a		Height (m)	AND (Height and Weight)	Numeric	N1.MAX N2	N1.MAX N2	H & M or BMI or BMI Not Available	PERSON HEIGHT IN METRES
1.2b		Weight (kg)	AND (Height and Weight)	Numeric	N3	N3		PERSON WEIGHT IN KGS
1.2c		BMI	OR (only BMI)	Numeric	N3	N3		BODY MASS INDEX
1.2d		BMI information Not Available	OR (only BMI not available)	Check				
2.1	Patient Identifiers	Forename(s)	Yes	UNICODE	A35	A35	Allows upto 63 chars	PERSON GIVEN NAME
2.2		Surname	Yes	UNICODE	A35	A35	Allows upto 63 chars	PERSON FAMILY NAME
2.3		Patient Hospital ID	Yes	Free text	AN10	AN10	Allows to enter upto 50 AN chars	LOCAL PATIENT IDENTIFIER
2.4		Gender	Codelist	Check	N1	N1		PERSON GENDER
2.5		Date Of Birth	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/DD		PERSON BIRTH DATE
2.6a		Patient Postcode	Yes	UNICODE	AN8 (MAX)	AN8 (MAX)		POSTCODE OF USUAL ADDRESS
2.6b		Overseas Address	OR				Patient PostCode or Overseas Resident	
2.7		NHS Number or National Patient Identifier	No	Numeric	N10	N10		NHS NUMBER

3.1	Operation Details	Hospital	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (ODS CODE OF PROVIDER)
3.2		Operation Date	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/DD		PROCEDURE DATE
3.3		Anaesthetic Types	Yes	Code list	N1	AN2		ANAESTHETIC TYPE (JOINT REPLACEMENT)
3.4		Patient ASA Grade	Yes	Code list	N1	AN1		ASA PHYSICAL STATUS CLASSIFICATION SYSTEM CODE
3.5		Operation Funding	Yes	Code list	N1	AN2		ADMINISTRATIVE CATEGORY CODE (JOINT REPLACEMENT)
4.1	Surgeon Details	Consultant In Charge	Yes	Code list	N1	AN8		CONSULTANT CODE (RESPONSIBLE CONSULTANT)
4.2		Operating Surgeon	Yes	Code list	N1	AN8		CONSULTANT CODE (OPERATING SURGEON)
4.3		Operating Surgeon Grade	Yes	Code list	N1	AN1		CARE PROFESSIONAL LEAD OPERATING SURGEON GRADE (JOINT REPLACEMENT)
4.4		First Assistant Grade	Yes	Code list	N1	AN1		CARE PROFESSIONAL FIRST ASSISTANT GRADE (JOINT REPLACEMENT)

B.2 Codelists common to all data entry forms

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
1.1	Patient Consent Obtained	No	0
		Yes	1
		Not Recorded	2
2.4	Gender	Not Known	0
		Male	1
		Female	2
		Not specified	9
3.1	Hospital	Lists hospital names and linked to ODS hospital code	
3.3	Anaesthetic Types	General	5
		Regional – Epidural	9
		Regional- Nerve Block	10
		Regional - Spinal (Intrathecal)	11
3.4	Patient Physical Status (ASA Grade)	1. Fit and healthy	1
		2. Mild disease; not incapacitating	2
		3. Incapacitating systemic disease	3
		4. Life threatening disease	4
		5. Expected to die within 24hrs with or without an operation	8
3.5	Operation Funding	NHS	2
		Independent	3
4.1	Consultant In Charge	Lists all consultant at specified hospital	
4.2	Operating Surgeon	Lists all surgeons at specified hospital	
4.3	Operating Surgeon Grade	Consultant	1
		SPR/ST3-8	4
		F1-ST2	12
		Speciality Doctor/SAS	13
		Other	11

4.4	First Grade Assistant	Consultant	1
		Other	15

B.3 Hip Primary

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Hip Primary Procedure Details	Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.2		Indications for Implantation	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY HIP REPLACEMENT)
6.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (PRIMARY HIP REPLACEMENT)
6.2		Patient Position	Yes	Code list	N1	AN1		HIP SURGERY PATIENT POSITION
6.3		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (PRIMARY HIP REPLACEMENT)
6.4		Minimally Invasive Technique Used?	Yes	Code list	N1	AN1		MINIMALLY INVASIVE SURGERY INDICATOR
6.5		Computer Guided Surgery Used?	Yes	Code list	N1	AN1		COMPUTER GUIDED SURGERY INDICATOR
		Thromboprophylaxis regime						
6.6		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
6.7		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
6.8		Was Femoral Bone Graft used?	Yes	Code list	N1	AN1		
6.9		Femoral - Form	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - FEMORAL FORM
6.10		Femoral - Type	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - FEMORAL TYPE
6.11		Was Acetabular Bone Graft used?	Yes	Code list	N1	AN1		

6.12		Acetabular - Form	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - ACETABULAR FORM
6.13		Acetabular - Type	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - ACETABULAR TYPE
6.14		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
7.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY HIP REPLACEMENT)
8.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.4 Hip Primary Codelists

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
5.1	Side	Left	L
		Right	R
5.2	Indications Options List	Osteoarthritis	18
		Trauma – Chronic	24
		Inflammatory Arthropathy	14
		Previous hip surgery (non-trauma related)	25
		Congenital Dislocation/DDH	3
		Previous Arthrodesis	10
		Avascular Necrosis (AVN)	2
		Previous Infection	26
		Trauma - Acute (e.g. Neck of femur)	23
		SUFE	48
		Failed hemi-arthroplasty	9
		Perthes	49
		Skeletal Dysplasia	50
		Metastatic cancer/malignancy	51
		Other	27
6.1	Patient procedure	Primary total prosthetic replacement using cement	2
		Primary total prosthetic replacement not using cement	3
		Primary resurfacing arthroplasty of joint	4
		Primary total prosthetic replacement not classified elsewhere (e.g. hybrid)	5
		Conversion of hemi arthroplasty to total primary hip replacement	36
		Conversion of hemi arthroplasty to primary hip replacement retaining femoral stem	37
6.2	Patient Position	Lateral	2
		Supine	3

6.3	Approach	Hardinge/Anterolateral	6
		Posterior	5
		Trochanteric Osteotomy	7
		Direct Anterior	10
		Other	8
6.4	Minimally Invasive Surgery Used?	Yes	1
		No	0
6.5	Computer Guided Surgery Used?	Yes	1
		No	0
6.6	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
6.7	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
6.8	Was Femoral Bone Graft used?	Yes	1
		No	0
6.9	Femoral – Form	Structural	2
		Morsellised/chips	3
6.10	Femoral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5

6.11	Was Acetabular Bone Graft used?	Yes	1
		No	0
6.12	Acetabular - Form	Structural	2
		Morsellised/chips	3
6.13	Acetabular - Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
7	Untoward Intra Operative Event	None	1
		Calcar Crack	2
		Pelvic Penetration	3
		Shaft fracture	4
		Shaft penetration	5
		Trochanteric fracture	6
		Other	12

B.5 Hip Revision

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Procedure Details	Procedure Type	Yes	Code list	N1	AN1		REVISION PROCEDURE TYPE (HIP REPLACEMENT)
5.2		Revision Of	Yes	Code list	N1			
5.3		Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.4		Indications For/Findings at Time of Revision	Yes	Code list	N1 Multiple	AN2		PATIENT DIAGNOSIS INDICATION (PRIMARY HIP REPLACEMENT)
6.1	Previous Operation Details	Previous Operation Date OR Year or Not Available	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/ DD		PROCEDURE DATE (PRIMARY JOINT REPLACEMENT)
6.2		Previous Hospital Details or Not available	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (CODE OF PROVIDER)
7.1	Components Removed	Femoral Component Removed?	Yes	Code list	N1	AN1		FEMORAL COMPONENT REMOVED
7.2		Modular Head Removed?	Yes	Code list	N1	AN1		MODULAR HEAD REMOVED
7.3		Femoral Cement Removed?	Yes	Code list	N1	AN1		FEMORAL CEMENT REMOVED
7.4		Acetabular Component Removed?	Yes	Code list	N1	AN1		ACETABULAR COMPONENT REMOVED
7.5		Acetabular liner removed?	Yes	Code list	N1	AN1		ACETABULAR LINER REMOVED
7.6		Acetabular Cement Removed?	Yes	Code list	N1	AN1		ACETABULAR CEMENT REMOVED
8.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (REVISION HIP REPLACEMENT)
8.2		Patient Position	Yes		N1			HIP SURGERY PATIENT POSITION
8.3		Approach	Yes		N1			SURGICAL APPROACH (REVISION HIP REPLACEMENT)
		Thromboprophylaxis regime						
8.4		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE

8.5		Thromboprophylaxis regime – Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
8.6		Was Femoral Bone Graft used?	Yes	Code list	N1	AN1		
8.7		Femoral – Form	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - FEMORAL FORM
8.8		Femoral – Type	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - FEMORAL TYPE
8.9		Was Acetabular Bone Graft used?	Yes	Code list	N1	AN1		
8.10		Acetabular – Form	Yes	Code list	N1	AN1		HIP REPLACEMENT BONE GRAFT - ACETABULAR FORM
8.11		Acetabular – Type	Yes	Free text	N1	AN1		HIP REPLACEMENT BONE GRAFT - ACETABULAR TYPE
8.12		SURGEON NOTES	Yes	Code list	MAX AN 4000	MAX AN 4000		SURGEON NOTES
9.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (HIP REPLACEMENT)
10.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.6 Hip Revision Codelists

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
5.1	Procedure type	Single stage revision (includes modular exchange for indications other than infection)	5
		Stage 1 of 2 stage revision	7
		Stage 2 of 2 stage revision	8
		Excision arthroplasty	11
		Debridement and implant retention (DAIR)	52
5.2	Revision of:	Primary total arthroplasty	1
		Previous revision arthroplasty (excluding excision arthroplasty)	2
5.3	Side	Left	L
		Right	R
5.4	Indications for/findings at time of revision	Aseptic Loosening	
		Stem	100
		Socket	101
		Implant Fracture	
		Stem	102
		Socket	103
		Head/Socket mismatch	
		Socket	120
		Head	121
		Lysis	
		Stem	106
		Socket	107
		Malalignment	
		Stem	108
		Socket	109
		Peri-prosthetic fracture	
		Stem	110
		Socket	111

		Dislocation/Subluxation	112
		Infection	113
		Unexplained pain	114
		Wear of acetablular component	**115**
		Dissociation of liner	116
		Adverse soft tissue reaction to particulate debris	122
		Other	119
7.1	Femoral component removed?	Yes	1
		No	0
7.2	Modular head removed?	Yes	1
		No	0
7.3	Femoral cement removed?	Yes	1
		No	0
		Not applicable	4
7.4	Acetabular component removed?	Yes	1
		No	0
7.5	Acetabular liner removed?	Yes	1
		No	0
7.6	Acetabular cement removed?	Yes	1
		No	0
		Not applicable	4
8.1	Patient procedure	Revision using cement	6
		Revision not using cement	7
		Revision of AND TO resurfacing arthroplasty	8
		Debridement and implant retention (DAIR) with modular exchange	59
		Debridement and implant retention (DAIR) without modular exchange	60
		Application Posterior Lip Augmentation Device (PLAD)	61
		Modular exchange for indications other than infection	64
		Revision not classified elsewhere (e.g. hybrid)	9
8.2	Patient Position	Lateral	2
		Supine	3

8.3	Approach	Hardinge/Anterolateral	6
		Posterior	5
		Trochanteric Osteotomy	7
		Extended trochanteric osteotomy	9
		Direct Anterior	10
		Other	8
8.4	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
8.5	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
8.6	Was Femoral Bone Graft used?	Yes	1
		No	0
8.7	Femoral – Form	Structural	2
		Morsellised/chips	3
8.8	Femoral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.9	Was Acetabular Bone Graft used?	Yes	1
		No	0

8.10	Acetabular – Form	Structural	2
		Morsellised/chips	3
8.11	Acetabular – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
9.1	Untoward Intra Operative Event	None	1
		Calcar Crack	2
		Pelvic Penetration	3
		Shaft fracture	4
		Shaft penetration	5
		Trochanteric fracture	6
		Other	12

B.7 Knee Primary

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Knee Primary Procedure Details	Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.2		Indications for Implantation	Yes	Code list	N1 Multiple	AN2		PATIENT DIAGNOSIS INDICATION (PRIMARY KNEE REPLACEMENT)
5.3		Fixed flexion deformity (degrees)	Yes	Code list	N1	AN1		
5.4		Flexion (degrees)	Yes	Code list	N1	AN1		
6.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (PRIMARY KNEE REPLACEMENT)
6.2		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (PRIMARY KNEE REPLACEMENT)
6.3		Minimally Invasive Technique Used?	Yes	Code list	N1	AN1		MINIMALLY INVASIVE SURGERY INDICATOR
6.4		Computer Guided Surgery Used?	Yes	Code list	N1	AN1		COMPUTER GUIDED SURGERY INDICATOR
6.5		Patient specific instruments?	Yes	Code list	N1			PATIENT SPECIFIC INSTRUMENTS
		Thromboprophylaxis regime						
6.6		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
6.7		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
6.8		Was Femoral Bone Graft used?	Yes	Code list	N1	AN1		

6.9		Femoral - Form	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - FEMURAL FORM
6.10		Femoral - Type	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - FEMURAL TYPE
6.11		Was Tibial Bone Graft used?	Yes	Code list	N1	AN1		
6.12		Tibial - Form	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - TIBIAL FORM
6.13		Tibial - Type	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - TIBIAL TYPE
6.14		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
7.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY KNEE REPLACEMENT)
8.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.8 Knee Primary Codelists

Ser	Section/Question	Codelist MDS7	Codelist ID MDSv7
5.1	Side	Left	L
		Right	R
5.2	Indications for implantation	Osteoarthritis	18
		Rheumatoid arthritis	19
		Avascular Necrosis (AVN)	2
		Previous trauma	21
		Other inflammatory arthropathy	14
		Previous Infection	26
		Other	27
5.3	Fixed flexion deformity (degrees)	Less than 10	2
		10 to 30	3
		Greater than 30	4
		Not Available	0
5.4	Flexion (degrees)	Less than 70	2
		70 to 90	3
		91 to 110	4
		Greater than 110	5
		Not available	0
6.1	Patient procedure	Primary total prosthetic replacement using cement	2
		Primary total prosthetic replacement not using cement	3
		Unicompartmental Knee Replacement (Select all that apply)	
		Medial	101
		Lateral	102
		Patello-Femoral	103
		Primary total prosthetic replacement not classified elsewhere (e.g. hybrid)	5

6.2	Approach	Medial parapatellar	2
		Lateral parapatellar	3
		Sub-vastus	5
		Mid-vastus	7
		Other	6
6.3	Minimally Invasive Surgery Used?	Yes	1
		No	0
6.4	Computer Guided Surgery Used?	Yes	1
		No	0
6.5	Patient specific instruments?	Yes	1
		No	0
6.6	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
6.7	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
6.8	Was Femoral Bone Graft used?	Yes	1
		No	0
6.9	Femoral – Form	Structural	2
		Morsellised/chips	3

6.10	Femoral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
6.11	Was Tibial Bone Graft used?	Yes	1
		No	0
6.12	Tibial – Form	Structural	2
		Morsellised/chips	3
6.13	Tibial – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
7.1	Untoward Intra Operative Event	None	1
		Fracture	8
		Patella tendon avulsion	9
		Ligament injury	10
		Other	12

B.9 Knee Revision

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Knee Revision Procedure Details	Procedure Type	Yes	Code list	N1	AN1		REVISION PROCEDURE TYPE (KNEE REPLACEMENT)
5.2		Revision Of	Yes	Code list	N1			
5.3		Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.4		Indications For/Findings at Time of Revision	Yes	Code list	N1 Multiple	AN2		PATIENT DIAGNOSIS INDICATION (PRIMARY KNEE REPLACEMENT)
6.1	Previous Operation Details	Previous Operation Date OR Year or Not Available	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/ DD		PROCEDURE DATE (PRIMARY JOINT REPLACEMENT)
6.2		Previous Hospital Details or Not available	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (CODE OF PROVIDER)
7.1	Components Removed	Femoral component removed?	Yes	Code list	N1	AN1		FEMORAL COMPONENT REMOVED
7.2		Tibial component removed?	Yes	Code list	N1	AN1		TIBIAL COMPONENT REMOVED
7.3		Tibial liner removed?	Yes	Code list	N1	AN1		TIBIAL LINER REMOVED
7.4		Patella removed?	Yes	Code list	N1	AN1		PATELLA REMOVED
8.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (REVISION KNEE REPLACEMENT)
8.2		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (REVISION KNEE REPLACEMENT)
8.3		Patient specific instruments	Yes	Code list	N1	AN1		
		Thromboprophylaxis regime						
8.4		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
8.5		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE

		Bone Graft Used						
8.6		Was Femoral Bone Graft used?	Yes	Code list	N1	AN1		
8.7		Femoral - Form	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - FEMORAL FORM
8.8		Femoral - Type	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - FEMORAL TYPE
8.9		Was Tibial Bone Graft used?	Yes	Code list	N1	AN1		
8.10		Acetabular - Form	Yes	Code list	N1	AN1		KNEE REPLACEMENT BONE GRAFT - ACETABULAR FORM
8.11		Acetabular - Type	Yes	Free text	N1	AN1		KNEE REPLACEMENT BONE GRAFT - ACETABULAR TYPE
8.12		SURGEON NOTES	Yes	Code list	MAX AN 4000	MAX AN 4000		SURGEON NOTES
9.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (KNEE REPLACEMENT)
10.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.10 Knee Revision Codelists

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
5.1	Procedure type	Single stage revision (includes modular exchange for indications other than infection)	6
		Stage 1 of 2 stage revision	9
		Stage 2 of 2 stage revision	10
		Conversion to arthrodesis	12
		Amputation	13
		Debridement and implant retention (DAIR)	53
5.2	Revision of:	Primary total arthroplasty	1
		Previous revision arthroplasty (excluding excision arthroplasty)	2
5.3	Side	Left	L
		Right	R
5.4	Indications for/findings at time of revision	Aseptic Loosening	
		Femur	1
		Tibia	2
		Patella	16
		Infection	3
		Dislocation/Subluxation	4
		Lysis	
		Lysis Femur	5
		Lysis Tibia	6
		Instability	7
		Wear of polyethylene component	8
		Component dissociation	9
		Unexplained pain	10
		Malalignment	11
		Peri-prosthetic fracture	12
		Implant fracture	13
		Stiffness	14

		Progressive arthritis remaining knee	18
		Other	17
7.1	Femoral component removed?	Yes	1
		No	0
7.2	Tibial component removed?	Yes	1
		No	0
7.3	Tibial liner removed?	Yes	1
		No	0
7.4	Patella removed?	Yes	1
		No	0
8.1	Patient procedure	Revision using cement	6
		Revision not using cement	7
		Secondary resurfacing of patella	62
		Partial replacement second compartment of knee (Uni or PFR)	38
		Debridement and implant retention (DAIR) with modular exchange	59
		Debridement and implant retention (DAIR) without modular exchange	60
		Modular exchange for indications other than infection	64
		Revision not classified elsewhere (e.g. hybrid)	9
8.2	Approach	Medial parapatellar	2
		Lateral parapatellar	3
		Sub-vastus	5
		Mid-vastus	7
		Quadriceps turn down	8
		Tibial tubercle osteotomy	9
		Other	6
8.3	Patient specific instruments	Yes	1
		No	0

8.4	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
8.5	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
8.6	Was Femoral Bone Graft used?	Yes	1
		No	0
8.7	Femoral – Form	Structural	2
		Morsellised/chips	3
8.8	Femoral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.9	Was Tibial Bone Graft used?	Yes	1
		No	0
8.10	Tibial – Form	Structural	2
		Morsellised/chips	3
8.11	Tibial – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5

9.1	Untoward Intra Operative Event	None	1
		Fracture	8
		Patella tendon avulsion	9
		Ligament injury	10
		Other	12

B.11 Shoulder Primary

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
1.4	Patient Details	Handedness	Yes	Code list	N1	AN1		HANDEDNESS
5.1	Shoulder Primary Procedure Details	Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.2		Indications for Implantation	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY SHOULDER REPLACEMENT)
5.3		Previous surgery (not arthroplasty)	Yes	Code list	N1 Multiple	AN1		PREVIOUS SURGERY (PRIMARY SHOULDER REPLACEMENT)
6.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (PRIMARY SHOULDER REPLACEMENT)
6.2		Fixation Type	Yes	Code list	N1	AN1		SHOULDER SURGERY PATIENT POSITION
6.3		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (PRIMARY SHOULDER REPLACEMENT)
6.4		Patient specific instrumentation	Yes	Code list	N1	AN1		PATIENT SPECIFIC INSTRUMENTATION
6.5		Computer Guided Surgery Used	Yes	Code list	N1	AN1		COMPUTER GUIDED SURGERY INDICATOR
6.6		Biological resurfacing (Glenoid)	Yes	Code list	N1 Multiple	AN1		BIOLOGICAL RESURFACING (GLENOID)
		Thromboprophylaxis regime						
6.7		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
6.8		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE

		Bone Graft Used						
6.9		Was Humeral Bone Graft used?	Yes	Code list	N1	AN1		
6.10		Humeral - Form	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - HUMERAL FORM
6.11		Humeral - Type	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - HUMERAL TYPE
6.12		Was Glenoid Bone Graft used?	Yes	Code list	N1	AN1		
6.13		Glenoid- Form	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - GLENOID FORM
6.14		Glenoid- Type	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - GLENOID TYPE
		Rotator Cuff						
6.15		Rotator cuff condition	Yes	Code list	N1	AN1		
6.16		Rotator cuff repaired?	Yes	Code list	N1	AN1		
		Other Soft Tissues						
6.17		Long head biceps (LHB) present?	Yes	Code list	N1	AN1		
6.18		LHB tenotomy performed?	Yes	Code list	N1	AN1		
6.19		LHB tenodesis performed?	Yes	Code list	N1	AN1		
6.20		Muscle transfer?	Yes	Code list	N1	AN1		
6.21		Other?	Yes	Code list	N1	AN1		
6.22		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
7.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY SHOULDER REPLACEMENT)

8.1	Preoperative Oxford Shoulder Score	Pre-operative Oxford Score Date	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/ DD		
8.2		Oxford Shoulder Scores Not Available	Yes	Code list	N1	N1		
8.3		How would you describe the worst pain you had from your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 1)
8.4		Have you had any trouble dressing yourself because of your shoulder	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 2)
8.5		Have you had any trouble getting in and out of a car or using public transport because of your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 3)
8.6		Have you been able to use a knife and fork at the same time?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 4)
8.7		Could you do the household shopping on your own?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 5)
8.8		Could you carry a tray containing a plate of food across a room?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 6)
8.9		Could you brush/comb your hair with the affected arm?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 7)
8.10		How would you describe the pain you usually had from your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 8)
8.11		Could you hang your clothes up in a wardrobe, using the affected arm?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 9)
8.12		Have you been able to wash and dry yourself under both arms?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 10)

8.13		How much has pain from your shoulder interfered with your usual work (including housework)?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 11)
8.14		Have you been troubled by pain from your shoulder in bed at night?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 12)
9.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.12 Shoulder Primary Code List

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
1.4	Handedness	Left	0
		Right	1
		Ambidextrous	2
		Not Known	4
5.1	Side	Left	L
		Right	R
5.2	Indications Options List	Osteoarthritis	36
		Avascular necrosis (AVN)	37
		Cuff tear arthropathy	38
		Cuff tear without arthropathy	53
		Acute fracture	39
		Inflammatory arthropathy	40
		Trauma sequelae	41
		Metastatic cancer/malignancy	52
		Dislocation arthropathy	54
		Other	42
5.3	Previous surgery (not arthroplasty)	None	0
		For fracture	7
		For instability	8
		For impingement	9
		For cuff tear	10
		For gleno-humeral arthritis	11
		Previous arthrodesis	12
		Other	5
6.1	Patient procedure	Resurfacing total arthroplasty	39
		Resurfacing hemi-arthroplasty	40
		Stemless conventional total arthroplasty	41
		Stemless hemi-arthroplasty	42

		Stemless total reverse arthroplasty	43
		Stemmed conventional total arthroplasty	44
		Stemmed hemi-arthroplasty	45
		Stemmed total reverse arthroplasty	46
		Interpositional Arthroplasty (Glenohumeral)	47
6.2	Fixation Type -		
6.2.1	Fixation Humerus	Uncemented	1
		Cemented	2
		Not applicable	4
6.2.2	Fixation Glenoid	Uncemented	1
		Cemented	2
		Not applicable	4
6.3	Approach	Delto-pectoral	3
		Trans-deltoid	8
		Other	9
6.4	Patient specific instrumentation	Yes	1
		No	0
6.5	Computer guided surgery used	Yes	1
		No	0
6.6	Biological resurfacing (Glenoid)	None	0
		Microfracture	2
		Reaming	1
		Interposition	3
6.7	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13

6.8	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
6.9	Was Humeral Bone Graft used?	Yes	1
		No	0
6.10	Humeral – Form	Structural	2
		Morsellised/chips	3
6.11	Humeral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
6.12	Was Glenoid Bone Graft used?	Yes	1
		No	0
6.13	Glenoid- Form	Structural	2
		Morsellised/chips	3
6.14	Glenoid- Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
	Rotator Cuff		
6.15	Rotator cuff condition	Normal	1
		Attenuated	2
		Absent/Torn	3
6.16	Rotator cuff repaired?	No	0
		Yes	1
		Yes - Primary repair	2
		Yes- Augmented patch repair	3

	Other Soft Tissues		
6.17	Long head biceps (LHB) present?	Yes	1
		No	0
6.18	LHB tenotomy performed?	Yes	1
		No	0
6.19	LHB tenodesis performed?	Yes	1
		No	0
6.20	Muscle transfer?	Yes	1
		No	0
6.21	Other?	Yes	1
		No	0
7.1	Untoward Intra-Operative Event	None	1
		Fracture humerus	24
		Fracture glenoid	20
		Vascular injury	25
		Other	21
8.3	How would you describe the worst pain you had from your shoulder?	Not Available	0
		None	1
		Mild	2
		Moderate	3
		Severe	4
		Unbearable	5
8.4	Have you had any trouble dressing yourself because of your shoulder?	Not Available	0
		No trouble at all	6
		A little bit of trouble	7
		Moderate trouble	8
		Extreme difficulty	9
		Impossible to do	10

8.5	Have you had any trouble getting in and out of a car or using public transport because of your shoulder?	Not Available	0
		No trouble at all	11
		A little bit of trouble	12
		Moderate trouble	13
		Extreme difficulty	14
		Impossible to do	15
8.6	Have you been able to use a knife and fork at the same time?	Not Available	0
		Yes easily	16
		With little difficulty	17
		With moderate difficulty	18
		With extreme difficulty	19
		No impossible	20
8.7	Could you do the household shopping on your own?	Not Available	0
		Yes easily	21
		With little difficulty	22
		With moderate difficulty	23
		With extreme difficulty	24
		No impossible	25
8.8	Could you carry a tray containing a plate of food across a room?	Not Available	0
		Yes easily	26
		With little difficulty	27
		With moderate difficulty	28
		With extreme difficulty	29
		No impossible	30
8.9	Could you brush/comb your hair with the affected arm?	Not Available	0
		Yes easily	31
		With little difficulty	32
		With moderate difficulty	33
		With extreme difficulty	34
		No impossible	35

8.10	How would you describe the pain you usually had from your shoulder?	Not Available	0
		None	36
		Very mild	37
		Mild	38
		Moderate	39
		Severe	40
8.11	Could you hang your clothes up in a wardrobe, using the affected arm?	Not Available	0
		Yes easily	41
		With little difficulty	42
		With moderate difficulty	43
		With extreme difficulty	44
		No impossible	45
8.12	Have you been able to wash and dry yourself under both arms?	Not Available	0
		Yes easily	46
		With little difficulty	47
		With moderate difficulty	48
		With extreme difficulty	49
		No impossible	50
8.13	How much has pain from your shoulder interfered with your usual work (including housework)?	Not Available	0
		Not at all	51
		A little bit	52
		Moderately	53
		Greatly	54
		Totally	55
8.14	Have you been troubled by pain from your shoulder in bed at night?	Not Available	0
		No nights	56
		Only 1 or 2 nights	57
		Some nights	58
		Most nights	59
		Every night	60

B.13 Shoulder Revision

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
1.4	Patient Details	Handedness	Yes	Code list	N1	AN1		HANDEDNESS
5.1	Shoulder Revision Procedure Details	Procedure Type	Yes	Code list	N1	AN1		REVISION PROCEDURE TYPE (SHOULDER REPLACEMENT)
5.2		Revision Of	Yes	Code list	N1	AN1		
5.3		Side	Yes	Code list	AN1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.4		Indications for/findings at time of revision	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY SHOULDER REPLACEMENT)
6.1	Previous Operation Details	Previous Operation Date OR Year or Not Available	Yes	Date	AN10 DD/MM /YYYY	AN10 YYYY/MM/ DD		PROCEDURE DATE (PRIMARY JOINT REPLACEMENT)
6.2		Previous Hospital Details or Not available	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (CODE OF PROVIDER)
7.1	Components Removed	Humeral component removed?	Yes	Code list	N1	AN1		HUMERAL COMPONENT REMOVED
7.2		Humeral articulating bearing removed?	Yes	Code list	N1	AN1		HUMERAL ARTICULATING BEARING REMOVED
7.3		Glenoid component removed?	Yes	Code list	N1	AN1		GLENOID COMPONENT REMOVED
7.4		Glenoid articulating bearing removed?	Yes	Code list	N1	AN1		GLENOID ARTICULATING BEARING REMOVED
7.5		Other component removed?	Yes	Code list	AN1	AN1		OTHER COMPONENT REMOVED
8.1	Surgical Approach	Patient procedure (i.e. revision to)	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (REVISION SHOULDER REPLACEMENT)
8.2		Fixation	Yes	Code list	N1	AN1		FIXATION TYPE (REVISION SHOULDER REPLACEMENT)

8.3		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (REVISION SHOULDER REPLACEMENT)
8.4		Patient specific instrumentation	Yes	Code list	N1	AN1		
8.5		Biological resurfacing (Glenoid)	Yes	Code list	N1 Multiple	AN1		
		Thromboprophylaxis regime						
8.6		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
8.7		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
8.8		Was Humeral Bone Graft used?	Yes	Code list	N1	AN1		
8.9		Humeral - Form	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - HUMERAL FORM
8.10		Humeral - Type	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - HUMERAL TYPE
8.11		Was Glenoid Bone Graft used?	Yes	Code list	N1	AN1		
8.12		Glenoid- Form	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - GLENOID FORM
8.13		Glenoid- Type	Yes	Code list	N1	AN1		SHOULDER REPLACEMENT BONE GRAFT - GLENOID TYPE
		Rotator Cuff						
8.14		Rotator cuff condition	Yes	Code list	N1	AN1		
8.15		Rotator cuff repaired?	Yes	Code list	N1	AN1		
		Other Soft Tissues						
8.16		Long head biceps (LHB) present?	Yes	Code list	N1	AN1		
8.17		LHB tenotomy performed?	Yes	Code list	N1	AN1		
8.18		LHB tenodesis performed?	Yes	Code list	N1	AN1		
8.19		Muscle transfer?	Yes	Code list	N1	AN1		

8.20		Other?	Yes	Code list	N1	AN1		
8.21		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
9.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (SHOULDER REPLACEMENT)
10.1	Preoperative Oxford Shoulder Score	Pre-operative Oxford Score Date	Yes	Date	AN10 DD/MM /YYYY	AN10 YYYY/MM/ DD		
10.2		Oxford Shoulder Scores Not Available	Yes	Code list	N1	N1		
10.3		How would you describe the worst pain you had from your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 1)
10.4		Have you had any trouble dressing yourself because of your shoulder	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 2)
10.5		Have you had any trouble getting in and out of a car or using public transport because of your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 3)
10.6		Have you been able to use a knife and fork at the same time?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 4)
10.7		Could you do the household shopping on your own?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 5)
10.8		Could you carry a tray containing a plate of food across a room?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 6)
10.9		Could you brush/comb your hair with the affected arm?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 7)
10.10		How would you describe the pain you usually had from your shoulder?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 8)

10.11		Could you hang your clothes up in a wardrobe, using the affected arm?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 9)
10.12		Have you been able to wash and dry yourself under both arms?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 10)
10.13		How much has pain from your shoulder interfered with your usual work (including housework)?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 11)
10.14		Have you been troubled by pain from your shoulder in bed at night?	Yes	Code list	N1	N1		OXFORD SHOULDER SCORE (QUESTION 12)
11.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.14 Shoulder Revision Code List

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
1.4	Handedness	Left	0
		Right	1
		Ambidextrous	2
		Not Known	4
5.1	Shoulder Revision Procedure Details	Single stage revision (includes modular exchange for indications **other** than infection)	46
		Stage 1 of 2 stage revision	47
		Stage 2 of 2 stage revision	48
		Conversion to arthrodesis	49
		Excision arthroplasty	50
		Amputation	51
		Debridement and implant retention (DAIR)	56
5.2	Revision of:	Primary arthroplasty	3
		Previous revision arthroplasty (excluding excision arthroplasty)	4
5.3	Side	Left	L
		Right	R
5.4	Indications for/findings at time of revision	Infection	6
		Instability	8
		Cuff insufficiency	10
		Aseptic loosening humerus	15
		Aseptic loosening glenoid	16
		Peri-prosthetic fracture	7
		Stiffness	17
		Impingement	18
		Component dissociation	19
		Glenoid implant wear	20
		Native glenoid surface erosion	21
		Implant fracture	22

		Lysis	
		Lysis - Humerus	23
		Lysis - Glenoid	24
		Dislocation/subluxation	25
		Unexplained pain	26
		Other	13
7.1	Humeral component removed?	Yes	1
		No	0
7.2	Humeral articulating bearing removed?	Yes	1
		No	0
7.3	Glenoid component removed?	Yes	1
		No	0
7.4	Glenoid articulating bearing removed?	Yes	1
		No	0
7.5	Other component removed?	Yes	1
		No	0
8.1	Patient procedure	Revision resurfacing total arthroplasty	48
		Revision resurfacing hemi-arthroplasty	49
		Revision stemless conventional total arthroplasty	50
		Revision stemless hemi-arthroplasty	51
		Revision stemless total reverse arthroplasty	52
		Revision stemmed conventional total arthroplasty	53
		Revision stemmed hemi-arthroplasty	54
		Revision stemmed total reverse arthroplasty	55
		Revision glenohumeral interpositional arthroplasty	56
		Debridement and implant retention (DAIR) **with** modular exchange	59
		Debridement and implant retention (DAIR) **without** modular exchange	60
		Modular exchange for indications other than infection	64

8.2.1	Fixation Humerus	Uncemented	1
		Cemented	2
		Not applicable	4
8.2.2	Fixation Glenoid	Uncemented	1
		Cemented	2
		Not applicable	4
8.3	Approach	Delto-pectoral	3
		Trans-deltoid	8
		Other	9
8.4	Patient specific instruments	Yes	1
		No	0
8.5	Biological resurfacing (Glenoid)	None	0
		Microfracture	2
		Reaming	1
		Interposition	3
8.6	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
8.7	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
8.8	Was Humeral Bone Graft used?	Yes	1
		No	0

8.9	Humeral – Form	Structural	2
		Morsellised/chips	3
8.10	Humeral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.11	Was Glenoid Bone Graft used?	Yes	1
		No	0
8.12	Glenoid – Form	Structural	2
		Morsellised/chips	3
8.13	Glenoid – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
	Rotator Cuff		
8.14	Rotator cuff condition	Normal	1
		Attenuated	2
		Absent/Torn	3
8.15	Rotator cuff repaired?	No	0
		Yes	1
		Yes - Primary repair	2
		Yes- Augmented patch repair	3
	Other Soft Tissues		
8.16	Long head biceps (LHB) present?	Yes	1
		No	0
8.17	LHB tenotomy performed?	Yes	1
		No	0
8.18	LHB tenodesis performed?	Yes	1
		No	0

8.19	Muscle transfer?	Yes	1
		No	0
8.20	Other?	Yes	1
		No	0
9.1	Untoward Intra-Operative Event	None	1
		Fracture humerus	24
		Fracture glenoid	20
		Vascular injury	25
		Other	21
10.3	How would you describe the worst pain you had from your shoulder?	Not Available	0
		None	1
		Mild	2
		Moderate	3
		Severe	4
		Unbearable	5
10.4	Have you had any trouble dressing yourself because of your shoulder?	Not Available	0
		No trouble at all	6
		A little bit of trouble	7
		Moderate trouble	8
		Extreme difficulty	9
		Impossible to do	10
10.5	Have you had any trouble getting in and out of a car or using public transport because of your shoulder?	Not Available	0
		No trouble at all	11
		A little bit of trouble	12
		Moderate trouble	13
		Extreme difficulty	14
		Impossible to do	15

10.6	Have you been able to use a knife and fork at the same time?	Not Available	0
		Yes easily	16
		With little difficulty	17
		With moderate difficulty	18
		With extreme difficulty	19
		No impossible	20
10.7	Could you do the household shopping on your own?	Not Available	0
		Yes easily	21
		With little difficulty	22
		With moderate difficulty	23
		With extreme difficulty	24
		No impossible	25
10.8	Could you carry a tray containing a plate of food across a room?	Not Available	0
		Yes easily	26
		With little difficulty	27
		With moderate difficulty	28
		With extreme difficulty	29
		No impossible	30
10.9	Could you brush/comb your hair with the affected arm?	Not Available	0
		Yes easily	31
		With little difficulty	32
		With moderate difficulty	33
		With extreme difficulty	34
		No impossible	35
10.10	How would you describe the pain you usually had from your shoulder?	Not Available	0
		None	36
		Very mild	37
		Mild	38
		Moderate	39
		Severe	40

10.11	Could you hang your clothes up in a wardrobe, using the affected arm?	Not Available	0
		Yes easily	41
		With little difficulty	42
		With moderate difficulty	43
		With extreme difficulty	44
		No impossible	45
10.12	Have you been able to wash and dry yourself under both arms?	Not Available	0
		Yes easily	46
		With little difficulty	47
		With moderate difficulty	48
		With extreme difficulty	49
		No impossible	50
10.13	How much has pain from your shoulder interfered with your usual work (including housework)?	Not Available	0
		Not at all	51
		A little bit	52
		Moderately	53
		Greatly	54
		Totally	55
10.14	Have you been troubled by pain from your shoulder in bed at night?	Not Available	0
		No nights	56
		Only 1 or 2 nights	57
		Some nights	58
		Most nights	59
		Every night	60

B.15 Elbow Primary

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
1.4	Patient Details	Handedness	Yes	Code list	N1	AN1		HANDEDNESS
5.1	Elbow Primary Procedure Details	Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.2		Indications for implantation	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY ELBOW REPLACEMENT)
6.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (PRIMARY ELBOW REPLACEMENT)
6.2		Fixation Type	Yes	Code list	N1	AN1		ELBOW SURGERY PATIENT POSITION
6.3		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (PRIMARY ELBOW REPLACEMENT)
6.4		Minimally Invasive Technique Used?	Yes	Code list	N1	AN1		MINIMALLY INVASIVE SURGERY INDICATOR
6.5		Computer Guided Surgery Used?	Yes	Code list	N1	AN1		COMPUTER GUIDED SURGERY INDICATOR
		Thromboprophylaxis regime						
6.6		Thromboprophylaxis regime - Chemical	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
6.7		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
6.8		Was Humeral Bone Graft used?	Yes	Code list	N1	AN1		
6.9		Humeral - Form	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - HUMERUS FORM

6.10		Humeral - Type	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - HUMERUS TYPE
6.11		Was Ulnar Bone Graft used?	Yes	Code list	N1	AN1		
6.12		Ulnar- Form	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - ULNA FORM
6.13		Ulnar- Type	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - ULNA TYPE
6.14		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
7.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY ELBOW REPLACEMENT)
8.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.16 Elbow Primary Code List

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
1.4	Handedness	Left	0
		Right	1
		Ambidextrous	2
		Not Known	4
5.1	Side	Left	L
		Right	R
5.2	Indications For Implantation	Osteoarthritis	28
		Inflammatory arthropathy	30
		Essex lopresti	32
		Avascular necrosis (AVN)	34
		Other acute trauma	29
		Trauma sequelae	31
		Other	35
6.1	Patient procedure	Total prosthetic replacement	20
		Radial head replacement	21
		Lateral resurfacing	22
		Distal humeral hemi arthroplasty	57
6.2	Fixation Type	Uncemented	1
		Cemented	2
		Hybrid	3
6.3	Approach	Kocher	1
		Posterior	2
6.4	Minimally Invasive Surgery Used?	Yes	1
		No	0
6.5	Computer guided surgery used?	Yes	1
		No	0

6.6	Thromboprophylaxis regime: Chemical	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
6.7	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
6.8	Was Humeral Bone Graft used?	Yes	1
		No	0
6.9	Humeral – Form	Structural	2
		Morsellised/chips	3
6.10	Humeral – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
6.11	Was Ulnar Bone Graft used?	Yes	1
		No	0
6.12	Ulnar – Form	Structural	2
		Morsellised/chips	3
6.13	Ulnar- Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5

7.1	Untoward Intra-Operative Event	None	1
		Shaft penetration humerus	14
		Shaft penetration ulna	16
		Fracture humerus	18
		Fracture ulna	13
		Nerve injury	15
		Vascular injury	17
		Other	19

B.17 Elbow Revision

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
1.4	Patient Details	Handedness	Yes	Code list	N1	AN1		HANDEDNESS
5.1	Elbow Revision Procedure Details	Procedure Type	Yes	Code list	N1	AN1		REVISION PROCEDURE TYPE (ELBOW REPLACEMENT)
5.2		Revision Of	Yes	Code list	N1			
5.3		Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.4		Indications for/findings at time of revision	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY ELBOW REPLACEMENT)
6.1	Previous Operation Details	Previous Operation Date OR Year or Not Available	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/ DD		PROCEDURE DATE (PRIMARY JOINT REPLACEMENT)
6.2		Previous Hospital Details or Not available	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (CODE OF PROVIDER)
7.1	Components Removed	Radial component removed?	Yes	Code list	N1	AN1		RADIAL COMPONENT REMOVED
7.2		Humeral component removed?	Yes	Code list	N1	AN1		HUMERAL COMPONENET REMOVED
7.3		Ulnar component removed?	Yes	Code list	N1	AN1		ULNAR COMPONENT REMOVED
8.1	Surgical Approach	Patient procedure (i.e. revision to)	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (REVISION ELBOW REPLACEMENT)
8.2		Fixation Type	Yes	Code list	N1	AN1		FIXATION TYPE (REVISION ELBOW REPLACEMENT)
8.3		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (REVISION ELBOW REPLACEMENT)

		Thromboprophylaxis regime						
8.4		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
8.5		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
8.6		Was Humeral Bone Graft used?	Yes	Code list	N1	AN1		
8.7		Humerus - Form	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - HUMERUS FORM
8.8		Humerus - Type	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - HUMERUS TYPE
8.9		Was Ulnar Bone Graft used?	Yes	Code list	N1	AN1		
8.10		Ulnar - Form	Yes	Code list	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - ULNAR FORM
8.11		Ulnar - Type	Yes	Free text	N1	AN1		ELBOW REPLACEMENT BONE GRAFT - ULNAR TYPE
8.12		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
9.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (ELBOW REPLACEMENT)
10.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.18 Elbow Revision Code List

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
1.4	Handedness	Left	0
		Right	1
		Ambidextrous	2
		Not Known	4
5.1	Elbow Revision Procedure Details	Single stage revision (includes modular exchange for indications **other** than infection)	39
		Stage 1 of 2 stage revision	40
		Stage 2 of 2 stage revision	41
		Conversion to arthrodesis	42
		Excision arthroplasty	43
		Amputation	44
		Debridement and implant retention (DAIR)	55
5.2	Revision of:	Primary arthroplasty	3
		Previous revision arthroplasty (excluding excision arthroplasty)	4
5.3	Side	Left	L
		Right	R
5.4	Indications for/findings at time of revision	Infection	1
		Instability	3
		Aseptic loosening	5
		Peri-prosthetic fracture	2
		Failed hemi-arthroplasty	14
		Other	4
7.1	Radial component removed?	Yes	1
		No	0
7.2	Humeral component removed?	Yes	1
		No	0
7.3	Ulnar component removed?	Yes	1
		No	0

8.1	Patient procedure	Revision total prosthetic replacement	23
		Revision radial head replacement	24
		Revision lateral resurfacing	25
		Revision distal humeral hemi arthroplasty	58
		Debridement and implant retention (DAIR) **with** modular exchange	59
		Debridement and implant retention (DAIR) **without** modular exchange	60
		Modular exchange for indications other than infection	64
8.2	Fixation Type	Uncemented	1
		Cemented	2
		Hybrid	3
8.3	Approach	Kocher	1
		Posterior	2
8.4	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
8.5	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
8.6	Was Humeral Bone Graft used?	Yes	1
		No	0
8.7	Humeral - Form	Structural	2
		Morsellised/chips	3

8.8	Humeral - Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.9	Was Ulnar Bone Graft used?	Yes	1
		No	0
8.10	Ulnar – Form	Structural	2
		Morsellised/chips	3
8.11	Ulnar – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
9.1	Untoward Intra-Operative Event	None	1
		Shaft penetration humerus	14
		Shaft penetration ulna	16
		Fracture humerus	18
		Fracture ulna	13
		Nerve injury	15
		Vascular injury	17
		Other	19

B.19 Ankle Primary

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Ankle Primary Procedure Details	Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.2		Indications for implantation	Yes	Code list	N1 Multiple	AN1		PATIENT DIAGNOSIS INDICATION (PRIMARY ANKLE REPLACEMENT)
5.3		Has the patient had a previous fracture around the index joint?	Yes	Code list	N1	AN1		
5.4		Previous surgery on the index joint	Yes	Code list	N1 Multiple	AN1		
5.5		Has the patient had a previous bony infection of the tibia or hindfoot?	Yes	Code list	N1	AN1		
		Pre-Operative Range Deformity						
5.6		Tibia-hindfoot Alignment (based on clinical assessment)	Yes	Code list	N1	AN1		
		Pre-Operative Range Of Movement						
5.7		Ankle dorsiflexion (degrees)	Yes	Code list	N1	AN1		
5.8		Ankle plantarflexion (degrees)	Yes	Code list	N1	AN1		
5.9		Subtalar joint	Yes	Code list	N1	AN1		
6.1	Surgical Approach	Patient Procedure	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (PRIMARY ANKLE REPLACEMENT)
6.2		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (PRIMARY ANKLE REPLACEMENT)

6.3		Associated procedures at the time of surgery	Yes	Code list	N1 Multiple	AN1		
6.5		Computer guided surgery used	Yes	Code list	N1	AN1		
		Thromboprophylaxis regime						
6.6		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
6.7		Thromboprophylaxis regime – Mechanical	Yes	Code list	N1	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
6.8		Was Tibial Bone Graft used?	Yes	Code list	N1	AN1		
6.9		Tibial – Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TIBIAL FORM
6.10		Tibial – Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TIBIAL TYPE
6.11		Was Talar Bone Graft used?	Yes	Code list	N1	AN1		
6.12		Talar – Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TALAR FORM
6.13		Talar – Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TALAR TYPE
6.14		Was Fibular Bone Graft used?	Yes	Code list	N1	AN1		
6.15		Fibular - Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - FIBULAR FORM
6.16		Fibular - Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - FIBULAR TYPE
6.17		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
7.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY ANKLE REPLACEMENT)

8.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

B.20 Ankle Primary Code List

Ser	Section/Question	Codelist MDS7	Codelist ID MDS7
5.1	Side	Left	L
		Right	R
5.2	Indications for implantation	Osteoarthritis	44
		Rheumatoid arthritis	46
		Other inflammatory arthropathy	45
		Other	47
5.3	Has the patient had a previous fracture around the index joint?	Yes	1
		No	0
		Not available	3
5.4	Previous surgery on the index joint	None	1
		Internal fixation	3
		Distal tibial osteotomy	2
		Arthrodesis	4
		Other	5
		Not available	6
5.5	Has the patient had a previous bony infection of the tibia or hindfoot?	Yes	1
		No	0
		Not available	3
5.6	Tibia-hindfoot Alignment (based on clinical assessment)	Physiological neutral	1
		5 to 15 degrees varus	2
		16 to 30 degrees varus	3
		>30 degrees varus	4
		5 to 15 degrees valgus	5
		16 to 30 degree valgus	6
		>30 degrees valgus	7
		Not available	8

5.7	Ankle dorsiflexion (degrees)	5 to 20	1
		Neutral	2
		Fixed equinus	3
		Not available	4
5.8	Ankle plantarflexion (degrees)	5 to 15	1
		16 to 45	2
		Not available	3
5.9	Subtalar joint	Normal ROM (compared to opp side)	1
		Stiff (compared to opp side)	2
		Joint has been fused	4
		Not available	3
6.1	Patient procedure	Primary total prosthetic replacement not using cement	3
		Primary total prosthetic replacement using cement	2
		Primary total prosthetic replacement not classified elsewhere (e.g. hybrid)	5
6.2	Approach	Anterior	1
		Anterolateral	3
		Lateral (transfibular)	2
		Other	4
6.3	Associated procedures at the time of surgery (select all that apply)	Subtalar joint fusion	1
		Talonavicular fusion	2
		Calcaneal displacement osteotomy	3
		Achilles tendon lengthening	4
		Fusion distal tibiofibular joint	5
		Fibula osteotomy	6
		Medial malleolar osteotomy	7
		Lateral ligament reconstruction	8
		Medial ligament reconstruction	9
		Medial ligament release	12
		Other	10

		None	11
6.5	Computer guided surgery used	Yes	1
		No	0
6.6	Thromboprophylaxis regime: Chemical	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
6.5	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
6.8	Was Tibial Bone Graft used?	Yes	1
		No	0
6.9	Tibial – Form	Structural	2
		Morsellised/chips	3
6.10	Tibial – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
6.11	Was Talar Bone Graft used?	Yes	1
		No	0
6.12	Talar – Form	Structural	2
		Morsellised/chips	3

6.13	Talar – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
6.14	Was Fibular Bone Graft used?	Yes	1
		No	0
6.15	Fibular – Form	Structural	2
		Morsellised/chips	3
6.16	Fibular – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
7.1	Untoward Intra-Operative Event	None	28
		Fracture medial malleolus	29
		Fracture lateral malleolus	30
		Fracture (other)	31
		Ligament injury	32
		Nerve injury	34
		Tendon injury	35
		Other	33

B.21 Ankle Revision

Ser	Section	Question	MDS7 Mandatory Status	Format	Field Length	NHS Data Dictionary Format/ Length	Comment	NHS Data Dictionary Data Element
5.1	Ankle Revision Procedure Details	Procedure Type	Yes	Code list	N1	AN1		REVISION PROCEDURE TYPE (ANKLE REPLACEMENT)
5.2		Revision Of	Yes	Code list	N1			
5.3		Side	Yes	Code list	N1	AN1		ANATOMICAL SIDE (JOINT REPLACEMENT)
5.4		Indications for/findings at time of revision	Yes	Code list	N1 Multiple	AN2		PATIENT DIAGNOSIS INDICATION (PRIMARY ANKLE REPLACEMENT)
6.1	Previous Operation Details	Previous Operation Date OR Year or Not Available	Yes	Date	AN10 DD/MM/ YYYY	AN10 YYYY/MM/ DD		PROCEDURE DATE (PRIMARY JOINT REPLACEMENT)
6.2		Previous Hospital Details or Not available	Yes	Code list	AN50	AN3, AN5 or AN6		ORGANISATION CODE (CODE OF PROVIDER)
7.1	Components Removed	Tibial component removed?	Yes	Code list	N1	AN1		TIBIAL COMPONENT REMOVED
7.2		Talar component removed?	Yes	Code list	N1	AN1		TALAR COMPONENET REMOVED
7.3		Meniscal component removed?	Yes	Code list	N1	AN1		MINISCAL COMPONENT REMOVED
8.1	Surgical Approach	Patient procedure (i.e. revision to)	Yes	Code list	N1	AN1		PATIENT PROCEDURE TYPE (REVISION ANKLE REPLACEMENT)
8.2		Approach	Yes	Code list	N1	AN1		SURGICAL APPROACH (REVISION ANKLE REPLACEMENT)
8.3		Associated procedures at the time of surgery	Yes	Code list	N1 Multiple	AN1		

		Thromboprophylaxis regime						
8.4		Thromboprophylaxis regime - Chemical (In hospital)	Yes	Code list	N1 Multiple	AN1		CHEMICAL THROMBOPROPHYLAXIS REGIME TYPE
8.5		Thromboprophylaxis regime - Mechanical	Yes	Code list	N1 Multiple	AN1		MECHANICAL THROMBOPROPHYLAXIS REGIME TYPE
		Bone Graft Used						
8.6		Was Tibial Bone Graft used?	Yes	Code list	N1	AN1		
8.7		Tibia – Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TIBIA FORM
8.8		Tibia – Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TIBIA TYPE
8.9		Was Talar Bone Graft used?	Yes	Code list	N1	AN1		
8.10		Talar – Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TALAR FORM
8.11		Talar – Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - TALAR TYPE
8.12		Was Fibular Bone Graft used?	Yes	Code list	N1	AN1		
8.13		Fibular - Form	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - FIBULAR FORM
8.14		Fibular - Type	Yes	Code list	N1	AN1		ANKLE REPLACEMENT BONE GRAFT - FIBULAR TYPE
8.15		Surgeon Notes	Yes	Free text	MAX AN 4000	MAX AN 4000		SURGEON NOTES
9.1	Intra Operative Event	Untoward Intra Operative Event	Yes	Code list	N1 Multiple	AN1		UNTOWARD INTRAOPERATIVE EVENT CODE (PRIMARY ANKLE REPLACEMENT)
10.1	Components		Yes		AN255	AN255		IMPLANT CATALOGUE NUMBER
					AN50	AN50		IMPLANT BATCH OR LOT NUMBER

Ankle Revision Code List

Ser	Section/Question	Code list MDS7	Code list ID MDS7
5.1	Ankle Revision Procedure Details	Single stage revision (includes modular exchange for indications other than infection)	33
		Stage 1 of 2 stage revision	34
		Stage 2 of 2 stage revision	35
		Conversion to arthrodesis	36
		Amputation	37
		Debridement and implant retention (DAIR)	54
5.2	Revision of:	Primary total arthroplasty	1
		Previous revision arthroplasty (excluding excision arthroplasty)	2
5.3	Side	Left	L
		Right	R
5.4.1	Indications for/findings at time of revision	Infection	
		High suspicion (e.g. pus or confined micro)	0
		Low suspicion (awaiting micro/histo)	1
5.4.2		Aseptic Loosening	
		Tibial component	2
		Talar component	3
5.4.3		Lysis	
		Tibia	4
		Talus	5
5.5.4		Malalignment	6
5.4.5		Implant fracture	
		Tibial component	7
		Talar component	8
		Meniscal component	9
5.4.6		Wear of polyethylene component	10
5.4.7		Meniscal insert dislocation	11
5.4.8		Component migration/dissociation	12

5.4.9		Unexplained pain	13
5.4.10		Stiffness	14
5.4.11		Soft tissue impingement	15
5.4.12		Other	16
7.1	Tibial component removed?	Yes	1
		No	0
7.2	Talar component removed?	Yes	1
		No	0
7.3	Meniscal component removed?	Yes	1
		No	0
8.1	Patient procedure	Prosthetic replacement not using cement	17
		Prosthetic replacement using cement	18
		Ankle fusion (subtalar joint not fused at this sitting)	12
		Ankle and subtalar fusion (using TTC nail)	13
		Ankle and subtalar fusion (not using TTC nail)	14
		Pantalar fusion	15
		Debridement and implant retention (DAIR) with modular exchange	59
		Debridement and implant retention (DAIR) without modular exchange	60
		Modular exchange for indications other than infection	64
		Prosthetic replacement not classified elsewhere (e.g. hybrid)	19
8.2	Approach	Anterior	1
		Anterolateral	3
		Lateral (transfibular)	2
		Other	4
8.3	Associated procedures at the time of surgery	Subtalar joint fusion	1
		Talonavicular fusion	2
		Calcaneal displacement osteotomy	3
		Achilles tendon lengthening	4
		Fusion distal tibiofibular joint	5

		Fibula osteotomy	6
		Medial malleolar osteotomy	7
		Lateral ligament reconstruction	8
		Medial ligament reconstruction	9
		Medial ligament release	12
		Other	10
		None	11
8.4	Thromboprophylaxis regime: Chemical (In hospital)	Aspirin	4
		LMWH	2
		Pentasaccharide (e.g. Fondaparinux)	6
		Warfarin	3
		Direct thrombin inhibitor (e.g. Dabigatran)	16
		Factor Xa Inhibitor (e.g. Rivaroxaban/Apixaban)	17
		Other	14
		None	13
8.5	Thromboprophylaxis regime: Mechanical	Foot pump	9
		Intermittent calf compression	10
		TED stockings	8
		Other	15
		None	12
8.6	Was Tibial Bone Graft used?	Yes	1
		No	0
8.7	Tibia – Form	Structural	2
		Morsellised/chips	3
8.8	Tibia – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.9	Was Talar Bone Graft used?	Yes	1

		No	0
8.10	Talar – Form	Structural	2
		Morsellised/chips	3
8.11	Talar – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
8.12	Was Fibular Bone Graft used?	Yes	1
		No	0
8.13	Fibular – Form	Structural	2
		Morsellised/chips	3
8.14	Fibular – Type	Autograft	2
		Allograft	3
		Synthetic	4
		Other	5
9.1	Intra-Operative Event	None	28
		Fracture medial malleolus	29
		Fracture lateral malleolus	30
		Fracture (other)	31
		Ligament injury	32
		Nerve injury	34
		Tendon injury	35
		Other	33