Health Protection Scotland

NHS National Services Scotland

Point Prevalence Survey of Healthcare Associated Infection and Antimicrobial Prescribing

September – November 2016

Protocol for the collection of patient- and ward-level data v1.0

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1. Background

Healthcare associated infections (HAI) contribute significantly to morbidity and mortality in the hospital population.[1] The additional costs arising from treatment of HAI place a significant burden on healthcare resources.

The first Scottish National HAI Prevalence Survey was carried out by Health Protection Scotland (HPS) between October 2005 and October 2006. All acute hospitals and a 25% sample of non-acute hospitals were surveyed. The survey reported that 9.5% and 7.3% of patients in acute and non-acute hospitals, respectively, had a HAI at the time of survey.[2] The total annual cost of inpatient HAI in Scotland was estimated to be £183 million.[3]

In September and October 2011, the second Scottish National Point Prevalence Survey was carried out as part of the first European Centre for Disease Prevention and Control (ECDC)-coordinated Europe-wide point prevalence survey. All acute hospitals including paediatric and independent hospitals were surveyed, and a 25% sample of non-acute hospitals. The survey adopted the ECDC standardised protocol, which differed from the first national survey in some key aspects including inclusion/exclusion criteria and some case definitions for HAI. [4;5] The results of the survey indicated an HAI prevalence of 4.9% in acute hospitals and 2.5% in non-acute hospitals. Prevalence of antimicrobial use was 32.3% and 9.8% in acute and non-acute hospitals respectively.[3]

ECDC will coordinate the second Europe-wide point prevalence survey (PPS) of HAI and antimicrobial prescribing in September – November 2016. This is to establish an up-to-date burden of HAI and prevalence of antimicrobial use, as well as gather information on patient-, ward- and hospital-level indicators. HPS has been tasked by the Scottish Government to develop and carry out the third national HAI prevalence survey, which will be undertaken as part of the second ECDC-coordinated Europe-wide point prevalence survey.[6]

A number of amendments have been made to the ECDC protocol following the 2011 survey. For the first time, the protocol includes the collection of a suite of infection prevention and control (IPC) and antimicrobial stewardship structure and process indicators. These indicators have been included following a request from the European Commission in 2013 and in accordance with the Council Recommendation 2009/C 151/01 of June 2009 on patient safety, including the prevention and control of HAI, and in accordance with Council Recommendation 2002/77/EC of 15 November 2001 on the prudent use of antimicrobial agents in human medicine. The purpose of collecting data on these indicators is to describe the organisation of IPC and antimicrobial stewardship programmes in hospitals. The evidence for the specific indicators that have been included in the protocol was provided by the results of a systematic review carried out as part of the SIGHT project, which identified critical elements for the organisation of effective IPC programmes in hospitals, and key components for the implementation of HAI surveillance.[7]

This present document outlines the protocol for collection of patient- and ward-level data within the framework of the PPS in Scotland. The collection of hospital-level indicator data will be carried out separately and the protocol for this is described in the *Protocol for the collection of hospital indicator data.*

1.1 Objectives

The objectives of the 2016 prevalence survey are to:

- Measure the specific types and overall prevalence of HAI
- Measure the overall prevalence of antimicrobial prescribing and types of antimicrobials prescribed, as well as compliance with Scottish Antimicrobial Prescribing Group (SAPG) hospital-based empirical prescribing and surgical prophylaxis prescribing indicators
- Describe the organisation of IPC and antimicrobial stewardship programmes
- Identify priority areas for future interventions to prevent and control HAI, for antimicrobial stewardship and for future targeted incidence surveillance of HAI
- Contribute to the ECDC prevalence survey and inform the European strategy to reduce HAI and antimicrobial resistance.

1.2 Time scales

Figure 1.1- Gantt Chart of project

ID	Task Name	Start	Finish	Q1 2016/17	Q2 2016/17	Q3 2016/17	Q4 2016/17
1	Data collection planning, preparation of training pack	01/04/2016	30/06/2016				
2	Training of data collectors	01/07/2016	31/08/2016				
3	Data collection	01/09/2016	30/11/2016				
4	Data collection support	01/09/2016	30/11/2016				
5	Validation data collection	01/09/2016	30/11/2016				
6	Data entry	01/10/2016	31/12/2016				
7	Local board data produced and circulated	01/11/2016	31/01/2017				
8	Data analysis	01/12/2016	31/01/2017				
9	Report production	01/02/2017	11/03/2017				
10	Finalise report	14/03/2017	30/03/2017				
11	Publish report	31/03/2017	31/03/2017				

2. Protocol for Data Collection

2.1 Inclusion/Exclusion Criteria

The following hospitals, wards and patients are included in the survey;

Hospitals

All acute hospitals, NHS and independent, and a 25% sample of non-acute NHS hospitals.

Wards

All wards including long-term care wards and acute psychiatric wards in acute hospitals. Day units, accident and emergency units, labour suites and theatres are excluded.

Patients

All patients admitted to the ward by 8am on the morning of the survey with the exception of day patients. All ages are included. Mothers and babies should have a form completed each.

Patients transferred into the ward after 8am or transferred out/ discharged after 8am and before the start of the survey are excluded.

2.2 Data Collection Methods

Data collection will be undertaken by local health board staff during the months of September, October and November 2016. For each patient, the data collector should review:

- Current nursing notes
- Current medical notes
- Temperature charts
- Drug charts
- Surgery/operation notes
- Laboratory report e.g. microbiology results
- Other relevant charts e.g. wound charts, stool charts, care plans.

If any of the information is not clear from the notes, the data collector should approach a member of ward staff for clarification.

Ward-level data should be obtained by discussion with the Ward manager, nurse in charge or other ward staff at the start of the survey.

Please note: A ward must be started and completed within one day. Wards where patients are admitted for elective procedures should be surveyed between Tuesday and Friday.

Data collection will be undertaken using Teleform paper forms (one form per ward and one form per patient). These should be returned to the Health Board contact who will send the forms to HPS for data entry, quality checking, analysis and reporting.

Please send completed Teleforms in regular small batches if possible, rather than in one batch at the end of collection. This will enable data to be processed and local reports issued more quickly

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All forms should be received by HPS no later than **Friday 9th December**.

2.3 Completion of Teleform Data Collection Forms

To ensure the accuracy and effectiveness of scanning, please follow these instructions when completing the data collection forms:

- Use a dark ink pen or biro
- Place a cross in appropriate box
- Correct errors by completely filling the incorrect box and checking (with a cross) the correct box
- Be thorough in completion
- Write clearly
- Write within boxes, without writing onto the box lines

Please do not:

- Use light pens e.g. green/red
- Use a tick
- Leave gaps
- Use correction fluid
- Forget to completely fill a box that has been checked in error.
- Forget to check (with a cross) a new box if an error has been corrected (by completely filling it). If an error is not corrected by crossing a new, correct box, then the Teleform software may read the shaded box and record it, hence recording an incorrect response.
- Staple, tape or punch holes on any of the four black cornerstone boxes
- Write or draw on the black boxes in the corner of forms. These are essential for reading the forms in the database
- **PHOTOCOPY AND USE BLANK FORMS**, as this may affect the scanning process (although you may photocopy and retain completed forms for local use if you choose). **If more forms are required, please request these from HPS.**

Examples of completed Ward and Patient Data Collection Forms are provided in Appendices 1 and 2.

2.4 Data Hierarchy and Flow

The PPS data are arranged into 4 levels; hospital, ward, patient, and HAI and antimicrobial data. The data hierarchy is described in Figure 2.4.1. This protocol is concerned with patient- and ward-level data on antimicrobial use and HAI only (i.e. hospital-level data will be collected through a separate process following a different protocol). HAI and antimicrobial data are only collected when the patient has a prevalent HAI or is receiving antimicrobials. For each patient, multiple antimicrobials and active HAI can be recorded if appropriate. An algorithm to describe the process of data collection at ward and patient level is provided in Figure 2.4.2.

Figure 2.4.1 Data Hierarchy

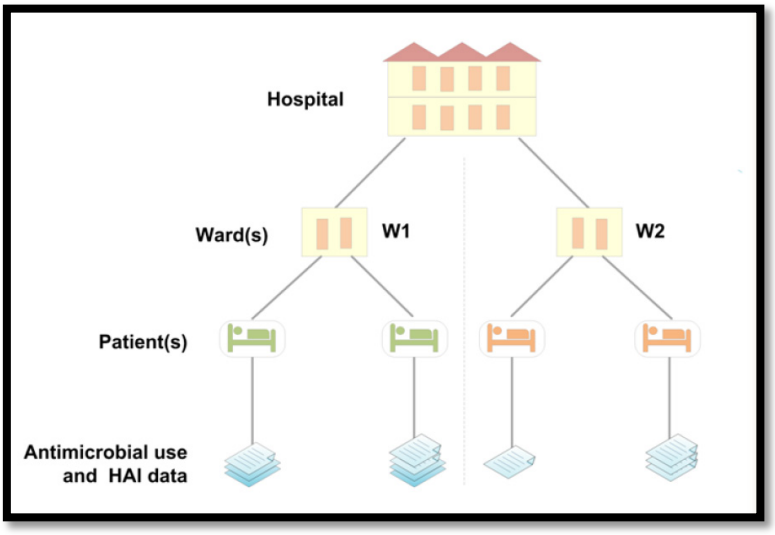
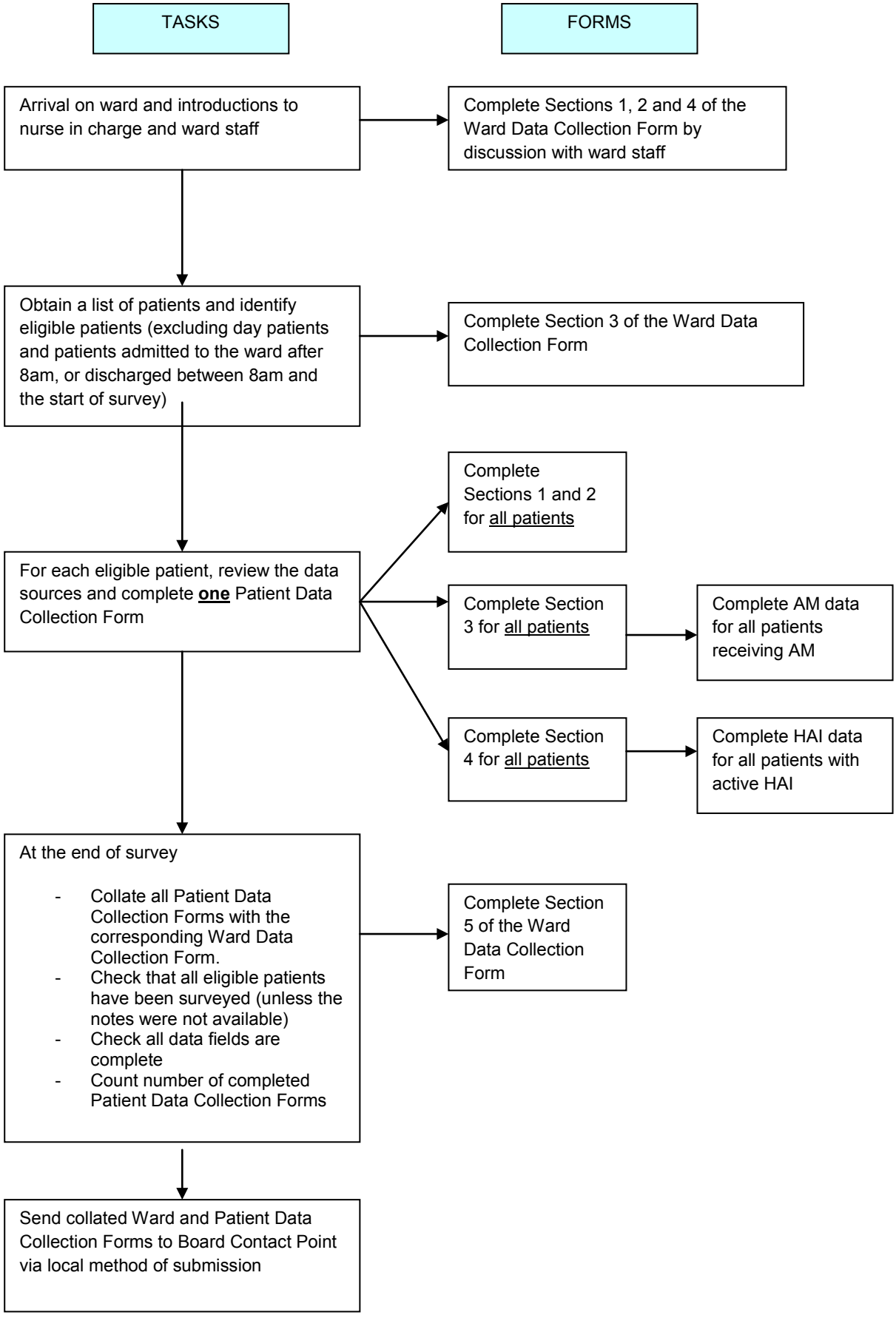


Figure 2.4.2 Data Flow Algorithm



3. Ward Level Data Collection

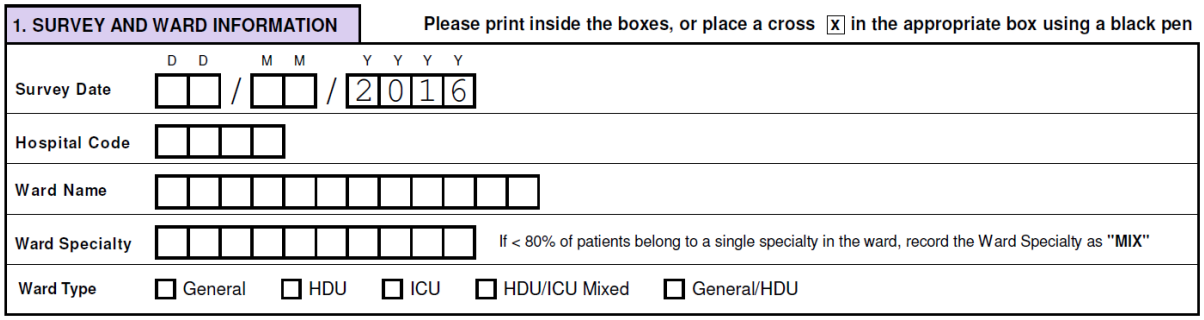
A Ward Data Collection Form (Appendix 1) should be completed by one member of the data collection team for **each ward** surveyed, and should accompany the corresponding Patient Data Collection Forms when returning to HPS.

Ward level data should be obtained through discussions with the Ward manager, nurse in charge or other ward staff at the start of the survey.

Instructions for completion of the Ward Data Collection Form are provided in the following sections.

3.1 Section 1- Survey and Ward Information

This section should be completed at the start of the survey for all wards.



Notes for Completion:

Data Item	Description
Survey Date	Date of Survey. NOTES All eligible patients on a ward should be surveyed within one day. The survey date on the Ward Data Collection Form should match the survey date on the corresponding Patient Data Collection Forms.
Hospital Code	Hospital identifier as provided to the Board Contact Point by HPS. NOTES The Hospital Code should match the hospital code recorded on the corresponding Patient Data Collection Forms.
Ward Name	Ward identifier provided to HPS by the Board Contact Point. NOTES The Ward Name should match the Ward Name recorded on the corresponding Patient Data Collection Forms.

<table>
<tr><td>Ward Specialty</td><td>The main specialty category of the ward (see table below).
<u>NOTES</u>

The ward specialty should be selected from the list of specialty codes provided in Appendix 3. The ward specialty codes are highlighted in grey. The bold italic codes should be transcribed onto the form.

One of the following codes should be used:

<table>
<tr><th>Main ward specialty</th><th>Specialty code</th></tr>
<tr><td>Surgical</td><td>SUR</td></tr>
<tr><td>Medical</td><td>MED</td></tr>
<tr><td>Paediatric (other than neonatal)</td><td>PAED</td></tr>
<tr><td>Neonatal (other than NICU)</td><td>NEO</td></tr>
<tr><td>Intensive care (including NICU)</td><td>ICU</td></tr>
<tr><td>Obstetrics and gynaecology</td><td>OBGYN</td></tr>
<tr><td>Geriatric</td><td>GER</td></tr>
<tr><td>Psychiatry</td><td>PSY</td></tr>
<tr><td>Long term care</td><td>LTC</td></tr>
<tr><td>Other</td><td>OTH</td></tr>
<tr><td>Mixed</td><td>MIX</td></tr>
</table>

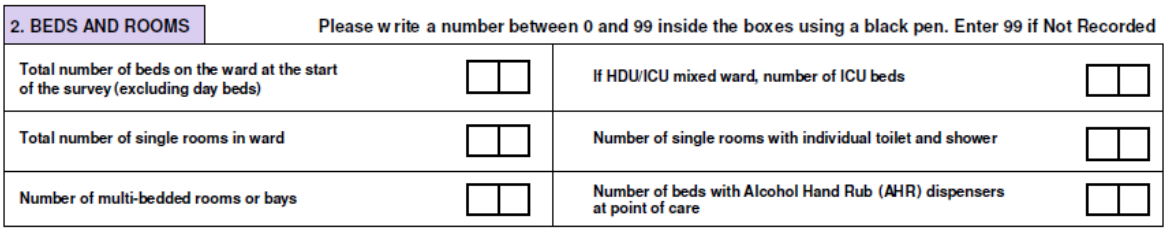
If <80% of patients on the ward belong to a single specialty, record as MIX.</td></tr>
<tr><td>Ward Type</td><td>Type of ward.

<u>NOTES</u>

Coronary care units (CCU) should be recorded as HDU.</td></tr>
</table>

3.2 Section 2- Beds and Rooms

This section should be completed at the start of the survey for all wards.



2. BEDS AND ROOMS	Please write a number between 0 and 99 inside the boxes using a black pen. Enter 99 if Not Recorded		
Total number of beds on the ward at the start of the survey (excluding day beds)		If HDU/ICU mixed ward, number of ICU beds	
Total number of single rooms in ward		Number of single rooms with individual toilet and shower	
Number of multi-bedded rooms or bays		Number of beds with Alcohol Hand Rub (AHR) dispensers at point of care	

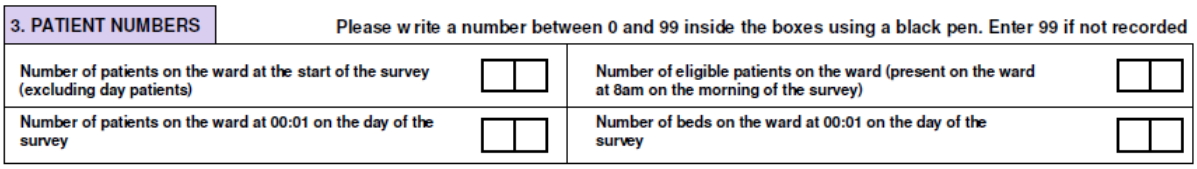
Notes for Completion:

Data Items	Description
Total number of beds on the ward at the start of survey	Total number of beds on the ward at the start of survey excluding day beds. NOTES Total number of beds on the ward should include beds that are available to be occupied by a patient. Therefore if a bed is closed at the time of survey it should not be included. The number of **staffed** cots in obstetrics wards or other wards with neonatal beds should be included in the number of beds on the ward at the start of the survey.
If HDU/ICU mixed ward, number of ICU beds	Total number of ICU beds on the ward. NOTES Only required if the ward is a mixed HDU/ICU ward.
Total number of single rooms in ward	Total number of single rooms. NOTES A single room is defined as a room available for isolation. It may not necessarily be in use as an isolation room at the time of survey. This includes all single rooms including airborne isolation rooms, en-suite single rooms and single rooms that are not en-suite. Rooms with more than one bed that are designated for use as single occupancy and isolation rooms (i.e. for infection control purposes) should be included.
Number of single rooms with individual toilet and shower	Total number of single rooms with en-suite toilet and shower. NOTES Rooms with more than one bed that are designated for use as single occupancy and isolation rooms (i.e. with other beds blocked for infection control purposes) should be included. Rooms which have toilet and shower in

	a communal area should not be counted. An individual toilet alone or a commode (toilet chair) is not sufficient to qualify for this indicator.
Number of multi-bedded rooms or bays	Number of multi-bedded rooms or bays.
Number of beds with alcohol hand rub dispensers at point of care	Total number of beds with alcohol hand rub (AHR) dispensers at point of care. NOTES **Please only complete if all beds are assessed for the presence of AHR.** ***Point of care***. The place where three elements come together: the patient, the healthcare worker (HCW), and care or treatment involving contact with the patient or his/her surroundings (within the patient zone). The concept embraces the need to perform hand hygiene at recommended moments exactly where care delivery takes place. This requires that a hand hygiene product (e.g. AHR, if available) be easily accessible and as close as possible – within arm's reach of where patient care or treatment is taking place. Point-of-care products should be accessible without having to leave the patient zone. Dispensers available at the point of care that happen to be empty on the PPS day should be included. ***Patient zone.*** Concept related to the 'geographical' visualisation of key moments for hand hygiene. It contains the patient X and his/her immediate surroundings. This typically includes the intact skin of the patient and all inanimate surfaces that are touched by or in direct physical contact with the patient such as the bed rails, bedside table, bed linen, infusion tubing and other medical equipment. It further contains surfaces frequently touched by HCWs while caring for the patient such as monitors, knobs and buttons, and other 'high frequency' touch surfaces. AHR dispensers at the entrance of the patient room only are NOT considered as available at the point of care.

3.3 Section 3- Patient Numbers

This section should be completed at the start of the survey for all wards.



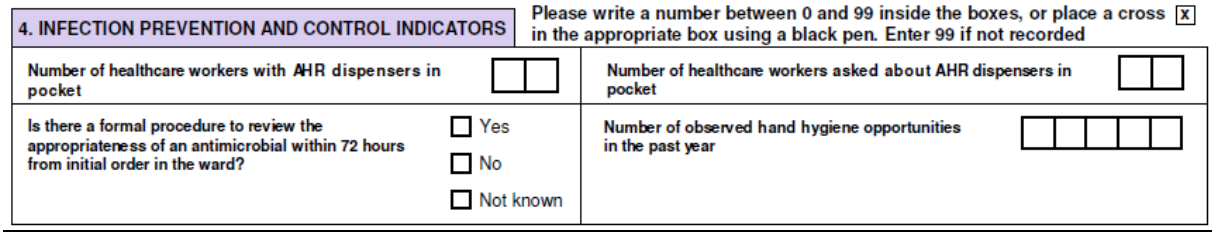
3. PATIENT NUMBERS	Please write a number between 0 and 99 inside the boxes using a black pen. Enter 99 if not recorded
Number of patients on the ward at the start of the survey (excluding day patients) ☐☐	Number of eligible patients on the ward (present on the ward at 8am on the morning of the survey) ☐☐
Number of patients on the ward at 00:01 on the day of the survey ☐☐	Number of beds on the ward at 00:01 on the day of the survey ☐☐

Notes for Completion:

Data Items	Description
Number of patients on the ward at the start of the survey (excl. day patients)	Total number of patients present on the ward at the start of survey excluding day patients.
Number of eligible patients on the ward (present on the ward at 8am on the morning of the survey)	Total number of eligible patients on the ward at the start of the survey. NOTES Eligible patients are patients that were on the ward by 8am on the morning of the survey and that have not been discharged or transferred from the ward by the start of the survey. Patients transferred into the ward after 8am or discharged between 8am and the start of survey, are excluded / not eligible. Eligible patients who are temporarily off the ward for diagnostic investigations or procedures, or who are out on pass should be included in this number and surveyed if their notes are available. A note of the names of patients transferred/admitted to the ward after 8am should be made to ensure these patients are excluded from data collection.
Number of patients on the ward at 00:01 on the day of survey	Total number of patients on the ward at 00:01 on the day of survey. NOTES This may differ from the number of patients on the ward at 8am on the day of survey. When asking staff, it is worth highlighting that both measures are required for the survey.
Number of beds on the ward at 00:01 on the day of survey	Total number of beds on the ward at 00:01 on the day of survey. NOTES This will likely be the same as the number of beds on the ward at the start of survey. When asking staff, it is worth highlighting that both measures are required for the survey.

3.4 Section 4- Infection Prevention and Control Indicator data

This section should be completed at the start of the survey for all wards.



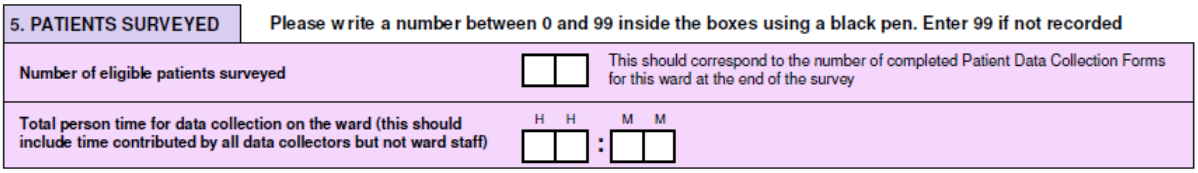
4. INFECTION PREVENTION AND CONTROL INDICATORS	Please write a number between 0 and 99 inside the boxes, or place a cross [X] in the appropriate box using a black pen. Enter 99 if not recorded
Number of healthcare workers with AHR dispensers in pocket [ ][ ]	Number of healthcare workers asked about AHR dispensers in pocket [ ][ ]
Is there a formal procedure to review the appropriateness of an antimicrobial within 72 hours from initial order in the ward? ☐ Yes ☐ No ☐ Not known	Number of observed hand hygiene opportunities in the past year [ ][ ][ ][ ][ ]

Notes for Completion:

Data Item	Description
Number of healthcare workers asked about AHR dispensers in pocket	Total number of healthcare workers on the ward at the start of survey (including nursing staff, medical staff and allied health professionals) who were asked whether they were carrying AHR dispensers in their pocket or on their person. NOTES This provides the denominator for the number of staff who are carrying AHR in their pocket.
Number of healthcare workers with AHR dispensers in pocket	Total number of healthcare workers on the ward at the start of survey who are carrying AHR in their pockets or on their person (including nursing staff, medical staff and allied health professionals). NOTES These staff should be asked whether they carry AHR in their pockets or on their person.
Is there a formal procedure to review the appropriateness of an antimicrobial within 72 hours from initial order on the ward?	Does the ward have a formal procedure to review the appropriateness of an antimicrobial within 72 hours from the initial order in this ward? NOTES A formal post-prescription review procedure should be documented and adopted by the hospital management and should be performed by a person or team other than the treating physician. The procedure should at least address the prescription of broad-spectrum or reserve antimicrobials.
Number of observed hand hygiene opportunities in the previous year	Total number of hand hygiene opportunities observed in the previous year. NOTES This may not be available immediately from the nurse in charge and may require discussion with Infection Prevention and Control team (IPCT). Please report hand hygiene opportunities data for September 2015 - August 2016.

3.5 Section 5- Patients Surveyed

This section should be completed following data collection from all patients on a single ward.



Notes for Completion:

Data Items	Description
Number of eligible patients surveyed	Total number of patients that were surveyed. NOTES Attempts should be made to survey all eligible patients on the ward but there may be some instances where this not possible e.g. patient has left the ward for surgery/treatment /diagnostics and their notes have gone with them, clinical staff require the notes, patient is transferred from the ward before the survey is complete. This field should be completed at the end of the survey and should match the number of corresponding Patient Data Collection Forms for submission to HPS.
Total person time for data collection	Total person time by the data collection team on the ward. NOTES Ward staff time is excluded as it assumed that any protocol would require some ward staff input. This section is to be completed after all data collection is completed. This is the total number of hours contributed from all staff in the data collection process for this prevalence survey. For example if two data collectors enter the ward at 9.00 am and complete data collection at 11.30am, then the total time taken would be five hours (two and a half hours for each data collector).

4. Patient Level Data Collection

A Patient Data Collection Form (Appendix 1: Ward Data Collection Form) should be completed for each eligible patient. An eligible patient is an inpatient who is on the ward at 8am on the day of the survey and who has not been discharged from the ward before the start of the survey.

For each patient, the data collector should review:

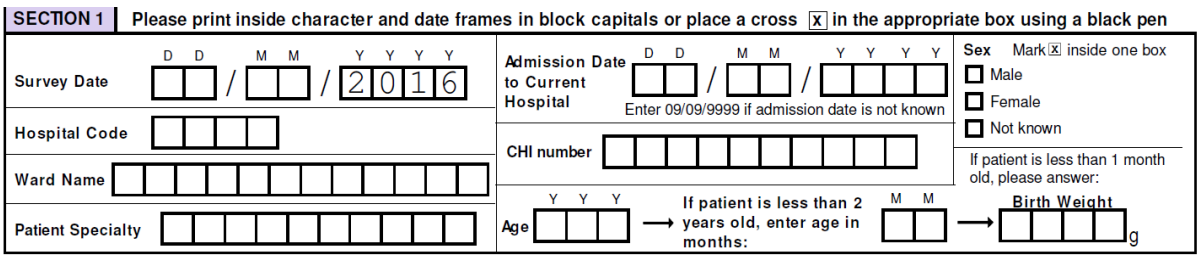
- Current nursing notes
- Current medical notes
- Temperature charts
- Drug charts
- Surgery/operation notes
- Laboratory report e.g. microbiology results
- Other relevant charts e.g. wound charts, stool charts, care plans

If any of the information is not clear from the notes, the data collector should approach a member of ward staff for clarification.

Instructions for completion of the Patient Data Collection Form are provided in the following sections.

4.1 Section 1 – Survey and Patient Details

Section 1 should be completed for <u>all eligible patients.</u>



Notes for Completion:

Data Item	Description
Survey Date	Date of Survey. <u>NOTES</u> All eligible patients on a ward should be surveyed <u>within one day.</u> The survey date on the Patient Data Collection Forms should match the date on the corresponding Ward Data Collection Form.
Hospital Code	Hospital identifier as provided to HPS by the Board Contact Point. <u>NOTES</u> The hospital code on the Patient Data Collection Forms should match the

Data Item	Description
	hospital code on the corresponding Ward Data Collection Form.
Ward Name	Ward identifier as provided to HPS by the Board Contact Point. NOTES The ward name on the Patient Data Collection Forms should match the ward name on the corresponding Ward Data Collection Form.
Patient specialty	Specialty of care as determined by the specialty of patient's consultant. NOTES If a patient has more than one consultant, record specialty of main disease of the patient. The patient specialty has priority over the specialty of the on-duty consultant. The patient specialty should be selected from the list of specialty codes provided in Appendix 3. The ***bold italic*** codes should be transcribed onto the form. The patient specialty and the ward specialty as recorded on the Ward Control Sheet may be different. ICU patient specialty should be recorded using the specific ICU codes e.g. Specialist ICU e.g. cardiothoracic ICU should be recorded as ***ICUSPEC*** HDU patient specialty should be recorded as specialty of the consultant responsible for patient care Patients cared for in admission units who have not yet had their care transferred to the appropriate consultant should have their specialty coded as ***SURGEN*** or ***MEDGEN***, as appropriate. LTC is in principle a ward specialty and should only exceptionally be used as a patient/consultant specialty For example, if a renal consultant is on duty in a medical admissions unit, they may admit a patient who has had an MI. According to the protocol at the moment, this patient would be categorised under renal medicine. Patients may remain under the care of these consultants for a number of days before being transferred to the care of the appropriate consultant. These patients should be recorded as general medicine until they have been transferred to the care of the appropriate consultant. Paediatric and Neonatal Patients *Newborn babies:* The specialty for babies cared for in the neonatal ICU should be recorded as ***ICUNEO***. All other newborn babies should be recorded as ***PAEDNEO*** with the exception of healthy babies. The specialty for healthy newborn babies should be recorded as ***GOBAB*** for babies cared for on obstetric wards and ***PAEDBAB*** for

Data Item	Description
	healthy newborn babies on paediatric wards. *Paediatric patients cared for in <u>paediatric wards</u>:* Patients cared for in a paediatric specialty e.g. ***PAED*** recorded on the ward form should have their consultant specialty recorded. For example, a paediatric cardiac surgery patient cared for on a paediatric ward should have the ward specialty recorded as ***PAED*** and the patient specialty recorded as ***SURCARD.*** *Paediatric patients cared for in <u>adult wards</u>:* Paediatric patients cared for on adult wards should have the patient specialty recorded as with ***PAEDGEN*** (general paediatric patients), ***SURPAED*** (surgical paediatric patients), ***PAEDPSY*** (paediatric psychiatric patients). These codes should only be used for paediatric patients who are not being cared for in a paediatric ward.
Admission Date to Current Hospital	Date of patient's admission to the current hospital. <u>NOTES</u> If the patient was transferred in from another hospital, the date of transfer to the <u>current</u> hospital should be recorded. Babies born in the current hospital should have their date of birth entered here
CHI Number	Enter CHI number if available, or local hospital number if not available.
Age in year(s)	Patient age in years if 2 years or older.
Age in month(s)	Patient age in months if less than 2 years. <u>NOTES</u> If age is less than 4weeks old record as age=0. If patient is 4 weeks or older but less than 2 years of age, round their age to nearest month.
Birth Weight	Patient birth weight in grams if patient age is less than 1 month. <u>NOTES</u> Complete for all patients under 1month old. Include for babies < 1 month in PAEDNEO, ICUNEO, PAEDBAB, GOBAB specialties.
Sex	Patient sex

4.2 Section 2 –Risk Factor Data

Section 2 should be completed for all eligible patients.

SECTION 2 Please write inside number and date frames or place a cross [x] in the appropriate box using a black pen

Surgery Since Admission	McCabe/Prognosis	Central Vascular Catheter	Peripheral Vascular Catheter	Urinary Catheter	Intubation
Mark [x] inside all boxes that apply	Mark [x] inside one box	Mark [x] inside one box	Mark [x] inside one box	Mark [x] inside one box	Mark [x] inside one box
☐ No surgery ☐ Surgery ☐ Minimally invasive surgery ☐ Not known	☐ None/non-fatal ☐ Life limiting ☐ End of life ☐ Not known	☐ No ☐ Yes ☐ Not known	☐ No ☐ Yes ☐ Not known	☐ No ☐ Yes ☐ Not known	☐ No ☐ Yes ☐ Not known

Notes for Completion:

Data Item	Description
Surgery Since Admission	Patient had undergone surgery during hospitalisation in current hospital. NOTES The patient's case notes should be reviewed to determine whether the patient has undergone surgery since they were admitted to hospital. This information can be found in surgery/operation notes. An algorithm for collecting these data is provided in Figure 4.2.1. Surgery is defined as a procedure where an incision is made (i.e. not just a needle puncture) and it involves an intervention (i.e. not a diagnostic procedure) with breach of mucosa or skin and not necessarily in the operating theatre. A list of surgical procedures is provided in Appendix 4: Surgical Procedures and SSI Site Codes. Surgical procedures that appear in this list should be recorded as "Surgery". The purpose of surgery should be primarily therapeutic. All procedures that are not included in the list of surgical procedures should be recorded as minimally invasive. These may include: - Any procedure carried out via a catheter e.g. cardiac catheterisation, ERCP, TURP - Percutaneous procedures (via a needle) - Any procedure where healing is by secondary intention - Incision and drainage of abscess - Obstetrics procedures other than caesarean section - Tonsillectomy - Application of external fixator/Ilizarov - Hysteroscopic removal of fibroids - Extraventricular drain Insertion of Central lines, endoscopes, chest drains, intra-aortic balloon pumps without an incision and angioplasty without inclusion are not considered to be surgery. The insertion of devices or lines is not considered to be surgical procedures.
McCabe/ Prognosis	McCabe score reflecting the patient's underlying medical condition (based on prognosis).

Data Item	Description
	NOTES This field should be used to classify the severity of the patient's underlying medical condition. Acute infections including HAI are not considered an underlying medical condition and the prognosis prior to onset of infection should be recorded. The patient's prognosis resulting from the diagnosis at the time of survey should be taken into consideration, so if an otherwise healthy patient has suffered a severe trauma the decision would be how likely they are to recover to make the decision between none non-fatal, life limiting, or end of life. If the prognosis is not clear from the patient's notes, input from the staff caring for the patient may be required. An algorithm to assist with assigning the prognosis is provided in Figure 4.2.2. None/non-fatal (McCabe Score: non-fatal disease) Examples of underlying co-morbidities that may indicate a none/non-fatal prognosis: - diabetes (not requiring amputation) - cancer with a >80% 5 year survival - non-metastatic cancer - inflammatory disorders - chronic GI conditions - chronic genitourinary conditions - obstetrics - Previously healthy trauma patient - "Non-severe" conditions e.g. COPD, IHD If the patient is admitted as a result of complications for conditions such as COPD or IHD, the life limiting diagnosis should be considered. The distinction between severe/non severe is a clinical judgement and may require input from staff caring for the patient. Life Limiting Diagnosis (McCabe Score: ultimately fatal disease) Examples of underlying co-morbidities that may indicate a life-limiting prognosis: - Chronic leukaemia, myeloma, lymphoma - Metastatic carcinoma - Motor neurone disease - MS, not responding to treatment - Alzheimer's/dementia - Diabetes requiring amputation - "Severe" conditions e.g. COPD, IHD An end of life prognosis should be considered for all of the life limiting diagnosis examples by reviewing the examples below. End of Life Prognosis (McCabe Score: rapidly fatal disease)

Data Item	Description
	Examples of underlying co-morbidities that may indicate an end of life prognosis: - End stage haematological malignancies (unsuitable for transplant) - Heart failure (Ejection fraction <20%) - End stage liver disease (unsuitable for transplant) - Multiple organ failure in ICU patient - Pulmonary disease with cor pulmonale Patients who are 'do not resuscitate' (DNR) or cared for by the palliative care team are also considered to have an end of life prognosis. Patients with an end of life prognosis are expected to live less than 6 months.
Central Vascular Catheter	Patient has a central vascular catheter (CVC) in situ at the time of survey. NOTES **Definition of a CVC:** An intravascular catheter that terminates at or close to the heart or in one of the great vessels, which is used for infusion, withdrawal of blood, or hemodynamic monitoring. The following are considered great vessels: aorta, pulmonary artery, superior vena cava, inferior vena cava, brachiocephalic veins, internal jugular veins, subclavian veins, external iliac veins, common iliac veins, common femoral veins, and in neonates, the umbilical artery/vein. **NOTE**: Neither the insertion site nor the type of device may be used to determine if a line qualifies as a central line. The device must terminate in one of these vessels or in or near the heart to qualify as a central line. An introducer is considered an intravascular catheter. Pacemaker wires and other non-lumened devices inserted into central blood vessels or the heart are not considered central lines, because fluids are not infused, pushed, nor withdrawn through such devices. If the presence of a device is not clear from the notes, the data collector should approach a member of ward staff or view the patient for clarification.
Peripheral Vascular Catheter	Patient has a peripheral or arterial vascular catheter (PVC) in situ at the time of survey NOTES If the presence of a device is not clear from the notes, the data collector should approach a member of ward staff or view the patient for clarification.
Urinary Catheter	Patient has a urinary catheter in situ at the time of survey. NOTES If the presence of a device is not clear from the notes, the data collector should approach a member of ward staff or view the patient for clarification.
Intubation	Patient is intubated with or without mechanical ventilation (endotracheal tube or tracheostomy) at the time of survey.

Data Item	Description
	NOTES If the presence of a device is not clear from the notes, the data collector should approach a member of ward staff or view the patient for clarification.

Figure 4.2.1 Algorithm for Collection of the Surgery since Admission Date

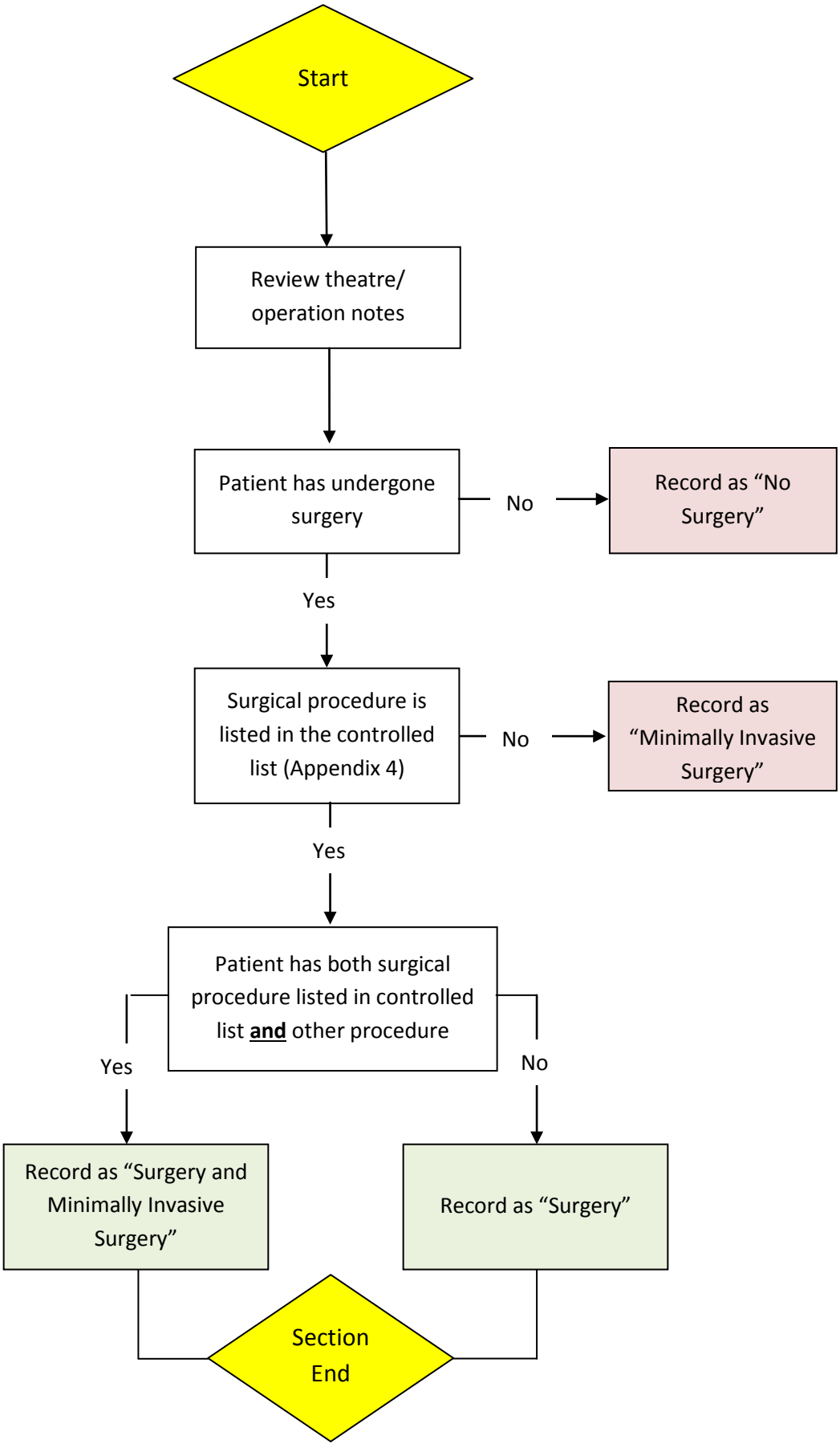
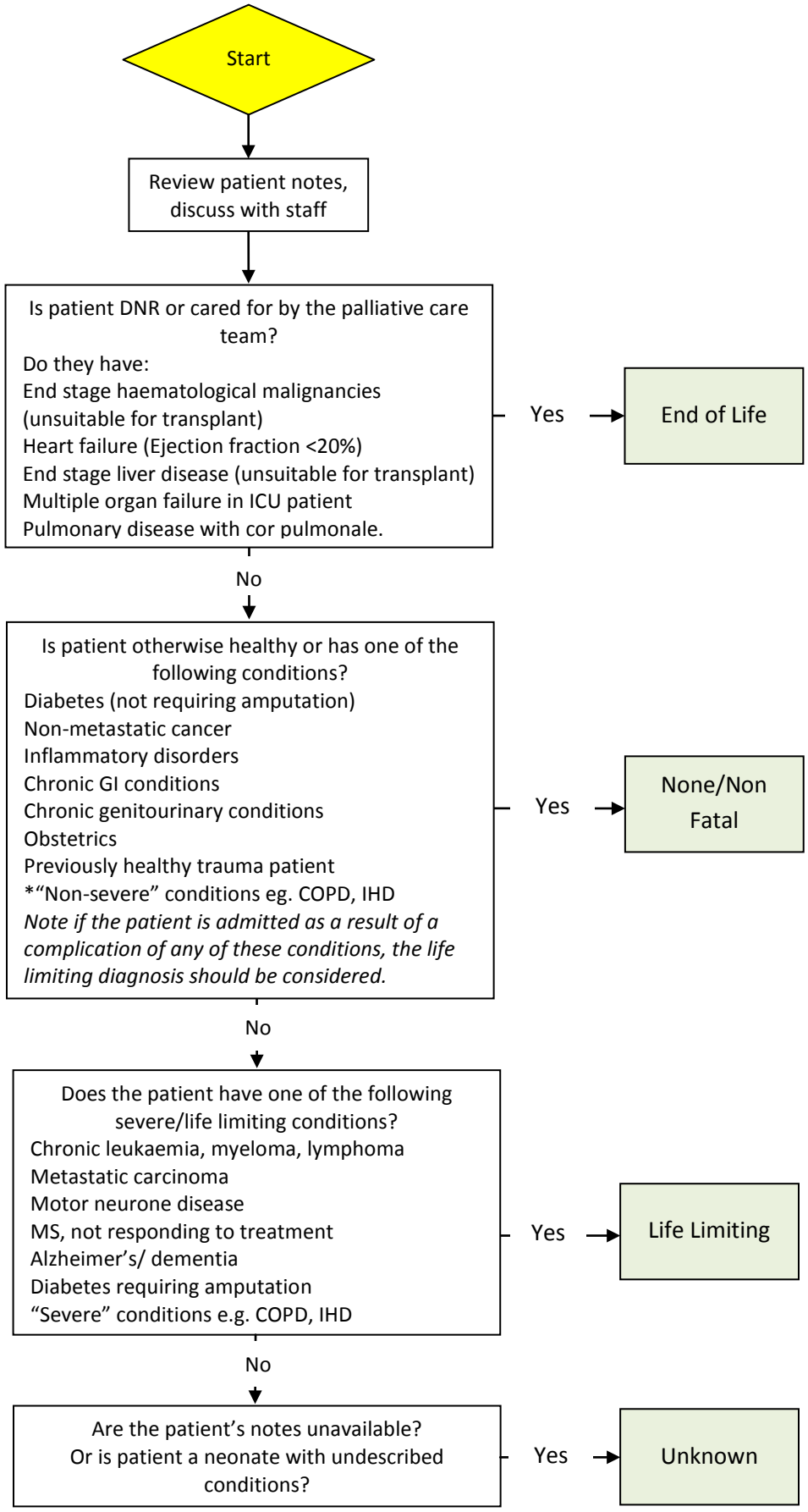
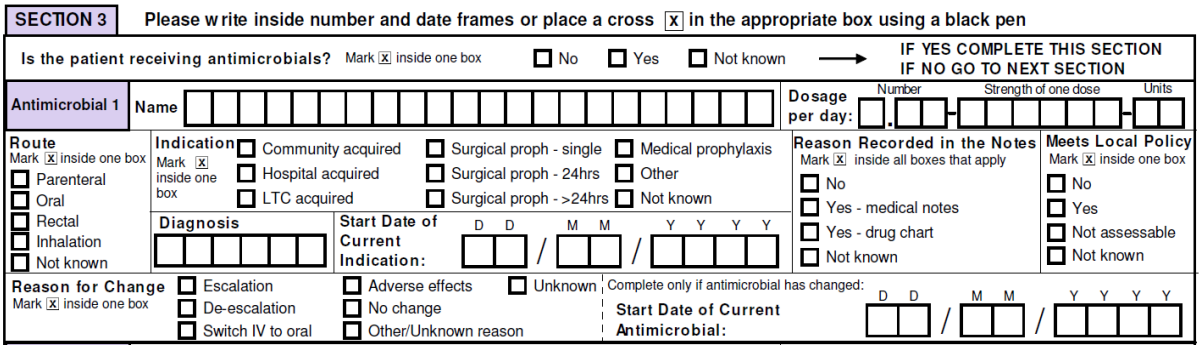


Figure 4.2.2 Prognosis Algorithm



4.3 Section 3 – Antimicrobial Data

Section 3 should be completed for <u>all eligible patients</u> and the antimicrobial details completed for all patients receiving systemic antimicrobials at the time of survey as defined using the definition given in the *Notes for Completion*.



Notes for Completion:

Data Item	Description
Is the patient receiving antimicrobial(s)?	<u>NOTES</u> Patients are defined as receiving antimicrobials if; • They are prescribed antimicrobials at the time of survey for a. Treatment b. Medical Prophylaxis OR • They received at least one dose of surgical prophylaxis in the 24 hours prior to 8am on the morning of the survey. Antimicrobial data should be recorded for all prescriptions with the exception of: • topical antimicrobials • topic and systemic antivirals • antimicrobials prescribed for the treatment of *Mycobacterium tuberculosis* but antituberculosis drugs are included when used for treatment of Mycobacteria other than tuberculosis (MOTT). Patients receiving more than four antimicrobials will require a second form completed. Section 1 of the second form should be copied over as this information is required to link the two forms. The two forms should be paper clipped together rather than stapled to ensure the forms can be scanned.
Name	Antimicrobial name (current antimicrobial). <u>NOTES</u> The name of the antimicrobial should be selected from the list of antimicrobials provided in Appendix 5. The ***bold italic*** codes should be transcribed onto the form. Topical antimicrobials and all antiviral drugs are excluded from the survey.

Data Item	Description
	Drugs prescribed for the treatment of TB should be excluded but treatment for mycobacteria other than tuberculosis (MOTT)/ atypical mycobacteria should be included. Antimicrobials that are not given on a daily basis, for example as an antimicrobial that is administered every second day, should be recorded as receiving antimicrobials regardless of whether they have had/will have a dose on the day of survey. Antimicrobials that have been prescribed at the time of survey although patient has not received first dose should be included. Antifungal are included as long they are parenteral, oral, rectal or inhalation. Unlicensed antimicrobials should be recorded. Please start the code of the antimicrobial "UL" followed by the generic name of the drug.
Dosage per day	Number of doses + strength of one dose + units (in milligrams, grams, international units or million international units) (of current antimicrobial). <u>NOTES</u> Grams should be recorded as ***g*** Milligrams should be recorded as ***mg*** International units should be recorded as ***IU*** One million international units should be recorded as ***MU*** When one dose of an antimicrobial is given every other day, report the number of doses as 0.5. The number of doses per day of an antimicrobial given depending on results from testing e.g. gentamicin level testing should be recorded as the average number of doses per day since the start of the antibiotic rounded to 2 decimal points. Examples are provided below: • Patient received 3 doses over 5 days, the dose should be recorded as 3/5= ***0.6*** • Patient received 5 doses over 8 days, the dose should be recorded as 5/8= ***0.63*** (note that 0.625 has been rounded to 0.63. All numbers ending in 0.XX5 should be rounded up) The strength of one dose of an antimicrobial that is given depending on results from testing e.g. gentamicin level testing should be recorded as the average strength of one dose since the start of the antibiotic e.g. patient received 3 doses over 5 days. The doses were 500mg, 1000mg, 500mg. The average strength of one dose = (500+1000+500)/3= 667 The dosage per day for an antimicrobial prescribed as surgical prophylaxis should be recorded using the dose(s) given in the 24 hours prior to 8am on the morning of the survey.
Diagnosis	Diagnosis/site of infection by anatomical site (current indication).

Data Item	Description
	NOTES The diagnosis code should be selected from the list of diagnoses provided in Appendix 6. The ***bold italic*** codes should be transcribed onto the form. The codes for prophylactic antimicrobials in this list begin with **"*PR*".** The ***SIRS*** code should be used when there is evidence of infection/inflammation (e.g. pyrexia, increased WBC count) but no clear anatomical site. An example of this would be an elderly patient presenting with pyrexia, confusion and the clinician has recorded, e.g. "?UTI, ?LRTI", in the notes and the patient was started on antimicrobial treatment. The SSI codes (***SSISST***, ***SSIBJ***) should be used for surgical site infections rather than the ***SST*** and ***BJ*** codes. The ***PRMED*** code should be used for general medical prophylaxis that is not directed at a specific site e.g. medical prophylaxis in haematology patients or long term prophylaxis in splenectomy patients. The ***UND*** code should be used if there is no clear evidence of infection or inflammation. The ***UNK*** code should be used if the case notes are not available for review. This list of diagnoses/sites is not the same as the list of HAI case definitions. This diagnosis field is used for all prescriptions including those for prescribed for community acquired infections, therefore the categories differ. If the diagnosis is not written in the notes or is not clear, an available member of staff should be approached for clarification where possible. If the diagnosis is obtained in this way, the "Reason recorded in the notes" field should be recorded as "No" and the prescription should not be assessed against local policy. The UND code should be used for antimicrobials being used as prokinetic agents and then the indication should be recorded as Other.
Route	Method of administration (current antimicrobial). NOTES Parenteral route should be used for IV and injected antibiotics.
Indication	Indication for prescription (current indication). NOTES This section of the form is about prescribing practices and what the doctor thinks they are treating (and the drugs they prescribe based on the information that they have). The 48 hour rule should be applied where there is no other mention of the indication in the notes. If the doctor has stated that the patient has been transferred into the hospital with a HAI, then you

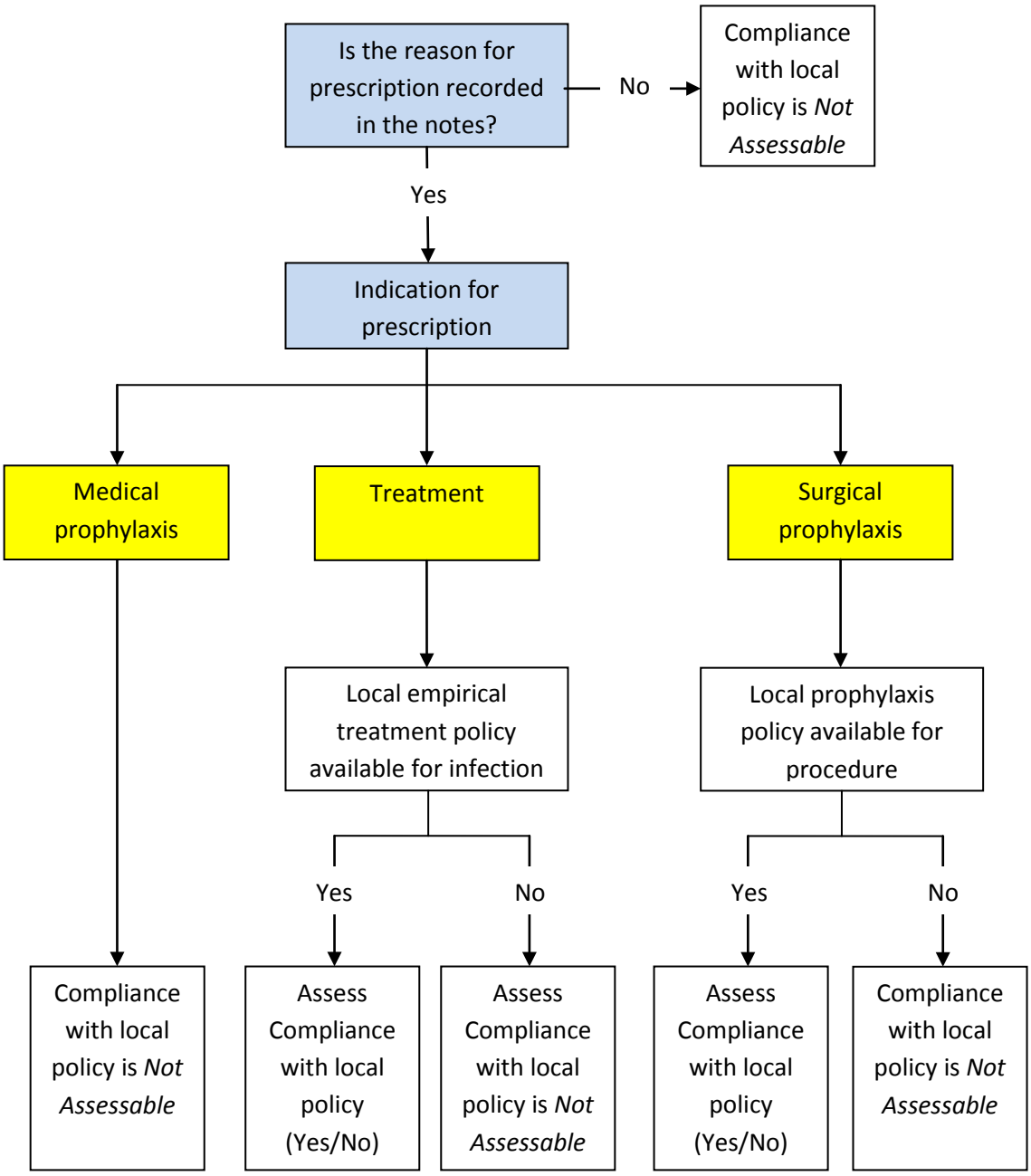
Data Item	Description
	should use the "hospital acquired" option. Likewise, if the patient is readmitted with a SSI then this should be recorded as hospital acquired too. If the patient is transferred into the hospital from another hospital and has an infection but there are no notes to say whether this was HAI or present on admission to the previous hospital, you should mark as "unknown". In summary: • infections occurring > 48 hours - hospital acquired • present on transfer from another hospital and notes state HAI- hospital acquired • present on transfer from another hospital and notes do not state whether the infection was HAI or CAI- unknown • SSI present on admission- hospital acquired Hospital acquired infection: • Symptoms start 48 hours (e.g. Day 3) or more after admission to hospital (this will include HAI that meet one of the definitions for active infection and some that do not), OR • Symptoms were present on admission or developed on day 1 or 2 in a patient who was admitted from another hospital. Long/intermediate term care acquired infection: • Symptoms were present on admission or developed on day 1 or 2 in a patient who was admitted from a long/intermediate term care facility. Community acquired infection: • Symptoms were present on admission or developed on day 1 or 2 in a patient who was admitted from somewhere other than another hospital or long/intermediate term care facility. Surgical prophylaxis: • Check if patient has received surgical prophylaxis (SP) in the 24 hour period prior to 8am on the day of survey. • If yes, check the drug charts and operation notes to see whether SP was prescribed as once only, for one day (24 hours or less) or more than one day (> 24 hours). This requires reviewing SP given before this 24 hour period and SP given or planned to be given after this 24 hour period. Other: • Other indication e.g. erythromycin used as a pro-kinetic agent. Not known: • Notes not available for review to determine indication (please record **Not Known** in the Reason Recorded in the Notes field), OR

Data Item	Description
	• Indication not recorded in the notes (please record **No** in the Reason Recorded in the Notes field)
Start date of current indication	Date on which antimicrobials for <u>current indication</u> started (this may differ from the start date of the current antimicrobial). <u>NOTES</u> Start date of the current antimicrobial indication is: • Date current antimicrobial started if no antimicrobial preceded the current one, OR • Date antimicrobial prescribed before the current antimicrobial for the same indication if the current antimicrobial replaced a previous one. If there has been a change in antimicrobial, the start date of the first antimicrobial prescribed before the current antimicrobial for the same indication if the current antimicrobial replaced a previous one. If the antimicrobial was changed more than once for the current indication, report the start date of the first (not the previous) antimicrobial. If the patient received the antimicrobial on admission, record the date of admission.
Reason Recorded in the Notes	Was the reason/rationale for prescription documented in the patient case notes? <u>NOTES</u> The notes should be reviewed to check whether the prescriber recorded the reason for prescription <u>at the time of prescribing</u>. This information will be found in the drug chart and/or medical or theatre notes (surgical prophylaxis). If the reason is recorded in both the drug chart and medical/theatre notes, both should be recorded on the form. Nursing or pharmacist notes should not be reviewed to determine the reason for prescription. If the antimicrobial was changed during treatment for the current indication, the reason for any of the antimicrobials prescribed can be used to determine whether the reason was recorded in the notes. The notes should be appropriateness ed for a reason at the time of prescribing for each of the antimicrobials e.g. initial prescription followed by points in which subsequent changes were made. If the Diagnosis data were obtained only from discussion with clinical staff, the "**no**" option should be selected. If the patient's case notes are not available to review, the "**not known**" option should be used.

Data Item	Description
	Please mark all that apply – more than one may apply No - should be completed if the reason rationale is either not recorded in either medical notes or drug charts. (if it is recorded anywhere other than medical or drug charts e.g. recorded only in the nursing notes this would also be recorded as a no. Yes – Medical notes refers a reason recorded in medical or surgical or anaesthetic notes Yes – Drug chart should be crossed if the reason is recorded in the drug charts Not known - should only be recorded if no patient notes are available.
Meets Local Policy	Did the prescription of the current antimicrobial meet local policy for **empirical prescribing** or **surgical prophylaxis?** This section only requires the type of antimicrobial to be assessed (route, dose and duration are not required to be assessed). If the guideline recommends a combination of two or more antimicrobials, then compliance should be that they are all prescribed. The reason for having a combination is that one agent does not cover likely causative organisms so omitting one of them means treatment may be ineffective. An experienced pharmacist would be able to confirm the regiment and judge whether compliant. We would suggest you refer to a pharmacist for advice in these cases. An algorithm to assist with identifying prescriptions that should be assessed against local prescribing policy is provided in Figure 4.3.1. The following prescriptions should be recorded as "**not assessable**" against local prescribing policy: • Medical prophylaxis • Prescriptions where the reason is not recorded in the notes • "Other" indication for prescription e.g. pro-kinetic agent • Prescriptions where the indication was not known or not recorded • No empirical policy available for specific diagnosis • No surgical prophylaxis policy available for specific surgical procedure • Non-empirical prescribing on advice of Microbiologist • Other reason for not following local policy e.g. drug allergy If the notes are not available for review, "**not known**" should be recorded.
Reason for change	Reason for any change of antimicrobial (or route of administration) for the current indication. NOTES

Data Item	Description
	Complete for all recorded antimicrobials. Select one option only from the following list: • No change: antimicrobial was not changed • Escalation: antimicrobial was escalated on microbiological or clinical grounds i.e. the isolated microorganism was not susceptible to the previous antimicrobial and/or lack of clinical effect of previous antimicrobial; includes switch from oral to parenteral for the same antimicrobial • De-escalation: antimicrobial was de-escalated on microbiological and/or clinical grounds, i.e. the isolated microorganism was susceptible to more narrow-spectrum or first-line antimicrobials than the previous antimicrobial and/or the clinical situation of the patient allows changing to more narrow-spectrum or first-line antimicrobial • Switch IV to oral: route of administration of the same antimicrobial was changed from parenteral to oral • Adverse effects: antimicrobial was changed because of observed or expected side or adverse effects of the antimicrobial • Other/unknown reason: the antimicrobial for the current indication was changed for another reason or the antimicrobial was changed but the reason why could not be determined from the medical notes or drug chart • Unknown: medical notes or drug chart were not available to determine whether the antimicrobial was changed or not.
Start date of current antimicrobial	Date on which antimicrobial (or route of administration) for current indication was started. <u>NOTES</u> Complete only if antimicrobial (or route of administration) for current indication has been changed. If the antimicrobial or route of administration has not changed since the beginning of the current indication, this field is not required as it will be captured by the start date of the current indication. If the patient received the antimicrobial on admission, record the date of admission.

Figure 4.3.1 Algorithm for collection of compliance with local policy data



4.4 Section 4 – HAI Data

The first question in section 4 should be completed for <u>all eligible patients</u>, with the remainder of the section completed for <u>all patients with one or more active HAI</u> at the time of survey according to the definition in *Notes for Competition*.

Section 'HAI ONE' should be completed for a single HAI (i.e. CVC/PVC – RI, gastroenteritis, LC-BSI, pneumonia, soft tissue, SSI, UTI, other). This single HAI outcome may be caused by one or more microorganisms and this information (if available) should be recorded in the microbiology section (i.e. MO code 1 for microorganism 1, and MO code 2 for a second microorganism).

Section 'HAI TWO' should be completed if a second HAI is present, and section 'HAI THREE' if a third HAI outcome present.

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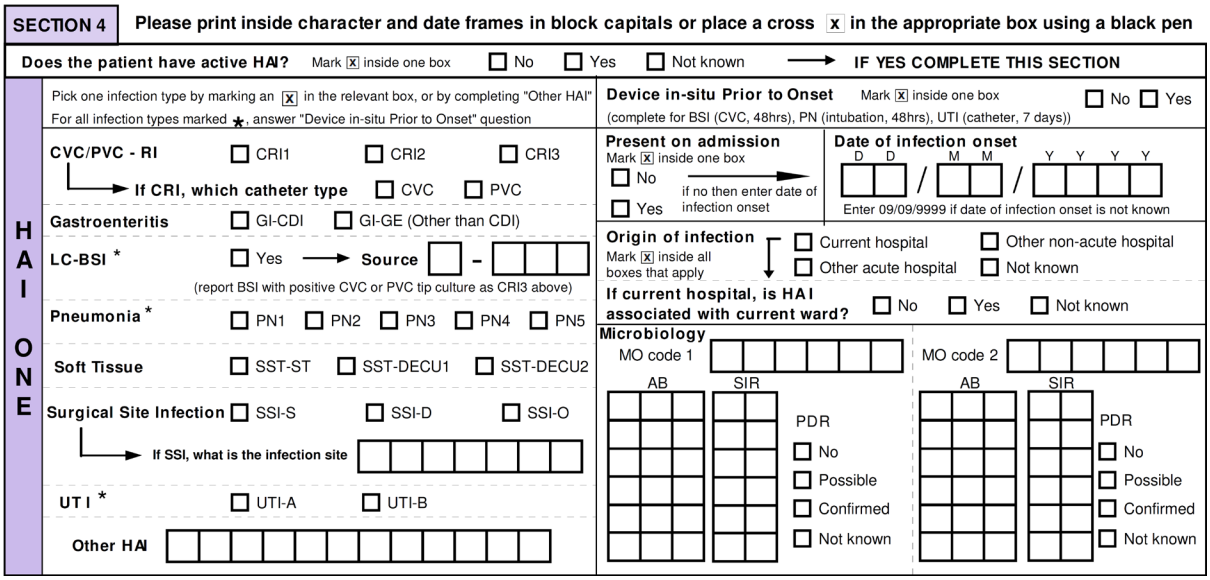


Notes for Completion:

Data Item	Description
Does the patient have an active HAI?	<u>NOTES</u> An HAI is considered active if; • the HAI meets one of the case definitions (found in Appendix 10) on the day of survey, OR • the patient is receiving antimicrobials for a HAI on the day of survey and the HAI has previously met one of the case definitions between day 1 of antimicrobial treatment and day of survey. The onset of infection must have occurred within one of the following time frames: • Day 3 of current admission onwards (day of admission = Day 1) • Present on admission (or presenting on day 1 or 2) in patients discharged from hospital (acute or non-acute) in previous 2 days

Data Item	Description
	• SSI present on admission (or presenting on day 1 or 2) • *Clostridium difficile* infection present on admission (or presenting on day 1 or 2) in patients discharged from hospital (acute or non-acute) in previous 28 days • Pneumonia, UTI, bloodstream infection following insertion of device (including day 1 or 2 of admission) Infections originating in long-term care facilities, care homes or nursing homes should not be included as HAI. An algorithm to assist with the identification of active infection is provided in Figure 4.4.1. This data item requires comprehensive review of case notes and correct application of case definitions. Patients with more than three active HAI will require a second form to be completed. Section 1 of the second form should be copied over as this information is required to link the two forms. The two forms should be paper clipped together rather than stapled to ensure the forms can be scanned. The total number of HAI recorded should be written at the top of the second form.
HAI Type/Other HAI	The HAI type is recorded using either the checkboxes provided for the most common HAI types or by recording in the "Other HAI" text box the relevant code from the list of HAI types provided in Appendix 7. The ***bold italic*** codes should be transcribed onto the form. NOTES Only HAI that meet the definition for active infection should be recorded. i.e. HAI meets the case definition on the day of survey OR HAI has previously met the case definition and the patient remains on AM treatment for HAI. For catheter-related infections (***CRI1, CRI2 and CRI3***), the type of vascular catheter (***CVC*** or ***PVC***) should be recorded. The definition for a central catheter is provided in Section 4.2. Arterial catheters should be recorded as "***PVC***". Laboratory-confirmed bloodstream infections should be recorded as ***CRI3*** if the source of infection is confirmed as a vascular catheter (by positive culture with the same microorganism from the tip or from pus at the insertion site) An aid for diagnosis of catheter-related infections is provided in Figure 4.4.2. An aid for the diagnosis of pneumonia is provided in Figure 4.4.3. The neonatal HAI case definitions should be used for babies in the neonatal ward only. The general HAI case definitions (Appendix 10) should be used for all other patients including babies and children in paediatric and obstetrics wards.

Data Item	Description
If BSI: Source	Source of laboratory confirmed bloodstream infection. NOTES The source of bloodstream infection should be selected from the list of sources provided in Appendix 8. The ***bold italic*** codes should be transcribed onto the form. Laboratory-confirmed bloodstream infections should be recorded as ***CRI3*** if the source of infection is confirmed as a vascular catheter (by positive culture with the same microorganism from the tip or from pus at the insertion site). If the LC-BSI is secondary to another site, the primary site of infection should be recorded separately (if the case definition for that HAI type is met). An aid for diagnosis of catheter-related infections is provided in Figure 4.4.2.
If SSI, what is the infection site	The site of the surgical site infection. NOTES The category of surgery following which an SSI developed should be selected from the list of surgical procedure categories provided in Appendix 4. The ***bold italic*** codes should be transcribed onto the form. SSI occurring after CABG should be recorded as: • SSI in chest wound – ***CABGCH*** • SSI in donor wound – ***CABGDO*** • SSI in both chest and donor wound site – both infections should be recorded as separate SSI The infection site for SSI occurring after plastic surgery should be recorded as ***PLAST***. Plastic surgery is not included in the list of procedures in Appendix 4. The infection site for SSI occurring after arthroplasties other than hip and knee arthroplasties should be recorded as ***OTHERAR***. Other arthroplasty surgeries are not included in the list of procedures in Appendix 4. If an infection site is not listed in Appendix 4, please contact the helpdesk.
Device In-Situ Prior to Onset	This field should only be completed for lab confirmed bloodstream infection, pneumonia or urinary tract infection NOTES • LC-BSI patient had a CVC in situ (even intermittently)within 48 hours prior to onset • Pneumonia- patient was intubated (even intermittently) within 48 hours prior to onset • UTI- patient had a urinary catheter in situ (even intermittently) within 7 days prior to onset
Present on	Signs and symptoms of HAI were present on admission to hospital.

Data Item	Description
Admission	NOTES The following HAI may be present on admission to hospital: • All HAI types in patients that were discharged from hospital, acute or non-acute, in the preceding 48 hours • Surgical site infection • *Clostridium difficile* infection in patients that were discharged from hospital, acute or non-acute, in preceding 28 days
Date of Infection Onset	Date of first signs or symptoms of infection. NOTES This should only be recorded if the HAI was not present on admission to hospital. If date of onset is not known, record the date treatment started or the date first diagnostic sample was taken.
Origin of Infection	Hospital that the infection is associated with. NOTES HAI with onset on day 3 or later are associated with the current hospital (day of admission = day 1). HAI present on admission or presenting on day 1 or 2 may be associated with the current hospital, another acute hospital or another non-acute hospital. *Current hospital* • Patient was admitted with HAI (or HAI presented on day 1 or 2) and the patient was discharged from the current hospital in preceding 48 hours • Patient was admitted with CDI (or CDI presented on day 1 or 2) and was discharged from the current hospital in the preceding 4 weeks • Patient was admitted with SSI (or SSI presented on day 1 or 2) and patient had surgery in current hospital within the previous 30 days (or 90 days for deep and organ/space SSI after implant surgery). *Other acute hospital (including independent)* • Patient was admitted with HAI (or HAI presented on day 1 or 2) and was discharged from another acute hospital in preceding 48 hours • Patient was admitted with CDI (or CDI presented on day 1 or 2) and was discharged from another acute hospital in the preceding 4 weeks • Patient was admitted with SSI (or SSI presented on day 1 or 2) and had surgery in another acute hospital within the previous 30 days (or 90 days for deep and organ/space SSI after implant surgery). *Other non-acute hospital (excluding long term care facilities, nursing homes, care homes)* • Patient was admitted with HAI (or HAI presented on day 1 or 2) and was discharged from another non-acute hospital in preceding 48 hours • Patient was admitted with CDI (or CDI presented on day 1 or 2) and was discharged from another non-acute hospital in the preceding 4 weeks • Patient was admitted with SSI (or SSI presented on day 1 or 2) and had

Data Item	Description
	surgery in another non-acute hospital within the previous 30 days (or 90 days for deep and organ/space SSI after implant surgery). It may not be possible to determine a single origin of infection. For example, in a patient that was admitted with CDI but had been in the current hospital and another non-acute hospital in the preceding 28 days. In this instance, both "current hospital" and "another non-acute hospital" boxes should be checked.

HAI associated with the current ward	NOTES
	
	A HAI is associated with the current ward if:
	• HAI started on day 3 or later after admission to the current ward (where the date of admission to the ward is day 1)
	• HAI started on day 1 or 2 after a placement of an invasive device on the current ward
	• Patient was readmitted to the ward with a HAI or HAI developed on day 1 or day 2 following to a previous stay in the same ward:
	  ○ Within 28 days after discharge for *C. difficile* infections
	  ○ Within 30 days after operation for surgical site infections (no implant in place)
	  ○ Within 90 days after operation for surgical site infections (implant in place)
	• < 48 hours (two calendar days) after discharge for other HAI types

Microorganism code 1 (MO code 1)	Microbiology results available on the survey date should be recorded. NOTES The microorganism should be selected from the list of microorganisms provided in Appendix 9. The ***bold italic*** codes should be transcribed onto the form. Pending laboratory results should not be followed up following completion of the ward survey. If there are no positive microbiology results for a HAI the following codes should be used: _NOEXA - Sample not taken or no evidence of sample being taken _NA - Results not available (sample sent, results pending or missing) _NONID - Microorganism not identified (organism on gram stain, no growth on culture yet) _STERI - sterile examination (no organism on gram stain, culture negative) Microorganisms that are highlighted in grey In Appendix 9 require additional resistance data (see below). If 'HAI ONE' is associated with more than two microorganisms, then a second form will need to be completed. 'Section 1' and 'HAI type' of the second form should be copied over as this information is required to link the two forms. The two forms should be paper clipped together rather than stapled to ensure the forms can be scanned.

Data Item	Description

Antibiotic 1 (AB), microorganism 1	If microorganism 1 was tested for sensitivity to an antimicrobial, this section should record the code of the antimicrobial.
	
	NOTES
	This is only to be filled in for the following microorganism and antimicrobial combinations:
	
	• *Staphylococcus aureus*
	  ○ Oxacillin (***OXA***) (marker of meticillin resistance)
	  ○ Glycopeptides
	  ▪ Vancomycin (***VAN***)
	  ▪ Teicoplanin (***TEC***)
	• *Enterococcus* spp.
	  ○ Glycopeptides
	  ▪ Vancomycin (***VAN***)
	  ▪ Teicoplanin (***TEC***)
	• Enterobacteriaceae (*Escherichia coli, Klebsiella* spp., *Enterobacter* spp., *Proteus* spp., *Citrobacter* spp., *Serratia* spp. and *Morganella* spp.)
	  ○ Third-generation cephalosporins
	  ▪ Cefotaxime (***CTX***)
	  ▪ Ceftriaxone (***CRO***)
	  ▪ Ceftazidime (***CAZ***)
	  ○ Carbapenems
	  ▪ Imipenem (***IPM***)
	  ▪ Meropenem (***MEM***)
	  ▪ Doripenem (***DOR***)
	• *Pseudomonas aeruginosa*
	  ○ Carbapenems
	  ▪ Imipenem (***IPM***)
	  ▪ Meropenem (***MEM***)
	  ▪ Doripenem (***DOR***)
	• *Acinetobacter baumannii*
	  ○ Carbapenems
	  ▪ Imipenem (***IPM***)
	  ▪ Meropenem (***MEM***)
	  ▪ Doripenem (***DOR***)

Antibiotic resistance phenotype (SIR), microorganism 1	SIR should be used to record the results of antimicrobial sensitivity testing, for microorganism 1. For each microorganism and antimicrobial combination listed above, record one of the following options in the first column: • S- susceptible • I- intermediate • R- resistant • U- unknown

Data Item	Description
Pan drug resistance (PDR), microorganism 1	Record as appropriate if microorganism 1 is pandrug-resistant as per the following definition: • No - No PDR (susceptible to at least one antimicrobial) • Possible - Possible PDR (I or R to all antimicrobials tested in hospital) • Confirmed - Confirmed PDR (I or R to all antimicrobials confirmed by reference laboratory) • Not known – Unknown
MO code 2	If a second microorganism is reported as causing HAI ONE (i.e. same HAI, e.g. SSI or UTI etc), then record second microorganism code from the list of microorganisms provided in Appendix 9. Follow notes for 'HAI ONE: Microorganism code 1 (MO code 1)'.
Antibiotic (AB), microorganism 2	AB should be used to record the code of the antimicrobials that microorganism 2 was tested for. Follow notes for, 'Antibiotic (AB), microorganism 1'.
Antibiotic resistance phenotype (SIR) , microorganism 2	SIR should be used to record the results of antimicrobial sensitivity testing for microorganism 2. Follow notes for 'Antibiotic resistance phenotype (SIR), microorganism 1'.
Pan drug resistance (PDR), microorganism 2	Record pan drug resistance for microorganism 2. Follow notes for 'Pan drug resistance (PDR), microorganism 1'.
HAI TWO	Section 'HAI TWO' should be completed if a second HAI is present, i.e. CVC/PVC – RI, gastroenteritis, LC-BSI, pneumonia, soft tissue, SSI, UTI, other. This single HAI may be caused by one or more microorganisms and this information (if available) should be recorded in the microbiology section (i.e. MO code 1 for microorganism 1, and MO code 2 for a second microorganism).
HAI THREE	Section 'HAI THREE should be completed if a third HAI is present, i.e. CVC/PVC – RI, gastroenteritis, LC-BSI, pneumonia, soft tissue, SSI, UTI, other. This single HAI may be caused by one or more microorganisms and this information (if available) should be recorded in the microbiology section (i.e. MO code 1 for microorganism 1, and MO code 2 for a second microorganism).

Figure 4.4.1 Aid for Active Infection

	ONSET OF HAI		CASE DEFINITION
	<u>All HAI types</u> Day 3 onwards		
	<u>OR</u>		
	<u>All HAI types</u> Admission day 1 or day2 and patient discharged from hospital, acute or non acute in preceding 48hours		Meets the case definition on the day of survey
	<u>OR</u>		
	<u>Surgical site infection</u> Admission day 1 or day 2	AND	
	<u>OR</u>		<u>OR</u>
	<u>Clostridium difficile infection</u> Admission day 1 or day 2 and patient discharged from hospital acute or non acute in preceding 28 days		Patient is receiving antimicrobials AND HAI has previously met the case definition between day 1 of antimicrobial treatment and survey day
	<u>OR</u>		
	<u>Device associated infection</u> Relevant device in situ prior to onset		

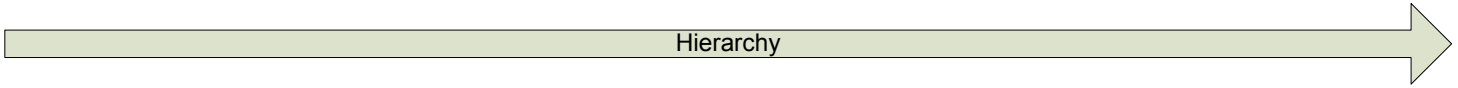
Figure 4.4.2 Aid for Diagnosis of Catheter Related Infection

Blood Culture Criteria	Positive Blood Culture*		Negative blood culture or not done		
Tip/Insertion site culture criteria	Positive tip culture* or from pus at insertion site	Negative tip (or no tip) culture	Positive tip culture*		Negative tip (or no tip) culture
Other criteria		Symptoms improve within 48 hours of removal	Pus or inflammation at tunnel site	Clinical signs improve within 48 hours of removal	Purulent drainage at involved vascular site
HAI type	CRI3 - CVC CRI3 - PVC	LC-BSI Source; C-CVC or C-PVC	CRI1 - CVC CRI1 - PVC	CRI2 - CVC CRI2 - PVC	CVS - VASC
Hierarchy					

*See Protocol for details of relevant microbiological criteria

Figure 4.4.3 Aid for Diagnosis of Pneumonia Infection

Pneumonia Algorithm					
Patients must meet at least one criteria on each row to diagnose Pneumonia, if the criteria are not met on every row then diagnosis should not be Pneumonia					
Radiology	Chest X-Ray or CT scan with suggestive image of pneumonia for patients with no cardiac or pulmonary disease OR Two chest X-Rays or CT scans with suggestive image of pneumonia for patients with cardiac or pulmonary disease OR One definitive chest X-Ray or CT scan with suggestive image of pneumonia where previous chest X-rays or CT scans have not suggested pneumonia				
AND					
Signs and symptoms 1	≥1 of fever OR white cell count of <4 or ≥12x10^6				
AND					
Microbiology	Quantitative culture from lower respiratory tract e.g.: Brocho-alveolar lavage Protected Brush Distal Protected Aspirate	Quantitative culture from possibly contaminated lower respiratory tract e.g. Endotracheal aspirate	Alternative Microbiology (other related sites, histological examination, positive examination for virus or germs	Sputum culture or non quantitative Lower respiratory specimen	No positive microbiology
AND					
Signs and Symptoms 2	At least <u>one</u> of: New onset of purulent sputum or change in character Cough or dyspnea or tachypnea Suggestive ausculation Worsening gas exchange			At least <u>two</u> of: New onset of purulent sputum or change in character Cough or dyspnea or tachypnea Suggestive ausculation, ronchi, wheezing Worsening gas exchange	
Pneumonia diagnosis	PN1	PN2	PN3	PN4	PN5



Appendix 1: Ward Data Collection Form

Please use the official forms for data collection. If you do not have enough forms, please request from HPS.

Health Protection Scotland

National HAI and Antimicrobial Prescribing Prevalence Survey 2016

Ward Survey Form

ecdc

INSTRUCTIONS FOR COMPLETION

Complete sections 1. Survey and Ward Information, 2. Beds and Rooms and 3. Patient Numbers **BEFORE THE SURVEY**

Complete section 5. Patients Surveyed **AFTER THE SURVEY**

Please ensure that:

1) The number of patient forms completed is the same as 'The number of eligible patients surveyed' reported on this form.
2) The ward name matches those provided on the controlled list of wards. Any wards that are not on this list will be flagged during the validation process.

1. SURVEY AND WARD INFORMATION — Please print inside the boxes, or place a cross [x] in the appropriate box using a black pen

Survey Date (D D / M M / Y Y Y Y)	24 / 09 / 2016
Hospital Code	T404
Ward Name	S6
Ward Specialty	SUR (If < 80% of patients belong to a single specialty in the ward, record the Ward Specialty as "MIX")
Ward Type	[X] General [ ] HDU [ ] ICU [ ] HDU/ICU Mixed [ ] General/HDU

2. BEDS AND ROOMS — Please write a number between 0 and 99 inside the boxes using a black pen. Enter 99 if Not Recorded

Total number of beds on the ward at the start of the survey (excluding day beds)	10	If HDU/ICU mixed ward, number of ICU beds	
Total number of single rooms in ward	2	Number of single rooms with individual toilet and shower	2
Number of multi-bedded rooms or bays	2	Number of beds with Alcohol Hand Rub (AHR) dispensers at point of care	10

3. PATIENT NUMBERS — Please write a number between 0 and 99 inside the boxes using a black pen. Enter 99 if not recorded

Number of patients on the ward at the start of the survey (excluding day patients)	8	Number of eligible patients on the ward (present on the ward at 8am on the morning of the survey)	8
Number of patients on the ward at 00:01 on the day of the survey	10	Number of beds on the ward at 00:01 on the day of the survey	10

4. INFECTION PREVENTION AND CONTROL INDICATORS — Please write a number between 0 and 99 inside the boxes, or place a cross [x] in the appropriate box using a black pen. Enter 99 if not recorded

Number of healthcare workers with AHR dispensers in pocket	7	Number of healthcare workers asked about AHR dispensers in pocket	8
Is there a formal procedure to review the appropriateness of an antimicrobial within 72 hours from initial order in the ward?	[X] Yes [ ] No [ ] Not known	Number of observed hand hygiene opportunities in the past year	8456

5. PATIENTS SURVEYED — Please write a number between 0 and 99 inside the boxes using a black pen. Enter 99 if not recorded

Number of eligible patients surveyed	8	This should correspond to the number of completed Patient Data Collection Forms for this ward at the end of the survey
Total person time for data collection on the ward (this should include time contributed by all data collectors but not ward staff) (H H : M M)	11 : 30	

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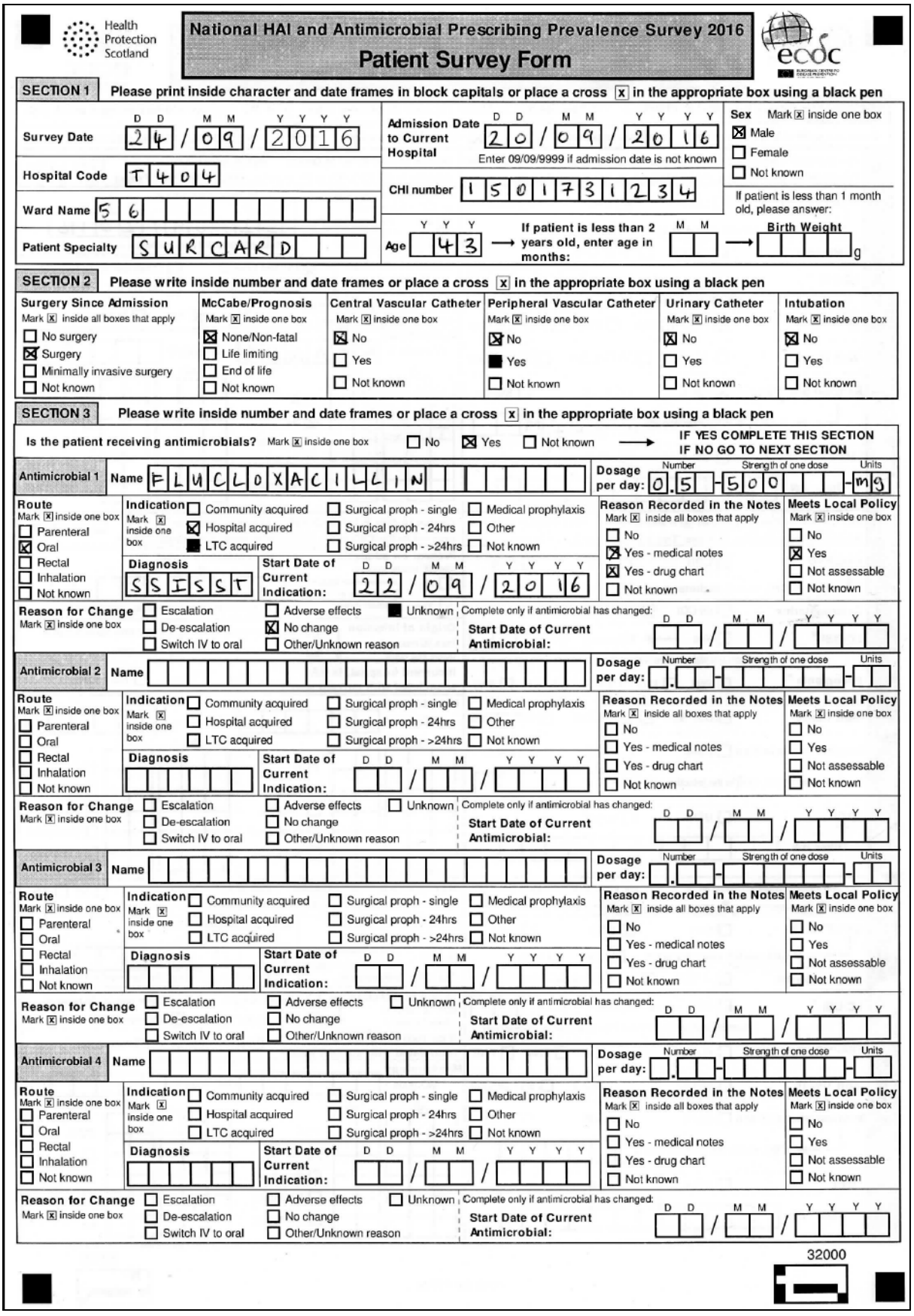
Appendix 2: Patient Data Collection Form

Please use the official forms for data collection. If you do not have enough forms, please request from HPS.



Health Protection Scotland

National HAI and Antimicrobial Prescribing Prevalence Survey 2016

Patient Survey Form

ecdc

SECTION 1 Please print inside character and date frames in block capitals or place a cross [x] in the appropriate box using a black pen

Survey Date: 24 / 09 / 2016

Admission Date to Current Hospital: 20 / 09 / 2016 (Enter 09/09/9999 if admission date is not known)

Sex (Mark [x] inside one box): [x] Male [ ] Female [ ] Not known

Hospital Code: T404

CHI number: 1501731234

Ward Name: 56

Patient Specialty: SURCARD

Age: 43

If patient is less than 2 years old, enter age in months:

If patient is less than 1 month old, please answer: Birth Weight: ____ g

SECTION 2 Please write inside number and date frames or place a cross [x] in the appropriate box using a black pen

Surgery Since Admission (Mark [x] inside all boxes that apply)	McCabe/Prognosis (Mark [x] inside one box)	Central Vascular Catheter (Mark [x] inside one box)	Peripheral Vascular Catheter (Mark [x] inside one box)	Urinary Catheter (Mark [x] inside one box)	Intubation (Mark [x] inside one box)
[ ] No surgery	[x] None/Non-fatal	[x] No	[x] No	[x] No	[x] No
[x] Surgery	[ ] Life limiting	[ ] Yes	[■] Yes	[ ] Yes	[ ] Yes
[ ] Minimally invasive surgery	[ ] End of life	[ ] Not known	[ ] Not known	[ ] Not known	[ ] Not known
[ ] Not known	[ ] Not known				

SECTION 3 Please write inside number and date frames or place a cross [x] in the appropriate box using a black pen

Is the patient receiving antimicrobials? (Mark [x] inside one box) [ ] No [x] Yes [ ] Not known → IF YES COMPLETE THIS SECTION IF NO GO TO NEXT SECTION

Antimicrobial 1

Name: FLUCLOXACILLIN

Dosage per day: Number 0.5 – Strength of one dose 500 – Units mg

Route (Mark [x] inside one box): [ ] Parenteral [x] Oral [ ] Rectal [ ] Inhalation [ ] Not known

Indication (Mark [x] inside one box): [ ] Community acquired [x] Hospital acquired [■] LTC acquired; [ ] Surgical proph - single [ ] Surgical proph - 24hrs [ ] Surgical proph - >24hrs; [ ] Medical prophylaxis [ ] Other [ ] Not known

Diagnosis: SSISST

Start Date of Current Indication: 22 / 09 / 2016

Reason Recorded in the Notes (Mark [x] inside all boxes that apply): [ ] No [x] Yes - medical notes [x] Yes - drug chart [ ] Not known

Meets Local Policy (Mark [x] inside one box): [ ] No [x] Yes [ ] Not assessable [ ] Not known

Reason for Change (Mark [x] inside one box): [ ] Escalation [ ] De-escalation [ ] Switch IV to oral; [ ] Adverse effects [x] No change [ ] Other/Unknown reason; [■] Unknown

Complete only if antimicrobial has changed: Start Date of Current Antimicrobial: D D / M M / Y Y Y Y

Antimicrobial 2

Name:

Dosage per day: Number . – Strength of one dose – Units

Route (Mark [x] inside one box): [ ] Parenteral [ ] Oral [ ] Rectal [ ] Inhalation [ ] Not known

Indication (Mark [x] inside one box): [ ] Community acquired [ ] Hospital acquired [ ] LTC acquired; [ ] Surgical proph - single [ ] Surgical proph - 24hrs [ ] Surgical proph - >24hrs; [ ] Medical prophylaxis [ ] Other [ ] Not known

Diagnosis:

Start Date of Current Indication: D D / M M / Y Y Y Y

Reason Recorded in the Notes (Mark [x] inside all boxes that apply): [ ] No [ ] Yes - medical notes [ ] Yes - drug chart [ ] Not known

Meets Local Policy (Mark [x] inside one box): [ ] No [ ] Yes [ ] Not assessable [ ] Not known

Reason for Change (Mark [x] inside one box): [ ] Escalation [ ] De-escalation [ ] Switch IV to oral; [ ] Adverse effects [ ] No change [ ] Other/Unknown reason; [ ] Unknown

Complete only if antimicrobial has changed: Start Date of Current Antimicrobial: D D / M M / Y Y Y Y

Antimicrobial 3

Name:

Dosage per day: Number . – Strength of one dose – Units

Route (Mark [x] inside one box): [ ] Parenteral [ ] Oral [ ] Rectal [ ] Inhalation [ ] Not known

Indication (Mark [x] inside one box): [ ] Community acquired [ ] Hospital acquired [ ] LTC acquired; [ ] Surgical proph - single [ ] Surgical proph - 24hrs [ ] Surgical proph - >24hrs; [ ] Medical prophylaxis [ ] Other [ ] Not known

Diagnosis:

Start Date of Current Indication: D D / M M / Y Y Y Y

Reason Recorded in the Notes (Mark [x] inside all boxes that apply): [ ] No [ ] Yes - medical notes [ ] Yes - drug chart [ ] Not known

Meets Local Policy (Mark [x] inside one box): [ ] No [ ] Yes [ ] Not assessable [ ] Not known

Reason for Change (Mark [x] inside one box): [ ] Escalation [ ] De-escalation [ ] Switch IV to oral; [ ] Adverse effects [ ] No change [ ] Other/Unknown reason; [ ] Unknown

Complete only if antimicrobial has changed: Start Date of Current Antimicrobial: D D / M M / Y Y Y Y

Antimicrobial 4

Name:

Dosage per day: Number . – Strength of one dose – Units

Route (Mark [x] inside one box): [ ] Parenteral [ ] Oral [ ] Rectal [ ] Inhalation [ ] Not known

Indication (Mark [x] inside one box): [ ] Community acquired [ ] Hospital acquired [ ] LTC acquired; [ ] Surgical proph - single [ ] Surgical proph - 24hrs [ ] Surgical proph - >24hrs; [ ] Medical prophylaxis [ ] Other [ ] Not known

Diagnosis:

Start Date of Current Indication: D D / M M / Y Y Y Y

Reason Recorded in the Notes (Mark [x] inside all boxes that apply): [ ] No [ ] Yes - medical notes [ ] Yes - drug chart [ ] Not known

Meets Local Policy (Mark [x] inside one box): [ ] No [ ] Yes [ ] Not assessable [ ] Not known

Reason for Change (Mark [x] inside one box): [ ] Escalation [ ] De-escalation [ ] Switch IV to oral; [ ] Adverse effects [ ] No change [ ] Other/Unknown reason; [ ] Unknown

Complete only if antimicrobial has changed: Start Date of Current Antimicrobial: D D / M M / Y Y Y Y

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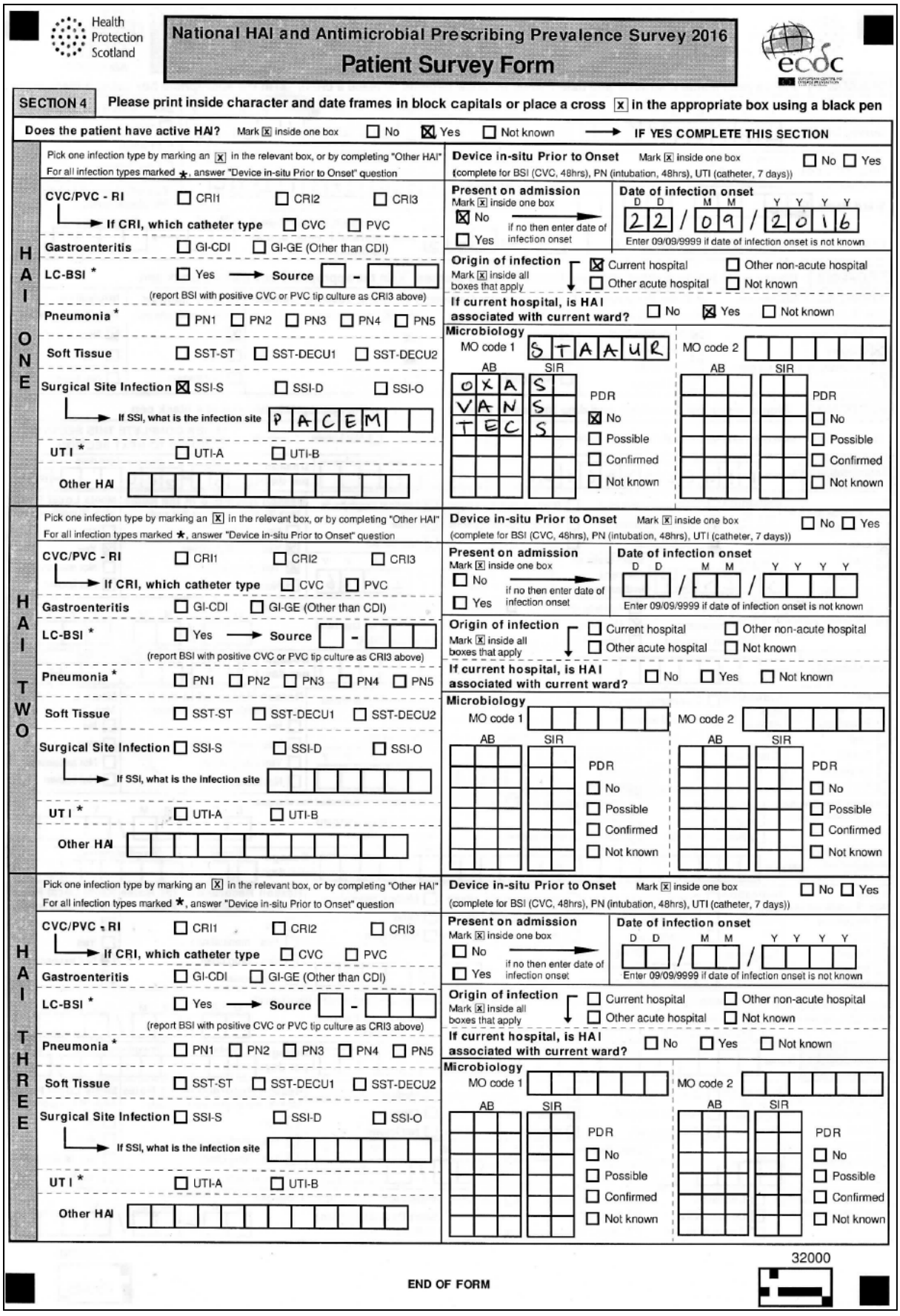

Health Protection Scotland

National HAI and Antimicrobial Prescribing Prevalence Survey 2016

Patient Survey Form

ecdc

SECTION 4 Please print inside character and date frames in block capitals or place a cross [X] in the appropriate box using a black pen

Does the patient have active HAI? Mark [X] inside one box ☐ No ☒ Yes ☐ Not known → **IF YES COMPLETE THIS SECTION**

HAI ONE

Pick one infection type by marking an [X] in the relevant box, or by completing "Other HAI"
For all infection types marked ★, answer "Device in-situ Prior to Onset" question

- **CVC/PVC - RI** ☐ CRI1 ☐ CRI2 ☐ CRI3
  - → **If CRI, which catheter type** ☐ CVC ☐ PVC
- **Gastroenteritis** ☐ GI-CDI ☐ GI-GE (Other than CDI)
- **LC-BSI** ★ ☐ Yes → **Source** [ ] – [ ]
  (report BSI with positive CVC or PVC tip culture as CRI3 above)
- **Pneumonia** ★ ☐ PN1 ☐ PN2 ☐ PN3 ☐ PN4 ☐ PN5
- **Soft Tissue** ☐ SST-ST ☐ SST-DECU1 ☐ SST-DECU2
- **Surgical Site Infection** ☒ SSI-S ☐ SSI-D ☐ SSI-O
  - → **If SSI, what is the infection site** P A C E M
- **UTI** ★ ☐ UTI-A ☐ UTI-B
- **Other HAI**

Device in-situ Prior to Onset Mark [X] inside one box ☐ No ☐ Yes
(complete for BSI (CVC, 48hrs), PN (intubation, 48hrs), UTI (catheter, 7 days))

Present on admission Mark [X] inside one box
☒ No → if no then enter date of infection onset
☐ Yes

Date of infection onset D D / M M / Y Y Y Y
2 2 / 0 9 / 2 0 1 6
Enter 09/09/9999 if date of infection onset is not known

Origin of infection Mark [X] inside all boxes that apply
☒ Current hospital ☐ Other non-acute hospital
☐ Other acute hospital ☐ Not known

If current hospital, is HAI associated with current ward? ☐ No ☒ Yes ☐ Not known

Microbiology

MO code 1	AB	SIR	PDR	MO code 2	AB	SIR	PDR
S T A A U R	O X A	S	☒ No				☐ No
	V A N	S	☐ Possible				☐ Possible
	T E C	S	☐ Confirmed				☐ Confirmed
			☐ Not known				☐ Not known

HAI TWO

Pick one infection type by marking an [X] in the relevant box, or by completing "Other HAI"
For all infection types marked ★, answer "Device in-situ Prior to Onset" question

- **CVC/PVC - RI** ☐ CRI1 ☐ CRI2 ☐ CRI3
  - → **If CRI, which catheter type** ☐ CVC ☐ PVC
- **Gastroenteritis** ☐ GI-CDI ☐ GI-GE (Other than CDI)
- **LC-BSI** ★ ☐ Yes → **Source** [ ] – [ ]
  (report BSI with positive CVC or PVC tip culture as CRI3 above)
- **Pneumonia** ★ ☐ PN1 ☐ PN2 ☐ PN3 ☐ PN4 ☐ PN5
- **Soft Tissue** ☐ SST-ST ☐ SST-DECU1 ☐ SST-DECU2
- **Surgical Site Infection** ☐ SSI-S ☐ SSI-D ☐ SSI-O
  - → **If SSI, what is the infection site**
- **UTI** ★ ☐ UTI-A ☐ UTI-B
- **Other HAI**

Device in-situ Prior to Onset Mark [X] inside one box ☐ No ☐ Yes
(complete for BSI (CVC, 48hrs), PN (intubation, 48hrs), UTI (catheter, 7 days))

Present on admission Mark [X] inside one box
☐ No → if no then enter date of infection onset
☐ Yes

Date of infection onset D D / M M / Y Y Y Y
Enter 09/09/9999 if date of infection onset is not known

Origin of infection Mark [X] inside all boxes that apply
☐ Current hospital ☐ Other non-acute hospital
☐ Other acute hospital ☐ Not known

If current hospital, is HAI associated with current ward? ☐ No ☐ Yes ☐ Not known

Microbiology

MO code 1	AB	SIR	PDR	MO code 2	AB	SIR	PDR
			☐ No				☐ No
			☐ Possible				☐ Possible
			☐ Confirmed				☐ Confirmed
			☐ Not known				☐ Not known

HAI THREE

Pick one infection type by marking an [X] in the relevant box, or by completing "Other HAI"
For all infection types marked ★, answer "Device in-situ Prior to Onset" question

- **CVC/PVC - RI** ☐ CRI1 ☐ CRI2 ☐ CRI3
  - → **If CRI, which catheter type** ☐ CVC ☐ PVC
- **Gastroenteritis** ☐ GI-CDI ☐ GI-GE (Other than CDI)
- **LC-BSI** ★ ☐ Yes → **Source** [ ] – [ ]
  (report BSI with positive CVC or PVC tip culture as CRI3 above)
- **Pneumonia** ★ ☐ PN1 ☐ PN2 ☐ PN3 ☐ PN4 ☐ PN5
- **Soft Tissue** ☐ SST-ST ☐ SST-DECU1 ☐ SST-DECU2
- **Surgical Site Infection** ☐ SSI-S ☐ SSI-D ☐ SSI-O
  - → **If SSI, what is the infection site**
- **UTI** ★ ☐ UTI-A ☐ UTI-B
- **Other HAI**

Device in-situ Prior to Onset Mark [X] inside one box ☐ No ☐ Yes
(complete for BSI (CVC, 48hrs), PN (intubation, 48hrs), UTI (catheter, 7 days))

Present on admission Mark [X] inside one box
☐ No → if no then enter date of infection onset
☐ Yes

Date of infection onset D D / M M / Y Y Y Y
Enter 09/09/9999 if date of infection onset is not known

Origin of infection Mark [X] inside all boxes that apply
☐ Current hospital ☐ Other non-acute hospital
☐ Other acute hospital ☐ Not known

If current hospital, is HAI associated with current ward? ☐ No ☐ Yes ☐ Not known

Microbiology

MO code 1	AB	SIR	PDR	MO code 2	AB	SIR	PDR
			☐ No				☐ No
			☐ Possible				☐ Possible
			☐ Confirmed				☐ Confirmed
			☐ Not known				☐ Not known

32000

END OF FORM

Appendix 3: Patient and Ward Specialty codes

Note - The Specialty Names and corresponding Codes that are highlighted in grey are for ward specialties only, i.e. not to describe patient specialties.

Specialty Group	Specialty Name	Code
Medicine	Medical (ward specialty only)	***MED***
	Cardiology	***MEDCARD***
	Clinical Oncology	***MEDCLINONC***
	Dermatology	***MEDDERM***
	Endocrinology	***MEDENDO***
	Gastroenterology	***MEDGAST***
	General Medicine	***MEDGAEN***
	Genito-Urinary Medicine	***MEDGUM***
	Haematology	***MEDHAEM***
	Hepatology	***MEDHEP***
	Homeopathy	***HOMEO***
	Infectious Diseases	***MEDINFDIS***
	Medical Oncology	***MEDONCO***
	Neurology	***MEDNEURO***
	Palliative Medicine	***MEDPALL***
	Rehabilitation Medicine	***MEDREHAB***
	Renal Medicine	***MEDRENAL***
	Respiratory Medicine	***MEDRESP***
	Rheumatology	***MEDRHEU***
Geriatric Medicine	Geriatric Medicine (ward specialty)	***GER***
	Geriatric Medicine (patient specialty)	***GER***
	Geriatric Rehabilitation	***GERREHAB***
	Geriatric General Practice (GP)	***GERGP***
Surgery	Surgery (ward specialty only)	***SUR***
	Burns Care	***SURBURN***
	Cardiac Surgery	***SURCARD***
	Digestive Tract	***SURDIG***
	Ear, Nose and Throat	***SURENT***
	General Surgery (excluding vascular)	***SURGEN***
	Maxillo-Facial Surgery	***SURMAXFAC***
	Neurosurgery	***SURNEURO***
	Ophthalmology	***SUROPH***
	Plastic Surgery	***SURPLAS***
	Oral Surgery and Dentistry	***SURDEN***
	Thoracic Surgery	***SURTHO***
	Trauma and Orthopaedic Surgery	***SURTROR***
	Transplant Surgery	***SURTRANS***
	Urology	***SURURO***
	Vascular Surgery	***SURVASC***
Intensive Care	ICU (ward specialty only)	***ICU***
	ICU Medical	***ICUMED***
	ICU Mixed	***ICUMIX***
	ICU Other	***ICUOTH***
	ICU Specialised	***ICUSPEC***
	ICU Surgical	***ICUSURG***
	ICU Neonatal	***ICUNEO***
	ICU Paediatrics	***ICUPAED***
Obstetrics and Gynaecology	Obstetrics and Gynaecology (ward specialty only)	***OBGYN***
	Gynaecology	***GYNAE***

	Obstetrics	***OBS***
Newborn Babies	Neonatal (ward specialty only)	***NEO***
	Paediatric Neonatology (other than healthy babies and NICU)	***PAEDNEO***
	Healthy neonates (paediatric ward)	***PAEDBAB***
	Healthy neonates (maternity ward)	***GOBAB***
Paediatrics (N.B. These codes are for paediatric patients cared for on an adult ward, otherwise use specific consultant specialty e.g. SURCARD)	Paediatric (ward specialty only)	***PAED***
	Child and Adolescent Psychiatry (only to be used when paediatric patient is cared for in an adult ward)	***PAEDPSY***
	Paediatric Surgery (only use when paediatric patient is cared for in an adult ward)	***SURPAED***
	General Paediatrics (only use when paediatric patient is cared for in an adult ward)	***PAEDGEN***
Psychiatry	Psychiatry (ward specialty)	***PSY***
	Psychiatry (patient specialty)	***PSY***
Long Term Care	Long Term Care (ward specialty)	***LTC***
	Long Term Care (patient specialty)*	***LTC***
Mixed specialty	Mixed (ward specialty only, no specialty >80% beds)	***MIX***
Other Specialty	Other (not listed, ward specialty)	***OTH***
	Other (not listed)	***OTH***

* LTC is in principle a ward specialty and should only exceptionally be used as a patient/consultant specialty

Appendix 4: Surgical Procedures and SSI Site Codes

Surgery Category	Surgical Procedure	Description	SSI Site Code
Cardiac	Cardiac Surgery	Procedures on the valves or septum of heart ** Excludes coronary artery bypass graft, surgery on vessels, heart transplantation or pacemaker implantation	***CARDIA***
	Coronary artery bypass graft with **both** chest and donor site incisions	Chest procedure to perform direct revascularization of the heart; includes obtaining suitable vein from donor site for grafting.	***CABGDO***
	Coronary artery bypass graft with chest incision only	Chest procedure to perform direct vascularisation of the heart using, for example the internal mammary (thoracic) artery	***CABGCH***
	Heart transplant	Transplantation of heart	***HEARTR***
	Pacemaker surgery	Insertion, manipulation or replacement of pacemaker ** Includes insertion/ replacement of leads ** Excludes insertion of temporary transvenous pacemaker system	***PACEM***
ENT	Neck Surgery	Major excision or incision of the larynx and radical neck dissection ** Excludes thyroid and parathyroid operations (See Thyroid and/or Parathyroid Surgery code)	***NECK***
General	Exploratory laparotomy	Procedures involving an incision through abdominal wall to gain access into the abdominal cavity; diagnostic procedure on abdominal region	***ABDSUR***
	Appendix surgery	All operations of the appendix (not incidental to another procedure) ** Includes laparoscopic appendectomy	***APP***
	Bile duct, liver or pancreatic surgery	Excision of bile ducts or operative procedures on the biliary tract, liver or pancreas ** Excludes ERCP which should be coded as Minimally Invasive ** Excludes operations only on gallbladder (see Gallbladder Surgery code)	***BILE***
	Breast surgery	Excision of lesion or tissue of breast including radical, modified, or quadrant resection, lumpectomy, incisional biopsy, or mammoplasty.	***BREAST***
	Colon surgery	Incision, resection, or anastomosis of the large intestine ** Includes large-to small and small-to- large bowel anastomosis ** Excludes rectal operations (See Rectal Surgery codes)	***COLON***
	Gallbladder surgery	Cholecystectomy and cholecystotomy ** Excludes ERCP which should be	***CHOL***

Surgery Category	Surgical Procedure	Description	SSI Site Code
General		coded as Minimally Invasive ** Includes laparascopic	
	Gastric surgery	Incision or excision of stomach; includes subtotal or total gastrectomy; ** Excludes vagotomy and fundoplication which should be coded as Minimally Invasive (unless open)	***GASTRIC***
	Herniorrhaphy	Repair of inguinal, femoral, umbilical, or anterior abdominal wall hernia; ** Excludes repair of diaphragmatic or hiatal hernia or hernias at other body sites (See Thoracic Surgery code)	***HERNIA***
	Liver transplant	Transplantation of liver	***LIVETR***
	Rectal surgery	Operations on rectum	***RECTUM***
	Small bowel surgery	Incision or resection of the small intestine; ** Excludes small-to-large bowel anastomosis (See Colon Surgery code)	***SMBOWE***
	Spleen surgery	Resection or manipulation of spleen	***SPLEEN***
	Thyroid and/or parathyroid surgery	Resection or manipulation of thyroid and/or parathyroid	***THYROI***
Neurosurgery	Ventricular shunt	Ventricular shunt operations, including revision and removal of shunt	***VENSHU***
	Craniotomy	Incision through the skull to excise, repair, or explore the brain; does not include taps or punctures	***CRANIO***
Obstetrics and Gynaecology	Abdominal hysterectomy	Removal of uterus through an abdominal incision ** Excludes vaginal hysterectomy (see Vaginal Hysterectomy code)	***ABDHYS***
	Caesarean section	Obstetrical delivery by Caesarean section	***CAE***
	Ovarian surgery	Operations on ovary and related structures	***OVARY***
	Vaginal hysterectomy	Removal of the uterus through vaginal or perineal incision	***VAGHYS***
Orthopaedics	Hip prosthesis	Arthroplasty of hip	***HIPAR***
	Knee prosthesis	Arthroplasty of knee	***KNEEAR***
	Laminectomy	Exploration or decompression of spinal cord through excision or incision into vertebral structures	***LAMIN***
	Open reduction of fracture	Open reduction of fracture or dislocation of long bones that requires internal or external fixation ** Excludes placement of joint prosthesis (see Hip and Knee Prosthesis codes) ** Excludes closed application of external fixator which should be coded as Minimally Invasive	***ORFR***
	Refusion of spine	Refusion of spine	***RESPIN***
	Spinal fusion	Immobilization of spinal column ** Excludes refusion of spine (see	***SPIFUS***

Surgery Category	Surgical Procedure	Description	SSI Site Code
		Refusion of Spine code)	
Thoracic	Thoracic surgery	Noncardiac, nonvascular thoracic surgery; ** Includes pneumonectomy and diaphragmatic or hiatal hernia repair	***THORAC***
Urology	Kidney surgery	Resection or manipulation of the kidney with or without removal of related structures ** Excludes kidney transplant (See Kidney Transplant code)	***KIDNEY***
	Kidney transplant	Transplantation of kidney	***KIDNTR***
	Prostate surgery	Suprapubic, retropubic, radical, or perineal excision of the prostate; ** Excludes TURP which should be coded as Minimally Invasive	***PROST***
Vascular	Abdominal aortic aneurysm repair	Resection of abdominal aorta with anastomosis or replacement	***AAA***
	Carotid endarterectomy	Endarterectomy on vessels of head and neck (includes carotid artery and jugular vein)	***CAREND***
	Limb amputation	Total or partial amputation or disarticulation of the upper or lower limbs, including digits ** Excludes amputation with healing by secondary intention which should be coded as Minimally Invasive	***LIMAMP***
	Peripheral vascular bypass surgery	Bypass operations on peripheral arteries	***PERVAS***
	Shunt for dialysis	Arteriovenostomy for renal dialysis	***SHUDIA***

Appendix 5: Antimicrobial codes

Antimicrobial generic name	***Antimicrobial Code***
Amikacin	***AMIKACIN***
Amoxicillin	***AMOXICILLIN***
Amoxicillin and enzyme inhibitor	***AMOXICILLIN ENZ INH***
Amphotericin B	***AMPHOTERICIN B***
Ampicillin	***AMPICILLIN***
Ampicillin, combinations	***COMB AMPICILLIN***
Anidulafungin	***ANIDULAFUNGIN***
Atovaquone	***ATOVAQUONE***
Azithromycin	***AZITHROMYCIN***
Aztreonam	***AZTREONAM***
Benzathine benzylpenicillin	***BENZATHINE BEN PEN***
Benzylpenicillin	***BENZYLPENICILLIN***
Capreomycin	***CAPREOMYCIN***
Caspofungin	***CASPOFUNGIN***
Cefaclor	***CEFACLOR***
Cefadroxil	***CEFADROXIL***
Cefalexin	***CEFALEXIN***
Cefixime	***CEFIXIME***
Cefotaxime	***CEFOTAXIME***
Cefpodoxime	***CEFPODOXIME***
Cefradine	***CEFRADINE***
Ceftaroline fosamil	***CEFTAR FOSAMIL***
Ceftazidime	***CEFTAZIDIME***
Ceftolozane and enzyme inhibitor	***CEFTAZIDIME ENZ INH***
Ceftriaxone	***CEFTRIAXONE***
Cefuroxime	***CEFUROXIME***
Chloramphenicol	***CHLORAMPHENICOL***
Ciprofloxacin	***CIPROFLOXACIN***
Clarithromycin	***CLARITHROMYCIN***
Clindamycin	***CLINDAMYCIN***
Co-amoxiclav	***CO-AMOXICLAV***
Co-fluampicil	***CO-FLUAMPICIL***
Colistin	***COLISTIN***
Co-trimoxazole	***CO-TRIMOXAZOLE***
Cycloserine	***CYCLOSERINE***
Daptomycin	***DAPTOMYCIN***
Demeclocycline	***DEMECLOCYCLINE***
Doripenem	***DORIPENEM***
Doxycycline	***DOXYCYCLINE***
Ertapenem	***ERTAPENEM***
Erythromycin	***ERYTHROMYCIN***
Ethambutol	***ETHAMBUTOL***
Fidaxomicin	***FIDAXOMICIN***
Flucloxacillin	***FLUCLOXACILLIN***
Fluconazole	***FLUCONAZOLE***
Flucytosine	***FLUCYTOSINE***
Fosfomycin	***FOSFOMYCIN***
Fusidic acid	***FUSIDIC ACID***
Gentamicin	***GENTAMICIN***
Griseofulvin	***GRISEOFULVIN***
Imipenem	***IMIPENEM***

Imipenem and enzyme inhibitor	***IMIPENEM ENZ INH***
Isavuconazole	***ISAVUCONAZOLE***
Isoniazid	***ISONIAZID***
Itraconazole	***ITRACONAZOLE***
Ketoconazole	***KETOCONAZOLE***
Levofloxacin	***LEVOFLOXACIN***
Linezolid	***LINEZOLID***
Lymecycline	***LYMECYCLINE***
Meropenem	***MEROPENEM***
Metacycline	***METACYCLINE***
Methenamine	***METHENAMINE***
Metronidazole	***METRONIDAZOLE***
Micafungin	***MICAFUNGIN***
Miconazole	***MICONAZOLE***
Minocycline	***MINOCYCLINE***
Moxifloxacin	***MOXIFLOXACIN***
Nalidixic acid	***NALIDIXIC ACID***
Neomycin	***NEOMYCIN***
Nitrofurantoin	***NITROFURANTOIN***
Norfloxacin	***NORFLOXACIN***
Nystatin	***NYSTATIN***
Ofloxacin	***OFLOXACIN***
Oritavancin	***ORITAVANCIN***
Oxytetracycline	***OXYTETRACYCLINE***
Penicillins, combinations	***COMB PENICILLINS***
Phenoxymethylpenicillin	***PHENOXYMETHYLPENICIL***
Piperacillin/Tazobactam	***TAZOCIN***
Pivmecillinam	***PIVMECILLINAM***
Posaconazole	***POSACONAZOLE***
Primaxin	***PRIMAXIN***
Procaine benzylpenicillin	***PROCAINE BEN PEN***
Pyrazinamide	***PYRAZINAMIDE***
Quinupristin/dalfopristin	***QUINU DALFOPRISTIN***
Rifabutin	***RIFABUTIN***
Rifampicin	***RIFAMPICIN***
Rifaximin	***RIFAXIMIN***
Streptomycin	***STREPTOMYCIN***
Sulfadiazine	***SULFADIAZINE***
Sulfamethoxazole and trimethoprim	***SULFAM TRIMETH***
Tedizolid	***TEDIZOLID***
Teicoplanin	***TEICOPLANIN***
Telithromycin	***TELITHROMYCIN***
Telavancin	***TELAVANCIN***
Temocillin	***TEMOCILLIN***
Terbinafine	***TERBINAFINE***
Tetracycline	***TETRACYCLINE***
Tetracycline, combinations	***COMB TETRACYCLINES***
Ticarcillin and enzyme inhibitor	***TICARCILLIN ENZ INH***
Tigecycline	***TIGECYCLINE***
Tinidazole	***TINIDAZOLE***
Tobramycin	***TOBRAMYCIN***
Trimethoprim	***TRIMETHOPRIM***
Vancomycin	***VANCOMYCIN***
Voriconazole	***VORICONAZOLE***

Appendix 6: Diagnosis Codes

Group	Diagnosis Codes	Example
CNS	**CNS**	Infections of the Central Nervous System
	PRCNS	Prophylaxis for CNS (neurosurgery, meningococcal)
EYE	**EYE**	Endophthalmitis
	PREYE	Prophylaxis for eye operations
ENT	**ENT**	Infections of ear, nose, throat, larynx and mouth
	PRENT	Prophylaxis for ear, nose or throat (surgery or medical)
RESP	**PNEU**	Pneumonia
	BRON	Acute bronchitis or exacerbations of chronic bronchitis
	PRRESP	Prophylaxis for pulmonary surgery, prophylaxis of respiratory pathogens
	CF	Cystic fibrosis
CVS	**CVS**	Cardiovascular infections: endocarditis, vascular graft
	PRCVS	Cardiac or vascular surgery, endocarditis prophylaxis
GI	**GI**	Gastrointestinal infections (e.g.salmonellosis, antibiotic associated diarrhoea)
	IA	Intraabdominal sepsis including hepatobiliary
	PRGI	Surgery of the GI tract, liver or biliary tree, GI prophylaxis in neutropenic patients or hepatic failure
SSTBJ	**SST**	Cellulitis, wound, deep soft tissue not involving bone (not SSI- see below)
	BJ	Septic arthritis, osteomyelitis (not SSI- see below)
	SSISST	Surgical site infection involving skin or soft tissue but not bone
	SSIBJ	Surgical site infection involving bone (including infected prosthetic joint, septic arthritis, osteomyelitis)
	PRPLAS	Prophylaxis for plastic surgery
	PRBJ	Prophylaxis for orthopaedic surgery (bone or joint)
UTI	**CYS**	Symptomatic lower urinary tract infection (e.g. cystitis)
	PYE	Symptomatic upper urinary tract infection (e.g. pyelonephritis)
	ASB	Asymptomatic bacteriuria
	PRUTI	Prophylaxis for urological surgery, recurrent UTI
GUOB	**OBGY**	Obstetric or gynaecological infections, STD in women
	GUM	Prostatitis, epididymoorchitis, STD in men
	PROBGY	Prophylaxis for obstetric or gynaecological surgery
BAC	**BAC**	Laboratory confirmed bacteraemia
No defined site	**CSEP**	Clinical sepsis (suspected bloodstream infection without lab confirmation/results are not available, no blood cultures collected or negative blood culture), excluding FN +febrile neutropenia
	FN	Febrile Neutropaenia or other form of manifestation of infection in immunocompromised host (e.g. HIV, chemotherapy etc) with no clear anatomical site
	SIRS	Systemic inflammatory response with no clear anatomic site
	PRMED	General medical prophylaxis that is not directed at a specific site e.g. medical prophylaxis in haematology patients or long term prophylaxis in splenectomy patients
	UND	Completely undefined, site with no systemic inflammation
	UNK	Not known, notes not available

Appendix 7: HAI Type Codes

HAI Group	HAI label	HAI code
Bone/joint infection	Osteomyelitis	**BJ-BONE**
	Joint or bursa	**BJ-JNT**
	Disc space infection	**BJ-DISC**
Cardiovascular system infection	Arterial or venous infection	**CVS-VASC**
	Endocarditis	**CVS-ENDO**
	Myocarditis or pericarditis	**CVS-CARD**
	Mediastinitis	**CVS-MED**
Central nervous system infection	Intracranial infection	**CNS-IC**
	Meningitis or ventriculitis	**CNS-MEN**
	Spinal abscess without meningitis	**CNS-SA**
CVC/PVC related infection	Local CVC-related infection (no positive blood culture)	**CRI1-CVC**
	General CVC-related infection (no positive blood culture)	**CRI2-CVC**
	Microbiologically confirmed CVC-related bloodstream infection	**CRI3-CVC**
	Local PVC-related infection (no positive blood culture)	**CRI1-PVC**
	General PVC-related infection (no positive blood culture)	**CRI2-PVC**
	Microbiologically confirmed PVC-related bloodstream infection	**CRI3-PVC**
Eye, ear, nose, throat and mouth infection	Conjunctivitis	**EENT-CONJ**
	Eye, other than conjunctivitis	**EENT-EYE**
	Ear mastoid	**EENT-EAR**
	Oral cavity (mouth, tongue, or gums)	**EENT-ORAL**
	Sinusitis	**EENT-SINU**
	Upper respiratory tract, pharyngitis, laryngitis, epiglottitis	**EENT-UR**
Gastrointestinal tract infection	*Clostridium difficile* infection	**GI-CDI**
	Gastroenteritis (excluding CDI)	**GI-GE**
	Gastrointestinal tract (esophagus, stomach, small and large bowel, and rectum), excl. gastroenteritis, CDI	**GI-GIT**
	Hepatitis	**GI-HEP**
	Intraabdominal infection, not specified elsewhere	**GI-IAB**
Laboratory-confirmed BSI	Bloodstream infection (laboratory-confirmed) , other than CRI3	**BSI**
Lower respiratory tract infection, other than pneumonia	Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia	**LRI-BRON**
	Other infections of the lower respiratory tract	**LRI-LUNG**
Pneumonia	Pneumonia, clinical + positive quantitative culture from minimally contaminated lower respiratory tract specimen	**PN1**
	Pneumonia, clinical + positive quantitative culture from possibly contaminated lower respiratory tract specimen	**PN2**
	Pneumonia, clinical + microbiological diagnosis by alternative microbiology methods	**PN3**

	Pneumonia, clinical + positive sputum culture or non-quantitative culture from lower respiratory tract specimen	**PN4**
	Pneumonia - Clinical signs of pneumonia without positive microbiology	**PN5**
Reproductive tract infection	Endometritis	**REPR-EMET**
	Episiotomy	**REPR-EPIS**
	Vaginal cuff	**REPR-VCUF**
	Other infections of the male or female reproductive tract	**REPR-OREP**
Skin and soft tissue	Skin infection	**SST-SKIN**
	Soft tissue (necrotizing fascitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis)	**SST-ST**
	Decubitus ulcer, including both superficial and deep infections (microbiologically confirmed)	**SST-DECU1**
	Decubitus ulcer (not microbiologically confirmed)	**SST-DECU2**
	Burn	**SST-BURN**
	Breast abscess or mastitis	**SST-BRST**
Surgical site infection	Surgical site infection, Superficial incisional	**SSI-S**
	Surgical site infection, Deep incisional	**SSI-D**
	Surgical site infection, Organ/Space	**SSI-O**
Systemic infection	Disseminated infection	**SYS-DI**
	Treated unidentified severe infection	**SYS-CSEP**
Urinary tract infection	Symptomatic urinary tract infection, microbiologically confirmed	**UTI-A**
	Symptomatic urinary tract infection, not microbiologically confirmed	**UTI-B**
Neonatal infection	Clinical sepsis in neonates	**NEO-CSEP**
	Laboratory-confirmed bloodstream infection in neonates, non-CNS	**NEO-LCBI**
	Laboratory-confirmed bloodstream infection with coagulase-negative staphylococci in neonates	**NEO-CNSB**
	Pneumonia in neonates	**NEO-PNEU**
	Necrotising enterocolitis	**NEO-NEC**

Appendix 8: Sources of Bloodstream Infection Codes

Source of Bloodstream Infection	
Related to catheter	
C-CVC	Central vascular catheter, clinical relationship (e.g. symptoms improve within 48 hours after catheter removal)
C-PVC	Peripheral vascular catheter, clinical relationship (e.g. symptoms improve within 48 hours after catheter removal)
NOTE: Central vascular catheter, microbiologically confirmed, use CRI3-CVC definition Peripheral vascular catheter, microbiologically confirmed, use CRI3-PVC definition	
Secondary to another site	
S-PUL	Pulmonary infection
S-UTI	Urinary tract Infection
S-SSI	Surgical Site Infection
S-DIG	Digestive tract infection
S-SST	Skin soft tissue
S-OTH	Other infection (e.g. meningitis, osteomyelitis etc)
Unknown origin	
S-UO	None of the above, BSI confirmed to be of unknown origin

Appendix 9: Microorganism controlled list

The microorganisms highlighted in grey are those for which antimicrobial sensitivity to certain antimicrobials should be recorded in the Microbiology section of the Patient Data Collection Form.

Microorganism/Result	Microorganism code
EXAMINATION NOT DONE (sample not taken)	***_NOEXA***
RESULTS NOT AVAILABLE (sample sent, results pending or missing)	***_NA***
MICRO-ORGANISM NOT IDENTIFIED (organism on gram stain, no growth on culture yet)	***_NONID***
STERILE EXAMINATION (no organism on gram stain, culture negative)	***_STERI***
Achromobacter species	***ACHSPP***
Acinetobacter baumannii	***ACIBAU***
Acinetobacter calcoaceticus	***ACICAL***
Acinetobacter haemolyticus	***ACIHAE***
Acinetobacter lwoffi	***ACILWO***
Acinetobacter species, not specified	***ACINSP***
Acinetobacter species, other	***ACIOTH***
Actinomyces species	***ACTSPP***
Aeromonas species	***AEMSPP***
Agrobacterium species	***AGRSPP***
Alcaligenes species	***ALCSPP***
Anaerobes, not specified	***ANANSP***
other anaerobes	***ANAOTH***
Aspergillus fumigatus	***ASPFUM***
Aspergillus niger	***ASPNIG***
Aspergillus species, not specified	***ASPNSP***
Aspergillus species, other	***ASPOTH***
Bacillus species	***BACSPP***
Bacteroides fragilis	***BATFRA***
Bacteroides species, not specified	***BATNSP***
Bacteroides species, other	***BATOTH***
other bacteria, not specified	***BCTNSP***
other bacteria	***BCTOTH***
Burkholderia cepacia	***BURCEP***
Campylobacter species	***CAMSPP***
Candida albicans	***CANALB***
Candida glabrata	***CANGLA***
Candida krusei	***CANKRU***
Candida species, not specified	***CANNSP***
Candida species, other	***CANOTH***
Candida parapsilosis	***CANPAR***
Candida tropicalis	***CANTRO***
Chlamydia species	***CHLSPP***
Citrobacter koseri (ex. *diversus*)	***CITDIV***
Citrobacter freundii	***CITFRE***
Citrobacter species, not specified	***CITNSP***
Citrobacter species, other	***CITOTH***
Clostridium difficile	***CLODIF***
Clostridium other	***CLOOTH***
Corynebacterium species	***CORSPP***
Enterobacter aerogenes	***ENBAER***
Enterobacter agglomerans	***ENBAGG***
Enterobacter cloacae	***ENBCLO***

Enterobacter gergoviae	***ENBGER***
Enterobacter species, not specified	***ENBNSP***
Enterobacter species, other	***ENBOTH***
Enterobacter sakazakii	***ENBSAK***
Enterococcus faecalis	***ENCFAE***
Enterococcus faecium	***ENCFAI***
Enterococcus species, not specified	***ENCNSP***
Enterococcus species, other	***ENCOTH***
Escherichia coli	***ESCCOL***
Enterobacteriaceae, not specified	***ETBNSP***
other Enterobacteriaceae	***ETBOTH***
filaments other	***FILOTH***
Flavobacterium species	***FLASPP***
fungi, not specified	***FUNNSP***
fungi other	***FUNOTH***
Gardnerella species	***GARSPP***
Gram negative bacteria, non Enterobacteriaceae, not specified.	***GNBNSP***
other Gram negative bacteria non Enterobacteriaceae	***GNBOTH***
Gram negative cocci, not specified	***GNCNSP***
Gram negative cocci, other	***GNCOTH***
Gram positive bacilli, not specified	***GPBNSP***
other Gram positive bacilli	***GPBOTH***
Gram positive cocci, not specified	***GPCNSP***
other Gram positive cocci	***GPCOTH***
Haemophilus influenzae	***HAEINF***
Haemophilus species, not specified	***HAENSP***
Haemophilus species, other	***HAEOTH***
Haemophilus parainfluenzae	***HAEPAI***
Hafnia species	***HAFSPP***
Helicobacter pylori	***HELPYL***
Klebsiella species, not specified	***KLENSP***
Klebsiella species, other	***KLEOTH***
Klebsiella oxytoca	***KLEOXY***
Klebsiella pneumoniae	***KLEPNE***
Lactobacillus species	***LACSPP***
Legionella species	***LEGSPP***
Listeria monocytogenes	***LISMON***
Morganella species	***MOGSPP***
Moraxella catharralis	***MORCAT***
Moraxella species, not specified	***MORNSP***
Moraxella species, other	***MOROTH***
Mycobacterium, atypical	***MYCATY***
Mycobacterium tuberculosis complex	***MYCTUB***
Mycoplasma species	***MYPSPP***
Neisseria meningitidis	***NEIMEN***
Neisseria species, not specified	***NEINSP***
Neisseria species, other	***NEIOTH***
Nocardia species	***NOCSPP***
Other parasites	***PAROTH***
Pasteurella species	***PASSPP***
Prevotella species	***PRESPP***
Propionibacterium species	***PROSPP***
Proteus mirabilis	***PRTMIR***
Proteus species, not specified	***PRTNSP***

Proteus species, other	***PRTOTH***
Proteus vulgaris	***PRTVUL***
Providencia species	***PRVSPP***
Pseudomonas aeruginosa	***PSEAER***
Pseudomonadaceae, not specified	***PSENSP***
Pseudomonadaceae, other	***PSEOTH***
Salmonella Enteritidis	***SALENT***
Salmonella species, not specified	***SALNSP***
Salmonella species, other	***SALOTH***
*Salmonella*Typhimurium	***SALTYM***
Salmonella Typhi or Paratyphi	***SALTYP***
Serratia liquefaciens	***SERLIQ***
Serratia marcescens	***SERMAR***
Serratia species, not specified	***SERNSP***
Serratia species, other	***SEROTH***
Shigella species	***SHISPP***
Staphylococcus aureus	***STAAUR***
coagulase-negative staphylococci (CNS), not specified	***STACNS***
Staphylococcus epidermidis	***STAEPI***
Staphylococcus haemolyticus	***STAHAE***
Staphylococcus species, not specified	***STANSP***
other coagulase-negative staphylococci (CNS)	***STAOTH***
Stenotrophomonas maltophilia	***STEMAL***
Streptococcus agalactiae (Group B)	***STRAGA***
other haemolytic streptococci (Group C,G)	***STRHCG***
Streptococcus species, not specified	***STRNSP***
Streptococcus species, other	***STROTH***
Streptococcus pneumoniae	***STRPNE***
Streptococcus pyogenes (Group A)	***STRPYO***
Adenovirus	***VIRADV***
Cytomegalovirus (CMV)	***VIRCMV***
Enterovirus (Polio, Coxsackie, Echo)	***VIRENT***
Hepatitis A virus	***VIRHAV***
Hepatitis B virus	***VIRHBV***
Hepatitis C virus	***VIRHCV***
Human Immunodeficiency virus (HIV)	***VIRHIV***
Herpes Simplex virus	***VIRHSV***
Influenza virus	***VIRINF***
Norovirus	***VIRNOR***
virus, not specified	***VIRNSP***
other virus	***VIROTH***
Parainfluenza virus	***VIRPIV***
Rhinovirus	***VIRRHI***
Rotavirus	***VIRROT***
RespiratorySyncytial virus (RSV)	***VIRRSV***
Sars - Coronavirus	***VIRSAR***
Varicella-Zoster virus	***VIRVZV***
other yeasts	***YEAOTH***
Yersinia species	***YERSPP***

Appendix 10: Prevalent HAI Definitions

CRI: CATHETER-RELATED INFECTION

An aid to assist with the diagnosis of catheter-related infections is provided in Figure 4.4.2. A catheter-related infection may be related to central vascular catheters or peripheral/arterial vascular catheters.

ONSET: Catheter-related infections may develop any time after the device has been inserted.

Catheter-related infection 1 (CRI1)

CRI1-CVC: Local CVC-related infection (no positive blood culture)

- quantitative CVC culture ≥ 10^3 CFU/ml (1) or semi-quantitative CVC culture > 15 CFU(2)

And

- pus/inflammation at the insertion site or tunnel

CRI1-PVC: Local PVC-related infection (no positive blood culture)

- quantitative PVC culture ≥ 10^3 CFU/ml or semi-quantitative PVC culture > 15 CFU

And

- pus/inflammation at the insertion site or tunnel

Catheter-related infection 2 (CRI2)

CRI2-CVC: General CVC-related infection (no positive blood culture)

- quantitative CVC culture ≥ 10^3 CFU/ml or semi-quantitative CVC culture > 15 CFU

And

- clinical signs improve within 48 hours after catheter removal

CRI2-PVC: General PVC-related infection (no positive blood culture)

- quantitative PVC culture ≥ 10^3 CFU/ml or semi-quantitative PVC culture > 15 CFU

And

- clinical signs improve within 48 hours after catheter removal

Catheter-related infection 3 (CRI3)

CRI3-CVC: microbiologically confirmed CVC-related bloodstream infection

- BSI occurring 48 hours before or after catheter removal

And positive culture with the same micro-organism of either:

- quantitative CVC culture ≥ 10^3 CFU/ml or semi-quantitative CVC culture > 15 CFU
- quantitative blood culture ratio CVC blood sample/peripheral blood sample> 5 (3)
- differential delay of positivity of blood cultures (4): CVC blood sample culture positive 2 hours or more before peripheral blood culture (blood samples drawn at the same time)
- positive culture with the same micro-organism from pus from insertion site

CRI3-PVC: microbiologically confirmed PVC-related bloodstream infection

- BSI occurring 48 hours before or after catheter removal

And positive culture with the same micro-organism of either:

- quantitative PVC culture ≥ 10^3 CFU/ml or semi-quantitative PVC culture > 15 CFU
- positive culture with the same micro-organism from pus from insertion site

Note:
Central vascular catheter colonisation should not be reported

GI: GASTROENTERITIS

GI-CDI: *Clostridium difficile* infection

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 28 days prior to admission.

A *Clostridium difficile* infection (CDI) must meet at least 1 of the following criteria:

1. Diarrhoeal stools or toxic megacolon, and a positive laboratory assay for *C. difficile* toxin A and/or B in stools or a toxin-producing *C. difficile* organism detected in stool via culture or other means e.g. a positive PCR result.
2. Pseudomembranous colitis revealed by lower gastro-intestinal endoscopy
3. Colonic histopathology characteristic of *C. difficile* infection (with or without diarrhoea) on a specimen obtained during endoscopy, colectomy or autopsy

GI-GE**:** Gastroenteritis (excluding CDI)

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

Gastroenteritis must meet at least 1 of the following criteria:

1. Patient has an acute onset of diarrhoea (liquid stools for more than 12 hours) with or without vomiting or fever (>38°C) and no likely noninfectious cause (e.g., diagnostic tests, therapeutic regimen other than antimicrobial agents, acute exacerbation of a chronic condition, or psychological stress).

OR

2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: nausea, vomiting, abdominal pain, fever (>38°C), or headache

   And at least 1 of the following:
   - an enteric pathogen is cultured from stool or rectal swab
   - an enteric pathogen is detected by routine or electron microscopy
   - an enteric pathogen is detected by antigen or antibody assay on blood or faeces
   - evidence of an enteric pathogen is detected by cytopathic changes in tissue culture toxin assay) diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen.

BSI: BLOODSTREAM INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

Catheter-related BSI may develop any time after the device has been inserted.

***BSI*:** Laboratory-confirmed bloodstream infection

Laboratory-confirmed bloodstream infection must meet at least 1 of the following criteria:

1. One positive blood culture for a recognised pathogen

OR

2.
   a. Patient has at least one of the following signs or symptoms: fever (>38°C.), chills, or hypotension

   AND

   b. Two positive blood cultures for a common skin contaminant (from 2 separate blood samples, usually within 48 hours).

Note:
Common skin contaminants are coagulase-negative staphylococci*, Micrococcus sp., Propionibacterium acnes, Bacillus sp., Corynebacterium sp.*

Source of bloodstream infection:

- Catheter-related: Microbiologically confirmed catheter-related BSI (the same microorganism was cultured from the catheter) should be recorded as ***CRI3-CVC*** or ***CRI3-PVC***. Non-microbiologically confirmed catheter-related BSI (symptoms improve within 48 hours of removal of the catheter) should be recorded as ***BSI*** with source ***C-CVC*** or ***C-PVC***. An aid to assist with the diagnosis of catheter-related infections is provided in Figure 4.4.2.

- Secondary to another infection: the same micro-organism was isolated from another infection site or strong clinical evidence exists that bloodstream infection was secondary to another infection site, invasive diagnostic procedure or foreign body.
  - Pulmonary (***S-PUL***)
  - Urinary tract infection (***S-UTI***)
  - Digestive tract infection (***S-DIG***)
  - SSI (***S-SSI***): surgical site infection
  - Skin and soft tissue (**S-SST**)
  - Other (***S-OTH***)
- Unknown origin (***UO***): None of the above, bloodstream infection of unknown origin (no source found)
- Unknown (***UNK***): No information available about the source of the bloodstream infection or information missing

CVC- associated BSI
A BSI is defined as CVC-associated if a CVC was present (even intermittently) in the 48 hours preceding the onset of infection. This is recorded using the “device in situ prior to onset” field.

PN: PNEUMONIA

The case definitions for pneumonia require a number of criteria to be fulfilled. These include diagnostic test results, symptoms and microbiological test. There are 5 pneumonia definitions (PN1-5) that differ depending on the microbiology results used to diagnose pneumonia.

An aid to assist with the diagnosis of pneumonia is provided in Figure 4.4.3.

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

Ventilator-associated pneumonia may develop any time after the device has been inserted.

Rx

Patients without underlying cardiac or pulmonary disease:

One definitive chest X-ray or CT-scan with a suggestive image of pneumonia

Patients with underlying cardiac or pulmonary disease:

Two or more serial chest X-rays or CT-scans with a suggestive image of pneumonia (e.g. pulmonary oedema, chronic obstructive pulmonary disease, bronchitis, right heart failure, respiratory distress syndrome, broncho-pulmonary dysplasia, pulmonary oedema).

OR

One definitive chest X-ray or CT-scan with a suggestive image of pneumonia when compared with previous chest x-rays or CT scans which have not indicated pneumonia

Symptoms

and at least one of the following:

- Fever > 38°C with no other cause
- Leukopenia (<4000 WBC[1]/mm^3) or leucocytosis (≥ 12 000 WBC/mm^3)

and at least one of the following (or at least two if clinical pneumonia only = PN 4 and PN 5):

- New onset of purulent sputum, or change in character of sputum (color, odor, quantity, consistency)
- Cough or dyspnea or tachypnea
- Suggestive auscultation (rales or bronchial breath sounds), ronchi, wheezing
- Worsening gas exchange (e.g., O_2 desaturation or increased oxygen requirements or increased ventilation demand)

[1] WBC = White Blood Cell Count

And according to the used diagnostic method

Microbiology

a - Bacteriologic diagnostic performed by : *Positive quantitative culture from minimally contaminated LRT[2] specimen* ***(PN 1*****)**

- Broncho-alveolar lavage (BAL) with a threshold of > 10^4 CFU[3]/ml or ≥5 % of BAL obtained cells contain intracellular bacteria on direct microscopic exam (classified on the diagnostic category BAL).
- Protected brush (PB Wimberley) with a threshold of >10^3 CFU/ml
- Distal protected aspirate (DPA) with a threshold of > 10^3 CFU/ml

Positive quantitative culture from possibly contaminated LRT specimen **(*PN 2*)**

- Quantitative culture of LRT specimen (e.g. endotracheal aspirate) with a threshold of 106 CFU/ml

b- Alternative microbiology methods (*PN 3*)

- Positive blood culture not related to another source of infection
- Positive growth in culture of pleural fluid
- Pleural or pulmonary abscess with positive needle aspiration
- Histologic pulmonary exam shows evidence of pneumonia
- Positive exams for pneumonia with virus or particular germs (*Legionella*, *Aspergillus*, mycobacteria, mycoplasma, *Pneumocystis carinii*)
    - Positive detection of viral antigen or antibody from respiratory secretions (e.g., EIA, FAMA, shell vial assay, PCR)
    - Positive direct exam or positive culture from bronchial secretions or tissue
    - Seroconversion (ex : influenza viruses, *Legionella, Chlamydia*)
    - Detection of antigens in urine (*Legionella)*

c - Others

- Positive **sputum** culture **or non-quantitative LRT specimen** culture ***(PN4)***
- **No positive microbiology *(PN 5)***

Note:
PN 1 and PN 2 criteria were validated without previous antimicrobial therapy

The subdivision of the pneumonia definition in 5 categories allows for the comparison of similar entities of pneumonia within and between networks. *It is essential that all networks report PN4 and PN5 (clinical pneumonia without microbiological evidence) in order to achieve overall comparability, even if a microbiological exam was performed and yielded negative results*. It is also advised, both for clinical and surveillance purposes, that networks promote as much as possible microbiological confirmation (PN1-3) as a routine practice in the ICU.

Intubation-associated pneumonia (IAP)
A pneumonia is defined as intubation-associated (IAP) if an invasive respiratory device was present (even intermittently) in the 48 hours preceding the onset of infection. This is recorded using the "device in situ prior to onset" field.

[2] LRT = Lower Respiratory Tract
[3] CFU= Colony Forming Unit

SST: SOFT TISSUE INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

SST-ST: Soft tissue (necrotizing fascitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis)

Soft tissue infections must meet at least 1 of the following criteria:

1. Patient has organisms cultured from tissue or drainage from affected site.
2. Patient has purulent drainage at affected site.
3. Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
4. Patient has at least 2 of the following signs or symptoms at the affected site with no other recognized cause: localized pain or tenderness, redness, swelling, or heat

   And at least 1 of the following:
   a. organisms cultured from blood
   b. positive antigen test performed on blood or urine (e.g., *H influenzae*, *S pneumoniae*, *N meningitidis*, Group B *Streptococcus*, *Candida* spp)
   c. diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen.

Note:
Report infected decubitus ulcers as DECU-1 or DECU-2.

Report infection of deep pelvic tissues as OREP.

***SST-DECU1*:** Decubitus ulcer, including both superficial and deep infections (microbiologically confirmed)

Decubitus ulcer infections must meet the following criteria:

1. Patient has at least 2 of the following signs or symptoms with no other recognized cause: redness, tenderness, or swelling of decubitus wound edges

   And at least 1 of the following:

2. organisms cultured from properly collected fluid or tissue (see Comments)
3. organisms cultured from blood.

Note:
Organisms cultured from the surface of a decubitus ulcer are not sufficient evidence that the ulcer is infected. A properly collected specimen from a decubitus ulcer involves needle aspiration of fluid or biopsy of tissue from the ulcer margin.

***SST-DECU2*:** Decubitus ulcer, including both superficial and deep infections (not microbiologically confirmed)

Decubitus ulcer infections must meet the following criterion:

1. Patient has purulent drainage at affected site.

SSI: SURGICAL SITE INFECTION

ONSET: *Day of surgery onwards*

Present on admission or developing on Day 1 or 2 of admission

Superficial incisional (SSI-S)

Infection occurs within 30 days after the operation and infection involves only skin and subcutaneous tissue of the incision and at least one of the following:

1. Purulent drainage with or without laboratory confirmation, from the superficial incision
2. Organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision.
3. At least one of the following signs or symptoms of infection: pain or tenderness, localized swelling, redness, or heat and superficial incision is deliberately opened by surgeon, unless incision is culture-negative.
4. Diagnosis of superficial incisional SSI made by a surgeon or attending physician.

Deep incisional (SSI-D)
Infection occurs within 30 days after the operation if no implant is left in place or within 90 days if implant is in place and the infection appears to be related to the operation and infection involves deep soft tissue (e.g. fascia, muscle) of the incision and at least one of the following:

1. Purulent drainage from the deep incision but not from the organ/space component of the surgical site.
2. A deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms: fever (>38°C), localized pain or tenderness, unless incision is culture-negative.
3. An abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination.
4. Diagnosis of deep incisional SSI made by a surgeon or attending physician.

Organ/Space (SSI-O)
Infection occurs within 30 days after the operation if no implant is left in place or within 90 days if implant is in place and the infection appears to be related to the operation and infection involves any part of the anatomy (e.g. deep or organ / space SSI) other than the incision which was opened or manipulated during an operation and at least one of the following:

1. Purulent drainage from a drain that is placed through a stab wound into the organ/space.
2. Organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space.
3. An abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination.
4. Diagnosis of organ/space SSI made by a surgeon or attending physician.

UTI: URINARY TRACT INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

Catheter-associated UTI may develop any time after the device has been inserted

UTI-A: microbiologically confirmed symptomatic UTI

1.
    a. Patient has at least one of the following signs of symptoms with no other recognized cause: fever (>38°C), urgency, frequency, dysuria, or suprapubic tenderness

    And

    b. patient has a positive urine culture, that is, ≥ 10^5 microorganisms per ml of urine with no more than two species of microorganisms.

UTI-B: not microbiologically confirmed symptomatic UTI

1. Patient has at least two of the following with no other recognized cause: fever (>38°C), urgency, frequency, dysuria, or suprapubic tenderness

And at least one of the following:

a. Positive dipstick for leukocyte esterase and/or nitrate
b. Pyuria urine specimen with ≥10 WBC/ml or ≥ 3 WBC/high-power field of unspun urine
c. Organisms seen on Gram stain of unspun urine
d. At least two urine cultures with repeated isolation of the same uropathogen (gram-negative bacteria or *S. saprophyticus*) with ≥ 10^2 colonies/ml urine in nonvoided specimens
e. ≤10^5 colonies/ml of a single uropathogen (gram-negative bacteria or *S. saprophyticus*) in a patient being treated with effective antimicrobial agent for a urinary infection
f. Physician diagnosis of a urinary tract infection
g. Physician institutes appropriate therapy for a urinary infection

NOTE:
Asymptomatic bacteriuria are excluded from the survey. Bloodstream infections secondary to asymptomatic bacteriuria are reported as BSI with source (origin) S-UTI

Catheter-associated UTI

A UTI is defined as catheter-associated if a urinary catheter was present (even intermittently) in the 7 days preceding the onset of infection. This is recorded using the “device in situ prior to onset” field.

BJ: BONE AND JOINT INFECTION

ONSET: *Day 3 onwards*
Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

BJ-BONE: Osteomyelitis

Osteomyelitis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from bone.
2. Patient has evidence of osteomyelitis on direct examination of the bone during a surgical operation or histopathologic examination.
3. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), localized swelling, tenderness, heat, or drainage at suspected site of bone infection

   And at least 1 of the following:
   a. organisms cultured from blood
   b. positive blood antigen test (e.g., *H influenzae, S pneumoniae*)
   c. radiographic evidence of infection (e.g., abnormal findings on x-ray, CT scan, MRI, radiolabel scan [gallium, technetium, etc]).

Note:

- Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as surgical site infection-organ/space (SSI-O).

BJ-JNT: Joint or bursa

Joint or bursa infections must meet at least 1 of the following criteria:

1. Patient has organisms cultured from joint fluid or synovial biopsy.
2. Patient has evidence of joint or bursa infection seen during a surgical operation or histopathologic examination.
3. Patient has at least 2 of the following signs or symptoms with no other recognized cause: joint pain, swelling, tenderness, heat, evidence of effusion or limitation of motion

   And at least 1 of the following:
   a. organisms and white blood cells seen on Gram's stain of joint fluid
   b. positive antigen test on blood, urine, or joint fluid
   c. cellular profile and chemistries of joint fluid compatible with infection and not explained by an underlying rheumatologic disorder
   d. radiographic evidence of infection (e.g., abnormal findings on x-ray, CT scan, MRI, radiolabel scan [gallium, technetium, etc]).

BJ-DISC: Disc space infection

Vertebral disc space infection must meet at least 1 of the following criteria:

1. Patient has organisms cultured from vertebral disc space tissue obtained during a surgical operation or needle aspiration.
2. Patient has evidence of vertebral disc space infection seen during a surgical operation or histopathologic examination.
3.
    a. Patient has fever (>38°C) with no other recognized cause or pain at the involved vertebral disc space

    <u>And</u>

    b. Radiographic evidence of infection, (e.g., abnormal findings on x-ray, CT scan, MRI, radiolabel scan [gallium, technetium, etc]).

4.
    a. Patient has fever (>38°C) with no other recognized cause and pain at the involved vertebral disc space

    <u>And</u>

    b. Positive antigen test on blood or urine (e.g., *H influenzae, S pneumoniae, N meningitidis,* or Group B *Streptococcus*).

CNS: CENTRAL NERVOUS SYSTEM INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

CNS-IC: Intracranial infection (brain abscess, subdural or epidural infection, encephalitis)

Intracranial infection must meet at least 1 of the following criteria:

1. Patient has organisms cultured from brain tissue or dura.
2. Patient has an abscess or evidence of intracranial infection seen during a surgical operation or histopathologic examination.
3. Patient has at least 2 of the following signs or symptoms with no other recognized cause: headache, dizziness, fever (>38°C), localizing neurologic signs, changing level of consciousness, or confusion

   And at least 1 of the following:

   a. organisms seen on microscopic examination of brain or abscess tissue obtained by needle aspiration or by biopsy during a surgical operation or autopsy
   b. positive antigen test on blood or urine
   c. radiographic evidence of infection, (e.g., abnormal findings on ultrasound, CT scan, MRI, radionuclide brain scan, or arteriogram)
   d. diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen

   And

   Physician institutes appropriate antimicrobial therapy.

Note:
If meningitis and a brain abscess are present together, report the infection as ***CNS-IC***.

CNS-MEN: Meningitis or ventriculitis

Meningitis or ventriculitis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from cerebrospinal fluid (CSF).
2. Patient has at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), headache, stiff neck, meningeal signs, cranial nerve signs, or irritability

   And at least 1 of the following:
   a. increased white cells, elevated protein, and/ or decreased glucose in CSF
   b. organisms seen on Gram's stain of CSF
   c. organisms cultured from blood
   d. positive antigen test of CSF, blood, or urine
   e. diagnostic single antibody titer (IgM) or 4-fold increase in paired sera (IgG) for pathogen

   And

   Physician institutes appropriate antimicrobial therapy.

Note:
Report CSF shunt infection as SSI if it occurs <=1 year of placement; if later or after manipulation/access of the shunt, report as ***CNS-MEN.***
Report meningoencephalitis as ***CNS-MEN.***
Report spinal abscess with meningitis as ***CNS-MEN.***

CNS-SA: Spinal abscess without meningitis

An abscess of the spinal epidural or subdural space, without involvement of the cerebrospinal fluid or adjacent bone structures, must meet at least 1 of the following criteria:

1. Patient has organisms cultured from abscess in the spinal epidural or subdural space.
2. Patient has an abscess in the spinal epidural or subdural space seen during a surgical operation or at autopsy or evidence of an abscess seen during a histopathologic examination.
3. Patient has at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), back pain, focal tenderness, radiculitis, paraparesis, or paraplegia

   And at least 1 of the following:
   a. organisms cultured from blood
   b. radiographic evidence of a spinal abscess (e.g., abnormal findings on myelography, ultrasound, CT scan, MRI, or other scans [gallium, technetium, etc]).

   And

   Physician institutes appropriate antimicrobial therapy.

Note:
Report spinal abscess with meningitis as meningitis ***CNS-MEN***

CVS: CARDIOVASCULAR SYSTEM INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

CVS-VASC: Arterial or venous infection

Arterial or venous infection must meet at least 1 of the following criteria:

1.
   a. Patient has organisms cultured from arteries or veins removed during a surgical operation

   And

   b. blood culture not done or no organisms cultured from blood.

2. Patient has evidence of arterial or venous infection seen during a surgical operation or histopathologic examination.

3.
   a. Patient has at least 1 of the following signs or symptoms with no other recognised cause: fever (>38°C), pain, erythema, or heat at involved vascular site

   And

   b. more than 15 colonies cultured from intravascular cannula tip using semiquantitative culture method

   And

   c. blood culture not done or no organisms cultured from blood.

4.
   a. Patient has purulent drainage at involved vascular site

   And

   b. blood culture not done or no organisms cultured from blood.

Note:
Report infections of an arteriovenous graft, shunt, or fistula without organisms cultured from blood as CVS-VASC.

Report vascular catheter related infections without organisms cultured from blood as CRI1-CVC or CRI1-PVC or CRI2-CVC or CRI2-PVC.

Report vascular catheter related infections without organisms cultured from blood or the catheter tip as CVC-VASC.

An aid to assist with the diagnosis of catheter-related infections is provided in Figure 4.4.2.

***CVS-ENDO*:** Endocarditis

Endocarditis of a natural or prosthetic heart valve must meet at least 1 of the following criteria:

1. Patient has organisms cultured from valve or vegetation.
2. Patient has 2 or more of the following signs or symptoms with no other recognized cause: fever (>38°C), new or changing murmur, embolic phenomena, skin manifestations (i.e., petechiae, splinter hemorrhages, painful subcutaneous nodules), congestive heart failure, or cardiac conduction abnormality

   And at least 1 of the following:

   a. organisms cultured from 2 or more blood cultures
   b. organisms seen on Gram's stain of valve when culture is negative or not done
   c. valvular vegetation seen during a surgical operation or autopsy
   d. positive antigen test on blood or urine (e.g., *H influenzae*, *S pneumoniae*, *N. meningitidis*, or Group B *Streptococcus*)
   e. evidence of new vegetation seen on echocardiogram

   And

   Physician institutes appropriate antimicrobial therapy.

***CVS-CARD*:** Myocarditis or pericarditis

Myocarditis or pericarditis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from pericardial tissue or fluid obtained by needle aspiration or during a surgical operation.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), chest pain, paradoxical pulse, or increased heart size

   And at least 1 of the following:

   a. abnormal EKG consistent with myocarditis or pericarditis
   b. positive antigen test on blood (e.g., *H influenzae*, *S pneumoniae*)
   c. evidence of myocarditis or pericarditis on histologic examination of heart tissue
   d. 4-fold rise in type-specific antibody with or without isolation of virus from pharynx or faeces
   e. pericardial effusion identified by echocardiogram, CT scan, MRI, or angiography.

Note:
Most cases of postcardiac surgery or postmyocardial infarction pericarditis are not infectious.

***CVS-MED*:** Mediastinitis

Mediastinitis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from mediastinal tissue or fluid obtained during a surgical operation or needle aspiration.
2. Patient has evidence of mediastinitis seen during a surgical operation or histopathologic examination.
3. Patient has at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), chest pain, or sternal instability

   And at least 1 of the following:

   a. purulent discharge from mediastinal area
   b. organisms cultured from blood or discharge from mediastinal area
   c. mediastinal widening on x-ray.

Note:
Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI-O

EENT: EYE, EAR, NOSE, THROAT, OR MOUTH INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

EENT-CONJ: Conjunctivitis

Conjunctivitis must meet at least 1 of the following criteria:

1. Patient has pathogens cultured from purulent exudate obtained from the conjunctiva or contiguous tissues, such as eyelid, cornea, meibomian glands, or lacrimal glands.
2. Patient has pain or redness of conjunctiva or around eye

   And at least 1 of the following:

   a. WBCs and organisms seen on Gram stain of exudate
   b. purulent exudate
   c. positive antigen test (e.g., ELISA or IF for *Chlamydia trachomatis*, herpes simplex virus, adenovirus) on exudate or conjunctival scraping
   d. multinucleated giant cells seen on microscopic examination of conjunctival exudate or scrapings
   e. positive viral culture
   f. diagnostic single antibody titer (IgM) or 4-fold increase in paired sera (IgG) for pathogen.

Note:
Report other infections of the eye as EYE.
Do not report chemical conjunctivitis caused by silver nitrate ($AgNO_3$) as a health care–associated infection.
Do not report conjunctivitis that occurs as a part of a more widely disseminated viral illness (such as measles, chickenpox, or a URI).

EENT-EYE: Eye, other than conjunctivitis

An infection of the eye, other than conjunctivitis, must meet at least 1 of the following criteria:
1. Patient has organisms cultured from anterior or posterior chamber or vitreous fluid.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: eye pain, visual disturbance, or hypopyon

   And at least 1 of the following:

   a. physician diagnosis of an eye infection
   b. positive antigen test on blood (e.g., *H influenzae, S pneumoniae*)
   c. organisms cultured from blood.

EENT-EAR: Ear mastoid

Ear and mastoid infections must meet at least 1 of the following criteria:

Otitis externa must meet at least 1 of the following criteria:

1. Patient has pathogens cultured from purulent drainage from ear canal.
2.
    a. Patient has at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), pain, redness, or drainage from ear canal

    And

    b. Organisms seen on Gram's stain of purulent drainage.

Otitis media must meet at least 1 of the following criteria:

1. Patient has organisms cultured from fluid from middle ear obtained by tympanocentesis or at surgical operation.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), pain in the eardrum, inflammation, retraction or decreased mobility of eardrum, or fluid behind eardrum.

Otitis interna must meet at least 1 of the following criteria:

1. Patient has organisms cultured from fluid from inner ear obtained at surgical operation.
2. Patient has a physician diagnosis of inner ear infection.

Mastoiditis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from purulent drainage from mastoid.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), pain, tenderness, erythema, headache, or facial paralysis

    And at least 1 of the following:
    a. organisms seen on Gram's stain of purulent material from mastoid
    b. positive antigen test on blood.

EENT-ORAL: Oral cavity (mouth, tongue, or gums)
Oral cavity infections must meet at least 1 of the following criteria:

1. Patient has organisms cultured from purulent material from tissues of oral cavity.
2. Patient has an abscess or other evidence of oral cavity infection seen on direct examination, during a surgical operation, or during a histopathologic examination.
3. Patient has at least 1 of the following signs or symptoms with no other recognized cause: abscess, ulceration, or raised white patches on inflamed mucosa, or plaques on oral mucosa

   And at least 1 of the following:
   a. organisms seen on Gram stain
   b. positive KOH (potassium hydroxide) stain
   c. multinucleated giant cells seen on microscopic examination of mucosal scrapings
   d. positive antigen test on oral secretions
   e. diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen
   f. physician diagnosis of infection and treatment with topical or oral antifungal therapy.

Note:
Report health care–associated primary herpes simplex infections of the oral cavity as ***EENTORAL***; recurrent herpes infections are not healthcare–associated.

EENT-SINU**:** Sinusitis
Sinusitis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from purulent material obtained from sinus cavity.
2. Patient has at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), pain or tenderness over the involved sinus, headache, purulent exudate, or nasal obstruction

   And at least 1 of the following:
   a. positive transillumination
   b. positive radiographic examination (including CT scan).

EENT-UR: Upper respiratory tract, pharyngitis, laryngitis, epiglottitis
Upper respiratory tract infections must meet at least 1 of the following criteria:

1. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), erythema of pharynx, sore throat, cough, hoarseness, or purulent exudate in throat

   And at least 1 of the following:
   a. organisms cultured from the specific site
   b. organisms cultured from blood
   c. positive antigen test on blood or respiratory secretions
   d. diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen
   e. physician diagnosis of an upper respiratory infection.
2. Patient has an abscess seen on direct examination, during a surgical operation, or during a histopathologic examination.

LRI: LOWER RESPIRATORY TRACT INFECTION, OTHER THAN PNEUMONIA

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

LRI-BRON: Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia

Tracheobronchial infections must meet at least 1 of the following criteria:

1.
   a. Patient has no clinical or radiographic evidence of pneumonia

And

   b. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), cough, new or increased sputum production, rhonchi, wheezing

And at least 1 of the following:

   a. positive culture obtained by deep tracheal aspirate or bronchoscopy
   b. positive antigen test on respiratory secretions.

Note:
Do not report chronic bronchitis in a patient with chronic lung disease as an infection unless there is evidence of an acute secondary infection, manifested by change in organism.

LRI-LUNG: Other infections of the lower respiratory tract

Other infections of the lower respiratory tract must meet at least 1 of the following criteria:

1. Patient has organisms seen on smear or cultured from lung tissue or fluid, including pleural fluid.
2. Patient has a lung abscess or empyema seen during a surgical operation or histopathologic examination.
3. Patient has an abscess cavity seen on radiographic examination of lung.

Note:
Report lung abscess or empyema without pneumonia as ***LRI- LUNG.***

GI: GASTROINTESTINAL TRACT INFECTION. OTHER THAN GASTROENTERITIS

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

GI-GIT: Gastrointestinal tract (oesophagus, stomach, small and large bowel, and rectum) excluding gastroenteritis and appendicitis

Gastrointestinal tract infections, excluding gastroenteritis and appendicitis, must meet at least 1 of the following criteria:

1. Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause and compatible with infection of the organ or tissue involved: fever (>38°C), nausea, vomiting, abdominal pain, or tenderness

   And at least 1 of the following:

   a. organisms cultured from drainage or tissue obtained during a surgical operation or endoscopy or from a surgically placed drain
   b. organisms seen on Gram's or KOH stain or multinucleated giant cells seen on microscopic examination of drainage or tissue obtained during a surgical operation or endoscopy or from a surgically placed drain
   c. organisms cultured from blood
   d. evidence of pathologic findings on radiographic examination
   e. evidence of pathologic findings on endoscopic examination (e.g., Candida esophagitis or proctitis).

GI-HEP: Hepatitis

Hepatitis must meet the following critera:

1. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), anorexia, nausea, vomiting, abdominal pain, jaundice, or history of transfusion within the previous 3 months

   And at least 1 of the following:
   a. positive antigen or antibody test for hepatitis A, hepatitis B, hepatitis C, or delta
   b. hepatitis
   c. abnormal liver function tests (e.g., elevated ALT/ AST, bilirubin)
   d. cytomegalovirus (CMV) detected in urine or oropharyngeal secretions.

Note:
Do not report hepatitis or jaundice of non-infectious origin (alpha-1 antitrypsin deficiency, etc).

Do not report hepatitis or jaundice that results from exposure to hepatotoxins (alcoholic or acetaminophen-induced hepatitis, etc).

Do not report hepatitis or jaundice that results from biliary obstruction (cholecystitis).

***GI-IAB*:** Intraabdominal, not specified elsewhere including gallbladder, bile ducts, liver (excluding viral hepatitis), spleen, pancreas, peritoneum, subphrenic or subdiaphragmatic space, or other intraabdominal tissue or area not specified elsewhere

Intraabdominal infections must meet at least 1 of the following criteria:

1. Patient has organisms cultured from purulent material from intraabdominal space obtained during a surgical operation or needle aspiration.
2. Patient has abscess or other evidence of intraabdominal infection seen during a surgical operation or histopathologic examination.
3. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), nausea, vomiting, abdominal pain, or jaundice

   And at least 1 of the following:

   a. organisms cultured from drainage from surgically placed drain (e.g., closed suction drainage system, open drain, T-tube drain)
   b. organisms seen on Gram stain of drainage or tissue obtained during surgical operation or needle aspiration
   c. organisms cultured from blood and radiographic evidence of infection (e.g., abnormal findings on ultrasound, CT scan, MRI, or radiolabel scans [gallium, technetium, etc] or on abdominal x-ray).

Note:
Do not report pancreatitis (an inflammatory syndrome characterized by abdominal pain, nausea, and vomiting associated with high serum levels of pancreatic enzymes) unless it is determined to be infectious in origin.

REPR: REPRODUCTIVE TRACT INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

REPR-EMET: Endometritis

Endometritis must meet at least 1 of the following criteria:

1. Patient has organisms cultured from fluid or tissue from endometrium obtained during surgical operation, by needle aspiration, or by brush biopsy.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), abdominal pain, uterine tenderness, or purulent drainage from uterus.

Note:
Report postpartum endometritis as a health care–associated infection unless the amniotic fluid is infected at the time of admission or the patient was admitted 48 hours after rupture of the membrane.

REPR-EPIS: Episiotomy

Episiotomy infections must meet at least 1 of the following criteria:

1. Postvaginal delivery patient has purulent drainage from the episiotomy.
2. Postvaginal delivery patient has an episiotomy abscess.

REPR-VCUF: Vaginal cuff

Vaginal cuff infections must meet at least 1 of the following criteria:

1. Posthysterectomy patient has purulent drainage from the vaginal cuff.
2. Posthysterectomy patient has an abscess at the vaginal cuff.
3. Posthysterectomy patient has pathogens cultured from fluid or tissue obtained from the vaginal cuff.

Note:
Report vaginal cuff infections as ***SSI-O*** if occurring within 30 days of surgery.

REPR-OREP: Other infections of the male or female reproductive tract (epididymis, testes, prostate, vagina, ovaries, uterus, or other deep pelvic tissues, excluding endometritis or vaginal cuff infections)

Other infections of the male or female reproductive tract must meet at least 1 of the following criteria:

1. Patient has organisms cultured from tissue or fluid from affected site.
2. Patient has an abscess or other evidence of infection of affected site seen during a surgical operation or histopathologic examination.
3. Patient has 2 of the following signs or symptoms with no other recognized cause: fever (>38°C), nausea, vomiting, pain, tenderness, or dysuria

   And at least 1 of the following:
   a. organisms cultured from blood
   b. physician diagnosis.

Note:
Report endometritis as ***REPR-EMET***.

Report vaginal cuff infections as ***REPR-VCUF.***

SST: OTHER SKIN AND SOFT TISSUE INFECTIONS, OTHER THAN SOFT TISSUE AND DECUBITUS ULCER

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

SST-SKIN: Skin infection

Skin infections must meet at least 1 of the following criteria:

1. Patient has purulent drainage, pustules, vesicles, or boils.
2. Patient has at least 2 of the following signs or symptoms with no other recognized cause: pain or tenderness, localized swelling, redness, or heat

And at least 1 of the following:

a. organisms cultured from aspirate or drainage from affected site; if organisms are normal skin flora (ie, diphtheroids [*Corynebacterium* spp], *Bacillus* [not *B anthracis*] spp, P*ropionibacterium* spp, coagulase-negative staphylococci [including *S epidermidis*], viridans group streptococci, *Aerococcus* spp, *Micrococcus* spp), they must be a pure culture
b. organisms cultured from blood
c. positive antigen test performed on infected tissue or blood (e.g., herpes simplex, varicella zoster, *H influenzae*, *N meningitidis*)
d. multinucleated giant cells seen on microscopic examination of affected tissue
e. diagnostic single antibody titer (IgM) or 4fold increase in paired sera (IgG) for pathogen.

Note:
Report infected decubitus ulcers as ***DECU-1*** or ***DECU-2***.

Report infected burns as ***BURN***.

Report breast abscesses or mastitis as ***BRST***.

SST-BURN: Burn

Burn infections must meet at least 1 of the following criteria:

1.
   a. Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or oedema at wound margin

   And

   b. histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue.

2. Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or edema at wound margin

   And at least 1 of the following:

   a. organisms cultured from blood in the absence of other identifiable infection
   b. isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy, or visualization of viral particles by electron microscopy in biopsies or lesion scrapings.

3. Patient with a burn has at least 2 of the following signs or symptoms with no other recognized cause: fever (>38°C) or hypothermia (< 36°C), hypotension, oliguria (< 20 cc/hr), hyperglycemia at previously tolerated level of dietary carbohydrate, or mental confusion

   And at least 1 of the following:

   a. histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue
   b. organisms cultured from blood
   c. isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy, or visualization of viral particles by electron microscopy in biopsies or lesion scrapings.

Notes:
Purulence alone at the burn wound site is not adequate for the diagnosis of burn infection; such purulence may reflect incomplete wound care.

Fever alone in a burn patient is not adequate for the diagnosis of a burn infection because fever may be the result of tissue trauma or the patient may have an infection at another site.

Surgeons in Regional Burn Centres who take care of burn patients exclusively may require Criterion 1 for diagnosis of burn infection.

Hospitals with Regional Burn Centres may further divide burn infections into the following: burn wound site, burn graft site, burn donor site, burn donor site-cadaver; NHSN, however, will code all of these as BURN.

***SST-BRST*:** Breast abscess or mastitis

A breast abscess or mastitis must meet at least 1 of the following criteria:

1. Patient has a positive culture of affected breast tissue or fluid obtained by incision and drainage or needle aspiration.
2. Patient has a breast abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
3.
    a. Patient has fever (>38°C) and local inflammation of the breast

    And

    b. physician diagnosis of breast abscess.

Note:
Breast abscesses occur most frequently after childbirth. Those that occur within 7 days after childbirth should be considered healthcare associated.

SYS: SYSTEMIC INFECTION

ONSET: *Day 3 onwards*

Present on admission or developing on Day 1 or 2 of admission in patients that have been discharged from hospital, acute or non-acute, in the 48 hours prior to admission.

SYS-DI: Disseminated infection

Disseminated infection is infection involving multiple organs or systems, without an apparent single site of infection, usually of viral origin, and with signs or symptoms with no other recognized cause and compatible with infectious involvement of multiple organs or systems.

Note:
Use this code for viral infections involving multiple organ systems (e.g., measles, mumps, rubella, varicella, erythema infectiosum). These infections often can be identified by clinical criteria alone. Do not use this code for healthcare–associated infections with multiple metastatic sites, such as with bacterial endocarditis; only the primary site of these infections should be reported.

Do not report fever of unknown origin (FUO) as DI.

Report viral exanthems or rash illness as DI.

SYS-CSEP: Treated unidentified severe infection

1. Patient has at least one of the following clinical signs or symptoms with no other recognised cause
    a. fever (38°C)
    b. hypotension (systolic pressure <90 mm),
    c. or oliguria (20 cm^3(ml)/hr)

    And

2. Blood culture not done or no organisms or antigen detected in blood

    And

3. With no apparent infection at another site

    And

4. Physician institutes treatment for sepsis

Note:

- **Do not use this code unless absolutely needed (last resort definition)**
- For ***SYS-CSEP*** in neonates, use ***NEO-CSEP*** case definition (see below)

NEO: SPECIFIC NEONATAL CASE DEFINITIONS

Neonatal definitions should only be used for babies in the Neonatal Unit. The general HAI definitions should be used for babies and children in all other wards including the paediatric wards.

NEO-CSEP: Clinical Sepsis

ALL of the 3 following criteria:

1. Supervising physician started appropriate antimicrobial therapy for sepsis for at least 5 days.

And

2. No detection of pathogens in blood culture or not tested

And

3. No obvious infection at another site

And 2 of the following criteria (without other apparent cause):

a. Fever (> 38 ° C) or temperature instability (frequent post-set of the incubator) or hypothermia (<36.5 ° C)
b. Tachycardia (> 200/min) or new / increased bradycardia (<80/min)
c. Capillary refilling time (CRT) > 2s
d. New or increased apnoea(s) (> 20s)
e. Unexplained metabolic acidosis
f. New-onset hyperglycaemia (> 140mg/dl)
g. Another sign of sepsis (skin color (only if the CRT is not used), laboratory signs (CRP, interleukin), increased oxygen requirement (intubation), unstable general condition of the patient, apathy)

Note:
A one-time detection of coagulase-negative staphylococci (CNS) in blood cultures should not exclude the diagnosis of clinical sepsis. A clinical sepsis can also be diagnosed with a single positive blood culture with CNS, which is considered as a blood culture contamination, while other criteria of CNS bloodstream infection are not met and criteria of clinical sepsis have been met.

NEO-LCBI: Laboratory-confirmed BSI

1. At least two of the following:
    a. temperature >38 or <36.5 °C or temperature instability
    b. tachycardia or bradycardia
    c. apnoea
    d. extended capillary refilling time (CRT)
    e. metabolic acidosis
    f. hyperglycaemia
    g. other sign of BSI such as apathy

And

2. A recognised pathogen other than coagulase-negative staphylococci (CNS) cultured from blood or cerebrospinal fluid (CSF; this is included because meningitis in this age group is usually haematogenous, so positive CSF can be regarded as evidence of BSI even if blood cultures are negative or were not taken);

Note:
Report the origin of the neonatal BSI in the field BSI source field. This is found next to the LC-BSI check box on the Patient Data Collection form.
If both the case definitions for NEO-LCBI and NEO-CNSB are matched, report NEO-LCBI

NEO-CNSB**:** Laboratory-confirmed BSI with coagulase-negative staphylococci (CNS)

1. At least two of the following:
    a. temperature >38 or <36.5 °C or temperature instability
    b. tachycardia or bradycardia
    c. apnoea, extended recapillarisation time
    d. metabolic acidosis
    e. hyperglycaemia
    f. other sign of BSI such as apathy

And

2. CNS is cultured from blood or catheter tip;

And

3. Patient has one of:
    a. C-reactive protein >2.0 mg/dL
    b. immature/total neutrophil ratio (I/T ratio) >0.2
    c. leukocytes <5/nL
    d. platelets <100/nL

Note:
Report the origin of the neonatal BSI in the field BSI origin

If both the case definitions for NEO-LCBI and NEO-CNSB are matched, report NEO-LCBI

NEO-PNEU: Pneumonia

1. respiratory compromise;

<u>And</u>

2. new infiltrate, consolidation or pleural effusion on chest X ray;

<u>And</u>

3. At least four of the following:
    a. temperature >38 or <36.5 °C or temperature instability
    b. tachycardia or bradycardia
    c. tachypnoea or apnoea
    d. dyspnoea
    e. increased respiratory secretions
    f. new onset of purulent sputum
    g. isolation of a pathogen from respiratory secretions
    h. C-reactive protein>2.0 mg/dL
    i. I/T ratio >0.2

NEO-NEC: Necrotising enterocolitis

1. Histopathological evidence of necrotising enterocolitis;

OR

2.
    a. At least one characteristic radiographic abnormality (pneumoperitoneum, pneumatosis intestinalis, unchanging 'rigid' loops of small bowel)

<u>And</u>

3. <u>At least two of the following</u> without other explanation:
    a. vomiting
    b. abdominal distention
    c. prefeeding residuals
    d. persistent microscopic or gross blood in stools

Appendix 11: Contacts / general enquiries

If you have any queries or comment regarding any aspect of the PPS or require further clarification on any point given in the protocol, please get in touch with the Point Prevalence Survey Team at HPS:

- **by email (NSS.HPSHAIprevalence@nhs.net), or**
- **by phone (0141 282 2007)**

References

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