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Supplementary Information 1. Data Items collected for the E. coli bacteraemia sentinel surveillance study

Specimen identifiers

We do not collect any patient identifiable information for the purposes of the sentinel survey. We therefore require that any E. coli bacteraemia reports entered onto this survey are initially entered onto the Mandatory HCAI Data Capture System (DCS); the DCS ID and Date of specimen are required fields for this survey. The DCS ID and date of specimen should be the same as those entered onto the HCAI DCS

Risk factors

Urinary catheters in the past 7 days

Include any urinary catheters the patient had in situ at the time of the bacteraemia, or those inserted, removed or manipulated (whether this was done at your Trust or elsewhere, including the community) in the 7 days prior to the onset of bacteraemia. More than one type of urinary catheter can be entered and multiple entries for the same type are possible, for example if the patient has had more than one temporary catheter in the past 7 days. Please include all catheters within the 7 day time frame, regardless of whether or not they were believed to be related to the E. coli bacteraemia or not.

Initial question:

Question	Options	Comments
Did the patient have any urinary catheters in situ, inserted, removed or manipulated in the 7 days prior to the onset of this bacteraemia?	YES/NO/DON'T KNOW	Only if Yes is selected will more detailed questions be asked.

Detailed urinary catheter questions are overleaf

Detailed questions (urinary catheters):

Q1	Q1 Options	Q2	Q2 Options	Comments
Type of catheter inserted:	LONG TERM	Was the catheter removed prior to the onset of bacteraemia? Was the catheter manipulated (e.g. flushed, unblocked) prior to the onset of the bacteraemia	YES/NO/DON'T KNOW YES/NO/DON'T KNOW	Long term defined as: in situ for >=28 days
	SHORT-TERM	Was the catheter removed prior to the onset of bacteraemia?	YES/NO/DON'T KNOW	Short term defined as: in situ for < 28 days
	TEMPORARY	-	-	Temporary defined as: inserted for an operation and removed at end of operation; inserted for specimen collection; self catheterisation.
	DON'T KNOW	-	-	If don't know is selected then the further detailed questions asked of all catheters will not be asked
The following questions will be asked of all catheter types and for each catheter entered				
What was the primary indication for catheterisation?	• FLUID BALANCE • INCONTINENCE • URINARY RETENTION • PERI-OPERATIVE • OTHER (FREE TEXT) • DON'T KNOW	-	-	-
Was this a suprapubic or urethral catheter?	SELECT: SUPRAPUBIC URETHRAL OR DON'T KNOW	-	-	-
Was the catheter antimicrobially impregnated (e.g. silver, chlorhexidine, other substance)?	YES/NO/DON'T KNOW	-	-	-

Indwelling vascular access devices in the past 3 days

Include any indwelling vascular access devices in situ at the onset of bacteraemia or removed (at your Trust or elsewhere, including in the community) in the 3 days prior to the onset of bacteraemia regardless of whether they were thought to be related to the bacteraemia or not.

Initial question:

Question	Options	Comments
Did the patient have an indwelling vascular access device/s in situ or removed at the onset of bacteraemia or in the 3 days prior to the onset of bacteraemia?	Yes/No/Don't know	Only if Yes is selected will more detailed questions be asked.

Detailed questions (intravascular access devices):

Q1	Q1 Options	Q2	Q2 Options	Comments
Type of indwelling vascular access device/s inserted:	• CVC • TEMPORARY CVC (E.G. SHORT/TERM/NON-TUNNELLED) • HICKMAN • MIDLINE • PICC • PORTOCATH • PVC • UMBILICAL ARTERY CATHETER • VAS CATH • OTHER (FREE TEXT) • DON'T KNOW	For each indwelling vascular access device entered, was this line antimicrobially impregnated?	YES/NO/DON'T KNOW	More than one indwelling vascular access device can be entered. If the type of device is not listed select other and provide a free text description

Devices in the past 4 weeks

Include any device in situ at the onset of bacteraemia or inserted (either at your Trust or elsewhere) 4 weeks or less prior to the onset of bacteraemia regardless of whether they were thought to be related to the bacteraemia or not.

Initial question:

Question	Options	Comments
Did the patient have a device in situ at the onset of bacteraemia or inserted 4 weeks or less before the onset of bacteraemia?	Yes/No/Don't know	Only if Yes is selected will more detailed questions be asked.

Detailed questions:

Q1	Q1 Options	Q2	Comments
Type of device/s	• IMPLANTABLE DEFIBRILLATOR • IMPLANTABLE NERVE STIMULATOR/EQUIVALENT • INSULIN PUMP • IUCD • NEPHROSTOMY • PACEMAKER • PERCUTANEOUS JEJUNOSTOMY/EQUIVALENT FEEDING DEVICES • VP OR LP SHUNT OR BOLTS EQUIVALENT • OTHER (FREE TEXT) • DON'T KNOW	For each device selected enter date of insertion or select unknown	More than one device can be selected. If the type of device is not listed select other and provide a free text description.

Any other procedures in the past 4 weeks

Include any other procedures not already mentioned that occurred (in your Trust or elsewhere) 4 weeks or less prior to the onset of bacteraemia regardless of whether they were thought to be related to the bacteraemia or not. Any implants should be included here (e.g. vascular implant, prosthesis) however note that we are only asking for implants inserted 4 weeks or less prior to the onset of bacteraemia, which is different from the surveillance time period used by the HPA's Surgical Site Infection surveillance.

Initial question:

Question	Options	Comments
Has the patient had any procedures in the 4 weeks prior to the onset of this bacteraemia?	YES/NO/DON'T KNOW	Only if Yes is selected will more detailed questions be asked.

Detailed questions:

Q1	Q1 Options		Q2	Q2 Options	Q3	Comments
Type of procedure:	• ABDOMINAL AORTIC ANEURYSM REPAIR (OPEN) • ANEURYSM REPAIR (ENDOVASCULAR) • APPENDICECTOMY • BILIARY TRACT MANIPULATION (ENDOSCOPIC OR PERCUTANEOUS, +- STENTING) • CENTRAL NERVOUS SYSTEM WITH PROSTHESIS/IMPLANTATION INSERTION • CHOLECYSTECTOMY (LAPAROSCOPIC) • CHOLECYSTECTOMY (OPEN) • CYSTOSCOPY+- BIOPSY • EXTREMITY AMPUTATION • HEPATECTOMY (PARTIAL OR OTHER) • JOINT PROSTHESIS • LIVER TRANSPLANT • NEPHRECTOMY • OESOPHAGOGASTRECTOMY (LAPAROSCOPIC) • OESOPHAGOGASTRECTOMY (OPEN) • OTHER CNS • OTHER IMPLANT/METALWORK ORTHOPAEDIC PROCEDURE	• PANCREATIC PROCEDURE • PERIANAL SURGERY • PROSTATECTOMY (OPEN) • RENAL TRANSPLANT • SPINAL SURGERY WITHOUT PROSTHESIS/INSERTION • SPINAL SURGERY WITH PROSTHESIS/INSERTION • THORACIC PROCEDURE • TRANSRECTAL ULTRASOUND (TRUS) • TRANSURETHRAL RESECTION OF THE PROSTATE (TRUP) • URETERIC STENTING/RE-STENTING PROCEDURE • VALVE REPLACEMENT • VASCULAR GRAFT • DON'T KNOW • OTHER	If other is chosen (Q1), indicate if this was other surgical or non-surgical procedure and select one of the following organs/systems:	• NERVOUS SYSTEM • ENDOCRINE SYSTEM AND BREAST • EYE, EAR, MOUTH • RESPIRATORY TRACT • DIGESTIVE TRACT AND OTHER ABDOMINAL ORGANS • HEART • ARTERIES AND VEINS • GENITO-URINARY TRACT • SKIN AND SOFT TISSUE • BONE AND JOINT • OTHER (ALLOWS FREE TEXT DETAIL)	For each procedure enter date of procedure or unknown	More than one procedure can be entered. If Other Procedure and Other site are selected please enter the detail using the free text option.

Antibiotics in the past 4 weeks

Please list all antibiotics regardless of whether they were prescribed in the hospital or community and whether they were for treatment or prophylaxis. It may be necessary to speak to the patient's GP or community health team to find out information about any antibiotics prescribed in the community.

Initial question:

Question	Options	Comments
Has the patient been prescribed antibiotics in the past 4 weeks prior to the bacteraemia?	YES/NO/DON'T KNOW	Only if Yes is selected will more detailed questions be asked.

Detailed questions (antibiotics):

Q1	Q1 Options	Q2	Q2 Options	Q3	Q3 Options	Q4	Comments
Select as many antibiotics as appropriate	• CO-AMOXICLAV • PIPERACILLIN-TAZOBACTAM • AMIKACIN • GENTAMICIN • ERTAPENEM • MEROPENEM • CEFUROXIME • CEFTRIAXONE • CIPROFLOXACIN • NITROFURANTOIN • TRIMETHOPRIM • SEPTRIN • AMOXICLILLIN • CEFIXIME • OTHER ORAL 1ST/2ND CEPHALOSPORIN • OTHER PARENTERAL 1ST/2ND CEPHALOSPORIN • CEFTAZADIME • LEVOFLOXACIN • GLYCOPEPTIDE • METRONIDAZOLE • OTHER (FREE TEXT) • NOT IN NOTES	For each antibiotic what was the indication (select one)?	• MEDICAL PROPHYLAXIS • SURGICAL PROPHYLAXIS • TREATMENT OF INFECTION • DON'T KNOW	For each antibiotic select the treatment area that the treatment or prophylaxis was for.	• NERVOUS SYSTEM • ENDOCRINE SYSTEM AND BREAST • EYE, EAR, MOUTH • RESPIRATORY TRACT • DIGESTIVE TRACT AND OTHER ABDOMINAL ORGANS • HEART • ARTERIES AND VEINS • GENITO-URINARY TRACT • SKIN AND SOFT TISSUE • BONE AND JOINT • SYSTEMIC • OTHER (FREE TEXT) • PREVIOUSLY ENTERED CATHETERS, ACCESS DEVICES, OTHER DEVICES AND PROCEDURES WILL ALSO BE AVAILABLE TO SELECT.	For each antibiotic enter the duration of therapy (Days) or unknown	If it is known that the patient has had antibiotics but the exact agent is not know select "not in notes" for Q1. If this option is selected no further questions will be asked. The list of options in Q3 will show any previously entered urinary catheters, devices, or procedures. Any antibiotics entered in response to other questions will appear in this section. The allowed range for the duration of therapy is 1 to 250 days. For single dose prophylaxis enter 1.

Primary focus/reason for the E. coli bacteraemia

Only one option can be selected. The most likely focus or reason should be selected based on clinical judgement.

Initial question:

Question	Options	Comments
What was the primary focus/reason for the E. coli bacteraemia?	• BONE AND JOINT INFECTION • CENTRAL NERVOUS SYSTEM • FEBRILE NEUTROPENIA • GASTROINTESTINAL TRACT • HEPATOBILIARY • INDWELLING INTRAVASCULAR DEVICE • PNEUMONIA • SKIN/SOFT TISSUE INFECTION • UROGENITAL TRACT • CONTAMINANT • OTHER (FREE TEXT BOX) • UNKNOWN	Once an option is selected the user will be asked more detailed questions relevant to that focus or reason ONLY. Where contaminant or unknown is selected no more specific questions on the focus or reason will be asked. The other free text box must be completed if other is selected.

Focus/reason specific sections

Only the detailed set of questions related to the focus/reason selected above will need to be answered.

Specific bone and joint infection questions:

Q1	Q1 Options	Q2	Q2 Options	Comment
Was this infection secondary to a procedure or related to a catheter/device?	YES/NO/DON'T KNOW	**If no** was the infection related to any of the following:	• DIABETIC FOOT INFECTION • OTHER (FREE TEXT)	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey. If other is selected the free text box must be completed.
		If yes please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE.	

Specific central nervous system questions:

Q1	Q1 Options	Q2	Q2 Options	Comment
Was this infection secondary to a procedure or related to a catheter/device?	YES/NO/DON'T KNOW	**If no** was the infection related to any of the following:	• CEREBRAL ABSCESS • MENINGITIS • SPINAL ABSCESS • VENTRICULITIS • OTHER (FREE TEXT)	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey. If other is selected the free text box must be completed.
		If yes please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE.	

Specific febrile neutropenia questions:

Question	Options	Comment
What was the lowest white cell count prior to the onset of the bacteraemia	ENTER VALUE OR UNKNOWN	Allowed range is 0.00 to 4.00
Was G-CSF given?	YES/NO/DON'T KNOW	-
What was the duration of febrile neutropaenia (days)?	ENTER VALUES OR SELECT CONTINUING	Allowed range is 1 to 250
What was this febrile neutropaenia related to?	• AUTOIMMUNE DISEASE • IATROGENIC DISEASE (E.G. DRUG/SUBSTANCE OTHER THAN MALIGNANCY TREATMENT) • IDIOPATHIC DISEASE • TREATMENT OF MALIGNANCY • OTHER (FREE TEXT) • DON'T KNOW	If other selection then the free text must be completed

Specific gastrointestinal tract questions:

Q1	Q1 Options	Q2	Q2 Options	Q3	Q3 Options	Comment
Was this infection secondary to a procedure or related to a catheter/device?	YES/NO/DON'T KNOW	**If no** was the infection related to any of the following:	• ABDOMINAL ABSCESS • APPENDICITIS • DIVERTICULITIS • GUT ISCHAEMIA • INFLAMMATORY COLITIS (EG CROHN'S DISEASE OR ULCERATIVE COLITIS) • NECROTISING ENTEROCOLITIS • PERFORATION (ANY SITE) • PERIANAL ABSCESS • OTHER (FREE TEXT) • DON'T KNOW	If **yes** to perforation, was this:	• SPONTANEOUS • IATROGENIC • DON'T KNOW	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey. If other is selected the free text box must be completed.
		If yes please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE.			

Specific hepatobiliary infection questions:

Q1	Q1 Options	Q2	Q2 Options	Comment
Was this infection secondary to a procedure or related to a catheter/device?	YES/NO/DON'T KNOW	**If no** then did the patient have any of the following:	• CHOLECYSTITIS • CHOLANGITIS • BILIARY STASIS • PANCREATITIS • LIVER ABSCESS • OTHER (FREE TEXT) • DON'T KNOW	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey. If other is selected the free text box must be completed.
		If yes please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE.	

Specific indwelling intravascular device questions:

Question	Options
Which of the indwelling intravascular devices was this related to	SELECT ONE INDWELLING INTRAVASCULAR DEVICES FROM THE PREVIOUSLY ENTERED LIST OR GO BACK TO ADD ONE

Specific pneumonia questions:

Q1	Q2 Options	Q2	Q2 Options	Comment
What type of pneumonia was this:	• COMMUNITY ACQUIRED • HEALTHCARE ASSOCIATED (WITHIN 48 HOURS OF DISCHARGE OR >= 48 HOURS AFTER ADMISSION) • DON'T KNOW	If healthcare associated was this ventilator associated pneumonia? If healthcare associated was the patient intubated in the 48 hours preceding pneumonia onset?	YES/NO/DON'T KNOW YES/NO/DON'T KNOW	-

Specific skin and soft tissue infection questions:

Q1	Q1 Options	Q2	Q2 Options	Comment
Was this infection secondary to a procedure or related to a catheter/device?	YES/NO/DON'T KNOW	**If no** was the infection related to any of the following:	• DIABETIC FOOT ULCER • PRESSURE SORE • OTHER (FREE TEXT) • DON'T KNOW	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey. If other is selected the free text box must be completed.
		If yes please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE.	

Specific urogenital tract questions:

Q1	Q1 Options	Q2	Q2 Options	Comment
Is this infection:	• EPIDYDIMITIS • LOWER UTI (CYSTITIS) • PELVIC INFLAMMATORY DISEASE • PROSTATITIS (ACUTE) • PROSTATITIS (CHRONIC) • UPPER UTI (PYELONEPHRITIS/RENAL ABSCESS) • OTHER (FREE TEXT) • DON'T KNOW	-	-	Only one option can be selected. The other free text box must be completed if this option is selected.
Is there a date of onset in the patient notes?	YES/NO/DON'T KNOW	If yes, date of onset		-
Was this infection related to: Urinary catheter in situ, inserted, removed or manipulated in the 7 days prior to the bacteraemia OR Procedure OR device 4 weeks or less before the onset of bacteraemia?	YES/NO/DON'T KNOW	If yes, which catheter/procedure was this related to?	SELECT THE APPROPRIATE CATHETER OR PROCEDURE OR GO BACK TO ADD DEVICE OR PROCEDURE.	It will be possible to add catheters/procedures that have been omitted.
How many UTIs has the patient had in the past 12 months	ENTER NUMBER OR DON'T KNOW	-	-	The maximum number that can be entered is 51

Other focus questions:

In addition to the free text box users will be able to select if the other focus was related to a device or procedure

Q1	Q1 Options	Q2	Q2 Options	Comment
Was this other focus of the bacteraemia related to a catheter, procedure or device:	YES/NO/DON'T KNOW	**If yes** please select catheter, device or procedure	SELECT THE APPROPRIATE CATHETER, INDWELLING INTRA-VASCULAR DEVICE, OTHER DEVICE OR PROCEDURE, OR GO BACK TO ADD DEVICE OR PROCEDURE	The catheter, indwelling intra-vascular device, other device or procedure referred to relates to those previously entered for this survey.

Interventions to prevent the bacteraemia

Question	Options	Comments
Please list up to 5 interventions that could have been put in place to prevent this bacteraemia	5 FREE TEXT FIELDS TO BE COMPLETED	These potential interventions can include those within the hospital and community setting and need not be limited to those within your team's remit to implement. These could capture broad concepts such as the improved monitoring of a certain infections in the community. At least one potential intervention must be completed. At least one intervention must be entered

This is the last question of the survey.

E. coli isolate susceptibility results

At the end of the survey please remember to provide the sentinel study with a list of the susceptibility results of each E. coli bacteraemia case entered onto this survey. This can be done using an excel sheet for example.

Note that the fields we require are: DCS ID, each antimicrobial tested and its sensitivity result (Sensitive/Intermediate/Resistant).

This is an example of how the data might be prepared for submission to the HPA. The excel template provided by the HPA would be the same as this but without the antimicrobial names and results.

DCS ID	Antimicrobial name	S/I/R	Antimicrobial name	S/I/R	Antimicrobial name	S/I/R	Antimicrobial name	S/I/R
123456	Drug 1	S	Drug 2	R	Drug 3	I	Drug 4	S
456789	Drug 1	R	Drug 2	S	Drug 3	S	Drug 4	S
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.