

NAME OF TRUST, UNIT: May 2016-October 2016

Counts and rates of positive blood cultures and blood stream infections which meet the case definition in your critical care unit and for all adult critical care units, May 2016-October 2016

| | Q 1 (May-June 2016) | | Q 2 (July-October 2016) | |
|--|---------------------|----------------------------|-------------------------|----------------------------|
| | Your Unit | Neonatal CCUs [§] | Your Unit | Neonatal CCUs [§] |
| Total number of positive blood cultures | | 10 | | 16 |
| Total number of patient days | | 3,730 | | 3,252 |
| Total number of blood culture sets taken | | 220 | | 241 |
| Rate of positive blood cultures per 1,000 patient days | | 2.7 | | 4.9 |
| Rate of positive blood cultures per 1,000 blood culture sets taken | | 45.5 | | 66.4 |
| Total number of BSIs [¥] | | 3 | | 2 |
| Rate of BSI per 1,000 patient days | | 0.8 | | 0.6 |

[§] 2, 2 and 3 units provided full denominator and event data and are included in the total Adult CCU metrics in Q1, Q2 and Q3, respectively. Additional units provided only event data and so could not be included in the overall totals and overall rates.

[¥] see appendix for definitions

Counts and rates of ICU-associated blood stream infections, CVC-associated ICU-associated BSI and CVC-related ICU-associated BSI in your critical care unit and all adult critical care units, May 2016-October 2016

| | Q 1 (May-June 2016) | | Q 2 (July-October 2016) | |
|---|---------------------|----------------------------|-------------------------|----------------------------|
| | Your Unit | Neonatal CCUs [§] | Your Unit | Neonatal CCUs [§] |
| Number of ICU-associated BSIs [‡] | | 2 | | 1 |
| Number of patient days, amongst patients in the ICU>2 days | | 3,052 | | 2,984 |
| Rate of ICU-associated BSI per 1,000 patient days* | | 0.7 | | 0.3 |
| Number of CVC-associated ICU-associated BSIs [‡] | | 1 | | 0 |
| Number of CVC days, amongst patients in the ICU>2 days | | 589 | | 710 |
| Rate of CVC-associated ICU-associated BSI per 1,000 ICU-CVC days* | | 1.7 | | 0.0 |
| Number of CVC-related ICU-associated BSI [‡] | | 1 | | 0 |
| Rate of CVC-related ICU-associated BSI per 1,000 ICU- CVC days* | | 1.7 | | 0.0 |
| CVC utilisation* | | 19.3% | | 23.8% |

[§]2, 2 and 3 units provided full denominator and event data and are included in the total Adult CCU metrics in Q1, Q2 and Q3, respectively. Additional units provided only event data and so could not be included in the overall totals and overall rates.

[‡]see appendix for definitions

*calculated from patients in the ICU >2 nights

Counts and percentages of species identified through positive blood cultures in your ICU and for all adult critical care units, May 2016-October 2016

| | Q 1 (May-June 2016) | | | | Q 2 (July-October 2016) | | | |
|---|---------------------|----------------------------------|----------------------------|----------------------------------|-------------------------|----------------------------------|----------------------------|----------------------------------|
| | Your Unit | | Neonatal CCUs [§] | | Your Unit | | Neonatal CCUs [§] | |
| | No of patients * | % of all positive blood cultures | No of patients * | % of all positive blood cultures | No of patients * | % of all positive blood cultures | No of patients * | % of all positive blood cultures |
| Positive blood cultures | | | 10 | 100.0 | | | 16 | 100.0 |
| Recognised pathogens | | | 3 | 30.0 | | | 6 | 37.5 |
| Skin commensals | | | 7 | 70.0 | | | 10 | 62.5 |
| Skin commensals which meet the BSI case definition [°] | | | 3 | 30.0 | | | 2 | 12.5 |
| Polymicrobial infections | | | 7 | 70.0 | | | 10 | 62.5 |
| Coagulase Negative Staphylococci | | | 0 | 0.0 | | | 0 | 0.0 |
| <i>C. albicans</i> | | | 0 | 0.0 | | | 0 | 0.0 |
| <i>E. cloacae</i> | | | 0 | 0.0 | | | 0 | 0.0 |
| <i>E. faecium</i> | | | 0 | 0.0 | | | 2 | 12.5 |
| <i>E. coli</i> | | | 0 | 0.0 | | | 0 | 0.0 |
| <i>K. pneumonia</i> | | | 0 | 0.0 | | | 0 | 0.0 |
| <i>P. aeruginosa</i> | | | 2 | 20.0 | | | 1 | 6.25 |
| <i>S. aureus</i> | | | 0 | 0.0 | | | 0 | 0.0 |
| Staphylococci other | | | 0 | 0.0 | | | 0 | 0.0 |

[§]2, 2 and 3 units provided full denominator and event data and are included in the total Adult CCU metrics in Q1, Q2 and Q3, respectively. Additional units provided only event data and so could not be included in the overall totals and overall rates.

*patients can have polymicrobial blood cultures, meaning that the sum of the types of positive blood culture may exceed the total number of patients.

[°] See appendix for definitions

Appendix: Case Definitions

1. Blood stream infections (BSIs)

Table A1: Criteria for case definitions for bloodstream infections in adults and paediatrics

| Adults (≥13 years) | Paediatrics (<13yrs) |
|--|--|
| Meets one of the following criteria: | Meets one of the following criteria: |
| a) A recognised pathogen from at least one blood culture | a) A recognised pathogen from at least one blood culture |
| OR | OR |
| b) A common skin microorganism* from 2 blood cultures drawn on separate occasions and taken within a 48hr period AND The patient has at least ONE symptom of fever >38°C, chills or hypotension | b) A common skin microorganism* from 2 blood cultures drawn on separate occasions and taken within a 48hr period AND The patient has at least TWO symptoms of paediatric SIRS ¹ : tachycardia, bradycardia (<1yr), temperature >38.5°C <36°C, elevated respiratory rate, leukocytes (elevated/depressed for age), leukocyte count (if leucocyte is selected) |

*coagulase-negative *Staphylococci*, *Micrococcus* sp., *Propionibacterium acnes*, *Bacillus* sp., *Corynebacterium* sp. etc

‡The presence of at least TWO of the following four criteria (one of which must be abnormal temperature or leukocyte count):

- Tachycardia defined as a mean heart rate >2SD above normal for age in the absence of external stimulus, chronotropic drugs or painful stimuli
- For children <1 year old bradycardia defined as a mean heart rate <10th percentile for age in the absence of external vagal stimuli, beta blocker drugs or congenital heart disease
- Core temperature of >38.5 or <36 degrees Celsius
- Mean respiratory rate >2SD above normal for age or mechanical ventilation for an acute process not related to underlying neuromuscular disease or receipt of general anaesthesia
- Leukocyte count elevated or depressed for age (not secondary to chemotherapy induced leukopenia) or >10% immature neutrophils

Table A2: Criteria for case definitions for bloodstream infections in neonates

Neonates (<28 days)

Meets one of the following criteria:

- a) A recognised pathogen from at least one blood culture

OR

- b) A common skin microorganism* is cultured from blood

AND

Patient has ONE of:

C-reactive protein >2.0 mg/dL

immature/total neutrophil ratio (I/T ratio) >0.2

leukocytes <5/nL

platelets <100/nL

AND

At least TWO of:

temperature >38°C or <36.5°C or temperature instability

tachycardia or bradycardia

apnoea

extended recapillarisation time

metabolic acidosis

hyperglycaemia

other sign of BSI such as apathy

Table A3: Criteria for Neonatal Data Analysis Unit Definition

Neonates (<28 days): Neonatal Data Analysis Unit Definition²

Meets one of the following criteria:

- a) A recognised pathogen from at least one blood culture

OR

- b) Growth of mixed organisms or skin commensals*

AND

Three or more predefined clinical signs:

- Increase in apnoea or bradycardia
- Temperature instability
- Impaired peripheral perfusion (CRT > 3s pallor/mottling/core-peripheral temp gap >2°C)
- Metabolic acidosis/base deficit < -10mmol/L
- Lethargy/irritability/poor handling
- Increased oxygen requirement or ventilator support
- Ileus/onset of feed intolerance
- Fall in urine output
- Hypotension
- Glucose intolerance

**Aerococcus Sp.*, *Bacillus sp. other*, *Corynebacterium sp.*, *Coagulase-negative staphylococci not specified*, *Coagulase-negative staphylococci other*, *Micrococcus sp.*, *Propionibacterium sp.*, *Staphylococcus Epidermidis*, *Staphylococcus Haemolyticus*, *Streptococcus (Viridans group)*

Lower values for heart rate, leukocyte count and systolic BP = 5th percentile; upper values for heart & respiratory rate, leukocyte count = 95th percentile

[†]NDAU Definitions for catheter association BSI accessed 15th April 2016:

[https://www1.imperial.ac.uk/resources/99F3B656-C321-4881-8E24-](https://www1.imperial.ac.uk/resources/99F3B656-C321-4881-8E24-EA1F4355B276/definitionforcabsiv3.pdf)

[EA1F4355B276/definitionforcabsiv3.pdf](https://www1.imperial.ac.uk/resources/99F3B656-C321-4881-8E24-EA1F4355B276/definitionforcabsiv3.pdf)

² NDAU Definitions for catheter association BSI accessed 15th April 2016:

<https://www1.imperial.ac.uk/resources/99F3B656-C321-4881-8E24-EA1F4355B276/definitionforcabsiv3.pdf>

2. Central catheter-bloodstream infection (CVC-BSI)

a. Catheter-associated BSI (CABS I)

Table A4: Criteria for defining catheter-associated BSI (CABS I)

| | |
|---|--|
| <i>Meets ALL of the following criteria:</i> | |
| a) | One of the criteria for bloodstream infection |
| AND | |
| b) | The presence of at least one central venous catheters at the time of the positive blood culture, or CVC removed within 48 hrs before positive blood cultures |
| AND | |
| c) | The signs and symptoms, and the positive laboratory results, including pathogen cultured from the blood, are not primarily related to an infection at another site |

b. Catheter-related BSI (CRBSI)

Table A5: Criteria for defining catheter-related BSI (CRBSI)

| | |
|---|--|
| <i>Meets ALL of the following criteria:</i> | |
| a) | One of the criteria for bloodstream infection |
| AND | |
| b) | The presence of at least one central venous catheters at the time of the positive blood culture or CVC removed within 48 hrs before positive blood cultures |
| AND | |
| c) | At least <u>one</u> of the following where the same culture was identified: <ul style="list-style-type: none"> I) quantitative CVC culture $\geq 10^3$ CFU/ml or semi-quantitative CVC culture > 15 CFU II) quantitative blood culture ratio CVC blood sample/peripheral blood sample > 5 III) differential delay of positivity of blood cultures: CVC blood sample culture positive 2 hours or more before peripheral blood culture (blood samples drawn at the same time) IV) positive culture with the same micro-organism from pus from insertion site V) symptoms improve within 48hr of removal of CVC |