National Surveillance Programs 2019

From January 1, 2019 AGAR national resistance surveillance continues with three major programs (*Staphylococcus aureus*, *Enterococcus* spp., and Enterobacteriaceae [plus *P.aeruginosa* and *Acinetobacter sp*]) and will monitor resistance in isolates from blood cultures only. Participating laboratories have selected two levels of participation, based on availability of appropriate technology and personnel:

- **Silver Participant**: able to collect all required laboratory, demographic and clinical data, payment of $15 per isolate to a maximum of 200 isolates per year
- **Bronze Participant** : able to collect all required laboratory data plus Date of admission, payment of $10 per isolate to a maximum of 200 isolates per year

Participating laboratories that service more than one hospital will collect data from only one of the hospitals (usually the largest) that they serve.

DATA REQUIREMENT	SILVER	BRONZE	NOTE
BASIC DATA			1,2
Blood culture isolate data for each patient episode			3
S. aureus and *Enterococcus* spp.	●	●	4
Enterobacteriaceae, *P. aeruginosa*, *Acinetobacter sp*	●	●	5
Vitek or Phoenix raw data (MIC required)	●	●	6
Date of blood culture collection	●	●	
Laboratory number (for isolate being reported)	●	●	
Genus and species isolated	●	●	7
Polymicrobial bacteraemia	●	●	8
Concomitant organisms	●	●	
Patient Date of Birth	●	●	
Patient Sex	●	●	
Patient Postcode	●	●	
Patient Date of Admission	●	●	9
Storage and shipping of isolates (one per episode)	●	●	10
DEMOGRAPHIC DATA			
Date of Discharge	●		11
CLINICAL AND OUTCOME DATA			
Device-related Infection Y/N (*S. aureus* only)	●		
Principal Clinical Manifestation	●		
Outcome at 7 days (Died/Survived/Unknown)	●		
Outcome at 30 days (Died/Survived/Unknown)	●		
Date of Death ≤ 30 days if died	●		

Notes

1. Entry of results is via the AGAR Data Entry Portal found on the AGAR website agargroup.org
   See Appendix 1 for detailed instructions for use of the portal (emailed separately).
2. Where numbers exceed 200 in any of the programs, no reimbursement will be provided for additional data (budget constraints).
3. Episode is defined as a single bacteraemic event, with compatible clinical symptoms, no matter how many sets of blood cultures were taken or how many were positive during that event. Isolation of the same species from the same patient more than 14 days after the initial positive blood culture is considered a new episode, regardless of any treatment, unless that species was also isolated at least one more time within that 14 days.
4. Data should be collected on all isolates for *S. aureus* and *Enterococcus* spp.
5. All members of the Enterobacteriaceae family are to be included. *P. aeruginosa* and all species of *Acinetobacter* are included.
6. All blood culture isolates that are presumed associated with disease (as the targeted species are) should be tested on a semi-automated instrument (Vitek 2 or Phoenix). We require raw un-interpreted MIC data.
7. Blood cultures that have more than one AGAR surveillance program organism in them can be entered. For instance, finding *E. coli* and *K. pneumoniae* in the one episode can still be entered twice into GNSOP, or *E. coli* plus *S. aureus* in the one episode can be entered into GNSOP and ASSOP respectively. Organisms found in polymicrobial bacteraemia that are not part of any of the surveillance programs are ignored for reporting purposes.
8. Concomitant organisms either ASSOP, AESOP, GNSOP or other to be entered if the bacteraemia is polymicrobial.
9. Date of Admission (assuming the patient has been admitted) is required for all levels of participation.
10. All isolates of *S. aureus* and *Enterococcus* spp. will be shipped on a quarterly basis to the Gram Positive Typing Laboratory at Fiona Stanley Hospital.
    Selected isolates of Enterobacteriaceae will be shipped on a quarterly basis to the Westmead Hospital. Labs will be notified which Enterobacteriaceae to send after the MIC data has been examined.
11. Date of Discharge, or Date of Death if ≤ 30 days, or not discharged > 30 days after date of blood culture collection

Appendix 2

Rationale for data fields

DATA REQUIREMENT	RATIONALE
BASIC DATA	
Blood culture isolate data for ONE patient episode	It is not uncommon to have multiple positive blood culture sets from a single patient episode of bacteraemia. For epidemiological purposes, only episodes count, so we need only record laboratory data from the first positive culture from that episode.
Vitek or Phoenix raw data (MIC required)	Data are best analysed on the basis of MIC, rather than categorical interpretation. This is because: • It permits re-analysis if and when breakpoints change • It captures additional information about acquired resistance with strains that have MICs elevated above wild-type, but still susceptible when the clinical breakpoint is applied
Date of blood culture collection	This allows calculation of the onset category (community versus hospital)
Laboratory number (for isolate being reported)	Laboratory number allows the database managers to contact the participating laboratory should there be questions about particular database entries (errors or omissions)
Patient Date of Birth	This field permits analysis of outcome by age, known to have a strong association with outcome
Patient Sex	Bacteraemia is more likely in males than females, and linked with age, can help explain variation in outcomes
Patient Postcode	Postcode is linked to Socio-Economic Indexes for Areas (SEIFA) scores (http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa), another potential influence on outcome
Patient Date of Admission	This information is essential to assist us in categorising the bacteraemia as • Community-onset: first positive BC collected ≤ 2days after admission • Hospital-onset: first positive BC collected > 2days after admission We realise that many laboratories are unable to get time of admission easily, and hence some episodes which are greater than 48 hours after admission will be categorised as ≤ 2 days after admission
Storage and shipping of isolates (one per episode)	We require all isolates to be stored and sent to the two reference laboratories for more detailed testing
DEMOGRAPHIC DATA	
Date of Discharge	Length of stay can be estimated using this field and Date of Admission

CLINICAL AND OUTCOME DATA

Isolate Source	Outcomes can vary depending on the isolate source
Device-related Infection Y/N	An important association accounting for a significant amount of health-care associated disease. Device-related bacteraemia is defined as a bacteraemia derived from central (which includes Portacaths, PICC lines) or peripheral (venous and arterial) intravascular devices, from catheter-associated urinary tract infection (UTI) (including nephrostomy tubes and stents), or ventilator-associated respiratory tract infection (RTI) or bacteraemias associated with biliary stents.
Principal Clinical Manifestation	Outcomes can vary depending on the clinical manifestation. Three drop-down lists of the commoner clinical manifestations for each of the three surveillance programs
Still Inpatient after 30 days	For long term patients where discharge is greater than 30 days
Death at 7 and 30 days (Died/Survived/Unknown)	All-cause or crude mortality removes the need for assessment of attributable mortality, which is often subjective. Mortality at 30-days is one of the commonest endpoints used for benchmarking.
Date of Death ≤ 30 days if died	Earlier death more likely to be attributable to sepsis

Appendix 2

AGAR Programs: Targeted Species

ASSOP (AUSTRALIAN STAPHYLOCOCCAL SEPSIS OUTCOMES PROGRAM)

Species targeted: *Staphylococcus aureus*

AESOP (AUSTRALIAN ENTEROCOCCAL SEPSIS OUTCOMES PROGRAM)

Species targeted: any species of *Enterococcus*, including but not confined to:

E. faecalis
E. faecium
E. gallinarum
E. casseliflavus
E. avium
E. durans
E. hirae
E. raffinosis

GNSOP (GRAM NEGATIVE SEPSIS OUTCOMES PROGRAM)

Species targeted: any species of the family *Enterobacteriaceae**, including but not confined to:

Escherichia spp. (incl. *Shigella* spp.)
Salmonella spp. except *S.* Typhi serovar
Klebsiella spp.
Raoultella spp.
Enterobacter spp.
Citrobacter spp.
Serratia spp.
Proteus spp.
Providencia spp.
Morganella spp.
Yersinia spp.
Hafnia alvei
Kluyvera spp.
Pantoea spp.
Leclercia spp.
Ewingella spp.
Cedecea spp.
Cronobacter spp.
Edwardsiella spp.
Yersinia spp.
Plesiomonas spp.
Pseudomonas aeruginosa
Acinetobacter spp

* See *http://en.wikipedia.org/wiki/Enterobacteriaceae* for a more complete list of the genera that comprise the family *Enterobacteriaceae*