



The Australian Group on Antimicrobial Resistance
<http://antimicrobial-resistance.com>

Project Plan

Operation of the 2020 Australian Group on Antimicrobial Resistance (AGAR) Surveillance Programmes

01 July 2020 to 30 June 2021

January 2021

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1. Introduction

The Commonwealth of Australia (as represented by the Department of Health) has engaged the Australian Society for Antimicrobials (ASA) for the continuation of Australian Group on Antimicrobial Resistance (AGAR) three 2020 sepsis outcome programs:

- *Staphylococcus aureus* (ASSOP - Australian Staphylococcal Sepsis Outcome Programme)
- *Enterococcus* spp. (AESOP - Australian Enterococcal Sepsis Outcome Programme)
- Enterobacterales, *Pseudomonas aeruginosa* and *Acinetobacter* spp. (GNSOP - Gram negative Sepsis Outcome Programme).

In doing so, within the period of the contract, ASA will maintain its data collection, analyses and reporting, along with the integration of its data as part of the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System. Along with the other AURA program partners, AGAR will collaborate on alignment of data definitions to improve comparability of AMR surveillance data.

Under the contract with the Commonwealth of Australia, funding support is to be made available to the ASA for the operation of the AGAR surveillance programs from 1 January 2021 to 30 June 2021. This includes analysis and reporting on the 2020 AESOP, ASSOP and GNSOP surveillance programs and commence activities in relation collection of 2021 AESOP, ASSOP and GNSOP data.

AGAR is a unique collaboration of clinicians and scientists from major microbiology laboratories around Australia. AGAR tests and gathers information on the level of antibiotic resistance in bacteria causing important and life threatening infections. The group started in 1985 and at that time involved 13 teaching hospitals. It has subsequently grown to involve 40 institutions including five private laboratories. This broadening of the group has meant that not only does the group have good information as to what is happening with major pathogens in the larger teaching hospitals in each State and Territory, but now also has the ability to monitor what is happening with resistance rates in private hospitals. By standardised methodology AGAR has been able to collect ongoing data on what is happening in this country over long periods of time. The group

has also been very successful in being able to make this information available to the broader community both through publications in scientific journals and also numerous presentations at meetings and to groups around Australia and internationally. This has led to important benefits within Australia. Among these benefits has been the ability to allow more rational use of antibiotics based on known Australia wide resistance patterns.

2. Governance Arrangements

ASA, Australian Business Number 31 081 739 370, is a government endorsed charitable institution incorporated in Western Australian in 1999 (Registration Number A10076082).

Although AGAR is a working group of the ASA, the ASA Committee has delegated the authority of running AGAR to the AGAR Executive. The AGAR Executive manages the activities and operations of AGAR. ASA administers the AGAR finances, coordinates the AGAR Executive and Committee meetings and maintains the AGAR website. An AGAR representative, as recommended by the AGAR Executive, is co-opted onto the ASA Committee to provide a report on AGAR activities. The current AGAR representative is Professor Graeme Nimmo.

AGAR Executive (See Appendix 1)

The Executive is composed of eight elected AGAR Committee members and consists of:

A Chair, Deputy Chair, and six scientific convenors.

The elected AGAR members are voted onto the AGAR Executive for a three year term by the AGAR committee members. Decisions made by the AGAR Executive are on a consensus basis. In consultation with the AURA National Coordination Unit, the AGAR Executive organises surveillance programmes on antibiotic resistance where it is decided that these have significance for human health and therapy.

The eight elected members of the AGAR Executive are responsible for the management of the three permanent ongoing programmes:

- Australian Staphylococcus Sepsis Outcome Programme (ASSOP)
- Australian Enterococcus Sepsis Outcome Programme (AESOP)
- Australian Gram-negative Sepsis Outcome Programme (GNSOP)

The AGAR Executive meets twice yearly (July and November)

AGAR Scientific Officers

The two AGAR Scientific Officers administer and collate the data collected from the three permanent ongoing programmes.

- Ms Denise Daley (based at PathWest Laboratory Medicine–WA, Fiona Stanley Hospital, Western Australia)
 - Australian Staphylococcus Sepsis Outcome Programme (ASSOP)
 - Australian Enterococcus Sepsis Outcome Programme (AESOP)

- Ms Jan Bell (based in Adelaide, South Australia)
 - Australian Gram-negative Sepsis Outcome Programme (GNSOP)

The AGAR Scientific Officers' duties are summarised in Appendix 2.

AGAR Writing Groups

The reports submitted to the Commonwealth of Australia for the three ongoing programmes are produced by the AGAR writing groups. The AGAR writing groups are subcommittees of AGAR and report to the AGAR Executive. The Chair of each writing group is a member of the AGAR Executive.

- Australian Staphylococcus Sepsis Outcome Programme (ASSOP)
 - Chair: Prof Geoffrey Coombs
 - Scientific Officer: Denise Daley

- Australian Enterococcus Sepsis Outcome Programme (AESOP)
 - Chair: Prof Geoffrey Coombs
 - Scientific Officer: Denise Daley

- Australian Gram-negative Sepsis Outcome Programme (GNSOP)
 - Chair: A/Prof Thomas Gottlieb
 - Scientific Officer: Jan Bell

AGAR Database Management Committee (see Appendix 3 for membership)

The AGAR database is stored on a secure server and is managed by an AGAR subcommittee. The AGAR Database Management Committee is a working group of AGAR and reports to the AGAR Executive. The Chair of the committee is a member of the AGAR Executive.

- Chair: Prof Graeme Nimmo

The AGAR web application has been developed and is managed, under a service agreement, by Nexus6 Software. The AGAR database is stored on a server hosted by Bulletproof which has been externally reviewed as being security compliant.

The AGAR Database Management Committee has developed a comprehensive database governance and management plan for the operation of the 2020 AGAR antimicrobial resistance surveillance programmes

AGAR Programme Committees

The three programme committees:

- Have the key advisory role of ensuring the highest quality of results is collected within an AGAR surveillance programme
- Analyse the clinical data collected in the AGAR surveillance programme with the aim of producing peer reviewed publications
- Organise additional research activities related to the surveillance programme
- Provide scientific advice to the AGAR Executive on matters that are related to the surveillance programme
- Assist with the July AGAR Committee Meeting Programme

Programme Committee Chairs are:

- ASSOP – Prof Geoffrey Coombs
- AESOP – Prof Geoffrey Coombs
- GNSOP – Prof Jon Iredell

AGAR Committee (see Appendix 4 for membership)

The AGAR Committee includes a representative(s) of each laboratory that participates in AGAR.

All AGAR institutions must be NATA accredited microbiology laboratories (ISO 15189:2012).

AGAR Committee members must participate in the three permanent ongoing surveillance programmes:

- Australian Staphylococcus Sepsis Outcome Programme (ASSOP)
- Australian Enterococcus Sepsis Outcome Programme (AESOP)
- Australian Gram-negative Sepsis Outcome Programme (GNSOP)

The three programmes must be performed as directed by the AGAR Executive.

Committee members are responsible for performing the susceptibility testing of isolates and submitting isolates and data as requested by the AGAR Scientific Officers.

Committee members are responsible for obtaining executive and ethics approval to conduct the AGAR programmes including the collection of prospective patient data (data of birth, sex, postcode of residence, hospital admission and discharge date and 7 and 30 day mortality) which is defined as “personal information” under the *Privacy Act* (Commonwealth).

Characterisation of Isolates

The characterisation of isolates to provide the data required for reporting on antimicrobial resistance is undertaken as follows:

- Australian Staphylococcus Sepsis Outcome Programme (ASSOP)
 - Performed by the
 - Antimicrobial Resistance and Infectious Disease Laboratory (AMRID)
 - School of Veterinary and Life Sciences
 - Murdoch University, Murdoch, Western Australia

Contact: Prof Geoffrey Coombs

- Australian Enterococcus Sepsis Outcome Programme (AESOP)
Performed by the
Antimicrobial Resistance and Infectious Disease Laboratory (AMRID),
School of Veterinary and Life Sciences
Murdoch University, Murdoch, Western Australia

Contact: Prof Geoffrey Coombs

- Australian Gram-negative Sepsis Outcome Programme (GNSOP)
Performed by the Centre for Infectious Diseases and Microbiology,
Westmead Institute for Medical Research, Westmead, New South Wales

Contact: Ms Jan Bell

3. Project Budget and Deliverables

1. Preliminary project report for AGAR ASSOP, AESOP and GNSOP for the period July-December 2020

Deliverable Date Sunday 31 January 2021

2. Project plan covering the period 1 January to 30 June 2021

Deliverable Date Sunday 31 January 2021

3. Expenditure acquittal 1 July 2020 to 31 December 2020

Deliverable Date Sunday 28 February 2021

4. Draft reports for the 2020 AGAR ASSOP AESOP and GNSOP

Deliverable Date Friday 4 June 2021

5. Final project report including final reports for the 2020 AGAR ASSOP AESOP and GNSOP 1 July 2020 to 31 December 2020

Deliverable Date Saturday 31 July 2021

2020 Australian Staphylococcus Sepsis Outcome Program (ASSOP) – Final Report

- i. Determine the AMR rates and resistant phenotypes of community-onset and hospital-onset *Staphylococcus aureus* sepsis infections by jurisdiction.
- ii. Determine the percentage of community *Staphylococcus aureus* sepsis infections caused by PVL positive and negative MRSA.
- iii. Determine the important CA-MRSA and HA-MRSA clones in Australia by jurisdiction.
- iv. Monitor the emergence and spread of PVL positive and negative CA-MRSA clones in Australia, by jurisdiction.
- v. Monitor the transmission of the PVL genes into naïve clones.
- vi. Provide detail of infection types associated with *Staphylococcus aureus* sepsis.

- vii. Provide breakdowns of outcomes (30-day all-cause mortality, length of stay post-episode) by community- versus hospital-onset, and also for MSSA, CA-MRSA and HA-MRSA.
- viii. Determine trends using data from previous ASSOPs by jurisdiction and provide analyses and commentary on the importance of trends for clinical practice and the response to AMR.

NOTE: The ASSOP AGAR Scientific Officer, Ms Denise Daley is responsible for ensuring the data has been submitted by the participating laboratories by the due date. The Scientific Officer is also responsible for checking the quality and validity of the data.

2020 Australian *Enterococcus* Sepsis Outcome Programme (AESOP)

- i. Determine the AMR rates and resistant phenotypes of community-onset and hospital-onset *Enterococcus species* infections by jurisdiction.
- ii. Provide detailed analysis of glycopeptide, high level gentamicin/ streptomycin resistant phenotypes by jurisdiction.
- iii. Provide detail of infection types associated with *Enterococcus* sepsis.
- iv. Provide breakdowns of outcomes (30-day all-cause mortality, length of stay post-episode) by community- versus hospital-onset, and also for vancomycin-susceptible versus resistant strains.
- v. Monitor the emergence and spread of vancomycin-resistant Enterococcal clones and *van* genes in Australia by jurisdiction.
- vi. Determine trends using data from previous AESOPs by jurisdiction and provide analyses and commentary on the importance of trends for clinical practice and the response to AMR.

NOTE: The AESOP AGAR Scientific Officer, Ms Denise Daley is responsible for ensuring the data has been submitted by the participating laboratories by the due date. The Scientific Officer is also responsible for checking the quality and validity of the data.

2020 Gram Negative Sepsis Outcome Programme (GNSOP)

- i. Determine the AMR rates and resistant phenotypes of community-onset and hospital onset key Gram-negative species including *E.coli*, *Klebsiella*, *Enterobacter*, *P. aeruginosa* and *Acinetobacter* sepsis infections by jurisdiction.
- ii. Provide detailed analysis of carbapenem, fluoroquinolone, 3rd or 4th generation cephalosporin resistant phenotypes and ESBL/AmpC producers by jurisdiction.
- iii. Provide detail of infection types associated with gram-negative organisms including Enterobacterales, *P. aeruginosa* and *Acinetobacter* sepsis
- iv. Provide breakdowns of outcomes (30-day all-cause mortality, length of stay post-episode) by community- versus hospital-onset, and also resistance and multi-resistant phenotypes.
- v. Perform trending using data from previous GNSOPs by jurisdiction and provide analyses and commentary on the importance of trends for clinical practice and the response to AMR.

NOTE: The GNSOP AGAR Scientific Officer, Ms Jan Bell, is responsible for ensuring the data has been submitted by the participating laboratories by the due date. The Scientific Officer is also responsible for checking the quality and validity of the data.

7. Expenditure acquittal covering the period 1 January to 30 June 2020

Deliverable Date Saturday 31 July 2021

4. Risk Management

The following scale has been used to assess the risks.

Risk Level:	Extreme risk	Detailed action/plan required
	High risk	Needs senior management attention
	Moderate risk	Specify management responsibility
	Low risk	Managed by routine procedures
Likelihood:	Almost certain	Expected in most circumstances
	Likely	Will probably occur in most circumstances
	Possible	Could occur at some time
	Unlikely	Not expected to occur
	Rare	Exceptional circumstances only
Consequence:	Severe	Would stop achievement of functional goals / objectives
	Major	Would threaten functional goals / objectives
	Moderate	Necessitating significant adjustment to overall function
	Minor	Would threaten an element of the function
	Insignificant	Lower consequence

Qualitative Risk Analysis Matrix

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Severe
Almost certain	M	H	H	E	E
Likely	M	M	H	H	E
Possible	L	M	M	H	E
Unlikely	L	M	M	M	H
Rare	L	L	M	M	H

Risk management plan

The following table details a high level risk assessment for this project. A more detailed risk assessment will be undertaken at the commencement of the project.

Target	What is the risk?	Consequence	Likelihood	Risk	Actions
Laboratories	Low participation rates from laboratories and variable quality in the data submitted to the AGAR Scientific Officers	AGAR will not be able to provide the reports on the required deliverable dates	Unlikely	Medium	The AGAR Scientific Officers are in contact with the participating AGAR laboratories on a regular basis. The Scientific Officers will monitor the performance of each AGAR laboratory and will inform the AGAR Chair and Executive of laboratories that have not submitted data and isolates by the scheduled dates. The AGAR Chair will contact laboratories not performing as anticipated. An annual review of all laboratories will be performed at the December Executive Meeting
AGAR Scientific Officers	Not collating data accurately or within the planned time frame	AGAR will not be able to provide the reports on the required deliverable dates	Unlikely	High	The programme results need to be presented to the AGAR Executive twice yearly (November and July)
AMRID, Murdoch University	Failure of laboratory instrumentation to provide whole genome sequencing (WGS) results	AGAR will not be able to provide the ASSOP and AESOP reports on the required deliverable dates	Low	Medium	Outsource the WGS to another laboratory
Westmead Institute for Medical Research	Failure of laboratory instrumentation to provide genotypic testing	AGAR will not be able to provide the GNSOP report on the required deliverable date	Low	Medium	Outsource molecular typing to another laboratory
AGAR Writing Groups	Not providing reports by the deliverable date	AGAR will not be able to provide the reports on the required deliverable dates	Unlikely	Medium	Provision of reports managed by the AGAR Chair

Target	What is the risk?	Consequence	Likelihood	Risk	Actions
Web portal - data governance	Breach of patient confidentiality	Potential harm to patient/s due to disclosure of personal information Reputational risk to ASA and AGAR	Possible	High	<p>A comprehensive data management plan is in place that addresses privacy, security and ethics approvals management protocol is in place and includes:</p> <ul style="list-style-type: none"> • arrangements for ethics and jurisdictional approval for the collection, containment, release, use and publication of any data consistent with current data sets • privacy requirements for personal information (patient date of birth, sex, postcode of residence, hospital admission and discharge date, 7 and 30 day mortality and the originating laboratory) consistent with the Privacy Act and the Privacy Amendment (Enhancing Privacy Protection) Act 2012 (Cth) (Amending Act) • arrangements to prevent re-identification of patients arrangements for storing the data would prevent re-identification of personal data if matched or put together with to another data set data security • arrangements for holding data securely on the Nexus 6 server and when in use by AGAR scientific officers , data contributor and user authorisation

Target	What is the risk?	Consequence	Likelihood	Risk	Actions
					<p>protocols and mechanisms for monitoring access to the database</p> <ul style="list-style-type: none"> systems and processes used for collection, analysis and storage of data and information and whether they have been designed sufficiently to ensure that the confidentiality, integrity and availability of data and information is protected <p>Copies and dates of ethics approvals are held by AGAR for current data sets, and the purposes for which the data are provided for AGAR are addressed in the approvals</p> <p>Contract with web portal provider includes data privacy and security requirements.</p> <p>All users and staff are familiar with their obligations under the Privacy Act 1988 (Commonwealth) and the relevant state and territory privacy legislation and policies.</p>
Web portal – maintenance and sustainability	Provider no longer able/available to provide the contracted maintenance and support services	<p>Potential significant cost for redevelopment</p> <p>Potential loss of continuity of service and access to database</p>	Possible	High	<p>Due diligence undertaken in relation to capacity of provider to deliver the service for the contracted period as part of contracting process</p> <p>Contract includes requirements for provider to prepare and make available to ASA a manual in relation to web portal development processes, maintenance and operational procedures</p>

Target	What is the risk?	Consequence	Likelihood	Risk	Actions
					Backup arrangements in place for AGAR data

Appendix 1: 2020 - 2023 AGAR Executive Members

Position	Name	Institution
Elected Members (Voting)		
Chair	Prof Geoffrey Coombs	PathWest Laboratory - WA Fiona Stanley Hospital, WA
Deputy Chair	A/Prof Thomas Gottlieb	Concord Hospital, NSW
Scientific Convenors	Prof Peter Collignon	The Canberra Hospital, ACT
	Prof Jon Iredell	Westmead Hospital, NSW
	Prof Graeme Nimmo	Queensland Pathology Central Laboratory, Qld
	Dr Jenny Robson	Sullivan Nicolaides, Qld
	Dr Louise Cooley	Royal Hobart Hospital, Tas
	Dr Morgyn Warner	Royal Adelaide Hospital, SA

Appendix 2: The AGAR Scientific Officers' duties

- Managing the activities of the Australian Group for Antimicrobial Resistance (AGAR)
- Coordinating the three permanent ongoing programmes:
 - Australian *Staphylococcus* Sepsis Outcome Programme (ASSOP)
 - Australian *Enterococcus* Sepsis Outcome Programme (AESOP)
 - Australian Gram-negative Sepsis Outcome Programme (GNSOP)
- Help coordinate and attend the AGAR Executive and Committee meetings
- Preparing the AGAR Executive and Committee meetings' minutes
- Collating the data from the three permanent programmes for the AGAR writing groups
- Presenting the three permanent ongoing programme results to the AGAR Executive and Committee
- Advising and liaising internally and externally on matters associated with AGAR
- Reviewing scientific literature associated with AGAR
- Performing other duties as directed by the AGAR Executive

Appendix 3: 2020 – 2023 AGAR Database Management Committee

Chair	Prof Graeme Nimmo	Queensland Pathology Central Laboratory, Qld
AGAR Scientific Officers	Ms Denise Daley	PathWest Laboratory - WA Fiona Stanley Hospital, WA
	Ms Jan Bell	Adelaide, SA

Appendix 4: 2020 AGAR Committee

State	Institution	Medical Representative	Scientific Representative
ACT	The Canberra Hospital	Prof Peter Collignon	Ms Susan Bradbury
NSW	Concord Hospital	A/Prof Tom Gottlieb	Mr John Huynh
	John Hunter Hospital	Dr Rodney Givney	Ms Bree Harris
	Nepean Hospital	Dr James Branley	Ms Linda Douglass
	Royal North Shore Hospital		Ms Angela Wong
	Royal Prince Alfred	Dr Sebastian van Hal	Ms Alicia Beukers
	Westmead Hospital	Prof Jon Iredell	Dr Andrew Ginn
	Wollongong Hospital	Dr Peter Newton	Ms Melissa Hoddle
	St Vincent's Hospital Sydney	Dr Jock Harkness	Mr David Lorenz
	Sydney's Children's Hospital	Dr Monica Lara	Mr Peter Huntington
	Children's Hospital Westmead	Dr Alison Kesson	Mr Andrew Jarrett
	Liverpool Hospital	Dr Michael Maley	Ms Helen Ziochos
NT	Alice Springs Hospital		Mr James McLeod
	Royal Darwin Hospital	Dr Rob Baird	Ms Jann Hennessy
Qld	Cairns Base Hospital	Dr Enzo Binotto	
	Gold Coast Hospital	Dr Petra Derrington	Ms Cheryl Curtis
	Princess Alexandra Hospital	Dr Naomi Runnegar	Mr Joel Douglas
	Prince Charles Hospital	Dr Robert Horvath	
	Royal Brisbane and	Prof Graeme Nimmo	Ms Narelle George

	Women's		
	Sullivan Nicolaides Pathology	Dr Jenny Robson	Ms Marianne Allen
	Queensland Children's Hospital	Dr Clare Nourse	
SA	Flinders Medical Centre	Dr Kelly Papanoum	Mr Xiao Chen
	Royal Adelaide Hospital and Women's and Children's Hospital	Dr Morgyn Warner	Ms Kija Smith
TAS	Royal Hobart	Dr Louise Cooley	Mr David Jones
	Launceston General Hospital	Dr Pankaja Kalukottege	Ms Kathy Wilcox
Vic	Alfred Hospital	A/Prof Denis Spelman	Ms Jacqueline Williams
	Austin Health	Dr Marcel Leroi	Ms Libby Grabsch
	Monash Medical Centre, Dandenong Hospital, and Monash Children's Hospital	Dr Tony Korman	Ms Despina Kotsanas
	Royal Children's Hospital	A/Prof Andrew Daley	Ms Gena Gonis
	St Vincent's Hospital	A/Prof Mary Jo Waters	Ms Lisa Brenton
WA	Fiona Stanley Hospital		Md Denise Daley
	Royal Perth Hospital	Dr Owen Robinson	Prof Geoff Coombs
	Joondalup Hospital	Dr Shalinie Perera	Mr Ian Meyer
	QEII Medical Centre	Dr Ronan Murray	Ms Jacinta Bowman
	Kimberley Health Region Hospitals	Dr Michael Leung	
	Murdoch Hospital, St John of God Pathology	Dr Sudha Pottumarthy-Boddu	Ms Jacqueline Schuster
	Perth Children's Hospital	Dr Chris Blyth	