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Dear Christina

RE: Seeking feedback: Best practice model for PHL capacity and capability to support a national response to priority MRO outbreaks and other emerging AMR threats

Thank you for giving the Australian Group on Antimicrobial Resistance (AGAR) and the National Neisseria Network (NNN) the opportunity to provide feedback on the "Public Health Laboratory (PHL) Antimicrobial Resistance Laboratory Scoping Review "Real-Time National AMR Surveillance and Response Best Practice Model".

The model is generally encouraging and potentially moves Australia towards a more coordinated national approach.

It is our understanding the model focuses on the development of an optimised public health laboratory (PHL) or reference AMR laboratory network within and between jurisdictions that complements existing infrastructure and supports differing jurisdictional capabilities. We further understand that the model is based on international practices although references, and the cited Appendix were not provided.

It is important to emphasize several very successful Australian AMR surveillance systems, representing substantive investment from both Government and the national scientific and medical community, that have provided decades of valuable data, are continued to be supported and that the expertise of these groups is sought in developing a coordinated system.

These systems e.g AGAR, NNN, have tremendous goodwill with the participating laboratories and inclusivity of laboratory scientists responsible for the day-to-day

testing. It is essential the proposed model does not unravel the progress made by these groups.

We believe for the model to be successful it must be very inclusive of diagnostic microbiology laboratories. As the report currently reads the proposed model appears to be a major scope creep and a takeover on well-established routine diagnostic practices. It will be important to restrict referrals to areas of public health concern as the same technology will be useful at the coalface in the management of individual patients and local issues. Next generation sequencing is now frequently used in clinical microbiology practice and is becoming more routine in public and private diagnostic microbiology laboratories when investigating antimicrobial resistance (AMR) (as illustrated by *M. tuberculosis* testing). Currently most public health units do not have expertise or personnel available in the management of AMR issues so a response arm will be important to develop.

The concept that the best practice model for supporting a national response to priority MRO outbreaks and other emerging AMR threats to PHL AMR laboratories or selected reference laboratories we believe is antiquated and does not acknowledge the technologies or information systems that are utilised by many diagnostic public and private microbiology laboratories.

The ability to become a recognised reference laboratory should be open to any laboratory who wants to establish the service and become NATA accredited to do so. It should be noted referral patterns in private practice are not always along state jurisdictional lines and therefore private laboratories would be concerned about establishing any legal compulsions for referring isolates to any specific laboratory.

Current Surveillance Systems
As Australia has pre-existing, very well established, and globally recognised sample-based surveillance systems (ie AGAR, NAPS, NAUSP), it is appropriate the proposed model does not focus on sample-based surveillance and the reporting of sample-specific rates of resistance, antimicrobial usage and prescribing.

It is critical the proposed model interacts with existing surveillance systems that currently provide national (including non-metropolitan and regional) data including denominator data for a set measure. Cross dialogue between the proposed model and existing surveillance systems will be important and any cross-over worked through by shared representation of the different surveillance bodies at regular planning meetings.

The proposed model should be complementary to existing surveillance systems and should not be used to replace existing valuable sources of national information. We do not understand or accept that the proposed routine laboratory-based AMR surveillance model could not use, or build on, the existing National Alert System for Critical Antimicrobial Resistances (CARAlert) (https://www.safetyandquality.gov.au/our-work/antimicrobial-resistance/antimicrobial-use-and-resistance-australia-surveillance-system/national-alert-system-critical-antimicrobial-resistances-caralert/caralert-resources). Funded by the Australian Government Department of Health, with contributions from the states and territories, CARAlert provides timely advice to state

and territory health authorities on the occurrence on critical antimicrobial resistances (CARs) in their hospitals and communities, as well as providing a national picture of selected CARs. In addition, the system provides standardised guidance on the processes for confirming CARs. CARAlert is a nationally coordinated system that supports both collection and communication of information on confirmed CARs and potential CAR outbreaks, as close as possible to the time of confirmation. CARAlert which includes public and private laboratories, includes 28 confirming referral laboratories. Like the model outlined in the report (section 3.3) the CARAlert system is based on routine processes used by pathology laboratories for identifying and confirming potential CARs:

One Health Surveillance

The focus on human samples seems short sighted given this is a new opportunity to plan for the future, and out of line with "best practice" as recommended by the World Health Organization

Australia's National Antimicrobial Resistance Strategy - 2020 and Beyond, sets a 20-year vision to protect the health of humans, animals and the environment through minimising the development and spread of AMR. Although, the proposed surveillance model specifically includes samples of human origin, it is important the model begins with a One Health approach as sentinel AMR problems may well be detected in environmental and animal samples. eg.
• Hospital outbreaks of CPE may relate to environmental factors (eg. sinks and drains) and true measure of dissemination of some enzymes may be underestimated as sampling occurs on an ad-hoc basis
• Detection of CPE in animal sources is well recognized and may relate to or pre-anticipate human transmission

Timely Feedback
We appreciate the model's focus on real-time information. Experience in the past of delays to or even no return of information and interpretation is not useful to the referring laboratory. It is essential feedback communication systems and processes are adequately resourced to enhance timely responses – not just results but interpretation - to the referring laboratory.

It is also important the flow of information is bidirectional. Referring laboratories are often left out of a loop that exists between the reference laboratory and the jurisdiction's Department of Health. Communication pathways, need to be efficient, uncomplicated and timelines for reporting and turnarounds set as a benchmark.

Diagnostic Laboratories
Will there be a balance established between the proposed model's centralised functions and engagement with diagnostic laboratories that have extended their molecular testing capacity or experience? Some diagnostic laboratories have invested in and developed systems and have machinery available to provide some of the reference functions and consequently will be able to respond quicker to local circumstances.

A sharing of knowledge will be important to maintain skills. Regular reviews, representation of end users in discussions, educational sessions and ongoing

evaluation would encourage participation. It is important for referring labs to be encouraged and considered valued partners.

The proposed model needs to consider incentives for laboratories to refer specimens, including resourcing for transportation and for staff, especially if additional epidemiological data is required. The model will not only need the participation of laboratories but also will also require the inclusion of Infectious Diseases services, Infection Control (often a major source of logistics and information related to outbreaks) and hospital administration providing local governance.

Coordinating Body
It is anticipated that a national coordinating body will be established. Such a coordinating body should be Commonwealth based and include people outside of the PHL/AMR Referring Centre to provide critical assessment and understanding of issues affecting other laboratories. There should be investment in establishing harmonisation of result reporting and interpretation (ie. using phenotypic antimicrobial susceptibility testing as an example - we are yet to have common national antimicrobial susceptibility testing standards and for all laboratories to be moving towards similar reporting). Any guidelines developed –specifically AMR genomics – should be shared with users to encourage understanding and buy-in.

Data
We would be concerned regarding the establishment of restricted data repositories/reporting mechanisms/other process that create any barriers to entry to frontline diagnostic microbiology laboratories stepping into this space. Inclusive engagement with the diagnostic microbiology laboratories will likely result in a cooperative approach to a national public health surveillance program which will be more sustainable and provide the appropriate capacity for testing so that public health laboratories can rapidly respond to new and emerging issues and not compromise what is likely to be routine service provision.

Once again thank you for the opportunity to provide feedback to the policy. We are happy to discuss further with the Department of Health or meet with with the National AMR Outbreak Response Network project coordinators.

Kind regards

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