



Workshop Title	Masterclass: Microbiology, Molecular Biology, and Omics for One Health AMR Research
Facilitators and contributors Details of the individuals leading and contributing to the workshop, including: - Workshop facilitators - Guest speakers or contributors - Their roles in the session	Facilitators: Amy Pruden, Ishi Keenum, Erica Donner Speakers: Amy Pruden, Virginia Tech Ishi Keenum, Michigan Tech Ricardo Soares Magalhaes, SAAFE CRC Heike Schmitt, TU Delft Eddie Cytryn, Volcani Institute Jaap Wagenaar, Utrecht University Celia Manaia, Universidade Católica de Porto Kate Griffiths, Australian National Measurement Institute Johan Bengtsson-Palme, Chalmers University Thomas Berendonk, TU Dresden Panellists: David Graham, Durham University David Kneiss, TU Dresden Ricardo Soares Magalhaes, SAAFE CRC Heike Schmitt, TU Delft Ishi Keenum, Michigan Tech
Background An overview of the context and rationale for the workshop, outlining the key issue, challenge, or opportunity it addresses, and why this topic is timely and relevant.	This Masterclass will provide an overview of methods for monitoring AMR in the environment in harmony with One Health surveillance goals. Emphasis will be placed on aligning monitoring approach and methods with monitoring objectives. Topics include latest developments in sampling strategies, culture methods, PCR-based methods, and 'omics-based methods, with considerations for application in HICs and LMICs. This topic is especially important at this moment following the release of the Quadripartite Guidance on One Health Integrated Surveillance of Antimicrobial Resistance and Use and with increasing expectations and opportunities for data sharing with the accelerating use of AI.
Workshop Aims A description of the purpose of the workshop and its intended focus. This section highlights what participants can expect to explore, learn, or develop during the session.	- The Masterclass will inform a general audience across One Health sectors about the latest developments in environmental AMR monitoring - The Masterclass will highlight opportunities for harmonization of sampling design, monitoring methods, and reporting with monitoring objectives
Participant Takeaways A summary of what participants will gain from attending the workshop. This may include new knowledge, practical skills, tools, frameworks, or shared resources, as well as any tangible outputs (e.g. ideas, draft materials, or collaborative outcomes).	- Knowledge of methods for monitoring AMR in the environment their capabilities, limitations, optimisation strategies - Knowledge about current efforts to harmonize AMR monitoring across One Health sectors - Knowledge about needs and approaches to produce and share comparable data and metadata
Expected Impact An outline of the broader value of the workshop, including how it may: - Influence research, policy, or practice - Support collaboration and knowledge exchange	- This Masterclass will help the research and regulatory communities to better understand the utility of existing data and to contribute to improved and more informative data collection in the future - The content will support continued improvements in monitoring, reporting, and data sharing in a manner that continues to fill key knowledge gaps and supports better understanding of AMR status and trends

Contribute to future work or ongoing initiatives	In the long-term, improved monitoring will inform more effective policy for combating the spread of AMR																														
Who should attend? Information on the intended audience for the workshop, including: - Relevant backgrounds, sectors, or expertise - The level of participation expected (e.g. discussion, group work, problem-solving)	- The masterclass is aimed at a general audience, including students, regulators, and policy makers across One Health sectors - The masterclass will be in the large auditorium in lecture, panel discussion, and Q&A format - The content is organized in a modular format to allow participants to prioritize which aspects are most relevant to them																														
Workshop Schedule and Duration A summary of the structure and flow of the workshop, including: - Key session components - Interactive or breakout activities	<table><tr><th>Time</th><th>Speakers</th><th>Topic</th></tr><tr><td>2:00 PM</td><td>Amy Pruden</td><td>Welcome and overview- Why do we monitor? Integrated One Health monitoring objectives.</td></tr><tr><td>2:10 PM</td><td>Ishi Keenum</td><td>Harmonizing monitoring across sectors- what are the common denominators/methods/ideal sampling locations</td></tr><tr><td>2:20 PM</td><td>Ricardo Soares Magalhaes</td><td>Design characteristics of integrated AMR surveillance - example of applications using the WHO TriCycle.</td></tr><tr><td>2:45 PM</td><td>Heike Schmitt</td><td>Integrating culture based methods- beyond TriCycle: Carbapenem resistant Pseudomonas, vancomycin-resistant Enterococci, and others</td></tr><tr><td>3:00 PM</td><td>Eddie Cytryn</td><td>Under the radar: Copiotrophic enrichment pipelines for enhanced detection of pathogen indicators and ARGs in the environment</td></tr><tr><td>3:15 PM</td><td>Jaap Wagener</td><td>Quadripartite integrated One Health AMR/AMU surveillance guidance overview (Recording)</td></tr><tr><td>3:30 PM</td><td>Afternoon Tea</td><td></td></tr><tr><td>4:00 PM</td><td>Celia Manaia</td><td>Value of qPCR/ddPCR for environmental AMR monitoring</td></tr><tr><td>4:10 PM</td><td>Kate Griffiths</td><td>Need for standards in qPCR/ddPCR measurements and reporting</td></tr></table>	Time	Speakers	Topic	2:00 PM	Amy Pruden	Welcome and overview- Why do we monitor? Integrated One Health monitoring objectives.	2:10 PM	Ishi Keenum	Harmonizing monitoring across sectors- what are the common denominators/methods/ideal sampling locations	2:20 PM	Ricardo Soares Magalhaes	Design characteristics of integrated AMR surveillance - example of applications using the WHO TriCycle.	2:45 PM	Heike Schmitt	Integrating culture based methods- beyond TriCycle: Carbapenem resistant Pseudomonas, vancomycin-resistant Enterococci, and others	3:00 PM	Eddie Cytryn	Under the radar: Copiotrophic enrichment pipelines for enhanced detection of pathogen indicators and ARGs in the environment	3:15 PM	Jaap Wagener	Quadripartite integrated One Health AMR/AMU surveillance guidance overview (Recording)	3:30 PM	Afternoon Tea		4:00 PM	Celia Manaia	Value of qPCR/ddPCR for environmental AMR monitoring	4:10 PM	Kate Griffiths	Need for standards in qPCR/ddPCR measurements and reporting
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	4:20 PM	Johan Bengtsson-Palme	Metageomic monitoring of AMR in the environment and report back from Tuesday 'omics workshop
	4:45 PM	Thomas Berendonk	Report back from Tuesday workshop on reporting and data harmonization
	5:00 PM	Closing Panel Discussion Moderated by: Amy Pruden Panelists: David Graham, David Kneiss, Johan Bengtsson-Palme, Ishi Keenum, Ricardo Soares Magalhaes	Closing panel, harmonizing methods with objectives, considerations for LMICs, what remains in the future, role of AI?
	5:30 PM	Adjourn!	