



EDAR8

Environmental Dimensions
of Antimicrobial Resistance
Brisbane, 2-7 August 2026

WORKSHOP OVERVIEW

Workshop Title	Chemistry and AMR: Chemistry for non-Chemists
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	Dr Jake O'Brien is an NHMRC Emerging Leadership Fellow at the Queensland Alliance for Environmental Health Sciences (QAEHS), The University of Queensland. His main interests are in environmental analytical chemistry, wastewater-based epidemiology and assessing relationships between population level characteristics and chemical exposures. Professor Kevin Thomas directs the Queensland Alliance for Environmental Health Sciences. His research focuses on contaminants of emerging concern, wastewater-based epidemiology, and plastic pollution. He co-founded the SCORE network and leads projects on PFAS, microplastics, and community health assessment through environmental monitoring. Dr Helena Rapp Wright is an MRC Early Career Fellow at Imperial College London. Her research integrates analytical chemistry and wastewater-based epidemiology to study contaminants of emerging concern. She holds a PhD from Dublin City University and is an elected member of the Royal Society of Chemistry's Environmental Chemistry Group. Dr Alex Richardson is a Research Associate at Imperial College London, investigating PFAS in drinking water. With a PhD in analytical science, her work spans environmental monitoring, citizen science, and passive sampling. She combines academic and industry experience to develop innovative tools for chemical contaminant detection and public health protection. Dr Lubertus Bijlsma is a Ramón y Cajal postdoctoral researcher at Universitat Jaume I. His expertise lies in analytical chemistry, particularly mass spectrometry for detecting illicit drugs and emerging contaminants in water. He contributes to international projects on wastewater-based epidemiology and environmental risk assessment of chemical pollutants. Professor Diana Aga, SUNY Distinguished Professor, leads environmental analytical chemistry research at the University at Buffalo. Her work addresses emerging contaminants, PFAS, and antibiotic resistance. She directs the RENEW Institute and develops advanced mass spectrometry methods for environmental monitoring and bioremediation, with global impact on water and public health. Dr Aimee Murray is a Senior Lecturer in Microbiology at the University of Exeter. Her interdisciplinary research explores antimicrobial resistance evolution in the environment. She advises international policy bodies and develops assays for environmental risk assessment, contributing to legislation and global efforts to mitigate resistance through environmental monitoring. Professor Will Gaze leads antimicrobial resistance research at the University of Exeter's Environment and Human Health Centre. His work examines AMR evolution in microbial communities and its environmental dissemination. He advises global agencies including WHO and UNEP, and develops systems models integrating microbiology, ecology, and public health. Professor Barbara Kasprzyk-Hordern specializes in environmental and analytical chemistry at the University of Bath. Her research focuses on water pollution, antimicrobial resistance, and wastewater-based epidemiology. She leads interdisciplinary projects on chemical risk assessment and early-warning systems, contributing to sustainable water management and public health protection.

	Dr Saer Samanipour is Associate Professor at the University of Amsterdam's Van 't Hoff Institute. He develops computational mass spectrometry tools for non-target screening of environmental contaminants. His interdisciplinary work spans exposomics, data science, and chemical space exploration, advancing detection of persistent pollutants in complex environmental matrices. Dr Peter Vikesland is a professor of civil and environmental engineering at Virginia Tech. His research involves the application of fundamental chemical principles to the study of natural and engineered systems. Dr Lisa Golding brings extensive expertise in understanding and protecting water quality to support resilient aquatic ecosystems and secure water resources. Her work spans a wide range of chemical and material stressors relevant to ground water and surface freshwater and marine systems and integrates laboratory testing, field based monitoring, controlled ecosystem studies and advanced molecular tools to evaluate ecosystem condition. Dr Emily M Stevenson is a postdoctoral research fellow with the University of Queensland (QAEHS) and SAAFECRC. Her research explores the role of environmental pollutants in driving selection for antimicrobial resistance (AMR), particularly plastics. She also has widespread expertise beyond academia, spanning policy, industry, public outreach, education and science communication.
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.	Antimicrobial resistance (AMR) is a global challenge, yet the role of chemistry is typically underrepresented in its environmental discourse. This workshop will address the need to integrate chemical perspectives—such as the importance of transformation products, chemical mixtures, chemical properties, and bioavailability—into the assessment of AMR risk and dissemination. With growing interdisciplinary interest and guidelines being established in Australia, Europe and the UK, and organisations such as the WHO, this is an extremely relevant and timely discussion for policy to be framed upon.
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.	This workshop aims to foster dialogue between chemists and microbiologists with the goal to enhance our mutual understanding of AMR-related chemical processes. Participants will explore antimicrobial lifecycles, existing and developing chemical detection approaches (and their limitations), chemical risk assessment, and collaborative strategies. The session will promote the relevance of chemistry to controlling AMR and will encourage cross-disciplinary engagement through interactive formats.
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).	Participants will leave with: • A shared framework for integrating chemistry into AMR risk assessment • Draft content for and opinion article planned for submission • Tools for interdisciplinary collaboration (e.g., Mentimeter outputs) • A contact list for future joint initiatives • Insights into ongoing projects and potential international partnerships
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 • Contribute to future work or ongoing initiatives	The workshop will catalyze interdisciplinary collaboration, elevate the importance of chemistry in the discussion of AMR, and inform future research and policy. The workshop is expected to lead to joint publications, new project proposals, and improved communication between international sectors. By capturing workshop outcomes, we will support long-term integration of chemical insights into AMR strategies.
Who should attend? Information on the intended audience for the workshop, including:	Target audience: Researchers in chemistry, microbiology, environmental science, and public health

• Relevant backgrounds, sectors, or expertise • The level of participation expected (e.g. discussion, group work, problem-solving)	Expected involvement: Active participation in discussions, group work, and interactive exercises.
Workshop Schedule and Duration A summary of the structure and flow of the workshop, including: • Key session components • Interactive or breakout activities	Duration: 1.5 hours Format: 1. Icebreaker (5 minutes) 2. Interactive session using Mentimeter (5 minutes) 3. Thematic presentations (e.g., detection methods and challenges, mixtures). These will be given on key concepts by experts (e.g. Jake O'Brien (UQ) on environmental residue analysis; Helena Rapp Wright (Imperial College London) – Advanced detection techniques; Lisa Golding – metals and bioavailability; Barbara Kasprzyk-Hordern (Bath) Chemicals versus socioeconomics and demographics – stereochemistry and AMR; Diana Aga (Buffalo) Concentrations of environmental chemicals; Aimee Murray (Exeter) SELECT Assays for determining relevant chemicals; Alexandra Richardson (Imperial College London) Chemical sampling methods; Dr Lubertus Bijlsma Identifying the unknown chemicals; Dr Emily M Stevenson SAAFE Kickstart (40) 4. Group discussions and breakout activities (20) 5. Wrap-up and report back (15) 6. Interactive sessions using Mentimeter and contributor sign-up for publication (5)