



Editorial

Commemorating the World Antimicrobial Resistance Awareness Week 2025: Key insights and lessons from the International Society for Infectious Diseases' ProMED-AMR 2024 reporting[☆]



The International Society for Infectious Diseases' (ISID) Program for Monitoring Emerging Diseases (ProMED) is an innovative, rapid, internet-based infectious disease surveillance system utilising formal and informal data to provide near real-time alerts about emerging and re-emerging infectious disease outbreaks. ProMED disseminates information about emerging and re-emerging disease outbreaks concerning humans, animals, and plants around the world, with all reports reviewed for accuracy by a team of subject matter expert Moderators [1–3].

ProMED has nine regional networks that focus on either language, geography, or, most recently, topic. ProMED-AMR is ProMED's newest network, having been established in 2020 [4], and is the only topic-based network. ProMED-AMR contributes to strengthen the global community's capacity to monitor, detect, and combat AMR. Since 2020, ProMED-AMR has posted over 4,000 alerts to the network, averaging over 900 posts per year. AMR posts cover AMR-specific outbreaks, surveillance, stewardship, research, innovation and other pertinent AMR-related topics. Over 11,000 readers subscribed to receive email updates from ProMED-AMR (prior to ProMED's transition to a subscription model in April 2025), with many more reading the posts on the ProMED-AMR website.

The 2023 and 2024 archived ProMED-AMR data are archived in ProMED's existing Amazon Web Services (AWS) database. Data were extracted into an Excel file and text processing was performed using text mining to track outbreak trends [5], followed by a subsequent descriptive statistical analysis.

In the last two years, ProMED-AMR collected and disseminated AMR data in one of several general areas: antimicrobial stewardship, environmental, food safety, nosocomial outbreaks, outbreaks, research & innovation, surveillance, and therapy. These categories were generated using ProMED's internal guidelines on moderation of posts for the internal dashboard "Subject lines" and "Post titles", followed by internal validation by the co-authors for the overall posts published in ProMED-AMR.

In 2024, ProMED-AMR observed a significant increase (51%, $n=1400$) in posts compared to 2023 ($n=925$). Antimicrobial stewardship were the highest published posts with over 300 posts in

both study years (371: 2023, 481: 2024). This was followed by Surveillance (317: 2023, 436: 2024), research and innovation (10.6% in 2023; 18.2% in 2024), Antimicrobial environmental contamination (7.8% in 2023; 8% in 2024), while the lowest category was nosocomial outbreaks with less than 10 posts in both years.

An analysis of the AMR posts from 2023/2024 indicates that only 2% are actual outbreaks or spread events. This finding reinforces the perception that there is a paucity of data related to outbreaks of AMR organisms. With many AMR organisms now viewed as being as dangerous as some historic biowarfare agents, early dissemination of information from such outbreaks is critical [6,7]. However, since AMR data is inherently laboratory-generated and often needs to be aggregated by public health officials from disparate sources, there is inherent delay in publication of even the most basic details of such cases and/or events. Worse yet is when the data is held to put together a larger, peer-reviewed paper which can take months to years in many cases. Early notification is critical to speeding up the flow of information while not compromising the academic responsibilities that many of those with access to, and interest in, such data have. One potential solution may be to build in requirements for early reporting via mechanisms that do not impact the authors' ability to formally publish data later, a model that gained momentum during the COVID-19 pandemic with pre-prints and/or partial data sets being made public well before publication of the same data in a traditional journal.

Another key finding from the ProMED-AMR data set was the lack of information on the availability of the appropriate therapeutics in clinical settings. Typical AMR reports highlight what was used to treat the patient, but many clinical records/reports do not capture if the *first-choice* antibiotic was even available. The ability to document critical drug shortages in real-time and the role such unavailability plays in AMR development over time is a key point that the authors feel requires urgent action and collaboration among the clinical, government, pharma, and university sectors.

The analysis of the timeline of posts published to the ProMED website by month revealed that the one standout is the abundance of surveillance reporting that occurs in November and December, likely tied to the end of the calendar (as well as the end of the fiscal year for US-funded efforts, in particular). Taken together with the observation above on outbreak reporting, it highlights the potential misalignment of publications with the actual risk of the outbreak, pathogen evolution over time, etc. A more detailed understanding of how project and/or publication timelines can neg-

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actively impact information dissemination, or at a minimum contribute to it, seems an ideal target for intervention, with one solution being to build in requirements for early reporting into future project timelines.

In 2023 and 2024, a total of 1,735 posts were published from 111 countries (excluding posts that were specified as regional, sub-regional or global without specific country linkage). It is important to note that the data is biased and skewed towards selected countries (those providing more publicly available reports compared to others for reasons that are not entirely clear) where for example published posts from China and United States of America were 29.6% (n=514) of the total posts in 2023 and 2024. It is also clear that there is underreporting (or a general lack of publicly available information/data) in other regions.

When visualising the countries of origin for all ProMED-AMR posts from 2023 and 2024, a cautious visual association emerges between higher reporting frequency and areas of greater population density. This observation, however, warrants more rigorous analysis to determine whether a real correlation exists. The authors also recognise that ProMED-AMR is not comprehensive, and some AMR events and reports go unrecorded each year. Reporting patterns are likely shaped by multiple additional factors, including national and regional infrastructure, surveillance capacity, and the strength of AMR governance systems.

In conclusion, ProMED-AMR provides global AMR content coverage, but gaps in coverage (geographic and sub-populations in particular) and under reporting for individual countries were detected. The existence of a global electronic AMR reporting platform over the last four years demonstrates the value of unconventional data-sources in complementing traditional, laboratory-driven and government-led surveillance systems.

Declaration of competing interest

The authors declare no conflict of interest.

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