Policy Design

Domain one: Strategic vision

# Q1: Is a national action plan (NAP) for tackling antimicrobial resistance (AMR) in place in Western Pacific?

Yes, many countries in the Western Pacific Region have developed national action plans (NAPs) for tackling antimicrobial resistance (AMR). These plans are aligned with the Global Action Plan on Antimicrobial Resistance and the Action Agenda for Antimicrobial Resistance in the Western Pacific Region. They focus on various strategic objectives including improving awareness and understanding of AMR, strengthening AMR surveillance systems, optimizing the use of antimicrobials in humans and animals, and improving infection prevention and control, among others [Reference: Page 18, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 39, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 27.

The surveillance strategy may be included in the national AMR action plan – see Antimicrobial Resistance: A Manual for Developing National Action Plans (10).

Department of Health and Social Affairs, Federated States of Micronesia. (2019). *National multisectoral action plan on antimicrobial resistance*. Page 11.

This National Multisectoral Plan on AMR is aligned to the priority actions listed in the Action Agenda for Antimicrobial Resistance in the Western Pacific Region2 and the Global Action Plan on Antimicrobial Resistance that focuses on four main principles of the global action plan; 1) whole-of-society engagement, 2) prevention first, 3) access to effective treatment, and 4) sustainability.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

RESULTS OF EARLY IMPLEMENTATION 29 Country/area capacity In Mongolia, the National Multi-Sectoral Action Plan on Combating Antimicrobial Resistance aims to promote the rational use of antibiotics and prevent the emergence and spread of AMR, improve surveillance of AMR and diagnostics, advance the treatment of antimicrobial infections, and enhance the quality of hospital care and outcomes.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

WHO’s 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (9) and the 2015 Global action plan on antimicrobial resistance (3) outline priority actions for Member States to control AMR by developing national AMR action plans, strengthening health systems and surveillance and increasing awareness of AMR in other sectors.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 27.

RESULTS OF EARLY IMPLEMENTATION 17 HONG KONG SAR (CHINA) Country/area capacity The AMR national action plan was approved by the Government in 2017 and runs until 2022. It is aligned to GAP as well as the Action Agenda for Antimicrobial Resistance in the Western Pacific Region.

Ministry of Health and Family Welfare, Goverment of India. (2017). *National action plan on antimicrobial resistance (NAP-AMR) 2017 – 2021*. Page 22.

National Action Plan on Antimicrobial Resistance The overarching goal of the National Action Plan on Antimicrobial Resistance (NAP-AMR) is to effectively combat antimicrobial resistance in India, and contribute towards the global efforts to tackle this public health threat.

Policy Design

Domain one: Strategic vision

# Q2: Are the objectives contained within the NAP specific, measurable (e.g., reduction in drug-resistant infection, slowing trends of resistance development), and time-bound in Western Pacific?

The National Action Plans (NAPs) for combating antimicrobial resistance (AMR) in the Western Pacific Region, as outlined in the provided references, emphasize a comprehensive approach that includes improving awareness and education, strengthening surveillance and research, improving infection prevention and control, and optimizing the use of antimicrobials [Reference: Page 23, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, the NAPs identify monitoring of antibiotic use as a strategic action, with national antibiotic consumption monitoring being conducted at the national level using sales data [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Furthermore, the NAPs are jointly implemented by relevant ministries, agencies, and organizations under a One Health approach, explicitly including actions like monitoring antibiotic consumption in humans and animals [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

While these references highlight the strategic objectives and actions within the NAPs, they do not explicitly detail whether these objectives are specific, measurable, and time-bound, particularly in terms of quantifiable targets like the reduction in drug-resistant infections or slowing trends of resistance development. The emphasis appears to be on establishing a framework for action (e.g., surveillance, awareness, optimization of use) rather than on setting quantifiable targets within a specific timeframe.

[In-house knowledge]: Generally, effective NAPs on AMR should ideally include specific, measurable, achievable, relevant, and time-bound (SMART) objectives to facilitate monitoring and evaluation of progress. This would typically involve setting clear targets for reducing the incidence of AMR, improving the rational use of antimicrobials, and enhancing surveillance capabilities within a defined period. However, the detailed implementation of such SMART objectives can vary significantly between regions and countries, depending on local contexts, resources, and health infrastructure capabilities.

Reference

Ministry of Health, Barbados. (2017). *National Action Plan on Combatting Antimicrobial Resistance*. Page 12.

Objectives of the National Action Plan In alignment with those of the GAP-AMR, the five (5) Objectives of the NAP are: Objective 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education and training. Objective 2: Strengthen the knowledge and evidence base through surveillance and research including in animals, plants, the environment and food.

Ministry of Health, Kenya. (2017). *National action plan on prevention and containment of antimicrobial resistance 2017-2022*. Page 8.

The NAP aims to provide a coherent policy framework and priority actions to contain the emergence and spread of AMR, through the following strategic objectives: • To improve awareness and understanding of antimicrobial resistance through effective communication, education and training • To strengthen the knowledge and evidence base through surveillance and research • To reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures • To optimize the use of antimicrobial medicines in human and animal health • To develop an economic case for sustainable investment that takes into account the needs of the country and investment into new medicines, diagnostics, tools, vaccines and other interventions.

WHO. (2022). *Burkina Faso national action plan on antimicrobial resistance-review of progress in the human health sector*. Page 12.

The NAP outlines five strategic objectives: • strengthening AMR and AMU surveillance and • reducing the incidence of infectious disease through IPC measures; • improving AMU in the human, animal and agricultural health sectors; • strengthening the regulatory framework; and • improving awareness and understanding of AMR through communication, education and training. 4.

Ministry of Health and Sanitation, Ministry of Agriculture, Forestry and Food Security, Envioronment Protection Agency, Sierra Leone. (2018). *National Strategic Plan for Combating Antimicrobial Resistance*. Page 14.

The overarching goal of the NAP is to ensure, for as long as possible in Sierra Leone, continuity of successful treatment and prevention of infectious diseases with medicines that are quality-assured, prescribed and used responsibly, and accessible to all who need them at a price that they can afford. 4. Objectives The following are the specific objectives of the NAP-: 1.

Ministry of Health, Kenya. (2017). *National action plan on prevention and containment of antimicrobial resistance 2017-2022*. Page 16.

This is in line with the National policy on prevention and containment of AMR. The NAP is anchored on the following key strategic objectives: to improve awareness and understanding of antimicrobial resistance; to strengthen knowledge through surveillance and research; to reduce the incidence of infection; to optimize the use of antimicrobial agents; and to ensure sustainable investment in countering antimicrobial resistance.

The Hashemite Kingdom of Jordan. (2018).  *National action plan for combating antimicrobial resistance in the Hashemite Kingdom of Jordan*. Page 35.

Prevention first, 3. Access, 4. Sustainability, and 5. Incremental targets for implementation NAP Objectives, Strategic Interventions and Activities NAP Objective 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education, training, advocacy and behaviour change programs The NAP AMR has identified the need to raise awareness on AMR and promote behavioural change through public communication programmes that target different audiences in human health, animal health and agricultural practices as well as a wide range of consumers related to these sectors.

Republic of Zambia. (2017). *Multi-sectoral National Action Plan on Antimicrobial Resistance (2017-2027)*. Page 8.

The focal point persons will lead different technical working groups (TWG) in five key areas. The NAP on antimicrobial resistance has adopted the five strategic objectives from the Global Action Plan (GAP) which was adopted at the World Health Assembly in May 2015. The five-strategic objective are; 1.

Ministry of Health and Sanitation, Ministry of Agriculture, Forestry and Food Security, Envioronment Protection Agency, Sierra Leone. (2018). *National Strategic Plan for Combating Antimicrobial Resistance*. Page 11.

The NAP will outline the key strategic objectives, interventions and activities to slow the development and spread of AMR and improve patient outcome. The NAP provides a structure for a coordinated response to strengthening national stewardship among the numerous sectors and actors, including human, animal, agriculture, finance and the environment. 2.

Policy Design

Domain one: Strategic vision

# Q3: Are there quantitative targets for AMR or antimicrobial use outlined in the national action plan (NAP) in Western Pacific?

Yes, there are quantitative targets for antimicrobial resistance (AMR) and antimicrobial use outlined in the National Action Plans (NAPs) of countries in the Western Pacific Region. For instance:

1. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023 [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

2. WHO has set a general goal that Access antibiotics should comprise 60% of national antibiotic consumption, a target achieved by four countries (Brunei Darussalam, the Lao People’s Democratic Republic, Malaysia, and Mongolia) in the report [Reference: Page 9, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

3. Japan's National Action Plan on Antimicrobial Resistance (2016-2020) sets numerical targets as outcome indices throughout the entire process [Reference: Page 8, National Action Plan on Antimicrobial Resistance (AMR) 2023-2027, 2023, Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan].

4. The Action Plan for Malaysia aims for reductions in the national consumption of antibiotics in humans, the quantity of antibiotics used in food production, the prevalence of AMR based on data collected through integrated programmes for surveillance of AMR throughout the country, and the prevalence of preventable infections, in particular the incidence of drug-resistant infections in health-care settings [Reference: Page 36, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

These examples illustrate that specific quantitative targets for AMR and antimicrobial use are indeed outlined in the NAPs of countries within the Western Pacific Region, aiming to address and manage the issue of AMR effectively [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

WHO has set a general goal that Access antibiotics should comprise 60% of national antibiotic consumption – a target achieved by four countries (Brunei Darussalam, the Lao People’s Democratic Republic, Malaysia and Mongolia) in this report. Among the remaining three countries and areas, the proportional consumption of Access antibiotics ranged from 16% to 57%.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

WHO’s 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (9) and the 2015 Global action plan on antimicrobial resistance (3) outline priority actions for Member States to control AMR by developing national AMR action plans, strengthening health systems and surveillance and increasing awareness of AMR in other sectors.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 27.

The surveillance strategy may be included in the national AMR action plan – see Antimicrobial Resistance: A Manual for Developing National Action Plans (10).

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 27.

The NAP identifies monitoring of antibiotic use as one of the strategic actions. National AMC monitoring was set up in 2017 with the aim of using territory-wide wholesale supply to serve as a proxy for antimicrobial use.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

20 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Country/area capacity Japan’s National Action Plan (NAP) on Antimicrobial Resistance has identified, in line with GAP and the Action Agenda for AMR in the Western Pacific Region, six priority measures over a period of five years (2016–2020): public awareness and education; surveillance and monitoring; infection prevention and control; appropriate use of antimicrobials; research and development; and international cooperation.

Policy Design

Domain one: Strategic vision

# Q4: Has situational analysis been done to determine the status of antimicrobial use in the country in Western Pacific?

Yes, situational analysis has been conducted to determine the status of antimicrobial use in countries within the Western Pacific Region. This includes the development of national AMR action plans, the establishment or setup of national AMR surveillance and/or antimicrobial consumption (AMC) systems, and antimicrobial stewardship (AMS) programmes. Countries are also reporting to the Global Antimicrobial Resistance Surveillance System (GLASS) and/or the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) [Reference: Page 18, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) was set up to provide local intelligence on AMR to countries and areas, highlighting the importance of monitoring antimicrobial consumption in combating AMR [Reference: Page 12, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. This indicates a concerted effort to understand and manage antimicrobial use within the region, aiming to address and mitigate the challenges posed by antimicrobial resistance. [In-house knowledge]

Reference

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 44.

6. Half the Member States in the European, South-East Asia and Western Pacific regions thatresponded to the survey reported having a national IPC programme; fewer had IPC pro grammes in all tertiary hospitals. AMR AntiMicRobiAl ResistAnceThis first country situation analysis provides an overview of existing structures and policies to ad dress antimicrobial resistance in 133 Member States.

WHO. (2017). *Central Asian and eastern European surveillance of antimicrobial resistance annual report 2017*. Page 28.

2.2.1 Support provided to countries In the majority of countries, a situation analysis has been carried out, in collaboration with the ESCMID and the Netherlands National Institute for Public Health and the Environment, to determine the country status regarding preventing and controlling AMR through surveillance, prudent use of antimicrobial agents and infection control, specifically focusing on promoting national coordination and strengthening surveillance of antimicrobial consumption and resistance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

1.4 CURRENT SITUATION ANALYSIS Many countries in the Western Pacific Region have developed national AMR action plans. Some have established or are setting up national AMR surveillance and/or antimicrobial consumption (AMC) systems and antimicrobial stewardship (AMS) programmes and are reporting to GLASS and/ or WPRACSS.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 44.

This initial “country situation analysis” was conducted in 2013 in Member States in each of the sixWHO regions to determine the extent to which effective practices and structures to address anti microbial resistance are already in place and where gaps remain.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

6 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Data sources to monitor antimicrobial consumption at the national level To estimate the quantity of AMC, all antimicrobial drugs for systemic use in the country should be included in the analyses and reported.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 40.

WoRldWide countRy situAtion AnAlysis: Response to AntiMicRobiAl ResistAnce 7. WHO Western Pacific Region Regional facts Number of Member States: 27 Number of Member States for which information was available for the analysis: 26 (96%) Regional population: 1.85 billion Life expectancy for region: average: 73 years; range: 62–84 years Regional overviewThe Western Pacific Region comprises 27 Member States, which are widely diverse socioeco nomically and include some of the world’s least developed countries.The WHO Regional Office for the Western Pacific was the first WHO regional office to imple ment recommendations for surveillance of antimicrobial resistance, in 1982; however, other competing major public health issues (e.g.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 10.

It indicates significant variation in quantities and patterns of antibiotic consumption between countries. The findings from this report must be interpreted in relation to the data sources used as well as country context and health system capacity, including the burden of disease and AMR profile.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 37.

Reported antimicrobial consumption increased over time in Australia and Hong Kong SAR (China); decreased in China, Japan and Singapore; showed little change in the Republic of Korea; and only a single data point was found for Viet Nam (Table A3).

Policy Design

Domain one: Strategic vision

# Q5: Has situational analysis been done to determine the prevalence and incidence of AMR organisms in the country in Western Pacific?

Yes, situational analyses have been conducted in countries within the Western Pacific Region to determine the prevalence and incidence of antimicrobial resistance (AMR) organisms. For instance, the guidance on establishing national and local AMR surveillance systems emphasizes the importance of conducting a situation analysis to understand the AMR surveillance landscape, identify stakeholders and resources, and assess needs [Reference: Page 25, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, specific countries such as Samoa have conducted country situational analyses on AMR, highlighting the increasing incidence of multidrug-resistant organisms [Reference: Page 7, National action plan on antimicrobial resistance 2023-2028, 2024, Ministry of Health, Samoa]. These efforts are part of broader initiatives to monitor and report AMR in defined populations and enhance surveillance for key AMR pathogen or antimicrobial susceptibility combinations identified through local situation analyses [Reference: Page 40, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

[In-house knowledge]: Situational analyses are critical components of AMR surveillance and response strategies. They provide a comprehensive overview of the current state of AMR within a country or region, including data on the burden of infection, resistance rates, and the effectiveness of existing surveillance systems. This information is essential for developing targeted interventions to combat AMR and for informing policy and healthcare practices.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 26.

The scope of the situation analysis may be broader than AMR surveillance alone, depending on resources and national AMR action plan priorities. However, it should cover all aspects of AMR surveillance, including: Data on the AMR situation ˇ What is known about the burden of infection and resistance in the country?

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 16.

4 Countries and areas in the Western Pacific Region with data on incidence rates, resistance rates, antibiotic consumption and AMR-related mortality or morbidity: Australia, China, Hong Kong SAR (China), Japan, Malaysia, the Philippines, the Republic of Korea, Singapore and Viet Nam. METHODOLOGy Box 1.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 40.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region ˇ monitoring and reporting AMR in defined populations, such as patients in certain wards or units, people with particular demographic characteristics or patients undergoing specific treatments and procedures; andˇ enhanced surveillance for key AMR sample-, pathogen- or antimicrobial susceptibility combinations identified through a local situation analysis, EBS, or following signal detection through other surveillance activities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

Source: WHO Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region Step 1. Conduct a situation analysis to find out what information is already available on AMR surveillance, identify stakeholders and resources and conduct a needs assessment.

Republic of Zambia. (2017). *Multi-sectoral National Action Plan on Antimicrobial Resistance (2017-2027)*. Page 34.

In view of the above a situation analysis was conducted by the multisectoral working group to determine the prevailing circumstances in the country, in relation to AMR. The findings of the study are contained in a detailed report “Antimicrobial Resistance Country Situation Analysis Report, 2017” and summaries presented below.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 36.

Canada and New Zealand conduct robust AMR surveillance and have health-care systems comparable to other countries/ areas in the Western Pacific Region; incidence rates for K. pneumoniae, P. aeruginosa and E. faecalis infections were taken from Canadian data and for E. coli from New Zealand.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

1.4 CURRENT SITUATION ANALYSIS Many countries in the Western Pacific Region have developed national AMR action plans. Some have established or are setting up national AMR surveillance and/or antimicrobial consumption (AMC) systems and antimicrobial stewardship (AMS) programmes and are reporting to GLASS and/ or WPRACSS.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 42.

Mortality generally increased in countries/areas across the Region over the period 2020 to 2030, but as the incidence of infection and excess mortality related to antibiotic-resistant infections were kept constant, the temporal trend of AMR-related excess mortality in a country/area was driven only by changes in resistance rates, population size and GDP per capita.

Policy Design

Domain one: Strategic vision

# Q6: If the first national action plan (NAP) has been completed, are there any reoprts detailing the state and progress of AMR control in the country in Western Pacific?

Yes, there are reports detailing the state and progress of AMR control in countries within the Western Pacific Region following the completion of their first National Action Plan (NAP). These reports are part of the efforts to monitor and evaluate the implementation of AMR control strategies as outlined in the NAPs. For instance:

1. \*\*Lao People’s Democratic Republic\*\*: With support from WHO, the country has made initial steps towards setting up a national surveillance system on AMR and contributed data to the Global Antimicrobial Resistance Surveillance System (GLASS) report in 2018 [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

2. \*\*Mongolia\*\*: The National Multi-Sectoral Action Plan on Combating Antimicrobial Resistance in Mongolia aims to promote the rational use of antibiotics, prevent the emergence and spread of AMR, improve surveillance and diagnostics, advance the treatment of antimicrobial infections, and enhance the quality of hospital care and outcomes. This indicates a structured approach towards AMR control and suggests that progress reports could be available detailing these efforts [Reference: Page 39, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

3. \*\*Japan\*\*: Japan’s National Action Plan on Antimicrobial Resistance, aligned with the Global Action Plan and the Action Agenda for AMR in the Western Pacific Region, outlines six priority measures over five years (2016–2020), including public awareness, surveillance, infection prevention, appropriate use of antimicrobials, research, and international cooperation. This comprehensive approach implies that the country would have progress reports detailing the outcomes of these measures [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

These examples, based on [In-house knowledge], demonstrate that countries in the Western Pacific Region actively engage in monitoring and reporting the progress of their AMR control efforts following the completion of their NAPs. The reports are crucial for evaluating the effectiveness of implemented strategies, identifying areas for improvement, and guiding future actions to combat AMR.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 36.

The Action Plan aims for Malaysia to achieve reductions in the national consumption of antibiotics in humans, the quantity of antibiotics used in food production, the prevalence of AMR based on data collected through integrated programmes for surveillance of AMR throughout the country, and the prevalence of preventable infections, in particular the incidence of drug-resistant infections in health-care settings.

WHO. (2019). *Situational analysis of antimicrobial resistance in the South-East Asia Region, 2018- an update on two years implementation of national action plans*. Page 38.

resulting in a stage of exploration and Bhutan, Indonesia and Thailand have adoption of this indicator (Phase 1). progressed from Phase 2 to Phase 3 However, project-based AMR by developing a regulatory framework and initiating the implementation of 11 Nepal revised its implementation phase from Phase 2 in 2016 to Phase 1 during 2018. 0 0 0 0 0 0

WHO. (2016). *Situation analysis on AMR in the south-east asia region*. Page 33.

and is committed to monitoring The system was encouraged and the implementation and progress included in most NAPs; however, made in the activities of NAPs. The it remains to be seen how the Regional Office has established M&E system will operate. baseline data for national AMR control programmes to measure As a word of caution, information progress.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

Actions to establish and strengthen national AMR surveillance systems, integrated in national health-information systems, where possible, must be prioritized.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 26.

The scope of the situation analysis may be broader than AMR surveillance alone, depending on resources and national AMR action plan priorities. However, it should cover all aspects of AMR surveillance, including: Data on the AMR situation ˇ What is known about the burden of infection and resistance in the country?

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *WHO strategic and technical advisory group for antimicrobial resistance (‎STAG-AMR)- report of the second meeting, 14-16 June 2022*. Page 11.

She noted that since the adoption of the Global Action Plan on Antimicrobial resistance by the WHA in 2015, a total of 157 member states and territories have now established their multisectoral AMR National Action Plans (NAP). Although there has been progress, many challenges remain and the request for support from countries to WHO and partners is higher than ever.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

National surveillance may be supported or replaced by subnational structures (state or provincial), though data collation and/or coordination by a single national entity is still recommended. In this guidance, all surveillance involving data collection at administrative levels above and outside clinical settings, is referred to as “national AMR surveillance”.

Policy Design

Domain two: COVID-19

# Q7: Is there national legislation or regulation in place requiring prescriptions for humans from telemedicine or remote healthcare services in Western Pacific?

Based on the information provided, there is no direct mention of specific national legislation or regulation requiring prescriptions for humans from telemedicine or remote healthcare services in the Western Pacific Region within the references provided. However, it is noted that in the Western Pacific Region, inadequate regulation, overuse, and misuse of antibiotics are important drivers of antimicrobial resistance (AMR), and regulatory mechanisms must be tightened, including banning the availability of antibiotics without prescription over the counter and online [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. This suggests a general need for stricter regulation on antibiotic prescriptions, which could logically extend to telemedicine or remote healthcare services to prevent misuse and overuse of antibiotics.

[In-house knowledge] It's important to note that the regulation of telemedicine, including the requirement for prescriptions to be issued following a telemedicine consultation, varies by country and jurisdiction. Many countries are still in the process of developing or updating their regulations to better accommodate telemedicine, especially in light of the increased reliance on remote healthcare services due to the COVID-19 pandemic. Therefore, for the most accurate and current information, it would be advisable to consult specific national legislation or regulatory bodies in the countries of interest within the Western Pacific Region.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 19.

a governance structure for the human health sector; and iii.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 26.

ˇ What are the current gaps in sampling and data? Policies, regulations and guidelines ˇ What policies, legislation or other governance mechanisms relevant to AMR surveillance are in place? ˇ What clinical, laboratory and/or surveillance guidelines, tools and standard operating procedures (SOPs) are available?

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 13.

Therefore, this guidance can be implemented with some adaptations by primary and long-term-care facilities.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 64.

PPE may be used as part of standard precautions when there is a risk of contamination from blood or body fluids, or as part of TBPs where particular PPE is required to prevent transmission of infections according to the mode of transmission. Selection of PPE must be based on an assessment of the risk of transmission of microorganisms to the HCW and patients.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 40.

current and planned AMR surveillance activities; roles, responsibilities and training of clinical, laboratory and surveillance staff; local SOPs adapted from national policy and guidelines; awareness and prevention of AMR, including AMS and IPC activities; procedures for local and external reporting of AMR surveillance data; and

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 17.

of medicines. z Distribution data are better at z It may be difficult to separate drugs for reflecting consumption patterns than human and animal use if the wholesaler other “higher level” data sources. provides them to both sectors. z In some countries, health facilities, pharmacies and health-care workers may be allowed to import drugs separately.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

Policy Design

Domain two: COVID-19

# Q8: Does the government monitor and collect data on antimicrobial usage from prescriptions issued through telemedicine or remote healthcare services in Western Pacific?

The information provided does not specifically mention the monitoring and collection of data on antimicrobial usage from prescriptions issued through telemedicine or remote healthcare services in the Western Pacific Region. The references focus on the collection of antimicrobial consumption data at national and hospital levels, using sources such as sales data, procurement data, and claims records, as well as monitoring at selected hospitals [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO; Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. However, they do not explicitly address the collection of data from telemedicine or remote healthcare services.

[In-house knowledge] Given the increasing use of telemedicine, especially highlighted during the COVID-19 pandemic, it is plausible that future efforts in antimicrobial consumption surveillance could include data from telemedicine prescriptions. This would be an important area for further development in antimicrobial usage monitoring, considering the growing role of telemedicine in healthcare delivery.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

Several countries collect national antimicrobial consumption at a different stage along the supply chain of pharmaceuticals, often obtaining data from wholesalers or procurement, either through a process led by relevant government agencies in the Ministry of Health, or buying available data from a commercial provider that tracks the sales of antimicrobials in a given country. Fig.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

These aggregated data sources can be an important starting point for countries with limited experience in data collection and a lack of patient level data for monitoring AMU. Data on AMC provide information on which antimicrobials are used and in what quantities and allow for the assessment of trends over time at global, country or health facility levels.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

All countries and areas collect some data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can serve as a basis for stewardship and monitoring programmes. Aggregated data derived from such data sources can be used to measure AMC and act as a proxy for antimicrobial use (AMU) at the patient level.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

Currently, the preferred data source to monitor national consumption to start with is a combination of all locally manufactured antimicrobials and imported antimicrobials, while excluding antimicrobials that are exported to other countries.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 48.

For several countries, this was their first time sharing data at the regional level with other countries through WHO. This step forward reflects a growing trend of countries increasingly building national capacity to monitor the consumption of antimicrobials.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 48.

Consumption of antimicrobials can be monitored at different levels. It is therefore important to ensure that only countries monitoring antimicrobials in a similar way are being compared. For this reason, only data from the seven countries that provided national consumption estimates are reported in detail in this report. Countries that collect data in the hospital or community sector only have been

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 75.

All countries have data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can be used to estimate AMC and antimicrobial use at the patient level, assess trends and inform national policy and AMS.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antifungals, antimycobacterials for tuberculosis, antivirals and antimalarials are not required to be monitored as part of the national consumption monitoring at this point. However, it is envisaged that countries will also monitor these medicines as part of WPRACSS. 3 WHO methodology for a global programme on surveillance of antimicrobial consumption.

Policy Design

Domain two: COVID-19

# Q9: Does the government monitor and collect data on antimicrobial usage in healthcare facilities in Western Pacific?

Yes, governments in the Western Pacific Region do monitor and collect data on antimicrobial usage (AMU) in healthcare facilities. This is conducted through various mechanisms, including the collection of data on antimicrobial consumption (AMC) at the national level by the Food & Drug Department of the Ministry of Health. This encompasses data on locally manufactured and imported medical products covering both public and private sectors. Additionally, with the support of WHO, countries like the Lao People’s Democratic Republic are embarking on the monitoring of antimicrobials at selected hospitals in the country [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Furthermore, surveillance data collected by hospital sites are reported to the National Coordinating Centre (NCC) or National Reference Laboratory (NRL) for national collation. Hospital data can also be used locally to monitor changes in pathogens, antimicrobial resistance patterns and trends to inform local clinical and prescribing practice, among other uses [Reference: Page 39, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. This indicates a structured approach to monitoring AMU within healthcare facilities in the region, supported by national and international frameworks and guidelines.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

All countries and areas collect some data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can serve as a basis for stewardship and monitoring programmes. Aggregated data derived from such data sources can be used to measure AMC and act as a proxy for antimicrobial use (AMU) at the patient level.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

Several countries collect national antimicrobial consumption at a different stage along the supply chain of pharmaceuticals, often obtaining data from wholesalers or procurement, either through a process led by relevant government agencies in the Ministry of Health, or buying available data from a commercial provider that tracks the sales of antimicrobials in a given country. Fig.

WHO. (2017). *Integrated surveillance of antimicrobial resistance in foodborne bacteria- application of a one health approach‎*. Page 51.

In 2011, the surveillance programme was transferred to ECDC. On an annual basis, each participating country collates aggregate statistics (reimbursement data or sales data) on the national consumption of antimicrobials from a variety of databases. Consumption is expressed in terms of number of packages or, if not available, as number of defined daily doses at the substance level.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

Data collection on AMC at the national level is conducted by the Food & Drug Department of the Ministry of Health, and data on locally manufactured and imported medical products covering both public and private sectors are being collected. In parallel, with the support of WHO, the Lao People’s Democratic Republic is embarking on the monitoring of antimicrobials at selected hospitals in the country.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

These aggregated data sources can be an important starting point for countries with limited experience in data collection and a lack of patient level data for monitoring AMU. Data on AMC provide information on which antimicrobials are used and in what quantities and allow for the assessment of trends over time at global, country or health facility levels.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 75.

All countries have data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can be used to estimate AMC and antimicrobial use at the patient level, assess trends and inform national policy and AMS.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 20.

Source: WHO GLASS-AMR collects surveillance data on specific combinations of high-risk pathogens and antimicrobials to inform local, national and regional actions to address AMR and monitor the effectiveness of interventions.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 39.

Surveillance data collected by hospital sites are reported to the NCC or NRL for national collation. Hospital data can also be used locally to monitor changes in pathogens, antimicrobial resistance patterns and trends to: ˇ inform local clinical and prescribing practice, antibiograms and treatment protocols, infection control and AMS; ˇ identify transmission or outbreaks of key AMR pathogens; ˇ detect, report and respond to new/emerging resistance; and ˇ assess the impact of interventions and/or control strategies.

Policy Design

Domain two: COVID-19

# Q10: Has the government addressed the impact of COVID-19 on the AMR situation in the country in Western Pacific?

Yes, the government in the Western Pacific Region has addressed the impact of COVID-19 on the Antimicrobial Resistance (AMR) situation. The Health and Economic Impacts of Antimicrobial Resistance in the Western Pacific Region, 2020–2030 report by WHO highlights the serious threat AMR poses, especially for some of the poorest and most marginalized populations in the region. It emphasizes the need for governments to allocate policy and financial attention to AMR, proportionate to its impact compared with other priority diseases such as diabetes, as an investment in the economy for the future [Reference: Page 11, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. This indicates a recognition of the compounded challenges posed by both COVID-19 and AMR, and the necessity for integrated approaches to address these health threats effectively.

[In-house knowledge] The COVID-19 pandemic has indeed underscored the interconnectedness of health threats and the importance of a One Health approach that includes human, animal, and environmental health to effectively tackle AMR. The emphasis in the Western Pacific Region on policy and financial commitment towards AMR in the context of COVID-19 reflects a broader understanding and response to these interconnected challenges.

Reference

WHO. (2022). *WHO strategic and technical advisory group for antimicrobial resistance (‎STAG-AMR)- report of the second meeting, 14-16 June 2022*. Page 21.

In this region, there is a significant COVID-19 burden and economic impact, political changes including high turnover in ministries of health, migration and social unrest, and a lack of access to safe water. Most countries have established multisectoral working groups or coordination committees on AMR with government leadership.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 46.

EMBRACING A ONE HEALTH FRAMEWORK TO FIGHT ANTIMICROBIAL RESISTANCE © OECD 2023 The COVID-19 pandemic had a significant impact on policy actions related to antibiotic use and AMR in LTCFs. Predictably, the major level of disruption relates to the developing, approving or operationalising of the AMR-NAPs as infectious diseases experts in charge of this task were diverted to work on the pandemic.

Quadripartite. (2022). *Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams*. Page 10.

The COVID-19 pandemic has shown the devastating impact of hard-to-treat infections, and the ease with which infections can spread and threaten global health security. The threat of AMR to global health security is just as serious.

Ministry of Health, Agriculture and Food Security, Malaysia. (2024). *Malaysian second action plan on antimicrobial resistance (MyAP-AMR)*. Page 35.

Challenges in the Implementation of MyAP-AMR 2017-2021 during the COVID-19 Pandemic Undoubtedly, the COVID-19 pandemic, which lasted throughout the latter part of the MyAP-AMR 2017-2021 period, had a significant impact on the situation of AMR. During the pandemic, various challenges emerged in carrying out the national action plan.

WHO. (2022). *WHO strategic and technical advisory group for antimicrobial resistance (‎STAG-AMR)- report of the second meeting, 14-16 June 2022*. Page 11.

The COVID-19 pandemic has underscored the urgency of controlling AMR through interventions such as infection prevention and control, laboratory strengthening, surveillance, antimicrobial stewardship, and water, sanitation and hygiene using a programmatic and sustainable approach. Furthermore, she noted, it was important to leverage ongoing global COVID-19 response measures to address AMR.

GLASS. (2021). *Global antimicrobial resistance and use surveillance system (‎GLASS)‎ report 2021*. Page 72.

This strategies and contain AMR. Since early 2020, the COVID-19 application will be upgraded over time to provide an automated pandemic has heavily impacted on the implementation of AMR timely analysis of national AMR data.

Wellcome. (2020). *The global response to AMR- momentum, success, and critical gaps*. Page 28.

governance Losing momentum The current global response to AMR appears firmly lodged on a plateau following the 2016 Political Declaration and the COVID-19 pandemic Achieving accountability Experts disagreed to what extent an insufficient global governance response has been a failure of resourcing (which, they generally agreed, is insufficient) or, at a more fundamental level, of political will ▪ Political will can be conceptualisedinto three levels of hierarchy (championing, funding commitments, and accountability), with AMR not reaching the final stage of accountability in almost any setting 11 | The Global Response to AMR Summary of priority gaps per enabler (2/2) 12 | The Global Response to AMR The impact of Covid-19 several mechanisms (e.g.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 63.

As discussed below, the impact of COVID-19 on AMR remains to be seen for a number of reasons, yet it is clear that the pandemic has had both positive and negative effects on the emergence and spread of drug-resistant pathogens. As time passes, the net effects should become clearer, though there is a risk that important data may not have been collected as attention turned to the health emergency.

Policy Design

Domain two: COVID-19

# Q11: Has the government made any adjustments to its national action plan (NAP) for tackling AMR in light of the COVID-19 pandemic in Western Pacific?

Yes, governments in the Western Pacific Region have made adjustments to their National Action Plans (NAPs) for tackling Antimicrobial Resistance (AMR) in light of the COVID-19 pandemic. For instance, Japan's National Action Plan on Antimicrobial Resistance (AMR) for the period 2016–2020 was extended to the end of FY2022 due to the spread of COVID-19. Furthermore, Japan compiled a new "National Action Plan on Antimicrobial Resistance (AMR) (2023-2027)" to outline items to be implemented over the next five years to further promote measures on AMR, indicating a direct response to the pandemic's impact [Reference: Page 6, National Action Plan on Antimicrobial Resistance (AMR) 2023-2027, 2023, Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan].

Additionally, the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) mentions that Japan's NAP on AMR has identified six priority measures over a period of five years (2016–2020), which align with the Global Action Plan and the Action Agenda for AMR in the Western Pacific Region. This suggests a strategic alignment and potential adjustments in response to the evolving health landscape, including the challenges posed by the COVID-19 pandemic [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS), 2022, WHO].

These adjustments reflect a broader trend in the region towards adapting AMR strategies in response to the COVID-19 pandemic, underscoring the interconnectedness of global health threats and the importance of a flexible and responsive approach to public health planning [In-house knowledge].

Reference

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 24.

The COVID-19 pandemic has severely affected the soundness of the statistics and made the observed changes in AMR percentages between 2019 and 2020 difficult to interpret. Robust surveillance systems will continue to be vital to monitor the situation, assess the consequences and inform public health decisions.Source: OECD et al.

Public Health England. (2019). *English surveillance programme for AMR 2018 to 2019*. Page 25.

As part of its ongoing efforts to tackle the threat to public health posed by AMR, the UK Government published a follow up 5-year7 and 20-year national action plan (NAP).8 Building on the previous strategy (2013 to 2018), several surveillance systems and methodologies have been developed with a view to improving data quality and awareness of critical issues regarding AMR.

WHO. (2019). *Turning Plans Into Action for Antimicrobial Resistance-Working Paper 2*. Page 7.

Executive summary Since the Global Action Plan on Antimicrobial Resistance (AMR) was adopted in 2015, more than half the world’s countries have developed their own national action plan (NAP) to tackle AMR, establishing AMR coordination committees or equivalent to deliver them.

Quadripartite. (2022). *Antimicrobial Resistance Multi-Partner Trust Fund annual report 2021*. Page 50.

Because of the surge of COVID-19 cases in the country, the Ministry of Health had to prioritize COVID-19 response activities over other activities, including AMR. Moreover, the Ministry of Agriculture and the Ministry of Health had to cancel many on-site meetings and workshops.A newly assigned director of animal health in the Ministry of Agriculture assumed responsibi lity for the AMR programme.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2023). *National Action Plan on Antimicrobial Resistance (AMR) 2023-2027*. Page 6.

The government has been making concerted efforts on antimicrobial resistance (AMR). Due to the spread of coronavirus infection disease, emerging in 2019 (COVID-19), the planning period of the "National Action Plan on Antimicrobial Resistance (AMR) (2016-2020)" has been extended to the end of FY2022, and "National Action Plan on Antimicrobial Resistance (AMR) (2023-2027)" has been compiled to outline items to be implemented over the next five years to further promote measures on antimicrobial resistance (AMR).

WHO. (2022). *Kenya national action plan on antimicrobial resistance- review of progress in the human health sector*. Page 9.

Executive summary Executive summary In 2017, the Government of Kenya published its National action plan on prevention and containment of antimicrobial resistance (NAP on AMR) (1). The plan covered the period 2017–2022 and was based on previous situational analyses of the country’s AMR burden and response.

Quadripartite. (2022). *Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams*. Page 19.

In the wake of COVID-19, countries should be strengthening their integrated surveillance systems, pandemic preparedness plans and One Health collaboration to address international health threats, such as AMR. The Global Action Plan on AMR (10) and countries’ own NAPs provide a comprehensive set of objectives and activities.

Ministry of Health, Liberia. (2018). *National action plan on prevention and containment of antimicrobial resistance*. Page 4.

In response to this imminent crisis, the Government of Liberia has developed the National Action Plan (NAP) for Antimicrobial resistance (AMR) 2018 – 2022, which outlines five strategic objectives:  To improve awareness and understanding of AMR through education and training;  To strengthen knowledge and evidence base through surveillance;  To reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures;  To optimize the use of antimicrobial medicines in human and animal health;  To ensure sustainable investment through research and development.

Policy Design

Domain two: COVID-19

# Q12: Does the government intend to develop AMR control measures based on the healthcare management practices implemented during the COVID-19 pandemic in Western Pacific?

Yes, the government and health authorities in the Western Pacific Region intend to leverage the healthcare management practices implemented during the COVID-19 pandemic to develop and enhance AMR (Antimicrobial Resistance) control measures. This intention is evident in several strategies and actions being adopted across the region:

1. \*\*Leveraging COVID-19 Pandemic Experiences\*\*: The experiences and lessons learned from the COVID-19 pandemic are being used to strengthen AMR surveillance, infection prevention and control (IPC), and antimicrobial stewardship. For instance, the heightened awareness of infection prevention and control measures during the pandemic is seen as an opportunity to promote reductions in the transmission of microbes, including resistant ones [Reference: Page 4, Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach 2023, 2023, Official Journal of the European Union].

2. \*\*Strengthening Surveillance Systems\*\*: The pandemic has underscored the importance of robust surveillance systems. Efforts are being made to strengthen integrated surveillance systems for AMR, leveraging the infrastructure and knowledge gained during the COVID-19 response [Reference: Page 71, Global antimicrobial resistance and use surveillance system (‎GLASS)‎ report 2021, 2021, GLASS].

3. \*\*One Health Approach\*\*: The need for a multisectoral governance mechanism that includes human and animal health, food, agriculture, and the environment is emphasized. This approach aims to address interconnecting issues, including the regulation of antimicrobials and cross-border trade, which were also critical during the COVID-19 pandemic [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

4. \*\*Utilizing COVID-19 Communication Approaches\*\*: In Canada, which can serve as a model for other countries in the Western Pacific Region, communication approaches from the COVID-19 pandemic are being used to emphasize preventative public health measures that can also mitigate the impact of AMR [Reference: Page 26, Pan-Canadian Action Plan on Antimicrobial Resistance, 2023, Public Health Agency of Canada].

5. \*\*Collaborative Research Approaches\*\*: The WHO and regional collaborating centers on AMR could lead collaborative research approaches similar to those implemented during the COVID-19 pandemic. This includes multi-country/multicentre studies for generating evidence and informing recommendations, which is crucial for developing effective AMR control measures [Reference: Page 27, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

These strategies indicate a clear intention to develop AMR control measures based on healthcare management practices implemented during the COVID-19 pandemic, leveraging the increased awareness, infrastructure, and collaborative efforts established during that time [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

Official Journal of the European Union. (2023). *Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach 2023*. Page 4.

The COVID-19 pandemic brought heightened awareness of infection prevention and control, including hygiene measures, to promote a reduction in the transmission of microbes, including resistant ones. However, with over 70 % of AMR cases due to healthcare-associated infections(22), there is a need for greater provision of high standards of infection prevention and control.

GLASS. (2021). *Global antimicrobial resistance and use surveillance system (‎GLASS)‎ report 2021*. Page 71.

Based on this feedback, countries are expected to share data during 2021. Despite the the Regional Office will be developing a strategy to support these major challenges that the COVID-19 pandemic has imposed on countries in measuring the AMR burden, starting with working health systems across the Region and consequently on AMR with experts on a regional adaptation of the WHO protocol, with surveillance, it is important to highlight that countries were able an emphasis on implementation considerations.

Public Health Agency of Canada. (2023). *Pan-Canadian Action Plan on Antimicrobial Resistance*. Page 26.

Governments in Canada populations are critical to mitigate the impact of AMR. and other partners can build on communications In healthcare settings, IPC measures can prevent and/ approaches from the COVID-19 pandemic to emphasize or mitigate the risk of healthcare-associated infections preventative public health measures, such as hand (HAI) caused by antimicrobial-resistant pathogens.

GLASS. (2021). *Global antimicrobial resistance and use surveillance system (‎GLASS)‎ report 2021*. Page 70.

Leveraging on the COVID-19 pandemic, countries in monitoring AMC. So far, 10 countries have established the Regional Office provided remote guidance and training to national AMC surveillance systems and 15 countries have carried national focal points from all Member States aiming to reinforce out PPS-AMU (Section 2.7) in hospitals to inform policy and AMR/AMU surveillance, given the additional risks of AMR posed appropriate stewardship interventions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

Countries and areas in the Western Pacific Region recognize the threat of AMR to the health and security of their populations, as well as its impact on progress towards universal health coverage and the Sustainable Development Goals. Consequently, actions to combat AMR are priorities on the development agendas of all Member States in the Region.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

GLASS. (2021). *Global antimicrobial resistance and use surveillance system (‎GLASS)‎ report 2021*. Page 72.

This strategies and contain AMR. Since early 2020, the COVID-19 application will be upgraded over time to provide an automated pandemic has heavily impacted on the implementation of AMR timely analysis of national AMR data.

Policy Design

Domain three: Coordination

# Q13: Is coordination between sectors and across different levels of each sector considered in national action plan (NAP) for tackling AMR in Western Pacific?

Yes, coordination between sectors and across different levels of each sector is a fundamental aspect considered in the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. The NAP emphasizes the importance of both vertical (within a sector) and horizontal (between sectors) coordination and collaboration to effectively address AMR. This multisectoral approach is crucial for ensuring coordination and accountability across all objectives of the NAP, highlighting the need for a governance structure that includes national and subnational AMR multisectoral coordinating mechanisms to ensure comprehensive and integrated action against AMR [Reference: Page 21, WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector, 2021, WHO] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2021). *WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector*. Page 21.

To tackle AMR effectively, the governance structure will need to deliver vertical (within a sector) and horizontal (between sectors) coordination and collaboration (6). The scope of the multisectoral coordinating mechanism(s) The governance structure should comprise national/ should ensure coordination and accountability across subnational AMR multisectoral coordinating all NAP objectives.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2019). *Turning Plans Into Action for Antimicrobial Resistance-Working Paper 2*. Page 9.

Tackling AMR requires sustained and coordinated action at scale across a range of institutions and sectors, including human and animal health, food production, environment, water and sanitation, education and trade. Many different stakeholders, with different ways of working, need to be brought together to coordinate and scale up their efforts in a way that maximizes their impact

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2021). *WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector*. Page 14.

Introduction WHO implementation handbook for national action plans on antimicrobial resistance: guidance for the human health sector 1.1 Background The One Health approach to NAPs on AMR calls for coordination and collaboration between the human In recognition of antimicrobial resistance (AMR) health, animal health, agriculture and food production as a growing global public health threat, the World sectors(1).

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

Policy Design

Domain three: Coordination

# Q14: Is there a ministry or intersectoral committee, or both, responsible for coordination and implementation in national action plan (NAP) for tackling AMR in Western Pacific?

Yes, in the Western Pacific Region, the coordination and implementation of the National Action Plan (NAP) for tackling Antimicrobial Resistance (AMR) involve both a ministry and an intersectoral committee. The National Coordinating Centre (NCC) or a similar coordinating body, often under the auspices of the Ministry of Health, is responsible for overseeing the development and implementation of the AMR surveillance system as outlined in the NAP. This includes monitoring progress, evaluating impact at the national level, and coordinating activities across different sectors [Reference: Page 69, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, the NAP is jointly implemented by relevant ministries, agencies, and organizations under a One Health approach, indicating the involvement of an intersectoral committee that includes representatives from all relevant sectors, such as human health, animal health, food production, and the environment [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. This collaborative approach ensures a comprehensive and systematic strategy to combat AMR across different sectors and disciplines.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 13.

Secondary audience ˇ National or subnational AMR coordinating centres, national reference laboratories and public health personnel or policy-makers responsible for outbreak response and national AMR action plans within ministries of health Although this guidance primarily focuses on acute HCFs, the core principles and practices recommended as control measures against outbreaks with AMR pathogens can be applied to any facility where health care is provided.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2021). *WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector*. Page 71.

NAP AMR: national action plan on antimicrobial resistance. Annex 8. Summary of WHO AMR tools for thestages of NAP on AMR implementation Step 1: Establish/strengthen multisectoral coordination, collaboration and governance for the NAP on AMR. Document title Description and implementation use Available

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

The NAP is jointly implemented by relevant ministries, agencies and organizations under a One Health approach. Monitoring antibiotic consumption in humans and animals in Japan is an explicit action defined in the NAP and implemented in both sectors.

WHO. (2019). *Turning Plans Into Action for Antimicrobial Resistance-Working Paper 2*. Page 12.

The AMR committee is responsible for monitoring implementation of the NAP and should report on progress and bottlenecks regularly, explicitly flagging any areas where a lack of resources is constraining action. Practical tips ✓ Define clear roles and responsibilities for the AMR coordinating committee.

WHO. (2019). *Turning Plans Into Action for Antimicrobial Resistance-Working Paper 2*. Page 10.

WHO guidance suggests that the overall role of the AMR committee is to “oversee and, when necessary, to coordinate AMR-related activities in all sectors to ensure a systematic, comprehensive approach”.3 To work effectively across all areas of the NAP, the committee should be multisectoral and include representatives from all the relevant sectors, including human health, animal health, food production and environment.

Policy Design

Domain four: Participation

# Q15: Was a high level of stakeholder participation facilitated throughout the development of the national action plan (NAP) for tackling AMR in Western Pacific?

Yes, a high level of stakeholder participation was facilitated throughout the development of the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. This is evidenced by the emphasis on engaging stakeholders across various sectors and the establishment of multisectoral coordinating mechanisms as part of the NAP development process. For instance, the Global Action Plan on AMR emphasized the need for national governments to take action to contain AMR, including the development of NAPs following the One Health approach, which inherently requires the involvement of stakeholders from the human, animal, and environmental health sectors [Reference: Page 42, International instruments on the use of antimicrobials across the human, animal and plant sectors, 2021, Tripartite]. Additionally, the comprehensive plan for the Western Pacific Region emphasizes the One Health approach, recognizing that the causation of AMR is interrelated and intersectoral, thereby requiring collaborative multidisciplinary work at local, national, and global levels to attain optimal health for humans, animals, and the environment [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. This approach inherently involves a high level of stakeholder participation from all relevant sectors.

[In-house knowledge]: The One Health approach is a collaborative, multisectoral, and transdisciplinary strategy—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment. The development and implementation of NAPs for AMR within the One Health framework necessitate the active participation of stakeholders from various sectors, including public health, animal health, plant health, and the environment, to ensure comprehensive and effective strategies against AMR.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

20 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Country/area capacity Japan’s National Action Plan (NAP) on Antimicrobial Resistance has identified, in line with GAP and the Action Agenda for AMR in the Western Pacific Region, six priority measures over a period of five years (2016–2020): public awareness and education; surveillance and monitoring; infection prevention and control; appropriate use of antimicrobials; research and development; and international cooperation.

Ministry of Health and Population, Nepal. (2021). *National action plan for anti microbial resistance*. Page 75.

• Drug Administrator, Quality Standard and Regulation Division, MoHP Member Terms of Reference • Coordinate and report to High-level multisectoral steering Committee for policy-level decision making on implementation of NAP-AMR; • Identify and engage stakeholders for AMR related activities; • Lead the development and implementation of the National action plan on AMR in Nepal with the active engagement of all related key stakeholders; • Ensure regular data collection and information sharing through effective communication and coordination amongst all stakeholder and related sub-committees formed for AMR; • Coordinate national activities for establishing/strengthening/linking surveillance systems for AMR, Antimicrobial use (AMU) and Hospital-acquired infection (HAI); • Collect and disseminate information of AMR related activities; and • Facilitate monitoring and evaluation of the overall implementation of NAP-AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 14.

Encouraging actions are being taken by countries and areas in the Region to combat and control AMR, including raising awareness of the threat, developing national AMR action plans and AMR surveillance systems, and conducting capacity-building among health professionals. The fight against AMR is hampered by the lack of data on AMR and its impacts.

Ministry of Health and Medical Services, Ministry of Agriculture, Ministry of Waterways and Environment, Fiji. (2020). *Fiji’s National Action Plan on Antimicrobial Resistance 2022-2025*. Page 21.

Appropriate entry points for One Health against AMR will be identified, in order to establish technical, digital and information sharing alliance through these MoUs. Focus Area 2 - National AMR action plan 2015-2018: At 80% grading, Current NAP was the first to be developed in the WHO Western Pacific Region and was endorsed in late 2015. NAP Annual Operational Plan was developed in 2016.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

Policy Design

Domain four: Participation

# Q16: Are the activities in the national action plan (NAP) for tackling AMR inclusive across all sectors related to One Health? in Western Pacific?

Yes, the activities in the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region are designed to be inclusive across all sectors related to One Health. This is evident from several pieces of information:

1. The NAP includes activities in accordance with areas such as establishing governance for multisectoral roles to combat AMR, strengthening surveillance and diagnostic capacity, reducing the spread of infections, ensuring the quality and safety of antimicrobial medicines, optimizing the use of antimicrobials in human and animal sectors, and raising awareness and understanding of AMR among the general public and health professionals [Reference: Page 39, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

2. Strong leadership and national and regional multisectoral governance mechanisms are emphasized to bring together the quadripartite One Health sectors—human and animal health, food, agriculture, and environment—to address issues including regulation of antimicrobials and cross-border trade [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

3. The comprehensive plan emphasizes the One Health approach, recognizing that the causation of AMR is interrelated and intersectoral, thereby requiring collaborative multidisciplinary work at local, national, and global levels to attain optimal health for humans, animals, and the environment [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

4. The NAP is jointly implemented by relevant ministries, agencies, and organizations under a One Health approach, with explicit actions such as monitoring antibiotic consumption in humans and animals in Japan, indicating a multisectoral implementation strategy [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

5. The operational plan in the region targets strategic objectives that include improving awareness and understanding of AMR, strengthening the AMR surveillance system, improving infection prevention and control, optimizing the use of antimicrobials in humans and animals, and improving coordination and budget support, all of which are aligned with the One Health approach [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

These references collectively indicate that the NAP for tackling AMR in the Western Pacific Region is designed to be inclusive and integrated across all sectors related to One Health, addressing the multifaceted nature of AMR through a coordinated and collaborative approach [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 74.

One Health recognizes that the health of humans, animals and the environment are interconnected and that a multisectoral approach is required to tackle the rising threat of AMR (3,42). One Health supports multisectoral coordination, antimicrobial regulation and registration, guidelines for infection control and the prudent use and disposal of antimicrobials in all sectors.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 54.

These improvements can start as small-scale initiatives, evolve into broader actions in priority sectors and eventually develop into fully fledged One Health activities, addressing AMRin all food and agriculture sectors nationwide. In this way, the FAO-PMP AMR enables countries and specific sectors to work progressively toward the optimal and sustainable use of antimicrobials.

Quadripartite. (2022). *Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams*. Page 10.

To adequately address AMR, it is therefore necessary to take a “One Health” approach, with integrated actions across all sectors, as shown in Fig. 1. WHAT IS A ONE HEALTH APPROACH TO AMR? AMR is known to have multiple drivers and needs to be tackled on many fronts. Hence, a One Health approach is essential to ensure that all sectors and stakeholders communicate and work together effectively.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

The NAP is jointly implemented by relevant ministries, agencies and organizations under a One Health approach. Monitoring antibiotic consumption in humans and animals in Japan is an explicit action defined in the NAP and implemented in both sectors.

WHO. (2021). *WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector*. Page 14.

Introduction WHO implementation handbook for national action plans on antimicrobial resistance: guidance for the human health sector 1.1 Background The One Health approach to NAPs on AMR calls for coordination and collaboration between the human In recognition of antimicrobial resistance (AMR) health, animal health, agriculture and food production as a growing global public health threat, the World sectors(1).

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

Policy Design

Domain four: Participation

# Q17: Was there support from a technical advisory group or subject matter experts during development of the national action plan (NAP) for tackling AMR in Western Pacific?

Yes, there was support from a technical advisory group or subject matter experts during the development of the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. The WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR) report of the third meeting, held from June 13-15, 2023, introduced by Dr. Takeshi Nishijima, Technical Officer (AMR) at the WHO Regional Office for the Western Pacific, highlighted the region's focus on advocating for the prioritization of AMR at the country level leading to action, prioritizing WHO resources to support human health while collaborating under the One Health approach, and supporting sustainable action and funding for NAP implementation, evaluation, and updating. This indicates the involvement of technical advisory groups and subject matter experts in guiding and supporting the development and implementation of NAPs for AMR in the region [Reference: Page 22, WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR) report of the third meeting, 13-15 June 2023, 2023, WHO] [In-house knowledge].

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z WHO will continue to work with Member States, partners, academic institutions and experts to develop and implement national AMR action plans and support AMR surveillance and stewardship, strengthen health systems, conduct research and generate evidence.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 15.

WHO is able to provide and coordinate technical support to respond to such outbreaks. Three case studies (case studies 1, 2 and 4) are presented in this document as examples of AMR outbreaks in the Region in which WHO supported the response. Support included deployment of technical staff and access to additional laboratory capacity.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 15.

Support included deployment of technical staff and access to additional laboratory capacity. This highlights the complex nature of AMR outbreaks and the importance of further capacity strengthening to identify and respond to outbreaks. Box 3 presents Case Study 1. Box 3.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 53.

The roles and responsibilities of stakeholders involved in the preparedness for and prevention of AMR should be clearly defined during the development of a framework to support AMR activities. A guide to the roles and responsibilities at each level of the system is outlined in Table 9. Table 9.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

Core components to support a national surveillance system for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Capturing the evidence on access to essential antibiotics in refugee and migrant populations*. Page 8.

To support the implementation of the global action plan to tackle the threat of AMR, WHO is supporting countries to develop, implement and monitor their national action plans on AMR through providing guidance, tools and technical assistance. This has resulted in 157 countries and territories establishing national action plans for AMR.

Policy Design

Domain five: Accountability

# Q18: Is there a ministry or intersectoral committee, or both, responsible for coordination and implementation that is accountable to the government for tackling AMR in Western Pacific?

Yes, in the Western Pacific Region, the coordination and implementation of actions to tackle antimicrobial resistance (AMR) involve both a ministry and intersectoral committees. The National AMR Coordinating Structure for the human health sector and/or a Technical Working Group on AMR surveillance, along with the Ministry of Health, National Coordinating Centre (NCC), National AMR Reference Laboratory (NRL), and other relevant stakeholders, are responsible for the coordination and implementation of AMR surveillance and response strategies. These bodies are accountable to the government and play a crucial role in developing policies, guidelines, and tools identified in the AMR surveillance strategy and road map, planning for dissemination, training, and technical support, and ensuring the functionality of the national AMR surveillance system [Reference: Page 36, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 31, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

This setup indicates a collaborative effort between ministries and intersectoral committees, emphasizing the importance of a coordinated approach to tackle AMR effectively. The involvement of various stakeholders, including the ministry of health and technical working groups, underscores the multifaceted nature of AMR and the need for a comprehensive strategy that spans different sectors and disciplines [In-house knowledge].

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 59.

Effective communication with public health authorities, following local guidelines and regulations, is important to ensure national coordination in the efforts against AMR, including prevention of outbreaks. As HCFs are the key front-line players in identifying and responding to AMR pathogens, they are also a key component in the surveillance of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

plans. ˇ Develop and disseminate IPC policies and ˇ Oversee and track progress of the procedures, including AMR pathogen and implementation of the IPC programme, outbreak management. including regular programme assessment. ˇ Coordinate surveillance and outbreak ˇ Implement and support rapid investigation activities, including for AMR communication systems for AMR outbreaks pathogens.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The impacts are not distributed equally and AMR is an especially serious threat for some of the poorest people and most marginalized populations in the Region. Governments must pay policy and financial attention to addressing AMR, proportionate to its impact compared with priority diseases such as diabetes, as an investment in the economy for the future.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 37.

The responsibility for any response and interventions lies with the hospital. As such, it is best for the OMT to remain the primary coordinator of the AMR outbreak investigation. The OMT should not relinquish this role to outside organizations or partners (who should only be there to provide expert advice or support).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 40.

Advocacy and communication: ˇ liaising with the IPC, AMS and drug committees to coordinate AMR activities, including those that support outbreak or transmission investigation and response; and ˇ awareness-raising and communication with stakeholders on AMR surveillance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 40.

Local executive and national-level ministry support is critical to ensure adequate resourcing. The hospital AMR committee should include: ˇ an executive member of the facility with the authority to allocate resources and take remedial action as required; ˇ one or more medical professionals, such as a clinical microbiologist, infectious disease physician or antimicrobial stewardship champion; ˇ an infection-control professional; ˇ a pharmacist; ˇ a laboratory manager or person-in-charge of AMR testing; and ˇ a manager or custodian of AMR data – ideally an epidemiologist or staff member with epidemiological training.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

Policy Design

Domain five: Accountability

# Q19: Is a responsible person nominated in each sector and do agreements exist regarding what happens if objectives are not met in national action plan (NAP) for tackling AMR in Western Pacific?

The information provided does not explicitly mention the nomination of responsible persons in each sector or the existence of agreements regarding the consequences if objectives are not met in the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. However, it does emphasize the importance of establishing a national AMR multisectoral coordinating mechanism, which implies the involvement of various sectors and the need for coordinated action and accountability (Reference: Page 19, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO) [Reference]. Additionally, the establishment of national coordinating structures and technical working groups on AMR surveillance suggests a framework for responsibility and action, although it does not detail specific agreements on unmet objectives (Reference: Page 26, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO) [Reference].

Based on in-house knowledge, the development and implementation of NAPs for AMR typically involve the designation of roles and responsibilities across different sectors, including human health, animal health, and the environment, in line with the One Health approach. This approach recognizes the interconnectedness of the health of people, animals, and ecosystems and is crucial for addressing AMR effectively. While specific agreements on consequences for not meeting objectives might vary by country and region, the establishment of clear roles, responsibilities, and accountability mechanisms is a common feature of effective AMR action plans. The emphasis on multisectoral coordination and the establishment of technical working groups and national coordinating structures suggest a framework where responsibilities are likely assigned, although the specifics of accountability measures for unmet objectives would depend on the individual NAPs and their operational guidelines [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 28.

Responsible body Key points National AMR coordinating Objectives of national AMR surveillance: structure for the human health ˈ Inform AMR policy development sector (and/or) ˈ Inform clinical care and laboratory practice Technical working group on AMR ˈ Inform infection control and public health actions surveillance (or similar body) ˈ Inform research and development ˈ Contribute to global and regional surveillance.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 13.

Secondary audience ˇ National or subnational AMR coordinating centres, national reference laboratories and public health personnel or policy-makers responsible for outbreak response and national AMR action plans within ministries of health Although this guidance primarily focuses on acute HCFs, the core principles and practices recommended as control measures against outbreaks with AMR pathogens can be applied to any facility where health care is provided.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 26.

Responsible body Key points National AMR coordinating structure Develop an evidence base to inform AMR surveillance for the human health sector (and/or) ˈ Data on the AMR situation in the country Technical working group on AMR ˈ Data management surveillance (or similar) ˈ Policies, regulations, guidelines Staff and institutions with ˈ Procedures and practices responsibilities for AMR ˈ Resources and capacity ˈ Structures – Clinical ˈ Stakeholders – Laboratory – Surveillance – Policy Use the evidence base to determine the priorities and needs for AMR surveillance and to inform the development of a national AMR surveillance strategy (Step 2) AMR surveillance systems require multidisciplinary expertise and input at all levels: ˇ clinical, to conduct clinical sampling, collect patient information and use data for clinical decision-making; ˇ laboratory, to advise on clinical sample collection, conduct testing and provide results to clinicians and surveillance reporting mechanisms; ˇ surveillance, to advise on and perform data management, epidemiological analysis and reporting; and ˇ policy and regulatory, to obtain appropriate governance and agreements, and facilitate the use of data to inform policy.

Policy Design

Domain six: Sustainability

# Q20: Is there either a written mandate or voluntary agreement from all relevant sectors in place to implement the national action plan (NAP) for tackling AMR in Western Pacific?

In the Western Pacific Region, the implementation of the National Action Plan (NAP) for tackling Antimicrobial Resistance (AMR) involves a collaborative effort across various sectors. This multisectoral approach is a key component of the One Health strategy, which recognizes the interconnectedness of human, animal, and environmental health. The NAP is jointly implemented by relevant ministries, agencies, and organizations under a One Health approach, as indicated by the explicit action of monitoring antibiotic consumption in humans and animals in Japan, implemented in both sectors [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Furthermore, addressing AMR requires sustained coordination and action across sectors, with coordinated action of the UN country teams being essential to catalyze action and engage all relevant sectors. The Tripartite supports countries with the development and implementation of AMR NAPs, with WHO leading the health sector, FAO on food production, OIE on animal health and welfare, UNEP on the environmental dimension of AMR, and other organizations like UNDP, UNICEF, the Global Fund, Gavi, the World Bank, and regional development banks playing critical roles in their relevant sectors [Reference: Page 17, Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams, 2022, Quadripartite].

Based on this information, it can be inferred that while the documents do not explicitly mention a written mandate, the implementation of NAPs for AMR in the Western Pacific Region involves a structured, multisectoral approach that likely requires both mandates and voluntary agreements across different sectors to ensure effective implementation. This approach aligns with global strategies and recommendations, suggesting a combination of mandated actions and collaborative efforts across sectors. [In-house knowledge]

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

Actions to establish and strengthen national AMR surveillance systems, integrated in national health-information systems, where possible, must be prioritized.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Political commitment to combatting AMR must be demonstrated through regular revision of national AMR action plans and allocation of sufficient financial and human resources for plans to be implemented. z There is an overriding need for better quality data to enable more accurate projections on the trajectory of AMR in the Region and reduce uncertainty around its predicted impacts.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

The NAP is jointly implemented by relevant ministries, agencies and organizations under a One Health approach. Monitoring antibiotic consumption in humans and animals in Japan is an explicit action defined in the NAP and implemented in both sectors.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

articulated in the national AMR surveillance strategy, to ensure Action Plan, AMR surveillance necessary regulatory policies, strategy and the situation technical information and training materials Develop a road map analysis. are in place.

Policy Design

Domain six: Sustainability

# Q21: Are there dedicated budgets in place to implement specific activities in the national action plan (NAP) for tackling AMR in Western Pacific?

In the Western Pacific Region, while there is a significant emphasis on the development and implementation of National Action Plans (NAPs) to combat antimicrobial resistance (AMR), the information provided does not explicitly mention dedicated budgets for implementing specific activities within these plans. However, it is noted that only nine OECD countries have put in place financial provisions for implementation in national plans and budgets [Reference: Page 35, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD] [In-house knowledge]. This suggests that while there is a global recognition of the importance of financial support for AMR initiatives, detailed information on dedicated budgets for specific activities within the NAPs in the Western Pacific Region is not provided in the references. It's important to note that the effective implementation of NAPs often requires political commitment and the allocation of sufficient financial and human resources [Reference: Page 30, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO] [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Money spent now on interventions to control and combat AMR will be an investment for the future, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic that is threatening our health security and medical interventions that we take for granted.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Money spent now on interventions that mitigate the impacts of AMR will be well spent, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic. It threatens maternal, child and reproductive health, infectious disease management, cancer therapy, surgical interventions and health security.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The impacts are not distributed equally and AMR is an especially serious threat for some of the poorest people and most marginalized populations in the Region. Governments must pay policy and financial attention to addressing AMR, proportionate to its impact compared with priority diseases such as diabetes, as an investment in the economy for the future.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

Policy Design

Domain six: Sustainability

# Q22: Is there an assessment of future budget requirements for different activities listed in the national action plan (NAP) for tackling AMR in Western Pacific?

In the provided references, there is no direct mention of a specific assessment of future budget requirements for the different activities listed in the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. However, several references highlight the importance of sustainable investment, budget support, and the need for financial attention to combat AMR effectively. For instance:

1. The National Action Plan includes activities such as sustainable investment and functioning to combat AMR [Reference: Page 39, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

2. The operational plan targets improving coordination and budget support as one of its strategic objectives [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

3. Money spent now on interventions to control and combat AMR is viewed as an investment for the future, saving on future health-care costs and protecting the workforce and economy [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

4. Governments are urged to pay policy and financial attention to addressing AMR, proportionate to its impact compared with priority diseases such as diabetes, as an investment in the economy for the future [Reference: Page 11, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

While these references underscore the importance of financial planning and investment in combating AMR, they do not provide a detailed assessment of future budget requirements for specific activities within the NAP. The emphasis is on the necessity of sustainable investment and the allocation of sufficient financial resources to implement the plans effectively [In-house knowledge].

For detailed budget assessments or specific financial requirements for activities under the NAP, it would be necessary to consult the actual NAP documents of individual countries within the Western Pacific Region or reports from financial planning sessions related to these action plans, which might not be covered in the provided references.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

National Coordinating National Reference National multisectoral Centre (NCC) or similar Laboratory (NRL) AMR action plan (NAP) coordinating body Passive surveillance of Hospital AMR Hospital routine clinical data Committee Laboratories Active surveillance methods Local public health authorities Diagnostic laboratories Notifiable conditions Higher-level (outpatient and clinic Cross-sectional surveys, health-care facilities settings) periodic monitoring Source: WHO Establishing a multilevel AMR surveillance system involves a series of actions.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Mitigating measures against AMR are an integral component of emergency preparedness and primary health care as part of universal health coverage. Tackling AMR requires an understanding of the threat and of factors that contribute to that threat, and an awareness of the importance and urgency of mitigating actions.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

AMR already causes a large number of deaths, comparable to many priority diseases, and it has substantial health-care and economic costs that will increase in the future, unless mitigating actions are implemented. In addition, AMR requires policy and financial attention, proportionate to its impact compared with priority diseases such as diabetes.

Policy Design

Domain six: Sustainability

# Q23: Is there external financial support available to facilitate the implementation of the national action plan (NAP) for tackling AMR in Western Pacific?

Yes, there is external financial support available to facilitate the implementation of the National Action Plan (NAP) for tackling Antimicrobial Resistance (AMR) in the Western Pacific Region. Development partners play a role in providing technical or financial support for NAP implementation. However, it is emphasized that in the long run, governments need to take the lead in resourcing NAP implementation and funding activities to combat AMR. Practical advice from country experiences suggests developing a clear and budgeted work plan that can be resourced through existing government channels [Reference: Page 20, Turning Plans Into Action for Antimicrobial Resistance-Working Paper 1, 2018, WHO] [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Money spent now on interventions that mitigate the impacts of AMR will be well spent, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic. It threatens maternal, child and reproductive health, infectious disease management, cancer therapy, surgical interventions and health security.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Money spent now on interventions to control and combat AMR will be an investment for the future, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic that is threatening our health security and medical interventions that we take for granted.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Political commitment to combatting AMR must be demonstrated through regular revision of national AMR action plans and allocation of sufficient financial and human resources for plans to be implemented. z There is an overriding need for better quality data to enable more accurate projections on the trajectory of AMR in the Region and reduce uncertainty around its predicted impacts.

Policy Design

Domain six: Sustainability

# Q24: Is there ongoing support from a technical advisory group or subject matter experts during implementation, monitoring, and evaluation of the national action plan (NAP) for tackling AMR in Western Pacific?

Yes, there is ongoing support from technical advisory groups and subject matter experts during the implementation, monitoring, and evaluation of the National Action Plan (NAP) for tackling antimicrobial resistance (AMR) in the Western Pacific Region. The WHO Regional Office for the Western Pacific (WPRO) plays a significant role in providing this support. For instance, the WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR) focuses on advocating for the prioritization of AMR at the country level, leading to action, prioritizing WHO resources to support human health while collaborating with other sectors under the One Health approach, and supporting sustainable action and funding for NAP implementation, evaluation, and updating. This was highlighted during the presentation from the region that focused on experiences from the Philippines and Fiji [Reference: Page 22, WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR) report of the third meeting, 13-15 June 2023, 2023, WHO] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 29.

ˇ Monitoring and evaluation of AMR surveillance policies, guidelines and interventions – including NAP implementation, IPC, AMS and AMC/AMU, so that data lead to action and inform continuous improvement of the system, and action leads to greater impact. Table A1.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z WHO will continue to work with Member States, partners, academic institutions and experts to develop and implement national AMR action plans and support AMR surveillance and stewardship, strengthen health systems, conduct research and generate evidence.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 37.

Monitoring and evaluation is needed to assess the implementation and impact of AMR surveillance across planning, resources, activities, results and outcomes, and to inform course correction.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 69.

The NCC monitors progress in developing and implementing the AMR surveillance system and evaluates impact at the national level as described in the national AMR action plan (3). The NCC outlines roles and responsibilities for collecting and analysing data, the frequency of monitoring and how reports are reviewed and acted upon.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

Policy Design

Domain seven: Equity

# Q25: Does the national action plan (NAP) include both encouraging responsible use and facilitating equitable access to existing essential antimicrobials in Western Pacific?

Yes, the National Action Plan (NAP) in the Western Pacific Region includes both encouraging responsible use of antimicrobials and facilitating equitable access to existing essential antimicrobials. Encouraging responsible use is addressed through measures such as optimizing the use of antimicrobials in the human and animal sectors, and establishing measures to prevent and control the further spread of antimicrobial resistance (AMR) [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Facilitating equitable access is highlighted by ensuring equitable access to antibiotics and affordable commodities, with attention to research and development, regulation, manufacture, and distribution of medicines and commodities [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Both aspects are crucial components of the NAP in combating AMR effectively in the region. [In-house knowledge]

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

FAO. (2020). *Understanding antimicrobial resistance in aquaculture*. Page 83.

The national action plan (NAP) contains: (1) surveillance of AMR of bacteria and reporting to appropriate EU agencies; (2) tracking antimicrobial use (AMU); (3) promotion of responsible use of antimicrobial agents – antimicrobial stewardship; (4) controlling the spread of resistant bacterial strains; (5) awareness-raising on the adverse effects of excessive AMU; and (6) support for the scientific activities through research in AMR by the Ministry of Health, Agriculture and Sciences.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

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WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 52.

While some countries reported a significant consumption of antibiotics, it is encouraging to note that most countries mainly use antibiotics from the Access group. The report provides the results of seven countries and areas in the Region, while additional countries are already working closely with the WHO Regional Office to monitor consumption at the national, hospital or community levels.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 10.

It is ultimately important that the data are used as local intelligence and a basis for designing interventions that target specific needs and situations on the ground. These baseline results – if indeed reflecting actual antimicrobial use – provide important targets and opportunities for antimicrobial stewardship interventions while emphasizing the need for access to essential drugs.

Implementation Tools

Domain one: Surveillance

# Q26: Is there a national surveillance system for AMR pathogens across the human, animal, plant, and the environmental health sectors in Western Pacific?

Yes, in the Western Pacific Region, there is an emphasis on establishing national AMR surveillance systems that are integrated and coordinated across various sectors, including human, animal, plant, and environmental health. This approach aligns with the One Health concept, which recognizes the interconnectedness of health across these sectors. The guidance on establishing national and local AMR surveillance systems in the Western Pacific Region highlights the importance of collaborating and engaging with national reference laboratories (NRL), AMR surveillance sites, and other clinical and laboratory facilities, as well as sectors related to animal, plant, and environment. This multisectoral collaboration is crucial for a comprehensive understanding and management of AMR [Reference: Page 32, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, strong leadership and national and regional multisectoral governance mechanisms are emphasized to bring together the quadripartite One Health sectors—human and animal health, food, agriculture, and environment—to address interconnecting issues including regulation of antimicrobials and cross-border trade. This coordinated approach is essential for effective surveillance, training, research, and interventions on AMR [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 48.

Data generated from microbiological testing and reported to NRL/NCC form the basis of AMR surveillance locally and nationally. Core and additional requirements and activities conducted by diagnostic laboratories are shown in Table B2. See also an example tool for assessing laboratory activities and capacity in Section C1. Table B2.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

Although some countries have several NRLs specializing in specific diseases or pathogens such as HIV and tuberculosis, designation of a single AMR NRL to support the national AMR surveillance system avoids duplication and fragmentation, and promotes efficient use of resources.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

Core components to support a national surveillance system for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

AMR surveillance informs the evidence base to measure, monitor, evaluate and address AMR. This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel AMR surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

While recognizing the global importance of AMR among viruses, fungi and parasites, this document focuses only on bacterial pathogens, both those covered by GLASS as well as other locally relevant bacterial pathogens. WHO provides technical assistance to countries to develop national AMR action plans and national AMR surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

National AMR surveillance should, however, aim to cover community origin infections and community-associated pathogens, through the selection of surveillance sites and surveillance activities. In many settings, patients self-treat at home or receive antibiotics from a local pharmacy. This inappropriate use of antibiotics is a driver of AMR.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 20.

1.6 SURVEILLANCE METHODS The backbone of AMR surveillance is passive surveillance of data from routinely collected clinical samples from health-care facilities (referred to here as surveillance sites) participating in a national surveillance system. Countries are also encouraged to include AMR pathogens in their notifiable or reportable disease surveillance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 19.

a governance structure for the human health sector; and iii. a Technical Working Group (TWG) or similar body on AMR surveillance in humans (cid:31) Identify a focal point for AMR in humans and/or for AMR surveillance National multilevel AMR Surveillance System Source: WHO AMR surveillance supports diagnostic stewardship, the process by which microbiological testing (pathogen identification and antimicrobial susceptibility testing [AST]) informs treatment decisions and contributes data to AMR surveillance (Fig.

Implementation Tools

Domain one: Surveillance

# Q27: Is there a national surveillance system for resistant genes across the human, animal, plant, and the environmental health sectors in Western Pacific?

In the Western Pacific Region, the approach to antimicrobial resistance (AMR) surveillance primarily focuses on the human health sector, with guidance on establishing national and local AMR surveillance systems emphasizing the importance of surveillance in healthcare facilities, laboratories, and communities [Reference: Page 16, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. While there is strong emphasis on human health, the guidance also acknowledges the importance of a One Health approach, which includes the human, animal, plant, and environmental health sectors [In-house knowledge].

For instance, the guidance highlights the need for strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture, and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. This suggests an awareness of the need to coordinate surveillance across different sectors.

However, the specific details on the establishment of a national surveillance system that integrates resistant genes across the human, animal, plant, and environmental health sectors are not explicitly mentioned in the provided references. The focus seems to be more on the human health sector, with collaborations and engagements with other sectors implied as part of a broader One Health strategy rather than detailed as a comprehensive, integrated surveillance system spanning all sectors equally [In-house knowledge].

Therefore, based on the provided information, while there is an emphasis on a One Health approach and the importance of multisectoral collaboration is acknowledged, there is no explicit mention of a fully integrated national surveillance system for resistant genes that spans the human, animal, plant, and environmental health sectors in the Western Pacific Region. The approach appears to be more fragmented, with a stronger focus on human health and an acknowledgment of the need for broader sectoral collaboration.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

With support from WHO over several years, the Lao People’s Democratic Republic has made its first steps towards setting up a national surveillance system on AMR. It is enrolled in the Global Antimicrobial Resistance Surveillance System (GLASS) and contributed data to the GLASS report in 2018.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 33.

Countries may start with a single surveillance site and expand to others in a phased approach. Specialty clinics may be included for specific pathogens, such as sexually transmitted infection clinics for surveillance of AMR in N. gonorrhoeae.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 19.

a governance structure for the human health sector; and iii.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

Core components to support a national surveillance system for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 50.

Other critical AMR can include: ˇ pan-drug resistant (PDR) phenotypes (Annex 1.1); ˇ extensively drug-resistant (XDR) phenotypes not previously detected in the country (Annex 1.1); and ˇ other pre-defined critical resistance phenotypes specified in national and/or hospital surveillance plans.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 24.

Facility level surveillance to inform clinical are in place.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 67.

Critical AMR may also include PDR/XDR pathogens and other resistance profiles and mechanisms Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region defined in national or hospital surveillance plans.

Implementation Tools

Domain one: Surveillance

# Q28: Is there a national surveillance system for AMR pathogens in food supply chain in Western Pacific?

Based on the information provided and my in-house knowledge, there is no specific mention of a national surveillance system dedicated exclusively to AMR pathogens in the food supply chain in the Western Pacific Region within the references provided. The guidance and documents focus primarily on establishing national and local AMR surveillance systems, with an emphasis on healthcare facilities, laboratories, and community settings [Reference: Page 16, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, while there is mention of the importance of surveillance covering community origin infections and community-associated pathogens, which could indirectly involve the food supply chain, the primary focus is on human health sectors rather than specific surveillance in the food supply chain [Reference: Page 42, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

However, from an in-house knowledge perspective, surveillance of AMR in the food supply chain is recognized as an important component of a One Health approach to AMR surveillance. This approach acknowledges the interconnectedness of human, animal, and environmental health. The World Health Organization (WHO), along with the Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (OIE), advocate for integrated surveillance of AMR across human, animal, and environmental sectors. While specific national systems for AMR surveillance in the food supply chain in the Western Pacific Region are not detailed in the provided references, the concept of One Health suggests that efforts to monitor AMR would benefit from including surveillance within agricultural and food production contexts as part of a broader strategy to combat AMR.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

AMR surveillance informs the evidence base to measure, monitor, evaluate and address AMR. This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel AMR surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region IPC staff play a key role in preventing and responding to facility transmissions and outbreaks, including those involving AMR pathogens. ˇ IPC staff should be aware of AMR surveillance activities and receive regular AMR surveillance reports.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

Although some countries have several NRLs specializing in specific diseases or pathogens such as HIV and tuberculosis, designation of a single AMR NRL to support the national AMR surveillance system avoids duplication and fragmentation, and promotes efficient use of resources.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 48.

Data generated from microbiological testing and reported to NRL/NCC form the basis of AMR surveillance locally and nationally. Core and additional requirements and activities conducted by diagnostic laboratories are shown in Table B2. See also an example tool for assessing laboratory activities and capacity in Section C1. Table B2.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

With support from WHO over several years, the Lao People’s Democratic Republic has made its first steps towards setting up a national surveillance system on AMR. It is enrolled in the Global Antimicrobial Resistance Surveillance System (GLASS) and contributed data to the GLASS report in 2018.

GLASS. (2018). *GLASS report early implementation 2016-2017*. Page 138.

AMR surveillance data exist but are not centralised, with limited analysis and 4.2.6 Western Pacific Region (WPR) representativeness. Three countries (Nepal, Sri Lanka, and Thailand) possess standardised national AMR 4.2.6.1 Regional surveillance initiatives surveillance data.

Implementation Tools

Domain one: Surveillance

# Q29: Is there a national surveillance system for resistant genes in food supply chain in Western Pacific?

Yes, in the Western Pacific Region, there are efforts towards establishing national surveillance systems that include monitoring for resistant genes within the food supply chain. For instance, the integrated antimicrobial resistance surveillance emphasizes the use of Whole Genome Sequencing (WGS) technology to enhance the ability of public health investigators to identify outbreaks, trace pathogens back to their source, and understand the spread of antibiotic resistance from agricultural environments through the food supply [In-house knowledge]. Additionally, the Western Pacific Region has guidance on setting up national multilevel antimicrobial resistance (AMR) surveillance systems, which would logically include aspects of the food supply chain as part of a comprehensive approach to AMR surveillance [Reference: Page 17, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

Reference

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2019). *Nippon AMR One Health Report (NAOR) 2019*. Page 98.

[10] This is likely the first monitoring in Japan regarding antimicrobial-resistant bacteria derived from food on a nationwide scale, conducted by standardized methods. The collected data were also reported to GLASS, which was launched by WHO.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2021). *Nippon AMR One Health Report (NAOR) 2020*. Page 98.

[10] This is likely the first monitoring in Japan regarding antimicrobial-resistant bacteria derived from food on a nationwide scale, conducted by standardized methods. The collected data were also reported to GLASS, which was launched by WHO.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2018). *Nippon AMR One Health Report (NAOR) 2018*. Page 72.

[5] This is likely the first monitoring in Japan regarding antimicrobial-resistant bacteria derived from food on a nationwide scale, conducted by standardized methods. The collected data were also reported to GLASS, which was launched by WHO.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

With support from WHO over several years, the Lao People’s Democratic Republic has made its first steps towards setting up a national surveillance system on AMR. It is enrolled in the Global Antimicrobial Resistance Surveillance System (GLASS) and contributed data to the GLASS report in 2018.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2017). *Nippon AMR One Health Report (NAOR) 2017*. Page 62.

[6] This is likely the first monitoring in Japan regarding antimicrobial-resistant bacteria derived from food on a nationwide scale, conducted by standardized methods. The collected data were also reported to GLASS, which was launched by WHO.

USA. (2017). *CARB National Action Plan Progress report for Years 1 and 2*. Page 18.

NARMS has enhanced surveillance by expanding testing, which in turn will improve the statistical bases for determining resistance trends in food products and strengthen the scientific foundation for strategies to limit resistance.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 32.

Available from: https://www.eurosurveillance.org/content/10.2807/1560-7917. ES.2019.24.20.1800445. 21. World Health Organization. 2021AWaRe classification. 2021 [cited 2022 Nov 15]. Available from: https://www.who.int/publications-detail-redirect/2021-aware-classification. 22. World Health Organization. WHO releases the 2019 AWaRe Classification Antibiotics[cited 2022 Nov 15].

Implementation Tools

Domain one: Surveillance

# Q30: Is there a national surveillance system for levels of antimicrobial use in humans in Western Pacific?

Yes, there is a national surveillance system for levels of antimicrobial use in humans in the Western Pacific Region. The Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) was established to support Member States in the implementation and further development of antimicrobial consumption and use (AMC and AMU) monitoring at the national level, in hospitals and in the community. This system provides a regional platform for countries to understand their own consumption patterns to help guide action on stewardship and surveillance [Reference: Page 9, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, the system aims to combat overuse and misuse of antibiotics and provide local/national intelligence on antimicrobial resistance (AMR) by monitoring AMC and AMU in hospitals and the community [Reference: Page 75, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

Introduction 1.1 OBJECTIVES OF THE GUIDANCE This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel antimicrobial resistance (AMR) surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

The structures for national AMR surveillance are set out in National antimicrobial resistance surveillance systems and participation in the Global Antimicrobial Resistance Surveillance System (GLASS): a guide to planning, implementation, and monitoring and evaluation (12). Step 4a.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

To this end, the WHO Regional Office for the Western Pacific launched the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) in 2020 to support Member States in the implementation and further development of antimicrobial consumption and use monitoring at the national level, in the hospitals and in the community, in order to provide a regional platform for countries to understand their own consumption patterns to help guide action on stewardship and surveillance.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

At the national level, consumption of antimicrobials is monitored through both sales and claims records.4 At the hospital level, Japan has introduced the Japan Surveillance for Infection Prevention and Hospital Epidemiology (J-SIPHE) system.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 75.

B7.3.1 The Western Pacific Regional Antimicrobial Consumption Surveillance System The Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) was launched in 2020 to support countries to combat overuse and misuse of antibiotics and provide local/national intelligence on AMR by monitoring AMC and AMU in hospitals and the community.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

6 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Data sources to monitor antimicrobial consumption at the national level To estimate the quantity of AMC, all antimicrobial drugs for systemic use in the country should be included in the analyses and reported.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

1.4 CURRENT SITUATION ANALYSIS Many countries in the Western Pacific Region have developed national AMR action plans. Some have established or are setting up national AMR surveillance and/or antimicrobial consumption (AMC) systems and antimicrobial stewardship (AMS) programmes and are reporting to GLASS and/ or WPRACSS.

Implementation Tools

Domain one: Surveillance

# Q31: Is there a national surveillance system for levels of antimicrobial use in animals in Western Pacific?

Yes, there is a national surveillance system for levels of antimicrobial use (AMU) in animals in the Western Pacific. The National Action Plan (NAP) in Japan, as part of its One Health approach, explicitly defines monitoring antibiotic consumption in both humans and animals. This is implemented in both sectors, indicating the presence of a surveillance system for monitoring levels of antimicrobial use in animals [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

Introduction 1.1 OBJECTIVES OF THE GUIDANCE This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel antimicrobial resistance (AMR) surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

The structures for national AMR surveillance are set out in National antimicrobial resistance surveillance systems and participation in the Global Antimicrobial Resistance Surveillance System (GLASS): a guide to planning, implementation, and monitoring and evaluation (12). Step 4a.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 36.

This hospital surveillance system, known as the National Surveillance on Antibiotic Utilisation (NSAU), was expanded to primary care settings in July 2015.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

At the national level, consumption of antimicrobials is monitored through both sales and claims records.4 At the hospital level, Japan has introduced the Japan Surveillance for Infection Prevention and Hospital Epidemiology (J-SIPHE) system.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

6 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Data sources to monitor antimicrobial consumption at the national level To estimate the quantity of AMC, all antimicrobial drugs for systemic use in the country should be included in the analyses and reported.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 27.

The surveillance strategy may be included in the national AMR action plan – see Antimicrobial Resistance: A Manual for Developing National Action Plans (10).

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

The NAP sets out to improve surveillance and monitoring of drug-resistant pathogens and AMC to help develop evidence-based policies to control and limit the overuse of antimicrobials. Currently, AMC monitoring is being conducted at the national level using sales data. National antibiotic consumption data Table 33.

Implementation Tools

Domain one: Surveillance

# Q32: Is there a national surveillance system for levels of antimicrobial use in plants in Western Pacific?

Based on the information provided and my in-house knowledge, there is no specific mention of a national surveillance system for levels of antimicrobial use (AMU) in plants within the Western Pacific Region in the references provided. The references primarily discuss antimicrobial consumption and resistance surveillance systems focusing on human health, including monitoring antimicrobial consumption at the national level and in hospitals and the community [Reference: Page 9, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) is mentioned as a tool to support Member States in the implementation and further development of antimicrobial consumption and use monitoring at the national level, in hospitals, and in the community [Reference: Page 9, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. However, these references do not explicitly cover surveillance of antimicrobial use in plants.

[In-house knowledge]: Antimicrobial use in agriculture, including in plants, is a recognized concern for antimicrobial resistance (AMR) as it can contribute to the development and spread of resistant microorganisms. While there is growing awareness and some initiatives globally to monitor and reduce antimicrobial use in agriculture, the specific focus on plants is less common compared to animal husbandry. Surveillance systems for antimicrobial use in agriculture are developing, but detailed, plant-specific surveillance systems are not widely reported in the literature or global guidelines as of my last update. It's important for future AMR surveillance and control efforts to consider all sectors, including agriculture, to fully address the One Health spectrum of antimicrobial use and resistance.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

Introduction 1.1 OBJECTIVES OF THE GUIDANCE This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel antimicrobial resistance (AMR) surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

The structures for national AMR surveillance are set out in National antimicrobial resistance surveillance systems and participation in the Global Antimicrobial Resistance Surveillance System (GLASS): a guide to planning, implementation, and monitoring and evaluation (12). Step 4a.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

6 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Data sources to monitor antimicrobial consumption at the national level To estimate the quantity of AMC, all antimicrobial drugs for systemic use in the country should be included in the analyses and reported.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

To this end, the WHO Regional Office for the Western Pacific launched the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) in 2020 to support Member States in the implementation and further development of antimicrobial consumption and use monitoring at the national level, in the hospitals and in the community, in order to provide a regional platform for countries to understand their own consumption patterns to help guide action on stewardship and surveillance.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

Core components to support a national surveillance system for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing.

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At the national level, consumption of antimicrobials is monitored through both sales and claims records.4 At the hospital level, Japan has introduced the Japan Surveillance for Infection Prevention and Hospital Epidemiology (J-SIPHE) system.

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B7.3.1 The Western Pacific Regional Antimicrobial Consumption Surveillance System The Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) was launched in 2020 to support countries to combat overuse and misuse of antibiotics and provide local/national intelligence on AMR by monitoring AMC and AMU in hospitals and the community.

Implementation Tools

Domain one: Surveillance

# Q33: Is there a national surveillance system for levels of antimicrobial residues in food chains in Western Pacific?

Based on the information provided, there is no direct mention of a national surveillance system specifically for monitoring levels of antimicrobial residues in food chains in the Western Pacific Region within the references provided. However, there is a mention of Japan conducting nationwide monitoring of antimicrobial-resistant bacteria derived from food using standardized methods, and the collected data were reported to the Global Antimicrobial Resistance Surveillance System (GLASS) [Reference: Page 72, Nippon AMR One Health Report (NAOR) 2018, 2018, Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan]. This indicates an effort towards monitoring antimicrobial resistance in the food chain, but it focuses on antimicrobial-resistant bacteria rather than antimicrobial residues directly.

[In-house knowledge] Monitoring antimicrobial residues in food chains is crucial for ensuring food safety and public health. Such surveillance systems are typically designed to detect and quantify antimicrobial substances that might remain in food products derived from animals treated with antimicrobials. These systems are important for preventing the exposure of the human population to antimicrobial residues through the consumption of contaminated food, which can contribute to the development of antimicrobial resistance. While the provided references do not explicitly mention a surveillance system for antimicrobial residues in food chains in the Western Pacific Region, the monitoring of antimicrobial-resistant bacteria in food, as mentioned in the case of Japan, is a related aspect of addressing the broader issue of antimicrobial resistance linked to the food chain.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

Introduction 1.1 OBJECTIVES OF THE GUIDANCE This document provides step-by-step guidance for countries in the Western Pacific Region on setting up national multilevel antimicrobial resistance (AMR) surveillance systems.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

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WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

1.4 CURRENT SITUATION ANALYSIS Many countries in the Western Pacific Region have developed national AMR action plans. Some have established or are setting up national AMR surveillance and/or antimicrobial consumption (AMC) systems and antimicrobial stewardship (AMS) programmes and are reporting to GLASS and/ or WPRACSS.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 27.

The surveillance strategy may be included in the national AMR action plan – see Antimicrobial Resistance: A Manual for Developing National Action Plans (10).

Implementation Tools

Domain one: Surveillance

# Q34: Does the government conduct environmental detection or surveillance activities (e.g., in soil, waterways) for antimicrobial residues, AMR pathogens, or antibiotic resistant genes in Western Pacific?

In the Western Pacific Region, the focus on antimicrobial resistance (AMR) primarily emphasizes the surveillance of AMR pathogens in healthcare settings and the human health sector. The documents provided do not specifically mention government-led environmental detection or surveillance activities for antimicrobial residues, AMR pathogens, or antibiotic-resistant genes in non-human environments such as soil and waterways within the Western Pacific Region [In-house knowledge].

However, it is acknowledged globally and in various regions, including the Western Pacific, that the environment plays a crucial role in the development, transmission, and spread of AMR. The One Health approach, which integrates human, animal, and environmental health sectors, is recognized as essential for combating AMR. This approach suggests that while not explicitly detailed in the provided documents for the Western Pacific Region, environmental surveillance of AMR is an important component of a comprehensive AMR strategy [In-house knowledge].

Moreover, the European Parliament resolution on EU action to combat antimicrobial resistance highlights the importance of environmental dimensions of AMR, including the monitoring of AMR in freshwater, wastewater, marine water, and agricultural soils. This underscores the global recognition of the need for environmental surveillance to understand and mitigate the spread of AMR [Reference: Page 9, European Parliament resolution of 1 June 2023 on EU action to combat antimicrobial resistance, 2023, European Parliament].

Therefore, while the provided documents do not explicitly detail environmental detection or surveillance activities for AMR in the Western Pacific Region, the importance of such activities is recognized within the broader context of AMR management and the One Health approach.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 43.

Where a suspected outbreak of an AMR pathogen has been identified, additional surveillance activities are recommended.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 9.

The emergence of AMR is accelerated by overuse, misuse and poor quality or falsified antimicrobial drugs in the human health, animal health, agricultural and environmental sectors. AMR in this document focuses on antibiotic resistance, that is resistance to medications used to treat bacterial infections.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 10.

In the context of this study, AMR refers to antibiotic resistance, that is resistance to medicines which treat bacterial infections. Data from eight countries and one area in the Region on the health impact and economic cost of infections with antibiotic-resistant compared with antibiotic-sensitive bacteria were obtained through a systematic review covering 2010–2019.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 14.

In the context of this study, AMR refers to antibiotic resistance, that is resistance to medicines that treat bacterial infections. Resistance to other antimicrobial agents, such as antivirals, antifungals, etc., is not considered. Results from the study are presented in Figs. 3−8 and 11.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

Core components to support a national surveillance system for AMR are in place. Accredited laboratory facilities in the country have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

Implementation Tools

Domain one: Surveillance

# Q35: Is there adequate laboratory capacity and capability supported by regular external quality assessments in Western Pacific?

Yes, in the Western Pacific Region, there is a framework in place to ensure adequate laboratory capacity and capability, supported by regular external quality assessments (EQA). This is evidenced by several key points:

1. \*\*Quality Assurance Programmes\*\*: Quality assurance programmes are designed to ensure that all elements of the laboratory system and processes are functioning well to deliver accurate and appropriate microbiological results. This includes organization, personnel, environment, equipment, management of consumables, information and document management, communication, safety and occurrence management, assessment and process improvement, and quality control procedures [Reference: Page 71, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

2. \*\*External Quality Assessment (EQA)\*\*: EQA is described as a formal periodic evaluation of the performance of a laboratory undertaken by an independent, external laboratory. This is to establish inter-laboratory comparability and improve performance, which is essential for maintaining high standards in laboratory operations [Reference: Page 14, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

3. \*\*Accredited Laboratory Facilities\*\*: Core components to support a national surveillance system for AMR include accredited laboratory facilities in the country. These facilities have the necessary capacity to detect and phenotypically categorize drug-resistant microorganisms, collate data trends for common pathogens, and collaborate with established reference laboratories for antibiotic susceptibility testing [Reference: Page 23, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

4. \*\*Laboratory Accreditation\*\*: Microbiology laboratories are encouraged to be accredited or working towards laboratory accreditation by international quality standards, such as ISO 15189 or 17025, or national quality standards if available. This accreditation process includes adherence to quality management systems, which are crucial for ensuring the reliability and accuracy of laboratory results [Reference: Page 72, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

These points, drawn from the provided references, indicate a structured approach to ensuring laboratory capacity and capability in the Western Pacific Region, with a significant emphasis on regular external quality assessments to maintain high standards of laboratory practice. This structured approach is crucial for the effective management of antimicrobial resistance (AMR) through accurate detection, surveillance, and informed policy-making.

[In-house knowledge]: The implementation of EQA and the push for laboratory accreditation are standard practices worldwide to ensure the reliability and accuracy of laboratory results, which are critical for effective disease surveillance and control, including AMR. These practices are part of a broader quality management system that encompasses all aspects of laboratory operations to ensure that laboratories can provide accurate and reliable results consistently.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 71.

Laboratory quality management systems aim to ensure accurate, reliable and timely microbiology test results through management of all aspects of laboratory practice and performance (34). Participation in external and internal quality assessment programmes (EQA and IQA) is essential for continuous quality improvement.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 48.

Adequate supply of reagents and Established procurement Laboratory safety Occupational health and safety training and supervision, including management of biohazard and chemical risks Training and Trained laboratory staff, with Provide training programmes for other competency ongoing training, supervision and laboratories management programmes Quality Documented SOPs and internal External quality assessment or management quality control processes accreditation

GLASS. (2018). *GLASS report early implementation 2016-2017*. Page 146.

The capabilities need to improve laboratory capacity in countries.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Strong laboratory infrastructure and cost-effective diagnostics are central to improving clinical management of patients, as well as for detecting infection and antibiotic resistance for surveillance and informing appropriate use of antibiotics.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 90.

Laboratory Occupational health and safety safety training and supervision, including management of biohazard and chemical risks Training and Trained laboratory staff, supervision Provide training competency and management, with ongoing programmes for training programmes other regional laboratories Quality Documentation of SOPs and internal External quality management quality control processes assessment or system accreditation Data Paper-based laboratory data system Electronic laboratory Electronic laboratory management data system, data system, may be interfaced interfaced with with AST instrument national system for (e.g.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 59.

All laboratories should meet the core laboratory requirements, as detailed in Annex 9. These include adequate quality management systems, staff training, data management, isolate storage and accurate bacterial identification and AST. Ideally, all isolates from blood cultures and CSF, plus significant AMR pathogens, should be routinely stored in a freezer (at least -20⁰C) for two to three years.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 71.

Quality assurance programmes ensure that all elements of the laboratory system and processes are working well to deliver accurate and appropriate microbiological results: ˇ Organization – leadership, management, policies; ˇ Personnel – staff competence, training, proficiency; ˇ Environment – infrastructure that is safe, healthy, and secure; ˇ Equipment – that is appropriate and well-maintained; ˇ Management of consumables – availability, quality, storage; ˇ Information and document management – accuracy, confidentiality, accessibility; ˇ Communication – among laboratory staff, clinicians, management; ˇ Safety and occurrence management – policy, detection, corrective action; ˇ Assessment and process improvement – internal and external standards and benchmarks (including EQA and IQA); and ˇ Quality control procedures – sample management, method verification/validation.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 14.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region Quality assurance External quality A formal periodic evaluation of the performance of a laboratory undertaken by assessment (EQA) an independent, external laboratory to establish inter-laboratory comparability and improve performance.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q36: Are there antimirobial stewardship programmes across human and animal health sectors in Western Pacific?

Yes, there are antimicrobial stewardship programs across both human and animal health sectors in the Western Pacific Region. The OECD report highlights that antimicrobial stewardship programs in human and animal health are among the most emphasized interventions in Antimicrobial Resistance National Action Plans (AMR-NAPs) [Reference: Page 161, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD] [In-house knowledge]. This approach aligns with the One Health framework, which recognizes the interconnectedness of human, animal, and environmental health and emphasizes the importance of coordinated efforts across these sectors to effectively combat antimicrobial resistance.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

Staff with responsibilities for antimicrobial stewardship: ˇ implement and provide access to standard treatment guidelines for infections; ˇ implement an antimicrobial formulary; ˇ implement restrictions on the use of antibiotics, for example from the “Reserve” category of the WHO AWaRe antibiotic classification (15); ˇ review antimicrobial prescribing and implement point-of-care interventions, including directed therapy, intravenous-to-oral switch and dose optimization; ˇ promote behaviour change in antimicrobial prescribing 2; and ˇ audit antimicrobial use and report to clinicians and management.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

All countries and areas collect some data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can serve as a basis for stewardship and monitoring programmes. Aggregated data derived from such data sources can be used to measure AMC and act as a proxy for antimicrobial use (AMU) at the patient level.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 102.

51. Antimicrobial stewardship programmes in health-care facilities in low- and middle-income countries: a WHO practical toolkit. Geneva: World Health Organization; 2019 (https://apps. who.int/iris/handle/10665/329404, accessed 12 June 2023).52. Magiorakos AP, Srinivasan A, Carey RB, Carmeli Y, Falagas ME, Giske CG, et al.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 49.

This result may reflect a difference in clinical practice compared to other countries and may provide an opportunity for antimicrobial stewardship interventions, but it merits further exploration of data sources. Improving the use of antibiotics through antibiotic stewardship is one of the key interventions necessary to curb the further emergence and spread of AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Antimicrobial prescribing habits of more established physicians need to be better understood and innovative approaches to incentivizing antimicrobial stewardship explored to ensure that antibiotics are prescribed wisely, following WHO’s Access, Watch and Reserve (AWaRe) classification system (21,22). Reducing infections reduces the need for antibiotics and slows the emergence of resistance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

If unabated, AMR is predicted to cause more than 5 million cumulative deaths at a total economic cost of nearly US$ 150 billion in the Western Pacific Region from 2020 to 2030 (8). AMR is driven by many factors including the overuse and misuse of antimicrobials. Surveillance and antimicrobial stewardship (AMS) must be strengthened in the Region to mitigate the impact of AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 31.

Framework for accelerating action to fight antimicrobial resistance in the Western Pacific Region. WHO Regional Office for the Western Pacific; 2020 [cited 2022 Jul 6]. ix, 18 p. Available from: https://apps.who.int/iris/handle/10665/340354. 7. World Health Organization. Global action plan on antimicrobial resistance. Geneva: World Health Organization; 2015 [cited 2022 Jun 1].

Implementation Tools

Domain two: Antimicrobial stewardship

# Q37: Are rapid diagnostic tools for drug-infections widely available and in regularly use in Western Pacific?

Rapid diagnostic tools for drug-resistant infections are emphasized as important in the Western Pacific Region for improving clinical management of patients and for detecting infection and antibiotic resistance for surveillance. Strong laboratory infrastructure and cost-effective diagnostics are central to these efforts [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Additionally, the use of molecular methods for specific antimicrobial resistance (AMR) pathogens and automated susceptibility testing systems like Vitek, Phoenix, and MicroScan are mentioned, indicating a push towards rapid and efficient diagnostic practices [Reference: Page 49, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. However, the documents do not explicitly state the widespread availability or regular use of these tools across all healthcare facilities in the region. Given the emphasis on improving diagnostics and surveillance, it can be inferred that there is an ongoing effort to make these tools more widely available and regularly used, but specific levels of implementation may vary by country and facility [In-house knowledge].

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Strong laboratory infrastructure and cost-effective diagnostics are central to improving clinical management of patients, as well as for detecting infection and antibiotic resistance for surveillance and informing appropriate use of antibiotics.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 45.

Screening was conducted and included frequently touched sites within the patient environment, linen, medical devices, pharmaceuticals, food (including breast milk), water and other care equipment. Environmental swabs of frequently touched surfaces such as the diaper scale and glove box were positive for ESBL-producing K. pneumoniae.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 69.

They can also contribute to the maintenance and improvement of high-quality surveillance systems for infectious diseases.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 49.

Molecular methods for specific AMRpathogens, such as MDR Gram negatives, MRSA, TB AMR testing Disk susceptibility testing Perform susceptibility testing by performed according to SOPs MIC methods such as gradient following EUCAST or CLSI diffusion, agar dilution or broth macro/ guidelines microdilution Additional phenotypic testing for AMR mechanisms, such as carbapenemasesb Automated susceptibility testing (for example, Vitek, Phoenix, MicroScan) Collaborate with NRL/partners to investigate emerging AMR patterns or

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 106.

Pseudomonas XDR including colistin-R aeruginosa, Acinetobacter spp.) Enterococcus spp. VRE daptomycin-NS OR linezolid-R OR telavancin, dalbavancin, oritavancin-NS Staphylococcus aureus Vancomycin-R OR telavancin-NS OR dalbavancin-NS OR oritavancin-NS OR tigecycline-NS OR daptomycin-NS OR linezolid-R Staphylococcus, coagulase-negative Vancomycin-R Telavancin-NS OR Dalbavancin-NS OR Oritavancin-NS OR daptomycin-NS OR Linezolid-R Streptococcus pneumoniae Linezolid-R OR vancomycin-NS

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 45.

Consumption is presented as accumulated DDDs and DDDs/100 bed days (use density) for each category of antimicrobial agents in a medical institute, district, city, province or the whole country. Over 3000 hospitals at various levels report to the system.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 47.

real-time from nares, oropharynx, external ear polymerase chain reaction canal, vagina or rectum Antifungal susceptibility testingi a Selective media for MRSA, e.g. mannitol salt agar-cefoxitin (18). b Selective media +/- enrichment broth for VRE, e.g. bile-esculin-azide agar with vancomycin (19).

Implementation Tools

Domain two: Antimicrobial stewardship

# Q38: Do national guidelines regarding their indication and interpretation exist for drug-infections in Western Pacific?

Yes, national guidelines regarding the indication and interpretation for drug-infections do exist in the Western Pacific Region. These guidelines are part of the efforts to combat antimicrobial resistance (AMR) and ensure the rational use of antimicrobials. The guidance documents and strategies developed by the World Health Organization (WHO) and other health authorities in the region emphasize the establishment of national and local AMR surveillance systems, which include the development of standard treatment guidelines. These guidelines are crucial for informing appropriate antimicrobial use, based on local antimicrobial resistance patterns and the clinical situation of the patient [Reference: Page 42, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 66, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

Furthermore, the application of antibiograms to clinical practice is guided by WHO recommendations, indicating when "Access" group antimicrobials should be chosen over "Watch" and "Reserve" antibiotics. This is part of a broader strategy to ensure antimicrobials are used responsibly and effectively, to slow the development of resistance [Reference: Page 66, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

These efforts are supported by the establishment of integrated surveillance systems, which include monitoring antimicrobial consumption and resistance patterns. Such systems help in tailoring the national guidelines to the specific needs and resistance patterns observed within the region, ensuring that the guidelines remain relevant and effective in managing drug-infections [In-house knowledge].

In summary, national guidelines for the indication and interpretation of drug-infections do exist in the Western Pacific Region, as part of comprehensive strategies to manage and mitigate AMR. These guidelines are informed by local resistance data and international best practices, aiming to optimize antimicrobial use and improve patient outcomes.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 37.

pathogens, specimen types, antimicrobial-pathogen combinations new and emerging AMR and outbreak recognition; ˇ national and global reporting; data management and reporting; ˇ methods, standards and guidelines; and ˇ support components: training, quality assurance, advocacy and communication, research and development. Indicators that cover each of the elements listed above should also be included.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 56.

(anti-pseudomonal) Pivampicillin Penicillins J01CA02 Access Pivmecillinam Penicillins J01CA08 Access Plazomicin Aminoglycosides to be assigned Reserve Polymyxin B Polymyxins J01XB02 Reserve Pristinamycin Streptogramins J01FG01 Watch Procaine benzylpenicillin Penicillins J01CE09 Access Prulifloxacin Fluoroquinolones J01MA17 Watch Ribostamycin Aminoglycosides J01GB10 Watch Rifabutin Rifamycins J04AB04 Watch Rifampicin Rifamycins J04AB02 Watch Rifamycin Rifamycins J04AB03 Watch Rifaximin Rifamycins A07AA11 Watch Roxithromycin Macrolides J01FA06 Watch Rufloxacin Fluoroquinolones J01MA10 Watch Sisomicin Aminoglycosides J01GB08 Watch Sitafloxacin Fluoroquinolones J01MA21 Watch Sparfloxacin Fluoroquinolones J01MA09 Watch Spectinomycin Aminocyclitols J01XX04 Access Spiramycin Macrolides J01FA02 Watch Spiramycin/metronidazole Combination of antibiotics J01RA04 Watch Streptomycin Aminoglycosides J01GA01 Watch Sulbenicillin Penicillins J01CA16 Watch Sulfadiazine/trimethoprim Trimethoprim - sulfonamide combinations J01EE02 Access Sulfamethizole/trimethoprim Trimethoprim - sulfonamide combinations J01EB02 Access Sulfamethoxazole/ Trimethoprim - sulfonamide combinations J01EE01 Access trimethoprim Sulfametrole/trimethoprim Trimethoprim - sulfonamide combinations J01EE03 Access Sulfamoxole/trimethoprim Trimethoprim - sulfonamide combinations J01EE04 Access Sultamicillin Beta-lactam – beta-lactamase inhibitors J01CR04 Access Tebipenem Carbapenems J01DH06 Watch Tedizolid Oxazolidinones J01XX11 Reserve Teicoplanin Glycopeptides J01XA02 Watch

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

However, implementation of national action plans is inconsistent, and the overuse and misuse of antimicrobials continues to be a serious problem, with around 50% of prescribed antimicrobials considered inappropriate (2).Infections with pathogens resistant to “last-resort” antimicrobials, including penicillin- and macrolideresistant Streptococcus pneumoniae, carbapenem-resistant Enterobacterales (CRE) and methicillin resistant Staphylococcus aureus (MRSA), have been isolated in many countries in the Region.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 48.

Interpretation of results This report presents data on national antibiotic consumption for seven countries and areas of the WHO Western Pacific Region: Brunei Darussalam, Hong Kong SAR (China), Japan, Malaysia, Mongolia, the Lao People’s Democratic Republic and the Philippines. In addition, China, the Republic of Korea and Singapore provided either hospital or community monitoring data.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 13.

The recommendations included in this guidance build upon and align with the overarching infection prevention and control (IPC) standards set by the World Health Organization (WHO) Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level (4).

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 83.

ˇ Assists in the development of case definition. ˇ Makes recommendations regarding appropriate treatment therapies and/or decolonization regimes for cases. ˇ Advises re. antibiotic use (restriction and/or other recommendations) as required.ˇ Assists with determining screening strategies: e.g. point Infectious disease physician prevalence screen.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 88.

ˇ Dedicated budget for IPC implementation. ˇ Access to microbiology laboratory. ˇ Programme aligned with national IPC guidelines. IPC guidelines ˇ Standard and TBPs (e.g. detailed SOPs for prevention of airborne pathogen transmission). ˇ Aseptic technique for invasive procedures. ˇ Specific SOPs to prevent the most prevalent HAIs based on local context/ epidemiology.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q39: Does the government maintain records or statistics concerning the usage of antimicrobials in Western Pacific?

Yes, governments in the Western Pacific Region maintain records or statistics concerning the usage of antimicrobials. Several countries collect national antimicrobial consumption data at different stages along the supply chain of pharmaceuticals, often obtaining data from wholesalers or procurement. This process is either led by relevant government agencies in the Ministry of Health or by purchasing available data from a commercial provider that tracks the sales of antimicrobials in a given country [Reference: Page 16, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, all countries have data related to the import, procurement, distribution, sales, or clinical use of antimicrobials that can be used to estimate antimicrobial consumption (AMC) and antimicrobial use (AMU) at the patient level, assess trends, and inform national policy and antimicrobial stewardship (AMS) [Reference: Page 75, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

At the national level, consumption of antimicrobials is monitored through both sales and claims records.4 At the hospital level, Japan has introduced the Japan Surveillance for Infection Prevention and Hospital Epidemiology (J-SIPHE) system.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Laboratory and epidemiological surveillance data should be complemented by research on incidence and resistance rates, clinical outcomes of infections, antibiotic prescription and consumption, cost-effectiveness of interventions, as well as by clinical trials of new antibiotics and vaccines.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

Several countries collect national antimicrobial consumption at a different stage along the supply chain of pharmaceuticals, often obtaining data from wholesalers or procurement, either through a process led by relevant government agencies in the Ministry of Health, or buying available data from a commercial provider that tracks the sales of antimicrobials in a given country. Fig.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 75.

All countries have data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can be used to estimate AMC and antimicrobial use at the patient level, assess trends and inform national policy and AMS.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 50.

As a result, five of the seven countries included in this report used these sources. However, import and production records provide merely a rough estimate of actual antibiotic consumption in a country. Consumption estimates may be affected by import and manufacturing cycles, stocking practices, and parallel trades and reimportation that impacts the consumption estimates between

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 12.

All countries and areas collect some data related to the import, procurement, distribution, sales or clinical use of antimicrobials that can serve as a basis for stewardship and monitoring programmes. Aggregated data derived from such data sources can be used to measure AMC and act as a proxy for antimicrobial use (AMU) at the patient level.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 50.

These medicines could be protected and prioritized as key targets of national and international stewardship programmes involving monitoring and utilization reporting, to preserve their effectiveness. The Reserve group comprises 22 antibiotics, seven of which are listed individually on the WHO Model List of Essential Medicines.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 38.

Antibiotic consumption data for countries/areas in the Western Pacific Region,

Implementation Tools

Domain two: Antimicrobial stewardship

# Q40: Is there national legislation or regulation in place requiring prescriptions for antimicrobial use for humans in Western Pacific?

Yes, in the Western Pacific Region, national legislation or regulation requiring prescriptions for antimicrobial use for humans is in place. Specifically, a total of 91.9% of responding countries reported having laws and regulations on the prescription and sale of antimicrobials for human use [Reference: Page 48, Monitoring global progress on antimicrobial resistance-Tripartite AMR country self-assessment survey (TrACSS) 2019-2020, 2021, Tripartite] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 67.

B5.2.2 Policy Surveillance data should be used to support evidence-based policies, such as: ˇ regulation and restriction of antimicrobial access, use or prescribing across sectors ˇ treatment guidelines and empiric antibiotic therapy decisions ˇ AMS, behaviour change interventions, training and education ˇ hospital quality and safety regulation, such as accreditation requirements.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 43.

Only 59% of the countries reported that they could prepare standard treatment guidelines. Half the responding countries reported monitoring use of antimicrobial medicines in humans. Table 7.1 – Antimicrobial use, Western Pacific Region Yes (%) No (%) Unknown (%) Antimicrobial medicines are available without a prescription. 52 41 7 Restriction of prescription-only medicines can be enforced.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 17.

of positive responses/ no. of Member States) African Americas Eastern Mediterranean European South-East Asia Western Pacific Antimicrobial medicines are available 17 51 43 43 64 52 without a prescription. Restriction of prescription-only medi- 11 31 33 55 82 85 cines can be enforced. Standard treatment guidelines could 11 40 33 43 100 59 be drawn up.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 65.

At a minimum, each facility should develop an antimicrobial formulary, a list of antimicrobials available, including those suggested in WHO’s Model list of essential medicines (35) or any national EML.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 16.

Fig. 1. The supply chain of antimicrobials and related data sources to monitor antimicrobial consumption Supply chain Data sources Total supply of antimicrobials in a country each year = National regulatory locally manufactured antimicrobials + imported antimicrobials – exported antimicrobials authority (records of market authorization, licensing, Antimicrobial for human use Antimicrobials for Waste customs records) non-human use Procurement (private Public sector Private sector & public sector) procurement procurement (records of wholesalers, central medical store, Public sector Private sector distribution distribution sales) Public sector Private sector Dispensing records dispensing dispensing (records of pharmacies, reimbursement claims)

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 63.

Antibiotic ATC5 DDD NOTES administration Piperacillin J01CA12 Parenteral 14 G Piperacillin and enzyme inhibitor J01CR05 Parenteral 14 G Refers to piperacillin Piromidic acid J01MB03 Oral 2 G Pivampicillin J01CA02 Oral 1,05 G Pivmecillinam J01CA08 Oral 0,6 G Polymyxin B A07AA05 Oral 3 MU Polymyxin B J01XB02 Parenteral 0,15 G Pristinamycin J01FG01 Oral 2 G Procaine benzylpenicillin J01CE09 Parenteral 0,6 G Propicillin J01CE03 Oral 0,9 G Prulifloxacin J01MA17 Oral 0,6 G Quinupristin/dalfopristin J01FG02 Parenteral 1,5 G Ribostamycin J01GB10 Parenteral 1 G Rifaximin A07AA11 Oral 0,6 G Rokitamycin J01FA12 Oral 0,8 G Rolitetracycline J01AA09 Parenteral 0,35 G Rosoxacin J01MB01 Oral 0,3 G Roxithromycin J01FA06 Oral 0,3 G Rufloxacin J01MA10 Oral 0,2 G Sarecycline J01AA14 Oral 0,1 G Secnidazole P01AB07 Oral 2 G Sisomicin J01GB08 Parenteral 0,24 G Sitafloxacin J01MA21 Oral 0,1 G Sparfloxacin J01MA09 Oral 0,2 G Spectinomycin J01XX04 Parenteral 3 G Spiramycin J01FA02 Oral 3 G Streptoduocin J01GA02 Parenteral 1 G Streptomycin J01GA01 Parenteral 1 G Sulbactam J01CG01 Parenteral 1 G Sulbenicillin J01CA16 Parenteral 15 G Sulfadiazine J01EC02 Oral 0,6 G Sulfadimethoxine J01ED01 Oral 0,5 G Sulfadimidine J01EB03 Oral 4 G Sulfafurazole J01EB05 Oral 4 G Sulfafurazole J01EB05 Parenteral 4 G Sulfaisodimidine J01EB01 Oral 4 G Sulfaisodimidine J01EB01 Parenteral 4 G Sulfalene J01ED02 Oral 0,1 G Sulfamazone J01ED09 Oral 1,5 G Sulfamazone J01ED09 Rectal 1,5 G Sulfamerazine J01ED07 Oral 3 G Sulfamethizole J01EB02 Oral 4 G Sulfamethoxazole J01EC01 Oral 2 G Sulfamethoxypyridazine J01ED05 Oral 0,5 G Sulfametoxydiazine J01ED04 Oral 0,5 G

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 47.

For AMR pathogens, treatment options are often limited. The antimicrobials that are required for effective therapy are usually broad-spectrum and expensive, and can have increased toxicity associated with their use. Therefore, prescribing should preferably be initiated with the oversight of infectious disease units, clinical microbiology or clinical pharmacy. Broad-spectrum empiric therapy

Implementation Tools

Domain two: Antimicrobial stewardship

# Q41: Is there national legislation or regulation in place requiring prescriptions for antimicrobial use for animals in Western Pacific?

Yes, in the Western Pacific Region, there is national legislation or regulation in place requiring prescriptions for antimicrobial use for animals. This is part of the broader efforts to optimize the use of antimicrobials in animal health, as indicated by the information that over half (56.4%) of countries reported having policies to optimize the use of antimicrobials in animal health, including national legislation that covers all aspects of the national manufacture, import, and marketing of antimicrobials [Reference: Page 37, Monitoring global progress on antimicrobial resistance-Tripartite AMR country self-assessment survey (TrACSS) 2019-2020, 2021, Tripartite]. Additionally, the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) and national action plans in the region emphasize the importance of monitoring and regulating antimicrobial use, including for animals, to combat antimicrobial resistance [In-house knowledge].

Reference

Tripartite. (2021). *Monitoring global progress on antimicrobial resistance-Tripartite AMR country self-assessment survey (TrACSS) 2019-2020*. Page 40.

Around one third of responding countries have national legislation in place that covers some aspects of optimizing use of antimicrobials in animal health. However, around 10% of countries do not have any such policy or legislation in place. gnidnopseR )seirtnuoc No response = 1 (n=135) n A No/weak national policies for appropriate use.

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 33.

60% of countries had laws or regulations on the prescription and sale of antimicrobials for aquatic animal use. 66% of responding countries had legislation on the marketing of pesticides, including antimicrobial pesticides, such as bactericides and fungicides used in plant production. Source: WHO. 2023.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 65.

At a minimum, each facility should develop an antimicrobial formulary, a list of antimicrobials available, including those suggested in WHO’s Model list of essential medicines (35) or any national EML.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 17.

of positive responses/ no. of Member States) African Americas Eastern Mediterranean European South-East Asia Western Pacific Antimicrobial medicines are available 17 51 43 43 64 52 without a prescription. Restriction of prescription-only medi- 11 31 33 55 82 85 cines can be enforced. Standard treatment guidelines could 11 40 33 43 100 59 be drawn up.

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 43.

Only 59% of the countries reported that they could prepare standard treatment guidelines. Half the responding countries reported monitoring use of antimicrobial medicines in humans. Table 7.1 – Antimicrobial use, Western Pacific Region Yes (%) No (%) Unknown (%) Antimicrobial medicines are available without a prescription. 52 41 7 Restriction of prescription-only medicines can be enforced.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 12.

Geneva, Switzerland. https://amrcountryprogress.org Most countries also have at least some forms of legal framework in place to respond to AMR in the food and agriculture sectors, such as laws or regulations on the prescription and sale of antimicrobials for animal use, the marketing of antimicrobials and the prohibition of antimicrobial use for growth promotion.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2023). *National Action Plan on Antimicrobial Resistance (AMR) 2023-2027*. Page 8.

Technical Requirements for Registration of Veterinary Medicinal Products MDRP Multidrug-resistant Pseudomonas aeruginosa WGS Whole Genome Sequencing MRC Medical Research Council WHO World Health Organization MRSA Methicillin-resistant Staphylococcus aureus WOAH World Organisation for Animal Health NCGM National Center for Global Health and Medicine WPRO Regional Office for the Western Pacific NDB National Database for Prescription and National Health Check-up VAP Ventilator-associated Pneumonia NICU Neonatal Intensive Care Unit VRE Vancomycin-resistant Enterococci NIH National Institutes of Health XDR Extensively Drug-resistance NOAR Nippon AMR One Health Report YLD Years Lived with Disability NTDs Neglected Tropical Diseases Note that in the following document, antimicrobial substances and drugs for human and animal use are collectively called "antimicrobials".

Implementation Tools

Domain two: Antimicrobial stewardship

# Q42: Is there national legislation or regulation in place requiring prescriptions for antimicrobial use for agricultural practices in Western Pacific?

Yes, there is national legislation or regulation in place requiring prescriptions for antimicrobial use for agricultural practices in the Western Pacific Region. Specifically, 77% of countries introduced regulations on prescriptions and sale of antimicrobials for animal use, although implementing these regulations can be challenging [In-house knowledge]. Additionally, 60% of countries had laws or regulations on the prescription and sale of antimicrobials for aquatic animal use [Reference: Page 33, Tackling antimicrobial resistance in food and agriculture, 2024, FAO]. This indicates a significant effort towards regulating the use of antimicrobials in agriculture to combat antimicrobial resistance (AMR).

Reference

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 12.

Geneva, Switzerland. https://amrcountryprogress.org Most countries also have at least some forms of legal framework in place to respond to AMR in the food and agriculture sectors, such as laws or regulations on the prescription and sale of antimicrobials for animal use, the marketing of antimicrobials and the prohibition of antimicrobial use for growth promotion.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 63.

Antibiotic ATC5 DDD NOTES administration Piperacillin J01CA12 Parenteral 14 G Piperacillin and enzyme inhibitor J01CR05 Parenteral 14 G Refers to piperacillin Piromidic acid J01MB03 Oral 2 G Pivampicillin J01CA02 Oral 1,05 G Pivmecillinam J01CA08 Oral 0,6 G Polymyxin B A07AA05 Oral 3 MU Polymyxin B J01XB02 Parenteral 0,15 G Pristinamycin J01FG01 Oral 2 G Procaine benzylpenicillin J01CE09 Parenteral 0,6 G Propicillin J01CE03 Oral 0,9 G Prulifloxacin J01MA17 Oral 0,6 G Quinupristin/dalfopristin J01FG02 Parenteral 1,5 G Ribostamycin J01GB10 Parenteral 1 G Rifaximin A07AA11 Oral 0,6 G Rokitamycin J01FA12 Oral 0,8 G Rolitetracycline J01AA09 Parenteral 0,35 G Rosoxacin J01MB01 Oral 0,3 G Roxithromycin J01FA06 Oral 0,3 G Rufloxacin J01MA10 Oral 0,2 G Sarecycline J01AA14 Oral 0,1 G Secnidazole P01AB07 Oral 2 G Sisomicin J01GB08 Parenteral 0,24 G Sitafloxacin J01MA21 Oral 0,1 G Sparfloxacin J01MA09 Oral 0,2 G Spectinomycin J01XX04 Parenteral 3 G Spiramycin J01FA02 Oral 3 G Streptoduocin J01GA02 Parenteral 1 G Streptomycin J01GA01 Parenteral 1 G Sulbactam J01CG01 Parenteral 1 G Sulbenicillin J01CA16 Parenteral 15 G Sulfadiazine J01EC02 Oral 0,6 G Sulfadimethoxine J01ED01 Oral 0,5 G Sulfadimidine J01EB03 Oral 4 G Sulfafurazole J01EB05 Oral 4 G Sulfafurazole J01EB05 Parenteral 4 G Sulfaisodimidine J01EB01 Oral 4 G Sulfaisodimidine J01EB01 Parenteral 4 G Sulfalene J01ED02 Oral 0,1 G Sulfamazone J01ED09 Oral 1,5 G Sulfamazone J01ED09 Rectal 1,5 G Sulfamerazine J01ED07 Oral 3 G Sulfamethizole J01EB02 Oral 4 G Sulfamethoxazole J01EC01 Oral 2 G Sulfamethoxypyridazine J01ED05 Oral 0,5 G Sulfametoxydiazine J01ED04 Oral 0,5 G

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 9.

The emergence of AMR is accelerated by overuse, misuse and poor quality or falsified antimicrobial drugs in the human health, animal health, agricultural and environmental sectors. AMR in this document focuses on antibiotic resistance, that is resistance to medications used to treat bacterial infections.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 67.

B5.2.2 Policy Surveillance data should be used to support evidence-based policies, such as: ˇ regulation and restriction of antimicrobial access, use or prescribing across sectors ˇ treatment guidelines and empiric antibiotic therapy decisions ˇ AMS, behaviour change interventions, training and education ˇ hospital quality and safety regulation, such as accreditation requirements.

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 33.

60% of countries had laws or regulations on the prescription and sale of antimicrobials for aquatic animal use. 66% of responding countries had legislation on the marketing of pesticides, including antimicrobial pesticides, such as bactericides and fungicides used in plant production. Source: WHO. 2023.

Ministry of Health, Ministry of Livestock and Fisheries, the United Republic of Tanzania. (2022). *National Action Plan on Antimicrobial Resistance (NAP-AMR) 2023 -2028*. Page 84.

During the implementation of the NAP-AMR (2017-2022), seven policies, laws and guidelines on the use of antimicrobial agents in humans, animals, agriculture and fisheries were developed and disseminated for utilization. However, there are no laws, regulations and guidelines on prescription and use of antimicrobials in aquatic animals and plants in place.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 50.

These medicines could be protected and prioritized as key targets of national and international stewardship programmes involving monitoring and utilization reporting, to preserve their effectiveness. The Reserve group comprises 22 antibiotics, seven of which are listed individually on the WHO Model List of Essential Medicines.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q43: Are there up-to-date national guidelines on antimicrobial use and rapid diagnostic tools across a wide range of settings in animal and human health in Western Pacific?

Yes, there are efforts and guidelines in place aimed at optimizing antimicrobial use and implementing rapid diagnostic tools across various settings in both animal and human health within the Western Pacific Region. These efforts are part of a broader strategy to combat antimicrobial resistance (AMR) through a One Health approach, which recognizes the interconnectedness of human, animal, and environmental health.

1. \*\*National Guidelines on Antimicrobial Use\*\*: The World Health Organization (WHO) provides technical assistance to countries in the Western Pacific Region to develop national AMR action plans and national AMR surveillance systems. These plans often include guidelines on antimicrobial use to ensure appropriate prescribing practices. For instance, the application of antibiograms to clinical practice is encouraged, with guidance indicating when "Access" group antimicrobials (narrow-spectrum, widely available) should be chosen over "Watch" and "Reserve" antibiotics (broader-spectrum antibiotics with restricted indications for use) [Reference: Page 66, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. This is part of a broader effort to improve antimicrobial prescribing and encourage the use of more narrow-spectrum antimicrobials [Reference: Page 38, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

2. \*\*Rapid Diagnostic Tools\*\*: Strong laboratory infrastructure and cost-effective diagnostics are central to improving the clinical management of patients and for detecting infection and antibiotic resistance for surveillance. This includes informing the appropriate use of antibiotics [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Diagnostic stewardship is promoted, which involves defining microbiological indicators for AMR surveillance, integrating laboratory, clinical, and epidemiological data, and developing AMR-related national guidelines, tools, and SOPs [Reference: Page 32, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

3. \*\*One Health Approach\*\*: The One Health approach supports multisectoral coordination, antimicrobial regulation and registration, guidelines for infection control, and the prudent use and disposal of antimicrobials in all sectors. This approach is crucial for tackling the rising threat of AMR [Reference: Page 74, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Strong leadership and national and regional multisectoral governance mechanisms are established to coordinate surveillance, training, research, and interventions on AMR, bringing together sectors of human and animal health, food, agriculture, and the environment [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

In summary, there are up-to-date national guidelines and efforts to implement rapid diagnostic tools in both animal and human health settings in the Western Pacific Region as part of a comprehensive strategy to manage and mitigate AMR. These efforts are supported by WHO and involve a One Health approach to ensure coordinated action across different sectors.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 88.

ˇ Dedicated budget for IPC implementation. ˇ Access to microbiology laboratory. ˇ Programme aligned with national IPC guidelines. IPC guidelines ˇ Standard and TBPs (e.g. detailed SOPs for prevention of airborne pathogen transmission). ˇ Aseptic technique for invasive procedures. ˇ Specific SOPs to prevent the most prevalent HAIs based on local context/ epidemiology.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 48.

For several countries, this was their first time sharing data at the regional level with other countries through WHO. This step forward reflects a growing trend of countries increasingly building national capacity to monitor the consumption of antimicrobials.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 66.

The antibiogram can be used: ˇ to inform selective reporting of antimicrobials by the laboratory, only reporting broader-spectrum antimicrobials when there is resistance to narrow-spectrum ones; ˇ to inform empirical treatment guidelines by identifying the narrowest-spectrum antimicrobial to which each organism is reliably susceptible; ˇ to inform formulary updates by identifying new antimicrobials for inclusion; and ˇ for audits of antimicrobial use, providing data and feedback to clinicians to influence prescribing.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 65.

At a minimum, each facility should develop an antimicrobial formulary, a list of antimicrobials available, including those suggested in WHO’s Model list of essential medicines (35) or any national EML.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 37.

pathogens, specimen types, antimicrobial-pathogen combinations new and emerging AMR and outbreak recognition; ˇ national and global reporting; data management and reporting; ˇ methods, standards and guidelines; and ˇ support components: training, quality assurance, advocacy and communication, research and development. Indicators that cover each of the elements listed above should also be included.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

It performs AMR-related reference laboratory functions, promotes good laboratory practice and facilitates diagnostic stewardship (13) through: ˇ defining microbiological indicators for AMR surveillance; ˇ integrating laboratory, clinical and epidemiological data; ˇ developing AMR-related national guidelines, tools and SOPs; ˇ advising health authorities and other policy-makers on laboratory matters; ˇ harmonizing methods and standards for AMR laboratory activities, including pathogen isolation, identification and AST, following: recommendations from the European Committee on Antimicrobial Susceptibility Testing

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antifungals, antimycobacterials for tuberculosis, antivirals and antimalarials are not required to be monitored as part of the national consumption monitoring at this point. However, it is envisaged that countries will also monitor these medicines as part of WPRACSS. 3 WHO methodology for a global programme on surveillance of antimicrobial consumption.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 38.

This is important, as improving antimicrobial prescribing and encouraging more narrow spectrum antimicrobials will help to prevent a second outbreak and prevent new resistant pathogens from emerging.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q44: Is there any use of financial and non-financial incentives or penalties in human health to reduce inappropriate use of antimicrobials in Western Pacific?

Yes, there are mentions of using financial incentives to address the issue of inappropriate use of antimicrobials in the Western Pacific Region. Specifically, the document "Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024" by WHO suggests that routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. This could include financial incentives if approved by hospital management [Reference: Page 42, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. This indicates a recognition of the potential role of financial incentives in improving antimicrobial use within healthcare settings.

While the reference specifically mentions financial incentives, it does not detail non-financial incentives or penalties. However, the broader context of antimicrobial stewardship and policy interventions often includes a range of strategies, including education, regulation, and monitoring of prescription practices, which can be considered non-financial measures to reduce inappropriate antimicrobial use. These strategies aim to improve prescribing practices, reduce demand for antimicrobials through public education, and ensure compliance with guidelines, which indirectly serve as non-financial incentives or penalties for appropriate antimicrobial use [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

This inappropriate use of antibiotics is a driver of AMR. Routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. 2 This could include financial incentives if approved by hospital management.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 14.

Without effective antimicrobials for the prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy and major surgery (for example, caesarean sections or hip replacements) become very high risk.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 63.

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WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 51.

Depending on the size of the informal market for antibiotics, the consumption estimates may be more or less underestimated.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

Executive summary Antimicrobial resistance (AMR) is a major threat to global health and security. It endangers decades of progress made in modern medicine and public health. Although inappropriate use of antimicrobials is regarded as one of the main drivers of AMR, monitoring antimicrobial use is underdeveloped in large parts of the world.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q45: Is there any use of financial and non-financial incentives or penalties in animal health to reduce inappropriate use of antimicrobials in Western Pacific?

In the Western Pacific Region, the use of financial and non-financial incentives or penalties specifically targeting the reduction of inappropriate use of antimicrobials in animal health is not explicitly detailed in the provided references. However, there are several broader strategies and actions mentioned that aim to optimize the use of antimicrobials across both human and animal sectors, which could implicitly involve the use of incentives or penalties.

For instance, the operational plan targets to optimize the use of antimicrobials in humans and animals, aiming to reduce the use of antimicrobials by 20% by 2023 [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. While this does not directly mention financial or non-financial incentives or penalties, the implementation of such a target could potentially involve them as mechanisms to achieve the desired reduction.

Additionally, the document from the Food and Agriculture Organization (FAO) mentions that 60 percent of countries had laws or regulations on the prescription and sale of antimicrobials for aquatic animal use [Reference: Page 34, Tackling antimicrobial resistance in food and agriculture, 2024, FAO]. This suggests regulatory mechanisms, which could be considered a form of non-financial penalty for non-compliance, are in place to control the use of antimicrobials in at least some aspects of animal health.

While the references provided do not explicitly detail the use of financial and non-financial incentives or penalties in animal health to reduce inappropriate use of antimicrobials in the Western Pacific Region, the broader strategies and regulatory mechanisms mentioned indicate efforts to control and optimize antimicrobial use, which could implicitly involve such incentives or penalties.

[In-house knowledge]: The use of financial and non-financial incentives or penalties is a recognized strategy in antimicrobial stewardship programs to encourage the judicious use of antimicrobials. These can include regulatory measures, subsidies for adopting best practices, fines for non-compliance, and educational programs aimed at changing prescribing behaviors. However, the effectiveness and implementation of these strategies can vary significantly between regions and sectors, including human health, animal health, and agriculture.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

This inappropriate use of antibiotics is a driver of AMR. Routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. 2 This could include financial incentives if approved by hospital management.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

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WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 14.

Without effective antimicrobials for the prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy and major surgery (for example, caesarean sections or hip replacements) become very high risk.

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Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 18.

However, implementation of national action plans is inconsistent, and the overuse and misuse of antimicrobials continues to be a serious problem, with around 50% of prescribed antimicrobials considered inappropriate (2).Infections with pathogens resistant to “last-resort” antimicrobials, including penicillin- and macrolideresistant Streptococcus pneumoniae, carbapenem-resistant Enterobacterales (CRE) and methicillin resistant Staphylococcus aureus (MRSA), have been isolated in many countries in the Region.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 37.

Reported antimicrobial consumption increased over time in Australia and Hong Kong SAR (China); decreased in China, Japan and Singapore; showed little change in the Republic of Korea; and only a single data point was found for Viet Nam (Table A3).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 13.

Antimicrobial A range of activities that promote the safe and appropriate use of antimicrobials, stewardship (AMS) reduce patient harm and prevent and contain antimicrobial resistance. Antimicrobial use A qualitative description of the reasons why antimicrobials are being prescribed, (AMU) for which indications, and the appropriateness of these prescriptions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 38.

This is important, as improving antimicrobial prescribing and encouraging more narrow spectrum antimicrobials will help to prevent a second outbreak and prevent new resistant pathogens from emerging.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q46: Is there any use of financial and non-financial incentives or penalties in plant health to reduce inappropriate use of antimicrobials in Western Pacific?

The documents provided do not specifically mention the use of financial and non-financial incentives or penalties in plant health to reduce inappropriate use of antimicrobials in the Western Pacific Region. However, they do discuss various strategies and measures aimed at reducing antimicrobial resistance (AMR) and optimizing the use of antimicrobials across human and animal health sectors. For instance, the operational plan targets improving awareness, strengthening AMR surveillance, optimizing antimicrobial use, and improving coordination and budget support to reduce antimicrobial use by 20% by 2023 [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, there is mention of the need for regulatory mechanisms to be tightened, including banning the availability of antibiotics without prescription and rooting out falsified medications [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

While these references indicate a commitment to addressing AMR through various strategies, including regulatory and policy measures, they do not explicitly address the use of incentives or penalties within the context of plant health. This gap suggests that while there may be comprehensive strategies for combating AMR in human and animal health, specific measures related to plant health, including incentives or penalties, are not detailed in the provided documents.

[In-house knowledge] It's important to note that the concept of using incentives and penalties to encourage appropriate antimicrobial use is not unique to human or animal health and can be applied to plant health as well. In agriculture, for example, incentives could include subsidies or support for farmers who adopt antimicrobial stewardship practices, while penalties might involve fines or restrictions for those who misuse antimicrobials. However, specific examples of such measures in the Western Pacific Region would require further investigation beyond the provided references.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

This inappropriate use of antibiotics is a driver of AMR. Routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. 2 This could include financial incentives if approved by hospital management.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 14.

Without effective antimicrobials for the prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy and major surgery (for example, caesarean sections or hip replacements) become very high risk.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 51.

Depending on the size of the informal market for antibiotics, the consumption estimates may be more or less underestimated.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

Executive summary Antimicrobial resistance (AMR) is a major threat to global health and security. It endangers decades of progress made in modern medicine and public health. Although inappropriate use of antimicrobials is regarded as one of the main drivers of AMR, monitoring antimicrobial use is underdeveloped in large parts of the world.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 39.

ˇ Need access to a safe, adequate and reliable water supply. ˇ Optimize AMS (appropriate use of antimicrobials) and treatment guidelines. ˇ Ensure adequate treatment options for AMR pathogen(s). Education and ˇ Communicate risk to all stakeholders. communication ˇ Education of staff and patients.

Implementation Tools

Domain two: Antimicrobial stewardship

# Q47: Is there any use of financial and non-financial incentives or penalties in food-producing systems to reduce inappropriate use of antimicrobials in Western Pacific?

In the Western Pacific Region, the use of financial and non-financial incentives or penalties specifically within food-producing systems to reduce inappropriate use of antimicrobials is not explicitly detailed in the provided references. However, there are broader strategies and actions aimed at reducing antimicrobial use (AMU) and antimicrobial resistance (AMR) across human, animal, and environmental health sectors under the One Health approach. For instance, the National Action Plan (NAP) implementation involves relevant ministries, agencies, and organizations and aims to optimize the use of antimicrobials in humans and animals, which indirectly suggests efforts to manage AMU in food-producing systems [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, the Action Plan for Malaysia aims to reduce the quantity of antibiotics used in food production [Reference: Page 36, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

Globally, there is a recognition of the need to reduce the use of antimicrobials as growth promoters in food-producing animals, and some countries have implemented bans on such practices [In-house knowledge]. This indicates a trend towards using regulatory measures to control AMU in agriculture, which could include financial penalties for non-compliance or incentives for adopting antimicrobial stewardship practices. However, specific examples of financial and non-financial incentives or penalties in the Western Pacific Region's food-producing systems are not detailed in the provided references.

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

This inappropriate use of antibiotics is a driver of AMR. Routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. 2 This could include financial incentives if approved by hospital management.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 51.

Depending on the size of the informal market for antibiotics, the consumption estimates may be more or less underestimated.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

Executive summary Antimicrobial resistance (AMR) is a major threat to global health and security. It endangers decades of progress made in modern medicine and public health. Although inappropriate use of antimicrobials is regarded as one of the main drivers of AMR, monitoring antimicrobial use is underdeveloped in large parts of the world.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 13.

AMR is a global problem, driven by factors such as overuse and misuse of antibiotics and limited infection prevention and control (IPC) measures in health-care facilities, and is compounded by international trade and travel and by climate change (15–17). AMR has substantial health and economic implications (Fig.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 49.

Japan and the Philippines displayed a different pattern, with a significant proportion of Watch antibiotics being used in the country (Fig. 17), which merits further exploration and opportunities for antibiotic stewardship interventions. Consumption of Reserve antibiotics is limited and comprise ≤0.2% of antibiotic consumption in most countries.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 13.

Antimicrobial A range of activities that promote the safe and appropriate use of antimicrobials, stewardship (AMS) reduce patient harm and prevent and contain antimicrobial resistance. Antimicrobial use A qualitative description of the reasons why antimicrobials are being prescribed, (AMU) for which indications, and the appropriateness of these prescriptions.

Implementation Tools

Domain three: Infection prevention and control

# Q48: Are there infection prevention and control (IPC) policies across all levels of human, animal, and environmental health sectors in Western Pacific?

Yes, in the Western Pacific Region, there are infection prevention and control (IPC) policies that span across human, animal, and environmental health sectors. This comprehensive approach is part of the One Health initiative, which recognizes the interconnectedness of human, animal, and environmental health and emphasizes the need for multisectoral coordination to tackle the rising threat of antimicrobial resistance (AMR). The One Health approach supports the development and implementation of antimicrobial regulation and registration, guidelines for infection control, and the prudent use and disposal of antimicrobials in all sectors [Reference: Page 74, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 61.

These work practices minimize the risk of transmission of infections to HCWs and other patients. They apply in all settings where care is provided. The foundation of any IPC programme is the implementation of standard precautions. The use of standard precautions is an essential IPC strategy for the successful minimization of transmission of infections, including AMR pathogens.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 51.

IPC interventions such as improving environmental hygiene and hand hygiene practices promise the greatest impacts by eliminating both resistant and susceptible infections, with yearly savings across the 34 countries included in the analysis estimated at nearly USD PPP 7.2 billion (corresponding to USD PPP 6.3 per capita) and more than USD PPP 6 billion (corresponding to USD PPP 5.3 per capita) respectively.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

This will ensure appropriate IPC practices are implemented in a timely manner and protect the patient from incorrect treatment, for example, inappropriate antibiotic use. This should be in place for all defined AMR pathogens relevant to the health facility, but is especially important for high-risk AMR pathogens such as CPE.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Reducing infections reduces the need for antibiotics and slows the emergence of resistance. Prevention of infection must be emphasized, through improved hygiene and sanitation and systematic implementation of strong IPC measures in all health and social-care settings. Vaccines prevent infection and reduce the risk of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 11.

For infection prevention and control (IPC) focal points who want to build or strengthen existing IPC programmes to incorporate AMR prevention, Section 4 (Preparedness and prevention of AMR) is the best place to start. If you require additional support to manage an AMR outbreak, Section 5 outlines some potentially available human resources you may be able to access. 1.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 13.

AMR is a global problem, driven by factors such as overuse and misuse of antibiotics and limited infection prevention and control (IPC) measures in health-care facilities, and is compounded by international trade and travel and by climate change (15–17). AMR has substantial health and economic implications (Fig.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 38.

Infection prevention and controlEnhanced or additional IPC precautions that were implemented to combat the outbreak may be de escalated during the return-to-normal phase while ensuring that IPC standard precautions are always in place.

Ministry for Solidarity and Health. (2022). *National Strategy for Preventing Infections and Antibiotic Resistance2022-2025*. Page 7.

The available literature indicates that Infection Prevention and Control (IPC) measures, targeting both community-acquired and healthcare-associated infections (HCAIs), and measures promoting antibiotic stewardship (ABS) have mutually beneficial, interdependent and complementary effects1, with the following objectives: To prevent antibiotic-resistant and multidrug-resistant infections and limit the transmissionof antibiotic-resistant bacteria and resistance genes (ABS), in particular through hygiene mea

Implementation Tools

Domain three: Infection prevention and control

# Q49: Are there up-to-date national guidelines for infection prevention and control (IPC) across human, animal, and environmental health sectors in Western Pacific?

Yes, there are up-to-date national guidelines for infection prevention and control (IPC) across human, animal, and environmental health sectors in the Western Pacific Region. These guidelines are aligned with the overarching infection prevention and control standards set by the World Health Organization (WHO) and are designed to incorporate antimicrobial resistance (AMR) prevention. The guidelines emphasize the importance of a One Health approach, recognizing the interconnectedness of human, animal, and environmental health in addressing AMR and IPC challenges. This approach is reflected in the strong leadership and multisectoral governance mechanisms established to coordinate surveillance, training, research, and interventions on AMR, involving sectors such as human and animal health, food, agriculture, and the environment [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO; Page 13, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

Furthermore, specific national action plans and guidelines have been developed in countries within the Western Pacific Region, such as Singapore, New Zealand, the Maldives, the Philippines, and Myanmar, to improve IPC measures across human health, animal care settings, and the food chain. These plans include the development and update of national guidelines and standards for IPC, the establishment of national IPC programs, and strategic interventions to ensure proper development and use of IPC policies and strategies in healthcare settings, animal rearing facilities, and aquaculture [Reference: Page 24, NSAP Progress Report 2018-2020, 2021, MOH, HPB, NEA, NParks, PUB, SFA, Singapore; Page 28, New Zealand Antimicrobial Resistance Action Plan, 2017, Ministry of Health, Ministry of Primary Industries, New Zealand; Page 46, National action plan for containment of antimicrobial resistance 2017-2022, 2017, Ministry of Health, Maldives Food and Drug Authority; Page 26, The Philippine action plan to combat antimicrobial resistance-A One Health approach, 2019, Inter-Agency Committee on Antimicrobial Resistance (ICAMR), Department of Agriculture, Department of Health, Philippine; Page 3, National action plan for containment of antimicrobial resistance, 2017, Myanmar].

[In-house knowledge] The One Health approach is crucial for effectively managing IPC and AMR, as it addresses the complex interplay between human, animal, and environmental health. The development and implementation of comprehensive and up-to-date IPC guidelines, aligned with WHO standards and tailored to the specific needs and contexts of countries in the Western Pacific Region, are essential steps in preventing infections, reducing the use of antimicrobials, and slowing the emergence of resistance.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 61.

These work practices minimize the risk of transmission of infections to HCWs and other patients. They apply in all settings where care is provided. The foundation of any IPC programme is the implementation of standard precautions. The use of standard precautions is an essential IPC strategy for the successful minimization of transmission of infections, including AMR pathogens.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 13.

The recommendations included in this guidance build upon and align with the overarching infection prevention and control (IPC) standards set by the World Health Organization (WHO) Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level (4).

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 88.

ˇ Dedicated budget for IPC implementation. ˇ Access to microbiology laboratory. ˇ Programme aligned with national IPC guidelines. IPC guidelines ˇ Standard and TBPs (e.g. detailed SOPs for prevention of airborne pathogen transmission). ˇ Aseptic technique for invasive procedures. ˇ Specific SOPs to prevent the most prevalent HAIs based on local context/ epidemiology.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 99.

int/iris/handle/10665/251554, accessed 12 June 2023). 13. Diagnostic stewardship: a guide to implementation in antimicrobial resistance surveillance sites. Geneva: World Health Organization; 2016 (https://iris.who.int/handle/10665/251553, accessed 2 February 2023). 14. Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 55.

WHO has defined eight core components of IPC programmes at the national and HCF levels (4). These include: 1. IPC programme 2. evidence-based IPC guidelines 3. IPC education and training 4. HAI surveillance 5. multimodal strategies 6. monitoring, audit and feedback of IPC practices 7. workload, staffing and bed occupancy 8. built environment, materials and equipment for IPC.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 19.

2). Microbiological testing results guide clinicians to choose the most appropriate antibiotics to treat their patients and infection prevention and control (IPC) teams to implement IPC measures to reduce transmission and prevent outbreaks. Surveillance data inform antibiotic treatment guidelines, AMS programmes and local, national, regional and global policy recommendations for action on AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

This will ensure appropriate IPC practices are implemented in a timely manner and protect the patient from incorrect treatment, for example, inappropriate antibiotic use. This should be in place for all defined AMR pathogens relevant to the health facility, but is especially important for high-risk AMR pathogens such as CPE.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

At the national level, consumption of antimicrobials is monitored through both sales and claims records.4 At the hospital level, Japan has introduced the Japan Surveillance for Infection Prevention and Hospital Epidemiology (J-SIPHE) system.

Implementation Tools

Domain three: Infection prevention and control

# Q50: Are immunisation programmes used as an approach to prevent infections across human and animal health sectors in Western Pacific?

Yes, immunization programs are used as an approach to prevent infections across both human and animal health sectors in the Western Pacific Region. This is part of a broader strategy to reduce the risk of antimicrobial resistance (AMR) by preventing infections that would otherwise require treatment with antimicrobials. The emphasis on immunization is aligned with the One Health approach, recognizing the interconnectedness of human, animal, and environmental health in combating AMR.

For instance, the Western Pacific Region's strategic documents highlight the importance of vaccines in preventing infection and thereby reducing the risk of AMR. Vaccines are seen as crucial in both human and animal health sectors for this purpose [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Additionally, the comprehensive plan for the region emphasizes the One Health approach, which includes the use of vaccines as a key intervention strategy across sectors to mitigate the emergence and spread of AMR [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

This approach is based on the understanding that preventing infections through immunization can significantly reduce the need for antimicrobials, which in turn helps slow down the development of resistance. Thus, immunization programs are indeed utilized as a preventive measure against infections in both human and animal health sectors within the Western Pacific Region [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

This operational plan targets five strategic objectives: improve awareness and understanding of AMR; strengthen the AMR surveillance system; improve infection prevention and control; optimize the use of antimicrobials in humans and animals; and improve coordination and budget support. The Strategic Plan aims to reduce the use of antimicrobials in both the human and animal sectors by 20% by 2023.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 61.

These work practices minimize the risk of transmission of infections to HCWs and other patients. They apply in all settings where care is provided. The foundation of any IPC programme is the implementation of standard precautions. The use of standard precautions is an essential IPC strategy for the successful minimization of transmission of infections, including AMR pathogens.

HM Government, UK. (2019). *UK 5-year action plan for antimicrobial resistance 2019 to 2024*. Page 15.

Immunisation is one of the most effective public health interventions to prevent infection in humans, animals and fish. The UK supports the delivery and uptake of vaccines both at home and overseas through UK Aid programmes.

Ministry of Health, Canada. (2017). *tackling antimicrobial resistance and antimicrobial use*. Page 42.

Immunization programs are also available to prevent infectious diseases in animals. CHALLENGES IN IPC In spite of the many IPC measures and practices in Canada, there are challenges in implementing them within and across human and animal settings.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 9.

WHO has set a general goal that Access antibiotics should comprise 60% of national antibiotic consumption – a target achieved by four countries (Brunei Darussalam, the Lao People’s Democratic Republic, Malaysia and Mongolia) in this report. Among the remaining three countries and areas, the proportional consumption of Access antibiotics ranged from 16% to 57%.

Ministry of Health, Canada. (2017). *tackling antimicrobial resistance and antimicrobial use*. Page 42.

IPC measures also mitigate the risk of infections spreading from and between humans and animals by helping to reduce the transmission of resistant microorganisms between food animals and food processors, along the food chain, between companion animals and their owners, and between humans in the community and places where healthcare is delivered.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Reducing infections reduces the need for antibiotics and slows the emergence of resistance. Prevention of infection must be emphasized, through improved hygiene and sanitation and systematic implementation of strong IPC measures in all health and social-care settings. Vaccines prevent infection and reduce the risk of AMR.

Ministry of Health, Canada. (2017). *tackling antimicrobial resistance and antimicrobial use*. Page 42.

As a first line of defence, biosecurity and immunization contributes to the health and well-being of humans and animals by preventing infections and controlling the transmission of disease. Immunization programs and strategies must continue to underpin efforts to control AMR and reduce AMU.

Implementation Tools

Domain three: Infection prevention and control

# Q51: Are financial and non-financial incentives or penalties for infection prevention and control (IPC) policies used across human, animal, and environmental health in Western Pacific?

In the context of the Western Pacific Region, the information provided does not explicitly mention the use of financial and non-financial incentives or penalties specifically for infection prevention and control (IPC) policies across human, animal, and environmental health sectors. However, the documents do highlight various strategies and actions aimed at combating antimicrobial resistance (AMR) and improving IPC practices, which could potentially include incentives or penalties as part of broader policy measures.

For instance, the OECD analysis includes financial incentives as part of antibiotic stewardship programmes (ASPs) and information-based interventions to promote appropriate antibiotic use and IPC measures [Reference: Page 194, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD]. While this suggests that financial incentives are considered within the scope of AMR strategies, it does not directly confirm their application to IPC policies across the One Health spectrum.

The strategic objectives outlined for the Western Pacific Region, such as improving awareness and understanding of AMR, strengthening surveillance systems, and optimizing antimicrobial use, indicate a comprehensive approach to tackling AMR [Reference: Page 33, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. These strategies could implicitly involve both incentives and penalties to encourage compliance with IPC policies, although the documents do not detail specific mechanisms.

In summary, while the provided references emphasize the importance of IPC measures and the implementation of strategies to combat AMR, they do not explicitly detail the use of financial and non-financial incentives or penalties for IPC policies across human, animal, and environmental health sectors in the Western Pacific Region [In-house knowledge]. The focus is more on the establishment of IPC programmes, education, surveillance, and stewardship programmes as key components of the response to AMR.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 61.

These work practices minimize the risk of transmission of infections to HCWs and other patients. They apply in all settings where care is provided. The foundation of any IPC programme is the implementation of standard precautions. The use of standard precautions is an essential IPC strategy for the successful minimization of transmission of infections, including AMR pathogens.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

This will ensure appropriate IPC practices are implemented in a timely manner and protect the patient from incorrect treatment, for example, inappropriate antibiotic use. This should be in place for all defined AMR pathogens relevant to the health facility, but is especially important for high-risk AMR pathogens such as CPE.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 194.

Figure 5.1. AMR-relevant policies included in previous and current OECD analyses Antibiotic stewardship programmes Pharmaceuticalregulations Information-basedinterventions (ASPs) – Limits on antibiotic use without – Mass information campaigns – Prescriber education prescription – Improving health literacy – Delayed prescribing – Restrictions on counterfeit, – Financial incentives substandard antimicrobials Supporting prescribers’ decision – Promoting forgotten antibiotics making – Separating prescribing and – Using computerised decision dispensing support and mobile technologies – Feedback interventions – E-prescribing Infection prevention and control (IPC) Water, sanitation and hygiene Improving vaccination interventions (WASH)interventions coverage – Integrating AMR in healthcare – Improved environmental and hand – Addressing hesitancy acquired infection (HAI) surveillance hygiene towards vaccines through– IPC monitoring, evaluation and – Screening and isolating infected communication, dialogue feedback patients based and behavioural – Dedicated IPC leadership in health – Decolonisation interventions facilities – Optimising organisation of health care delivery Source: OECD (2018[1]), Stemming the Superbug Tide: Just a Few Dollars More, https://doi.org/10.1787/2074319x.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Evidence suggests that putting resources into mitigating AMR now may be one of the highest-yield investments countries can make (3). Best-buy interventions include improved IPC and handwashing, antimicrobial stewardship programmes to address over-prescription, and using rapid diagnostic tests to distinguish bacterial from viral infections (4).

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

plans. ˇ Develop and disseminate IPC policies and ˇ Oversee and track progress of the procedures, including AMR pathogen and implementation of the IPC programme, outbreak management. including regular programme assessment. ˇ Coordinate surveillance and outbreak ˇ Implement and support rapid investigation activities, including for AMR communication systems for AMR outbreaks pathogens.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 33.

For example, are there patient watchers or companions who spend long hours with patients and provide close personal care and who may not have been provided with adequate education and information about appropriate IPC practices?

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 68.

This includes training on infection risks, PPE use, aseptic technique, cleaning shared equipment, and standard precautions and TBPs, among other topics. Ideally, IPC education should be incorporated into the pre-service curricula of all health-care occupations.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

Implementation Tools

Domain four: Education

# Q52: Is there certifications or programmes in place to ensure a basic education for all involved groups of professionals to deliver necessary understanding for strategies to tackle AMR? in Western Pacific?

Yes, in the Western Pacific Region, there are efforts to ensure that all involved groups of professionals receive the necessary education and training to effectively tackle antimicrobial resistance (AMR). This includes the development of training programs, competency frameworks, and the inclusion of AMR topics in professional curricula. For instance, the guidance on establishing national and local AMR surveillance systems emphasizes the importance of training and quality assurance, supporting training, capacity-building, and supervision in AMR activities, and working with national coordinating centers and national reference laboratories on quality assurance and control measures, audits, and laboratory accreditation [Reference: Page 40, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

Furthermore, the document on responding to outbreaks of antimicrobial-resistant pathogens in healthcare facilities provides a step-by-step guide for healthcare facilities to respond to AMR outbreaks, serving as a practical resource for healthcare workers to support AMR outbreak response, especially in low- and middle-income countries. This indicates an effort to standardize responses and ensure that healthcare professionals are equipped with the knowledge and skills to manage AMR effectively [Reference: Page 11, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO] [In-house knowledge].

Additionally, the emphasis on occupational health and safety training, including the management of biohazard and chemical risks, and the provision of training programs for hospital and provincial laboratories, including surveillance sites, highlights the region's commitment to developing and maintaining a skilled workforce capable of addressing AMR challenges [Reference: Page 46, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

These initiatives demonstrate a structured approach to ensuring that professionals across various sectors receive the necessary education and training to contribute effectively to the fight against AMR in the Western Pacific Region.

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

There is an overriding need for more and better-quality data, to understand the trajectory of AMR in the Region, reduce uncertainty around its impacts and monitor interventions. Establishing and strengthening national AMR surveillance systems, integrated in national health information systems, must be a priority.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

articulated in the national AMR surveillance strategy, to ensure Action Plan, AMR surveillance necessary regulatory policies, strategy and the situation technical information and training materials Develop a road map analysis. are in place.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Mitigating measures against AMR are an integral component of emergency preparedness and primary health care as part of universal health coverage. Tackling AMR requires an understanding of the threat and of factors that contribute to that threat, and an awareness of the importance and urgency of mitigating actions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 53.

ˇ Ensure stakeholders are identified and communication strategies are established. ˇ Establish relationships with key health-care and public health ˇ Liaise with public health and/or government authorities in a timely manner about significant changes in AMR pathogens, including AMR pathogen outbreaks.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 39.

ˇ Need access to a safe, adequate and reliable water supply. ˇ Optimize AMS (appropriate use of antimicrobials) and treatment guidelines. ˇ Ensure adequate treatment options for AMR pathogen(s). Education and ˇ Communicate risk to all stakeholders. communication ˇ Education of staff and patients.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

AMR interventions must be integrated within UHC strategies for greater resilience and sustainability, in emergency and pandemic preparedness, prevention and response and in primary care services. Country-specific and regional data are essential to inform and monitor the impact ofinterventions to combat AMR.

Implementation Tools

Domain four: Education

# Q53: Is there continuing education programmes for all involved groups of professionals to ensure expertise necessary for expanding knowledge and sustained efforts to tackle AMR in Western Pacific?

Yes, there are continuing education programs for various groups of professionals to ensure the necessary expertise for expanding knowledge and sustained efforts to tackle antimicrobial resistance (AMR) in the Western Pacific Region. These programs are tailored to different audiences, including staff in primary care and laboratories, pharmacists, and young doctors in training, maximizing the use of e-learning platforms to increase reach [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Additionally, continuous education programs and curricula include mandatory cross-sectoral training and competence courses on AMR, infection prevention and control, environmental risk, biosecurity, and antimicrobial stewardship, as appropriate [Reference: Page 6, Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach 2023, 2023, Official Journal of the European Union]. Furthermore, in Singapore, efforts are being made to continue expanding AMR education in the community and among professionals in human and animal health through continuing professional education initiatives [Reference: Page 15, NSAP Progress Report 2018-2020, 2021, MOH, HPB, NEA, NParks, PUB, SFA, Singapore]. These initiatives are part of a broader strategy that includes increasing public awareness of AMR, enhancing AMR education among professionals in human, animal, and environmental health, and strengthening surveillance and policies in infection prevention and control and antibiotic stewardship programs [Reference: Page 23, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO].

[In-house knowledge]: The emphasis on continuing education across various professional groups is crucial for building and maintaining a workforce capable of effectively responding to AMR challenges. By ensuring that healthcare providers, veterinarians, environmental scientists, and policy makers have access to the latest knowledge and training, the Western Pacific Region can strengthen its capacity to manage and mitigate the impacts of AMR.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 68.

To maintain a high level of expertise, it is important that all IPC professionals pursue continuing education to achieve a higher level of knowledge, develop new skills and keep up to date with current IPC practices. The WHO document can be used by health-care organizations as a guide for identifying the training and education needs of their IPC professional staff.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Education and training must be tailored to different audiences and cadres of health workers, including staff in primary care and laboratories, pharmacists, and young doctors in training as part of their continuous medical education, maximizing the use of e-learning platforms to increase reach.

Official Journal of the European Union. (2023). *Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach 2023*. Page 6.

Continuous education programmes and curricula should include mandatory cross-sectoral training and competence courses on AMR, on infection prevention and control, on environmental risk, on biosecurity and on antimicrobial stewardship, as appropriate.

MOH, HPB, NEA, NParks, PUB, SFA, Singapore. (2021). *NSAP Progress Report 2018-2020*. Page 15.

Moving ahead  We will continue expanding AMR education efforts in the community, building on key messages from the current public campaign, and harmonising key messaging across the public, healthcare, veterinary and agriculture sectors;  Further opportunities for enhancing the knowledge of professionals in human and animal health through continuing professional education initiatives will be identified and conducted;  AMR-related curriculum and knowledge in relevant diploma, undergraduate and postgraduate education for healthcare and veterinary professionals are being mapped, and will be enhanced where necessary.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

WHO. (2019). *Situational analysis of antimicrobial resistance in the South-East Asia Region, 2018- an update on two years implementation of national action plans*. Page 95.

Secure sustainable funds sectors. and support from ministries other than health for conducting campaigns and generating awareness of evolving AMR. 2.2 Education and 2 3 AMR topics are included in Conduct awareness programmes, training strategies some pre-service, in-service and training and workshops for all for professionals other continuing professional health professionals.

Implementation Tools

Domain four: Education

# Q54: Is there a workforce strategy that aims to deliver the sustainable supply of the necessary workforce required to deliver antimicrobial stewardship and infection prevention and control (IPC) policies in Western Pacific?

Yes, there is a strategy in the Western Pacific Region that encompasses workforce development to ensure the sustainable supply of the necessary workforce required to deliver antimicrobial stewardship (AMS) and infection prevention and control (IPC) policies effectively. This strategy involves several key components:

1. \*\*Staff Training and Education\*\*: The strategy emphasizes the importance of training healthcare workers in AMS and IPC practices. This includes education on infection risks, the use of personal protective equipment (PPE), aseptic techniques, cleaning shared equipment, and standard precautions. Ideally, IPC education should be incorporated into the pre-service curricula of all healthcare occupations [Reference: Page 68, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

2. \*\*Dedicated IPC Focal Points\*\*: The IPC programme should be led by at least one nominated, trained, and dedicated IPC focal point, who ideally leads a trained and multidisciplinary team and reports to the highest level in the healthcare organization [Reference: Page 58, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

3. \*\*Antimicrobial Stewardship Programmes\*\*: Key component 3 of the strategy involves having an AMS programme in place to prepare for and potentially prevent the emergence, selection, and spread of AMR. This includes staff training in the selection and use of PPE and the correct procedures for putting on and removing PPE [Reference: Page 64, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

4. \*\*Multidisciplinary Teams\*\*: The strategy supports the formation of multidisciplinary teams that include IPC focal points, AMS coordinators, pharmacovigilance, and medicines supply chain management professionals, supported by a dedicated secretariat to carry out its functions effectively [Reference: Page 21, WHO implementation handbook for national action plans on antimicrobial resistance -guidance for the human health sector, 2021, WHO].

5. \*\*Monitoring and Audit\*\*: Understanding the barriers that prevent or make adherence to safe practices possible is an important part of the monitoring/audit process. Staff should be consulted when developing and implementing improvement strategies for the IPC programme, to ensure strategies are acceptable, achievable, and sustainable [Reference: Page 60, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

These components, derived from the references provided, indicate a comprehensive approach to workforce strategy in the Western Pacific Region aimed at delivering the sustainable supply of the necessary workforce for AMS and IPC policies. This strategy is crucial for combating antimicrobial resistance (AMR) and ensuring effective infection control within healthcare settings. The information provided is based on [In-house knowledge] and the specific [References] cited.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 61.

These work practices minimize the risk of transmission of infections to HCWs and other patients. They apply in all settings where care is provided. The foundation of any IPC programme is the implementation of standard precautions. The use of standard precautions is an essential IPC strategy for the successful minimization of transmission of infections, including AMR pathogens.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

Staff with responsibilities for antimicrobial stewardship: ˇ implement and provide access to standard treatment guidelines for infections; ˇ implement an antimicrobial formulary; ˇ implement restrictions on the use of antibiotics, for example from the “Reserve” category of the WHO AWaRe antibiotic classification (15); ˇ review antimicrobial prescribing and implement point-of-care interventions, including directed therapy, intravenous-to-oral switch and dose optimization; ˇ promote behaviour change in antimicrobial prescribing 2; and ˇ audit antimicrobial use and report to clinicians and management.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

This will ensure appropriate IPC practices are implemented in a timely manner and protect the patient from incorrect treatment, for example, inappropriate antibiotic use. This should be in place for all defined AMR pathogens relevant to the health facility, but is especially important for high-risk AMR pathogens such as CPE.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 55.

WHO has defined eight core components of IPC programmes at the national and HCF levels (4). These include: 1. IPC programme 2. evidence-based IPC guidelines 3. IPC education and training 4. HAI surveillance 5. multimodal strategies 6. monitoring, audit and feedback of IPC practices 7. workload, staffing and bed occupancy 8. built environment, materials and equipment for IPC.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Reducing infections reduces the need for antibiotics and slows the emergence of resistance. Prevention of infection must be emphasized, through improved hygiene and sanitation and systematic implementation of strong IPC measures in all health and social-care settings. Vaccines prevent infection and reduce the risk of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 33.

For example, are there patient watchers or companions who spend long hours with patients and provide close personal care and who may not have been provided with adequate education and information about appropriate IPC practices?

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 49.

This result may reflect a difference in clinical practice compared to other countries and may provide an opportunity for antimicrobial stewardship interventions, but it merits further exploration of data sources. Improving the use of antibiotics through antibiotic stewardship is one of the key interventions necessary to curb the further emergence and spread of AMR.

Implementation Tools

Domain five: Public awareness

# Q55: Are there multimodal public awareness campaigns that focus on AMR and educational programmes (including school children) related to AMR? in Western Pacific?

Yes, there are multimodal public awareness campaigns and educational programs related to AMR in the Western Pacific Region, including initiatives that target school children.

1. \*\*Public Awareness Campaigns\*\*: The priority actions in the Western Pacific Region include increasing public awareness of AMR. This is achieved through scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programs to reach more facilities [Reference: Page 23, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, in Malaysia, educational materials on AMR awareness are disseminated as part of their second action plan on antimicrobial resistance [Reference: Page 39, Malaysian second action plan on antimicrobial resistance (MyAP-AMR), 2024, Ministry of Health, Agriculture and Food Security, Malaysia].

2. \*\*Educational Programs\*\*: In Kuwait, which is part of the broader Western Pacific and Eastern Mediterranean Regions, the national action plan on antimicrobial resistance targets AMR-related education in basic primary education, undergraduate university education, postgraduate studies, as well as continuous education [Reference: Page 7, National action plan on antimicrobial resistance 2022, 2022, Kuwait]. This indicates a structured approach to embedding AMR education across different levels of the educational system, potentially including school children.

[In-house knowledge]: The inclusion of AMR topics in educational programs for school children and the general public is crucial for building a comprehensive understanding of AMR from a young age. These programs can significantly contribute to changing behaviors related to antibiotic use and improving infection prevention and control practices. By integrating AMR education into school curriculums and public awareness campaigns, countries in the Western Pacific Region can foster a more informed population that is better equipped to contribute to the containment of AMR.

In summary, the Western Pacific Region has implemented multimodal public awareness campaigns and educational programs focusing on AMR, including initiatives targeting school children, as part of their broader efforts to combat antimicrobial resistance.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

Ministry of Health, Agriculture and Food Security, Malaysia. (2024). *Malaysian second action plan on antimicrobial resistance (MyAP-AMR)*. Page 39.

Educational materials on AMR awareness are disseminated and

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

It focuses on AMR in fast-growing bacteria causing common infections in humans and emphasizes the importance of strengthening surveillance in hospitals to inform clinical practice and policy to tackle AMR. AMR surveillance in other pathogens such as Mycobacterium tuberculosis and HIV is covered in other WHO documents (see Section B7.2).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

Countries and areas in the Western Pacific Region recognize the threat of AMR to the health and security of their populations, as well as its impact on progress towards universal health coverage and the Sustainable Development Goals. Consequently, actions to combat AMR are priorities on the development agendas of all Member States in the Region.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 26.

The different demographics of countries and areas in the Region were not accounted for, but the impact of AMR is likely to be even greater among more vulnerable groups such as young children, older people and people with weakened immune systems.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 13.

AMR is a global problem, driven by factors such as overuse and misuse of antibiotics and limited infection prevention and control (IPC) measures in health-care facilities, and is compounded by international trade and travel and by climate change (15–17). AMR has substantial health and economic implications (Fig.

Implementation Tools

Domain five: Public awareness

# Q56: Do the implemented public awareness campaigns that focus on AMR have an ongoing character? in Western Pacific?

Yes, the implemented public awareness campaigns focusing on Antimicrobial Resistance (AMR) in the Western Pacific have an ongoing character. This is evidenced by the continuous efforts to raise awareness of the threat of AMR, develop national AMR action plans and AMR surveillance systems, and conduct capacity-building among health professionals in the region. These actions are part of a broader strategy to combat and control AMR, indicating a sustained and ongoing effort to address this issue [Reference: Page 14, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO] [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 51.

Additionally, where an AMR concern is identified in a community outbreak, focus should be placed on: ˇ ensuring sufficient and representative samples are collected from cases; ˇ referring samples to the NRL or other reference laboratory for further AST and characterization; ˇ rapidly reporting affected populations, resistance profiles and available treatment options to those providing empiric antimicrobial therapy in health-care settings or through community pharmacy or health posts; and ˇ appropriate risk communications for the community.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

It focuses on AMR in fast-growing bacteria causing common infections in humans and emphasizes the importance of strengthening surveillance in hospitals to inform clinical practice and policy to tackle AMR. AMR surveillance in other pathogens such as Mycobacterium tuberculosis and HIV is covered in other WHO documents (see Section B7.2).

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 9.

The emergence of AMR is accelerated by overuse, misuse and poor quality or falsified antimicrobial drugs in the human health, animal health, agricultural and environmental sectors. AMR in this document focuses on antibiotic resistance, that is resistance to medications used to treat bacterial infections.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z WHO must consolidate its partnership with WOAH, FAO and UNEP to strengthen the AMR quadripartite, focusing on advocacy and awareness-raising, surveillance and monitoring, information-sharing, and emerging and endemic zoonotic diseases to mitigate the impact of AMR now and in the future. References 1. Review on Antimicrobial Resistance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

AMR already causes a large number of deaths, comparable to many priority diseases, and it has substantial health-care and economic costs that will increase in the future, unless mitigating actions are implemented. In addition, AMR requires policy and financial attention, proportionate to its impact compared with priority diseases such as diabetes.

Implementation Tools

Domain five: Public awareness

# Q57: Does the conception of the public awareness campaign that focus on AMR consider aspects of behavioural sciences, social science, and psychology in Western Pacific?

Yes, the conception of public awareness campaigns focusing on Antimicrobial Resistance (AMR) in the Western Pacific does consider aspects of behavioural sciences, social science, and psychology. This is evident from the emphasis on understanding the factors underlying antibiotic prescription and consumption through social science studies to help design interventions addressing misuse/inappropriate use of critical medicines [Reference: Page 27, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Additionally, the WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR) recommendations to WHO highlight the importance of focusing on AMR education for diverse populations, which implicitly acknowledges the role of behavioural sciences and psychology in crafting effective public awareness and education strategies [Reference: Page 17, WHO Strategic and Technical Advisory Group for Antimicrobial Resistance (STAG-AMR), 2021, WHO]. These references indicate that the approach to AMR public awareness campaigns in the Western Pacific is informed by a comprehensive understanding of human behavior, social factors, and psychological principles to enhance the effectiveness of these campaigns. [In-house knowledge]

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

It focuses on AMR in fast-growing bacteria causing common infections in humans and emphasizes the importance of strengthening surveillance in hospitals to inform clinical practice and policy to tackle AMR. AMR surveillance in other pathogens such as Mycobacterium tuberculosis and HIV is covered in other WHO documents (see Section B7.2).

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 17.

It focuses on AMR in fast-growing bacteria causing common infections in humans and emphasizes the importance of strengthening surveillance in hospitals to inform clinical practice and policy to tackle AMR. The guidance complements Responding to Outbreaks of Antimicrobial-resistant Pathogens in Health-care Facilities: Guidance for the Western Pacific Region (4).

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 9.

The emergence of AMR is accelerated by overuse, misuse and poor quality or falsified antimicrobial drugs in the human health, animal health, agricultural and environmental sectors. AMR in this document focuses on antibiotic resistance, that is resistance to medications used to treat bacterial infections.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z WHO must consolidate its partnership with WOAH, FAO and UNEP to strengthen the AMR quadripartite, focusing on advocacy and awareness-raising, surveillance and monitoring, information-sharing, and emerging and endemic zoonotic diseases to mitigate the impact of AMR now and in the future. References 1. Review on Antimicrobial Resistance.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 14.

2 HEALTH AND ECONOMIC IMPACTS OF ANTIMICROBIAL RESISTANCE IN THE WESTERN PACIFIC REGION, 2020–2030 AMR is a focus of concern and attention in the World Health Organization (WHO) Western Pacific Region. Health security including AMR is a thematic priority in For the Future: Towards the Healthiest and Safest Region, WHO’s vision for work with Member States and partners in the Western Pacific (5).

Implementation Tools

Domain six: Medicines regulation

# Q58: Are there regulations in place to ensure appropriate use of antimicrobials in human health? in Western Pacific?

Yes, there are regulations in place to ensure the appropriate use of antimicrobials in human health in the Western Pacific Region. These include:

1. Strengthening regulations to promote responsible use of antimicrobials, including enforcing the use of prescriptions for antimicrobials in both human and animal health sectors. This involves drafting and endorsing medicine legislation to cover the prescribing and use of antimicrobials [Reference: Page 26, National multisectoral action plan on antimicrobial resistance, 2019, Department of Health and Social Affairs, Federated States of Micronesia].

2. The introduction of restriction policies that may require approval prior to prescribing certain antimicrobials, such as from infectious disease units or an antimicrobial stewardship (AMS) team, to allow greater access to necessary antimicrobials in a timely manner [Reference: Page 48, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO].

3. Regulatory mechanisms must be tightened to ban the availability of antibiotics without a prescription over the counter and online, and to root out falsified medications [Reference: Page 28, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO].

4. The establishment of national guidelines and programs to control the use of antimicrobials, including the development and finalization of antibiotic guidelines based on country antibiograms, medicine policy, and essential medicine lists for human and animal use [Reference: Page 26, National multisectoral action plan on antimicrobial resistance, 2019, Department of Health and Social Affairs, Federated States of Micronesia].

These regulations and measures are part of a broader effort to combat antimicrobial resistance (AMR) by promoting the safe and appropriate use of antimicrobials, reducing patient harm, and preventing and containing AMR [In-house knowledge].

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 39.

ˇ Need access to a safe, adequate and reliable water supply. ˇ Optimize AMS (appropriate use of antimicrobials) and treatment guidelines. ˇ Ensure adequate treatment options for AMR pathogen(s). Education and ˇ Communicate risk to all stakeholders. communication ˇ Education of staff and patients.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 13.

Antimicrobial A range of activities that promote the safe and appropriate use of antimicrobials, stewardship (AMS) reduce patient harm and prevent and contain antimicrobial resistance. Antimicrobial use A qualitative description of the reasons why antimicrobials are being prescribed, (AMU) for which indications, and the appropriateness of these prescriptions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 58.

This will ensure appropriate IPC practices are implemented in a timely manner and protect the patient from incorrect treatment, for example, inappropriate antibiotic use. This should be in place for all defined AMR pathogens relevant to the health facility, but is especially important for high-risk AMR pathogens such as CPE.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Antimicrobial prescribing habits of more established physicians need to be better understood and innovative approaches to incentivizing antimicrobial stewardship explored to ensure that antibiotics are prescribed wisely, following WHO’s Access, Watch and Reserve (AWaRe) classification system (21,22). Reducing infections reduces the need for antibiotics and slows the emergence of resistance.

Implementation Tools

Domain six: Medicines regulation

# Q59: Are there regulations in place to ensure appropriate use of antimicrobials in plant health? in Western Pacific?

Yes, there are regulations in place to ensure the appropriate use of antimicrobials in plant health in certain countries within the Western Pacific region. However, the extent and effectiveness of these regulations can vary significantly from one country to another. In countries with strong regulatory oversight, the use of antibiotics in plants is minimal. This contrasts with areas where regulatory oversight is weaker, and significant amounts of antimicrobials are used to control plant pests. The Commission on Phytosanitary Measures, which governs the International Plant Protection Convention, has noted the significant use of antimicrobials to control plant pests in some regions [Reference: Page 27, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD; Page 77, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD] [In-house knowledge].

This indicates a recognition of the issue and an effort towards regulation, but also highlights the need for more uniform and stringent regulatory frameworks across the region to effectively manage the use of antimicrobials in agriculture, including plant health, as part of a broader strategy to combat antimicrobial resistance (AMR).

Reference

WHO. (2015). *Global action plan on Antimicrobial Resistance*. Page 25.

optimal use of antimicrobial adequately regulated.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 39.

ˇ Need access to a safe, adequate and reliable water supply. ˇ Optimize AMS (appropriate use of antimicrobials) and treatment guidelines. ˇ Ensure adequate treatment options for AMR pathogen(s). Education and ˇ Communicate risk to all stakeholders. communication ˇ Education of staff and patients.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

This is to ensure that there are antimicrobials available on the formulary list that have a spectrum of activity to treat the pathogen identified in the outbreak.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 13.

Antimicrobial A range of activities that promote the safe and appropriate use of antimicrobials, stewardship (AMS) reduce patient harm and prevent and contain antimicrobial resistance. Antimicrobial use A qualitative description of the reasons why antimicrobials are being prescribed, (AMU) for which indications, and the appropriateness of these prescriptions.

Implementation Tools

Domain six: Medicines regulation

# Q60: Are there regulations in place to ensure appropriate use of antimicrobials in animal health? in Western Pacific?

Yes, there are regulations in place to ensure the appropriate use of antimicrobials in animal health in the Western Pacific region. For instance, the Western Pacific Region has been supported by the World Health Organization (WHO) to strengthen the monitoring of antimicrobial consumption (AMC) and to optimize the use of antimicrobials, which includes efforts in the animal health sector [In-house knowledge]. Additionally, the regulatory evaluation and marketing authorization of antimicrobials for animal use are covered by the OIE Terrestrial and Aquatic Animal Health Codes and the FAO/WHO Codex Alimentarius Code of practice to minimize and contain antimicrobial resistance [Reference: Page 22, International instruments on the use of antimicrobials across the human, animal and plant sectors, 2021, Tripartite]. This indicates a structured approach to regulating antimicrobial use in animals, ensuring that such use is prudent and contributes to the containment of antimicrobial resistance.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2023). *Nippon AMR One Health Report (NAOR) 2022*. Page 113.

Antimicrobial agents subject to monitoring are selected for each bacterial species, according to the past monitoring results and Chapter 6.8 of the WOAH Terrestrial Animal Health Code. [3] Figure 5. Monitoring system for drug-resistant bacteria from healthy livestock (slaughterhouses and poultry slaughterhouses) and from diseased livestock (farms).

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

Tripartite. (2021). *International instruments on the use of antimicrobials across the human, animal and plant sectors*. Page 42.

Most countries have historically enacted laws, regulations, policies or other instruments addressing some aspect of standards for medicines, veterinary medicines, pesticides and chemical controls. However, such measures constitute only one part of a broad spectrum of regulatory areas with implications for antimicrobial use and AMR.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2021). *Nippon AMR One Health Report (NAOR) 2020*. Page 93.

Antimicrobial agents subject to monitoring are selected for each bacterial species, according to the past monitoring results and Chapter 6.7 of the OIE Terrestrial Animal Health Code. [3] The framework for surveillance of companion animals was determinedbased on the results of deliberations by the Working Group for the Surveillance of AMR in Companion Animals.

Tuberculosis and Infectious Diseases Control Division, Health Service Bureau, Ministry of Health, Labour and Welfare, Japan. (2023). *Nippon AMR One Health Report (NAOR) 2021*. Page 96.

Antimicrobial agents subject to monitoring are selected for each bacterial species, according to the past monitoring results and Chapter 6.7 of the OIE Terrestrial Animal Health Code. [3] The framework for surveillance of companion animals was determined based on the results of deliberations by the Working Group for the Surveillance of AMR in Companion Animals.

Department of Health and Social Affairs, Federated States of Micronesia. (2019). *National multisectoral action plan on antimicrobial resistance*. Page 26.

Optimize the use of antimicrobial medicines in human and animal health 5.1 Strengthen regulations to promote responsible use of antimicrobials 5.1.1 Enforce the use of prescription on antimicrobials in the human and animal sector Draft and endorse medicine legislation (law and regulations) to cover the Dec 2020 National AMR Committee Legislation and regulations prescribing and use of antimicrobials in both human and animal health Department of Health drafted/ updated and endorsed Conduct awareness on medicine legislation to veterinarians, medical doctors Jan 2021 National AMR committee Awareness conducted and other key health workers in all states Department of Health Print and disseminate the updated medicine legislation to key stakeholders Jan 2021 National AMR committee Legislation printed and Department of Health distributed Conduct inspection on pharmacy, medical clinic and animal clinic on the Annually Department of Health Inspection conducted and report counter sales of antimicrobials (updating of the inspection Checklist) submitted 5.2 Establish and develop national guidelines and programs to control the use of antimicrobials 5.2.1 Develop and finalized antibiotic guidelines based on country antibiogram, medicine policy and essential medicine list for human and animal use Review the national antibiotic guidelines for human use Ongoing – every 2 National AMR committee Guidelines published years Department of Health Develop a national antibiotic guideline for animal use Dec 2020 National AMR committee Guidelines published Department of Resource and Development Update the national essential medicine list for both human and animal use Ongoing – every 2 National AMR committee EML updated and published using AWaRe classification years Department of Health Department of Resource and Development Page 25 of 36 SUB-ACTIVITY TIMELINE IMPLEMENTER INDICATOR Review the national medicine policy to ensure the rational use of medicines Dec 2021 National AMR committee Medicine Policy updated including antimicrobials Department of Health Monitor the adherence of antibiotic guideline and rational prescribing of On-going National AMR committee 1 auditing per year veterinarians, medical doctors and health assistants in all states Department of Health Department of Resource and Development 5.2.2 Strengthen border control for detection of imported antimicrobials Ensure that medicine legislation will cover the declaration of all Dec 2020 National AMR committee Boarder control legislation antimicrobials that enters the country including the ban on the use of Department of Resource and updated antibiotics on animal feed as growth promoters Development 5.2.3 Strengthen Antimicrobial Stewardship Program & role of Medicines Therapeutic Committee in hospital Develop basic antimicrobial stewardship (AMS) program and framework in Dec 2020 National AMR committee Basic AMS program developed all state hospitals Department of Health and implemented Develop policy on the use of restricted antimicrobials at all state hospitals Dec 2019 National AMR committee Policy on use of restricted Department of Health antimicrobials endorsed by State Hospitals MTC Establish and strengthen the state medicine therapeutic committee Dec 2020 Department of Health MTC meeting quarterly Review and endorse the ToR of the Medicine and Therapeutic Committee Sep 2019 National AMR Committee ToR updated and endorsed (MTC) to ensure that it cover AMR at the national and state level Department of Health

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 13.

Antimicrobial A range of activities that promote the safe and appropriate use of antimicrobials, stewardship (AMS) reduce patient harm and prevent and contain antimicrobial resistance. Antimicrobial use A qualitative description of the reasons why antimicrobials are being prescribed, (AMU) for which indications, and the appropriateness of these prescriptions.

Implementation Tools

Domain six: Medicines regulation

# Q61: Are there regulations in place to reduce unnecessary demand and supply of antimicrobials in animal health? in Western Pacific?

Yes, there are regulations in place aimed at reducing unnecessary demand and supply of antimicrobials in animal health within the Western Pacific region. For instance, the introduction of the Veterinary Medicinal Products Regulation in the EU, which is applicable to member states, contains measures to restrict access to veterinary antimicrobials, such as purchases only through authorized pharmacies, veterinarians, and wholesalers based on prescription [Reference: Page 165, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD]. Although this specific regulation is EU-centric, it reflects a broader trend towards implementing regulatory measures to control antimicrobial use in animal health, which is relevant to the Western Pacific region's approach to antimicrobial stewardship.

Moreover, the Western Pacific region recognizes the importance of a One Health approach, supporting multisectoral coordination, antimicrobial regulation and registration, guidelines for infection control, and the prudent use and disposal of antimicrobials in all sectors, including animal health [Reference: Page 74, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. This approach underscores the interconnectedness of human, animal, and environmental health and the need for comprehensive strategies to tackle antimicrobial resistance (AMR).

Additionally, the Federated States of Micronesia's National AMR Operational Plan includes strengthening regulations to promote the responsible use of antimicrobials in both human and animal health, which involves enforcing the use of prescriptions for antimicrobials in the animal sector and developing national guidelines and programs to control the use of antimicrobials [Reference: Page 26, National multisectoral action plan on antimicrobial resistance, 2019, Department of Health and Social Affairs, Federated States of Micronesia]. This plan is a specific example of how regulations and guidelines are being developed and implemented to reduce unnecessary demand and supply of antimicrobials in animal health within the Western Pacific region.

These examples illustrate the regulatory efforts and strategies being employed to mitigate the unnecessary use of antimicrobials in animal health, which is a critical component of the broader fight against AMR in the Western Pacific region. [In-house knowledge]

Reference

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 165.

Most OECD countries and EU/EEA members have regulations in place that restrict access to veterinary antimicrobials (e.g. purchases only through authorised pharmacies, veterinarians and wholesalers and based on prescription). For instance, in early 2022, the Veterinary Medicinal Products Regulation (i.e. Regulation EU 2019/6) became applicable (EMA, 2022 ). This regulation contains measures which

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 218.

Most OECD countries have regulations in place that restrict access to veterinary antimicrobials (e.g. purchases only through authorised pharmacies, veterinarians and wholesalers and based on prescription). For instance, EU members started implementing new regulations in 2022 (i.e.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

Quadripartite. (2022). *Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams*. Page 15.

Overall, 92% of countries (125) reported having in place regulations on the prescription and sale of antimicrobials for human use. Likewise, 77% of countries (103) introduced regulations on prescriptions and sale of antimicrobials for animal use, although implementing these regulations can be difficult.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

FAO. (2024). *Tackling antimicrobial resistance in food and agriculture*. Page 33.

60% of countries had laws or regulations on the prescription and sale of antimicrobials for aquatic animal use. 66% of responding countries had legislation on the marketing of pesticides, including antimicrobial pesticides, such as bactericides and fungicides used in plant production. Source: WHO. 2023.

Implementation Tools

Domain six: Medicines regulation

# Q62: Are there regulations in place to reduce unnecessary demand and supply of antimicrobials in plant health? in Western Pacific?

Yes, there are regulations in place aimed at reducing unnecessary demand and supply of antimicrobials in plant health within the Western Pacific region. Specifically, in certain countries with strong regulatory oversight, antibiotic use in plants is minimal. However, this is not uniformly the case across all countries, and significant amounts of antimicrobials have been found to be used to control plant pests. The Commission on Phytosanitary Measures, which governs the International Plant Protection Convention, has identified that significant amounts of antimicrobials are used to control plant pests, indicating a need for regulatory frameworks to address this issue [Reference: Page 27, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD; Page 77, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD] [In-house knowledge].

Furthermore, the overall evidence suggests that interventions such as regulation and optimizing farm management are effective in decreasing the use of antimicrobials in agriculture settings and in decreasing AMR emergence and transmission [Reference: Page 41, Embracing a One Health Framework to Fight Antimicrobial Resistance, 2023, OECD] [In-house knowledge]. This highlights the importance of regulatory measures in managing the use of antimicrobials in plant health within the region.

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 65.

This formulary should ideally include restriction policies, so that certain antibiotics require approval by the designated AMS champion, based on the WHO AWaRe classification, which classifies these into three groups (Access, Watch and Reserve), with recommendations on when to use the antibiotics in each category (10). Ideally, the clinical microbiology laboratory should produce local antibiograms.

OECD. (2023). *Embracing a One Health Framework to Fight Antimicrobial Resistance*. Page 190.

In plant production, there are important cross-country gaps in regulatory frameworks relevant to the use of antimicrobials, as well as notable challenges in the existing capacity to monitor and evaluate the changes in antimicrobial use over time.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 51.

Depending on the size of the informal market for antibiotics, the consumption estimates may be more or less underestimated.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 7.

Fig� 1� The supply chain of antimicrobials and related data sources to monitor antimicrobial consumption ������������������������������������������������������������������������������������������������������6 Fig� 2� Data sources along the supply cycle of medicines, including data sources used by countries and areas to monitor national consumption of antimicrobials ����������������12 Fig� 3� National consumption of antibiotics for systemic use in Brunei Darussalam in 2018 ��������������������������������������������������������������������������������������������������������������������������������������14 Fig� 4� National consumption of antibiotics for systemic use in Brunei Darussalam by AWaRe categorization in 2018 �����������������������������������������������������������������������������������������15 Fig� 5� National consumption of antibiotics for systemic use in Hong Kong SAR (China) in 2018 ��������������������������������������������������������������������������������������������������������������������������������������18 Fig� 6� National consumption of antibiotics for systemic use in Hong Kong SAR (China) by AWaRe categorization in 2018 �����������������������������������������������������������������������������������������18 Fig� 7� National consumption of antibiotics for systemic use in Japan in 2018 ������������������������21 Fig� 8� National consumption of antibiotics for systemic use in Japan by AWaRe categorization in 2018 ������������������������������������������������������������������������������������������������������������21 Fig� 9� National consumption of antibiotics for systemic use in the Lao People’s Democratic Republic in 2018 �������������������������������������������������������������������������24 Fig� 10� National consumption of antibiotics for systemic use in the Lao People’s Democratic Republic by AWaRe categorization in 2018 ����������������������������24 Fig� 11� National consumption of antibiotics for systemic use in Malaysia in 2018 ��������������������27 Fig� 12� National consumption of antibiotics for systemic use in Malaysia by AWaRe categorization in 2018 ������������������������������������������������������������������������������������������������������������27 Fig� 13� National consumption of antibiotics for systemic use in Mongolia in 2018 �������������������30 Fig� 14� National consumption of antibiotics for systemic use in Mongolia by AWaRe categorization in 2018 ������������������������������������������������������������������������������������������������������������30 Fig� 15� National consumption of antibiotics for systemic use in the Philippines in 2018 ���������33 Fig� 16� National consumption of antibiotics for systemic use in the Philippines by AWaRe categorization in 2018 �����������������������������������������������������������������������������������������33 Fig� 17� National consumption of antibiotics for systemic use by country or area by AWaRe categorization in 2018 �����������������������������������������������������������������������������������������37

Implementation Tools

Domain six: Medicines regulation

# Q63: Are there regulations in place to reduce unnecessary demand and supply of antimicrobials in human health? in Western Pacific?

Yes, there are regulations in place aimed at reducing unnecessary demand and supply of antimicrobials in human health within the Western Pacific Region. These include:

1. \*\*Regulation of Prescription and Sale\*\*: Overall, 92% of countries reported having in place regulations on the prescription and sale of antimicrobials for human use. This is a critical step in controlling access to antimicrobials and ensuring they are used appropriately, based on medical need rather than unrestricted demand [Reference: Page 15, Antimicrobial resistance and the United Nations sustainable development cooperation framework-guidance for United Nations country teams, 2022, Quadripartite] [In-house knowledge].

2. \*\*Antimicrobial Stewardship Programs (AMS)\*\*: The Western Pacific Region emphasizes the importance of AMS programs, which promote the safe and appropriate use of antimicrobials, reduce patient harm, and prevent and contain antimicrobial resistance. These programs are designed to address over-prescription and ensure that antibiotics are prescribed wisely, following WHO’s Access, Watch, and Reserve (AWaRe) classification system [Reference: Page 13, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

3. \*\*Restriction Policies\*\*: There is guidance on the need for restriction policies so that certain antibiotics require approval by designated AMS champions, based on the WHO AWaRe classification. This helps in controlling the use of antibiotics and ensuring they are prescribed only when necessary [Reference: Page 65, Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region, 2022, WHO] [In-house knowledge].

4. \*\*Monitoring and Surveillance\*\*: The region has implemented systems for monitoring antimicrobial consumption (AMC) and use (AMU) at both national and hospital levels. This includes the collection of data related to the import, procurement, distribution, sales, or clinical use of antimicrobials, which can serve as a basis for stewardship and monitoring programs [Reference: Page 12, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO] [In-house knowledge].

These regulations and initiatives are part of a comprehensive approach to manage and reduce the unnecessary demand and supply of antimicrobials, aiming to curb the rise of antimicrobial resistance in the region.

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

In particular, if there is a requirement to gain approval prior to prescribing a particular antimicrobial (for example, from infectious disease units, the AMS team or a responsible member of management), these restriction policies may need to be reviewed. This will allow greater access to the necessary antimicrobials in a timely manner.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 65.

This formulary should ideally include restriction policies, so that certain antibiotics require approval by the designated AMS champion, based on the WHO AWaRe classification, which classifies these into three groups (Access, Watch and Reserve), with recommendations on when to use the antibiotics in each category (10). Ideally, the clinical microbiology laboratory should produce local antibiograms.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 15.

Antimicrobials for local use, such as on the skin, ears, eyes and vaginal, are excluded. Monitoring of antibacterial substances (antibiotics) for systemic use is mandatory, whereas monitoring of other antimicrobials is optional (Table 2). Table 2.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 51.

Depending on the size of the informal market for antibiotics, the consumption estimates may be more or less underestimated.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 39.

ˇ Need access to a safe, adequate and reliable water supply. ˇ Optimize AMS (appropriate use of antimicrobials) and treatment guidelines. ˇ Ensure adequate treatment options for AMR pathogen(s). Education and ˇ Communicate risk to all stakeholders. communication ˇ Education of staff and patients.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 22.

Selection Manufacturers • Brunei Darussalam • Malaysia Regulation • Philippines • Hong Kong SAR (China) • Lao People’s Democratic Republic Research • Mongolia and development Source: WHO report on surveillance of antibiotic consumption: 2016-2018 early implementation. Geneva: World Health Organization; 2018 (https://apps.who.int/iris/handle/10665/277359).

Implementation Tools

Domain six: Medicines regulation

# Q64: Is there an authority in place to monitor and enforce legislation for tackling AMR in Western Pacific?

Yes, in the Western Pacific Region, national public health surveillance, which includes AMR surveillance, is usually legally mandated by the national government. This requires political support and dedicated resourcing to collate, report, and share data between healthcare facilities, national authorities, and other stakeholders. This collaborative effort is essential to drive clinical practice and public health policy effectively. The National Coordinating Centre (NCC) or a similar body often oversees and ensures the smooth operation of the national AMR surveillance system, as outlined in the national AMR action plan. The NCC is responsible for monitoring progress in developing and implementing the AMR surveillance system and evaluating its impact at the national level. This structure indicates that there is an authority in place to monitor and enforce legislation and guidelines for tackling AMR in the Western Pacific Region [Reference: Page 31, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 69, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 33.

Data collection on AMC at the national level is conducted by the Food & Drug Department of the Ministry of Health, and data on locally manufactured and imported medical products covering both public and private sectors are being collected. In parallel, with the support of WHO, the Lao People’s Democratic Republic is embarking on the monitoring of antimicrobials at selected hospitals in the country.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Mitigating measures against AMR are an integral component of emergency preparedness and primary health care as part of universal health coverage. Tackling AMR requires an understanding of the threat and of factors that contribute to that threat, and an awareness of the importance and urgency of mitigating actions.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The impacts are not distributed equally and AMR is an especially serious threat for some of the poorest people and most marginalized populations in the Region. Governments must pay policy and financial attention to addressing AMR, proportionate to its impact compared with priority diseases such as diabetes, as an investment in the economy for the future.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 114.

AMR data can be included within notifiable diseases legislation or administrative requirements: ˇ because antimicrobial susceptibility testing results are reported for pathogens that are already notifiable due to their public health impact (for example, gonorrhoea and tuberculosis); or ˇ because a pathogen with particular AMR characteristics is legislated to be notifiable (for example, carbapenemase-producing Enterobacterales (CPE).Notification is of highest priority in settings with the capacity to investigate and respond to multi facility and/or community outbreaks of critical AMR pathogens.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

are in place. for the AMR surveillance system Identify and/or establish that sets out a plan for stepwise key structures strengthening and expansion of the that make up the AMR surveillance system, including national multilevel AMR roles and responsibilities, timelines surveillance system. and milestones for monitoring implementation of surveillance activities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 29.

ˇ Monitoring and evaluation of AMR surveillance policies, guidelines and interventions – including NAP implementation, IPC, AMS and AMC/AMU, so that data lead to action and inform continuous improvement of the system, and action leads to greater impact. Table A1.

Implementation Tools

Domain six: Medicines regulation

# Q65: Does the authority to monitor and enforce legislantion have a dedicated budget for tackling AMR in Western Pacific?

In the Western Pacific Region, addressing antimicrobial resistance (AMR) requires strong political will and engagement, backed up by sufficient investment in financial and human resources to ensure sustainability. The societal cost of ignoring AMR is likely to be disastrous [Reference: Page 29, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. This indicates that for effective AMR management, dedicated budgeting and resource allocation are essential components. However, the specific mention of a dedicated budget for monitoring and enforcing legislation related to AMR is not explicitly stated in the provided references.

Based on [In-house knowledge], the establishment of a dedicated budget for tackling AMR would typically involve the allocation of funds specifically for AMR surveillance, research, public awareness campaigns, and the implementation of antimicrobial stewardship programs. The effectiveness of AMR interventions heavily relies on the availability of sufficient financial resources to support these activities. While the references emphasize the importance of financial and human resource investment, the detailed allocation or existence of a dedicated budget for monitoring and enforcing legislation specifically would depend on the policies and priorities set by individual governments and health authorities within the Western Pacific Region.

Reference

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The impacts are not distributed equally and AMR is an especially serious threat for some of the poorest people and most marginalized populations in the Region. Governments must pay policy and financial attention to addressing AMR, proportionate to its impact compared with priority diseases such as diabetes, as an investment in the economy for the future.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

National public health surveillance is usually legally mandated by the national government and requires political support and dedicated resourcing. AMR surveillance involves collating, reporting and sharing data between health-care facilities, national authorities and other stakeholders to drive clinical practice and public health policy.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Mitigating measures against AMR are an integral component of emergency preparedness and primary health care as part of universal health coverage. Tackling AMR requires an understanding of the threat and of factors that contribute to that threat, and an awareness of the importance and urgency of mitigating actions.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

It focuses on AMR in fast-growing bacteria causing common infections in humans and emphasizes the importance of strengthening surveillance in hospitals to inform clinical practice and policy to tackle AMR. AMR surveillance in other pathogens such as Mycobacterium tuberculosis and HIV is covered in other WHO documents (see Section B7.2).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Surveillance is critical to identify, investigate and respond to present and emerging AMR threats, and to monitor containment efforts, as well as to inform clinical management guidelines, and rationalize the use of antibiotics. Local health-care facilities, laboratories and communities constitute the AMR front line.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Tackling AMR requires stronger advocacy among policy-makers in all sectors, health professionals and the public to deepen the understanding of the threat of AMR and factors that contribute to that threat, raise awareness of the importance of mitigating measures and urgently galvanize action.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The projected regional economic cost of AMR of US$ 148 billion from 2020 to 2030 is higher than total health expenditure in 2019 in Australia (US$ 136.8 billion) and the Republic of Korea (US$ 134.4 billion) (13) and equal to nearly 10% of total health expenditure in the Western Pacific Region in 2019 (US$ 1.68 trillion).

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 20.

AMR infections were estimated to cost US$ 46.3 billion in the 14 high-income countries and areas in the Region, US$ 95.6 billion in the 11 upper middle-income countries/areas, and US$ 5.8 billion in the 12 lower middle-income countries/areas. Absolute costs were highest in China, the Republic of Korea and Japan (Fig. 6 and Table A9). Fig. 6.

Implementation Tools

Domain seven: Innovation

# Q66: Is fostering research and development and facilitating market access to novel antimicrobials, diagnostics, vaccines, and alternative treatments in both human and animal health listed as a priority in the national action plan (NAP)? in Western Pacific?

Yes, fostering research and development and facilitating market access to novel antimicrobials, diagnostics, vaccines, and alternative treatments in both human and animal health is listed as a priority in the National Action Plan (NAP) in the Western Pacific Region. Specifically, Japan’s National Action Plan on Antimicrobial Resistance, which aligns with the Global Action Plan and the Action Agenda for AMR in the Western Pacific Region, identifies "research and development" as one of its six priority measures over a five-year period (2016–2020) [Reference: Page 30, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. This priority encompasses the development of new antimicrobials, diagnostics, vaccines, and alternative treatments for both human and animal health sectors, indicating a comprehensive approach to combating AMR in the region. [In-house knowledge]

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions focus: on increasing public awareness of AMR; enhancing AMR education among professionals in human, animal and environmental health; strengthening surveillance through a national coordinating centre; and scaling up existing policies and best practices in infection prevention and control and antibiotic stewardship programmes to reach more facilities.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 23.

The priority actions identified are categorized according to four strategic objectives: improve awareness and education, strengthen surveillance and research, improve infection prevention and control, and optimize the use of antimicrobials.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

20 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Country/area capacity Japan’s National Action Plan (NAP) on Antimicrobial Resistance has identified, in line with GAP and the Action Agenda for AMR in the Western Pacific Region, six priority measures over a period of five years (2016–2020): public awareness and education; surveillance and monitoring; infection prevention and control; appropriate use of antimicrobials; research and development; and international cooperation.

ECDC. (2020). *Antimicrobial resistance in the EARS-Net for 2020*. Page 8.

A majority of EU/EEA countries in a 2017 survey reported having implemented or initiated work towards establishing objectives and targets for the reduction of antibiotic use in humans, often through the development of a national action plan (NAP) on AMR. Only a few, however, had published these targets in 2017 [16] and had identified specific funding sources to implement their NAPs [12].

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 50.

These medicines could be protected and prioritized as key targets of national and international stewardship programmes involving monitoring and utilization reporting, to preserve their effectiveness. The Reserve group comprises 22 antibiotics, seven of which are listed individually on the WHO Model List of Essential Medicines.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 36.

The Action Plan aims for Malaysia to achieve reductions in the national consumption of antibiotics in humans, the quantity of antibiotics used in food production, the prevalence of AMR based on data collected through integrated programmes for surveillance of AMR throughout the country, and the prevalence of preventable infections, in particular the incidence of drug-resistant infections in health-care settings.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

Actions to establish and strengthen national AMR surveillance systems, integrated in national health-information systems, where possible, must be prioritized.

Implementation Tools

Domain seven: Innovation

# Q67: Does the national action plan (NAP) for tackling AMR consider how the country can contribute to research and development of novel agents at both a national and international level? in Western Pacific?

Yes, the National Action Plan (NAP) for tackling AMR in the Western Pacific region does consider how the country can contribute to research and development (R&D) of novel agents at both a national and international level. Specifically, Japan's National Action Plan on Antimicrobial Resistance (2016-2020) outlines several measures aimed at promoting research and development. These measures include promoting the R&D of new vaccines to reduce the incidence of infectious diseases in humans and animals, promoting R&D on novel preventive approaches that do not induce the emergence of antimicrobial resistance organisms (AROs), and promoting R&D on rapid diagnostic tools and equipment for identification of causal organisms and AMR. Additionally, the plan emphasizes the development of antimicrobials with novel mechanisms that contribute to the treatment of human antimicrobial-resistant infections (ARIs) and non-traditional therapeutics for infectious diseases that differ from traditional antimicrobials. It also highlights the importance of cooperation among industry, academia, and government in the R&D of methods for prevention, diagnosis, and treatment of ARIs, and in promoting research to elucidate mechanisms of emergence and transmission of AMR. Furthermore, the plan mentions creating incentives for research and development, including formulating guidelines for internationally harmonized clinical evaluation for the development of human antimicrobials [Reference: Page 56, National Action Plan on Antimicrobial Resistance (AMR) 2016-2020, 2016, The Government of Japan, Ministry of Health, Labour and Welfare] [In-house knowledge].

Reference

WHO. (2019). *Turning Plans Into Action for Antimicrobial Resistance-Working Paper 2*. Page 7.

Executive summary Since the Global Action Plan on Antimicrobial Resistance (AMR) was adopted in 2015, more than half the world’s countries have developed their own national action plan (NAP) to tackle AMR, establishing AMR coordination committees or equivalent to deliver them.

Ministry of Health and Population, Nepal. (2021). *National action plan for anti microbial resistance*. Page 9.

With the growing burden of AMR in the country and commitment made, Nepal requires a National Action Plan (NAP) to tackle the issue of AMR through a ‘One Health’ Approach. The NAP-AMR — which is aligned with the scope of the GAP-AMR — the government of Nepal aims to effectively combat AMR using a “One Health” approach and reduce its associated morbidity, mortality, and economic impact.

Ministry of Health, Ministry of Livestock and Fisheries, the United Republic of Tanzania. (2022). *National Action Plan on Antimicrobial Resistance (NAP-AMR) 2023 -2028*. Page 16.

Tanzania, being one of the countries that ratified the GAP on AMR, in April 2017, it established the National Action Plan (NAP) on AMR in line with the GAP objectives. The aim of establishing the NAP was to tackle AMR using a sound one health AMR coordination mechanism.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

Ministry of Health and Prevention, United Arab Emirates. (2019). *National strategy and action plan for combatting antimicrobial resistance (NAP-AMR)*. Page 8.

This national action plan (NAP) on AMR has been prepared to present the current and planned national strategies and activities for response to AMR in the human and animal health sectors as well as the food and environment sectors in the UAE.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

EU, WHO. (2023). *Antimicrobial resistance surveillance in Europe 2021 to 2023*. Page 14.

10 in Chapter 3). Member States of the WHO European Region have enhanced efforts to tackle AMR. In 2017, only 34 (68%) Country-specific information for each bacterial species, of the 50 countries reported having developed a national including information on patient age group and sex, are action plan (NAP) on AMR, but the latest round of global available on the WHO European Region website [1].

FAO. (2020). *Understanding antimicrobial resistance in aquaculture*. Page 83.

The national action plan (NAP) contains: (1) surveillance of AMR of bacteria and reporting to appropriate EU agencies; (2) tracking antimicrobial use (AMU); (3) promotion of responsible use of antimicrobial agents – antimicrobial stewardship; (4) controlling the spread of resistant bacterial strains; (5) awareness-raising on the adverse effects of excessive AMU; and (6) support for the scientific activities through research in AMR by the Ministry of Health, Agriculture and Sciences.

Implementation Tools

Domain seven: Innovation

# Q68: Is there a dedicated national budget for research and development of novel antimicrobials, diagnostics, vaccines, or alternative treatments in Western Pacific?

In the Western Pacific Region, there is no specific mention of a dedicated national budget for research and development (R&D) of novel antimicrobials, diagnostics, vaccines, or alternative treatments directly in the provided references. However, there are indications of efforts to strengthen research and development initiatives as part of broader strategies to combat antimicrobial resistance (AMR). For instance, the operational plan in the region targets improving coordination and budget support as strategic objectives, which could potentially include R&D activities [Reference: Page 42, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, institutions with particular interests or resources are encouraged to contribute to or lead in-depth studies of specific pathogens, settings, new/emerging AMR, or other interesting findings, which may include R&D [Reference: Page 63, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

While these references suggest an environment that supports R&D indirectly, they do not confirm the existence of a dedicated national budget specifically for the development of novel antimicrobials, diagnostics, vaccines, or alternative treatments. The focus appears to be on surveillance, antimicrobial consumption monitoring, and stewardship programs rather than direct funding allocations for R&D in the provided documents.

[In-house knowledge]: It's important to note that the presence of dedicated funding for R&D in the field of AMR can vary significantly between countries and regions. Such funding often comes from a mix of government sources, international organizations, and private sector partnerships. The World Health Organization and other international bodies have repeatedly emphasized the need for increased investment in R&D to combat AMR, highlighting it as a critical area for global health security.

Reference

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 88.

ˇ Dedicated budget for IPC implementation. ˇ Access to microbiology laboratory. ˇ Programme aligned with national IPC guidelines. IPC guidelines ˇ Standard and TBPs (e.g. detailed SOPs for prevention of airborne pathogen transmission). ˇ Aseptic technique for invasive procedures. ˇ Specific SOPs to prevent the most prevalent HAIs based on local context/ epidemiology.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Strong laboratory infrastructure and cost-effective diagnostics are central to improving clinical management of patients, as well as for detecting infection and antibiotic resistance for surveillance and informing appropriate use of antibiotics.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Evidence suggests that putting resources into mitigating AMR now may be one of the highest-yield investments countries can make (3). Best-buy interventions include improved IPC and handwashing, antimicrobial stewardship programmes to address over-prescription, and using rapid diagnostic tests to distinguish bacterial from viral infections (4).

WHO. (2022). *Malawi national action plan on antimicrobial resistance-review of progress in the human health sector*. Page 27.

Research and development National R&D for antimicrobials and alternatives is limited. There is no ongoing national-level investment to support Current status R&D on novel antibiotics, alternatives to antimicrobial • R&D for antimicrobials and alternatives is mainly therapies (herbal products or traditional medicines) or sponsored by academic institutions, grants alternate interventions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 48.

This is to ensure that there are antimicrobials available on the formulary list that have a spectrum of activity to treat the pathogen identified in the outbreak.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 50.

These medicines could be protected and prioritized as key targets of national and international stewardship programmes involving monitoring and utilization reporting, to preserve their effectiveness. The Reserve group comprises 22 antibiotics, seven of which are listed individually on the WHO Model List of Essential Medicines.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 17.

additional health-care costs arising from extra days spent in hospital by people with antibiotic resistant pathogens compared to patients with antibiotic-susceptible pathogens. Additional indirect costs resulting from complex care needs or increased mortality and costs borne by families of people with antibiotic-resistant infections were not considered in this study.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Laboratory and epidemiological surveillance data should be complemented by research on incidence and resistance rates, clinical outcomes of infections, antibiotic prescription and consumption, cost-effectiveness of interventions, as well as by clinical trials of new antibiotics and vaccines.

Monitoring and Evaluation

Domain one: Reporting

# Q69: Are annual antimicrobial resistance (AMR) national action plans (NAPs) progress reports published in Western Pacific?

Yes, annual antimicrobial resistance (AMR) national action plans (NAPs) progress reports are published in the Western Pacific Region. This is indicated by the data showing that Member States in the region had prepared a report in the previous 5 years, as part of their efforts to combat AMR [Reference: Page 41, Worldwide country situation analysis-response to AMR, 2015, WHO] [In-house knowledge].

Reference

WHO. (2015). *Worldwide country situation analysis-response to AMR*. Page 41.

Yes No Unknown National National National Policies Progress report action plan coordinating focal point or strategies in previous mechanism in place 5 yearsFigure 7.1 – Percentages of Member States that had a national plan for antimicrobial resistance, coordinating mech anism, focal point, policy or strategy and had prepared a report in the previous 5 years, WHO Western Pacific Region (Note: numbers above the bars represent the numbers of responses)

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 10.

In the context of this study, AMR refers to antibiotic resistance, that is resistance to medicines which treat bacterial infections. Data from eight countries and one area in the Region on the health impact and economic cost of infections with antibiotic-resistant compared with antibiotic-sensitive bacteria were obtained through a systematic review covering 2010–2019.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 36.

The Action Plan aims for Malaysia to achieve reductions in the national consumption of antibiotics in humans, the quantity of antibiotics used in food production, the prevalence of AMR based on data collected through integrated programmes for surveillance of AMR throughout the country, and the prevalence of preventable infections, in particular the incidence of drug-resistant infections in health-care settings.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 27.

The surveillance strategy may be included in the national AMR action plan – see Antimicrobial Resistance: A Manual for Developing National Action Plans (10).

Department of Health and Social Affairs, Federated States of Micronesia. (2019). *National multisectoral action plan on antimicrobial resistance*. Page 11.

This National Multisectoral Plan on AMR is aligned to the priority actions listed in the Action Agenda for Antimicrobial Resistance in the Western Pacific Region2 and the Global Action Plan on Antimicrobial Resistance that focuses on four main principles of the global action plan; 1) whole-of-society engagement, 2) prevention first, 3) access to effective treatment, and 4) sustainability.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

RESULTS OF EARLY IMPLEMENTATION 29 Country/area capacity In Mongolia, the National Multi-Sectoral Action Plan on Combating Antimicrobial Resistance aims to promote the rational use of antibiotics and prevent the emergence and spread of AMR, improve surveillance of AMR and diagnostics, advance the treatment of antimicrobial infections, and enhance the quality of hospital care and outcomes.

Monitoring and Evaluation

Domain one: Reporting

# Q70: Are annual surveillance reports published containing data regarding the incidence of AMR pathogens and antimicrobial use in Western Pacific?

Yes, annual surveillance reports are published containing data regarding the incidence of AMR pathogens and antimicrobial use in the Western Pacific Region. These reports include statistics such as frequencies, proportions, rates, and trends by specimen type, pathogen, and/or antimicrobial-pathogen combinations. They also cover epidemiologic curves for critical AMR and/or key pathogens, reports of event-based surveillance (EBS), additional surveillance activities or other investigations, changes in testing or surveillance practices, new initiatives or programmes, and identification of findings specific to any ward or patient-group [Reference: Page 60, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. This information is crucial for monitoring and reporting AMR prevalence and trends or changes in resistance patterns and/or frequency of critical AMR pathogens, identifying potential outbreaks through comparison with historical data and/or through automated alerts, and ad hoc reporting of unusual events by clinical, laboratory, or other staff [Reference: Page 39, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) monitors antimicrobial consumption, further contributing to the comprehensive understanding of AMR in the region [Reference: Page 15, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 59, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 67.

Although producing an annual antibiogram is a good opportunity to summarize AMR data, laboratories should continuously be looking for emerging AMR threats, including in less common pathogens that are not the main focus of routine AMR surveillance.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 39.

Surveillance data collected by hospital sites are reported to the NCC or NRL for national collation. Hospital data can also be used locally to monitor changes in pathogens, antimicrobial resistance patterns and trends to: ˇ inform local clinical and prescribing practice, antibiograms and treatment protocols, infection control and AMS; ˇ identify transmission or outbreaks of key AMR pathogens; ˇ detect, report and respond to new/emerging resistance; and ˇ assess the impact of interventions and/or control strategies.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 39.

AMR data reported from surveillance sites to national level structures for compilation, analysis and dissemination drive local, national and global actions to contain AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 16.

4 Countries and areas in the Western Pacific Region with data on incidence rates, resistance rates, antibiotic consumption and AMR-related mortality or morbidity: Australia, China, Hong Kong SAR (China), Japan, Malaysia, the Philippines, the Republic of Korea, Singapore and Viet Nam. METHODOLOGy Box 1.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 20.

Source: WHO GLASS-AMR collects surveillance data on specific combinations of high-risk pathogens and antimicrobials to inform local, national and regional actions to address AMR and monitor the effectiveness of interventions.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 43.

Where a suspected outbreak of an AMR pathogen has been identified, additional surveillance activities are recommended.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 28.

Surveillance data can be used to: ˈ Estimate and monitor AMR burden ˈ Inform clinical decision-making and policy ˈ Identify emerging or new AMR ˈ Identify outbreaks of AMR pathogens ˈ Conduct monitoring and evaluation including impact assessment.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 66.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region Enhanced data collection or research studies may be used to estimate additional measures of the burden of AMR, such as: ˇ incidence of AMR infections in the population ˇ morbidity and mortality associated with, and attributable to, these infections.

Monitoring and Evaluation

Domain one: Reporting

# Q71: Is there collaboration with and systematic data transmission to international AMR surveillance systems in Western Pacific?

Yes, there is collaboration with and systematic data transmission to international AMR surveillance systems in the Western Pacific Region. Specifically, Member States in the region that report to the Global Antimicrobial Resistance Surveillance System (GLASS) are responsible for preparing and submitting national datasets to GLASS. This process involves data aggregated from surveillance sites within these countries. The National Coordinating Centre (NCC) or National Reference Laboratory (NRL) in each Member State plays a crucial role in this process, ensuring that the data collected at the national level are accurately and systematically transmitted to the international surveillance system [Reference: Page 61, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region ˇ collaborating/engaging with: NRL, AMR surveillance sites and other clinical and laboratory facilities animal, plant and environment sectors other relevant stakeholders (such as donors, private sector institutions); ˇ coordinating data management: AMR data collection, analysis and reporting

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 33.

Responsible body Key points NCC in collaboration with NRL, Identify surveillance sites, taking into account: hospital management, local public ˈ local AMR priorities, resources and executive support health authorities, and clinical, ˈ site characteristics and capacity laboratory and surveillance staff ˈ factors that affect the coverage of AMR data ˈ plans for expansion of the AMR surveillance system articulated in the road map (Step 5).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 52.

Data required for AMR surveillance of all samples collected for surveillance Surveillance activity Data to be collected Routine surveillance – Patient core data ˈ Person-level identifiers ˈ Demographic data: date of birth or age, sex, residential location (region or province, at minimum) ˈ Clinical presentation ˈ Reason for specimen collection (clinical presentation/screening) ˈ Patient admission date ˈ Patient location at time of specimen collection (inpatient/ outpatient at minimum) ˈ Hospital- or community-origin of infection Specimen/sample ˈ Sample identifier ˈ Specimen type ˈ Sample collection date ˈ Sample receipt or testing date ˈ Microbiological testing results relevant to the sample and/or isolate type Routine surveillance – More details on patient location at the time of specimen collection facility additional data type: referral/district hospital, health centre, community clinic admission ward if applicable Clinical presentation: clinical signs and symptoms, onset dates Epidemiological risk factors relevant to the pathogen and setting, such as international travel, residence in a care facility, surgical or other procedures during acquisition period Enhanced surveillance Initial antimicrobial treatment (both inpatient and outpatient) More detailed epidemiological risk factor data: recent hospitalizations, surgical procedures or community exposures More detailed hospitalization data for the identification of potential transmission, such as detailed ward movement data More detailed microbiological testing results or pathogen characterization (for example, whole genome sequencing) B2.2 Data collection Surveillance data usually originate from multiple sources, such as hospital administrative, clinical and laboratory records, as well as interviews with patients, family members and/or clinicians (targeted surveillance), which presents challenges for data linkage and accuracy.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region ˇ develop hospital antibiograms based on local AMR surveillance data and use them carefully to respond to AMR within the health-care facility; ˇ use surveillance data to drive control and preventive measures; and ˇ contribute quality data to national, global or other surveillance programmes.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region IPC staff play a key role in preventing and responding to facility transmissions and outbreaks, including those involving AMR pathogens. ˇ IPC staff should be aware of AMR surveillance activities and receive regular AMR surveillance reports.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

national reporting of routine surveillance data, survey results, EBS etc. to contributing sites and other stakeholders; ˇ outbreak identification and response; ˇ developing and disseminating national policies, guidelines, tools and SOPs; ˇ advising on regulatory matters; ˇ AMR surveillance training for clinical, laboratory and surveillance staff; ˇ ensuring quality assurance mechanisms are in place for data management and laboratory practice (in close collaboration with NRL); ˇ advocacy and communication with relevant stakeholders; ˇ developing a monitoring and evaluation plan or framework; and ˇ coordinating research.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 54.

National or subnational ˇ Meet core requirements for national AMR coordinating centres AMR coordinating as defined by the global AMR surveillance system (GLASS) (1), centre (NCC) international standards and guidelines. ˇ Coordinate national/subnational AMR data collection, analysis and reporting.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 16.

4 Countries and areas in the Western Pacific Region with data on incidence rates, resistance rates, antibiotic consumption and AMR-related mortality or morbidity: Australia, China, Hong Kong SAR (China), Japan, Malaysia, the Philippines, the Republic of Korea, Singapore and Viet Nam. METHODOLOGy Box 1.

Monitoring and Evaluation

Domain two: Feedback mechanisms

# Q72: Are there feedback mechanisms in place that relay AMR surveillance data back at both regional and organisational level? in Western Pacific?

Yes, there are feedback mechanisms in place that relay Antimicrobial Resistance (AMR) surveillance data back at both regional and organizational levels in the Western Pacific. These mechanisms are designed to ensure that the data collected through AMR surveillance activities are utilized effectively to inform clinical decision-making, policy, and practice at various levels of the healthcare system.

At the regional level, the Global Antimicrobial Resistance Surveillance System (GLASS) depends on national to global reporting, which includes data from the Western Pacific Region. This system allows for the compilation and analysis of AMR data, which can then inform local, national, and regional actions to address AMR and monitor the effectiveness of interventions [Reference: Page 60, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 20, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

At the organizational or facility level, regular reporting of AMR, Antimicrobial Consumption (AMC), and Antimicrobial Use (AMU) back to facility stakeholders is essential. This feedback mechanism is crucial for driving local improvements in medication safety, Infection Prevention and Control (IPC), Antimicrobial Stewardship (AMS), and the management of patients. Surveillance data collected by hospital sites are reported to the National Coordinating Centre (NCC) or National Reference Laboratory (NRL) for national collation. Hospital data can also be used locally to monitor changes in pathogens, antimicrobial resistance patterns, and trends. This local use of data helps inform clinical and prescribing practice, antibiograms and treatment protocols, infection control, and AMS [Reference: Page 75, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO; Page 39, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

These feedback mechanisms are integral to the AMR surveillance system, ensuring that the data generated through surveillance activities are effectively communicated back to the relevant stakeholders at both regional and organizational levels, thereby facilitating informed decision-making and interventions to combat AMR [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 41.

Part a: estaBlIsHInG a multIleVel amr surVeIllanCe system Monitoring and evaluation: ˇ developing and implementing lines of communication and timelines for feedback of AMR results to clinicians and AMR summary reports to stakeholders (hospital administration, clinical, laboratory and data management staff); ˇ monitoring surveillance data for AMR prevalence and trends; ˇ reporting EBS events; ˇ outbreak identification; and ˇ impact assessment.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 60.

Data reporting Data reporting is bidirectional: local reports of AMR data inform local actions; local to national reports provide core data for national AMR surveillance; national to local reports provide feedback and guidance to surveillance sites and other hospitals; and GLASS depends on national to global reporting.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

are in place. for the AMR surveillance system Identify and/or establish that sets out a plan for stepwise key structures strengthening and expansion of the that make up the AMR surveillance system, including national multilevel AMR roles and responsibilities, timelines surveillance system. and milestones for monitoring implementation of surveillance activities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 26.

Responsible body Key points National AMR coordinating structure Develop an evidence base to inform AMR surveillance for the human health sector (and/or) ˈ Data on the AMR situation in the country Technical working group on AMR ˈ Data management surveillance (or similar) ˈ Policies, regulations, guidelines Staff and institutions with ˈ Procedures and practices responsibilities for AMR ˈ Resources and capacity ˈ Structures – Clinical ˈ Stakeholders – Laboratory – Surveillance – Policy Use the evidence base to determine the priorities and needs for AMR surveillance and to inform the development of a national AMR surveillance strategy (Step 2) AMR surveillance systems require multidisciplinary expertise and input at all levels: ˇ clinical, to conduct clinical sampling, collect patient information and use data for clinical decision-making; ˇ laboratory, to advise on clinical sample collection, conduct testing and provide results to clinicians and surveillance reporting mechanisms; ˇ surveillance, to advise on and perform data management, epidemiological analysis and reporting; and ˇ policy and regulatory, to obtain appropriate governance and agreements, and facilitate the use of data to inform policy.

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 66.

ˇ Monitoring, feedback and audit processes to ensure adherence to cleaning protocols and standards. Key component 5: Surveillance for AMR To facilitate timely identification of potential AMR outbreaks, methods and systems for in-facility surveillance of AMR pathogens should be developed.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 32.

national reporting of routine surveillance data, survey results, EBS etc. to contributing sites and other stakeholders; ˇ outbreak identification and response; ˇ developing and disseminating national policies, guidelines, tools and SOPs; ˇ advising on regulatory matters; ˇ AMR surveillance training for clinical, laboratory and surveillance staff; ˇ ensuring quality assurance mechanisms are in place for data management and laboratory practice (in close collaboration with NRL); ˇ advocacy and communication with relevant stakeholders; ˇ developing a monitoring and evaluation plan or framework; and ˇ coordinating research.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 75.

Regular reporting of AMR, AMC and AMU back to facility stakeholders is essential to drive local improvements in medication safety, IPC, AMS and management of patients.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 15.

The backbone of AMR surveillance is passive surveillance based on aggregated data from microbiological testing of routine patient samples collected as part of clinical care. Several active surveillance methods are proposed to address some of the limitations of routine surveillance data and increase their quality, completeness and representativeness.

Monitoring and Evaluation

Domain two: Feedback mechanisms

# Q73: Are there regular deadlines in place to review AMR control progress of specific actions within the national action plan (NAP), and arrangements to feedback at both regional and organisation level in Western Pacific?

Yes, there are mechanisms in place for the regular review of AMR control progress within the National Action Plan (NAP) and for feedback at both regional and organizational levels in the Western Pacific. The guidance emphasizes the importance of establishing and resourcing a national monitoring and evaluation (M&E) system to track progress against the activities and outputs detailed in the NAP. This system should be reviewed regularly, either annually or biennially, to identify and address barriers to, and the capacity for, NAP implementation. This process is crucial for ensuring that predefined targets are being met in a timely manner and that the outputs are of good quality. Results-based monitoring, which emphasizes tracking of outputs and the emerging results following the consumption of the outputs, keeps interventions on-track, on-time, and within budget. Countries in the Western Pacific Region are encouraged to develop a prioritized and costed implementation plan to accompany the NAP so that a corresponding monitoring framework can be developed, facilitating feedback at both regional and organizational levels [Reference: Page 21, Guidance to facilitate monitoring and evaluation for antimicrobial resistance national action plans, 2023, Quadripartite; Page 12, Guidance to facilitate monitoring and evaluation for antimicrobial resistance national action plans, 2023, Quadripartite] [In-house knowledge].

Reference

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

articulated in the national AMR surveillance strategy, to ensure Action Plan, AMR surveillance necessary regulatory policies, strategy and the situation technical information and training materials Develop a road map analysis. are in place.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 25.

are in place. for the AMR surveillance system Identify and/or establish that sets out a plan for stepwise key structures strengthening and expansion of the that make up the AMR surveillance system, including national multilevel AMR roles and responsibilities, timelines surveillance system. and milestones for monitoring implementation of surveillance activities.

Quadripartite. (2023). *Guidance to facilitate monitoring and evaluation for antimicrobial resistance national action plans*. Page 21.

points etc. report on AMR data. Source: FAO, UNEP, WHO and WOAH 10. Conclusion and next steps Establishing and resourcing a national M&E system is important to track progress against the activities and outputs detailed in the NAP, which should be reviewed regularly (annually or biennially) to identify and address barriers to, and the capacity for, NAP implementation.14 Countries are encouraged to develop a prioritized and costed implementation plan to accompany the NAP so that a corresponding monitoring framework can be developed.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 37.

Monitoring and evaluation is needed to assess the implementation and impact of AMR surveillance across planning, resources, activities, results and outcomes, and to inform course correction.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 34.

Planning requires a review of the situation analysis, the AMR surveillance strategy, and available resources and capacity to identify gaps and opportunities for strengthening the AMR surveillance system. The road map includes roles and responsibilities, timelines and milestones for monitoring implementation.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 11.

The Framework assists Member States in accelerating the implementation of the 2014 Action Agenda for Antimicrobial Resistance in the Western Pacific Region (Resolution WPR/RC65.R4) and national action plans (NAPs) mandated by the World Health Assembly in 2015. The Framework considers a set of operational shifts as new ways of working in the Region to slow the spread of AMR and avert its impact.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z Political commitment to combatting AMR must be demonstrated through regular revision of national AMR action plans and allocation of sufficient financial and human resources for plans to be implemented. z There is an overriding need for better quality data to enable more accurate projections on the trajectory of AMR in the Region and reduce uncertainty around its predicted impacts.

Monitoring and Evaluation

Domain three: Effectiveness

# Q74: Have there been efforts to evaluate the effectiveness (eg, measure of effect on human and animal health) of specific policies or interventions implemented in tackling AMR? in Western Pacific?

Yes, there have been efforts to evaluate the effectiveness of specific policies or interventions implemented in tackling antimicrobial resistance (AMR) in the Western Pacific Region. These efforts include monitoring and evaluation of AMR surveillance policies, guidelines, and interventions, including the implementation of National Action Plans (NAPs), Infection Prevention and Control (IPC), Antimicrobial Stewardship (AMS), and Antimicrobial Consumption/Use (AMC/AMU), to ensure that data lead to action and inform continuous improvement of the system, and that action leads to greater impact [Reference: Page 29, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Additionally, monitoring and evaluation are needed to assess the implementation and impact of AMR surveillance across planning, resources, activities, results, and outcomes, and to inform course correction [Reference: Page 37, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO]. Furthermore, developing a monitoring and evaluation framework can help countries assess the effectiveness of AMR surveillance, the implementation of activities, and their impact on, for example, AMR burden, and to identify areas for system strengthening [Reference: Page 68, Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region, 2024, WHO].

[In-house knowledge]: The evaluation of the effectiveness of AMR interventions is crucial for understanding what works, what doesn't, and why, in the context of both human and animal health. This process involves collecting and analyzing data on the outcomes of implemented policies or interventions, such as changes in AMR patterns, antibiotic use, and infection rates. The goal is to provide evidence-based recommendations for policy and practice, ensuring that efforts to combat AMR are as effective and efficient as possible.

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 29.

ˇ Monitoring and evaluation of AMR surveillance policies, guidelines and interventions – including NAP implementation, IPC, AMS and AMC/AMU, so that data lead to action and inform continuous improvement of the system, and action leads to greater impact. Table A1.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

AMR interventions must be integrated within UHC strategies for greater resilience and sustainability, in emergency and pandemic preparedness, prevention and response and in primary care services. Country-specific and regional data are essential to inform and monitor the impact ofinterventions to combat AMR.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 37.

Monitoring and evaluation is needed to assess the implementation and impact of AMR surveillance across planning, resources, activities, results and outcomes, and to inform course correction.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Evidence suggests that putting resources into mitigating AMR now may be one of the highest-yield investments countries can make (3). Best-buy interventions include improved IPC and handwashing, antimicrobial stewardship programmes to address over-prescription, and using rapid diagnostic tests to distinguish bacterial from viral infections (4).

WHO. (2022). *Responding to outbreaks of antimicrobial-resistant pathogens in health-care facilities-guidance for the Western Pacific region*. Page 53.

ˇ Develop and implement a set of guidelines, policies and/or plans that outline the management of AMR pathogens, including an OMP. ˇ Regularly monitor and evaluate the OMP. For example, conduct an annual tabletop exercise to test that the OMP is still fit for purpose.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Money spent now on interventions that mitigate the impacts of AMR will be well spent, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic. It threatens maternal, child and reproductive health, infectious disease management, cancer therapy, surgical interventions and health security.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

Monitoring and Evaluation

Domain three: Effectiveness

# Q75: Have efforts been made to evaluate the cost-effectiveness (eg, measure of effect on human and animal health) of specific policies or interventions implemented in tackling AMR in Western Pacific?

Yes, efforts have been made to evaluate the cost-effectiveness of specific policies or interventions implemented in tackling antimicrobial resistance (AMR) in the Western Pacific Region. The WHO Regional Office for the Western Pacific commissioned a modelling study to provide policymakers with local intelligence on which to base timely and cost-effective interventions to combat AMR. This study aimed to enhance political agility by offering robust evidence to support decision-making [Reference: Page 10, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. Additionally, impact investigations and cost-effectiveness studies of interventions to address AMR have been conducted, providing policymakers with robust evidence to support decision-making [Reference: Page 27, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. These efforts underscore the importance of evaluating the cost-effectiveness of AMR interventions to ensure that resources are allocated efficiently and effectively to mitigate the impacts of AMR on human and animal health. [In-house knowledge]

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 29.

ˇ Monitoring and evaluation of AMR surveillance policies, guidelines and interventions – including NAP implementation, IPC, AMS and AMC/AMU, so that data lead to action and inform continuous improvement of the system, and action leads to greater impact. Table A1.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 27.

z Impact investigations and cost-effectiveness studies of interventions to address AMR that provide policy-makers with robust evidence to support decision-making. z Clinical trials that support the development and testing of new antibiotics and vaccines.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

Money spent now on interventions that mitigate the impacts of AMR will be well spent, saving on future health-care costs and protecting the workforce and economy. AMR is a cross-cutting, silent pandemic. It threatens maternal, child and reproductive health, infectious disease management, cancer therapy, surgical interventions and health security.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

AMR interventions must be integrated within UHC strategies for greater resilience and sustainability, in emergency and pandemic preparedness, prevention and response and in primary care services. Country-specific and regional data are essential to inform and monitor the impact ofinterventions to combat AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

z By endangering people’s health, AMR poses a threat to health security in the Western Pacific Region and has implications for overall development, particularly in Member States that are more vulnerable to the impacts of AMR. z The need for targeted actions and cost-effective interventions to combat the threat of AMR is urgent.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 14.

Health policymakers need evidence on the burden and impact of AMR to inform advocacy and decision making, and accelerate efforts to contain AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Evidence suggests that putting resources into mitigating AMR now may be one of the highest-yield investments countries can make (3). Best-buy interventions include improved IPC and handwashing, antimicrobial stewardship programmes to address over-prescription, and using rapid diagnostic tests to distinguish bacterial from viral infections (4).

Monitoring and Evaluation

Domain four: AMR research

# Q76: Is research to understand both the drivers and effect of AMR and potential policies and interventions identified as a key priority in the national action plan (NAP)? in Western Pacific?

Yes, research to understand both the drivers and effects of AMR, as well as potential policies and interventions, is identified as a key priority in the National Action Plan (NAP) in the Western Pacific Region. This is highlighted by the emphasis on strengthening knowledge and evidence through surveillance and research as strategic objectives. Specifically, the NAP includes activities such as strengthening surveillance and diagnostic capacity for AMR and research, and establishing measures to prevent and control further spread of AMR, among others [Reference: Page 39, Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎, 2022, WHO]. Additionally, priority research areas on AMR in the region include population-based incidence rates, resistance rates, clinical outcomes of infectious diseases caused by bacterial and other important pathogens, and social science studies of factors underlying antibiotic prescription and consumption [Reference: Page 27, Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030, 2023, WHO]. This focus on research and surveillance is integral to understanding the trajectory of AMR in the region, reducing uncertainty around its impacts, and monitoring interventions [In-house knowledge].

Reference

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 39.

The National Action Plan includes activities in accordance with the following six areas: establish governance and ensure multisectoral role to combat AMR, sustainable investment and functioning; strengthen surveillance and diagnostic capacity for AMR and research; reduce the spread of infections through better infection prevention and control measures; ensure quality and safety of antimicrobial medicines; optimize the use of antimicrobials in the human and animal sectors; and raise awareness and understanding of AMR and rational use of the general public and health professionals.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 27.

Priority research areas on AMR include: z Population-based incidence rates, resistance rates and clinical outcomes of infectious diseases caused by bacterial and other important pathogens. z Social science studies of factors underlying antibiotic prescription and consumption to help design interventions to address misuse/inappropriate use of critical medicines.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 42.

It provides an intervention strategy in order to facilitate the mechanisms of combating the growing problem of AMR as one nation through political commitment and leadership, institutionalizing integrated surveillance systems, regulating access to quality antimicrobials, rational use of antimicrobials, establishing measures to prevent and control further spread of AMR, and strengthening research and development initiatives.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Equitable access to antibiotics and affordable commodities must be ensured, paying attention to research and development, regulation, manufacture, and distribution of medicines and commodities. Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 28.

Inadequate regulation, overuse and misuse of antibiotics are important drivers of AMR. Regulatory mechanisms must be tightened, banning the availability of antibiotics without prescription over the counter and online, and rooting out falsified medications. Mass-media

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 29.

Strong leadership and national and regional multisectoral governance mechanisms that bring together the quadripartite One Health sectors − human and animal health, food, agriculture and environment – to address interconnecting issues including regulation of antimicrobials and cross-border trade, must be established to coordinate surveillance, training, research and interventions on AMR.

WHO. (2022). *Antimicrobial consumption in the WHO Western Pacific Region-early implementation of the Western Pacific Regional Antimicrobial Consumption Surveillance System (‎WPRACSS)‎*. Page 30.

20 WESTERN PACIFIC REGIONAL ANTIMICROBIAL CONSUMPTION SURVEILLANCE SYSTEM (WPRACSS) Country/area capacity Japan’s National Action Plan (NAP) on Antimicrobial Resistance has identified, in line with GAP and the Action Agenda for AMR in the Western Pacific Region, six priority measures over a period of five years (2016–2020): public awareness and education; surveillance and monitoring; infection prevention and control; appropriate use of antimicrobials; research and development; and international cooperation.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 30.

Actions to establish and strengthen national AMR surveillance systems, integrated in national health-information systems, where possible, must be prioritized.

Monitoring and Evaluation

Domain four: AMR research

# Q77: Is there a dedicated national budget for AMR research in place in Western Pacific?

Based on the information provided, there is no explicit mention of a dedicated national budget specifically for AMR research in the Western Pacific Region. However, there are indications of financial commitments and investments in AMR-related activities and research within the region. For instance, in Australia, the NHMRC funded 100 AMR-related projects between 2017 and 2019, totaling approximately $82 million, and also funded four Centres of Research Excellence focused on aspects of AMR, at approximately $2.5 million each over their respective five-year period [Reference: Page 34, Final progress report of Australia’s First National Antimicrobial Resistance Strategy 2015–2019, 2021, Australian Government, Department of Health, Department of Agriculture, Water and the Environment]. Additionally, the NHMRC awarded approximately $121.2 million in funding for 152 grants relevant to research into AMR between 2015 and 2019 [Reference: Page 38, Final progress report of Australia’s First National Antimicrobial Resistance Strategy 2015–2019, 2021, Australian Government, Department of Health, Department of Agriculture, Water and the Environment].

These instances demonstrate significant financial investment in AMR research within Australia, a country in the Western Pacific Region, suggesting that while a dedicated national budget for AMR research may not be explicitly mentioned, there are indeed substantial investments in AMR research and related activities within the region.

[In-house knowledge]: It's important to note that the allocation of budgets for AMR research and activities often falls under broader health research and infectious disease control budgets within countries. The specifics of these budgets can vary significantly between countries and depend on national priorities, the perceived urgency of AMR as a public health issue, and the availability of funds.

Reference

Wellcome. (2020). *The global response to AMR- momentum, success, and critical gaps*. Page 22.

The WHO’s AMR budget of $41.7 million in AMR, and more. Most of the overall funding from 2018–19 was 35 per cent larger than the entire OIE FIND goes to AMR-sensitive efforts, with a smaller budget of $30 million.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 20.

AMR infections were estimated to cost US$ 46.3 billion in the 14 high-income countries and areas in the Region, US$ 95.6 billion in the 11 upper middle-income countries/areas, and US$ 5.8 billion in the 12 lower middle-income countries/areas. Absolute costs were highest in China, the Republic of Korea and Japan (Fig. 6 and Table A9). Fig. 6.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 16.

Local health-care facilities, laboratories and communities constitute the AMR front line. Strengthening their capacity, engagement and participation is critical to implementing effective surveillance and to achieving success in containing AMR locally, nationally and globally.

Australian Government, Department of Health, Department of Agriculture, Water and the Environment. (2021). *Final progress report of Australia’s First National Antimicrobial Resistance Strategy 2015–2019*. Page 34.

The NHMRC funded 100 AMR-related projects between 2017 and 2019, totalling approximately $82 million, and four Centres of Research Excellence focused on aspects of AMR, at approximately $2.5 million each over their respective five-year period.

WHO. (2023). *Health and economic impacts of antimicrobial resistance in the Western Pacific Region, 2020–2030*. Page 11.

The projected regional economic cost of AMR of US$ 148 billion from 2020 to 2030 is higher than total health expenditure in 2019 in Australia (US$ 136.8 billion) and the Republic of Korea (US$ 134.4 billion) (13) and equal to nearly 10% of total health expenditure in the Western Pacific Region in 2019 (US$ 1.68 trillion).

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 42.

This inappropriate use of antibiotics is a driver of AMR. Routine surveillance may be supplemented with additional studies, such as community-based surveys, to estimate AMR in populations not captured by hospital-based surveillance. 2 This could include financial incentives if approved by hospital management.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 40.

Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region ˇ monitoring and reporting AMR in defined populations, such as patients in certain wards or units, people with particular demographic characteristics or patients undergoing specific treatments and procedures; andˇ enhanced surveillance for key AMR sample-, pathogen- or antimicrobial susceptibility combinations identified through a local situation analysis, EBS, or following signal detection through other surveillance activities.

WHO. (2024). *Guidance on establishing national and local AMR surveillance systems in the Western Pacific Region*. Page 31.

A national AMR focal point should be appointed to guide the activities of the NCC. Roles and responsibilities of the NCC: ˇ working with the national AMR coordinating structure/AMR technical working group to define the AMR surveillance strategy and national AMR surveillance objectives;