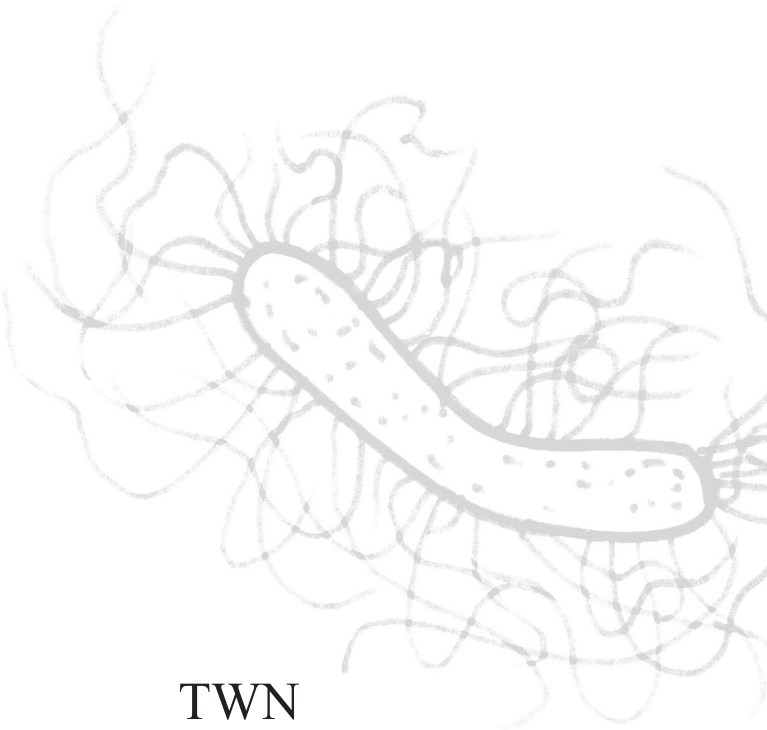
TWN Series on
Antimicrobial Resistance
2

Analysis of AMR Plans in the Western Pacific and South-East Asia Regions

Beverley Snell



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Contents

Note

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Summary

IN May 2014, the Sixty-seventh World Health Assembly (WHA) expressed concern about the lack of global preparedness to combat antimicrobial resistance (AMR). The World Health Organisation (WHO)'s Global Action Plan on AMR was put forward at the Sixty-eighth WHA in 2015. WHO's Global Action Plan called for all WHO member nations to construct their own national plans by May 2017. The WHO Global Action Plan provided a template as a guide for developing all components of the National Action Plans (NAPs) as well as a guide for the implementation plans that would be developed following the development of the NAPs. The need for strong governance, inter-sectoral ownership and involvement, and monitoring and evaluation was emphasised.

Ten of the 11 countries in WHO's South-East Asia region – all except DPR Korea – now have Plans, and 11 of the 37 countries in the Western Pacific region have Plans while five more have a draft Plan ready.

In this paper, the format and content of all available National Action Plans were examined against WHO's Global Action Plan template, which outlines five primary strategic objectives. Perusal of the Plans and some face-to-face discussion and in-country observation have led to the following conclusions.

Excellent guidance is provided by the WHO templates for the development of strategic plans covering the human, animal and environmental sectors; and for the development of the operational plan of activities based on a situation analysis. Where the template guides have been followed quite closely, the Plans developed are clear and implementation should be facilitated. Where activities were presented within the strategic plans, the plans were less clear. Clearly some countries

had based their Plans on a preliminary situation analysis. Others were yet to undertake the situation analysis so their Plans may need to be reviewed and modified.

To varying degrees, countries demonstrated strong political commitment, national ownership and adequate multi-sectoral institutional capacities. In general, countries applied focus on issues that were of particular importance to them.

AMS guidelines: All Plans committed to establishing and maintaining standardised antimicrobial stewardship (AMS) guidelines, programmes and materials in hospitals. Australia extended this commitment to aged care and general practice settings, while China, Cambodia and Vietnam committed to AMS programmes in pharmacies. Surveillance is an important aim of all Plans.

Animal sector: The animal sector varies widely from country to country, with significant industry and large livestock holdings in the big countries and mostly 'family animals' in the small countries. However, all committed to developing AMS in the animal sector.

Plans based on a comprehensive situation analysis will have clearer implementation plans. Activity plans that clearly identify strategic objectives, activities, tasks, tangible outputs, target groups, who will implement, and target indicators provide good guidance but momentum needs to be maintained by good leadership.

In all countries, it is crucial that complete and accurate retrievable records be kept across all areas to enable monitoring and surveillance. A continuous iterative cycle of planning, implementation, evaluation, identification of targets for further intervention, evaluation and so on will be necessary. Such a system will require strong political leadership and commitment, a strong structural and regulatory framework, and sufficient financial support and human resources.

Chapter 1

Introduction

THE United Nations General Assembly and the World Health Organisation (WHO) have identified antimicrobial resistance (AMR) as a fundamental threat to human health and global health security.[1] In 2014, WHO's Global Surveillance Analysis recognised alarming rates of resistance to essential antibacterial drugs among bacteria commonly associated with hospital- and community-acquired infections in each of the six WHO global regions. Rates of multi-drug resistance among previously treated tuberculosis (MDR-TB) have risen to 20.2% in Eastern Europe and Central Asia, while the prevalence of artemisinin-resistant malaria infections is increasing globally.[2]

In May 2014, the Sixty-seventh session of WHO's governing World Health Assembly (WHA) expressed concern about the lack of global preparedness to combat AMR. Citing major gaps in national surveillance mechanisms, inefficiencies in data sharing and coordination, and a lack of information on pathogens of public health significance, the WHA requested the development of a global action plan to combat AMR. A draft of WHO's Global Action Plan on AMR was put forward at the Sixty-eighth WHA in 2015, with the aim of ensuring continuity, accessibility and responsible use of existing treatments for infectious diseases.[3] These resolutions were supported by joint commitments from the World Organisation for Animal Health (OIE) and the Food and Agriculture Organisation of the United Nations (FAO) in May and June of 2015, respectively.[4]

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1 WHO. At UN, global leaders commit to act on antimicrobial resistance. New York: WHO; 2016. Available from: http://www.who.int/mediacentre/news/releases/2016/commitment-antimicrobial-resistance/en/

2 WHO. *Antimicrobial Resistance: Global Report on Surveillance*. Geneva: WHO; 2014.

3 WHO. Global Action Plan on Antimicrobial Resistance. Geneva: WHO; 2015. p. 28.

4 Resolution 26: Combating Antimicrobial Resistance and Promoting the Prudent Use of Antimicrobial Agents in Animals. Paris: OIE; 2015; and Status Report on Antimicrobial Resistance. Rome: FAO; 2015.

WHO's Global Action Plan called for all WHO member nations to construct their own national plans by May 2017. The WHO Global Action Plan provided a template as a guide for developing all components of the National Action Plans (NAPs) as well as a guide for the implementation plans that would be developed following the development of the NAPs.

Several NAPs in WHO's Western Pacific region and South-East Asia region were available on the WHO website by early 2017.[5] By early 2018, more Plans had been added but there are still some countries yet to complete their Plans.

In the Western Pacific region there are countries that are still colonies or external dependant territories of metropolitan countries. Plans of those territories were not included in this examination as the territories are considered part of the metropolitan powers outside the Pacific region.

Additional countries' draft Plans were found from other sources. In some cases key individuals from countries were consulted for more detail concerning the setting and issues affecting the development of Plans and their implementation.

Western Pacific countries

As of August 2017, seven of the 37 countries in the Western Pacific region with Plans available were Australia, Cambodia, People's Republic of China, Fiji, Japan, Philippines and Vietnam. The Korean Plan was unavailable in English. More recently, Mongolia's, New Zealand's and Singapore's Plans have been added to the WHO website, while other countries have their Plans in draft form: Papua New Guinea, Tonga, Solomon Islands, Cook Islands and Lao PDR.

Cambodia's National Policy to Combat Antimicrobial Resistance is supported by a partner document, the National Strategy to Combat Antimicrobial Resistance; for our purposes, the latter document was examined.

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[5] Library of national action plans. Geneva: WHO; 2017. Available from: http://www.who.int/drugresistance/action-plans/library/en/

Still to be published on the WHO site are the Plans for Brunei Darussalam, Cook Islands, Kiribati, Lao PDR, Malaysia, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

South-East Asian countries

In the South-East Asia region, the policies of Bangladesh, Bhutan, Democratic Republic of Timor-Leste, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka and Thailand are available. DPR Korea is the only country still remaining to be added in that region.

The WHO template

WHO, in collaboration with FAO and the OIE, has produced a guidance manual for developing NAPs.[6] WHO has also provided a 22-page sample template for an NAP to assist countries in the development of their own Plans.[7]

The template provides clear guidance for development of:

- Executive summary
- Background
- Introduction
- Situation analyses and assessment
- Country response
- Governance
- The country response under the following strategic objectives of the Global Action Plan:

  Strategic objective 1*:* Improve awareness and understanding of antimicrobial resistance through effective communication, education and training.

  Strategic objective 2: Strengthen the knowledge and evidence base through surveillance and research.

[6] http://www.who.int/antimicrobial-resistance/national-action-plans/manual/en/

[7] http://www.who.int/antimicrobial-resistance/national-action-plans/sample-template.pdf?ua=1

Strategic objective 3: Reduce the incidence of infection through effective sanitation, hygiene and prevention measures.

Strategic objective 4: Optimise the use of antimicrobial medicines in human and animal health.

Strategic objective 5: Prepare the economic case for sustainable investment, and increase investment in new medicines, diagnostic tools, vaccines and other interventions.

Following the guidance for the development of a strategic plan, the template includes guidance for the development of an operational plan of activities.

Methods

For this paper, the AMR Plans that were available on the WHO website were accessed. Further Plans were sought from other sources and by personal communication. The available Plans were analysed and additional information was incorporated where appropriate and helpful after personal communication with several countries. The Plans were considered in the light of the aims expressed in the WHO template and also in the light of the specific challenges and issues presented for individual countries. An attempt was made to identify enablers and challenges.

The format and content of the identified NAPs were examined against WHO's Global Action Plan, which, as mentioned above, outlined five primary strategic objectives.

Chapter 2

Findings and Discussion

MOST countries had followed the template format to a major extent but there is significant variation in the interpretation of the template for developing Plans. The national Plans showed that countries addressed issues perceived to be most relevant for them. Australia, Fiji and Cambodia in the Western Pacific region and Bangladesh and Maldives in the South-East Asia region were guided by the template to develop strategic plans that would be followed by detailed operational plans of activities that would satisfy the strategic plans. The others incorporated activity plans into their strategic plans.

Governance: Lines of authority

The template establishes from the beginning that the country's multi-sectoral coordinating group or other formal mechanism must be empowered to oversee the approach to AMR and interventions.

It would be important for the body charged with that role to be officially enshrined by legislation or regulation at a sufficiently high level for governance through the body to be effective. Most countries indicated that the AMR interventions would be led by an AMR Committee and defined the hierarchical position of that Committee, most often within the health ministry. However, some of the Plans did not indicate who would lead the programme. Clear lines of authority need to be in place at all levels of the system so there is no doubt about who can make decisions or provide direction or support concerning activities to support antimicrobial stewardship (AMS).

Ownership of the Plans

Ownership of the Plans among all 'stakeholders' would be important for successful implementation. A few countries had involved a group of Plan developers from a fairly narrow range of health sector representatives while naming a wide range of suggested representatives for their steering and implementing committees. Involving as many stakeholders as possible in the actual development of the Plan might result in stronger ownership. Personal communication with representatives of some Pacific island countries revealed that development of Plans was hindered by difficulties in getting appropriate stakeholders to participate in planning meetings.

One Health approach

Commitment to the One Health model – which recognises the interconnectedness of animals, humans and the ecosystem as contributing factors to AMR, and therefore promotes a multi-sectoral response – was demonstrated in all the national Plans. Genuine involvement across all relevant sectors in the planning was demonstrated in most Plans.

Format of the Plans

It was not easy to compare those countries whose Plans were presented as strategic plans to be followed by operational plans of activities, with those that included activities for implementation among their strategies. In addition, several of the Plans will have been written in national languages for use in their setting so it may not be appropriate to use the English language version to assess usefulness.[8]

Lao PDR's 96-page draft Plan has a significantly different format, presented – at this stage – more as a situational analysis including details of many studies that will prove very useful for developing a final Plan. Analysis of antimicrobial use in all sectors including the animal sector indicates that Lao PDR already has well-developed capacity for surveillance, while there is no routine monitoring and testing of drug

[8] The English version might be a summary. Translation might not be accurate; for example, tenses might not be correct so it might not be possible to assume what has happened and what is planned.

quality. The draft Plan does include also a section that is based on the WHO template format followed by a section on strategic actions.

Preliminary situation analyses

A preliminary situation analysis is recommended in the WHO template, and a WHO assessment tool to facilitate a situation analysis is available.[9]

Many, but not all, countries had undertaken some studies or a situation analysis using the above tool that would identify targets that need to be addressed by an AMR Plan, but most countries have not completed a comprehensive situation analysis across all areas. While factors needing attention were identified among healthcare providers, community members and industry in all countries having Plans, in some cases more detailed studies could identify exact targets and provide a baseline. Several countries, for example Timor Leste, had undertaken a significant situation analysis that guided their planned activities well.

The following countries did not mention formal situation analyses as a basis for their Plans although the template guide included the need for the situation analyses: Sri Lanka, Nepal, Bangladesh, Malaysia, Singapore, New Zealand, Mongolia, China, Japan, Fiji and Australia. However, it is clear that in many cases studies have guided their Plans. In some cases, such as in Fiji, analyses have been undertaken subsequently, so it is important that the details of activities be modified as necessary to match the targets identified in the analysis.

A situation analysis was completed in Solomon Islands towards the end of 2017 and that will inform the development of its Plan, which has now been drafted.

Several of the countries provided considerable detail in their introductions about the antimicrobial-related problems they are faced with, making this section of their Plans quite long. Having those details as part of the Plan could prove useful during the promulgation of the Plan to enhance understanding of the need for the Plan.

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[9] Detailed assessment tool for country situation analysis on antimicrobial resistance (AMR) – from WHO Regional Office for the Western Pacific.

Targeted studies that have been undertaken before the development of the Plan can contribute important findings that can inform the planning of activities. For example, a Fijian study on the use of colistin in 2016[10] showed how a restricted antibiotic can be prescribed when a first-line antibiotic would have been appropriate, due to the prescriber's belief that there is too long a wait for laboratory results because the laboratory is short-staffed – and the prescriber wanted to 'be on the safe side'. The same study also showed (as did other Fijian studies) that use of inappropriate antibiotics can be the result of stock-outs causing unavailability of the right antibiotics – highlighting the need to include improvement of stock maintenance among the activities for implementation. Solomon Island studies in 2014 (before the situation analysis) showed how the institution of antibiotic treatment guidelines could overcome inappropriate use of antibiotics (using chloramphenicol as an indicator) but that adherence to the guidelines declined after some months – emphasising the need for regular monitoring and evaluation and a continuing cycle of interventions.[11]

It is important to be able to identify where additional information gathering or audits are needed. It is equally important that recommendations from studies and audits are implemented promptly and the outcomes evaluated and further addressed.

[10] Drug Use Evaluation report – Colistin 2016. http://www.health.gov.fj/wp-content/uploads/2018/02/Medicine-Use-Evaluation_Colistin-2016.pdf

[11] Lake S. 2015. Assessment of the impact of antimicrobial prescribing guidelines in a Pacific Island Country.

Chapter 3

Reflections on the National Plans

THE WHO template was intended as a guide and clearly taken as intended. There is some variation in the expression of the objectives. Many countries omitted the fifth strategic objective of the Global Action Plan – increase investment in new medicines, diagnostic tools, vaccines and other interventions in countering AMR – and presented objectives considered most appropriate for their setting. Malaysia[12] and Cook Islands presented four objectives to cover their needs.

The Malaysian Plan involved an impressive range of stakeholders and was based on information gained from a large collection of surveys across all relevant sectors. Based on four priority areas and objectives, the 50-page Plan covers, immediately after each objective, activities to address the objective.

Malaysia is a member state of the Association of Southeast Asian Nations (ASEAN). In their November 2017 Declaration on Antimicrobial Resistance (AMR): Combating AMR through One Health Approach, ASEAN leaders committed to

> FORMULATING AND EXECUTING a national action plan adopting One Health approach on combating AMR by advocating high level support and with the following features: comprehensive multisectoral responsibility and governance; inclusive mechanisms to actively engage the participation of relevant stakeholders; defined objectives and goals that are aligned with the overarching Global Action Plan; activities and strategies will be sustainably financed by governments and other stakeholders; and, effective monitoring and evaluation mechanisms.[13]

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[12] Malaysian Action Plan on Antimicrobial Resistance (MyAp-AMR). http://www.moh.gov.my

[13] http://asean.org/storage/2017/11/3.-ADOPTION_2017_ALD-on-AMR_Endorsed-13th-AHMM.pdf

The Cook Islands draft AMR Plan demonstrates detailed analysis of the situation and clear aims to address identified targets. It has not been published on the WHO website because the Plan is being updated to accommodate new knowledge after initial implementation.[14]

The Papua New Guinea draft Plan is based on the findings of a comprehensive situation analysis, and extensive details are included in the Plan. A quite detailed plan of activities follows the strategic plan. It is recognised that further information will guide the detailed implementation of the activities. The 34-page document is clearly set out and informative and should be a good guide for implementation. However, continued monitoring and evaluation will be crucial as part of an iterative cycle of planning and evaluated interventions.

Most of the Plans that included activities could perhaps have been better conceived had the activities been developed later by a dedicated body to satisfy the needs of strategic plans. That would have enabled activities to be planned more precisely with identification of who is responsible and how the activity would be implemented, together with better outcome indicators.

It is suggested that it could be a sound approach to develop the Plan as a strategic plan following a situation analysis, before developing an operational plan of activities. The strategic plan could identify areas needing more study, and studies of these areas could be built into the implementation plan along with other activities. Well-laid-out plans of operations are easier to follow and to use as a guide for activities.

Some Plans devoted considerable space to details of the global situation even though the template guidance was for a short, succinct section on the global situation. The detailed global information may not be needed unless the country has a direct link with implementation of global activities.

[14] Personal communication.

Some countries, for example Bhutan, indicated that there is very little knowledge to date on which to base a Plan. However, there is commitment to gaining the knowledge and developing an appropriate Plan.

AMS guidelines

All Plans committed to establishing and maintaining standardised antimicrobial stewardship guidelines, programmes and materials in hospitals. Australia extended this commitment to aged care and general practice settings, while China, Cambodia and Vietnam committed to AMS programmes in pharmacies.

All countries expressed a commitment to establishing, monitoring and improving surveillance and testing for AMR in human and animal healthcare settings, along with a universal commitment to ensuring adequate laboratory and research facilities. The less developed and smaller countries may not have the capacity to conduct testing to support surveillance and may need to establish links with reference laboratories in more developed countries. It must be emphasised however that where there are no data currently kept, priority needs to be directed at mandating the maintenance of records at all levels; patient records including all necessary patient, diagnosis and treatment details; and laboratory records of all necessary details of tests and results. Without these data, surveillance is not possible and AMS is not possible.

Animal sector

The countries from Western Pacific and South-East Asia with national AMR Plans have very diverse animal sectors. Japan, China, New Zealand and Australia have significant commercial livestock industries. India has vast industries including cattle, buffaloes, goats, sheep, pigs, poultry and their products.

In India it is acknowledged:

> the burden of AMR in livestock and food animals has been poorly documented in India. Aside from sporadic, small, localized studies, evidence that can be extrapolated to the national level is lacking. Given that there are few regulations against the use of antibiotics for non-therapeutic purposes in India, the emergence of AMR from antibiotic overuse in the animal sector is likely to be an unmeasured burden in India.[15]

The introductory section of the Indian Plan demonstrates strong awareness of the situation concerning inappropriate distribution and use of antimicrobials in the human and livestock sectors, and evidence of antimicrobial resistance in both sectors, while it is acknowledged that the actual level of inappropriate use and resistance is unknown. Although the livestock and human sectors come under different legislative processes, it is recognised that regulatory controls must be seriously implemented and a comprehensive, efficient surveillance system maintained.

Cambodia has growing buffalo, pig and chicken industries; Vietnam has a growing dairy industry and extensive poultry farms with a history of bird flu infection. Thailand has identified in animals resistant MRC-1 genes that could be traced to China in 2014. Subsequently, in December 2015 bacteria with the MRC-1 gene were also found in humans and in meat in England.

Indonesia has a significant commercial meat production industry. Poultry and goat farming exist in Maldives and the Philippines has poultry, pig and cattle industries. In Fiji and several other small countries, livestock farming is less significant, with most animals kept as 'family animals'. It is clear that plans need to be developed to address the specific needs in the sector. The national AMR Plans indicate that most countries have identified their needs. In the Philippine animal sector, excellent targets are identified against which to measure changes.

[15] National Action Plan on AMR (India). http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=225611

General

In general, countries applied focus on issues that were of particular importance to them. For example, in Thailand before the development of the Plan, ineffective coordination meant that antimicrobial resistance profiles produced at sentinel hospitals were not used effectively for clinical decision-making. There was no integrated system for the surveillance of antimicrobial resistance, no system for monitoring consumption of antimicrobial drugs by humans, livestock and pets, and little public awareness of antimicrobial resistance. In August 2016, a national steering committee was formed to guide the Thai Plan's implementation with a module to assess the prevalence of household antibiotic use and antimicrobial resistance awareness. A national system for the surveillance of antimicrobial consumption has also been initiated.[16]

Although monitoring is built into most Plans, addressing targets identified by monitoring is not always mentioned. It is expected that addressing targets as needed will be covered in further operational plans of activities. Several countries gave no attention to vaccination coverage against vaccine-preventable infectious diseases in animals or humans.

Incentives

Incentives for health staff might encourage adherence to the Plans and interest in achieving the goals. Including AMS components in mandatory continuing professional development (CPD) modules required to maintain healthcare professionals' registration would facilitate greater knowledge of the programme and achievement of its goals. Incentives might include CPD points in settings where a CPD system is in place.

[16] http://www.who.int/bulletin/volumes/95/8/16-179648.pdf?ua=1

Chapter 4

Conclusions

PERUSAL of the Plans and some face-to-face discussion and in-country observation have led to the following conclusions.

Excellent guidance is provided by the WHO templates for the development of strategic plans and for the development of operational plans of activities. Where these guides have been followed quite closely, the Plans developed are clear and implementation should be facilitated.

A regulatory framework will be necessary to guide and control the possession, distribution and use of antimicrobials in all sectors and to control the authorisation of personnel to prescribe and dispense antimicrobial medicines. Regulations must be enforced and penalties applied for non-compliance. Strong political commitment, national ownership and adequate multi-sectoral institutional capacities will be essential for the effective development and implementation of the national Plans. Commitment to the maintenance of appropriate staff levels is essential. Morale needs to be high so it is important that staff receive adequate support and recognition, including adequate salaries.

The planning process in some countries has been delayed due to inability to get stakeholders to attend a meeting. In the absence of good support at ministerial level, progress can be frustrated. The participation of key opinion leaders can be very helpful.

Situation analyses are necessary to 'get a picture' of the situation and to identify targets that need to be addressed. Supplementary studies are also valuable to inform Plan development. Plans indicate an assumption that data is available to be collected and analysed. However, in some countries there is no data. Discussions with representatives of some Pacific island countries revealed that records of prescriptions and

laboratory results/records are not kept – supposedly because there are not enough staff to complete those tasks. Without records, antimicrobial stewardship is not possible. All levels and areas of the system need to be adequately staffed to allow all the necessary tasks to be undertaken appropriately.

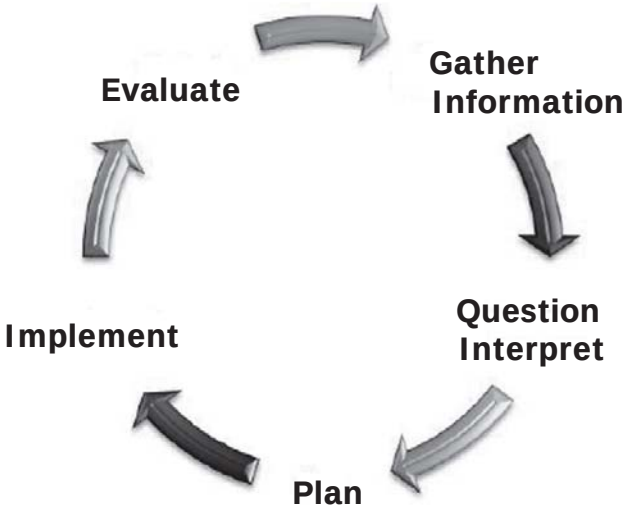
Prescribing can be inappropriate; for example, the abovementioned Fijian study showed how a restricted antibiotic is prescribed when a first-line antibiotic would have been appropriate, due to the prescriber's belief that it takes too long to obtain laboratory results because the laboratory is short-staffed – and the prescriber wants to 'be on the safe side'.

Development and maintenance of up-to-date antibiotic treatment guidelines is crucial, as is the ownership and use of these tools. Most countries in the Western Pacific region have antibiotic treatment guidelines that they try to keep up-to-date.

A robust monitoring and evaluation platform needs to be in place to lead to evidence-based interventions to control antimicrobial resistance. Detailed monitoring can identify issues that were not apparent at the time of planning. For example, stock management may be weak: accurate records of patients' needs are not kept or are not used to forecast real ongoing needs and there are stock-outs, leading to use of inappropriate antimicrobials in place of those recommended in standard treatment guidelines. Similarly, infection prevention and control may be sub-optimal due to stock-outs of necessary consumables, sometimes resulting in outbreaks of resistant infective organisms.

An integrated system for the surveillance of antimicrobial resistance must be established and maintained.

In all countries a continuous iterative cycle of planning, implementation, evaluation, identification of targets for further intervention, evaluation and so on will be necessary.



Such a system will require strong political leadership and commitment, a strong structural and regulatory framework, and sufficient financial support and human resources.

ANNEX

National AMR Action Plans of Countries in the Western Pacific and South-East Asia Regions

THE WHO online library of National Action Plans <http://www.who.int/antimicrobial-resistance/national-action-plans/library/en/> includes, so far, the following (the titles of the respective Plans are listed here):

Western Pacific region

Australia: Responding to the Threat of Antimicrobial Resistance
Cambodia: National Policy to Combat Antimicrobial Resistance (partner document: National Strategy to Combat Antimicrobial Resistance 2015-2017)
China: National Action Plan to Contain Antimicrobial Resistance (2016-2020)
Fiji: Fiji National Antimicrobial Resistance Action Plan
Japan: National Action Plan on Antimicrobial Resistance
Mongolia: National Multi-sectoral Action Plan on Combatting Antimicrobial Resistance (2017-2020)
New Zealand: New Zealand Antimicrobial Resistance Action Plan
Philippines: The Philippine Action Plan to Combat Antimicrobial Resistance: One Health Approach
Republic of Korea: National Action Plan on Antimicrobial Resistance (2016-2020)
Singapore: National Strategic Action Plan on AMR
Vietnam: National Action Plan for Combatting Drug Resistance

South-East Asia region

Bangladesh: Antimicrobial Resistance Containment in Bangladesh 2017-2022
Bhutan: National Action Plan on Antimicrobial Resistance (2018-2022)
Democratic Republic of Timor-Leste: National Action Plan on Antimicrobial Resistance: Timor-Leste 2017-2020

India: National Action Plan on Antimicrobial Resistance 2017-2021
Indonesia: National Action Plan on Antimicrobial Resistance Indonesia 2017-2019
Maldives: National Action Plan for Containment of Antimicrobial Resistance 2017-2022
Myanmar: Myanmar National Action Plan for Containment of Antimicrobial Resistance
Nepal: National Antimicrobial Resistance Containment Action Plan: Nepal
Sri Lanka: National Strategic Plan for Combating Antimicrobial Resistance in Sri Lanka 2017-2022
Thailand: National Strategic Plan on Antimicrobial Resistance 2017-2021

Analysis of AMR Plans in the Western Pacific and South-East Asia Regions

MEMBER states of the World Health Organisation (WHO) have been called upon to formulate National Action Plans (NAPs) to counter the threat of antimicrobial resistance (AMR). This paper looks at the NAPs that have so far been drawn up by countries from the Western Pacific and South-East Asia regions, examining them against a global template provided by WHO.

The paper finds that, while some gaps and shortcomings exist, the countries concerned demonstrate political commitment, national ownership and institutional capacity to varying degrees to tackle the AMR problem. The author also identifies areas which need to be addressed to ensure effective development and implementation of the NAPs.

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