National Action for Global Change on Antimicrobial Resistance

World Health Organization
Western Pacific Region
National Action for Global Change on Antimicrobial Resistance
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Antimicrobial resistance: the rising tide of a global health security threat
Antimicrobial resistance is a global problem. Infections and the emergence of resistance to the drugs used to prevent and treat them have readily spread across geographical borders, threatening global health security. Rapid transport of infectious agents and their resistant genes has been facilitated by increasing global connectivity, obliging countries of all income levels to take responsibility to contain the spread.

In the absence of safe and effective treatment for bacterial infections, the practice of modern medicine is compromised, limiting our ability to treat common infections and carry out lifesaving procedures, including surgeries and cancer chemotherapy. Antimicrobial resistance also has the potential to impede the achievement of the Sustainable Development Goals and to slow health and economic progress. Estimates predict that without corrective actions to contain antimicrobial resistance, by 2050, 10 million people will die every year from untreatable infections, and the world’s gross domestic product (GDP) will be 2–3.5% lower than it otherwise would be.1

Although antimicrobial resistance is not a new problem, commitment to and coordination of actions to contain it remain inadequate. The growing problem of antimicrobial resistance requires an immediate cross-sectoral response to ensure future generations have access to effective antimicrobial medicines.

Vulnerabilities in the Western Pacific Region
The Western Pacific Region is one of the most diverse of all the World Health Organization (WHO) regions, as it includes some of the world’s least developed countries as well as highly developed and emerging economies. As the Region is also the most disaster-prone region in the world, countries may be even more susceptible to antimicrobial resistance due to weakened health infrastructure caused by natural disasters.

Caring for patients with drug-resistant infections can put pressure on weak health systems in the Region. Patients with resistant infections may consume

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more health-care resources than patients with non-resistant infections and generally have worse clinical outcomes, including an increased risk of death. Although progress has been made to strengthen health systems in the Region, antimicrobial resistance threatens to set back previous gains in health and progress in development. Of the many challenges the Western Pacific Region faces in containing antimicrobial resistance, the following make the Region particularly vulnerable: weak health systems, poor regulation and dispensing of antimicrobials, overuse and misuse of antimicrobials in the animal sector, lack of surveillance and monitoring systems, and low awareness.

**Weak health systems**
Antimicrobial resistance is a health system issue that preys on both weak and strong systems. Weak health systems may be especially vulnerable to the threat of resistance as they often lack the resources to prevent, identify and treat resistant infections in both hospital and community settings, and the political commitment to take action among competing health priorities. As borders become increasingly permeable through international travel, medical tourism and migration, preventing the spread of pathogens becomes even more essential. Many health-care facilities in the Region have made good progress in improving infection prevention and control programmes, though there are still many differences in the level of implementation within and between countries, in particular in low- and middle-income countries.

Increasing access to safe water and sanitation and improving hygiene practices within communities are also required to prevent infections and reduce the need to use antimicrobials. Inaccessibility and the inconsistent availability of high-quality and affordable antimicrobials are also factors contributing to increasing rates of antimicrobial resistance. The knowledge and practices of health-care workers also directly impact the use and misuse of antimicrobials.

**Poor regulation and dispensing of antimicrobials**
Many countries in the Region do not have a proper legal and regulatory framework to mandate, support and enforce the rational use of medicines in humans or animals. Countries with weak regulatory systems have limited capacity to ensure drug quality, improve the dispensing of medicines, restrict the use of antibiotics in animals, and control the movement of drugs in the supply system. In many countries of the Western Pacific Region, antimicrobials are commonly dispensed inappropriately. For example, over half of the countries in the Region (52%) report that antimicrobials are sold over the counter without a prescription. Even when regulations and laws are in place for prescription-only antimicrobial sales, their enforcement is often inadequate.
Overuse and misuse of antimicrobials in the animal sector

Massive overuse of antimicrobials in animals is an increasing concern globally and within the Western Pacific Region. The transmission of resistant bacteria from animals to humans can occur directly through contact with the animal or indirectly through the food chain and the environment. Antibiotic residues are also transferred from animals to humans through residues found in food for human consumption and in the water supply. As proper infection prevention and control, good food safety practices and access to safe water are often lacking in the Region, action to promote prudent use in animals should be a high priority. In 66% of Member States in the Region, the national regulatory authority does not have mechanisms in place to enforce requirements for rational use of antimicrobials in animals, and only 32% of Member States have legal provision to reduce the use of antibiotics as growth promoters for food animals.

Lack of surveillance and monitoring systems

Surveillance of microorganisms and their susceptibility to the antimicrobials used allows for the early detection of resistant strains and is needed to inform clinical decisions, to guide policy recommendations and to assess the impact of interventions. While over 70% of countries in the Region report conducting some bacterial surveillance, national surveillance systems do not exist in all countries and many laboratories lack the capacity to adequately collect quality data. There is currently no coordinated regional network to track and detect antimicrobial resistance. As resistant microorganisms can cross borders, antimicrobial susceptibility data must also be shared between countries to predict, prevent and properly treat infections.

Although it is widely recognized that antimicrobials are misused and overused in the Western Pacific Region, accurate measures for quantifying or monitoring their use often do not exist. Without quantifying the current use of antimicrobials, it is not possible to establish a baseline against which to monitor the effects of interventions and track progress towards rational use. While data on antimicrobial use are essential to provide impetus to policy-makers to take action, very few countries within the Region have systems developed to monitor use.

Low awareness

Education and awareness among those involved in antimicrobial use are vital in order to contain antimicrobial resistance. Without the acknowledgement or understanding of the growing problem of antimicrobial resistance, there is little hope for action. In the Western Pacific Region, a country situation analysis in 2014 found that public awareness was absent or very low in 93% of Member States. All stakeholders, including policy-makers,
regulators, the pharmaceutical industry, prescribers, dispensers and the general public, must be made aware of the issue of antimicrobial resistance and understand how their actions can help to prevent its spread.

**Knowledge and perceptions of antibiotics in the Western Pacific Region**

Raising awareness on antimicrobial resistance is a crucial first step to initiate actions at both the policy and individual levels. The *Action Agenda for Antimicrobial Resistance in the Western Pacific Region* and the *Global Action Plan on Antimicrobial Resistance* identify raising awareness as a priority step in taking action on antimicrobial resistance. In the 2015 *Worldwide country situation analysis: response to antimicrobial resistance*, Member States reported generally low levels of awareness of antimicrobial resistance, especially among the general public. While there is agreement that awareness is low, until 2015 there had been no studies in the Region that used a common methodology to assess awareness levels of the general public.

In 2015 a survey was conducted in six countries to measure the perceptions and knowledge of the general public on antimicrobial resistance in the Region.\(^2\) The survey took a coordinated approach to collecting data, using consistent methodology and a common set of indicators to enable comparison of data across countries and regions. The initial survey will be used to establish a baseline to mark future progress in continued efforts to raise awareness of the threat of antimicrobial resistance and to educate stakeholders and the public on actions that can be taken to prevent it. The survey focused on six countries – Australia, China, Japan, Malaysia, the Philippines and Viet Nam – and sought to gather information on the behaviour of the general public with regard to the use of antibiotics, knowledge of appropriate use of antibiotics, and knowledge of antimicrobial resistance.

**Use of antibiotics**

Antibiotic use is in the Western Pacific Region is widespread, with over half (51%) of respondents across the Region having last taken antibiotics in the past six months. In the Region, however, there are major differences regarding antibiotic use. In Viet Nam, for example, 71% of respondents had last taken antibiotics in the past six months, in contrast to only 25% of respondents in Japan (Fig. 1).

Across the Western Pacific Region, 82% of respondents said they had obtained the antibiotics or a prescription for them from a doctor or nurse. With the majority of respondents obtaining antibiotics from a doctor or nurse, it may be warranted to

focus attention towards prescriber and dispenser education in order to improve rational prescribing and use of antibiotics (Fig. 2).

**Knowledge of appropriate use of antibiotics**

Knowledge regarding the appropriate use of antibiotics, including how and when to use antibiotics and what they should be used for, varies across the Region. Almost one in five (18%) of respondents across the six countries surveyed thought it was acceptable to use antibiotics that were given to a friend or family member, as long as they were used to treat the same illness. Over one third (36%) thought it was acceptable to buy the same antibiotics, or request them from a doctor, if they had been sick and the antibiotics had helped them to get better when they had previously had the same symptoms.

Of all respondents surveyed, 29% agreed with the statement that it was OK to stop taking antibiotics when you felt better, not when you had taken all of them as directed. Respondents from China and Viet Nam were particularly likely to think that statement was true, with 53% and 38% of respondents respectively agreeing with the statement. Of respondents in Australia, 87% correctly identified that they should only stop taking antibiotics when they had taken all the antibiotics as directed. Australia has held an annual Antibiotic Awareness Week since 2012, which could be a factor in the high percentage of Australian respondents correctly identifying when to stop taking antibiotics. This may indicate that more
Fig. 2: Percentage of respondents obtaining antibiotics from a doctor or a nurse

- Yes: 83%
- No: 14%
- Can’t remember: 3%

Source: WHO. Multi-country public awareness survey in the Western Pacific Region. Unpublished data. 2015

Fig. 3. Percentage of respondents who think it is OK to stop taking antibiotics when they feel better

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Pacific Region</td>
<td>29</td>
</tr>
<tr>
<td>Australia</td>
<td>11</td>
</tr>
<tr>
<td>China</td>
<td>53</td>
</tr>
<tr>
<td>Japan</td>
<td>22</td>
</tr>
<tr>
<td>Malaysia</td>
<td>27</td>
</tr>
<tr>
<td>Philippines</td>
<td>21</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: WHO. Multi-country public awareness survey in the Western Pacific Region. Unpublished data. 2015
awareness and education campaigns could improve proper use of antibiotics among the general public (Fig. 3).

There was also a misunderstanding of which conditions could be treated with antibiotics. The majority of respondents across the Region incorrectly believed that conditions such as cold and influenza (56%) could be treated with antibiotics. Antibiotics only work in treating bacterial infections and are ineffective against viruses. In Malaysia, for example, 73% thought that antibiotics worked for a cold and influenza. Furthermore, in Viet Nam 40% of respondents incorrectly responded that antibiotics could treat HIV/AIDS, and 64% responded that antibiotics could be used to treat malaria. Australia notably had the lowest percentage of respondents who incorrectly agreed that antibiotics could treat the cold or influenza, perhaps linked to their public education campaigns promoting responsible use of antibiotics (Fig. 4).

**Fig. 4. Percentage of respondents who incorrectly think antibiotics can treat the cold or influenza**

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Pacific Region</td>
<td>56</td>
</tr>
<tr>
<td>Australia</td>
<td>30</td>
</tr>
<tr>
<td>China</td>
<td>61</td>
</tr>
<tr>
<td>Japan</td>
<td>53</td>
</tr>
<tr>
<td>Malaysia</td>
<td>73</td>
</tr>
<tr>
<td>Philippines</td>
<td>55</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>62</td>
</tr>
</tbody>
</table>

Source: WHO. Multi-country public awareness survey in the Western Pacific Region. Unpublished data. 2015
Knowledge of antimicrobial resistance

The survey also revealed that levels of awareness regarding antibiotic resistance varied across the Region. The majority of respondents correctly identified actions that could be taken to address antibiotic resistance, with 85% of respondents agreeing that regular handwashing would help and 82% agreeing that people should use antibiotics only when prescribed. There was, however, a misunderstanding of the term “antibiotic resistance”, with 72% incorrectly thinking that it was the body that became resistant to antibiotics, rather than the bacteria becoming resistant to the antibiotic. In addition, 36% of respondents regionally thought that antibiotic resistance was only a problem for people who took antibiotics regularly (Figure 5). The lack of understanding regarding how antibiotic resistance occurred and who was susceptible shows that more public education is needed in order to improve antibiotic use among the general public.

Benchmarking progress towards increasing awareness

The results of the first perception and knowledge survey on antimicrobial resistance established a baseline to measure progress made towards raising awareness and educating about antimicrobial resistance. The insights highlight focus areas that can be prioritized in future communication, for example education on how resistance occurs and what conditions antibiotics can be used to treat.

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**Fig. 5. Percentage of respondents incorrectly identifying statements as true**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotic resistance occurs when the body becomes resistant to antibiotics</td>
<td>72%</td>
</tr>
<tr>
<td>Antibiotic resistance is only a problem for those who take antibiotics regularly</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: WHO. Multi-country public awareness survey in the Western Pacific Region. Unpublished data. 2015
Changing mindsets about using antibiotics
Changing mindsets about using antibiotics

World Antibiotic Awareness Week 2015: a global movement to support regional change

The misuse and abuse of antimicrobials, in particular antibiotics, are major contributors to the emergence and spread of antimicrobial resistance, while low awareness contributes to misuse and overuse. The first regional perception and knowledge survey on antimicrobial resistance and the WHO country situation analysis on antimicrobial resistance highlight the fact that awareness within the Western Pacific Region is low. Only 10% of countries in the Region identified politicians as having a high awareness of antimicrobial resistance, and only 31% of countries were confident that health-care workers had a high level of awareness.

Even more alarming, the majority of countries in the Region (78%) identified a low awareness of antimicrobial resistance among the general public, a finding that was reinforced by the 2015 perception survey.

In order to increase awareness of the growing threat of antimicrobial resistance, a major campaign was initiated at the global and regional levels. The first ever World Antibiotic Awareness Week was launched from 16 to 22 November 2015, with the goal of educating about antibiotic resistance and engaging in advocacy to stimulate action. Within the Western Pacific Region, countries and areas were urged to hold national campaigns and activities to raise awareness of the threat of antibiotic resistance and the importance of responsible prescription and use of antibiotics.

As solutions to contain antimicrobial resistance are necessary at the individual, institutional and policy levels, three audiences were targeted for the campaign: individuals, health-care professionals and policy-makers. Countries were encouraged to implement campaign activities to educate those audiences about the responsible use of antibiotics and motivate them to take action to prevent the spread of antibiotic resistance. Messages regarding responsible prescribing and dispensing of antibiotics were also used to target the behaviour of health-care professionals. Overall the campaign aimed to reinforce the message that antibiotic resistance is a global issue and that individual actions play a role in containing resistant infections.

Preparing for regional change

The regional campaign was conceived as a means to achieve the first priority action of the regional action agenda – raising awareness. A multidisciplinary team with a combination of technical
and communications expertise was formed at the WHO Regional Office for the Western Pacific to develop a strategy with specific objectives and key messages for the awareness week. Member States and previous campaign reports were also consulted for input on campaign messages and materials.

Recognizing the need to take care when using antibiotics, the theme of the inaugural 2015 awareness campaign was “Antibiotics: handle with care”. A Region-specific campaign toolkit was developed containing posters, infographics, fact sheets and videos delivering key messages for how to be part of the solution to prevent antibiotic resistance. The public was reminded to always take the full prescription, even if they feel better; never to share or use leftover antibiotics; and never to take antibiotics without a prescription. Health-care workers were encouraged to only prescribe and dispense antibiotics when truly needed; to educate their patients to take the right dose for the right duration and never to share or use leftovers; to practise good infection control; and to keep vaccinations up to date.

Countries were encouraged to use campaign materials to support local activities. The planning and implementation of activities were emphasized as important steps in the process of engaging stakeholders in the fight to contain antimicrobial resistance. The spark ignited by campaign activities has already spurred future actions in a number of countries, for example the development of national action plans on antimicrobial resistance, updating of national prescription guidelines, and plans to incorporate antimicrobial resistance awareness components into education curricula.

Prior to the 2015 launch of World Antibiotic Awareness Week, very few countries reported hosting a national campaign. In the first year of the launch, however, over 20 countries held campaign activities in the Region. These events were multifaceted, with activities and messaging targeting all three audiences. Many countries adapted regional campaign materials to fit the local context by developing targeted messages aimed to curb country-specific problem behaviours. Activities were highly publicized throughout the week, with many countries hosting press conferences and using social media to reach beyond the scope of the campaign activity.

The inaugural World Antibiotic Awareness Week started a movement recognizing the need to take urgent action on antimicrobial resistance. Although the threat of antibiotic resistance has been impending for many years, World Antibiotic Awareness Week marked the first time that a coordinated, multi-stakeholder effort had been implemented at a global level. Each year, World Antibiotic Awareness Week will continue to educate stakeholders and motivate action to contain antimicrobial resistance, adopting new themes and messaging relevant to priority needs.
Raising awareness: country stories
Using social media for increased outreach

With the world’s largest population, China required an innovative approach to spread the message of Antibiotic Awareness Week. Using social media to broaden the audience receiving the message, China initiated a three-pronged approach to raise awareness of antibiotic misuse among the general public, health-care professionals and policy-makers.

To spread the message to the general public, the WHO country office in China used Weibo, a Chinese social media site, to post advocacy messages regarding responsible use of antibiotics. Approximately 17.4 million users viewed the messages and 19 000 discussions, including retweets, comments and mentions, were generated online regarding this content.

To target health-care professionals and encourage rational prescribing, WHO partnered with the People’s Medical Publishing House, the largest national publisher and online presence for medical journals in China, to film and broadcast a video debate between key health experts about the issues surrounding the use of antibiotics. The debate raised awareness of the overuse and misuse of antibiotics, and highlighted how health-care professionals can help address the issue. The video was shared online by WHO and the People’s Medical Publishing House, and reached a total network of 4445 medical students and health-care professionals during Antibiotic Awareness Week.

To engage policy-makers, WHO hosted a moderated dialogue about policy-making and antimicrobial resistance in China. The policy dialogue panel comprised three policy experts, including two local experts and the visiting German State Secretary for Health. More than 40 people from the Beijing health community attended the discussion, and the audience was further expanded by posting a recording of the event on social media.
A post from WHO China on Weibo, China’s largest social media site, warns users about the threat of antimicrobial resistance and encourages participation in the social media campaign during Antibiotic Awareness Week.
The Ministry of Health of Lao People's Democratic Republic identified overuse of antibiotics by health-care providers, lack of access to affordable, quality antibiotics and over-the-counter access to antibiotics as major contributors to antimicrobial resistance in the country. To raise awareness of these issues the Ministry of Health, supported by WHO, launched a campaign with the goal of improving the use of antibiotics in health-care settings and advocating multisectoral policy action.

As a precursor to the week’s activities, the Ministry of Health initiated a pledge-signing event to engage medical professionals working in hospital settings by discussing their role in advocating the responsible use of antibiotics. Six additional central hospitals joined the campaign by installing a pledge-signing wall in the main lobby area of each hospital. By signing the pledge, medical staff committed to using antibiotics responsibly. Medical and nursing students from the University of Health Science also held a debate on how the promotion of rational and responsible use of antibiotics was everybody’s responsibility. As future health practitioners, it was important to raise awareness and understanding among the students.

Recognizing the need for multisectoral policy action, experts from the Ministry of Health and the Ministry of Agriculture, Forestry and Fisheries held a two-day campaign meeting to discuss the problem of antimicrobial resistance. The Ministry of Health urged stakeholders within the health sector to take immediate action and engage with other ministries and policy-makers to develop a comprehensive strategy to strengthen surveillance of and monitor antimicrobial resistance, thus helping to decrease the transmission of resistant microorganisms in health-care settings, communities, the food chain, water supplies and international trade routes.
Participants at the interministerial campaign meeting in the Lao People’s Democratic Republic pose during Antibiotic Awareness Week.
Community-based approach to raising awareness

In Samoa, improper antibiotic use is pervasive, with patients often treating antibiotics as painkillers and taking them for common aches and pains. As Samoa is a small island nation with a heavy emphasis on community values, the WHO country office and the Ministry of Health adapted campaign materials to convey locally appropriate messages in an engaging format. In Samoa, the theme of the week-long campaign was *Fa’aaog with love*, translated as “Antibiotics with love”.

Approximately 200 community members were brought together with the Associate Minister of Health, the Ministry of Health, the National Health Service and members of the Samoa Parliamentary Advisory Group for Healthy Living for the campaign launch, through which Samoan people were given advice on the dangers of the inappropriate use of antibiotics and encouraged to participate in the week’s activities.

Throughout the week various activities incorporating the theme were initiated, including a poem competition on the national radio station, a netball tournament and a trivia competition, ensuring that community members were exposed to the educational messages in an enjoyable yet impactful way. By fostering community partnerships, WHO and the Ministry of Health of Samoa highlighted the problem of resistance and engaged other stakeholders to work towards influencing behavioural and social norms.

To emphasize the cross-cutting nature of antimicrobial resistance and the need for collaboration across sectors, a workplace competition invited ministries and government enterprises to create a visual material (a poster, video or wall display) on proper antibiotic use and the dangers of antibiotic resistance. Over 27 workplaces entered the competition, which encouraged a multisectoral approach to tackling antibiotic resistance and helped to identify workplace champions to further promote the responsible use of antibiotics. By including participants from outside the health sector, the exercise exposed health professionals, who have a more technical view of antimicrobial resistance, to the views of ordinary people, helping to target interventions and public awareness messages in a more coordinated manner.
Samoa’s adapted version of the Antibiotic Awareness Week theme – Antibiotics: handle with care – incorporates Samoan language, translated as “Antibiotics with love”. Entries in the antimicrobial resistance workplace display competition encourages responsible use of antibiotics.
Collecting pledges for collective action

During Antibiotic Awareness Week, the WHO country office in Viet Nam and the Ministry of Health launched a major awareness campaign. Although recent efforts, for example the Viet Nam Resistance Project (VINARES) and the signing of an aide-memoire for multisectoral government commitment, had spurred action at the institutional and policy levels, more work was needed to educate the general public about proper antibiotic use. Aiming to encourage collective action, WHO and the Ministry of Health stressed the key actions that everyone must undertake to use antibiotics responsibly.

In preparation for Antibiotic Awareness Week, Viet Nam launched a pledge campaign by which individuals committed to make better use of antibiotics in order to help save these vital medicines from becoming ineffective. Throughout the week, Departments of Health, together with the Provincial People’s Committee of the 63 provinces of Viet Nam, participated in various awareness-raising activities, including a national relay and a bicycle parade through the streets of Hanoi. The event culminated in a large rally with over 700 participants in attendance, including representatives from the Ministry of Health and Ministry of Agriculture. Participants were encouraged to sign a pledge wall, committing to use antibiotics responsibly and to spread the message to others. The events in Viet Nam during Antibiotic Awareness Week were highly publicized in the media, providing impetus for continued policy and behaviour change.
A bicycle parade runs through the streets of Hanoi to promote Antibiotic Awareness Week.
Sử dụng kháng sinh khi được kê đơn

Dùng kháng sinh có trách nhiệm

Thương khuyến gia đình và bạn bè

Tối cam kết

1. Chỉ sử dụng kháng sinh khi được kê đơn

2. Sử dụng kháng sinh có trách nhiệm

3. Thương khuyến gia đình và bạn bè

Số điện thoại: 0123.456.789

AAN 2015

Facebook.com/AMRweekvietnam
Turning the tide: how to improve antimicrobial use and stop a killer
Turning the tide: how to improve antimicrobial use and stop a killer

Global actions to contain antimicrobial resistance

In response to the threat of antimicrobial resistance, the Sixty-eighth World Health Assembly adopted the *Global Action Plan on Antimicrobial Resistance*. The plan emphasizes principles that should be followed in developing national action plans on antimicrobial resistance, including whole-of-society engagement through a one-health approach that embraces sectors beyond human health. Prevention first as a cost-effective approach that reduces the need for treatment; equitable access to, and appropriate use of, existing and new antimicrobial medicines; long-term investment to ensure sustainability of actions; and incremental targets for implementation to allow each country to determine its own priority actions.

The overall goal of the global action plan is to ensure, for as long as possible, continuity of successful treatment and the prevention of infectious with effective and safe medicines that are quality assured, used in a responsible way, and accessible to all who need them. To achieve that overall goal, five strategic objectives are identified, along with appropriate measures to achieve each objective. The objectives and selected measures are presented in Fig. 6; the ensuing subsections consider each objective in more detail.

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**Figure 6. Strategic objectives of Global Action Plan on Antimicrobial Resistance**

1. **Improve awareness and understanding of antimicrobial resistance**
   - Risk communication
   - Education

2. **Strengthen knowledge through surveillance and research**
   - National antimicrobial resistance surveillance
   - Laboratory capacities
   - Research and development

3. **Reduce the incidence of infection**
   - Infection prevention and control in health care
   - Community-level prevention
   - Animal health: prevention and control

4. **Optimize the use of antimicrobial medicines**
   - Access to qualified antimicrobial medicines, regulation, antimicrobial stewardship
   - Use in veterinary and agriculture sectors

5. **Develop the economic case for sustainable investment**
   - Measuring the burden of antimicrobial resistance
   - Assessing investment needs
   - Establishing procedures for participation
Objective 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education and training

The 2015 launch of World Antibiotic Awareness Week marked a major milestone in the global commitment to contain antimicrobial resistance. Stories highlighting the impending threat of antimicrobial resistance inundated the media, and countries with active campaigns made progress in advancing their national actions. As the issue of antimicrobial resistance comes into the spotlight, the momentum must be maintained through education on responsible use in order to promote behavioural change. As indicated with the perception and knowledge survey, the general public still lacks a basic understanding of how antimicrobial resistance occurs and what they can do to prevent it. The use of antimicrobials and awareness of antimicrobial resistance should be included in educational curricula starting at an early age, and should also be incorporated into professional education within the health and veterinary sectors.

Objective 2: Strengthen the knowledge and evidence base through surveillance and research

Surveillance is the cornerstone for assessing the burden of antimicrobial resistance. It is therefore essential to strengthen and harmonize national, regional and global surveillance of resistant microorganisms in order to identify, control and properly treat resistance-related infections. Surveillance also enables public health decision-makers to obtain information on the incidence, prevalence and geographical patterns of antimicrobial resistance so they may implement appropriate actions. Many countries have insufficient capacity in their national surveillance systems, including food monitoring systems, requiring improved laboratory capacity and laboratory information management systems. To address this, WHO is launching the Global Antimicrobial Resistance Surveillance System (GLASS) to support a standardized approach to collection, analysis and sharing of data on antimicrobial-resistant bacteria at the local, regional and global levels. At the local level, however, work is still needed to increase laboratory capacity to identify and monitor resistant strains. In addition, more research is required to support the development of new treatments, diagnostic tools and vaccines to treat, diagnose and prevent resistant infections.
Objective 3: Reduce the incidence of infection through effective sanitation, hygiene and infection-prevention measures

Infection prevention and control has an integral role in containing antimicrobial resistance as it can prevent the acquisition of, transmission of and infection by resistant microorganisms. Efforts to limit the spread of infections and resistance begin with improved personal hygiene and systems for institutional hygiene. Vaccination can reduce the incidence of infectious disease and reduce the need for antibiotics. Infection-control practices should also extend from humans into the animal sector in order to prevent the excess need for antibiotic use in animal husbandry.

Objective 4: Optimize the use of antimicrobial medicines in human and animal health

As antimicrobial resistance develops from the overuse and misuse of antimicrobials both for humans and in animal husbandry, actions must be taken to ensure appropriate and rational use of antimicrobials. Although action has been taken in some countries, in general the use of antimicrobials is increasing in both humans and animals. Data are needed to monitor the use of antimicrobials and to provide feedback regarding the areas where improvements are needed. Antimicrobial stewardship programmes should monitor prescription and dispensing, using evidence-based standards of care. Society must also adopt a mindset that recognizes antimicrobials as a public good, requiring proper regulation to maintain the current stock and increased investment to encourage development of new or improved medicines.

Objective 5: Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions

Emphasis on research and development within the diagnostic and pharmaceutical industries is needed to produce tools to better prevent and detect diseases, identify antimicrobial-resistant microorganisms and the emergence of new resistance mechanisms, and develop new antimicrobials to replace those that have become ineffective. Funding for essential research and development of new antimicrobials and diagnostics should come from public sector support as well as from the private and philanthropic sectors. The development of these new medicines and diagnostics must also be financed in a way that makes them affordable and accessible. It is also necessary to continue to develop the economic case to encourage action by assessing the burden of disease and the economic impact of antimicrobial resistance.
WE ALL HAVE A PART TO PLAY IN USING ANTIBIOTICS RESPONSIBLY

To raise awareness on the rational use of antimicrobials, WHO launched World Antibiotic Awareness Week in 2015. Campaign messages encouraged collective actions to use antibiotics responsibly.
Charting the path to combat antimicrobial resistance
Charting the path to combat antimicrobial resistance

Partnerships to tackle antimicrobial resistance through multisectoral action

As antimicrobial resistance is driven by a complex web of factors, solutions must also be cross-cutting and involve collaboration across many areas. No single country or organization can take on the challenge alone, therefore a multisectoral approach is needed to bring together and coordinate the actions of all stakeholders, including those concerned with human and animal health, agriculture, finance and the environment. WHO is committed to cross-cutting partnerships with other organizations, including the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations (FAO). Such partnerships are essential for reducing antimicrobial resistance and sharing data among the human health, animal husbandry and agricultural sectors. To coordinate this holistic global response, comprehensive action frameworks are necessary to delineate roles and monitor progress.

Regional Action Agenda for the Western Pacific

The Western Pacific Region has been leading initiatives to contain antimicrobial resistance and, in 1982, was the first WHO region to implement recommendations for surveillance of antimicrobial resistance. Since then the Regional Office for the Western Pacific has held many consultations, workshops and biregional meetings to collaborate with other Asian countries (Fig. 7).

In 2002, at the fifty-third session of the WHO Regional Committee for the Western Pacific, resolution WPR/RC53.R5 on antimicrobial resistance was endorsed, identifying antimicrobial resistance as a regional priority. In August 2010, a cross-divisional Antimicrobial Resistance Working Group was formed to identify linkages and increase synergies for future work on antimicrobial resistance. In 2011, another resolution (WPR/RC62.R3) on antimicrobial resistance was passed at the sixty-second session of the Regional Committee, urging Member States to take action by developing and implementing national action plans.

As antimicrobial resistance rates across the Region have continued to rise and the urgency of the issue has been increasingly recognized at global level, a more focused call to action was needed within the Region. The Action Agenda for Antimicrobial Resistance in the Western Pacific Region, which outlines implementation steps and key indicators to contain antimicrobial
resistance, was endorsed at the sixty-fifth session of the Regional Committee. The priority actions in the action agenda focus on raising awareness and the development of comprehensive national action plans, improving surveillance of antimicrobial resistance and monitoring of antimicrobial use, and strengthening the response of health systems.

Momentum towards containment of antimicrobial resistance is gaining in the Region. The first Regional Antibiotic Awareness Week in November 2015 sparked progress by raising the awareness of the general public, health-care professionals and policy-makers. Supporting countries to develop national action plans and encouraging political commitment remain high priorities for the Region, as is linking to global priorities and networks.

**Need for holistic, multisectoral national action plans**

National action plans are essential for implementing incremental and sustainable progress towards containing antimicrobial resistance. The global action plan calls on countries to commit to developing multisectoral national action plans by 2017. Multisectoral action plans provide the legal framework to plan a comprehensive strategy outlining what has to be done, how it should be done and by whom, with a monitoring system to encourage accountability and measure results. The national action plan also helps to mobilize financial and human resources.

In a 2014 study, only four countries in the Region had a national action plan to contain antimicrobial resistance, although national mechanisms, for example focal points, were common. As the call to action has become more urgent, so progress within countries in the Western Pacific is under way. By the end of 2015, 12 countries had either launched or were developing a national action plan. The following page give examples of progress being made at the national level in Australia, Fiji and the Philippines in developing action plans to combat antimicrobial resistance.
First National Antimicrobial Resistance Strategy

In 2013, the Australian One Health Antimicrobial Resistance Colloquium was convened by the Antimicrobial Resistance Prevention and Containment Steering Group to bring together medical, veterinary and agriculture professionals and policy-makers to inform a national “One Health” strategy. The first plan – launched in Australia in 2015 – largely focuses on bacterial resistance and outlines seven objectives identifying the broad areas where integrated and simultaneous action is required.

Australia’s plan, which is aligned with the WHO global action plan, highlights successful initiatives where work should be continued, and identifies gaps and challenges for future work. For example, Australia is a world leader in mandated requirements for infection prevention and control and antimicrobial stewardship in hospitals, which plays a significant role in helping to improve the appropriateness of antimicrobial usage. On the other hand, a 2014 poll in Australia indicated that 65% of people believed that taking antibiotics would help them recover from their cold or influenza more quickly. Efforts such as participating in Antibiotic Awareness Week have been undertaken and will continue to promote a greater understanding of antibiotic resistance and the responsible use of antibiotics.
In 2015 Australia launched its first National Antimicrobial Resistance Strategy.
National Antimicrobial Resistance Plan

The Ministry of Health and Medical Services of Fiji has identified antimicrobial resistance as a priority health issue. While only moderate rates of resistant bacteria have been detected within the country, a situation analysis revealed many malpractices and flaws in the health system that would inevitably lead to increased rates of resistance. For example, overuse of the antibiotic amoxicillin was common, as it had become identified as an all-purpose painkiller by the general public. Stock-outs of essential medicines were also reported, leading to the unavailability of first- and second-line antibiotics, resulting in inappropriate prescribing of third- or last-resort antibiotics.

The Ministry of Health and Medical Services initiated a process to prevent antimicrobial resistance from gaining a foothold. A series of workshops led to the development of a framework for a multistakeholder approach to combat antimicrobial resistance. Using existing national, regional and global action plans and a detailed country situational analysis on antimicrobial resistance as a guide, Fiji’s National Antimicrobial Resistance Plan was launched during Antibiotic Awareness Week in 2015. The action plan was officially launched by the Minister for Health and Medical Services and the Director of Pacific Technical Support/WHO Representative in the South Pacific. The multisectoral national action plan, the first in the Pacific, will be augmented by a strategic operational plan to be undertaken by the National Antimicrobial Resistance Committee, which will delineate actions, responsibilities, budget and an evaluation framework for the national action plan.
Fiji’s national plan to combat antimicrobial resistance is officially launched during the ribbon cutting by Minister Jone Usamate and the Director of Pacific Technical Support/WHO Representative in the South Pacific, Dr Liu Yunguo.
Action Plan to Combat Antimicrobial Resistance: One Health Approach

The Antimicrobial Resistance Surveillance Programme of the Department of Health of the Philippines provided evidence of increasing rates of resistance among various pathogens. The rate of multidrug-resistant tuberculosis in the Philippines – sixth highest in the world – was especially alarming. As a consequence, a presidential order in 2014 called for the formation of an interagency committee to develop and implement a national action plan to combat antimicrobial resistance in the Philippines. Understanding the need for a multifaceted approach, the committee included representatives from the Department of Health, Department of Agriculture, Department of Trade and Industry, Department of Interior and Local Government, and Department of Science and Technology.

Over the following two years, the interagency committee worked to develop the Philippine Action Plan to Combat Antimicrobial Resistance. The multifaceted strategy consolidates the previously fragmented efforts into a holistic and comprehensive plan calling for political commitment and leadership to protect the nation from antimicrobial resistance. In line with the WHO six-point policy package to contain drug resistance, the action plan specifies the strategies, activities, goals and budgetary requirements to control and prevent antimicrobial resistance and monitor progress through use of outcome indicators.

During Antibiotic Awareness Week, 2015, the Department of Health of the Philippines officially launched the national action plan with the first Antimicrobial Resistance Summit. The event celebrated the collaborative work of many government sectors and international and local partners in realizing the plan.
Members of the Philippine Interagency Committee on Antimicrobial Resistance, alongside WHO Regional Director for the Western Pacific, Dr Shin Young-soo, officially launch the Philippine Action Plan to Combat Antimicrobial Resistance at the first Antimicrobial Resistance Summit in the Philippines in November 2015.