Global Action Plan on Antimicrobial Resistance: two years of progress

The two years since the adoption of the Global Action Plan on Antimicrobial Resistance by the World Health Assembly in 2015 have seen intense levels of activity – in countries across all regions and at all levels of WHO, as well as within its tripartite partners, the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE). Many of the strategies, policies and systems that will drive forward implementation of the action plan are now in place. In adopting the Global Action Plan, the World Health Assembly urged all Member States to put in place their own comprehensive, multi-sectoral national action plans by May 2017. The collective resolve of governments was underlined still further in September 2016 with the Political Declaration of the United Nations General Assembly (71/3).

“In the next three years, the AMR Secretariat will focus its efforts on supporting regional and country offices in their work towards prevention and containment of antimicrobial resistance. We are proud to see more and more Member States adopt national action plans, but these plans must be effectively implemented for the real change to occur. We will continue to work with our colleagues in regions and countries to build a safer world for future generations.”

Marc Sprenger, Director of AMR

In just two years, progress has been outstanding in all regions. Today almost 95% of the world’s population live in a country that has, or is finalizing its own national action plan for antimicrobial resistance, an achievement that reflects both a recognition of the urgency of the problem, and the determination of Member States to take action to fight antimicrobial resistance.

Some countries have yet to complete their national action plans and WHO, FAO and OIE stand ready to provide the technical assistance where needed to complete this challenging endeavour. But for most, the focus now is on implementation – converting these plans into sustained action and putting in place the policies and ways of working that will prevent resistance from spreading and gradually change the way we all use antimicrobial medicines. The agenda is ambitious and multi-sectoral plans inevitably pose significant challenges for countries in bringing together parties from many sectors, with little previous experience of working together.

WHO, FAO and OIE are providing direct support to countries in cross-sectoral coordination and advising governments on priority setting, particularly where resources are scarce. Tools and guidance are being developed that can be adapted to each country’s specific context. As countries move forward with implementation, they are encouraged to share their experiences and ideas through communities of practices, to help build an evidence base of tried and tested interventions.
Work is now moving ahead to monitor progress, to help track how countries and organizations are progressing towards meeting the five objectives of the Global Action Plan. WHO, FAO and OIE have conducted an initial survey among all Member States, the results of which are now available online. Consensus is now needed on a far-reaching and comprehensive monitoring framework based on a One Health approach, with defined measures of impact and outcome and a clear set of agreed indicators. June 2017 will see experts from across the regions come together to offer their initial advice, to be followed by an open process of consultation over three months.

This briefing note provides an overview of ongoing activities under each of the five objectives of the Global Action Plan and highlights priority areas for the coming biennium.

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

Despite the significant progress of the past two years, overall awareness and understanding of antimicrobial resistance is still alarmingly low in all countries. WHO is scaling up its advocacy efforts, taking every opportunity to spotlight the issue and demonstrate how everyone can make a difference. The ongoing global campaign “**Antibiotics: handle with care**” culminates each year in November with a week of activities around the world. WHO is expanding its toolkit of campaign materials and is encouraging all countries to join the campaign and share their success stories, from large-scale national public information programmes, to grass-roots community movements. But converting increased awareness into genuine behaviour change is challenging and complex. WHO is actively seeking the guidance of experts beyond its traditional public health partners, to explore innovative ways of reaching populations to effect behaviour change, as well as how best WHO can shape and deliver its messages, and provide the right support to countries for their own campaigns.

Partners play a vital role in amplifying, disseminating and adapting core messages on antimicrobial resistance to have relevance for a far wider audience than WHO could reach alone. WHO is working with health professional associations around the world, as well as a wide range of nongovernmental organizations with constituencies beyond the traditional public health community. Embedding an understanding of antimicrobial resistance within pre- and in-service professional training is critical. WHO is developing a global competency framework that can be used to shape training curricula. The competency framework will set out the minimum level of information about antimicrobial resistance that every professional training course, for any cadre of health-care worker, should include. The framework will address general principles on how antibiotics should be used, and will include adaptation of existing and new guidelines on infection prevention and control measures. Where gaps exist, new training material and tools will be added. A knowledge repository on antimicrobial resistance is being developed, providing a facility for dialogue and exchange of ideas and challenges, and a valuable resource of expertise.

Longer term, more targeted curricula will be developed aimed at specialized disciplines such as microbiological surveillance. These curricula will be aligned with the relevant guidelines and will require the input and validation of a wide range of stakeholders.
Objective 2: Strengthen the knowledge and evidence base through surveillance and research

The lack of data on antimicrobial resistance placed a spotlight on the urgent need for an integrated global programme for surveillance of antimicrobial resistance across all sectors and, just a few months after the Global Action Plan was adopted, WHO launched the Global Antimicrobial Resistance Surveillance System, known as GLASS. Although global in nature, GLASS is built upon national surveillance systems and structures through which countries collect, analyse and share resistance data with WHO. By May 2017, 37 countries were fully enrolled and a further 11 were completing their enrolment. As well as encouraging the participation of countries which are yet to sign up, WHO is developing the training materials and tools needed to help countries participate fully in GLASS. Improving the capacity of laboratories will be key and WHO is working with a network of Collaborating Centres to support laboratories around the world to undertake this complex and specialized form of surveillance.

The data generated through GLASS will help to build a picture of resistance patterns worldwide, detect new and emerging resistance at an early stage and guide local treatment protocols, as well as providing vital microbiological information for clinicians and their patients. Over time, the data will show how levels of resistance might be changing in response to targeted interventions. The first GLASS report is anticipated in early January 2018, and will present a picture of how countries have progressed in establishing their own national surveillance systems. Moving forward, WHO will continue to work with FAO and OIE to expand GLASS in order to incorporate resistance data from agriculture and animal sectors, thus ensuring that GLASS becomes a truly integrated multi-sectoral surveillance system.

Monitoring how antimicrobial medicines are prescribed, distributed and consumed, presents additional challenges, not just in the human health sector but in all sectors. WHO is developing a tool to enable hospitals and community centres in low and middle-income countries to conduct surveys and report their data to WHO and is collaborating with FAO and OIE to roll out surveillance of use of antimicrobials across other sectors. An early indication on how antimicrobials are being used in a selection of countries is anticipated later this year. Longer term, it is foreseen that the GLASS system will be able to accommodate data on antimicrobial consumption.

New antibiotics are urgently needed, particularly for diseases such as gonorrhoea for which treatment options are perilously scarce. Earlier this year, WHO published its first ever list of antibiotic-resistant “priority pathogens”¹ – a catalogue of 12, previously unrecognized families of bacteria that, in addition to mycobacterium tuberculosis, pose the greatest threat to human health due to increasing antibiotic resistance. The list was drawn up in a bid to guide and promote research and development into new antibiotics. WHO is now mapping the initiatives that are underway and showing promise, and is working with the joint WHO/Drugs for Neglected Disease Initiative (DNDi) Global R&D Antibiotic Partnership (GARDP) to help channel efforts to where the need is greatest. Once new antibiotics

become available the challenge will be to put the policies in place to ensure that access to these new antibiotics is both equitable and appropriate.

If antimicrobials are to be used more sparingly and only when appropriate, new diagnostic tools are urgently needed. Affordable, easy-to-use, robust, point-of-care diagnostics that are on-hand for use in all settings, particularly in low-resourced community health centres, are a powerful tool in the fight against antimicrobial resistance. Not only can they provide a quick and accurate microbiological diagnosis to ensure patients receive the correct treatment at the earliest possible stage, but they prevent the unnecessary use of the wrong antimicrobials for the infection concerned, or when resistance is already established. WHO is proposing to develop a list of essential in vitro diagnostics (EDL) along the lines of the established Essential Medicines List. It is anticipated that the EDL will serve a similar purpose in guiding the procurement decisions of ministries of health and NGOs, improving access to in vitro diagnostics and guiding the safe and rational use of medicines.

**Objective 3: Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures**

Infection prevention and control (IPC) are vital measures in limiting the spread of antimicrobial resistance, but more awareness and understanding is needed about the particular role that poor hygiene practices play in spreading multi-drug resistant pathogens. Sound IPC practices can prevent resistant microbes from being transferred from one patient to another in hospitals and community health centres. More generally, the more we are able to limit the number of infections, the less we are reliant on using antibiotics. And crucially, preventable infections following surgery are happening all too often. Many of these surgical site infections are resistant to commonly used antibiotics and are putting lives at risk. WHO is working through countries’ health systems to ensure that all health-care facilities establish and implement IPC programmes as a matter of routine. WHO is also working closely with countries to embed the core components of effective IPC programmes into national action plans for antimicrobial resistance as well as in training curricula.

Furthermore, the impact that achieving **Sustainable Development Goal 6**[^2], on access to water and sanitation in the home and in health-care facilities, would have on controlling the spread of antimicrobial resistance, cannot be understated. Many infections are easily preventable through access to safe water supply, sanitation and hygiene, but instead antibiotics are used liberally to treat hundreds of millions of cases of diarrhoea each year, and an epidemic of multidrug-resistant typhoid is now sweeping through parts of Africa.

Vaccines too play a crucial role in reducing antimicrobial resistance – expanding their use will prevent infections that would otherwise require treatment with antibiotics. WHO is currently assessing where best to prioritize research and development into new vaccines to prevent those diseases for which we are at risk of increasing treatment failure due to antimicrobial resistance, such as resistant tuberculosis, gonorrhoea and typhoid. The findings of the vaccine prioritization exercise are expected later this year and will be followed by a cost-benefit analysis to help guide investment decisions and build a sustainable business case for the development of new vaccines.

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

This year marks a significant achievement with the launch of the new Essential Medicines List that, for the first time, provides a new categorization of antibiotics. The categorization is designed to improve access to first line antibiotics, while preserving medicines of last resort. WHO will now focus on helping countries to interpret the list to enhance their own stewardship programmes, both in and out of hospital settings, particularly in low-resource settings. But bringing about significant change in the way antibiotics are distributed and prescribed will take concerted political will as well as coordinated efforts to improve health systems. Over the coming two years, WHO will work closely with a selected group of priority countries to pilot tools and guidance and to determine which interventions make a real difference in driving political attention in different settings.

In April 2017 the 5th update of the list of Critically Important Antimicrobials for Human Medicines3, was published reflecting the increasing reliance on colistin to treat serious human infections in many parts of the world, an antimicrobial of “last resort” to which resistance is being transmitted via the food chain. The findings published in the list will form part of the evidence base for a new guideline to be published later this year that will contain specific recommendations on how the effectiveness of these highly important antimicrobials can be preserved, particularly in light of their use in food animals.

The complex and overarching issue of stewardship – namely how antimicrobial medicines can be preserved through appropriate control, distribution and use, while maximizing access for those in need – is a significant area of work for WHO in close collaboration with FAO and OIE. A draft roadmap for the development of an overall global framework is now published4. The three organizations will now focus on developing and refining the overall concept, building each of the elements that will form the global framework, including the challenging question of regulation.

Too little is known and understood on how resistant bacteria and residues are circulating in the environment – in sewage, hospital wastewater, animal manure – and how this is contributing to increased levels of resistance. Likewise, wastewater from factories manufacturing antimicrobials can be heavily polluted, leading to contamination of local bathing and drinking water. WHO is initiating an ambitious global research agenda to improve knowledge and pave the way to new guidelines.

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

The Global Action Plan on Antimicrobial Resistance sets out a far reaching and ambitious agenda. Achieving the objectives will require continued political engagement, as well as long term sustainable investment. The newly established Interagency Coordination Group, co-chaired by the Deputy Secretary-General of the United Nations and the Director-General of WHO, is reaching out to the wider development community and tackling complex questions around multisectoral collaboration and investment needs, as well as building links to the sustainable development goals and the 2030 agenda. Countries are continuing to engage politically, at meetings of the G7 and G20; technically, championing the roll out of global systems and mechanisms and driving forward the global research and development agenda; and financially, providing ongoing support to countries and regions.

WHO acknowledges with gratitude all the support that its Member States have provided over these initial two years and welcomes the ongoing commitment being expressed to help roll out the next decade of hard work in implementing the Global Action Plan. WHO, and its partners FAO and OIE, are now look forward to continuing these efforts – with Member States, partners and supporters – and moving ahead in the fight against antimicrobial resistance.

If you would like further information on any of the activities highlighted in this briefing note or should you wish to contact a technical focal point to discuss the work further, please contact the WHO AMR Secretariat at the email address below.

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www.who.int/antimicrobial-resistance/en/