EXPERT CONSULTATION MEETING ON HEALTH WORKFORCE EDUCATION AND ANTIMICROBIAL RESISTANCE CONTROL

23-24 MARCH 2017, GENEVA
# Table of Contents

Acronyms..........................................................................................................................4

Executive Summary...........................................................................................................5

Introduction.........................................................................................................................5

Expert Consultation Meeting............................................................................................6

Introduction and overview of AMR education initiatives....................................................6

Key messages from session...............................................................................................6

Identifying priority products, initiatives and approaches to strengthen pre-service and in-service AMR education........................................7

Key messages from session...............................................................................................7

Group work activities and outcomes ................................................................................8

Recommendations and follow-up actions..........................................................................10

Conclusion.........................................................................................................................10

Annex.................................................................................................................................11

Meeting concept note.....................................................................................................11

List of participants...........................................................................................................13
### Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMR</td>
<td>Antimicrobial Resistance</td>
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<tr>
<td>AMS</td>
<td>Antimicrobial Stewardship</td>
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<td>EML</td>
<td>Essential Medicines List</td>
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<td>FDI</td>
<td>World Dental Federation</td>
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<td>FIP</td>
<td>International Pharmaceutical Federation</td>
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<td>GAP AMR</td>
<td>Global Action Plan on Antimicrobial Resistance</td>
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<td>HAI</td>
<td>Healthcare Associated Infections</td>
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<tr>
<td>HCWs</td>
<td>Health Care Workers</td>
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<td>HWF</td>
<td>Health Workforce Department</td>
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<tr>
<td>ICM</td>
<td>International Confederation of Midwives</td>
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<tr>
<td>ICN</td>
<td>International Council of Nurses</td>
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<tr>
<td>IPC</td>
<td>Infection Prevention and Control</td>
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<tr>
<td>LMIC</td>
<td>Low- and Middle-Income countries</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
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<tr>
<td>UNGA</td>
<td>United Nations General Assembly</td>
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<tr>
<td>WFME</td>
<td>World Federation for Medical Education</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WMA</td>
<td>World Medical Association</td>
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<tr>
<td>WVA</td>
<td>World Veterinary Association</td>
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Executive Summary

This document provides an overview of the WHO expert consultation meeting on health workforce education and antimicrobial resistance held at the WHO headquarters in Geneva on 23 and 24 March 2017. The overall objective of the meeting was to identify gaps and outline the competencies and education and training tools and resources needed to ensure health workers are adequately educated and trained in antimicrobial use, resistance and stewardship. The goal is to improve health workers’ rational use of antibiotics by facilitating the use of educational resources in national mechanisms for health workers’ pre-service education and in-service training.

The expert group recommended that WHO, in collaboration with partners and identified stakeholders, facilitate the development of the following AMR-related educational tools:

1. Global multidisciplinary competency framework for AMR/AMS education
2. Global prototype curricula for AMR education tailored to according to roles and cadres
3. Global analysis/monitoring tool to assess the situation of AMR education in countries
4. Community of practice housing an AMR knowledge repository and providing a facility for dialogue, exchange, sourcing of expertise and networking on AMR education

The effective implementation and use of the educational products identified in this report can represent a significant contribution to scaling up countries’ ability to achieve the first objective of the WHO Global Action Plan on Antimicrobial Resistance to improve awareness and understanding of antimicrobial resistance through effective communication, education and training.

Introduction

Antimicrobial resistance (AMR) is a major public health, environmental and social concern. Countering AMR requires long-term investments, including financial and technical support for countries, development of new medicines, diagnostic tools, vaccines and strengthening health systems to ensure more appropriate use of and access to antimicrobial agents.

To focus efforts to address this challenge, the World Health Organization and Member States endorsed the Global Action Plan on antimicrobial resistance (GAP AMR) at the 2015 World Health Assembly. The GAP AMR provides a comprehensive agenda across human and animal health and agriculture to tackle AMR. It describes five broad objectives—the first of which is to increase awareness and improve understanding of AMR through effective communication, education and training.

It is widely recognized that the education of health workers in appropriate prescribing, dispensing and use of antibiotics is critical to addressing misuse and over-use, a known driver for the development of AMR. There are a good number of AMR educational curricula and stewardship programmes for health care workers (HCW) in many countries, but gaps remain in terms of the varying quality, standards, effectiveness of implementation and impact. To this end, WHO organized a first meeting with health workforce professional associations in March 2016, in line with

1 http://www.wpro.who.int/entity/drug_resistance/resources/global_action_plan_eng.pdf
with the objectives of the Global Strategy on Human Resources for Health: Workforce 2030,² to discuss ways of scaling up education on antimicrobial prescribing and dispensing to improve antibiotic prescribing practices.

**Expert Consultation Meeting**

On 23 and 24 March 2017, an expert consultation meeting on health workforce education and AMR was held at the WHO headquarters in Geneva. In preparations for the meeting, WHO commissioned a study by the Global Strategy Lab at the University of Ottawa titled “mapping educational opportunities and resources for HCWs to learn about AMR/AMS around the world.” The aim of the study was to identify programs, resources and opportunities for health professional education on AMR and to review existing resources that could be further scaled up or adapted to support the training of HCWs in countries. The meeting was attended by about 30 leading experts on antibiotic use/stewardship. Strategic departments and units within the WHO including the Infection Prevention and Control Unit and the Essential Medicines and Health Products Department also participated. A few external participants and WHO regional offices (EURO and SEARO) participated via WebEx.

**Introduction and overview of AMR education initiatives**

Marcus Sprenger, Director of the WHO AMR Secretariat opened the meeting by describing the role of WHO in coordinating the global response to AMR. He identified that a United Nations Interagency Coordinating Group (IACG) for AMR has been established by the Deputy UN Secretary-General as a follow up to the high-level meeting of the UNGA in September 2016. A multisectoral process in the development and implementation of national AMR action plans is critical for achieving success at country level. A comprehensive approach to developing educational resources that are easily adaptable at country level to address the AMR educational needs of HCWs is required. Identifying educational needs and structuring learning programs should incorporate IPC, essential medicines guidelines, surveillance and other relevant complementary technical competencies. Participants were called to identify how partners and stakeholders can be further empowered to address educational AMR needs for HCWs and to avoid duplication of efforts in the process of identifying outcomes and products of the meeting. Following the opening remarks, the mapping of AMR educational opportunities for HCWs was presented and this was followed by presentations on IPC and essential medicines from WHO colleagues. Open plenary discussions by all the participants ensued thereafter. Highlights from the session are presented below:

**Key messages from session**

- Addressing AMR is high on the global development agenda.
- HCW antibiotic prescribing and dispensing practices are determined and driven by multiple factors, including management and supervision systems, monetary and non-monetary incentives, regulation etc., but adequate expertise and knowledge remain critical.

² [http://apps.who.int/iris/bitstream/10665/250368/1/9789241511131-eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/250368/1/9789241511131-eng.pdf?ua=1)
• Health care students generally feel unprepared to tackle AMR as indicated by the findings of recent studies in some European countries, Africa and India.
• Opportunities exist to develop or adapt standard educational competencies and curricula and to improve the implementation of pre-service and in-service education respectively.
• The demand for AMR educational resources for HCWs can be facilitated by adapting existing AMR educational curricula and related materials that can be incorporated into pre-service education and in-service training.
• The use of more accurate terminology should be encouraged, e.g. by including glossaries in related education products.
• Effective AMR control education and training competency frameworks for HCWs needs to encompass elements of IPC and surveillance competencies.
• Baseline global AMR health workforce competencies or curricula standards relevant to all countries are required, with the option to tailor specific learning programs to the socio-economic development, health service delivery and health workforce configuration in individual countries.
• Health planners could integrate AMR training in the roll out of new health services or programmes (such as Interprofessional Prescribing Quality Circles, Tuberculosis Directly Observed Treatment Short-Term (TB DOTS) and the use of diagnostic tools for chlamydia testing and treatment etc.) to optimize HCWs learning opportunities.

Identifying priority products, initiatives and approaches to strengthen pre-service and in-service AMR education

This session featured an introductory presentation on health workforce perspectives on strengthening pre-service and in-service education and training. It was followed by four other presentations from selected participants. Highlights of the key messages are presented below:

Key messages from session
• In addition to country-specific AMR educational needs for HCWs, wider health systems issues need to be identified and addressed in order to ensure a comprehensive response.
• Local resistance patterns and uneven capacity in countries may make the adaptation of generic frameworks difficult, hence the need for tailored materials built on baseline competencies.
• Good examples of globally relevant AMS competency frameworks for HCWs exist with positive experiences of regional adaptations.
• Population approaches and governance mechanisms need to be included as part of the criteria for developing AMR education tools.
• The implementation of AMS educational programmes in many countries is threatened by a lack of local human resource capacity.
• HCWs with prescribing/dispensing authority should be guided by global minimum professional competencies that allow for collective accountability and behavioural change.
• Global educational AMR resources should be delivered at zero cost to users to ensure increased uptake especially in resource-limited settings.
• Student-led initiatives should be encouraged and included in the development of educational resources to address AMR. Opportunities for mentorship and reverse-mentorship should also be explored.
• Engagement with stakeholders and educational institutions are crucial for the effectiveness of AMS educational education and training programs.
• Cross-disciplinary collaboration and approaches are needed to ensure effective delivery of AMS education and training.
• In developing global educational standards to address AMR, WHO’s added value resides in its convening, knowledge brokering, neutrality and quality assurance functions.
• Education institutions, professional associations, regulators and public health agencies operating at the national level play a critical role in ensuring ownership and uptake in countries.
• Monitoring and evaluation tools should be developed alongside identified global frameworks, standards and products.

Group work activities and outcomes
Participants self-selected into three groups based on three streams of work. Group work sessions were followed by plenary debates and input by participants and WHO colleagues.

Establishing an active community of practice (CoP):
• Rather than a static knowledge repository to collect AMR-related products and tools, an active CoP should be established that includes a mechanism to share evidence of implementation outcomes in addition to tools and guidance documents.
• Opportunities for mentorship and other supportive education strategies should be included as part of the CoP.
• Appointing antibiotic stewardship champions will help to increase ownership at the country level. Partnerships with professional associations could be established for this purpose.
• Competing international and national priorities for addressing AMR need to be managed to ensure the efficiency of governments and national authorities in delivering effective AMR education programmes. WHO’s convening role can be instrumental in generating wider interest.
• Focus should be placed on empowering regional and national networks to further develop their own communities of practice.

Developing basic principles, minimum standards and curricula:
• The engagement of HCWs is a critical first step in the development and implementation of AMR/AMS educational activities
• The expert consultation group can benefit from and should engage with other expert audiences to ensure comprehensiveness of approaches and input
• Community education needs should be considered when developing AMS standards and other resources.
• Evidence from South Africa show that students are keen to acquire the practical aspects of AMS training and not just theoretical knowledge.
• Regulators and regional authorities should peer-review proposed WHO standard tools as well as materials adapted by countries.
• Case-based methods for teaching AMS are popular among students. Teaching methods and materials need to be adjusted to the needs of students.
• Ethical concerns and role clarification on AMS should be clearly indicated in the development of core minimum standards for all HCWs to ensure accountability and effective health service delivery.

**Ensuring effective regulation, management and incentives:**

• The demand for AMS learning can be increased by tailoring educational resources to students’ motivations.
• Integrated Management of AMR (modelled after IMCI in child health) could be a model to foster community engagement.
• Unequal availability of effective monitoring and evaluation tools for the safe prescription of antibiotics need to be addressed.
• Disincentives to limit inappropriate and unnecessary prescription of antibiotics are not widely used and could be introduced according to contextual realities.
• The use of some incentives have had limited success. Financial incentives for instance are known to work in some jurisdictions though they are yet to be evaluated on a global scale—In France, a “pay for performance” programme for the reduction of antibiotic use in outpatients without co-morbidities led to a 6% reduction in the prescription of antibiotics.
• The development of national AMR educational plans should contain guidance on how funding may be distributed between the levels of stewardship programmes in a country
• Case studies and successful models of prescribing incentives to reduce antibiotic use should be made available to countries.
• Framing a competitive environment amongst health care institutions and rewarding compliance with patient safety measures may help reduce antibiotic use at primary care levels.
• Where feasible, collaboration with the private sector/industry should be explored where incentives to promote health and the reduce AMR are aligned.

**Ensuring positive behavioural change for antibiotic prescribing and dispensing:**

• Shared responsibility needs to be built to encourage compliance with best practices and guidelines for antibiotics use among autonomous HCWs.
• Change management should be considered in addition to engagement methods when planning AMS programmes.
• Greater emphasis on AMS leadership training for HCWs and students is needed.
• Actions stemming from declarations/commitments made by Member States is crucial to garner the political momentum needed to change prescribing habits at country level.
• When restrictive measures are applied for antibiotics use, it is important to put measures in place to deal with inadvertent under-treatment that could result.
• Advocacy messages on behavioural change should be tailored to specific health care professions.
• Focus on training of trainers is essential for the scale-up and implementation of AMS programmes in countries.
• Equipping HCWs with the competencies to efficiently communicate and manage patient pressure is important to address antibiotics overuse.

Recommendations and follow-up actions

The expert group recommended that WHO, in collaboration with partners and identified stakeholders, facilitate the development of the following AMR-related educational tools:

1. Global multidisciplinary competency framework for AMR/AMS education
2. Global prototype curricula for AMR education tailored to according to roles and cadres
3. Global analysis/monitoring tool to assess the situation of AMR education in countries
4. Community of practice housing an AMR knowledge repository and providing a facility for dialogue, exchange, sourcing of expertise and networking on AMR education

Conclusion

Ensuring global traction to implement education and training on antimicrobial use, resistance and stewardship for HCWs is fundamental to securing the health of populations. The implementation of the recommendations outlined in this report can significantly contribute to countries’ ability to achieve the first objective of the GAP AMR, and increase the appropriate use of antimicrobials. Educational resources for AMS should be carefully integrated with related initiatives, and linked to the IPC and Patient Safety agenda, whilst maintaining an adequate level of focus on AMR competencies. Ultimately the goal is to ensure HCWs rational use of antibiotics by embedding these educational resources (such as training curricula and syllabi, licensing and certification mechanisms, competencies assessment and supervision strategies) in national mechanisms for health workers’ pre-service education and in-service training.
Annex

Meeting concept note

WHO expert consultation meeting on health workforce education and antimicrobial resistance control
23 and 24 March 2017, WHO Headquarters, Geneva, Switzerland

Background
Antimicrobial Resistance (AMR) is a major public health concern that is threatening to reverse the gains of the MDGs whilst endangering the achievement of the SDGs. The Global Action plan to address AMR was approved by the World Health Assembly in 2015. The first objective of this plan is to increase awareness and improve the educational provision of health workers on the issue. As countries develop their own national action plans, many include addressing pre and in service training. To avoid duplication, and to facilitate these actions WHO is convening an expert consultation on 23 and 24 March 2017, to review resources and requirements for health worker education around antimicrobial resistance and with a specific focus on appropriate use. A study titled “Mapping Educational Opportunities and Resources for Health Care Workers to Learn about Antimicrobial Resistance and Stewardship around the World”, commissioned by WHO and conducted by the Global Strategy Lab at the University of Ottawa, will be presented at the meeting and shall inform its deliberations.

Rationale
Antimicrobial resistance affects all areas of health, involves many sectors and has an impact on the whole of society. It is a drain on the global economy with economic losses due to reduced productivity caused by sickness (of both human beings and animals) and higher costs of treatment. Countering AMR needs long-term investment, such as financial and technical support for developing countries and in development of new medicines, diagnostic tools, vaccines and other interventions including strengthening health systems to ensure more appropriate use of and access to antimicrobial agents. There are known gaps in the development and standardization of pre-service and in-service AMR educational curricula and programmes for health workers across different settings. To address this, the WHO global action plan on antimicrobial resistance control (GAP AMR) aims to improve awareness and understanding of antimicrobial resistance through effective communication, education and training, as its first objective. The plan states that Member States should make AMR a core component of professional education, training, certification, continuing education and development in the health and veterinary sectors and agricultural practice to help to ensure proper understanding and awareness among professionals. Ensuring the availability of competent health workers is also integral to the fundamentals of the global strategy on human resources for health: Workforce 2030, and the objectives of the outcome report of the UN High-level Commission on Health and Economic Growth as global guiding policies for health workforce development.

3 http://www.wpro.who.int/entity/drug_resistance/resources/global_action_plan_eng.pdf
4 http://apps.who.int/iris/bitstream/10665/250368/1/9789241511131-eng.pdf?ua=1
5 http://www.who.int/hrh/com-heeg/reports/en/
Objectives

The main objective of the meeting shall be to outline the needs and define the tools/resources required to ensure that health workers are adequately educated and/or trained to competence levels required for effective antibiotic stewardship to limit antimicrobial resistance.

The sub-objectives of the meeting shall include:

I. To agree on a standardized approach and tools required to develop comprehensive pre-service health workforce educational curricula for AMR control;

II. Highlight emerging areas of health workforce educational needs and devise a plan to strengthen in-service training for AMR control;

III. Outline an implementation strategy and identify drivers in regions and countries for the dissemination of prospective tools to be developed.

Outcomes

I. Outline of standardized framework for developing pre-service and in-service AMR educational curricula;

II. List of tools/resources to be developed and/or adapted in the light of latest evidence and expert recommendations;

III. Outline of a comprehensive implementation strategy to disseminate tools.

Format

The meeting shall consist of around 30 external experts, representatives of professional associations and attending WHO staff from headquarters and regional offices. The working language of the meeting shall be in English and no interpretation will be provided. Selected participants shall be invited to give presentations related to the stated objectives of the meeting. This shall be followed by plenary sessions and group work discussions. The group work sessions will be focussed on achieving the outcomes of the meeting.

Venue

The meeting will be held within WHO headquarters in Geneva. More specific details will be sent out later with an annotated agenda.
List of participants

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