STUDY GUIDE

World Health Organization

Topic A: Improving Maternal Health on the African Continent

Topic B: Preventing the Spread of Antibiotic Resistance by Strengthening the Role of Health-care Providers

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WORDS OF WELCOME

A Warm Welcome to the World Health Organization Committee

From our MUN experiences, we can safely say that there is nothing better than thorough research.

Although we look forward to witnessing your skills in rhetoric and diplomacy, we must emphasize the importance of in-depth research. We have therefore written this guide in the hope that it will serve as a useful reference point as you go about exploring the two topics. Research and debating in the committee is, of course, only part of the experience.

As your chairs, we look forward not only to seeing you solve extremely serious issues as part of the World Health Organization (WHO) committee, but also to meeting everyone and making the most of the experience. We sincerely hope that this conference will allow you to engage in the world's most pressing topics, make long-lasting friendships and also give you memories and experiences that will remain with you throughout your lives.

Please do not hesitate to contact us if you need any help. Remember to keep an eye out for news on recent developments.
We look forward to meeting you all!

Warm regards,
Your chairs

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1. World Health Organization

1.1 About World Health Organization

World Health Organization (WHO) is a United Nations specialized agency which was established in 1948 with the aim of fostering international cooperation to improve public health conditions. It inherited specific tasks relating to epidemic control, quarantine measures and drug standardization from the Health Organization of the League of Nations (set up in 1923) and the International Office of Public Health in Paris (established in 1907). WHO was given a broad mandate under its constitution to promote the attainment of "the highest possible level of health" for everyone.

WHO sponsors measures to control epidemics and endemic diseases by promoting various mass campaigns: vaccination programs, instructions on using antibiotics and insecticides, improved laboratory and clinical facilities to enable early diagnosis and prevention, assistance in providing drinking water and sanitation systems, and health education for people living in rural communities.[1]

1.1.1 WHO Priorities

WHO's priorities are as follows:

- Advance universal health coverage: enable countries to provide or expand access to all essential health services and financial protection, and promote universal health coverage.
- Achieve health-related development goals: address unfinished and future challenges relating to maternal and child health; combat HIV, malaria, tuberculosis, and eradicate polio and other neglected tropical diseases once and for all.
- Address the challenge of noncommunicable diseases and mental health, violence and injury, and disabilities.
- Ensure that all countries can detect and respond to acute public health threats listed under the International Health Regulations.
- Increase access to good-quality, safe, efficacious and affordable medical products and services (medicines, vaccines, diagnostics and other health technologies).
- Address social, economic and environmental determinants of health to promote health outcomes and reduce health inequalities within and across countries.[2]

1.1.2 Member States

As WHO is a United Nations agency, all Member States may become WHO Members by accepting its constitution. Other countries may be admitted when their application has been approved by a simple majority vote from the World Health Assembly. Territories which are not responsible for conducting their international relations might be able to join as Associate Members once the

[1] Encyclopaedia Britannica: World Health Organization, https://www.britannica.com/topic/World-Health-Organization

[2] WHO: The Global Guardian of Public Health, http://www.who.int/about/what-we-do/global-guardian-of-public-health.pdf

Member or authority in charge of them has made an application on their behalf. WHO's 194 Members States are grouped according to regional distribution.[3]

1.2 MANDATES AND FUNCTIONS

Since 1948, WHO has been working to improve public health in all parts of the world. WHO also provides leadership, shapes the public health research agenda and stimulates the generation, translation and dissemination of valuable knowledge. In addition, it sets norms and standards and promotes and monitors their implementation, articulates ethical and evidence-based policy options and offers technical support. It catalyses change by building sustainable institutional capacity, monitoring the health situation and assessing health trends.[4]

[3] World Health Organization: http://www.who.int/countries/en/

[4] WHO 2014: Twelfth General Programme of Work: http://apps.who.int/iris/bitstream/10665/112792/1/GPW_2014-2019_eng.pdf?ua=1

2. IMPROVING MATERNAL HEALTH ON THE AFRICAN CONTINENT

2.1 MATERNAL HEALTH IN AFRICA

Maternal health refers to women's health during pregnancy, childbirth and the post-partum period. Whilst motherhood is often a positive and fulfilling experience, for many women it is associated with suffering, illness and even death.[5]

The African Region has large intra-regional disparities in terms of coverage of basic maternal health interventions like antenatal care. While Southern Africa reported almost universal coverage in 2010, in West Africa about one-third of pregnant women did not receive antenatal care visits.

Very early childbearing brings with it heightened health risks for mothers and their children. It is also linked to outcomes such as lower educational attainment and poverty. The African Region continues to have the highest birth rate among adolescents, with approximately 120 births per 1,000 adolescent women.

Increased access to safe, affordable and effective contraception has provided individuals with greater choices and opportunities, so that they can make an informed decision about pregnancy.[6]

2.2 MATERNAL MORTALITY IN AFRICA

2.2.1 MATERNAL MORTALITY RATE IN AFRICA

In Africa, many women suffer from pregnancy-related complications that could have been treated or prevented, and the majority will die needlessly. Most of these deaths could be easily avoided with little or no additional cost, even when resources are limited. However, action must be taken to further develop the skills of health professionals and improve maternity services to create favourable conditions for the mother and child.

2.2.2 MEDICAL CAUSES OF MATERNAL MORTALITY

In developing countries as a whole, maternal mortality ratios range from 55 per 100,000 live births in eastern Asia to 920 per 100,000 in sub-Saharan Africa. In many countries in East, Central and West Africa, maternal mortality exceeds 1,000 deaths per 100,000 live births. The majority of maternal deaths in developing countries happen because of five major direct obstetric complications: haemorrhages, infections, unsafe abortions, hypertension during pregnancy, and obstructed labour. The impact of each of these can vary hugely; nevertheless, intra-partum or post-partum haemorrhages tend to be the leading cause of death, with about a quarter of all deaths attributed to severe bleeding.

[5] WHO: Maternal health, http://www.who.int/topics/maternal_health/en/

[6] WHO: Maternal Health in Africa: http://www.afro.who.int/health-topics/maternal-health

Estimates for deaths from unsafe abortion fluctuate substantially, but the consequences of illegal abortions may still be underestimated. It has been suggested that post-partum sepsis, a condition that carries a huge risk for the mother, may be declining in certain areas.

WHO estimates that approximately 17% of maternal deaths worldwide are due to so-called indirect obstetric causes, including anaemia, cardiovascular diseases and infections.

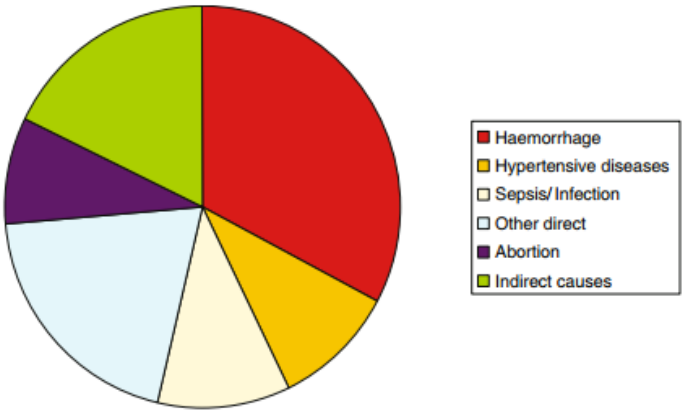

Figure 1: Main medical causes of maternal mortality. Source: Carine Ronsmans, Simon Collin and Véronique Filippi: Maternal Mortality in Developing Countries, http://bit.ly/2BAJm4J

2.2.3 Socioeconomic Causes of Maternal Mortality

Besides direct medical causes, the mother's social and economic environment plays an important role when it comes to explaining and fighting maternal mortality. Structural inequality and social injustice often prevent women from receiving appropriate care. We will now look into some of these factors.

- *Individual and Community-related Factors*

Age

Young mothers are at an especially high risk of poor maternal health, particularly adolescents; this is highly problematic in sub-Saharan Africa, for example, where the birth rate among girls aged 15-19 remains the highest in the world.[7] According to WHO, inefficient reproductive health education, and social pressure contribute to unwanted and risky pregnancy among young girls.[8]

Work and Economic Situation

In low-income and rural areas, many pregnant women work and provide for their families, which can have adverse effects on their health.[9] A lack of funds and health-care coverage means that many families cannot afford professional care, so improving maternal health depends on better health-care services.

Education

Inadequate general education and information on reproductive and maternal health can have major repercussions and prevent women from making "healthy choices".[10] It is therefore essential to raise awareness about maternal health in remote communities.

[7] WHO: Factsheet – Adolescent Pregnancy, http://www.who.int/mediacentre/factsheets/fs364/en/

[8] ibid.

[9] WHO 2010: Working with Individuals, Families and Communities to Improve Maternal and Newborn Health, http://apps.who.int/iris/bitstream/10665/84547/3/WHO_MPS_09.04_eng.pdf?ua=1, p. 11.

[10] ibid., p. 7, 11.

- *HEALTH SYSTEM-RELATED FACTORS*

Lack of Antenatal Care

Antenatal care is crucial for mothers throughout their pregnancy and it means complications can be detected early on. It can range from lifestyle and nutrition advice to regular examinations.[11] However, WHO estimates that in 2015 only 40% of pregnant women in low-income countries benefited from the four recommended antenatal visits.[12] This is because people are sometimes unable to access close, affordable health services.

Lack of Emergency Transport

This is especially an issue in remote and rural areas when there is an emergency. Communities may lack the funds and "capacities" to transport pregnant women to appropriate facilities, which could lead to complications and life-threatening situations.[13]

Inadequate Health Facilities

The fact that ill-equipped health facilities cannot provide appropriate care is one of the most serious aspects. A shortage of skilled personnel, resources, medicine and blood reserves all contribute to inadequate care for pregnant women.[14] According to WHO, 83% of maternal deaths, stillbirths and newborn deaths could have been avoided with skilled birth attendants.[15]

Lack of Post-partum Care

Care for mothers and newborns after birth is important for improving maternal health. This includes adequate counselling and health-care facilities, as well as follow-up examinations.

2.3 MILLENNIUM DEVELOPMENT GOAL 5

2.3.1 DEFINITION OF MILLENNIUM DEVELOPMENT GOAL 5

Goal 5 sets out to improve maternal health and was one of eight Millennium Development Goals (MDGs) promoted by the United Nations and the international community. To address the root causes of maternal mortality, Millennium Development Goal 5 included two targets: reducing the maternal mortality ratio by 75% and obtaining universal access to reproductive health.[16]

[11] WHO 2017: Recommendations on Maternal Health, http://apps.who.int/iris/bitstream/10665/259268/1/WHO-MCA-17.10-eng.pdf?ua=1, p. 3-5

[12] WHO: Factsheet – Maternal mortality, http://www.who.int/mediacentre/factsheets/fs348/en/

[13] WHO 2010: Working with Individuals, Families and Communities to Improve Maternal and Newborn Health, http://apps.who.int/iris/bitstream/10665/84547/3/WHO_MPS_09.04_eng.pdf?ua=1, p. 15, 21.

[14] WHO 2016: Standards for Improving Quality of Maternal and Newborn Care in Health Facilities, http://apps.who.int/iris/bitstream/10665/249155/1/9789241511216-eng.pdf?ua=1

[15] WHO: The case for midwifery, http://www.who.int/maternal_child_adolescent/topics/quality-of-care/midwifery/case-for-midwifery/en/

[16] MDG Monitor: MDG 5, http://www.mdgmonitor.org/mdg-5-improve-maternal-health/

2.3.2 Progress of Millennium Development Goal 5 in 2015

While implementing the MDGs had a considerable impact on maternal health in Africa, it did not meet targets. According to a MDG Monitor, only a few countries managed to reduce the maternal mortality ratio by 75%, whilst the ratio in the rest of Africa was the highest in the world.[17]

2.4 Sustainable Development Goal 3

2.4.1 Definition and Link with Maternal Mortality

Maternal health is included in Sustainable Development Goal 3 (SDG 3) which aims to ensure "good health and wellbeing" for all. The Goal focuses primarily on diseases such as AIDS, malaria and tuberculosis. Additionally, it promotes universal health coverage and safe access to medicine.[18]

Reducing maternal mortality is included in Goal 3 targets, and has since informed relevant work undertaken by the United Nations and its agencies. For example, WHO published the report "Strategies toward ending preventable maternal mortality", which looks at achieving the outlined targets.[19]

- **Global Target:**

To reduce the global maternal mortality ratio (MMR) by 2030 to fewer than 70 maternal deaths per 100,000 live births[20] (its current average is 210 worldwide and 289 in Africa).[21]

- **National Targets:**

All countries should reduce their MMR by at least two-thirds compared to their national 2010 level. In addition, no national MMR should be greater than 140 maternal deaths per 100,000 live births.[22]

2.5 WHO and Maternal Health Care in Africa

2.5.1 WHO Actions

WHO focuses on providing research-based evidence and clinical advice, developing standards, assisting countries with capacity building, implementation and monitoring, and supporting health-care providers with information and guidance.[23] Furthermore, as maternal health is dependent on

[17] MDG Monitor: MDG Progress Report of Africa in 2015, http://www.mdgmonitor.org/mdg-progress-report-africa/

[18] SDG Fund: Goal 3: Good health and well-being, http://www.sdgfund.org/goal-3-good-health-and-well-being

[19] WHO 2015: Strategies toward ending preventable maternal mortality, http://apps.who.int/iris/bitstream/10665/153544/1/9789241508483_eng.pdf?ua=1

[20] United Nations: Goal 3, http://www.un.org/sustainabledevelopment/health/

[21] MDG Monitor: MDG Progress Report of Africa in 2015, http://www.mdgmonitor.org/mdg-progress-report-africa/

[22] WHO 2015: Strategies toward ending preventable maternal mortality, http://apps.who.int/iris/bitstream/10665/153544/1/9789241508483_eng.pdf?ua=1

[23] WHO: Factsheet – Maternal mortality: http://www.who.int/mediacentre/factsheets/fs348/en/

reproductive health and a well-run health system, the WHO works on reinforcing health coverage and health-related education.

2.5.2 *Possible Actions*

Many strategies for overcoming high maternal mortality rates have been floated, and there have been substantial changes in recent decades. Initial efforts in the 1950s focused on antenatal clinics and maternal education, followed by family planning.

- **Fertility and Family Planning**

One of the targets of SDG 3 is to "achieve universal access to reproductive health", which includes promoting the use of contraceptives. Whilst contraceptive use has risen in many regions such as Latin America and Asia, it remains extremely low in Africa, especially in sub-Saharan Africa.[24] According to WHO, 214 million women of reproductive age in developing countries want to avoid pregnancy but are not using contraceptives. Family planning interventions have been proven to have a direct positive effect, reducing maternal deaths and preventing the transmission of diseases from mother to child; they also provide a number of other benefits such as preventing sexually transmitted diseases and reducing infant mortality.

- **Nutrition and Maternal Health**

Nutrition is crucial during pregnancy as the mother will need more energy and nutrients such as iron, folic acid, zinc and various vitamins. In malnourished populations, more effort must be made to improve pregnant women's diets and to educate communities about their needs.[25]

- **Training Skilled Birth Attendants**

Access to skilled birth attendants, such as midwives, is essential during both the antenatal and postnatal period. These health-care workers can manage "normal" pregnancies (those without complications) and identify and correctly refer complications, which could reduce maternal mortality by 82% if universal coverage were achieved.[26] It goes without saying that this issue is closely related to the availability and accessibility of health-care facilities.

- **Education and Gender Norms**

Education should focus not only on reproductive and maternal health education, but also on educating girls more generally. Women should feel empowered to make informed choices and stand up for their reproductive rights, which include the right to a healthy and safe pregnancy, and access to health services. It will also improve their socioeconomic situation and the overall status of women in communities.

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[24] WHO: Factsheet – Family planning/contraception, http://www.who.int/mediacentre/factsheets/fs351/en/

[25] WHO 2017: Recommendations on Maternal Health, http://apps.who.int/iris/bitstream/10665/259268/1/WHO-MCA-17.10-eng.pdf?ua=1, p. 3-4

[26] WHO: The case for midwifery, http://www.who.int/maternal_child_adolescent/topics/quality-of-care/midwifery/case-for-midwifery/en/

3. PREVENTING THE SPREAD OF ANTIBIOTIC RESISTANCE BY STRENGTHENING THE ROLE OF HEALTH-CARE PROVIDERS

3.1 INTRODUCTION TO THE TOPIC

3.1.1 HISTORICAL BACKGROUND

The development of antibiotics started with Sir Alexander Fleming's discovery of penicillin in 1928. These products transformed modern medicine and have saved millions of lives.[27] They have proven to be an extremely powerful tool to manage bacterial diseases and have been used intensively as such since the 1940s.[28]

3.1.2 KEY DEFINITIONS

Antibiotics (antibacterials) are drugs derived wholly or partially from bacteria or moulds used to treat bacterial infections.[29]

Antibiotic resistance occurs when an antibiotic has lost its ability to effectively control or kill bacterial growth as a natural phenomenon: resistant bacteria continue to multiply in the presence of therapeutic levels of an antibiotic.[30]

[27] Piddock LJ: The crisis of no new antibiotics--what is the way forward?

[28] Sengupta, Chattopadhyay, Grossart 2013: The multifaceted roles of antibiotics and antibiotic resistance in nature, https://www.ncbi.nlm.nih.gov/pubmed/23487476/

[29] Merck Manual: Overview of Antibiotics, http://www.merckmanuals.com/home/infections/antibiotics/antibiotics

[30] Alliance for the Prudent Use of Antibiotics: General Background, http://emerald.tufts.edu/med/apua/about_issue/about_antibioticres.shtml

3.1.3 TIMELINE OF EVENTS

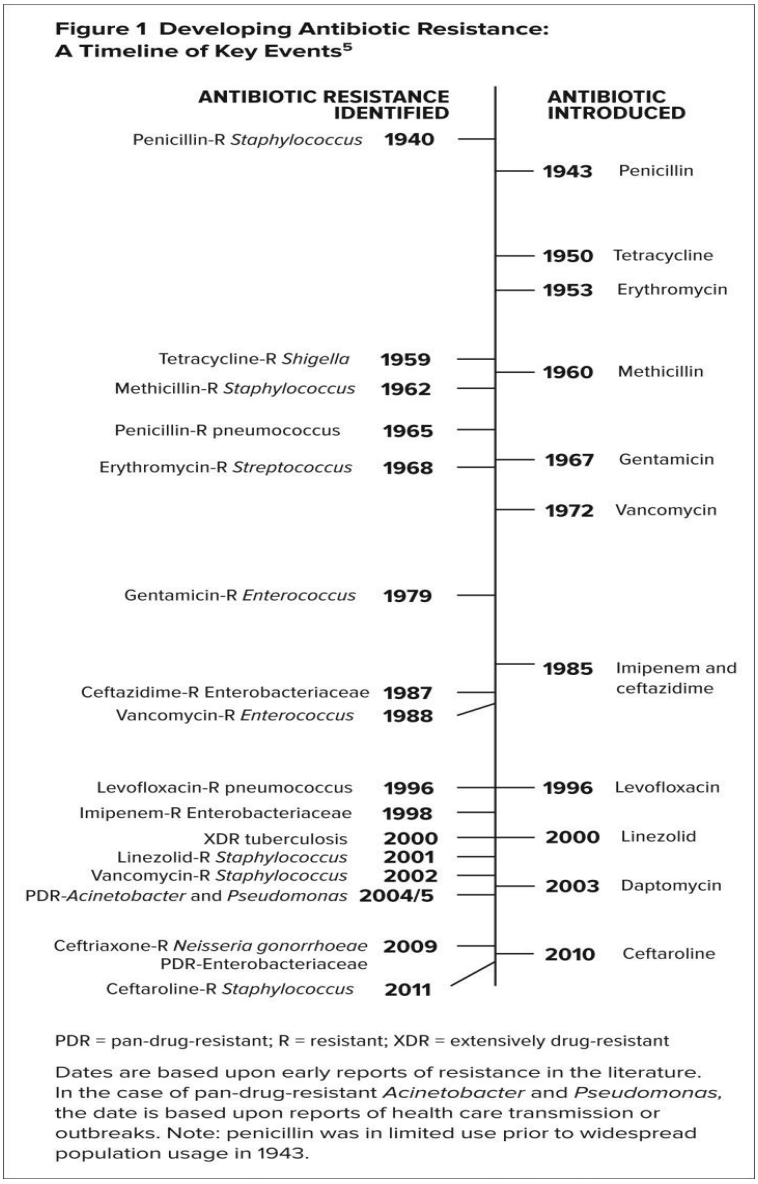

Figure 2: Development of Antibiotic Resistance. Source: http://bit.ly/2k8FWwa

3.2 CAUSES AND EFFECTS OF ANTIBIOTIC RESISTANCE

3.2.1 OVERUSE

As the main cause of antibiotic resistance, special attention should be devoted to the overuse of antibiotics and instances of misuse, such as the use of antibiotics to treat untargeted infections

and ailments such as colds or headaches.[31] Overprescription and public misperceptions of the purpose of antibiotics play a key role.

- **United States of America**

Several scientific analyses have shown the risks associated with overusing antibiotics. In the United States, the overuse of antibiotics is estimated to have contributed to at least 29,000 deaths in a single year, as reported by the US Centers for Disease Control and Prevention. Similarly, the New England Journal of Medicine has found that overprescription of antibiotics increases the number of resistant bacteria.[32]

- **China**

China faces a serious problem of antibiotic overuse: doctors have reportedly prescribed antibiotics to half of all patients, which largely exceeds recommended levels and needs by WHO standards. Public perception and misinformation about the purpose of antibiotics play a key role. The WHO has found that nearly two-thirds of Chinese citizens believed that antibiotics treated colds and flu, and one-third considered them effective against headaches.[33]

According to Reuters (2016), China accounted for half of the global antibiotic consumption in 2013. The WHO estimates that this might lead to up to a million deaths per year by 2050, therefore, the situation needs to be resolved urgently.

3.2.2 Inappropriate Prescribing

According to a study from the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey, approximately one-third of the 154 million prescriptions for antibiotics written in the United States each year are unnecessary.[34] In India, antibiotic resistance poses a similar problem, with 20-50% of antibiotic use deemed inappropriate by the government. Over time, this can cause previously curable diseases such as tuberculosis to become incurable.[35]
Factors that contribute to this issue are a lack of community awareness, the unchecked prescription of more powerful drugs for inappropriate purposes, and over-the-counter availability of certain antibiotics, which means that patients do not receive qualified advice and information on their use.[36]

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[31] Mayo Clinic: Antibiotics: Misuse puts you and others at risk, https://www.mayoclinic.org/healthy-lifestyle/consumer-health/in-depth/antibiotics/art-20045720

[32] Abutaleb in Scientific American 2015: Overuse of Antibiotics caused Infections by Bug that Killed 29,000 in 1 Year, https://www.scientificamerican.com/article/overuse-of-antibiotics-caused-infections-by-bug-that-killed-29-000-in-1-year/

[33] Reuters 2016: China research highlights country's excess use of antibiotics, https://www.reuters.com/article/us-china-health-antibiotics/china-research-highlights-countrys-excess-use-of-antibiotics-idUSKCN0VV0Y0

[34] Centers for Disease Control and Prevention 2016: 1 in 3 antibiotic prescriptions unnecessary, https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html

[35] Shalini in BMJ 2013: Shalini on India's antibiotic policy, http://blogs.bmj.com/bmj/2013/08/19/shalini-on-indias-antibiotic-policy/

[36] ibid.

3.2.3 AGRICULTURE AND ANTIBIOTIC RESISTANCE

Antibiotics are also used to treat diseases in livestock and crops, as well as to support their growth. While this is a critical aspect in food security, overusing antibiotics in agricultural production can lead to antibiotic resistance, which can endanger humans as well.[37] Preventive use of antibiotics among the entire animal population is essential.

3.2.4 EFFECTS OF ANTIBIOTIC RESISTANCE

Antibiotic resistance represents a risk to human health insofar as dangerous infections become untreatable. According to the WHO, "Antibiotic resistance is present in every country."[38] Bacteria have therefore developed resistance to multiple drugs, which affect the following bacteria and diseases:[39]

- *Klebsiella pneumoniae,* a cause of pneumonia and bloodstream infections, especially among newborns and intensive-care unit patients.
- *E. coli* in urinary tract infections.
- Bacteria that cause gonorrhoea.
- *Staphlylococcus aureus,* which can cause severe infections in hospitals and communities.
- Certain bacteria have become resistant to colistin, a last-resort antibiotic treatment for several infections.
- Multidrug-resistant tuberculosis is a growing issue, with more and more strains of the disease becoming resistant to the most powerful treatments.
- In certain countries of Southeast Asia, malaria has become resistant to widespread antibiotics, which makes treatment more complicated.
- HIV patients are also increasingly affected by resistant strains, making treatment more difficult and expensive.

3.3 ACTIONS AND INVOLVEMENT

3.3.1 PAST WORLD HEALTH ASSEMBLY RESOLUTIONS ON ANTIMICROBIAL USE AND RESISTANCE

1998: WHA A51/9 – Emerging and other communicable diseases: antimicrobial resistance.

2001: WHA A54/17 – Revised drug strategy.

2005: WHA A58/14 – Antimicrobial resistance: a threat to global health security. Rational use of medicines by prescribers and patients.

2007: WHA A60/28 – Progress reports on technical and health matters – Improving the containment of antimicrobial resistance.

2009: Progress report on the rational use of medicines (resolution WHA 60.16, 2007).

[37] FAO 2016: The FAO Action Plan on Antimicrobial Resistance 2016-2020, http://www.fao.org/3/a-i5996e.pdf
[38] WHO: Factsheet – Antimicrobial Resistance, http://www.who.int/mediacentre/factsheets/fs194/en/
[39] ibid.

2014: WHA 67.25 – Antimicrobial resistance.

2015: WHA A68/20 – Antimicrobial resistance. Draft global action plan on antimicrobial resistance.

3.3.2 National Efforts

France, a country that has attempted to actively tackle antibiotic resistance, established a national programme against it in 2000 and has taken several actions since then.[40] The country's consumption of antibiotics both in hospitals and in the community is about 30% higher than other European countries, but its action plans may help solve the issue.

France's plans have targeted different actors such as the public, but more specifically, health-care providers such as hospitals and doctors. Quality indicators and the establishment of "Local Antibiotic Committees" in each hospital to promote appropriate antibiotic use have helped reduce the rate of unnecessary prescriptions.[41] Its most recent plan has focused on patient awareness and standard hygiene measures in health-care facilities to avoid infections.
In addition, the French government has implemented a plan to avoid overprescription and inappropriate use of antibiotics in the veterinary setting.

3.3.3 NGO Involvement

THE ALLIANCE TO SAVE OUR ANTIBIOTICS

As an example, this UK-based organization brings together health, environment and animal welfare groups and focuses on antibiotic use in animal farming. Its activities also relate to the preventative use of antibiotics, which can greatly decrease the risk of resistance. The alliance engages in lobbying and advocacy activities by raising public awareness and engaging with governments.[42]

3.4 Approaches to solve the problem

3.4.1 Regional regulatory efforts

- *EUROPEAN MEDICINES AGENCY*

The European Medicines Agency (EMA) was founded in 1995 and is currently located in London. It has been operating in its current form since 2004 on the basis of Regulation (EC) No 726/2004.[43] The EMA provides advice and assistance to Member States and EU institutions regarding medicinal

[40] AMR Control 2016: The French Approach to Fighting Antibiotic Resistance, http://resistancecontrol.info/2016/government-engagement/the-french-approach-to-fighting-antibiotic-resistance-a-constant-and-coordinated-effort-since-2000/
[41] ibid.
[42] Compassion in World Farming: The Alliance to Save our Antibiotics, http://bit.ly/2j86Hjt
[43] European Parliament: Medicinal Products in the European Union, http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/554174/EPRS_IDA(2015)554174_EN.pdf

products by coordinating research and giving expert opinions on the quality and safety of medicines before they are placed on the market. [44]
The institution draws on research carried out by around 4,500 national experts, who work alongside national regulatory authorities.[45] It can, therefore, efficiently evaluate the quality of medicines, including antibiotics, before the EU institutions give them market authorization. In terms of addressing antibiotic resistance, this procedure is a first step in identifying the quality and scope of certain products, which also influences their use and prescription later on.

3.4.2 UNITES NATIONS CONTRIBUTIONS

- *FOOD AND AGRICULTURE ORGANIZATION*

The Food and Agriculture Organization (FAO) has drawn attention to the influence of agricultural activities on antibiotic resistance by developing a comprehensive action plan, which includes four areas: awareness, evidence, governance and practices.[46] These aspects highlight the different areas that need to be addressed in order to tackle antibiotic resistance and they will be briefly presented here. They focus on antibiotic use in agriculture, which is only one part of the problem, but their approach could be used to address other aspects as well, such as overprescription and misuse of antibiotics.

- Raising awareness: The FAO aims to make stakeholders more aware of the risks and causes of antibiotic resistance by developing new communication tools and by including the issue in high-level discussions.
- Developing capacity for surveillance and monitoring: In order to monitor the use of and the resistance to antibiotics, the FAO aims to develop specific training programmes to spread knowledge among stakeholders, and to include this issue in professional education. In addition, the plan emphasizes the importance of laboratory capacity to examine the question of antibiotic use and residue in food and agricultural production. In line with the French programmes mentioned above (3.3.2), the FAO aims to develop national monitoring systems of antibiotic use and resistance, which are a crucial step in understanding and evaluating the situation.
- Strengthening governance: To help governments make more informed decisions, the FAO aims to offer more studies and expert opinions on the matter, including evaluations of alternatives to antibiotics. Furthermore, the FAO emphasizes the importance of national and regional regulatory frameworks.
- Promoting good practices: The FAO plans to support the implementation of international guidelines and to promote the prudent use of antibiotics in agriculture.

[44] EMA: The European regulatory system for medicines and the European Medicines Agency – A consistent approach to medicines regulation across the European Union, http://www.ema.europa.eu/docs/en_GB/document_library/Leaflet/2014/08/WC500171674.pdf
[45] http://www.ema.europa.eu/ema/index.jsp?curl=pages/about_us/landing/experts.jsp
[46] http://www.fao.org/3/a-i5996e.pdf

- *WORLD HEALTH ORGANIZATION*

In contrast to the FAO, the WHO focuses on patients and the medical system, as shown in figure 3. It also provides technical assistance to countries by developing national action plans, and takes measures to strengthen their general health systems.[47]

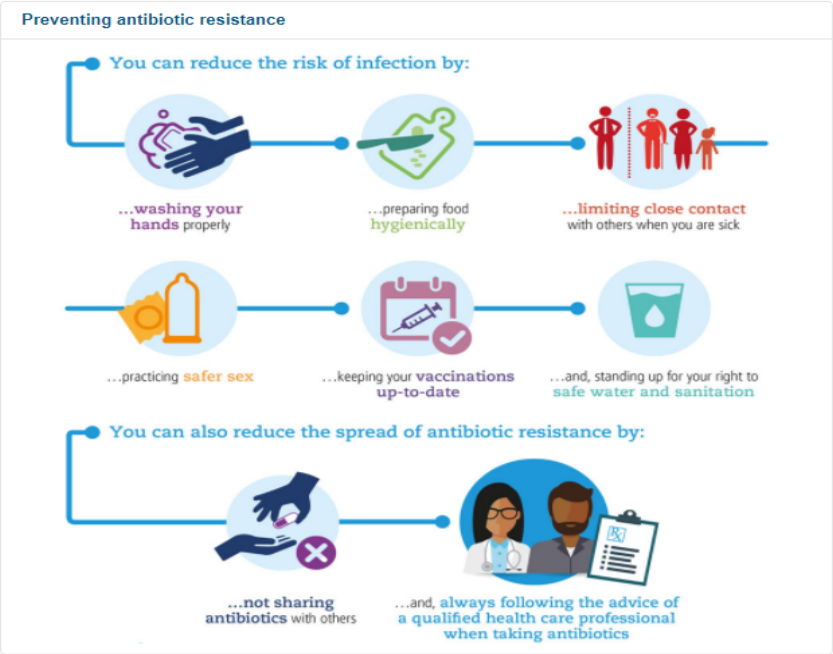

Figure 3: Preventing Antibiotic Resistance. Source: UN News Centre, http://bit.ly/2AII7NI

This aspect is crucial to solving the problem, as a stronger health system with well-informed health-care providers can reduce the risk of antibiotic resistance. It is therefore paramount that healthcare providers (doctors, nurses, hospital and pharmaceutical staff) are well-informed about and aware of the risks and the causes of antibiotic resistance. Measures such as establishing coordination groups in each hospital, as suggested by the French government, can help raise awareness of the problem and prevent overprescription. Most importantly, educated health-care providers can promote the responsible use of antibiotics among patients and their communities, which will lead to changing attitudes and perceptions regarding antibiotics.

The WHO also promotes research activities on antibiotics via the Global Antibiotic Research and Development Partnership (GARDP) and the Global Antimicrobial Resistance Surveillance System (GLASS), a system that supports standardized collection, analysis and sharing of data on antibiotic resistance. This tool could lead to informed policy-making decisions among governments and other stakeholders.

Of course, these approaches need to be coordinated, especially since both agricultural and medical behaviour are factors that lead to antibiotic resistance. The WHO, therefore, takes part in the Interagency Coordination Group on Antimicrobial Resistance (IACG), a group that coordinates the work of United Nation agencies.

[47] http://www.who.int/mediacentre/factsheets/fs194/en/

3.5 QUESTIONS TO BE ANSWERED IN YOUR RESEARCH

- Is your country particularly affected by antibiotic resistance?
- What are your country's past, present and future plans to tackle antibiotic resistance? What was their primary aim and what is their expected outcome?
- How does your government regulate the way health-care providers issue antibiotic prescriptions?
- What role does your country play on an international level when it comes to actions against antibiotic resistance?
- What effective solutions would you propose both at an international and at a local level?
- Which measures can be taken to empower and educate health-care providers in this regard?
- How can we develop a framework that encompasses both agricultural and medical aspects?

4. SUGGESTED READING AND RESEARCH ROADMAP

SUGGESTED READING

- Strategies toward ending preventable maternal mortality (EPMM)
  World Health Organization | February 2015
- Global Strategy for Women's, Children's and Adolescent's Health 2016-2030
  Every Woman, Every Child | 2015
- The Sustainable Development Goals report 2016
  United Nations | 2016
- Indicator and monitoring framework for the Global Strategy for Women's, Children's and Adolescents' Health (2016-2030)
  World Health Organization | 2016
- 2016 Old challenges, new hope: Accountability for the Global Strategy for Women's, Children's and Adolescents' Health
  Independent Accountability Panel | September 2016
- Trends in maternal mortality: 1990 to 2015
  WHO, UNICEF, UNFPA, World Bank Group, United Nations Population Division | November 2015
- Global, regional and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015
  The Lancet | October 2016
- Ending preventable maternal and newborn mortality and stillbirths
  BMJ | September 2015
- Obstetric transition: The pathway towards ending preventable maternal deaths
  BJOG | March 2014
- Ending preventable maternal deaths: The time is now
  The Lancet Global Health | October 2013
- Global initiatives in maternal and newborn health
  SAGE Journals | February 2017

Research Roadmap

Step 1:
Please read this guide thoroughly and do not hesitate to contact us if you have any questions.

Step 2:
After reading this study guide, please refer to the following documents in your research:

- Constitution of the World Health Organization: http://www.who.int/governance/eb/who_constitution_en.pdf
- World Declaration on Health : http://apps.who.int/iris/bitstream/10665/107327/2/EHFA5-F.pdf
- Universal Declaration of Human Rights (DUDH) Article 25:

http://www.ohchr.org/EN/UDHR/Documents/UDHR_Translations/frn.pdf

- Maternal Mortality in Developing Countries, Carine Ronsmans, Simon Collin, and Véronique Filippi: http://www.springer.com/cda/content/document/cda_downloaddocument/9781934115244-c1.pdf?SGWID=0-0-45-577130-p173779428
- Strategies toward ending preventable maternal mortality (EPMM): http://apps.who.int/iris/bitstream/10665/153544/1/9789241508483_eng.pdf?ua=1
- Global Strategy for Women's, Children's and Adolescent's Health 2016-2030: http://www.who.int/entity/life-course/partners/global-strategy/global-strategy-2016-2030/en/index.html
- Trends in maternal mortality: 1990 to 2015: http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1
- World Health Organization. *Health statistics and informatics. Causes of death 2008:* **http://www.who.int/healthinfo/global_burden_disease/cod_2008_sources_methods.pdf**
- World Health Organization. *Improving the containment of antimicrobial resistance*: **apps.who.int/medicinedocs/documents/s16340e/s16340e.pdf.**

Delegates are also invited to browse through the different chapters within these documents at least once to learn about the practical aspects of the World Health Organization.

Step 3:

Video about Maternal Mortality: This video helps you better understand the causes of maternal mortality "Why did Mrs X die?":
https://www.youtube.com/watch?v=WNb9pNymuwQ
Video about Antibiotic Resistance: This video helps you better understand the problems associated with antibiotic resistance.
https://www.youtube.com/watch?v=zENv5EDElgA

Goals of the guide: After reading this study guide, delegates of the World Health Organization committee will be able to:
Know and use the various definitions and concepts related to the topics discussed (health, mortality, etc.) as well as the different approaches presented.
Capable of using the definitions and approaches presented to analyze a health situation and propose solutions taking into account its experience and environment while using the notions of need, offer and demand.

5. BIBLIOGRAPHY

[1] Editors of Encyclopaedia Britannica. “World Health Organization.” Encyclopaedia Britannica Inc. October 27, 2017. Accessed online: https://www.britannica.com/topic/World-Health-Organization
[2] World Health Organization. “The Global Guardian of Public Health.”2016. Accessed online: http://www.who.int/about/what-we-do/global-guardian-of-public-health.pdf
[3] World Health Organization. “Countries.”2017. Accessed online: http://www.who.int/countries/en/
[4] World Health Organization. “TWELFTH GENERAL PROGRAMME OF WORK: Not merely the absence of disease.”2014. Accessed online: http://apps.who.int/iris/bitstream/10665/112792/1/GPW_2014-2019_eng.pdf?ua=1
[5] World Health Organization. “Maternal health.” 2017. Accessed online: http://www.who.int/maternal-health/en/
[6] World Health Organization Regional Office for Africa. “Maternal health.”2017. Accessed online: http://www.afro.who.int/health-topics/maternal-health
[7] Ronsmans, Carine, Simon Collin and Véronique FIlippi. “Maternal Mortality in Developing Countries.” *Springer*. 2008. p. 33- 62. Accessed online: http://www.springer.com/cda/content/document/cda_downloaddocument/9781934115244-c1.pdf?SGWID=0-0-45-577130-p173779428
[8] Khan KS, et al. “WHO systematic review of causes of maternal deaths.” *Lancet*. 2006. Vol. 367. p.1066-1074. Accessed online: http://www.ossyr.org.ar/pdf/bibliografia/2.25.pdf
[9] Sengupta, S., Madhab K Chattopadhyay and Hans-Peter Grossart. “The multifaceted roles of antibiotics and antibiotic resistance in nature.” *Front Microbiol*. March 12, 2013. Accessed online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3594987/
[10] CDC: Centers for Disease Control and Prevention. “CDC: 1 in 3 antibiotic prescriptions unnecessary.” *CDC Newsroom Releases*. May 3, 2016. Accessed online: https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html
[11] Schlecht, Hans P., and Christopher Bruno. “Overview of Antibiotics.” *Merck Manual.* 2017. Accessed online: http://www.merckmanuals.com/home/infections/antibiotics/overview-of-antibiotics
[12] Scholz, Nicole. “Medicinal products in the European Union: The legal framework for medicines for human use.” *European Parliamentary Research Service*. April 2015. Accessed online: http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/554174/EPRS_IDA(2015)554174_EN.pdf
[13] Carlet, Jean, et al. "The French approach to fighting antibiotic resistance: A constant and coordinated effort since 2000. May 19, 2017. Accessed online: http://resistancecontrol.info/2016/government-engagement/the-french-approach-to-fighting-antibiotic-resistance-a-constant-and-coordinated-effort-since-2000/
[14] Food and Agriculture Organization of the United Nations. “The FAO action plan on antimicrobial resistance 2016-2020.” 2016. Accessed online: http://www.fao.org/3/a-i5996e.pdf

[15] United Nations News Centre. “Antibiotic resistance is ‘crisis we cannot ignore’ UN warns, calling for responsible use of these medicines.” November 13, 2017. Accessed online: http://www.un.org/apps/news/story.asp?NewsID=58079#.WkT9VlQ-fVr

6. Countries Represented

Albania
Afghanistan
Burundi
Belgium
Brazil
Canada
Central African Republic
China
Croatia
Democratic Republic of the Congo
Egypt
Ethiopia
Finland
France
Gambia
Germany
Ghana
Greece
Honduras
India
Indonesia
Italy
Kenya
Mexico
Morocco
Netherlands
Nigeria
Russian Federation
Rwanda
Somalia
South Africa
South Sudan
Switzerland
Turkey
Turkmenistan
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United States of America
Vietnam

Observers:
CARE International
Doctors Without Borders
The International Committee of the Red Cross