Introduction

The World Health Organization (WHO) was established in 1948 with the aim of coordinating health affairs between the Member States and the bodies of the United Nations. At the beginning, its focuses were tuberculosis, malaria, venereal disease, among other communicable diseases, but it has now expanded to overseeing and advising different medical areas and the different stages of pharmaceutical production. This organization works alongside its 194 Member States, other UN agencies, non-governmental organizations (NGOs), donors and the private sector to also improve sanitation, nutrition and the health of especially women and children. Despite all these responsibilities, the WHO has no authority in national jurisdictions, meaning that it isn’t its role to closely monitor outbreaks in an individual country, but rather collect and analyse all the reports of these outbreaks.

As stated in the WHO’s Constitution, enjoying the highest standard of health is a fundamental right for everyone, independently of race, political views, religion and economic or social status because it brings peace and security. Indeed, the question of maintaining a ready supply of essential medicine is extremely relevant since less than half of the global population has access to the health services they require. Just 10 years ago, about 13 million people reached extreme poverty from having to pay for their health services on their own and the financial status of many hasn’t improved.

To tackle this question, it is essential to comprehend that there is no health insurance system nor public sector who can afford all of the medicine in the market, so collaboration between different parties and Member States must be achieved. In fact, the WHO director-general of 2010, Dr. Margaret Chan, stated that, “Suspicious that the rules governing international trade in pharmaceutical products are rigged to favour the rich and powerful; that economic interests will trump health concerns,” which shows that there is a great need for equal collaboration in debates regarding global health in order to promote the WHO’s goal of equity and standardization of health systems.
Definition of Key Terms

Essential Medicines

Medicines that satisfy the needs of the global population and not of certain individuals nor geographic areas. In other words, these medicines need to be applicable to common diseases, should be relevant to public health, have already been tested for efficiency and safety in clinical trials and have a good ration between their cost and quality.

Who Essential Medicines Library

There are more documents pertaining this issue than the Essential Medicines List and all of these files can be found in the Essential Medicines Library. These files include systematic reviews, information on nomenclature (which is the process by which the medicine is named), cost indicatives and the standards of quality assurance. This library is especially useful for both nations and institutions who are beginning to build their own list while using that of the WHO as a guideline.

Distribution Systems

Distribution systems are the pathways through which the medicine is transported from the pharmaceutical companies to the consumers. There are two types of distribution system: pull and push. The pull system relies on the requests sent from lower levels to warehouses and/or individual health facilities, who are then responsible for transporting and carrying out these requests. On the other hand, push systems are mainly used in emergencies (which can range between the lack of employees to a lack of storage space for the medical products). During these emergencies, products are sent from the higher levels and are then distributed directly to the health facilities. Nevertheless, there are instances in which these two systems are fused, such as subsidiary stores.

Medicine Management Cycle

This is the cycle suggested by the WHO to reduce the possibility of lacking medicines, to ensure that their acquisition is safe and to establish a global framework.
Current Good Manufacturing Practices (CGMP)

The WHO first drafted and adopted the text on Good Manufacturing Practices in 1968. One year later, this text was then included as part of the WHO Certification Scheme by the World Health Assembly. Currently, more than 100 nations have incorporated the GMP into their national laws concerning the health sector. Essentially, the GMP assures the quality of medicinal products and attempts to standardize production worldwide by defining general measures to test products and encouraging the validation, review and documentation of these practices. Additionally, the GMP also contains advices to pharmaceutical personnel concerning the maintenance of the premises and the materials used. Finally, this text can be used as a legal guideline that covers the responsibilities that come with distributing, manufacturing and testing medicine, as well as how to handle complaints and medical defects.

Millennium Development Goals

The Millennium Development Goals (MDGs) are eight goals agreed upon by 191 Member States of the United Nations at the start of the millennium and which were supposed to reached by 2015. The goals that apply to the issue at hand are reducing child mortality, improving maternal health and combating diseases such as HIV/AIDS, malaria, among others. Nevertheless, all the MDGs are related to health. For instance, it targets the eradication of hunger, which leads to more nutrition and, hence, improves health. Likewise, another goal promoted gender equality, which highlights the disparity between the access to medicine between men and women.

Central Medical Stores (CMS)

Central Medical Stores are the centre of the network of all central stocks and their aim is to serve the public (their main client being the government). They can be governmental or autonomous, but the government will always oversight them. Overall, it is inside these facilities where the distribution is planned, but also its quantification and procurement.

Communicable Diseases

Communicable diseases are also known as infectious diseases and they are a result of the direct or indirect spread of microorganisms (namely viruses and parasites). Some examples are tuberculosis, viral hepatitis and influenza. On the other hand, non-communicable diseases are
known as chronic diseases and they can result from varied factors such as physiology, genetics, behaviours and the environment. Known examples include cardiovascular diseases, chronic respiratory diseases, diabetes and cancer.

Background Information

Advantages of the list of essential medicines

The first advantage is that this list is globally applicable, so it aims to standardize the consumption and availability of medicine, attempting to promote equity between Member States. Secondly, the selection of the medicine is carefully done and narrowed down to a limited range, so nations who adhere to this list have a better management of medicines and a higher equality care, which are two factors that result in a more cost-effective use of these pharmaceuticals.

Despite the global advantages, this list is especially beneficial to Less Economically Developed Countries (LEDCs). Not only does following this list bring real health benefits, it also increases the public’s trust on the government because there is transparency and collaboration.

Challenges the list of essential medicines has to overcome

One of the biggest existing problems with the list is the general public’s lack of access to it, which leads to unreasonable and poorly dosed consumption. Indeed, about 30% of the global population doesn’t have regular access to essential medicines and this number rises to 50% in LEDCs in Africa and Asia.

Additionally, some of the medicine that is identified as being essential is of poor quality or isn’t available in all geographic regions, so the current list fails to address some of the needs to local areas, which increases the prices of treatments that require those medicines. For instance, only 34 out of the 54 African states host pharmaceutical production, so just less than 2% of all the drugs consumed in Africa were locally produced, which brings problems for those who cannot afford transportation and those who can’t afford imported medication. This problem poses grave consequences, as seen by the fact that 50% of children younger than 5 years old who die of measles, diarrhoea, HIV, malaria and tuberculosis live in Africa. Those who are most desperate and who don’t have access to the essential medicines are administrated painkillers as an alternative, or as they call it, a “treat-all drug”. Another example is Uganda, where treating a child with malaria using artemisinin can have a cost similar to a household’s income of 11 days.
The WHO’s List of Essential Medicines also requires modifications to address emerging epidemics (such as HIV/AIDS) and stop the spreading of infectious diseases (namely malaria and tuberculosis). Finally, the list doesn’t give enough attention to antimicrobial resistance.

Problems with the data collected to draft the list

Since distribution data is considered when the list is drafted and modified, the list doesn’t accurately represent the needs of the population because there is never a complete consumption of all the distributed medicine from CMS.

The discrepancies in the data are also a result of neglecting changes in demand due to the seasons. For instance, medicine to fight colds has a higher demand during cold seasons, while medicine to combat mosquito-borne diseases is more popular during warmer seasons. By disregarding the importance of seasons, there can be a scarcity of products when they are most needed, as well as a surplus of medicine when it is unneeded (which can lead to its expiration). On the other hand, the list relies on morbidity (which is the rate of a disease in a specific population), so the medicine it lists is only enough to help those already sick and doesn’t consider future patients.

Finally, the list doesn’t look into the financial situations of specific Member States, but rather the needs of the global population. Indeed, a study conducted in Tanzania showed that only half of the population affirms that the list is compliable with its financial situation.

Problems with procurement and distribution

In order to ensure the public’s accessibility to the medication, the transportation should be efficient and organized. Therefore, there should be a minimum amount of supply systems, so that they coordinate themselves faster and with less confusion. Additionally, by decreasing the amount of supply systems the diverse number of different stock management tools (which are usually unique to each supply system) decreases, so the employees will be less overwhelmed and more motivated. An example of a Member State who has an excess of supply systems is Burundi, who has 22 procurement agents for just 25 partners, which leads to lack of coordination between these different networks. Likewise, in Tanzania, 60% of bilateral partners have personal procurement agents, while 54% also have personal distributors. Plus, if there are a lot of procurement agents, an unnecessary amount of money is used in the procuring stage, which leaves a smaller budget to purchase the products.

Investments on pharmaceuticals worldwide

One of the reasons why the availability of pharmaceuticals differs between nations is because they make different investments in the health sector. In developed countries, less than 20% of the total
spending is invested in the health sector, in transitional economies the investments range between 15% and 30%, while in developing countries it is between 25% and 66%. From another perspective, the medicine budget in 38 developing countries is as low as $2 per person every year. Bear in mind that these values account for both the public and the private sector.

A problem related with these investments is that already developed countries’ medicine expenditure rises about 10-18% yearly, which is faster than the annual GNP growth and faster than the consumer price index’s rise. This is a consequence of two factors: an overall increase in the consumption of medicine in these countries (which suggests that patients are ill informed or not informed at all) and the much higher prices attributed to new medicines (which implies that age and innovation are prioritized over efficacy).

Major Countries and Organizations Involved

Joint UN Programme on HIV/AIDS (UNAIDS)

This UN body is the leading global effort working to stop AIDS from being a public threat until 2030, in order to comply with the Sustainable Development Goals. This organization encourages people affected by the virus to not only design but also monitor solutions and responses to AIDS. Meanwhile, the organization is in charge of addressing the legal and political barriers to these responses. Furthermore, it oversees collecting extensive data on not only the virus, but the finances. As such, the UNAIDS keeps reminding and calling upon governments to reduce the prices and medicine in order to make them more accessible. To achieve this, the UNAIDS has proposed the 90-90-90 program, which aims to have 90% of people living with HIV to know their HIV status, to access treatment and to have their virus suppressed.

United Nations Population Fund (UNFPA)

This UN body’s goal is to support reproductive rights, as well as the health of adolescents and mothers. The UNFPA aims to ensure that every childbirth is safe, every young adult’s potential is fulfilled, and all the pregnancies are carried out willingly. Hence, it works in more than 150 different countries, give access to contraceptives to 20 million women yearly, deliver safe birth supplies (as well as other life-saving materials) to victims of natural disasters of conflicts, as well as collects and analyzes data to develop better plans to increase accessibility to medicine (especially that for sexual and reproductive purposes).
This organization should be looked into regarding procurement and supply chains, since it is recognized by the DFID for improving the efficiency of these two key factors, as well as ensures the quality of all the reproductive health commodities around the world. Additionally, it has been successful and has received positive ratings from costumers regarding the procurement processes.

UNICEF – health-related activities of the UN Children’s Fund

This is another UN body that works in over 190 countries with the goal of saving children’s lives, as well as defend their right, including their right to a high standard of health. Indeed, UNICEF funds research to increase the amount of child-size medicines available, as well as formulas designed for just children, since more than 50% of medicines prescribed for children have either not been proven effective nor safe and were not developed specifically for this age range. It also calls for more pediatric clinical trials and a price reduction in medicines for the youth. Indeed, this inspired the WHO to lead the 2007 initiative “make medicines child size”. UNICEF also partakes in the procurement of medicines, such that it procured $151.3 million worth of pharmaceuticals, with iron, folic acid tables and anti-infectives being the most demanded products. To facilitate the procurement and the distribution, UNICEF has founded the Supply Division, which is a member of the Inter-Agency Pharmaceutical Co-ordination Group.

Timeline of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of event</th>
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<tbody>
<tr>
<td>1948</td>
<td>Establishment of the World Health Organization (WHO).</td>
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<td>1950</td>
<td>WHO becomes responsible for advising countries on the use of present-day antibiotics.</td>
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<td>1952-1957</td>
<td>Discovery of polio vaccines which leads to the WHO’s international campaign to eradicate this disease.</td>
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<td>1963</td>
<td>The vaccine against measles is available.</td>
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<td>1968</td>
<td>Adoption of the WHO’s first draft on Good Manufacturing Practices.</td>
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<tr>
<td>1969</td>
<td>Establishment of the first International Health Regulations, which is an agreement between the Member States of the WHO in order to work together on 6 infectious diseases: the plague, cholera, smallpox, typhus, yellow fever and relapsing fever.</td>
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1974  Founding of the WHO’s Expanded Programme on Immunization which aims to distribute life-saving medicine to children all around the world.

1975  Founding of the WHO’s Special Programme for Research and Training in Tropical Diseases.

1977  Publishing of the first List of Essential Medicines with 208 individual medicines.

1978  The International Conference on Primary Health Care is hosted in Kazakhstan and sets the WHO’s goal of universal health coverage, which is known as “Health for All”.

1979  As a result of the WHO’s 12-year campaign to promote vaccination, smallpox is eradicated.

1983-1987  Discovery of AIDS virus, as well as the launch and license of the first antiretroviral medication to control HIV

1988  Establishment of The Global Polio Eradication at a time when this condition has paralyzed more than 350,000 people a year.

1995  Launch of strategy to end tuberculosis.

2001  Founding of The Global Fund against AIDS, Tuberculosis and Malaria.

2008  Work efforts shift from working with infectious diseases to noncommunicable diseases, as a result of the World Health Statistics’ studies.

2009  The WHO starts developing a vaccine for the newly risen Influenza virus.

2010  WHO makes public a plan to remove financial barriers to acquire medicine as well as to increase the availability of these products. Hence, the priority becomes to grant access to essential health services.

2012  Member States of the WHO set targets to aid with the prevention and control of noncommunicable diseases, such as diabetes, heart diseases and cancer.

2014  The WHO send experts and equipment to West Africa, in order to combat the biggest outbreak of the Ebola virus.
Despite the WHO’s announcement of Ebola’s eradication, the Zika virus rises and becomes a public emergency in the health field.

The WHO redirects its mission towards implementing universal health coverage.

**Relevant UN Treaties and Events**

- Constitution of the World Health Organization, 1948
- Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement) with the 2005 Amendment by the World Trade Organization (WTO)
- European Parliament resolution of 2 March 2017 on EU options for improving access to medicines (2016/2057(INI))
- Fact Sheet No. 31 on The Right to Health by UNHCHR, June 2009

**Previous Attempts to solve the Issue**

**Steps to Increase Local Production of Medicine**

In order to decrease the prices of medication and to make it more affordable for the general public, some Member States are investing in local pharmaceutical production. For instance, Morocco is now the second largest producer of pharmaceuticals in Africa and hosts 40 pharmaceutical companies. As a result, Morocco’s medicine exportations have decreased because 70% of all the medicine it produces is locally consumed. Other examples of countries who are following a similar path are Egypt, South Africa, Tunisia, Kenya, Ghana, Tanzania and Nigeria.

**Product Development Partnerships (PDPs)**

PDPs were first directed at neglected tropical diseases (NTDs) when the company Merck & Co donated ivermectin to treat river blindness in 1987. Instead of distributing this donation by itself, it collaborated with the African Programme for Onchocerciasis Control (APOC), which is itself a partnership between the WHO (who provided the medical knowledge), the World Bank (in charge of the financial management) and West-African NGOs (who are sources of local contacts). Hence, strong partnerships...
lessen the work for each and make the process more efficient while ensuring that experts are taking control of their own areas of expertise.

Another example of partnerships is the one between the European Lead Factory (ELF) and discovery programs for NTDs. In order to promote these discovery programs and to speed up the cure of these NTDs, the factory waves certain fees on non-profit drugs.

These partnerships can also be technological, such as the public-private partnership (PPP) that created the application Text4Baby, which provides free health information for pregnant women. Clearly, relying on PPPs facilitates the transfer of new medical technologies to both developed and developing countries.

International Property (IP) as Tools to Facilitate Access to Medicine

One of the most important IP protection tools are patents because they provide exclusive rights to the owner and, hence, prevent the unconsented use for 20 years and protect already existing stocks to then be equitably distributed. An example of using patents beneficially is the Doha Ministerial Conference of 2001, when it was agreed that there would be exemptions to protect patents in LEDCs until 2016 and then extended to 2033. Transatlantic Trade and Investment Partnership (TTIP) and the Trans-Pacific Partnership (TPP) agreements favoured the monopoly of large drug producers by extending patent terms and lowering the criteria to attaining such patents. Consequently, biosimilar drugs are prevented from entering the market and there is more data protection. Another project is a know-how (IPTK) bank, which is a single platform that is associated with training modules and, therefore, can offer assistance to patients navigating vaccine registrations.

Possible Solutions

Proper Selection of Essential Medicines

Before beginning the selection, the only medicines that should be qualified are those which have already been approved in the market because this approval suggests safety, efficacy and quality. Plus, when a medication is approved, it is rarely previously compared with other products already in the market, ensuring that there is a varied list of medicines from which to pick those that are essential. This comparison should be the second step and should be based on proper evaluation, including analyzing the relative cost-effectiveness of the product. Nevertheless, this financial comparison should only be
done between medications belonging to the same therapeutic category, to ensure that all categories are represented in the list.

A criterion that is often overlooked is the bioavailability of the items required to produce the medicines, but this is especially important in today’s society due to the scarcity of natural resources. Likewise, the availability of storage houses and manufacturing facilities should be compared, to ensure that there is a good balance between the stock and the demand. The medicines deemed essential should also withstand the conditions of the warehouses they will be stored in, to avoid damage. Finally, the majority of the medicines picked should be formulated as single compounds, unless there is a clear advantage in taking fixed dose combinations (especially regarding the therapeutic effect, the adherence of the item, its safety, or if a combined dosage will combat virulence factors and decrease emerging drug resistance).

**Developing a National List**

Considering that the WHO’s List of Essential Medicines is only a guideline, Member States are encouraged to develop their own. In order for list to be successful, it should not reflect the needs of individual users but of the national population, the list and the criteria used to select the medicine should be transparent and available for public consultation, the process of choosing medicines should be based on evidence (bearing in mind that evidence resultant from clinical trials is more reliable than data collected from a qualitative study with few control variables, and clinical guidelines and advices should also be made available alongside the medicines to which they concern. Additionally, these lists should be regularly modified to fulfil the needs of the population and all these alternations should be written and made public (which will increase the public’s understanding and trust).

Another aspect to be considered during the development of a national list is the creation of a standing committee whose goal is to give technical advice. This committee should be composed of medical workers (ranging from nurses to pharmacologists and public health experts), businessmen accustomed with consumer affairs, and government representatives who are acquainted with the budget and can establish financial deals with other organizations. All of the estimates and forecasts done should not be fragmented, meaning that the committee should refrain from analysing the demand for each individual disease. Note that the final selection of the medicine should be carried by this committee without any form of external interference.

**Framework to Uphold the Millennium Development Goals**

This framework is an idealistic process to increase accessibility to medicine, which corresponds to Target 17 of the Millennium Goals. The first step is to select and use the essential medicines
rationally. This encompasses investing in adequate equipment and in training a motivated staff who is an expert in the medical field and who can previously develop a criterion to assess and pick the essential medicines (eliminating room for subjectivity). This first step also calls for more public information, the seeking of more financing opportunities, choosing the safest and most efficient products, as well as keep in mind therapeutic decisions. The goal should always be to create the greatest positive impact.

The second step is to set affordable prices which begins with the acquisition of the medicine by pharmaceutical corporations, so long before this medicine reaches the population. Some ways to achieve lower prices include purchasing in bulk, avoiding duplications, as well as reducing or eliminating taxes on these items. In addition, the price should be adapted to the purchasing power of different Member States, market competition should be encouraged, and local production of medicine (especially of traditional products) should be promoted.

The third step is to find and maintain sustainable financing. Locally, governments should allocate more public funding to the health sector, along with encouraging more solidarity campaigns to collect donations. Hence, patients should not have the financial burden of paying for medicines listed in the List of Essential Medicines. If the country’s economy cannot fully support free health care, cost sharing with the patients should be only a short-term measure. To acquire more funds, nations should welcome assistance from donors, bilateral aid, development loans and bank loans.

The fourth and final step to complete this framework is to establish reliable health and supply systems. To do so, governments must prioritize the health sector and support collaborations between the public and private sectors with NGOs. Plus, regional and sub-regional procurements should be seen as credible options to ensure that remote areas also have access to essential medicines.

**General Solutions**

In addition to the big chances mentioned above, there are several short-term solutions that can be implemented. For instance, storage houses are encouraged to hold an updated inventory of the medicine and to compartment their rooms for more organization (such as a delivery and arrival room, the main storage room, a compartment for expired items, another for inflammable products, a room for medicines whose conditions need to be carefully monitored, among others). Despite this compartmentalization, the number of these specialized rooms should be kept to a minimum to increase efficiency. Other measures to be taken include reducing the amount of damaged medicine by placing the medicines on palters and avoiding leaving them on the floor, as well as use reliable methods of transportation to avoid thefts. Finally, these warehouses should abide by international trade agreements.
Bibliography


"Millennium Development Goals (MDGs)." World Health Organization, https://www.who.int/topics/millennium_development_goals/about/en/.


