

# COMMISSION GUIDE

WHO



# CCBMUNXVII

**World Health Organization**

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## Contents

### 1. Presidents' Letter

### 2. Commission Information

- i. History
- ii. Structure

### 3. **Simulation:** *Research and treatment of orphan diseases*

- i. History/Context
- ii. Current situation
- iii. Key points of the debate
- iv. Participating organisms
- v. Guiding questions
- vi. Bibliography

### 4. **Topic 1:** *Application of CRISPR technology on humans as a treatment for genetically transmitted diseases*

- i. History/Context
- ii. Current situation
- iii. Key points of the debate
- iv. Participating organisms
- v. Guiding questions
- vi. Bibliography

### 5. **Topic 2:** *Deteriorating health conditions in the Occupied Palestinian Territories*

- i. History/Context
- ii. Current situation
- iii. Key points of the debate
- iv. Participating organisms
- v. Guiding questions
- vi. Bibliography



## 1. Presidents' Letter

Dear delegates,

It is an honour to have you in the World Health Organization commission with us. Our names are Helena López and Alena Munera, both in 10th Grade at Colegio Colombo Británico. As your presidents for the WHO Committee this year, we are very excited to welcome you to the Model. It is a great pleasure to have you as our delegates in this year's CCBMUN, its seventeenth version. We are looking forward to being able to share our knowledge, and to support and guide you through this process.

Both of us have a great passion for the MUN, and we want you to feel the same in this Model. Between us, we have been in 12 models and we know that, since WHO is a middle school commission, for many of you this might be your first model. We want you to know that both of us still remember our first model, and we fully understand your position; we are willing to help with whatever you need.

As your presidents we hope that all the delegates work very hard in this Model; we recommend that you fully prepare yourself by doing some in-depth research. However, we don't want you to be stressed or nervous about the great experience that lies ahead of you. Most importantly we want you to remember that the debate, with our help, will be a very important and memorable experience that will help you not only as an individual, but as a global citizen.

We look forward to seeing you soon!

Helena López and Alena Munera

## 2. Commission Information

### i. History



<https://www.axios.com/world-health-organization-calls-strong-gene-editing-framework-e68c9e6b-9af5-4997-9439-7017abdc3492.html>

The WHO, short for World Health Organization, is an organ of the United Nations created on April 7th, 1948 by member states in order to coordinate health affairs within the UN system and to promote international cooperation on improving health conditions worldwide. It is an organization that has acquired specific tasks from previous organizations such as the Health Organization of the League of Nations established in 1923, and the International Office of Public Health at Paris, established in 1907.

It deals with aspects such as epidemic control, quarantine measures and drug standardization, among others. Added to this, the World Health Organization has also continued the work done by its forerunners on matters such as the Sanitary Conventions for example, adopting and adapting sanitary regulations established beforehand. At first, WHO centralized its attention mainly on communicable diseases and maternal and child health services but over the years its range of health issues being dealt with has expanded. WHO is described as a *specialized agency with a broad mandate for health* (Encyclopaedia).



Going back in history, the first International Sanitary Conference was held in Paris in 1851, after the cholera epidemics of 1830 and 1847 that killed tens of thousands of people in Europe at the time. These conferences were the first step taken towards developing a mechanism for international cooperation for

[https://www.who.int/features/history/1960\\_1979/en/index2.html](https://www.who.int/features/history/1960_1979/en/index2.html)

avoiding and controlling diseases. The International Sanitary Conferences were the first predecessors of WHO. From 1851 to 1938 a series of 14 conferences were held to begin the fight against illnesses such as cholera, yellow fever and the “black” plague. It wasn’t until the seventh conference that the dynamics of these meetings started to work and prove themselves effective. Thanks to the success of the Conferences, the Pan-American Sanitary Bureau, along with the Office International d’Hygiene Publique, were founded in 1902 and 1907. After this, the League of Nations was formed in 1920 establishing with it the Health Organization of the League of Nations. Post World War 2, the United Nations incorporated all the existing health organizations to form what is now known as the World Health Organization.

## ii. Structure

WHO has its administrative headquarters in Geneva along with approximately 150 WHO offices all around the world.

The administration of this organization is operated through the World Health Assembly, the Secretariat and the Executive Board. The World Health Assembly has the role of general final decision-making and the assembly meets annually to accomplish this with the help of the 191 member nations. The WHO Secretariat, which is In charge of carrying out routine operations and helping implement strategies, is made up of field workers, staff and experts. Within the WHO there is also an Executive Board of health specialists which helps to make decisions and to establish policies. The director general is the head of the Secretariat, and he or she is elected by the Assembly following their nomination to the board.



[https://www.who.int/mediacentre/multimedia/2004/who\\_headquarters/en](https://www.who.int/mediacentre/multimedia/2004/who_headquarters/en)

The Director General shares the responsibilities with six other regional directors from Europe, eastern Mediterranean, Southeast Asia, western Pacific, Africa and the



Americas. These regional directors have the task of choosing the country representatives in each region who will participate in the assemblies, along with other responsibilities. The founders of this commission strategically established a chain of specialized agencies, with their own assemblies, to specifically avoid the involvement of political considerations when there is a need for technical cooperation among member states. If requested, this organization can offer advice to governments that are in the process of preparing for long-term national health plans, and may also send teams of experts to take care of conducting field work, setting up local health centres and offering help with training for medical and nursing practice.

The Executive Board is made up of 34 members, who are highly qualified in the health field; each of these individuals is assigned by a Member State elected by the WHA. This board puts into practice the arrangements and protocols of the Health Assembly and advises the assembly, facilitating its work.

The World Health Assembly is in charge of decision-making and gathers annually to discuss the work of WHO during the previous year. It also sets new goals and assigns new roles. These annual meetings are divided into two main types of meetings, committees and plenary. A plenary is a gathering of all the delegates in the Health Assembly and they happen throughout the year; these meetings are used to listen to reports and to take in new resolutions communicated by the committees. In a plenary, the Director General and Member States address the delegates.

Committees are meetings that are held for debating. Committee A is for discussing technical and health matters while Committee B is in charge of debating about financial and management issues. Committees accept resolutions and then submit them to the plenary meetings. Additionally, there are technical briefings that are coordinated separately to discuss specific public health topics and to talk and debate about new developments regarding the topic.

### 3. **Simulation:** *Research and treatment of orphan diseases*

#### i. **History/Context:** *Research and treatment of orphan diseases.*

An orphan disease, mostly commonly known as a rare disease, is a condition that goes undiagnosed for years; each disease generally affects a small number of people, on average about 1 out of 2000 people. Orphan diseases affect as many as 25 to 30 million citizens in the United States, according to the National Institute of Health (NIH), although one disease may affect only 200,000 people in the whole country. This makes the diseases, and finding treatments for them, a serious public health concern. For a long time, doctors and researchers were unaware of rare diseases and issues related to the field.

Nowadays, doctors who have never seen a certain disease before may make a diagnosis, but then be forced to search for others as new studies and symptoms arise. There is no cure for most rare diseases, but the right treatment and medical care can guarantee and improve the quality of life of those who are affected by them.



Source: Global Genes. <https://globalgenes.org/rare-diseases-facts-statistics/>

For most people who have an orphan disease getting an accurate diagnosis can take up to five years or more, and since these people are often isolated from the rest of the world, the chance of meeting someone with the same disease is very rare. Orphan diseases include diseases such as cystic fibrosis, Tourette's syndrome and Lou Gehrig's disease, which are fairly well-known, and others that are unfamiliar such as Hamburger disease, acromegaly or "gigantism" and Job syndrome. New rare diseases are discovered every year.

Most of these diseases are caused due to alterations in the genes, also known as mutations, or as a result of environmental and toxic conditions. Genes are one of the greatest causes of the development of these diseases, and they also play a big role in

the transmission of the disease from parent to child. However, not all rare diseases are



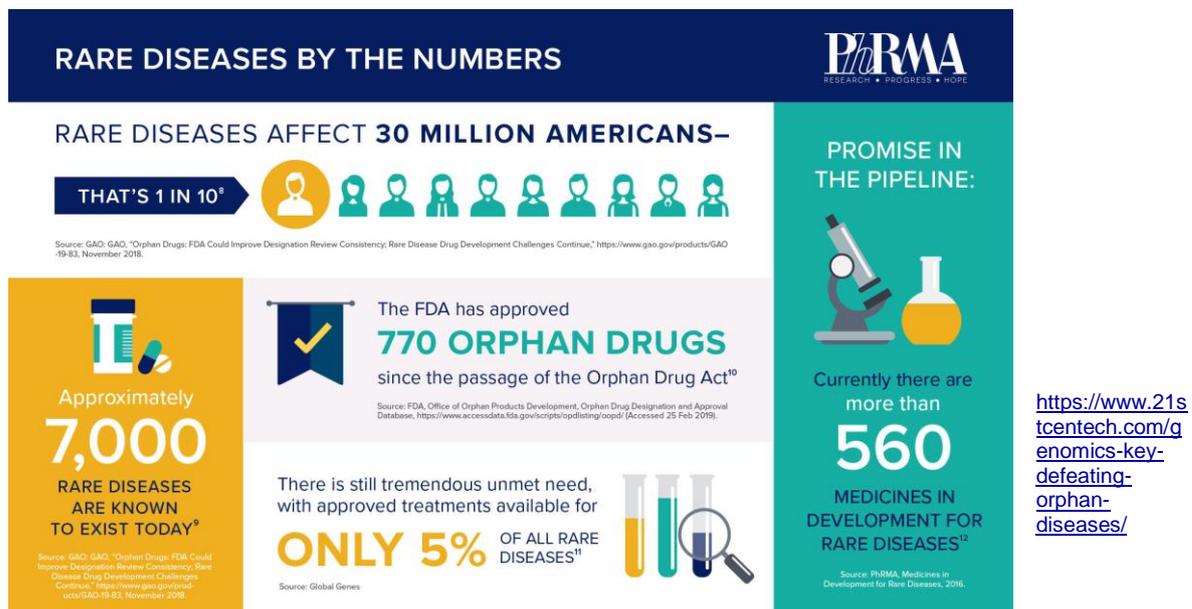
genetic diseases, there are some other cases of infectious diseases such as autoimmune diseases and rare cancers. To date, the cause of many rare diseases is still unknown.

Boy with Crouzon syndrome

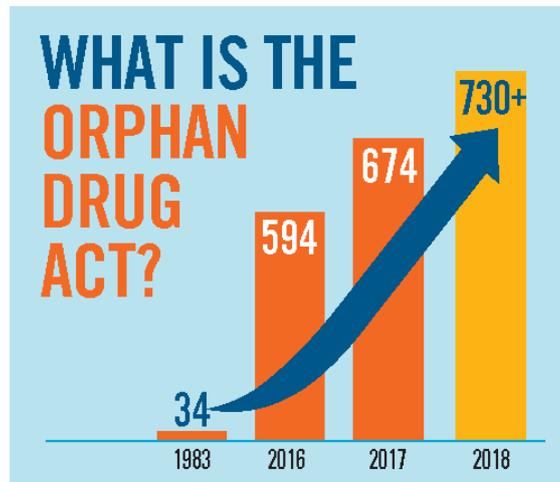
[https://www.boredpanda.com/disease-the-rare-project-ceridwen-hughes/?utm\\_source=google&utm\\_medium=organic&utm\\_campaign=organic](https://www.boredpanda.com/disease-the-rare-project-ceridwen-hughes/?utm_source=google&utm_medium=organic&utm_campaign=organic)

## ii. Current Situation

Nowadays, rare diseases continue to be a very worrying problem, as there is still very little awareness of these diseases, and there is a limited amount of treatments for many cases. Most of the diseases are so rare that it is possible that a doctor might never have seen that type of condition before. In many of the cases of the people that suffer from these conditions, there isn't a viable treatment that cures the condition properly, or if there is a treatment, by the time the disease is actually diagnosed, it might be too late to implement any effective treatment. Furthermore, symptoms of these diseases are often difficult to recognise because they can be confused with symptoms of common







<https://rarediseases.org/orphan-drug-act-resolution-introduced-in-congress/>

Thanks to the ODA, companies developing these treatments could rely on several benefits from the Government such as quick approval for clinical trials and exceptional drug pricing. Later on, the US Congress approved the “Muscular Dystrophy Community Assistance, Research and Education Amendments of 2001” (MD CARE Act) to improve research and care of patients with the disease. To conclude the example that the US has set, in 1998 it developed a law to prevent certain rare conditions that have a preventable cause, such as neural tube defects (NTDs). *NTDs are birth defects of the brain, spine or spinal cord* (Medline) and in 1998 the US Food and Drug Administration (FDA) applied a regulation that obliged cereal grain products that had added folic acid to be labelled as *enriched* within the US. This legislation was implemented with the goal of increasing the consumption of folic acid in women’s basic diet by as folic acid was considered to be a tool that might possibly prevent NTDs.



FDA Legislation  
Tracker

<https://www.raps.org/regulatory-focus/E2%84%A2/news-articles/2015/6/fda-legislation-tracker>



**NORD**<sup>®</sup>  
National Organization  
for Rare Disorders

There are other examples of laws to support the sufferers of rare diseases. The European Union (EU) created an approach to manage rare diseases through the use of legislation,

directives, communications and recommendations. This plan is applied to raise awareness, by making these illnesses more visible through identifying and understanding them fully. Encouraging national plans to make sure everyone with a rare illness has equal access to healthcare, and promoting research and orphan drug development, are standards that the policies made by the EU are trying to meet.

Organisms such as the National Organization for Rare Diseases (NORD) and Orphanet, have been founded in order to provide guides and further knowledge on rare conditions. NORD is a *non-profit voluntary health agency that serves as clearinghouse for information on rare diseases* (NIDCD). This organization is focused on recognition, treatment and cure of orphan diseases through education, public support and service programs. It manages medication assistance programs for several orphan drugs and it also manages research grants and fellowships. Another organization is Orphanet which was founded by INSERM (Institut National de la Santé et de la Recherche Médicale) in France in 1997. Orphanet gathers and improves knowledge on rare diseases with the purpose of correcting diagnosis, attention and treatment provided to patients. The main goal of Orphanet is to provide high quality research into rare conditions, to certify equal access to said research by all parties interested in gaining knowledge about it and, finally, to gain visibility of these diseases in sanitary information and investigation systems.

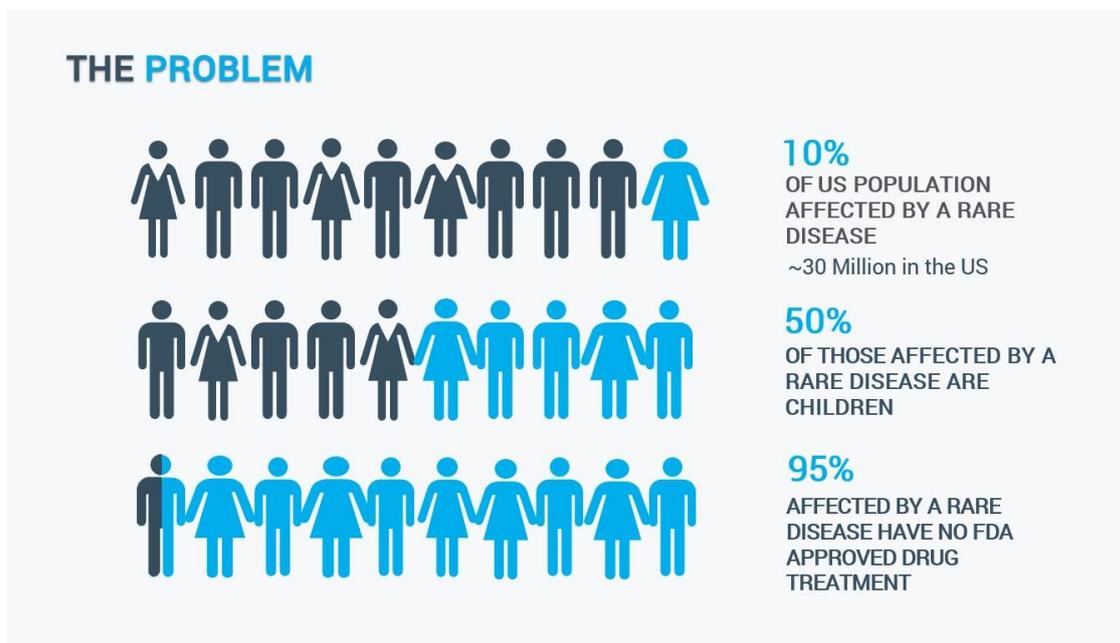


Law-related interventions, such as the ones mentioned above, have tried to make a difference regarding orphan diseases and orphan drugs, by supporting and monitoring them. The organizations created specifically for these conditions have also provided a lot of support to the people who are affected, and have brought this issue to the public domain. They have also provided extensive information on the illnesses, and how to deal with them.

Nevertheless, there are still various challenges if orphan diseases are to be combated and controlled successfully. There isn't worldwide awareness about this huge problem, there is still no worldwide coverage for all the medications, and treatments and cures that these diseases require are not yet available for some of the ones who suffer these diseases. Moreover, there is still a lack of information about many of these conditions in many places around the globe. Lack of treatments and cures for many of these illnesses is still a burden for the people that suffer from these conditions, and if there are treatments available, some of them are exceedingly difficult to access.

Due to geographical location, many patients who might have a rare illness may not have direct access in their region to treatments, and it is quite common for patients to have

to travel long distances in order to obtain access to basic medication and orphan drugs. Added to this, there is not an official and organized system that classifies and lists all the orphan diseases that have been presented all over the world; this leads some countries or regions to be unaware on conditions like these that could be affecting people inside those regions. To conclude, basic information on many of the rare diseases is still not available. In some cases, the causes of the illness, the pathophysiology, the natural course the disease might take and epidemiological statistics is not known by the medical community, hence affecting the afflicted.



<http://www.123genetix.com/support123genetix.html>

### iii. Key points of the debate

- Social and economic aspects of orphan diseases on society
- Issues to do with accessibility to treatments and cures of rare diseases
- Lack of research and knowledge on rare illnesses
- Monetary implications of improving treatments, cures and investigation of orphan diseases
- Measures to increase awareness on orphan diseases

#### **iv. Participating Organisms**

- Food and Drug Administration (FDA)
- National Organization for Rare Diseases (NORD)
- Orphanet

#### **v. Guiding Questions**

- 1) What are orphan diseases and what medical and social consequences do these diseases lead to?
- 2) Why aren't rare diseases treated and researched as any other type of disease would be?
- 3) Is your country's population currently being affected by some type of rare disease? If so, are there any treatments and investigations being done to deal with this disease?
- 4) What measures has your country taken in order to control and avoid consequences rare diseases have on those afflicted? If your country hasn't addressed this problem yet, what are some solutions that it plans to implement?

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#### 4. **Topic 1:** *Application of CRISPR technology on humans as a treatment for genetically transmitted diseases*

##### **Glossary:**

- **Antibiotic-** Antibiotics are medical drugs used to kill bacteria and treat infections.
- **Biotechnology-** The manipulation (as through genetic engineering) of living organisms or their components to produce useful usually commercial products (such as pest resistant crops, new bacterial strains, or novel pharmaceuticals).
- **DNA-** DNA is an acid in the chromosomes in the centre of the cells of living things. DNA determines the particular structure and functions of every cell and is responsible for characteristics being passed on from parents to their children. DNA is an abbreviation for 'deoxyribonucleic acid'.
- **E.coli-** Escherichia coli is part of the normal human intestinal flora. *E. coli* has been studied intensively in genetics and molecular and cell biology because of its availability, its small genome size, its normal lack of pathogenicity (disease-causing ability), and its ease of growth in the laboratory.
- **Embryos-** An embryo is an unborn animal or human being in the very early stages of development.
- **Enzyme-** An enzyme is a chemical substance that is found in living creatures which produces changes in other substances without being changed itself.
- **Gene-** A gene is the part of a cell in a living thing which controls its physical characteristics, growth, and development.
- **Gene editing-** is the manipulation of the genetic material of a living organism by deleting, replacing, or inserting a DNA sequence, typically with the aim of improving a crop or farmed animal, or correcting a genetic disorder.

- **Genome-** A living thing's complete set of genetic instructions - or all of its genes - is called a genome. A genome has all of the information needed to build an entire organism and for that living thing to grow and stay alive
- **Genetic code-** The genetic code is the set of rules by which information encoded in genetic material (DNA or RNA sequences) is translated into proteins (amino acid sequences) by living cells.
- **Germ line-** The lineage of cells culminating in the germ cells.
- **HIV -** The human immunodeficiency virus (HIV) is a retrovirus that infects cells of the immune system, destroying or impairing their function. As the infection progresses, the immune system becomes weaker, and the person becomes more susceptible to infections.
- **Insulin-** Insulin is a substance that most people produce naturally in their body and which controls the level of sugar in their blood.
- **Mitochondria-** An organelle in the cytoplasm of cells that functions in energy production.
- **Mutation-** a change in the chromosomes or genes of a cell. When this change occurs in the gametes the structure and development of the resultant offspring may be affected.
- **The Nucleus** is an organelle found in eukaryotic cells. Inside its fully enclosed nuclear membrane, it contains the majority of the cell's genetic material. This material is organized as DNA molecules, along with a variety of proteins, to form chromosomes.
- **Recombinant DNA-** DNA molecules that are extracted from different sources and chemically joined together; for example DNA comprising an animal gene may be recombined with DNA from a bacterium.
- **Ribosomal RNA-** Ribosomal RNA, a molecular component of a ribosome, the cell's essential protein factory. Strictly speaking, ribosomal RNA (rRNA) does not make proteins. It makes polypeptides (assemblies of amino acids) that go to make up proteins.

- **RNA**- Ribonucleic acid, a nucleic acid present in all living cells. Its principal role is to act as a messenger carrying instructions from DNA for controlling the synthesis of proteins, although in some viruses' RNA rather than DNA carries the genetic information.

### i. History/Context



“Clustered regularly interspaced short palindromic repeats”, commonly known as CRISPR, is a very powerful new gene-editing technology that was developed a few years ago. This is a technology that scientists use to change the genetic blueprint of plants, animals and even humans.

CRISPR consists of cutting and pasting bits of DNA from genes, making it possible to alter traits and possibly cure many diseases. Before CRISPR was discovered in 2012, humans had been engineering lifeforms for thousands of years. This has been done mostly through selective breeding, which allowed us to strengthen useful traits in plants and animals. Humans became very good at this, but actually never understood how it worked until DNA (Deoxyribonucleic Acid) was discovered in the 1860s by a Swiss chemist called Johan Friedrich Miescher. As soon as DNA was discovered, in the 1960s scientists started bombarding plants with radiation, causing random mutations

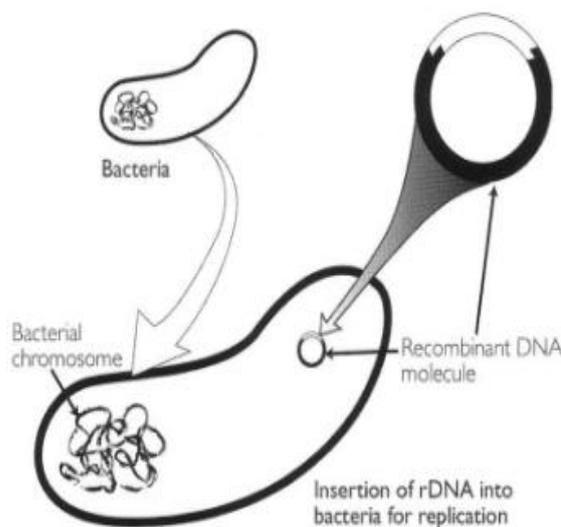


in the genetic code, as a result of which they hoped to get a useful plant variation by pure chance.

In 1971, a biochemist named Paul Berg isolated DNA from different sources, cutting and splicing them together. For the first time in history, it was possible to mix and match genes to create hybrid sequences, this was called “recombinant DNA”.

Thanks to this discovery, scientists could now, for example, take a virus like HIV, delete the genes that make it destructive, and add in a gene from a human cell. This scenario is the **basis of gene therapy**, which saturates the cells with healthy genes to make up for the sick ones.

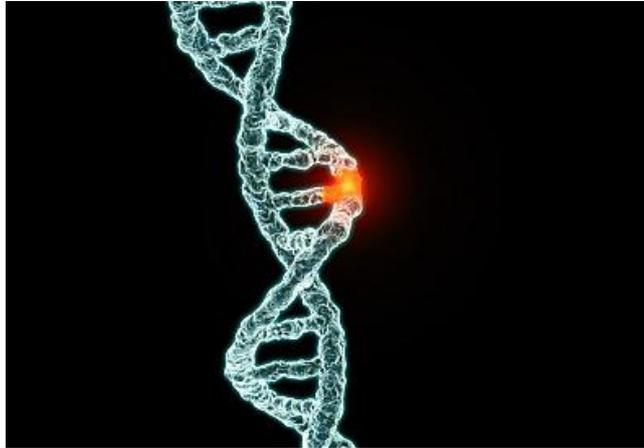
In the following years, many other scientists started to research the possibility of creating new types of DNA using different bacteria. They discovered that they could transfer genes between different species. They were able to create large amounts of bacteria with modified gene structures, which could be put to use in medicine. They began to wonder whether those tiny bacteria could be capable of producing biological components of the human variety, and that was how, by 1979, *E.coli* was producing human insulin.



In 1999, a procedure was carried out on a patient which resulted in the death of the patient. However, thanks to this procedure, “gene therapy 2.0” is now being tested in hundreds of clinics across the US to treat cell diseases, Parkinson's disease and immunodeficiency syndrome. This technology is not without its drawbacks; the problem with gene therapy is that it adds a new gene at an unpredictable spot in a cell's genome; a therapy gene that is randomly inserted into the genome by a virus might land

near a regulatory DNA that silences it, making it useless or, even worse, it might disrupt a healthy gene or even turn it into a gene that causes cancer.

Berg did write about the “potential biohazards” of what he had just discovered, and during that year there were no other experiments. Eventually throughout the 1970s, scientists started inserting DNA molecules into bacteria, plants, and animals to modify them for research into medicine and agriculture, but mostly for “entertainment” purposes.

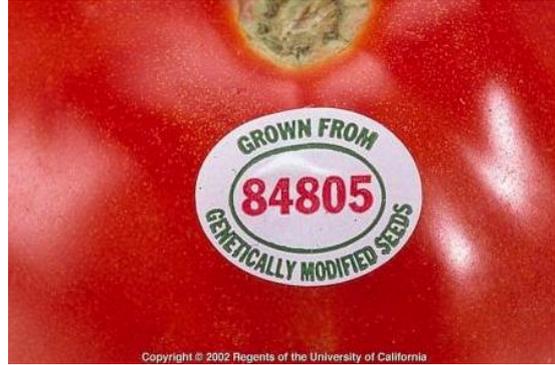


We can say that the “revolution” began a few years later when, in 1974, Rudolph Jaenisch and Beatrice Mintz infected mouse embryos with SV40 virus and showed that the DNA was integrated into the germ line. By this, they showed proof that foreign DNA could be inserted into the mouse genome and get positive results. This was how the first genetically-modified animal was made. After this discovery, mice became the standard tool for research, helping to save millions of lives. Thanks to Jaenisch and Mintz’s discovery, a new transgenic approach had been introduced to the world of biotechnology.



<https://www.nationalmedals.org/laureates/rudolf-jaenisc>

By this point in history, the scientific community had done various experiments with gene editing in animals and in cells, but for the first time, in 1994, the first food modified in a lab went on sale. It was called the “Flavr Savr Tomato”. The tomato had a much longer shelf-life due to its modification with an extra gene that suppresses the build-up of a rotting enzyme.



In 1996, two scientists, Dr. Philip Leder and Dr. Timothy A. Stewart from Harvard university bred genetically altered mice by isolating a gene that causes cancer in many mammals, including humans, and then injecting it into fertilized mouse eggs.

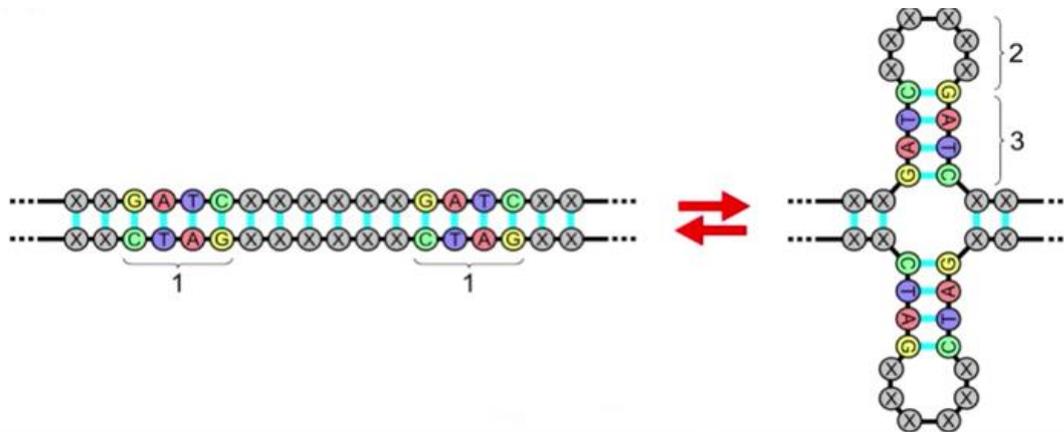
*“Because half the females develop cancer, the altered breed serves as a more effective model for studying how genes contribute to cancer, particularly breast cancer,”* Dr. Leder said.

It was said that their invention helped other scientists to have a more “efficient” biological system for testing new drugs and therapies to treat cancer, and also to test out whether chemicals and other toxic elements found in food or in the environment were harmful.



In 1987, a big discovery was made by some Japanese scientists who were looking at bacterial DNA. They spotted repeated palindromic patterns

(a palindrome is a mirrored set of characters, DNA sequences only use A,C,T or G).



These scientists realized that these repeating characters were part of an ancient bacterial immune system. What was happening was that the palindromes in some way were “framing” the DNA of viral invaders. The viral DNA is used by bacteria to detect and attack; it figures out which virus is attacking and then creates an RNA defender to fight back. The problem was that the RNA knew what to attack, but it needed a way to do so, and that's when later on scientists discover CAS9.

In 1990, human genetic engineering was introduced, mainly to treat maternal infertility. This was done by replacing impaired mitochondria (part of the cell that deals with energy production) with healthy mitochondria. Babies conceived in this way carry genetic information from three humans.

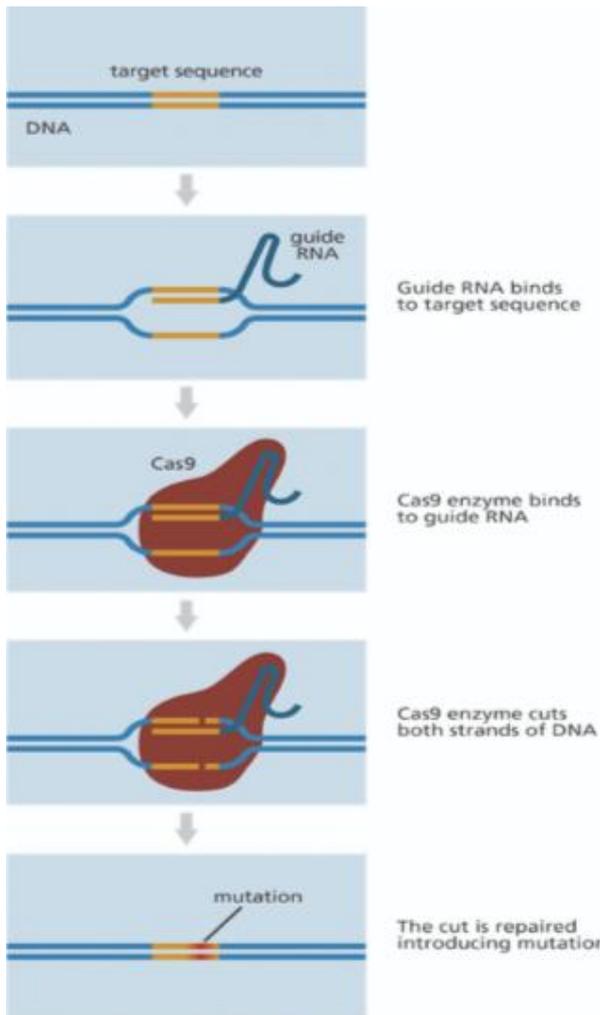
At the beginning of the 2000s, scientists started looking for tools that they could control this process better. They discovered that they could incorporate artificial proteins in order to target mutations at specific locations on a genome. One of the creations using this method is called a zinc-finger nuclease (ZFN). This method has already made its way into clinical trials, and the first test on a human patient was led by Paul Hartz, MD at UCSF Benioff Children's Hospital in Oakland. Engineering proteins is not an easy task, as it takes months or even years to make the ZFN target just one of thousands of known disease-causing mutations.

All of these things were big advances in science, but the problem was that genetic engineering was very complicated, extremely expensive and took a long time to do. This has changed since the introduction of CRISPR and its new technologies.

## ii. Current Situation

For a long time now we have been aware of certain genetic mutations that underlie disease. The question arises, “If we know which mutations cause disease, why not just go in and replace the DNA and revert it to the normal sequence?” That is when CRISPR

can be used. CRISPR (pronounced crisper) stands for Clustered Regularly Interspaced Short Palindromic Repeats. This is a new genome-editing technology harvested from bacterial cells that allows scientists to target specific stretches of genetic code and edit the DNA at precise locations. This technology allows genetic material to be added, removed or altered at particular locations on the genome.



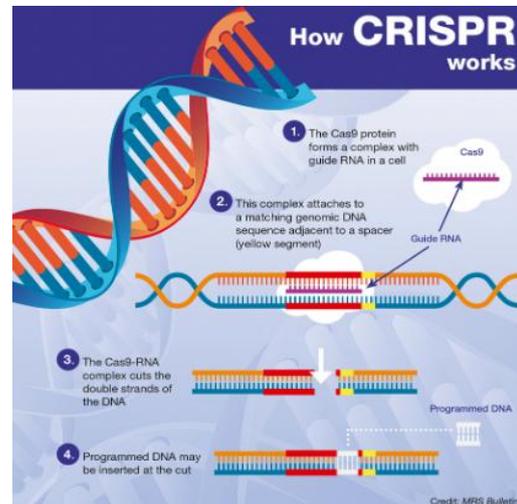
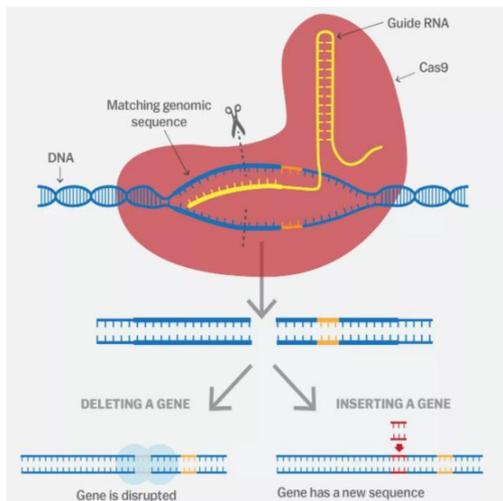
CRISPR is made of two key parts, a piece of RNA (Ribonucleic acid) that acts as a guidance system that can recognize the sequence of DNA that needs to be edited, and a protein called Cas9 that can cut the DNA.

To use CRISPR/Cas9 scientists first identify the sequence of the human genome that is causing a health problem, then they create a specific guiding RNA to recognize the particular stretch in the DNA. The RNA finds the spot in the nucleus of a cell where the editing should take place (the nucleus is a compartment in a cell where most of the genetic material is stored). The RNA is attached to the Cas9 enzyme and, in that way, the RNA guides Cas9 to the exact place in the DNA where the editing should be done. Then Cas9 locks onto the double-stranded DNA and unzips it. This allows the RNA to locate the target letter sequence and pair up with some

region of the DNA that has been targeted. Cas9 cuts the DNA and creates a break in both strands of the DNA molecule. At that point, scientists can edit the existing genome by either deleting, inserting new sequences or modifying the DNA by replacing an existing segment with a customized DNA sequence.

A few years ago, researchers found out that CRISPR/Cas9 is not the only type of CRISPR. When talking about CRISPR, most people refer to CRISPR/Cas9 system, but according to Feng Zhang, a neuroscientist who investigates DNA editing tools, there are other types of CRISPR proteins that can work as gene editors such as Cas13. Cas13 targets RNA,

providing alternative avenues for use, and others with similar concepts but with unique characteristics that serve as diagnostic tools such as SHERLOCK.



Nowadays CRISPR has sparked great excitement, but at the same time provoked many concerns regarding the economic and social impacts, as well as concerns about biosafety, bioethical and biosecurity implications of CRISPR related work. There is a lot of controversy when talking about CRISPR and modifying genes, and at the moment the United States and China are competing to develop the first therapeutic applications of CRISPR.

The United States is creating techniques against three types of cancer and similar techniques are about to be launched. China is doing similar tests to treat very aggressive cases of lung cancer. The application of using CRISPR on human embryos becomes more controversial every day, with fears that it could be used to create humans with superior physical and mental abilities, who might possibly be cured of all genetically transmitted diseases. By modifying the germ line, the changes introduced with CRISPR in an individual could also be transmitted from generation to generation.

In February 2019, an international panel of experts, brought together by the US National Academy of Sciences, concluded that the use of CRISPR on human embryos is acceptable, but not before doing prior research on the risks it may entail. The report officials added that genome edition should be applied exclusively in cases where it is the last resort.

<https://thebulletin.org/2018/06/crispr-goes-global-a-snapshot-of-rules-policies-and-attitudes/> ( for more information about countries' positions)

### iii. Key points of the debate

- Measures that need to be taken for allowing CRISPR to be commonly used.
- Global development of CRISPR, taking into account political, social and economic concerns.
- Ways in which CRISPR is changing genome editing.
- CRISPR used to treat genetically transmitted diseases.
- Ethical considerations of using CRISPR.

### iv. Participating Organisms

- Broad Institute
- Intellia Therapeutics
- Editas Medicine
- Horizon discovery group
- Sangamo Therapeutics
- National Academy of Sciences, Engineering, and Medicine
- Chinese Academy of Science
- National Institutes of Health (NIH)
- National Human Genome Research Institute (NHGRI)

### v. Guiding Questions

1. What are the consequences, both positive and negative, the usage of CRISPR might have on humans being exposed to this technology, and on health services implementing this technology?
2. What technological and scientific advances, if any, has your country made regarding the topic?
3. What is the position of your country regarding the use of CRISPR on humans? Has your country considered or planned on implementing this technique? Why or why not?
4. If CRISPR wasn't to be implemented, what are other medical alternatives suggested by your country that could replace its function in dealing with genetic

diseases and diseases that are known to be incurable until now?

5. How could CRISPR technology be made available to developing nations?
6. What international guidelines should be introduced to regulate the usage of CRISPR technology?

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## 5. **Topic 2:** *Deteriorating health conditions in Occupied Palestinian Territories*

### i. **History/Context**



<https://www.theatlantic.com/photo/2011/07/world-war-ii-conflict-spreads-around-the-globe/100107/>

The Israeli-Palestinian conflict has been an ongoing problem since the last century. It has been called one of the most complex and controversial clashes in history, and it is mainly a conflict regarding two groups of people wanting the same territory. For a simple explanation of the conflict, you can read the following links:

<https://www.bbc.co.uk/newsround/20436092>

[https://www.sbs.com.au/news/the-israeli-palestinian-conflict-explained\\_2](https://www.sbs.com.au/news/the-israeli-palestinian-conflict-explained_2)

In 1917 during the First World War, the United Kingdom offered the Jewish Zionist movement a homeland in Palestine in return for their support in the conflict. (At this time, the Jewish people were scattered around the world with no homeland of their own) At the same time, the British were also encouraging an Arab rebellion against the Ottoman Empire (Britain's enemies) in the same lands. At the end of WWI, the Ottoman Empire was defeated and its lands were split up between European powers. One of the lands that was granted



<https://www.youtube.com/watch?v=0vwkfJb7FEc>

to Britain was Palestine, a piece of land that is now part of what is known as Israel. At that time, Jews in Palestine only represented about 10 percent of Palestine's population. However, the persecution of Jews in Europe made Jewish immigration to Palestine increase quickly.

In September 1939, World War II began. In the course of the Second World War millions of lives were lost, including the lives of 6 million Jews. Post WWII, Jewish immigration to Palestine kept on growing, and this increased tensions with Arabs in Palestine. The situation in Palestine had now overwhelmed the British, who decided to withdraw from their management of the land and pass the management of Palestine over to the United Nations.

The UN suggested that the area be divided into two parts, an Arab State and a Jewish State. Adding to this, Jerusalem would become an International zone for all ethnic groups, religions, etc. The proposal was accepted by the Jewish people but it wasn't accepted by the Palestinian Arabs. This led to an escalating civil conflict between the two sides.

Over the following years, there were many conflicts over the area, with the Palestinians being supported by other Arab League nations. The new Jewish State of Israel fought with Egypt over the land in what was called the Six Day War. Israel managed to expand its territory widely by seizing the Egyptian Sinai, the Syrian Golan Heights and the West



<https://www.globalsecurity.org/military/world/israel/maps-evolution.htm>

Bank. Israeli settlers began to move into Palestinian territories, specifically Gaza and the West Bank.

When the UN found out about this movement into Palestinian territories, it reacted immediately and adopted Resolution 242 in which it condemned the Israeli occupation

of these lands. Conflicts erupted late between Israel and the surrounding countries, with Israel being supported by the USA.

In 1980, Israel declared that Jerusalem was to be its indivisible capital and this decision was condemned by the United Nations Security Council. In the West Bank, tension was rising over the water supply, as Israel had greater control over resources and these resources weren't being distributed evenly among Israeli settlements and Palestinian areas in these same lands.

Shortly after this, the Palestinian population in both Gaza and the West Bank rebelled and started protesting in the streets of these territories, mainly armed with stones. These Palestinian rebellions became known as the first Intifada, which in Arabic means uprising. It is in this context that the Palestinian Islamist movement fighting Israel known as Hamas surged. At the same time that Hamas arose, the Palestinian Liberation Organization (PLO), founded in 1964 with help from the Arab League, proclaimed an independent state of Palestine and proclaimed Jerusalem would be its capital.



<https://segundoenfoque.com/hamas-anuncio-un-alto-al-fuego-en-israel-2018-11-14>

Following six years of conflict, a peace settlement was signed with the Oslo agreements, which assured mutual recognition of the two states as well as introducing autonomy in the Gaza Strip. Afterwards, a West Bank partition plan was signed and its goal was to provide for Palestine-controlled areas, mixed areas and the rest of the areas controlled by Israel. Unfortunately, the two parties kept on disputing about the status of

Jerusalem and the return of Palestinian refugees, and this is what triggered the failure of the negotiations and sparked violence once again.

Israel began the construction of a wall surrounding the West Bank to protect the country from all the violence but the construction of the wall intruded on Palestinian territories. The wall being built was declared illegal by the International Court of Justice so, to try and calm the situation, the Israeli



<https://www.thenation.com/article/palestines-first-intifada-is-still-a-model-for-grassroots-resistance/>

Government decided to remove Jewish settlements from the Gaza Strip, whilst still maintaining control over the Strip's borders.



<https://972mag.com/the-world-had-decades-to-stop-annexation-just-ask-palestinians/141111/>

In 2006, tensions started to mount between the two sides, specifically in Gaza. Hamas came into power in Gaza, and Israel decided to impose a blockade on Gaza at the same time as Hamas was regularly firing rockets into Israeli territories. Violence coming from both sides

kept building up; numerous clashes took place, until in 2014, Israeli warplanes attacked Gaza and

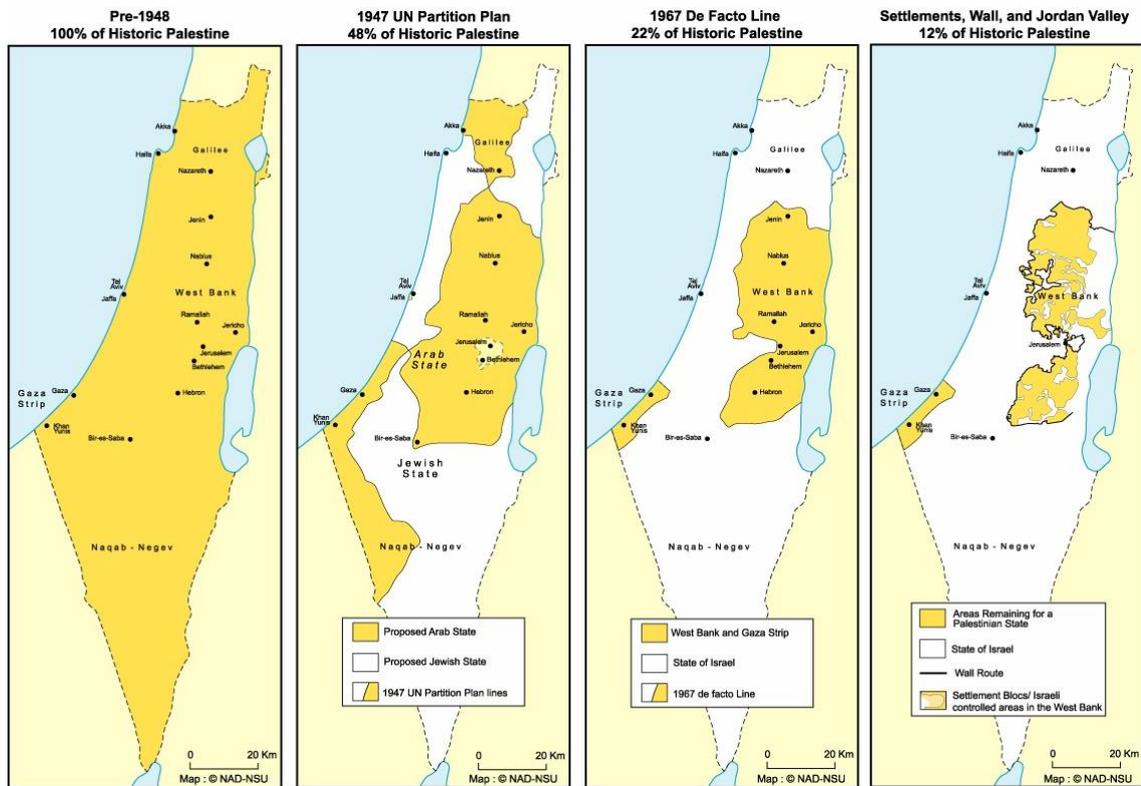
destroyed 50,000 houses, 100 schools, dozens of hospitals and Gaza's single power plant.



<https://www.haaretz.com/israel-news/premium-israel-s-gaza-blockade-useless-as-border-crossings-open-1.5462187>



<https://www.haaretz.com/middle-east-news/palestinians/humanitarian-crisis-in-gaza-what-happened-in-the-past-two-years-1.5792166>



<https://orientalreview.org/2014/12/29/the-dead-end-of-the-post-oslo-diplomacy-what-next/>

All the events that Palestine has gone through have taken a toll on the development of its healthcare system. The evolution of Palestinian healthcare can be more or less divided into four main time periods, during which the events that were going on in given time periods affected the healthcare in some way or other. The periods are divided into: the British Mandate period (1920-1948), the Jordanian and Egyptian rule period (1948-1967), the Israeli Administration period (1967-1994) and the Palestinian Authority (1994-2000). After 2000, the situation regarding the medical sector stayed fairly similar, with the Ministry of Health kept being one of the main organs of the healthcare system, along with the non-governmental organizations that were formed.



<https://fotw.info/flags/mpe-hc36.html>

When Palestine was first under British Mandate, the medical care was administered by the Government Department of Health under the British Civil Administration. At the time, a few government hospitals were provided for the Arab population. However, British colonial policies at the time were to limit the use of Britain's financial resources on social services in the region. This meant that rural parts of the

country, in which many of the Palestinians with low economic resources were located, had extremely limited access to healthcare. Many people living in the cities used the Christian Mission hospitals and the government hospitals.

In the year 1948, the Arab-Israeli armed conflict caused the displacement of the Palestinian population, and this led to approximately 750,000 Palestinians becoming refugees. When the conflict came to an end, Jordan had control over the West Bank, whilst Egypt had control over the Gaza Strip. Each of these areas started establishing separate healthcare systems. Whilst this was happening, the UN took action as well, creating the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) during the United Nations General Assembly of 1949. The UNRWA started its operations in 1950, with the instructions to “carry out direct relief and works programmes for Palestine refugees”.



<https://www.commondreams.org/views/2018/02/21/trump-makes-crisis-worse-palestinian-refugees>

Modern health systems started to become available to the refugees and to the rural areas, as basic health and education infrastructure reached the countryside. It is important to clarify that even though there were now medical services being provided, these services were rudimentary and mainly aimed at curing, rather than preventing illness.



Just before Israel started occupying the West Bank and Gaza in 1967, there were three systems regarding medical care in these territories. Both Jordan and Egypt’s governments looked after the public healthcare sector in both Gaza Strip and the West Bank, whilst the UNRWA was in charge of medical care for refugees. On the other hand, the private healthcare system that was one of the three systems available, included charitable organizations administering major hospitals as well as diagnostic and primary care centres.

<https://www.globalgiving.org/projects/israel-palestinian-healthcare-fosters-peace/>

Post occupation of both the West Bank and the Gaza Strip, the Israeli Civil Administration, which was

operating under the Ministry of Defence rather than the Ministry of Health, started being in charge of the governmental health system. The Israeli Civil Administration began administering it in a way that kept the system underdeveloped. The system was now prevented from evolving due to major budget restrictions, referral to Israeli hospitals when it came to tertiary care and imposing restrictions on licences for developing medical and health care projects. These factors all led to the Palestinian health system becoming dependent to the Israeli one. Furthermore, health service delivery at the time was specifically known for its disempowerment of the Palestinians when it came to decision making and management. Even though all the service providers were Palestinians, the entities were not ready to take on the constant modifications of needs and growth of the Palestinian population, nor were they strong enough to work autonomously.

The UNRWA was able to put together its own system of basic services, which included medical, educational, relief and social services for the refugees. However, the centralized administration in Vienna, and its structure based on bureaucracy, was not fit for Palestinian capacity-building and leadership at its highest degree. The private health sector managed small scale hospitals and basic medical clinics, whose ownership and administration was carried out by

individual physicians on a fee-for-service basis. The private service aimed to provide an independent substitution in health service provision, but was under Israeli military laws, in which licencing restrictions did not permit any large scale development. Responding to the needs of the population, popular health committees that partnered with Palestinian political movements started to emerge. These health committees had the goal of filling the gaps that the Israeli health service had left. These NGOs based their approach on attending underserved parts of the land with volunteer medical service providers. They encouraged preventive care, medical education activities and gatherings, and participation in directing attention towards health issues and mobilization.



<https://fanack.com/palestine/governance-and-politics-of-palestine/the-health-sector-in-palestine/>

In 1993, Israel and the Palestine Liberation Organisation (PLO) signed the Declaration of Principles, which is also commonly known as the Oslo I Accord. This was an attempt to establish a framework that would lead to the resolution of the conflict between Palestine and Israel. Later on, in 1994, the Agreement on the Gaza Strip and the Jericho Area (which is a city in the West Bank) was signed. The signature on the agreements paved the way to the formation of the Palestinian Authority (PA). Following this, a series

of negotiations and agreements led to a further phased-out granting of powers and responsibilities to the Palestinian Authority; among the responsibilities assigned to the PA was the one of assuming full responsibility of the health care provision. The Palestinian Ministry of Health was then established in 1994.

The task of rebuilding the health system is an extremely big one, and it has been aided by substantial donor assistance. Between 1994 and 1999, donors gave large sums of monetary resources to the health sector and paid out half of those resources in physical assistance. There have been accomplishments regarding the construction of new hospitals in the West Bank, as well as in Gaza, and in the rising number of government primary health care clinics from 207 clinics to 365 between the years 1994 and 1998. Family planning services have gradually been introduced in approximately 100 of those clinics.

A ministerial structure was set up, a national health information sector was created, a government health insurance plan was encouraged, a strategy for human resource development was advanced, and formation of physicians specialising in areas such as women's health was carried out. Joint planning of all four government organizations, along with UNRWA, NGO and private organizations was carried out to discuss matters regarding developing policies and protocols in maternal and child health. Between 1994 and 1998 the MoH was able to increase the number of people it supported from 25 percent of households to 48 percent.



<http://sak.ps/Sub.aspx?view=ProjectDetails&id=18&tp=>

However, a financial crisis occurred in 1997 for the Ministry of Health because the Ministry of Finance was unable to give it the necessary budget. This resulted in shortages of basic drugs and supplies, as well as the deterioration of government services. This crisis led to a decrease in public participation in the government health insurance system. Out-of-pocket household expenses invested in health have increased transformed into 40 percent of the total health expenditures in the West Bank and Gaza, meaning that many only have the choice of paying for healthcare from their own monetary resources instead of relying on medical insurance. This change has sparked worrisome on equity in medical care, given that the amount of people with low monetary resources is rising along with the need of long-term care for those who have been injured by the Israeli armed forces. Given that the situation had now changed, several NGOs had to change as well in many different aspects. Some of the non-

governmental organisations that had been helping in the health sector had to downsize operations however others remained being important caterers of basic services as are primary care services, as well as they continued to carry out other tasks such as debating on matters that had to do with health policies and planning, coordination of information sharing, among other topics of discussion.

## ii. Current Situation

The conflict in Israel between Palestinians and Israelis is an ongoing problem, and it has specifically affected the groups of people living in the Occupied Palestinian Territories (OPTs) which are the Gaza Strip and the West Bank. Nowadays, there are still constant confrontations and acts of violence between Israeli authorities and Palestinian militias, such as Hamas. One of the main concerns of this ongoing violence is its impact on the health conditions of the people in these territories who are directly exposed to all sorts of dangers.



<https://www.aljazeera.com/news/middleeast/2018/05/palestinian-medics-struggle-provide-healthcare-attacks-180527150452956.html>

Not only are the people at risk of being hurt by the violence around them, but the blockade around the OPTs, along with many other factors, attribute to the limitation of access to basic healthcare. The healthcare systems in the Occupied Territories are operating under a huge amount of pressure due to the consequences of the occupation, blockade, rapid population growth, lack of proper financial resources and lack of basic medical supplies. The circumstances that Palestinian lands are currently in are a result of occupation, internal governance deficiencies, lack of resources, actions and inactions of the international community and aid dependency.

The inability to move freely within these areas and their surrounding territories is also a big problem for the health sector. If a patient needs to be moved from one hospital to another in order to receive a specific treatment or to be revised and diagnosed by a specialist doctor, for example, the patient has to get hold of a special permit granted by the Israeli authorities in order to be able to move from one area to another.

Over 100,000 patients applied for permits between 2014 and 2015 but many of these permits were denied by Israeli authorities. According to WHO, in 2017 approximately 40 percent of the permit requests of patients wanting to exit Gaza were denied. Some of the alleged reasons for declining permits were due to age, gender (meaning males are more commonly refused), patients with family that can be seen as a security hazard and patients needing treatment that is not life-saving. In some cases, even if it's an emergency case or a need for critical care, the Israeli Government does not allow the Palestinian patients coming from the West Bank to access East Jerusalem.



<https://www.hrw.org/news/2017/08/08/israel-jerusalem-palestinians-stripped-status>

If a patient is being transferred from a hospital in the West Bank to one in East Jerusalem, (which happens often as the hospitals in Jerusalem have specialised facilities) the patient has to be moved from the ambulance he or she arrives in to another ambulance, either Palestinian or Israeli, in order to go through security checkpoints.

The health infrastructure is one of the factors of healthcare in OPT's that is currently in a critical state. At the West Bank in Area C, which is a piece of land that represents 60 percent of the West Bank, Israel maintains full military and civil control. In this area, Palestinians are denied building permanent health centres and hospitals, therefore the population of approximately 300,000 people is left without a proper hospital to attend them.

In the Gaza Strip, 17 hospitals and 56 health centres have been destroyed due to the constant cycle of bombardment that this piece of land undergoes. There have also been cases in which basic medical materials have not been available, most of the time because of the border control delaying or preventing the delivery of supplies, or because of lack of monetary income to acquire these resources, among other reasons. In May 2017, Gaza was found to have a large-scale shortage of equipment and vital medicines. There have been times in Gaza when 32% of medical disposables have been at zero stock, which means that less than a month's worth of supplies was available.

Medical and nursing training and specialisation outside of Palestine is often restricted because of the difficulties medical staff have to go through in order to obtain a permit to travel within the country or overseas. It is very difficult for them to travel to places such as East Jerusalem, where there are six specialist Palestinian hospitals, or overseas to conferences and forums.

Lastly, Palestinians pay normal taxes, but Israel controls the earnings and constantly keeps most of the revenue out of Palestinian reach as a type of punishment for acts done by Palestinian people in the ongoing conflict. These shortages of monetary income leave governmental health workers and systems in constant fluctuation.

The health problems in OPTs are not remarkably distinct from those presented in other countries located in the same region. However, the health of the people of Palestine is deeply afflicted by the problem of living under occupation, as well as the constant chronic stress they are subjected to due to the acts of violence and belligerent conflict that they witness all the time. Another factor is unemployment, which, according to the World Bank, is about 27% - 42% in the Gaza Strip and 18% in the West Bank. These high percentages of unemployment have led to a scarcity of income, which also have an impact on health conditions such as disorders regarding nutrition, mental health, accidents, violence against men, women and children and disabilities.

To give a specific insight into the main diseases affecting the population in the Occupied Palestinian Territories, examples of conditions affecting children in these populations will be given. Please note, however, that these conditions are not only affecting children, but people of all ages.



<https://news.un.org/en/story/2019/03/1034851>

First, the people in Gaza and West Bank are struggling with nutrition. Malnutrition has been increasing rapidly, reaching 13% in Gaza. In the West Bank, 25% of the population was classified as food insecure, while in Gaza it was 56% of the population.

Second, the mental health of Palestinians has been deteriorating. An investigation from the year 2003 discovered that 93 percent of Palestinian children experienced being or feeling threatened, losing or lacking security and feeling significant amounts of fear at some point in their lives. The parents of these children also complained that those feelings of threat and fear had led to the children developing hyperactivity, suffering from constant nightmares, showing unusually high levels of aggressive behaviours or lack of attention and concentration. In one Palestinian school, a group of teenagers was surveyed about their exposure to violence and the negative effects this had on them. 80% of the teens surveyed had witnessed shootings, 28% had been present when a stranger was killed and 11% had watched a friend or a neighbour be killed. From this survey it was also concluded that 10.4% of these adolescents were in depressive-like states, 14.1% had to cope with emotional difficulties and 10.3% had physical disorders.

Third, many of the people in these territories have been affected by the armed conflict around them and have been killed due to accidents that had to do with these conflicts. The second most common cause of child mortality in OPTs is accidents involving firearm missiles, and the rate for missile injuries in Gaza was twice the rate presented in the West Bank.



<https://www.aljazeera.com/news/2017/12/israeli-abuse-palestinian-minors-rises-report-171223104715379.html>

Fourth and last, a fair portion of the population in Gaza and the West Bank suffers mainly from physical disabilities as well as mental disabilities or similar limitations. The conflict has increased the risk of losing limbs, suffering serious head injuries and developing post-traumatic stress disorder.

Currently, the main provider of health services is the Palestinian Ministry of Health, an organization which provides primary and secondary care services in hospitals in the West Bank and Gaza, controlling a total of 24 out of 78 hospitals in the Palestinian territories. Added to this, the United Nations Relief and Works Agency for Palestinian refugees (UNRWA) contributes with primary healthcare. Both local and international non-governmental organisations (NGOs) help with secondary, tertiary and in some cases primary healthcare. These NGOs also provide services of rehabilitation, health development and emergency response. The Palestinian Red Crescent caters ambulance services as well as a few clinics. Finally, the private sector which is in charge of private doctors also takes part in contributing to medical services in Palestinian territories.

40% of primary health visits are done in government facilities, 31% at UNRWA and 29% at private and NGO facilities. The problem is that there is a lack of proper coordination between all these different sectors, and there is also a lack of services for child protection, mental health and disabilities. Another problem with the services is the fact that it is common to see a shortage of medical staff in areas such as family practice, neurology, oncology, paediatric surgery and psychiatry. What is challenging about these shortages of staff is that most of the doctors who want to specialise in these specific medical services are forced to leave the country to access training in neighbouring countries, in Europe or in Russia, and many of these doctors do not return after specialising. Finally, there is a general issue regarding the low quality of care in the healthcare systems due to restricted mobility, management and accountability, participation of healthcare providers that are under-qualified and weak institutional capability to monitor and assess the healthcare providers.



<https://www.map.org.uk/news/archive/post/602-new-infographic-shows-how-restrictions-of-movement-put-palestinian-lives-at-risk>

### iii. Key points of the debate

- Factors such as belligerent conflict, blockades, etc. leading to the deterioration of health conditions in the Palestinian Territories.
- The health conditions of the people living in OPTs
- Measures that need to be taken in order to significantly improve health conditions in OPTs
- Ways of tackling the difficulties of providing aid to these territories
- Improving infrastructure, supplies and other needs that the healthcare in the OPTs currently lacks

### iv. Participating Organisms

- Hamas
- Israeli authority and military
- Palestinian Liberation Organization (PLO)
- Premiere Urgence Internationale (PUI)
- Palestinian Authority (PA)
- Palestinian Ministry of Health
- United Nations Relief and Works Agency for Palestinian refugees (UNRWA)
- World Health Organization (WHO)
- Non-governmental organizations (NGOs)

### v. Guiding Questions

1. How has the armed conflict and rivalry between Palestinians and Israelis affected the people's health in the OPTs (Occupied Palestinian Territories) and the access granted to basic health related services?

2. Has your country taken, or is planning to take, action to help the health services of those affected in the Israel-Palestine conflict?
3. What are the main medical services needed, and how can these services be provided to those in the OPTs?
4. What healthcare systems are used in your country that could be viable in the OPTs?
5. What are the implications of providing healthcare and services to the afflicted in the OPTs? What difficulties presented by the ongoing belligerent conflict can affect the logistics of providing aid?
6. Has your country gone through a similar situation as the one currently happening in the territories occupied by Palestinians, where the medical care is inaccessible or unavailable? If so, what has been done to improve the situation?

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