World Health Organization

LAKESIDE MODEL UNITED NATIONS | 2026

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INTRODUCTORY LETTER

Dear Delegates,

I am thrilled to welcome you to the World Health Organization at LakeMUN 2026! My name is Medha, and I am ecstatic to have the honor of serving as one of your Co-Directors for LakeMUN's top-tier committee! I'm joined by my Co-Directors, the charismatic and clever Charie and the kind and kinetic Karishma. We guarantee that WHO will be one of the most engaging and dynamic committees that LakeMUN has ever seen! Whether you are completely brand-new to the world of Model United Nations or a seasoned expert, this committee is designed to challenge you while also entertaining you, and most importantly, help you grow as a delegate.

The World Health Organization (WHO) is one of the largest and most influential bodies within the United Nations, tasked with addressing global health issues that impact billions of lives. As delegates, you will use your experiences in combination with prior research in order to step into the roles of experts and skilled policymakers, needing to carefully balance maintaining your country's values with coming to a consensus that ensures that tangible change will occur. A deep understanding of the topic and your country's stance will assist you tremendously in accurately endorsing your country's ideas, as ultimately, your goal is helping the organization achieve its overall mission of promoting the highest possible level of health for all people.

As your dais, our biggest hope for this committee is for each and every delegate to walk away feeling more confident in your ability to advocate passionately for your country's position. WHO is a space where bold ideas are necessary for developing meaningful solutions that will make a difference. We strive for you to feel empowered to speak up and take risks! Your participation will make the committee impactful and an experience worth remembering!

This year, WHO will be tackling the topic of Regulating the Use of Genetic Engineering in Disease Prevention and Treatment. While the subject matter is

quite complex and highly relevant in today's world, we encourage you not to be overwhelmed by the sheer volume of technical data you may find. Instead, focus on exploring the ethical dilemmas and innovative solutions that can be debated throughout the course of the committee. This topic offers countless opportunities for nuanced debate and ambitious agendas which we are confident you will be able to capitalize on.

The background guide, meticulously crafted by your wonderful dais team, will serve as an invaluable tool as you begin your research, and we strongly recommend that you reference it as you are digging into the topic. It is meant to give you a solid understanding of the key information and also provide a strong foundation that you can build your deeper, country-specific research upon. That being said, should you encounter any difficulties, feel unsure, or generally need clarification on anything at all, please do not hesitate to reach out to us. One of my Co-Directors or I are always available to answer questions, offer guidance, and help you through any challenges you may face.

We are beyond excited to see you in committee and eagerly await the creative ideas and interesting debate that you will spark as members of WHO! LakeMUN 2026 will be an unforgettable experience, and we simply cannot wait to have the privilege of sharing it with you all! Come prepared and above all, don't forget to enjoy every single moment!

Best of luck,
Medha Kashyap
Co-Director | World Health Organization (WHO)
LakeMUN 2026

COMMITTEE OVERVIEW

Established in 1948 to advance the health of all people, the World Health Organization (WHO) is one of the most prominent agencies of the UN and serves as the largest intergovernmental health organization in history. Its founding objective– to ensure the highest attainable standard of health– has

since been enhanced by targeting the areas of disease prevention, research, and the improvement of global health practices. Today, with operations in over 150 countries and more than 8,000 professional employees, the WHO builds the foundation of medical policymaking in all 194 of its member states. The core values of excellence, collaboration, and integrity drive its determination to promote health and serve the vulnerable on the international stage.

As an advisory body, the primary role of the WHO is to elevate health standards on national and global scales. Regulations, structural frameworks, and the spread of information comprise the bulk of the WHO's work, aimed at preventing and addressing various health crises. Because it is a non-executive body, the WHO relies on voluntary compliance of its member states and is thus uniquely grounded in collaboration and interagency. The lack of an enforcement mechanism, however, has become one of the WHO's greatest strengths, as its efficiency lies in the anti-hierarchical structure of initiatives and global meetings. For instance, the World Health Assembly (WHA)– the WHO's primary decision-making body– features a "one nation, one vote" policy, unlike the traditional veto power given to the permanent 5 members of the UN General Assembly. As an annual convention held in Geneva, Switzerland, the WHA emphasizes the spread of information between countries through setting policy, delegating fiscal investments, and adopting a worldwide health agenda for the next year. Countries in attendance at the WHA are individually responsible for implementing these measures in their own national health ministries, assisted by the WHO's Executive Board and elected Director-General.

Despite policymaking being its central function, the WHO also serves as a critical presence in the world's technical health and data collection programmes. With its extensive staff of medical professionals, analysts, and hands-on researchers, the WHO bases its research on the data it receives from member states, tracking the presence of disease, malnutrition, and other humanitarian threats in high-risk regions. As a primary responder to humanitarian crises, the WHO also conducts research on causal relationships between human equity and health, connecting the humanities and stem-based sectors in its work. In the past, the WHO's

achievements include being credited with the eradication of smallpox, the near-eradication of polio, the development of a functioning Ebola vaccine, the delivery of therapeutics, and increasing overall access to universal healthcare. Recent initiatives include strategic advances such as the Triple Billion targets– 3 billion more people benefitting from universal health coverage, better protected from health emergencies, and enjoying better health and well-being– and ongoing commitments to increasing health access to people across the world.

At LakeMUN, WHO delegates will be highly encouraged to examine the ethical nuances of medical policymaking through the lens of their member state. Given that the WHO itself places just as much emphasis on intergovernmental collaboration as it does technical research, delegates should offer unique insights into potential solutions, exploring the various roles of nations in achieving the basic human right of health. Throughout debate, delegates will be encouraged to offer solutions that improve the health of all the world's people, while still adhering to the interests of their individual nation.

TOPIC:

Regulating the Use of Genetic Engineering in Disease Prevention and Treatment

TOPIC INTRODUCTION

Genetic engineering refers to the manipulation of an organism's DNA using technology to alter many traits. Advances in gene-editing technologies, such as CRISPR-Cas9, have made it faster and more accurate for scientists to modify genes. These developments have opened new possibilities in medicine, agriculture, and more.

Genetic engineering identifies genes responsible for traits and modifies them within an organism's genome. Scientists can insert new genes, remove harmful ones, or adjust how genes function. These tools are used in labs worldwide and have become an essential mechanism for studying diseases, improving crops, and developing new medicines. However, many ethical concerns have come up surrounding genetic engineering in recent years, such as the lack of safety regulations put in place by governments and the fear of genetic engineering being used for eugenics, editing traits to be "superior."

Genetic engineering plays a major role in agriculture and food security. Genetically modified crops can be made to resist pests and tolerate drought. Some crops are also modified to improve nutritional value, such as rice made to produce vitamin A. Some argue that these technologies can help address global hunger and support sustainable food production as the world's population grows.

Furthermore, genetic engineering is being explored for ecological purposes, too. Scientists are researching ways to genetically modify mosquitoes to reduce the spread of diseases like malaria and dengue fever. Other research focuses on microorganisms that could break down pollution, potentially helping address environmental issues.

Looking past these benefits, though, genetic engineering raises significant ethical and environmental concerns. The possibility of editing embryos is a

controversial topic with prevalent questions surrounding eugenics and “designer babies.” Embryo editing and human enhancement could have long-term effects on future generations. There are also concerns about the ecological impact of releasing genetically modified organisms and the potential misuse of gene-editing technologies. GMOs have led to increased reliance on herbicides and pose threats to ecosystem biodiversity, a risk that could worsen if they are released at higher rates. Gene-editing technologies are prone to misuse, potentially resulting in changes to heritable traits across generations and altering intelligence, athleticism, and appearance in humans. Being new, gene-editing has not undergone sufficient testing, meaning it has the potential for fatal health consequences.

Currently, genetic engineering is rapidly advancing as new technologies move from research labs into real-world applications. In 2023, the first CRISPR-based therapy, Casgevy, was approved in the United Kingdom and in the United States to treat sickle cell disease and beta thalassemia. Scientists are also using gene editing to develop crops that resist drought, such as CRISPR-edited rice and wheat, that can survive extreme climate conditions. In addition, genetically modified mosquitoes have been released in trials in countries such as Brazil and the United States to reduce populations of mosquitoes that spread diseases like dengue and Zika. These developments show that genetic engineering is no longer just experimental but that it is becoming a key tool in medicine, agriculture, and health.

Genetic engineering technologies continue to advance rapidly, and the international community faces the challenge of balancing innovation with responsible use. Governments, international organizations, and scientists must work together to establish rules, ethical standards, and frameworks to ensure that genetic engineering benefits society while minimizing risks.

TOPIC HISTORY

Popularized by 20th-century author Jack Williamson in his science fiction novel

Dragon's Island, the term genetic engineering originated in 1951 as the epitome of human ingenuity: a leap that seemingly reimagined the future of the scientific field. The idea of precisely editing an organism's genetic material had long been a mainstay of popular culture, yet its precise workings remained a complete impossibility to researchers of the time. Though exciting, the essence of genetic engineering was evidently more "fiction" than "science."

Yet only two years after *Dragon's Island*'s publication, zoologist James Watson and physicist Francis Crick discovered the helical structure of DNA, opening for the very first time a window into an organism's genetic makeup. This breakthrough not only uprooted the biological world but was also the start of a period of unparalleled genetic advancement.

The 1960s and 70s experienced a series of advancements in rapid succession, contributing to the growing prominence of genome editing. Most notably, the first recombinant DNA molecules were created in 1971 by biochemist Paul Berg, who extracted and combined the genetic sequences of viruses with the use of restrictive enzymes. The greatest discovery of the decade was made by biologist Rudolf Jaenisch in 1974: by injecting external DNA into a developing mouse embryo, the first genetically modified animal was successfully created.

In the mid 1970s, however, a different kind of advancement began to permeate within the scientific community: one relating to the existence of genetic engineering itself. In less than three decades, scholars had gone from questioning its very possibility to developing mutant organisms with previously inconceivable technology. Clearly, the study of genetics was one marked by immense growth and scientific advancement.

But in a field as limitless as this one, where do we draw the line?
In 1975, this was the question that began to plague the lives of scientific enthusiasts and policymakers alike. While previous DNA-modifying experiments had no doubt exemplified the brilliance of modern medicine, these trials were often performed under unsafe and unknown premises. With every new

recombinant technology, scientists risked exposing an unnatural or unintended creature to the human population. The field of genetics was thus thrown into a period of tumult, where each new advancement met its regulatory parallel.

In the same year, geneticists in the United States gathered at the Asilomar Meeting, the first ever convention aimed at creating a framework for biotechnology and its resulting products. To prevent the creation of biohazards, the meeting produced a unique set of guidelines for genetic engineering, delineated by Paul Berg and other prolific biochemists of the era. While the recommendations established in the convention were not binding, they set the first precedent for the formation of more regulatory bodies (NIH, EPA, FDA, and USDA). These initial foundations brought genetic regulation to the international spotlight, inciting clashes of practicality and ethics.

Meanwhile, the scientific world continued to make new discoveries during this time, heightening the need for formal regulation across the globe. From the 1980s onwards, numerous scientific and social institutions researched the effects of these new technologies, each with their own set of measured precautions. The development of the first transgenic plants in 1982 inspired reports by the Organization for Economic Cooperation and Development (OECD), which warned against releasing artificial plants into the environment. Similarly, the increasing prevalence of genetic engineering in food and crops in the early 1990s led to safety assessments and strict regulation by organizations such as the WHO and the European Union. Most notably, the Oviendo Convention of 1997 established the first legally-binding ethical framework, outlawing the genetic modification of human descendants, and is still used by the EU in the present day.

As the 20th century drew to a close, the consensus that the world had reached was that genetic engineering had become a net benefit for human society. Having reshaped the facets of medicine and food production, the advancements made in the late 1900s — from artificially producing insulin, the world's first GMO drug, to creating an effective vaccine for Hepatitis B — had proved essential to the ever-changing landscape of science and technology.

Yet as discoveries continue to be made, the question of their ethics becomes an increasingly blurred picture. The development of CRISPR technology in the modern era further complicates this scene, as the question now shifts from whether or not we should alter the code of life to how we reign the power to redefine it. Perhaps this time, as in the case of *Dragon's Island*, the answer may lie in the not-so-distant future.

CURRENT SITUATION

We stand on the brink of a new era, where the fundamental instructions for all life are no longer a mystery, rather a tool. Organisms' DNA can be directly studied, deciphered, and altered to address medical issues and prevent future harm. Methods including CRISPR gene editing and recombineering can assist with gene therapy, cancer treatment, vaccine development and far more. As with every innovation, such technologies come with countless ethical and safety risks prompting uncertainty and preventing their incorporation. Although genetic-engineering has massive medical potential, concerns must be addressed at a global scale to ensure its success.

In recent years, research and use of genetic engineering has skyrocketed. Not only have individual methods advanced, researchers like those at the University of Pennsylvania are exploring consolidating various abilities into a singular tool. Where in the past addressing genetic abnormalities would have required multiple distinct tools, now making larger scale genetic changes can be easier. Furthermore, despite many international calls for a moratorium, some have chosen to push forward in germline or heritable editing exploration, possibly creating lasting impacts on generations to come. Others have turned to Artificial Intelligence to better plan efficient forays in the world of gene-editing. The impacts that genetic engineering could have on treating genetic diseases, and improving patients quality of life are inconceivable. If refined, they could revolutionize the medical industry and benefit millions, if not more. Gene-editing's fast paced-growth, combined with a growing public interest and investment in employing gene editing for medical purposes has led the regulatory aspect to fall behind.

The ability to access and change human DNA presents major ethical dilemmas regarding consent, misuse, and premature experimentation. Opinions have been heavily

mixed within the scientific community and public. Who decides which genes are "bad" or need modification? Will gene therapy make society less accepting of people with disabilities or differences? If something goes wrong when treating a medical issue, who is responsible for the implications? Questions like these persist, sparking heated debate as they circulate. Risks of stigmatization and potential for a "designer baby" market raise questions on who is capable of consenting to altering a child's DNA. Moreover, the sheer novelty of gene-editing creates the challenge of unknown long-term health effects that may result from rushed or premature experimentation. Those in favor of innovation argue that progress is too crucial to slow down, while others believe that the ethical consequences are too burdensome to ignore. Thus while scientific capability does exist, ethical consensus does not.

The regulatory landscape is ever-changing, vastly differing across countries and governments. No single global framework exists to guide the use or guide the development of genetic research, though some organizations like the US Food and Drug Administration and European Medicines Agency are collaborating with the WHO to create more aligned policies. Many individual nations have instituted bans on germline/heritable human genome editing, until further ethical considerations are resolved. While some regions have established comprehensive regulations, other countries are still in the process of deciding how to evolve their outdated regulations to account for these rapidly advancing techniques. Calls for increased transparency and oversight have increased, highlighting positive steps being taken towards addressing concerns in a manner that does not remove all regulation or place unnecessary bans. Achieving global coordination is difficult but necessary to ensure the safe use of these technologies to better treatments and improve the medical landscape.

Gene-editing will likely dramatically transform the medical field and our ability to cure genetic diseases globally. This technology could either reduce or deepen health disparities. Genetic research has also proven to be highly expensive. Yet few efforts have been made to increase its accessibility and affordability, making its integration in the world of medicine unimaginable for many. Researchers and professionals risk widening inequalities between people and countries, negatively impacting developing nations, and damaging public trust in healthcare systems. The

questions medical professionals face in this transition remains: How can we ensure that everyone benefits from genetic engineering and no one is left behind?

If not addressed, a lack of clear regulation could lead to misuse and ethical lines being crossed. Inequalities may worsen and health risks will compound. In addition to individual patients suffering, there could be an overall loss of public trust in medicine systems. Governments will greatly gain from structured advice and encouragement on regulations, and techniques that they can employ to mitigate any detrimental effects. Ultimately, it is up to the WHO to debate and come to a consensus on a framework that can help guide countries as they navigate this quickly evolving landscape of genetic engineering technologies.

BLOC POSITIONS

Bloc 1: Pro-Innovation and Rapid Advancement
Australia, China, Cuba, Japan, Phillipines, South Korea

This bloc consists of countries who are active supporters and proponents of innovation in and incorporation of genetic engineering, especially in the medicine sector. Often creating expedited pathways for these technologies to be tested and implemented, their primary goal is to approve and utilize genetic engineering for patient and overall medical progress. They typically have lenient guidelines and ambiguous regulation regarding controversial uses, such as early stage germline editing. Although many have placed bans on these, they generally exhibit a much more open environment for research into genetic engineering. Focused on being global leaders in genetic medicine, these nations aim to balance constant innovation with safety standards.

Bloc 2: Moderately Permissive with Cautious Regulation
Brazil, Canada, India, South Africa, Switzerland, United Kingdom

These countries hope to permit genetic engineering, support investigation, and often have extremely advanced biotechnology sectors. However, they tend to favor stricter regulation in contrast to the more pro-advancement countries and generally prohibit

disputed methods that can affect future generations through heredity. Further research into genetic technologies that may be used in medicine is encouraged, but coupled with a focus on rigorous testing to ensure safety, ethicality, and legality. Often, a case-by-case outcome-based approval process is used, in place of a blanket ban on all forms of engineering.

Bloc 3: Restrictive and Highly Precautionary
Afghanistan, Bangladesh, Democratic Republic of the Congo, Mexico, New Zealand, Nigeria, Peru

Safety and regulation are the primary priorities of the nations that make up this bloc. These nations often enforce strict legal bans on the creation of genetically modified human embryos, as well as heavy regulation on other forms of genetic engineering in medicine. Human germline editing is typically classified as highly illegal, and while some research is permitted, a strong emphasis is placed on maintaining ethicality throughout the process. While some members of this bloc seem to be moving towards more tolerant guidelines, others still remain staunchly against a majority of forms of genetic engineering in medicine.

CASE STUDY

China: He Jiankui Affair

In China, regulations concerning human genetic engineering, particularly with respect to disease prevention, have drastically escalated in response to the “He Jiankui Affair,” a 2018 ethics scandal involving Chinese biophysicist and professor He Jiankui. This incident gained international notoriety as one of the most overtly illegal medical experiments in genetics history, in which He and two other scientists altered the genomes of twin embryos and implanted them into female subjects. Specifically, He and his colleagues attempted to edit the CCR5 gene—the sequence responsible for the expression of HIV symptoms— in the offspring of heterosexual couples, where the male parent was already afflicted with HIV.

He's experiment sparked intense controversy within the scientific community, as some began to think that the use of CRISPR-Cas9 technology was entirely unethical. Not only did He illegally edit the genomic material of human offspring, thereby resulting in a heritable mutation, but he also did so under extremely under-researched and unsafe circumstances. To bypass the ethical frameworks set in place by medical institutions, He forged and fabricated information that rendered doctors oblivious to his genetic alterations, when such alterations risked irreparable damage to the lives of the resulting children. Today, the edits that He and his crew made still have unknown effects on the two twin girls, who appeared healthy at birth but may later develop unforeseen irregularities. One speculated possibility is dangerously enhanced intelligence, as the CCR5 gene is associated with major neurological functions. He's actions caused many to question whether CRISPR editing was a threat to science and society itself, leaving Chinese policymakers more aware than ever of the need for change.

Today, China's regulatory frameworks for genetic engineering are organized in four distinct categories: biosafety, human genetic resources, ethical review, and common law. The He Jiankui Affair served as a major cause of reformations in the latter two categories, particularly ethical review. Following the incident, four branches of the Chinese government developed a revised version of the document "Ethical Review Measures for Life Science and Medical Research Involving Human Subjects," dictating the need for ethical review committees and adherence to international codes in application to medical interventions involving human life. The revision also included specifications on the requirements of ethical reviews and the scenarios in which they may be applied. Lastly, the Chinese government officially declared 'illegal genome editing and cloning of embryos' a federal crime, helping prevent unethical practices like those of the He Jiankui incident from repeating themselves in history.

Ultimately, despite these efforts, China continues to be a global leader in CRISPR research on agricultural output and disease treatment. Although existent, many criticize China's ethical frameworks for their ambiguity and susceptibility to loopholes— as with every nation, there are still improvements yet to be made.

GUIDING QUESTIONS

- What genetic engineering-related actions have your country or other countries taken in the past?

- What global regulations should exist for genetic engineering companies (e.g. CRISPR)?

- How can we ensure that expensive gene therapies are accessible to both developed and developing countries?

- How can genetic engineering be used to treat genetic diseases safely and justly?

- How should countries cooperate on biosecurity monitoring?

FURTHER RESEARCH

https://www.who.int/teams/health-ethics-governance/emerging-technologies/human-genome-editing

- This page from the World Health Organization explains what human genome editing is and how technologies such as CRISPR can add and remove DNA in living organisms. It also discusses the ethical and social challenges of gene editing and the need for international guidelines and oversight to ensure responsible use of such technologies.

https://www.cell.com/cell/fulltext/S0092-8674(24)00111-9

- CRISPR-based genome editing has transformed biology and medicine by allowing scientists to precisely modify DNA. This article explains the technology, its applications in studying biological processes and treating genetic diseases, and the ongoing efforts to improve its accuracy.

https://innovativegenomics.org/news/crispr-clinical-trials-2025/

- This report provides an overview of current CRISPR clinical trials and gene-editing therapies being tested. It highlights how genetic engineering is being used to treat diseases such as sickle cell disease and inherited disorders, and it tracks its rapid growth.

https://link.springer.com/article/10.1007/s00299-024-03183-1

- This article examines how gene-editing technologies are being applied to agriculture. It discusses how genome editing can create crops that are more resilient to climate change, pests, and disease, while also improving agricultural productivity.

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)01084-X/fulltext

- This article explores the ethical concerns surrounding gene editing, including risks associated with heritable genome changes and the need for clear regulatory frameworks. It emphasizes that while gene editing offers major medical benefits, it must be carefully managed to prevent any consequences.

CITATIONS

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