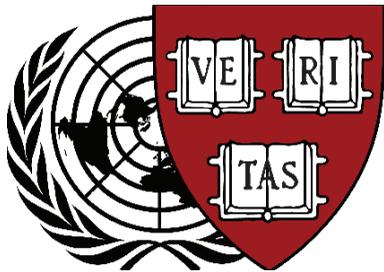


Background Guide in Brief
for the
World Health Organization

Harvard Model United Nations China

March 21- 24, 2019



Harvard Model United Nations China

A LETTER FROM THE SECRETARY-GENERAL ON BACKGROUND GUIDES IN BRIEF

Dear Delegates,

Welcome once more to Harvard Model United Nations China 2019! The entire Staff and Secretariat of HMUN could not be more excited to see you in person in Beijing in a few short weeks.

By now, you have most likely begun preparing for HMUN China 2019. Preparing for a Model UN conference can be intimidating, but our team is committed to providing you with the support and resources that you will need to succeed. In keeping with that mission, this year at HMUN China we are piloting a new resource—the Background Guide in Brief.

Background Guides are intended to outline the major issues and ideas that delegates will have to confront in the committee room. However, reading the Guide can also be intimidating for delegates without prior experience in English-language Model UN, or MUN in general. To help all delegates succeed, we have asked your Director to create an abbreviated version of your committee's Guide, enclosed in the following pages.

We hope that this Background Guide in Brief provides a helpful overview of your topic. That being said, your preparation should not end with this document. We encourage you to also read the full Background Guide, which goes into much greater detail and includes the full bibliographical documentation of our Directors' work. Full Guides also contain useful information on committee expectations and procedure, and you should use it as a resource now and at conference. In short, consider what you learn from the Background Guide in Brief to be a launching point for further research—be sure to take advantage of the time you have to prepare for conference as best you can, and feel free to reach out to your committee Directors with additional questions.

Thank you once again for choosing to participate at HMUN China 2019! We are beyond excited for conference, and look forward to welcoming you in Beijing in a few weeks.

Sincerely,

Anthony Bogachev

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Secretary-General
Harvard Model United Nations 2019

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Human genome sequencing is the process of determining the complete sequence of an individual's DNA, the traits that make that individual unique. The cost of genome sequencing has dropped very quickly over the past few years from a few million dollars to a few hundred, as well as the time required to process the genome from four months to a few days. This greater accessibility has allowed medical research to further explore how this technology can bring about cures to some of the most prevalent and persistent diseases, such as cancer, HIV, malaria, Alzheimer's, diabetes, etc. However, given the rapid advancement of genome sequencing, privacy concerns, economic concerns, and most importantly, ethical concerns have not been established or addressed properly, leading to opposition from different interest groups, cultures, and religions around the world. Human genome sequencing represents the future of medical research, and thus abandoning efforts to understand this technology is not a solution to the concerns mentioned above. Instead, the World Health Organization must work within the context of continued research to enhance the technology and its ethicality.

Even a small change in one's DNA sequence can have significant impacts on human traits. This is particularly relevant to genetic disorders, diseases that are caused by DNA mutations. A DNA mutation is a permanent change in DNA sequence. Most mutations are harmless and can even be beneficial, but in some cases a single mutation can result in serious disorders such as sickle cell anemia and cystic fibrosis, or in other cases mutations can affect entire chromosomes (a grouping of DNA / humans have 23 pairs of chromosomes) and can lead to conditions such as the Down syndrome. Moreover, current research has shown that mutations on several genes can contribute to cancer and other diseases.

As human genome sequencing started advancing, opposition also increased. Many people against this project brought theological and moral considerations. Many religions, including Judaism, Christianity, and Islam, continuously questioned

the morality of potentially altering germ lines to create humans with specific traits. People feared that the ability to interpret and manipulate human DNA could lead to a resurgence of the eugenics movement, in which societies will strive to create a society of genetically superior beings and treat those who are not genetically engineered as inferior.

Given this opposition, the World Health Organization must keep in mind the following three concerns as the discussions unfold: Privacy, Economic, and Ethics. On Privacy; In order to realize the full benefits of genome sequencing, mass public participation is required. The process of obtaining genetic information in the first place can involve violations of individual rights if DNA is procured without an individual's consent. People leave trails of DNA wherever they go, in the form of dead skin cells, saliva, hair, and other bodily products. Therefore, it would be extremely easy to collect DNA samples without individuals' consent or knowledge. Furthermore, DNA samples willingly provided to commercial sequencing companies may not be subject to the same stringent regulations as samples used in scientific research. Given the hereditary nature of human genetics, an individual's genome could also be used to predict genetic characteristics of close relatives who have not consented to share their genetic material. Privacy concerns also extend into the future. As research progresses, genetic material that is relatively uninformative today could become extremely valuable. This could lead to privacy violations if stored genetic material is used for new purposes which donors may not have consented to at the time of donation.

On Economics

Thus far, the ability to sequence the human genome has been limited to nations with the financial resources to invest in human genome research. Considering the cost of the research, which topped US \$1 billion, there is no way that countries with a lower economic status

would have been able to embark on such an endeavor. However, now that the project has been completed, it is time to consider how, where, and by whom genetic research should be conducted in the future. Although human genome sequencing costs continue to fall, research into new, less expensive sequencing methods will require continued financial investment. Further research to generate genetic based diagnostics and genetically tailored treatments will also require financial resources beyond the means of most countries. Moving forward, it is important to consider which nations (or specific institutions) are best suited to continue genomic research, who should provide funding and knowledge-based resources, and how previously uninvolved nations can be integrated into or benefit from the research.

On Ethics

Most prevalent among these is how genomic knowledge could be used against an individual. As research progresses, DNA samples will become increasingly informative about an individual's disease risk, health status, or aptitudes. While researchers have already stressed that traits are not solely determined by genetics and also involve environmental interactions, there is a potential for employers, insurance companies, etc., to discriminate based on genetic traits. Individuals with knowledge of their own genome may feel compelled to take certain actions or pursue certain goals. Individual countries have instituted laws to protect people from genetic discrimination, such as the US Genetic Information Nondiscrimination Act (GINA). However, these principles do not apply outside a country's borders. Economically, genomic research also encounters ethical concerns. As previously mentioned, genomic research is largely restricted to wealthy countries. People living in these countries may have more access to new tests or treatments. Beyond geographic considerations, the cost of genetically based medical procedures will restrict them to wealthy individuals or individuals with certain

health insurance plans. There is also the question of whether the benefits of further research truly justify the cost given that genetic research often focuses on rare disorders.

This Background Guide in Brief is not meant to provide an exhaustive introduction to the topic. Please consult the full Background Guide on the HMUN China website, which also includes citations for the material in this document.