



GLOBAL HEALTH DIPLOMACY

GLOBAL CONVERSATIONS

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Dear Readers,

We are delighted to present to you our feature issue entitled 'Global Health Diplomacy.' 2023 has been a year marked by profound challenges, and our global community has had to navigate complex problems. Democratic backsliding, economic uncertainties, and ongoing geopolitical tensions have been key features of global politics throughout the last twelve months. Among these difficulties is the ever-developing issue of global health and the accompanying challenges this policy issue presents.

In this issue, we have asked our writers to reflect on this theme. In the coming pages, our team has thoughtfully tackled issues in the field of global health such as industrial agriculture's role in alleviating world hunger, health aid in Yemen, global health networks, vaccine nationalism, socioeconomic disparities of healthcare access in Brazil, as well as the threat of antimicrobial resistance.

In aftermath of the COVID-19 pandemic, it has never been more important to take global health seriously and bring attention to the inequalities and complexities that are experienced by those around the world in relation to health.

Thank you for reading, and we hope you enjoy reading this collection of essays as much as we did.

Editors-in-Chief

Dan McDowall and Adhithya Krishnan

Harvesting Solutions:

Navigating Industrial Agriculture's Role in Alleviating World Hunger.

By Steffi Hebel. Edited by Aurora Schatz.



Harvesting Solutions

It is estimated that 40 million people across 51 countries are facing threatening levels of world hunger. Given the increased vulnerability and risk of disease, it goes without saying that malnourishment and hunger has profound implications for the global health system. Not only is this a significant issue, it is a persistent one that often reflects regional disparities within the global community. Large industrial agricultural companies, such as Bayer (which incorporated Monsanto) have come to the forefront with what they regard as solutions. Other institutions within the corporate food regime champion neoliberal economic policies, many of which have proven successful. However, critics say there are deep-rooted issues beyond surface observation.

Agribusiness is characterized by large-scale, industrial farming practices, and has arguably become the cornerstone of the modern food industry. Many agribusiness firms aspire to become key players in addressing global food insecurity, emphasizing efficiency and productivity gained through the application of their technological advancements. These advancements include genetically modified organisms

(GMOs) and intensive farming that employs various chemicals such as pesticides, herbicides, and insecticides. Be that as it may, these technologies have been essential for feeding a rapidly increasing global community of 8 billion people.

In what would appear to be in good-faith, Monsanto has a history of supplying genetically modified (GM) seeds to farmers in developing countries. However, many farmers spoke out that the various seed patents and licensing agreements with Monsanto led to alleged farmer exploitation, with critics arguing that these legal arrangements limited the farmers' traditional right to save and exchange seeds. Likewise, many of these farmers found that there was a "debt and dependency" loop, where resources were borrowed that cannot be paid back, between large industrial agricultural companies. This is particularly disturbing when these communities become reliant on these companies for seed supply to alleviate the effects of hunger.

Further drawbacks point to the monoculture that is developed through industrial agriculture, where vast areas of land are dedicated to a single crop. This practice has led to a massive loss of biodiversity within regions where monoculture has occurred. This in turn creates a negative feedback loop where the local crops are more susceptible to diseases, further threatening the food security of the

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affected communities. Additionally, the extensive use of chemical fertilizers and pesticides has contributed to long-term soil degradation and water pollution. This long-term damage to soil hinders the ability of farmers to effectively produce a stable turnaround of crops in subsequent years. Furthermore, the runoff of these chemicals has infiltrated many local water bodies, affecting the health of nearby populations and posing direct risks to human health. The unforeseen consequences of these policies highlights the irony of the situation: actions seemingly aimed at reducing hunger could risk worsening it.

Some critics of Monsanto argue that what appears to be a sincere helping hand, in turn, created a serious resource inequality problem. Critics also argue that industrial agriculture practices concentrate power and resources in the hands of a few corporations, thus exacerbating global economic inequalities in regions that are already facing economic disparity. Amidst this controversy, the “Monsanto” brand became a politically charged phrase. As a result, in 2016 the German chemical company giant, Bayer, acquired Monsanto in an all-cash deal

or \$66 billion. Since this acquisition and merger, Bayer has gone to great lengths to aggressively rebrand their image. In January 2022, they announced new philanthropic initiatives aimed at addressing global hunger through supporting agricultural development in developing countries. Although they claim to adhere to ethical standards with their business practices, many of these “new” initiatives look remarkably similar to Monsanto’s former philanthropic ambitions.

Farmers, human rights activists, and environmental groups continue to advocate for an improvement of the role of industrial agriculture in alleviating world hunger. Although there have been unforeseen consequences associated with the presence of industrial agriculture in some hunger-risked communities, solutions can be harvested. Many activists call for locally adapted and sustainable agricultural practices to be brought to the forefront of agricultural solutions. Some call this the new “green revolution” of food sovereignty.

In the quest for addressing world hunger, supporting small-scale farmers and empowering local communities appears to be the correct move. More resilient and effective approaches to addressing the issue of world hunger are needed. This would entail promoting localized food systems, thereby decentralizing power and resources through industrial agricultural initiatives. In addition, fostering diversity of

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agricultural practices would help safeguard against environmental degradation. Lastly, and most importantly, there should be policies implemented that prioritize the needs of small farmers. Industrial agriculture need not be left out of this process; there is a critical role for them as well. Industrial agriculture has a moral imperative to assume ethical roles with local farming partnerships. Albeit challenging, navigating this partnership between large corporations and local farmers is a necessary and worthwhile pursuit.



Health Aid in Yemen's Humanitarian Crisis

By Andrew McKay. Edited By Cameron Vrckovnik

Health Aid in Yemen's Humanitarian Crisis

Since 2014, Yemen has suffered from arguably the largest and most overlooked health crisis in the world. For the last nine years, Yemenis have endured the devastating effects of a civil war between the government of the Republic of Yemen and the Houthi-led revolution. In September 2014, Houthi rebels overthrew President Abdrabbuh Mansur Hadi's government in a coup d'etat, and both sides have claimed sovereignty of the country ever since.

The effects of the Civil War on the health of Yemen's population have been immense, and can be first linked to the destruction of healthcare infrastructure. Most of the destruction of infrastructure in the war has been caused by strategic bombings and airstrikes by Saudi Arabia, who have supported the internationally-recognized Republic of Yemen government since the onset of the war. For example, the Saudi military has bombed approximately 900 hospitals in Yemen since the beginning of the war. Targeting hospitals and schools has left children at home without medical attention. Many of the hospitals were staffed by international organizations such as Doctors Without

Borders. It is estimated that Saudi airstrikes alone have killed 17,734 people, over 4,017 of which being children. The destruction of infrastructure has also led to a lack of clean water and sanitation, which has severely exacerbated child malnourishment in the country.

This food and malnourishment crisis is one of the most pressing health issues that the Civil War created. Malnutrition, and its related health effects, severely affected children and mothers in Yemen, a country with an incredibly young population. In 2017, it was estimated that over 370,000 children were suffering from severe malnutrition. By 2023, the World Food Programme estimates that over 17 million Yemenis are affected by the food crisis, around half of Yemen's population. The issue of malnutrition is especially devastating on the overall health of Yemen. As the Director General of the World Health Organization put it, "malnutrition leads to disease, and disease leads to malnutrition." The WHO found that poor sanitation and a lack of clean water were some of the largest determinants in malnourishment and disease in Yemen.

Despite the need for additional aid for health intervention throughout the worsening of the conflict, the global humanitarian response has seen a decrease in funding in the last couple of years. From 2018 to 2023, funding for the UN's Humanitarian Response Plan to Yemen decreased by 62 per cent.

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The United States reduced humanitarian funding to Yemen by 23 per cent, the UK reduced funding by 86 per cent, Denmark by 80 per cent, and Germany by 60 per cent. The UN Office for the Coordination of Humanitarian Affairs set the 2023 funding goal at \$4.34 billion, only 36.3 per cent of which has been funded. The internationally recognized Yemeni government, helmed by Rashad al-Alimi condemned the global response to the humanitarian crisis. In a similar fashion, former de facto president of Yemen and Houthi leader, Mohammed Ali al-Houthi, also criticized the efforts of the West, especially the downscaling of operations by the World Food Programme in September 2023.

It is clear that Yemen is facing one of the most pressing global health crises of this generation, and there is an urgent need to rebuild the healthcare infrastructure of Yemen. Many experts believe that the most important ways to improve the health crisis start with funding, medical equipment, and trained personnel. The WHO believes that an increase in funding is crucial in immunizing Yemen's population from measles, diphtheria, and poliovirus type 2. Cuts to health interventions are

also likely to erode health infrastructure, which includes deliveries of sanitation and hygiene equipment, oxygen, and water. The WHO has further forecasted that the underfunding of health-related humanitarian aid to Yemen will likely result in up to 1,000 unsupported health facilities and up to 10 million people without access to basic health services.

Save the Children commended a handful of countries that stepped up in their funding toward aid in Yemen. Of these countries, Canada, France, and the Netherlands were highlighted as the most generous in terms of contributions. Hopefully, this exemplifies there is still hope for health aid in Yemen. In recent months, Doctors Without Borders has also become an involved source of health aid in the country, focusing on reducing the spread of measles amongst Yemeni children. In just the first half of 2023, Doctors Without Borders tripled the number of patients they treated for measles, compared to their entire 2022 operations.

There is still hope, however, as humanitarian organizations and a handful of western countries continue to recognize that 2023 is not the year to abandon their previous health interventions in Yemen. Nonetheless, health aid in Yemen must still be top of mind in western countries, even in light of an uptick in the need for humanitarian funding over the past year. Without a coordinated international response, the total

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collapse of Yemen's healthcare system
becomes more likely every day.



What do Global Health Networks Tell Us?

By Napas Thein. Edited by Cameron Vrckovnik

What do Global Health Networks Tell Us?

The spread of the novel coronavirus COVID-19 was fast and global. Within nine months of the World Health Organization (WHO) declaring it a pandemic, the disease had spread to nearly every country in the world. As of November 2023, the WHO reported over 771 million infections and six million deaths from the virus. Within Canada, these deaths have been disproportionately higher within racialized and poorer households, signifying the virus' socio-economic impacts.

On the other hand, the vaccine response has been equally as viral and disproportionate. By 2022, over 13 billion doses of 30 vaccine types have been distributed across collaborative networks of governments, international NGOs, and private sector actors around the world. The pace of vaccination was fast, but focused mainly within the Global North, with rich nations like Canada achieving 89 per cent vaccination rates (of one dose) while poorer nations like Cameroon had as little as 6 per cent.

Constantly, we are told by policymakers that we must trust the complex networks of actors involved in

the production of and protection of our global health systems. But rarely are we given the chance to understand exactly what these systems encompass and look like. The work of various scholars that have employed social network analysis helps us better understand what we have and why it produces the outcomes we find today.

What is social network analysis?

Social network analysis, simply put, is the study of social structure. Instead of seeing each individual or group as independent actors, social network analysis suggests that social behaviour and change are the result of how people are structured in relation to one another.

Network analysts describe actors—like individuals, companies, and countries—as “nodes” and their connections to one another in some social format—say friendships, alliances, or trade relations—as “ties”.

This method of analysis goes deep. One famous work on the subject by Mark Granovetter presents evidence that people's “weak tie” networks (their casual and professional connections) proved more evident to economic success than their “strong ties”.

Network analysis helps reveal something interesting about our health networks. Firstly, it tells us who is acting on behalf of the global community. Secondly, it tells us with whom they work to make good (or bad) things

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happen. By understanding the structure, we better understand why things happen the way they do, and how we can improve our systems for the better.

What does the research say?

Network analysis has already been employed to help us understand the dynamics of our global health systems. Researchers Hoffman and Cole tackled the question by looking at the websites of actors within the global health system. With a special search-based algorithm, they found that the organizations' websites indicated a connection with others. Through this they managed to illustrate a network of relationships between specific organizations.

Their first finding was that global health actors were mostly composed of global civil society organizations (CSOs) and non-governmental organizations (NGOs). This finding is interesting, especially in the context of COVID-19, where nations around the world put leading emphasis on following the direction of the WHO, rather than the multitude of CSOs and NGOs.

They also found that over 98 per cent of global health actors' headquarters were in high-income countries, specifically the U.S. and Switzerland. This possibly presents an important explanatory point in the disproportionately rich-country-oriented distribution of the COVID-19 vaccine.

What about the networks of scientific research?

In 2018, researchers Cash-Gibson and his team analyzed over 30 thousand scientific publications from the 1960s to 2015, looking for areas of international collaboration within health inequality research. They created co-author networks, the networks scientists build with each other when they work together on research.

These researchers identified four clusters in which researchers were more likely to work together: small clusters of Middle Eastern and North African countries, Sub-Saharan country clusters, and larger imposing clusters, one composed of the U.K., Canada, and Australia. A look at the graph presents an obvious finding: poor countries in Africa and Asia are excluded from the entrenched collaborative research networks between rich countries. Poorer countries produce less research, hurting those nations' abilities to improve their local healthcare-based universities, overall healthcare education, and healthcare systems in general. This paper also recognizes the impact of "brain drain"—when poorer countries'

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best and brightest leave home to seek opportunities in richer countries—which further perpetuates this disparity.

Policy Recommendations from the Literature:

For policymakers interested in improving the health situation for countries in the Global South, pursuing a network approach can help with coming up with effective solutions.

- Reshape the network to make issue framing effective. A team of researchers under [Jeremy Shiffman](#) found that the shaping of the networks made a difference in health outcomes in a variety of situations. They suggest that effective networks created shared “compelling framing” of the issue at hand such as the anti-tobacco health networks and Stop Tuberculosis partnerships.
- Build institutional mechanisms that help these networks generate consensus, forge alliances, and connect with external actors. Networks still have significant room for improvement, [says Shiffman](#). Specifically, they need to capably generate consensus and involve

and forge alliances with external audiences and actors. Additionally, he points to a lack of institutional governance towards collective action that impedes action.

- Move NGOs or build them in the Global South. Whereas most global health actors were CSOs and NGOs headquartered in the Global North, improving health conditions for the South could mean moving operations for some of these organizations into poorer countries. Where moving may not be viable, supporting the building of or growth of NGOs in the Global South would be effective.
- Build more cross-continental research. Incentivizing both more research to be done within the Global South and more North-South research collaboration can help break some of the obstacles associated with poorer research quality and its associated impacts on the overall education systems within these countries.



**Coronavirus
Vaccine**
COVID-19
Injection Only

Sharing is Caring:

*Vaccine Nationalism and the Need
for Global Health Diplomacy.*

By Sarah Afiane. Edited by Avana Mohandesi.

Sharing is Caring

The world came to an abrupt halt when the COVID-19 pandemic began in March 2020. Within a year of its declaration as a pandemic, the World Health Organization (WHO) reported more than 122.5 million people in 191 countries and territories had contracted the virus, resulting in the loss of more than 2.7 million people. The shock from the pandemic prompted countries, inter-governmental organizations, research groups, and pharmaceutical companies to seek out ways to develop medical products capable of preventing and treating COVID-19. There was a particular focus on vaccines, setting off what we now call the 'vaccine race.' However, this resulted in richer countries, mainly in North America and Europe, to gain an uneven advantage stemming from their considerable R&D capacities, enabling them to be among the first to develop the COVID-19 vaccine.

Since the release of the COVID-19 vaccine, there has been a fervent global push to inoculate populations against the disease. However, poorer nations found themselves at a disadvantage in this race as countries were prioritizing their own vaccination

needs well above others—a term now dubbed 'vaccine nationalism.' Although the notion of vaccine nationalism is not a novel concept—being evidenced in other outbreaks like the 2009 H1N1 epidemic and swine flu pandemic—the globalized state of the world and the international scope of COVID-19's impact reignited conversations surrounding the notion of 'vaccine sharing' and the need for health diplomacy during global crises.

As vaccine development began, wealthy countries around the world seized the opportunity to make deals with pharmaceutical companies to secure access to vaccines for their own populations. While these agreements stemmed from the duty of care governments have towards their citizens, many countries ended up purchasing vaccines well above their population requirements—one of them being Canada, which sparked global outrage. This was particularly evidenced through Canada's recent disposal of nearly 15 million vaccines to date, due to their expiration, while millions around the world still struggle to obtain vaccines.

This reluctance to share scarce vaccines with other countries has costly repercussions around the world—largely hitting lower income states. By the end of 2021, almost 50 per cent of the global population had been fully vaccinated against COVID-19. However, diving deeper into this statistic, there are still many disparities in vaccination rates

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present in global populations. The number of fully vaccinated individuals (those with 2 doses) was around 75 per cent in higher income countries, whereas the percentage plummets to just two per cent when looking at low-income countries, such as the Democratic Republic of Congo.

‘Vaccine nationalism’ and its resulting disparities in vaccine access, have come at a huge cost of life, a cost that arguably would not have otherwise occurred had vaccine sharing been a political objective. One study estimates that if states were willing to undergo vaccine sharing, this would have “prevented 295.8 million infections and 1.3 million deaths worldwide by the end of 2021.” Sharing vaccines was projected to decrease infections in low-income, lower-middle-income, and higher-middle-income countries between early and mid-2021 by approximately 25.9 per cent, 12.6 per cent, and 15 per cent, respectively. Beyond the ethics of vaccine nationalism, there are risks associated with limiting vaccine access for other countries. This ultimately hinders the global effort to tackle COVID-19.

In this case, without sufficient global vaccine access, many populations are prevented from building immunity to the disease. Without this necessary protection, the pandemic will continue to spread and, in time, eventually adapt to populations—both with and without immunity—transforming into new and potentially more dangerous variants. If this happens, there may come a point where the initial vaccines become inefficient at protecting vaccinated populations against the new variants, making the need for international cooperation in vaccine distribution an all the more pressing concern. These fears have sparked anxieties among various international bodies. The WHO Secretariat declared the need to promote worldwide access and allocation of essential health products related to COVID-19 via premises of justice and equality. They argue that these medical-oriented sharing principles are based on the fundamental rights of all humans to obtain the highest standards of health regardless of their state’s financial abilities, and that the most effective way this can be done is by making these vaccines “affordable, available, appropriate, and of guaranteed quality for all people who need them.”

In this way, it will be critical for international organizations and countries to work collectively and in tandem with one another to help create a more cooperative international environment, especially regarding international health. Further, COVID-19

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not only impacted the world via the virus' global health impact and death toll, but it also showed us the effects of countries taking on a more individualistic and selfish approach to international relations. The disparities in immunization we have seen in the global fight against COVID-19 due to vaccine nationalism, and its ongoing effects in many countries, demonstrate the ever-present need for increased health diplomacy and international cooperation.

Navigating the Aftermath of COVID-19:

The Socioeconomic Disparities of Healthcare Access in Brazilian Favelas.
By Maria Fernanda de Almeida. Edited by Avana Mohandesi.



Navigating the Aftermath of COVID-19

The post-COVID-19 landscape in Brazil is plagued with socioeconomic disparities in healthcare access, particularly within marginalized communities in favelas. Despite commendable efforts by the Brazilian public health sector, known as the Unified National Health System (SUS), and the expanding private healthcare sector to drive positive change, residents in favelas continue to grapple with systemic challenges. This includes mistreatment by healthcare professionals, prolonged waiting times, and an overwhelming sense of powerlessness. The pandemic acted as a lens, laying bare the inadequacies within the healthcare system. This feature delves into the multifaceted nature of these disparities, drawing insights from studies and underlining the urgent need for comprehensive reforms to address Brazil's healthcare challenges.

Brazil's journey towards universal healthcare began in 1988 with the establishment of the SUS, a visionary move aimed at making healthcare a universal right. The subsequent introduction of the Family Health Program in 1994 also marked a paradigm shift towards community-

centric care. Simultaneously, as the public sector made notable strides, the private sector also saw substantial growth starting in the 1950s, creating a two-tier healthcare system. However, this system led to glaring disparities in service quality. Favela communities, historically neglected, bear the disproportionate burden of these inequities. As they cannot afford private healthcare, they often go to hospitals with structural deficiencies and face mistreatment by healthcare professionals and limited access to specialized care.

Research conducted in the favelas of Rio de Janeiro and Sao Paulo from 2020 to 2023 uncovered narratives of residents grappling with under-staffed public facilities, prompting city-wide quests for adequate care. Excessive delays in essential medical processes, including exams and specialist follow-ups, exacerbated challenges, particularly for urgent cases like pregnancies and abortions. The doctor-patient relationship in public healthcare settings was marred by impoliteness and indifference, contributing to a pervasive sense of powerlessness among favela residents.

The socioeconomic chasm between healthcare professionals and favela residents further strained communication, highlighting the broader social inequalities ingrained in the healthcare system. Seeking alternatives, residents frequently turned to private healthcare, perceiving it as a

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guarantee of needed treatment and a means to sidestep disempowering interactions prevalent in the public sector. Economic considerations were pivotal in residents' decisions to opt for private services, highlighting the nuanced tension between expectations and experiences within the public healthcare system.

With the arrival of COVID-19, the situation worsened. The pandemic presented an unprecedented challenge to Latin American public healthcare systems, which were already burdened, and underfunded. During the pandemic, patient care processes were compromised due to hospital overcrowding, staff exhaustion, and high demand from COVID-19 patients. State-run hospitals, often underfunded, serve as the primary healthcare providers for those in need. Hence, the COVID-19 pandemic shone a harsh spotlight on vulnerabilities within Brazil's healthcare system. This problem is also evident in other Latin American countries struggling to mount effective responses, grappling with underfunded public healthcare systems.

Within favelas, residents faced heightened fear and stress, with mental health services notably lacking. According to a new monitoring initiative called "Radar Covid-19 Favelas," information gathered from residents in favela communities like Catiri, Jacarezinho, Mangueiras, and Maré highlights the pandemic's pronounced effects in these less infrastructure-equipped regions. Fábio Araújo, a sociologist and researcher at Fiocruz, emphasized the social determinants of health and disease, including issues related to sanitation, water access, and waste collection in favelas. The initiative underscores the structural absence of state intervention in these areas, especially concerning medical and sanitary assistance during the COVID-19 pandemic.

Araújo notes that these challenges are not new but have worsened since the pandemic. The Radar Program aims to amplify the social participation of favela residents in policymaking and the creation of solutions for COVID-19. A separate study by the Institute of Applied Economic Research (Ipea) and a survey by a USP epidemiologist also highlighted higher mortality rates in poorer neighbourhoods. The Radar Program gathers information from unofficial sources like social media and direct contact with residents to increase visibility of the pandemic's impact in these areas. It monitors social media pages and builds a network of residents and community leaders.

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Other community-driven initiatives, such as the Maré Minds project, emerged as beacons of hope, illustrating the potential for grassroots efforts to address mental health challenges and the pressing need for structural changes in public healthcare. Almost all residents reported conflicts with public healthcare professionals, consistently portraying doctors as impolite, inattentive, unsympathetic, and indifferent to patients' needs. Communication breakdowns were prevalent, hindering patients from expressing symptoms or asking questions. Residents attributed these attitudes to doctors' perceived inability to relate to individuals from favelas, contributing to this sense of powerlessness.

Insufficient funding poses a major obstacle to healthcare access and quality in Brazil. In March 2023, State Deputy Márcia Huçulak stressed the need for critical healthcare reforms, particularly in telehealth services and virtual consultations. Emphasizing technology's role in enhancing integrated services, comprehensive care, productivity, cost reduction, and minimizing patient contagion risks,

Huçulak highlighted the low financial backing. Brazil's public sector spending on healthcare, a mere 3.8% of the 9.6% of GDP allocated for health-related expenditures in 2019, lagging behind other countries with universal healthcare systems. Urgently, Huçulak advocates for a new approach, calling for strategic, goal-oriented public health practices and a shift toward continuous population care over disease-centric interventions.

Perceived barriers following clinical encounters induced feelings of impotence among patients. Fear of denial or mistreatment accompanied the realization of needing healthcare. Frustration arose from cancelled appointments, adding to the challenges of scheduling and accessing timely care. Residents often felt vulnerable, emphasizing their dependency on healthcare professionals for relief. The inequality of power between patients and doctors was compounded by economic disparities, framing access to medical care as an act of submission.

In essence, effective public policies adaptable to social and economic changes are crucial for maximizing the welfare impact on Favela communities, especially in developing countries experiencing abrupt transformations and limited intervention resources. Despite Brazil's socioeconomic change, healthcare and living standards for the majority remain unimproved. Favela residents encounter mistreatment, long waiting times, and a sense of

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powerlessness. Therefore, enhanced public policies can alleviate the hardships caused by social upheaval and health privatization.



The Looming Threat of Antimicrobial Resistance:

A Global Health Crisis Intensified by COVID-19.

By Annabelle Dravid. Edited by Olivia Paul

The Looming Threat of Antimicrobial Resistance

In the realm of healthcare, a hidden threat lurks: Antimicrobial Resistance (AMR). This menace, coupled with the challenges of the COVID-19 pandemic, poses a growing danger to effective treatments and threatens to overturn centuries of medical advancements. As we navigate this complex situation, it is crucial to understand how AMR and the current challenges posed by COVID-19 intertwine and impact our ability to fight diseases effectively.

What is Antimicrobial Resistance?

As outlined by the [Center for Disease Control and Prevention \(CDC\)](#), AMR occurs when germs such as bacteria and fungi develop the ability to resist and ultimately defeat the drugs designed to kill them. This results in infections being difficult—and sometimes impossible—to treat. Increases in AMR are the result of germs being frequently exposed to antibiotics and antifungals in a way that allows room for the germs to evolve and adapt to survive and pass on their resistant mechanisms. For example, [Staphylococcus aureus bacteria](#), the leading cause of skin and soft tissue infections such as cellulitis and abscesses (boils), can develop new cell processes that bypass the

drug effects of trimethoprim. Even though most staph infections are minor, this strain of bacteria can cause serious illnesses like pneumonia, bloodstream infections, and bone infections. It is important to remember that bacterial resistance to drugs is a naturally occurring process as germs evolve in an attempt to survive. However, this natural process is being sped up by the over prescription of antibiotics.

Why It's Dangerous

It is crucial to emphasize that AMR does not mean that our bodies themselves are resistant to the antibiotics or antifungals, but that the germs themselves are resisting these treatments. The danger arises when drug resistance reaches a loss of partial or complete effectiveness. When common infections get progressively more difficult or even impossible to treat due to built-up resistance, it becomes a major threat to public health. Increased resistance can lead to prolonged illness, death in severe cases, reduced ability to control diseases effectively, and potential inability to find treatments for new germs.

Evolved Solutions: Addressing AMR in the Now

As of 2019, the [Center for Disease and Control Prevention](#) notes that there are 21 germs ranging from “Urgent Threats” – germs that require immediate attention and action to prevent their spread – to “Watch List” – germs with the potential to become increasingly resistant to antimicrobial treatments

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which would pose a threat to public health. The CDC also reported that more than 2.8 million antibiotic-resistant infections occur in the United States each year, which has resulted in the deaths of more than 35,000 people. In addition, nearly 223,900 people in the United States required hospital care for *Clostridium difficile* (*C. difficile*) and at least 12,800 people died in 2017 from the disease. *C. difficile* is a bacterium that causes the inflammation of the colon and has symptoms ranging from mild to life-threatening.

In an attempt to curb and slow the rate of AMR germs, the CDC has partnered with other federal agencies, state and local health departments, patients, public health partners, and the private sector to rapidly detect, prevent the spread of, and innovate against antibiotic resistance. Some of the strategies that yielded positive results in the healthcare field are infection prevention and control in non-hospital facilities, tracking and improving appropriate antibiotic use, containing emerging threats with aggressive responses by utilizing early detection tools, and stopping the spread of resistant germ within and between healthcare facilities.

Progress Made So Far

As a result of these strategies, there has been an 18 per cent decrease in deaths resulting from AMR since the 2013 report, as well as 28 per cent less deaths from AMR in hospitals. Further, there has been a 35 per cent decrease in Carbapenem-resistant Acinetobacter, an “Urgent” CDC threat which causes infections of the blood, urinary tract, lungs, wounds, and other body sites.

Even with the gains from the new and improved strategies, a 2019 CDC report shows that there have been significant increases (315 per cent) in infections caused by Erythromycin-resistant invasive group A strep, Drug-resistant *Neisseria gonorrhoeae* (124 per cent), and ESBL-producing Enterobacteriaceae (50 per cent)—all of which are listed as ‘concerning’ threats to the CDC. To curb these increases, healthcare facilities must adopt containment strategies, consistently implement CDC recommendations, and ensure that long-term care facilities are also following these guidelines.

Global Impact

AMR is not just a problem in the United States or North America: it is a global issue. The World Health Organization (WHO) has listed AMR as one of the top 10 threats to global health due to its risk towards human and animal health and welfare, the environment, food and nutrition, security and safety, economic development, and equity within societies. Combatting this threat

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requires an internationally coordinated effort. The WHO, CDC, and other global health champions lead the charge against AMR. They focus on observing, researching, and educating to ensure fair access to vital medicines. Yet, as diseases evolve, new drugs are slow to emerge, and AMR gains speed. At the [2015 World Health Assembly](#), with the support of the UN Food and Agriculture Organization of the United Nations and the World Organisation for Animal Health countries committed to a framework established in the Global Action Plan (GAP) on AMR. The GAP on AMR outlined the actions surrounding five goals involving three stakeholder groups (Member States, the Secretariat, and national/international partners) to be implemented within the next five to ten years and encouraged countries to create their own national action plans.

Enter COVID-19: A Catalyst for Chaos

As the world grapples with the seismic waves of COVID-19, AMR silently amplifies its danger. [Overusing antibiotics in COVID-19 treatment has inadvertently complicated AMR](#), speeding up the process and making infections harder to treat. Chaos in healthcare systems has pushed more

antibiotic use, creating an environment where resistance thrives. This is a perfect storm: a surge in resistant infections amid a pandemic-induced healthcare upheaval. The pandemic spotlights the urgent need for resilient healthcare systems and responsible antimicrobial use. The overuse of antibiotics during the pandemic rings the alarm for a recalibration of prescribing practices and more robust infection controls.

The Way Forward: Action Plan

The convergence of AMR and COVID-19 presents unprecedented challenges, demanding a united front for success. While COVID-19 reshapes global health, combating AMR becomes pivotal. Yet, diverse policy landscapes and varying implementation hinder synchronized action. This global issue faces different responses across regions, some swiftly uniting, while others grapple with political and resource barriers. Aligning National Action Plans encounters hurdles due to bureaucratic complexities and differing healthcare readiness levels, but progress on this front is essential. Due to the global scope of the problem, a global response is necessary. Recognizing successful institutions like the CDC and emulating their innovative solutions is crucial. Embracing diverse expertise and experiences, fostering collaboration, and navigating complexities can lead to a harmonized global effort in securing our future against antimicrobial resistance.