

FORUM: SOCHUM

ISSUE: Vaccine Distribution and medical care for the affected in developing and underdeveloped countries for COVID-19

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INTRODUCTION

Since COVID-19 was declared as a pandemic by the World Health Organization in March 2020, the virus took over 2.5 million deaths in the world and over 113 million tests confirmed the infection (March 2021). Nearly every part of our lives was affected by the epidemic which caused the global economy to stop, affecting how we work and interact with our loved ones and extending the health systems to the limit. Governments worldwide have been obliged to enforce stringent human activity restrictions in order to control viral transmission. Vaccination against COVID-19 now provides a method to break the epidemic phase. Without them, many experts think that natural herd immunity was not enough to return society to its usual status quo, leading to excessive mortality. Many health organisations, including the WHO, have reiterated this. Strict behavioral controls might have had to exist in the foreseeable future in a society without access to vaccinations. There have been approvals and roll-outs of 7 vaccines of COVID-19 now accessible over three platforms throughout the globe. Some dispute, however, the effectiveness of these vaccinations, particularly in the light of emerging virus strains. For successful vaccines to succeed, the propagation of the virus must be considerably reduced. Research has shown an effectiveness of 94-95 per cent in Moderna and mRNA-based Pfizer vaccines. These statistics have been confirmed accurate even in high-risk and elderly trials. Other than that preventive insurance aids in the maintenance of one's health. Screenings are necessary to prevent any health conditions or to detect them early so they are more treatable. However, since some people are afraid to visit a health care provider because of the COVID-19 pandemic, preventive scans have decreased.

DEFINITION OF KEY TERMS

- 1. Pfizer-BioNTech:** It was developed by the US-based firm Pfizer and Germany's BioNTech. The active ingredient in the vaccine is messenger RNA or mRNA. This contains the instructions for human cells to construct a harmless piece of the coronavirus called the spike protein.
- 2. Moderna:** Formally called mRNA-1273, the Moderna vaccine is an mRNA-type vaccine, made using a similar process as the highly effective Pfizer/BioNTech

vaccine. The Moderna vaccine inserts mRNA, or genetic material, into the body, telling it how to make the “spike proteins” that sit on the outside of the coronavirus.

- 3. Supply Chain:**The name given to the whole system of companies, people, technology, activities, and resources in this process, which encompasses the transportation of the product or service from the supplier to the customer, is supply chain or logistics network.
- 4. Cold Chain:**The system of people and materials that allow the desired amount of effective vaccine to reach the right temperature to the needs. The cold chain system is required because the vaccines are substances that are substantiated when they are exposed to hot or cold temperatures.
- 5. Administration:**Administration involves a series of actions: assessing patient vaccination status and determining needed vaccines, screening for contraindications and precautions, educating patients, preparing and administering vaccines properly, and documenting the vaccines administered.

Vaccine Brand Name	Who Can Get this Vaccine ^[1]	How Many Shots You Will Need	When Are You Fully Vaccinated?
Pfizer-BioNTech	People 12 years and older	2 shots Given 3 weeks (21 days) apart ^[2]	2 weeks after your second shot
Moderna	People 18 years and older	2 shots Given 4 weeks (28 days) apart ^[2]	2 weeks after your second shot
Johnson & Johnson's Janssen	People 18 years and older	1 shot	2 weeks after your shot

BACKGROUND INFORMATION

Vaccine Distribution/Supply-Cold Chains

There are several distribution issues such as providing access, timing, keeping supplies, and even calling back people for the second dosage, which has to keep a track of who has vaccinated and of who received the vaccine and ensuring the two and subsequent doses come from the same business. The vaccines are administered to diverse populations by public health jurisdictions, federal authorities, providers of medical care, long-term health care, employers, retail pharmacies and other enterprises. This involves the management of stocks of vaccines, the tracking of vaccination doses, vaccination records, vaccine appointment scheduling, mailing records for appointments and other administrative duties. Europe and India will supply the largest worldwide vaccination distribution with the biggest demand in Africa and Asia. The rationale is that the majority of vaccine production facilities in Europe and India mean that the overwhelming of Europe's distribution by trucks will remain inside Europe, owing to modest distances and the fact that most vaccine companies have entered into agreements in the EU. India will be one of the world's major manufacturers with its

AstraZeneca and Novax vaccines and subsequent domestic distribution in India. The third largest production region is located on the eastern shore of the United States and is projected to be distributed mostly by road, but also by air. South America will acquire European and Asian goods, Africa will receive supplies from Europe and India and, at the same time, South East Asia will produce from the US, Europe and India. More than half of all vaccine distribution, locally or regionally, is projected in a global context. Infrastructure capacity varies around the world, expenses vary by place, and supply chains may be drastically different to the US and to the rest of the globe in terms of distribution of vaccination products in Europe. Other than that it was alarming to discover empty freezer racks, scanty products lanes and restricted frozen food at most grocery shops in numerous urban towns throughout the world. This is the first indication that the coronavirus sickness will soon lead to a change in the cold chain processes (COVID-19). Only a year ago a growing awareness of the worldwide effect of the pandemic rapidly changed patterns in the cold chain and added complexity and development potential in the supply chain sector. As no other occurrence before, the worldwide pandemic challenged and pressured supply chains to create uncertainty and a short time to react to constantly changing conditions. The developments in the cold chain demonstrate how organizations may adapt, pivot tactics and swiftly find solutions for maintaining intact the vital supply lines. With the COVID-19 outbreak that happened only a year ago we need to learn from and build on our accomplishments as much as we can from the previous 12 months as we plan for the future. Effective management of the cold chain will be a continuous task for everyone in the cold chain involved in ensuring that the temperature-controlled items are delivered on important markets all over the world continuously. Fortunately the cold chain business has already proved itself to adapt and develop swiftly to service the increasingly complicated supply chain.

MEDICAL CARE:

According to the People's Vaccine Alliance, which comprises Amnesty International, Frontline AIDS, Global Justice Now, and Oxfam, at least 90% of people in 67 low-income countries would have no hope of having vaccinated against covid-19 in 2021 because wealthier nations have allocated more than they require and developers would not transfer their intellectual property. Rich countries with just 14% of the global population have purchased 53% of the eight most promising vaccines, including all of the Moderna vaccine doses projected to be developed within the next year and 96% of the Pfizer-BioNTech vaccine doses. Pfizer-BioNTech, Moderna, AstraZeneca-Oxford, Novavax, Johnson & Johnson, Sanofi-GSK, Gamaleya-Sputnik, and Sinovac were among eight vaccines for which major procurement agreements had been struck with national governments. Approximately 67 low-income countries have made no transactions of their own and depend entirely on the Covax initiative, which is a partnership between WHO, Unicef, the World Bank, and the Bill and Melinda Gates Foundation, among others. Around 700 million doses have been secured via this scheme, enough to immunize just 10% of the population of those 67 countries. Canada has the largest per capita hoard of the eight vaccinations studied, with enough for around five full immunisations per person. With about four vaccines ordered per capita, the United States comes in second. The United Kingdom has placed an order for approximately three vaccines (5.7 vaccine doses) per person.

However, on the 11th of December, after the alliance released those numbers, these countries' potential vaccine stockpiles shrank dramatically as two big vaccine programs seemed to hit a snag. According to Sanofi-GSK, the vaccine's manufacturer, older patients' immune responses are inadequate, and it will be postponed for at least six months. Canada, the United States, and the United Kingdom had placed the highest orders for this vaccine. Meanwhile, Australia's purchase of the University of Queensland and GSK vaccine, which was previously blamed for false positive HIV test results, was canceled on December 11th. The vaccination, which was not included in the alliance's study, accounted for more than a third of all vaccine orders in Australia. When asked about the country's high vaccine orders, a spokeswoman for Health Canada said the country had spent C\$440 million (£262 million; €284 million; US\$345 million) in Covax, the majority of which will go to vaccinations used in other nations. Most researchers claim that wealthy nations will ultimately contribute their unused doses to Covax, despite the fact that this is not how the scheme was intended to function. Those nations, on the other hand, will continue to see how each vaccine works and how long it confers immunity. As a result, many developing nations are unable to see widespread immunisation until 2022 or 2023.

Emergency Physicians (EPs) play a critical role in the healthcare sector, as shown by the COVID-19. Emergency Departments (EDs) took the lead in the early phases of the medical response to the pandemic, becoming the first port of call for suspicious cases while retaining their normal operations, as they had been in other extraordinary incidents (such as the 2003 SARS pandemic). We examine the role of Emergency Medicine (EM) practitioners in this letter to the editor, who, in an emergency, provided treatment to those affected regardless of exposure complications, and thereby served as barriers, allowing the remainder of the healthcare system to prepare. In Switzerland, EM has failed to gain complete recognition as a discipline, and as a result, EPs are often left out of debates on healthcare policies and funding. This dynamic shifted as the number of cases increased in the first few weeks of the COVID-19 pandemic. The false sense of protection provided by the distance to Wuhan having prompted officials to watch rather than schedule, the regime, unexpectedly confronted with a possible influx of contaminated patients, turned to emergency departments (EDs) for the control of suspicious cases, while the rest of the healthcare system was unprepared (to deal with such cases). EDs became the frontline and took the lead in organizing the national acute care response almost overnight. Switzerland's 138 emergency departments take on the responsibility of implementing local and national plans to deal with the influx of potentially infectious patients, communicating across unregulated channels and without national guidance to respond to. Faced with a growing number of consults (both COVID-10 and non-COVID-19 associated cases, the latter as a result of non-urgent healthcare facilities being put on hold¹), EDs were able to quickly expand their workforce (often depending on retiring or ex-ED staff) and fully reorganize the healthcare system to separate hospitals into 'hot' and 'cold' zones.

INVOLVED COUNTRIES AND ORGANIZATIONS

United States of America:

At the present rate of 2.3 million shots each day, the country would reach 100 million shots in approximately a week under his presidency. However, in the race of using coronavirus vaccinations as a diplomatic tool, the United States has fallen well behind China, Russia, and India. At the same time, Mr. Biden is being accused of "vaccine hoarding" by global health campaigners, who want his government to redirect supply to undeveloped countries. The president has so far declined to make any firm pledges to give out American-made vaccinations, insisting that Americans come first. Also Insurance agencies, healthcare facilities, hospital services, and private providers are among the various organisations that offer patient care in the United States. The majority of health-care services are managed and run by private companies. In the United States, 58 percent of community hospitals are non-profit, 21% are government-owned, and 21% are for-profit. In 2014, the United States spent \$ 9,403 per capita on health services and 17.9% of its GDP on health care, according to the World Health Organization (WHO). A mixture of private health plans and public health services is used to offer healthcare coverage.

Germany:

Nearly 3.7 million people had got their original vaccination doses, with over 1.9 million obtaining a second vaccination shot. The initial vaccinations are administered according to government immunization policies to inhabitants of health care facilities, front-line health care workers and those over the age of 80. After the initial priority vaccination group is immunized, the immunization program continues with those over 70, dementia and transplant patients. A third group of priority comprises people who work in high-risk workplaces with over 60 chronically unwell patients in the public sector. Germany provides a free, multi-payer health-care system that is financed by a blend of statutory and private health-care insurance. Germany has long had Europe's most liberal and consumer-friendly healthcare scheme. Patients are free to seek virtually any kind of service they need at any time. In 2017, Germany's governmental health system held a record reserve of more than € 18 billion, making it one of the world's healthiest healthcare programs at the moment. The German healthcare sector is governed by the Federal Joint Committee, a public health body with the authority to issue mandatory legislation arising from legislative health policy bills as well as regular healthcare decisions in Germany. The Federal Joint Committee is made up of 13 members, each of whom has a vote on these legally binding rules. Members have legal staff from state health care companies, hospitals, physicians and dentists, as well as three independent members. There are also five patient delegates with an advisory position that are not eligible to vote. The policy arrangement for the committee is established by German legislation regarding public health insurance. One of the most crucial challenges is determining which procedures and performances insurance companies are required by statute to pay for. Any care and performance must be necessary, economical, adequate, and acceptable, according to the theory.

People's Republic of China:

China's vaccines already account for 32% of the total vaccine supply in Hungary, far more than Russia's Sputnik V, which is just 3%. Hungary is one of at least 25 countries worldwide, mostly in Asia and Middle East, using Chinese vaccines. Beijing committed half a milliard doses in 45 nations according to the Associated Press. China was a leading manufacturer of coronavirus vaccines during the pandemic with four autochthonous vaccines now licensed for use. Three of them employ an older, proven method and have excellent supply projections. The Chinese jabs are not, however, a savior. The efficacy figures of the vaccination are not publicly available or examined by peers and many individuals worry that they will not be as effective as their Western equivalents. This is without the authorisation of the European Medicines Agency, EU states which have used or will use vaccines, which means they are liable if a problem arises later. Meanwhile, Chinese concentration on foreign vaccines has led to the accusation that Chinese vaccines are used as a diplomatic instrument, which it disputes, and that domestic vaccines are neglected. In China, healthcare is provided by both public and private medical institutions, as well as insurance schemes. Around 95% of the population is covered by at least universal health care. Despite this, universal health care only pays about half of prescription bills in most cases, with the percentage being smaller for acute or chronic diseases. China's "Healthy China 2020" campaign aims to reduce healthcare expenses by forcing insurance companies to pay 70% of costs by the end of 2018. By 2020, the Chinese government plans to provide its citizens with quality universal healthcare. Health-related multinational corporations have found China to be a lucrative market. Hospitals specialized in various fields and equipped with new equipment can be found in all major cities. In all Chinese towns, public hospitals and clinics are open. Their standard varies by location; public city-level hospitals provide the best care, followed by smaller district-level clinics. V.I.P. wards can be seen in many public hospitals in major cities. These have some of the most up-to-date medical technology and a well-trained workforce. Foreigners are treated in most V.I.P. hospitals, which have English-speaking doctors and nurses. VIP wards are usually more expensive than most medical services, but they are also inexpensive by Western standards. Traditional Chinese medicine is commonly used in addition to modern medical services, and there are Chinese medicine hospitals and treatment facilities throughout the world. In urban cities, dental treatment, plastic surgery, and other health-related treatments are readily available, though prices differ.

TIMELINE OF EVENTS (2021)

5th January 2021	-Moderna to Produce 600 Million Vaccine Dose
7th January 2021	-Study Shows Patients With Heart Failure Should Be Prioritized for Vaccines
8th January 2021	-Pharmacies Tapped to Distribute Vaccines -Biden Plans to Rapidly Release Most

	COVID-19 Doses
21st January 2021	-Pfizer Vaccine Effective Against United Kingdom's B117 Variant -Amazon Offers to Help Distribute Vaccines
27th January 2021	-US Vaccine Supply to Increase by 50%
8th February 2021	-South Africa Suspends Use of AstraZeneca Vaccine
19th February 2021	-Pfizer/BioNTech First Dose Effective in Real-World Data -US Pledges \$4 Billion to Global Vaccine Effort
21st February 2021	-Pfizer Vaccine 98.8% Effective Against Deaths, Hospitalizations After 2 Doses
1st March 2021	-J&J Vaccine Rollout Begins
11th March 2021	-100 Million More Doses of J&J Vaccine Ordered -Denmark, Norway, Iceland Suspend Use of AstraZeneca Vaccine
23rd March 2021	-European Union Could Cut Vaccine Supply
21st April 2021	-Fake Pfizer COVID-19 Vaccines in Mexico, Poland
6th May 2021	-Teenagers Respond Well to COVID-19 Vaccines

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

The Security Council announced the adoption of a resolution calling for strengthened international cooperation to facilitate equitable and affordable access to COVID-19 vaccines in armed conflict and post-conflict situations, and during complex humanitarian emergencies on February 26 2021.

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/053/90/PDF/N2105390.pdf?OpenElement>

Resolution adopted by the General Assembly on 20 April 2020 upon International cooperation to ensure global access to medicines, vaccines and medical equipment to face COVID-19

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/101/42/PDF/N2010142.pdf?OpenElement>

Resolution adopted by the General Assembly on 12 December 2012 upon Global Health and Foreign Policy

https://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/67/81

POSSIBLE SOLUTIONS

- Managing and keeping track of vaccinated population in each country,
- Making investments on companies working upon the issue.
- Creating a body including scientists, doctors etc. for both medical care in LEDCs and progress on vaccinations.
- Creating a monetary fund in order to give financial support for medical care in LEDCs.

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