



## Vaccines Have Arrived, does this Mean Life is Back to Normal?

Almost a year after the global outbreak of COVID-19, we finally have received exciting good news, and light at the end of the tunnel. The first batch of COVID-19 vaccines has been approved, which seems to indicate that normality is finally returning



On November 9, Pfizer and BioNTech announced that the mRNA technology-based candidate COVID-19 vaccine BNT162b2 jointly developed by the two parties has shown to be 90% of the protective efficacy in the interim effectiveness analysis of the phase III clinical trial.

Shortly afterwards, on November 16, Moderna announced the results of the company's Phase III clinical trial of COVID-19 vaccine mRNA-1273. The data showed that the vaccine has a protective efficacy of 94.5%. Based on this result, Moderna immediately applied to the FDA for emergency authorization (EUA). Both Pfizer and Moderna have very high vaccine production expectations.

Pfizer said it will be able to produce up to 1.3 billion doses of vaccine in 2021, while Moderna said it will be able to produce 500 million to 1 billion doses of vaccine globally in 2021; however this remains to be seen.



As present, the UK has become the first country in the world to approve the Pfizer/BioNTech coronavirus vaccine for widespread use.

British regulator, the MHRA, says the jab, which offers up to 95% protection against COVID-19, is safe for rollout, hence the first round started on the 8th of this month. The first round will focus on immunizations for those who need it the most, such as elderly people in hospitals and care homes.

The UK has already ordered 40 million doses - enough to vaccinate 20 million people. Around 10 million doses should be available soon, with the first 800,000 which arrived in the UK in the 2nd week of December.

NHS Chief Executive, Sir Simon Stevens, said the health service was preparing for "the largest-scale vaccination campaign in our country's history".

Around 50 hospitals are on standby and vaccination centers in venues such as conference centers are now set and ready to roll out the vaccine.

At present, all seems to be on track in the UK, and it was a good week and we were all fortunate to see that the first person to be given the injection successfully at 06:31 GMT on Tuesday the 8th. With 800,000 doses of the Pfizer/BioNTech vaccine now delivered and will be given in the coming weeks.



Margaret Keenan, the first person to be vaccinated in the UK, said "it's the best early birthday present I could wish for because it means I can finally look forward to spending time with my family and friends in the new year after being on my own for most of the year."

## Challenges of Transporting and Management of such a Large Number of Doses in such a Short Period of Time.

Apart from mass production, clinical testing, vaccination site order maintenance, vaccination sequence arrangement and public health guarantees, there still exists many hidden labored tasks during the process, for example, how to transport and preserve such a large amount of vaccines from production to being inoculated successfully.

Both Pfizer and Moderna's vaccines have strict requirements on the cold chain. It's been well reported, the Pfizer vaccine must be stored at around -70 C and will be transported in special boxes. Once delivered, the vaccines can be kept for up to five days in a pharmacy or vaccine refrigerator.

Safeguarding the safety and validity of these vulnerable and valuable vaccines is the most important next step and safe and reliable transport and storage systems must not fall down at the last moment !

## Here is how Haier Biomedical' s Vaccine Cold Chain Solutions are Working to Ensure the Implementation of the Mass Vaccination!

For the roll-out of a COVID-19 vaccination program in the UK, significant efforts are being made to ensure the infrastructure is in place regardless of the storage temperature requirements of the specific vaccine.

NHS Scotland has already implemented some additional vaccine freezer storage in preparation for the COVID-19 vaccination program. A number of Underbench ULT freezers (Haier Biomedical DW-86L100J) have been installed at key sites across Scotland as the organization gears up to roll out the Pfizer BioNTech vaccine. Each freezer will accommodate in the region of 20,000 doses. At present, Scotland has received 65,500 doses of the newly approved Pfizer/BioNTech vaccine in this week.



Similar efforts are being made across the UK, as pharmacies make sure they have enough storage space at the relevant temperatures.

Partnering with Haier Biomedical, a long-term and internationally respected provider of vaccine cold chain solutions, this partnership ensures that vaccines are in safe hands with all recipients assured of complete safety, security and reliability of the vaccines. The Haier Biomedical cold chain vaccine solution covers the whole process from transportation, preservation, management to inoculation. Superior advantages of product performance, production capacity, quality control, service experience, coordination capacity of local resources empower Haier Biomedical with great control, management and ability for the whole management flow.

It is worth mentioning that Haier Biomedical has scaled up its manufacturing levels by almost 100% in the last month, key products are rolling off the assembly line such as ULT freezers and vaccine refrigerators to meet the demands from the UK and the rest of the world.

How far are we away from normality? The answer is still unknown. Although the first batch of vaccines has been delivered and the roll has commenced with Mrs. Margaret Keenan, we're still facing many challenges in the mass production capacity, effectiveness comparison, transportation accessibility, product prices and differences in medical channels. Therefore, protective measures such as social distancing are still of significance. However, we are all in this together with normality now insight, let's stay the course and Make Life Better!

Contact the Haier Biomedical team for your complete cold chain needs, from vaccine transportation, preservation, management to inoculation, partnering with Haier Biomedical ensures you are Safeguarding the vaccines from manufacturer to the vaccinated by securing the safety and reliability of vaccines for millions of people.

### How to get COVID-19 Vaccine to the Developing World

Now that a COVID-19 vaccine has been approved for use, one of the next major challenges will be logistical: How do you distribute billions of doses around the planet, including to remote corners of the world that lack reliable electricity, when the vaccine has to stay refrigerated to be effective? (ref 1)



Vaccine circulation in each country generally passes through three or four levels where different logistical tasks are involved to maintain the "cold chain" low temperature requirements at each step of the journey. Doses of the vaccine will travel on flights to a country, where the government will typically have them delivered to a national cold storage facility. Next, the vaccines will go on to other distribution centers which focus on the management of regional vaccine storage, the distribution to community hospitals as part of the inoculation process. Finally, the health facility is responsible for the storage and inoculation of vaccines covering the community and outreach service to remote areas.



Haier Biomedical's cold chain can cover the requirements of all levels, with the equipment approved by the WHO/PQS certifications, which is the most comprehensive cold chain service provider in the world.

#### Potential Demand and Solution

Demand	Haier Proposal
Storage	  
Transportation	   
Temperature monitoring	
Inventory	

#### Vaccine Storage:

From the national large storage facility to the region at -80 C, and then to the solar cold chain health facility without electricity;

#### Transportation:

- -20 C Active transport cooler
- -70 / -25 ~ -15 C Passive transport cooler
- Vaccine refrigerated vehicle
- Smart mobile clinic.

#### Temperature and Inventory Monitoring:

In order to ensure the safety of vaccine, Haier Biomedical's solution is also equipped with the remote temperature monitoring system to collect all the terminal data of equipment and to manage the inventory automatically, all solutions are based on the 2G network, which covers most areas in need, and can be connected to the best signal network through an international SIM card.

Through the storage plus transportation plus data collection, it is possible to guarantee the storage and transportation of the vaccine at all levels, and the constant detection of the vaccine temperature and inventory, providing a data basis for decision-making.



While the vaccines are being moved, they're often kept in insulated boxes with ice and sensors, such as Haier Biomedical Transport Cooler, which can decrease the temperature down to -70 C with dry ice, at the same time, with Vacuum Insulation Panel (V.I.P.) insulation technology's adoption, it has high stability and durable function, and the light weight makes it easy to carry. Now Haier Biomedical has the solution to overcome traditional transport issues and ensure maximum security and safety for vaccine transportation.

To further improve the immunization accessibility, Haier Biomedical also have vaccine refrigerated and mobile clinic to offer better flexibility.

Haier Biomedical refrigerated vehicle, with high chassis, backup power supply and heating system, can adapt to more complex terrain and with better endurance.



Meanwhile, Haier Biomedical's comprehensive mobile clinic solution, is fitted with vaccine storage equipment, patient examination facility, and other critical medical equipment generally found in a clinic, can further improve the access to immunization services and extend the vaccination coverage to more remote mountainous areas and hard to reach locations, such as towns and small villages.



While they're in storage, one piece of the solution is refrigeration technology that runs on solar power, this fills the gaps in areas that don't have access to reliable electricity. In South Sudan, the least-electrified country in the world, where only around 28% of the population is connected to the grid and where it's common for temperatures to surge above 100 degrees Fahrenheit, UNICEF has installed solar fridges in more than 700 health facilities. Thousands of solar fridges have also been installed in other low-income countries; by the end of the year, the agency expects to have 65,000 solar fridges in place around the world. (ref 2)

The technology keeps evolving and early solar fridges had batteries to store electricity from solar panels, but that didn't work well and was not environment friendly. "Batteries were quite a weak link—they were the main cause of failure, and we often found that they weren't replaced when they broke down," Seidel says. (ref 3) The current "direct drive" version solves the problem by storing power directly inside the fridge. Haier Biomedical Solar Direct Drive (SDD) Vaccine Refrigerators have been tested and proven for years, no need for battery, and has super robust stability, security and insulation performance. Long holdover time, super temperature control and A-class anti-freeze function ensures the vaccines safe and secure to the last mile!



Larger cold storage rooms that run on solar power are also expected to soon be approved for use by the World Health Organization, though they aren't in place yet. Haier Biomedical SDD Cold Room has already served many remote regions for mass storage of vaccines overcoming the electricity scarcity issue. It is worth mentioning that it can maintain 2-8 C for days after being powered off, designed by our engineers' for the complete consideration for the security of the vaccines, making life better by ensuring again the safety, security and reliability to the last mile.

Every country is now beginning to rapidly ensure it has a cold chain to cope with the demand. As things stand today, few countries (if any!) have the ability to cope with the demand and rollout a COVID vaccine using existing cold chains. Countries need to quickly rethink and develop a solution that reaches the masses quickly



Haier Biomedical COVID-19 Vaccine Cold Chain Complete Solutions (ref 4): The truly worry free and only option that covers your complete COVID-19 vaccine cold chain requirements! From vaccine transportation, preservation, management to inoculation, partnering with Haier Biomedical ensures you are safeguarding the vaccines from manufacturer to the vaccinated by securing the safety and reliability of vaccines for millions of people.

#### Reference:

- 1, 2, 3: <https://www.fastcompany.com/90574433/solar-fridges-and-powdered-vaccine-how-to-get-a-covid-19-vaccine-to-the-developing-world>
4. [https://www.haiermedical.com/en/pdf?fileName=COVID-19VaccineColdChainSolution-UN%26Africa&url=9c9c736d83c296a1f65e3eb38fa679c1.pdf&lang=en\\_EN](https://www.haiermedical.com/en/pdf?fileName=COVID-19VaccineColdChainSolution-UN%26Africa&url=9c9c736d83c296a1f65e3eb38fa679c1.pdf&lang=en_EN)

### Haier Biomedical ULT Freezers Have been Installed Across Scotland for COVID-19 Vaccine

NHS Scotland have implemented vaccine ULT freezer storage across 23 sites, as part of Phase 1 of the COVID-19 vaccination programme.

Underbench ULT freezers (model DW-86L100J) have been installed at key sites across Scotland as the organisation gears up to roll out the first COVID-19 vaccine.



65,000 doses of the Pfizer BioNTech vaccine will be available within the coming days and weeks

Each freezer will accommodate in the region of 20,000 doses. The freezers are monitored to ensure the vaccines remain within strict storage temperature limits to ensure vaccine efficacy.

<https://news.stv.tv/east-central/freezers-on-ice-as-they-await-covid-vaccines-arrival?top>



Haier Biomedical, as one of the key manufacturers of critical equipment used within vaccine delivery, has geared up its production of products such as ULT freezers and vaccine refrigerators to meet the demands from the UK and the rest of the world.

### Work Continues Supporting UK's COVID-19 Healthcare Services

Work continues supporting UK's COVID-19 healthcare services infrastructure with the delivery and commissioning of 22 x Class II Microbiological Safety Cabinets into The Halo Building, the Doctors Laboratory (TDL) in central London.

Over 3 days, Haier Biomedical's engineers worked alongside Paul and Tony from Walker Safety Cabinets, Haier Biomedical's specialist clean air service provider to complete the commissioning protocols to ensure safe and optimal operation of the biosafety cabinets.



TDL is the largest UK independent provider of highly specialized pathology/clinical laboratory services to clinicians (GPs and specialists), hospitals, community health services, and their patients. It provides COVID-19 (SARS-CoV-2) testing options by PCR and IgG Antibody.



For more information on COVID-19 testing visit <https://www.tdlpathology.com/covid-19/>

Haier Biomedical has worked with TDL since the start of the pandemic, previously installing Class II safety cabinets into regional hospitals in the South East and made a front-line donation back in April to Ramsey Rivers Hospital.

### Haier Biomedical Anti-epidemic "Magic Weapon" Gets more than 30 Million Likes Online

Winter is now upon us, and the anti-epidemic work is also facing new challenges: nucleic acid testing, as an important means of prevention and control of COVID-19 epidemic, not only brings safety to the public, but brings considerable pressure to front-line medical workers. Generally, they have to wear heavy protective clothing, and apart from fighting the virus, they also face harsh environments such as low temperatures and cold windy conditions. However, we have some good news, the Biosafety Screening Swab Booth created by Haier Biomedical is here to support and guard front line medical staff from these external environment challenges.

Recently, at sampling sites in Sichuan, the "new technology" of nucleic acid sampling equipment on-site has given front line medical staff a safer and more comfortable environment.



The Biosafety Screening Swab Booth created by Haier Biomedical, which is highly efficient, windproof, anti-freeze and anti-infection safe. In addition, and in response to the epidemic prevention and control, Haier Biomedical has also established a strong "backup team" to take the role as the anti-epidemic guardian.

### Anti-epidemic Pioneer Biosafety Screening Swab Booth: Rapid, Safe, Secure and Reliable Detection

The Haier Biomedical Biosafety Screening Swab Booth utilizes positive pressure technology (the air pressure in the booth is higher than the outside to form a positive pressure barrier), forms a single-cycle closed space and stops the outside air from flowing in. In this way, front line medical staff do not need to wear heavy protective clothing, only simple work clothes and disposable masks can meet the protective needs. After disinfecting the detection gloves, they use the intercom on the window to inform the residents of detailed sampling flow and the sampling can be completed in a few seconds. The whole process is convenient and efficient, which greatly improves the nucleic acid sampling process and further secures and protects the safety of frontline medical staff.



### The Guardian of Safety Biological Safety Cabinets: Securing and Safeguarding Frontline Medical Staff!

As the guardian of safety, the Haier Biomedical Biosafety Cabinet is responsible for ensuring the safety of medical technicians when sample processing!



Haier Biomedical biosafety cabinet utilizes intelligent constant wind speed technology and patented airflow blocking technology. This technology is used to maintain the stability of the front window air curtain without adjustment. This design not only prevents indoor air from flowing into the working area, but also prevents microorganisms from leaking, ensuring the safety of the environment and laboratory personnel. In addition, when there is an abnormality, an alarm is sounded in real-time as extra security and safety for users.

Since the epidemic, Haier Biomedical's "backup team", including biological safety cabinets, ULT freezers, and intelligent transport coolers have been rushed to the frontline of China's and globally in the fight against the epidemic, supporting a total of nearly 900 hospitals and 211 CDCs in China with biosafety solutions. This support has clearly highlighted the speed and strength of Haier Biomedical through practical actions and contributing to build a strong anti-epidemic defense line in China.

### Recommended Products

#### Intelligent Control Cold Chain Transport Cooler

- Smart IoT monitoring
- Superior temperature control
- -70°C logistic transportation



#### Vaccine Carry Transport Solution

Independent operation mode without any external power supply, suitable for storage & transport of COVID-19 vaccine (-70°C)



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