

The Race for the First Vaccine

HIYA ISLAM

Since the advent of vaccines by Edward Jenner in 1798, the course of medical history has changed forever. Vaccines are one of the most successful health interventions, saving three million lives every year.

As we close in on December, almost a year after the first Covid-19 case sprung up, the numbers of people infected have anything but declined. Much to the dismay of anti-vaxxers, there have been vast advancements towards several immunization biologics. China, Russia, the United Arab Emirates and the United Kingdom are already availing some of the options; there are seven vaccines approved for early or limited use.

The race for a vaccine has led to a variety of projects based on mRNA, viral vectors, proteins and inactivated forms of SARS-CoV-2. Some are also being repurposed -- existing vaccines being redesigned to combat the coronavirus.

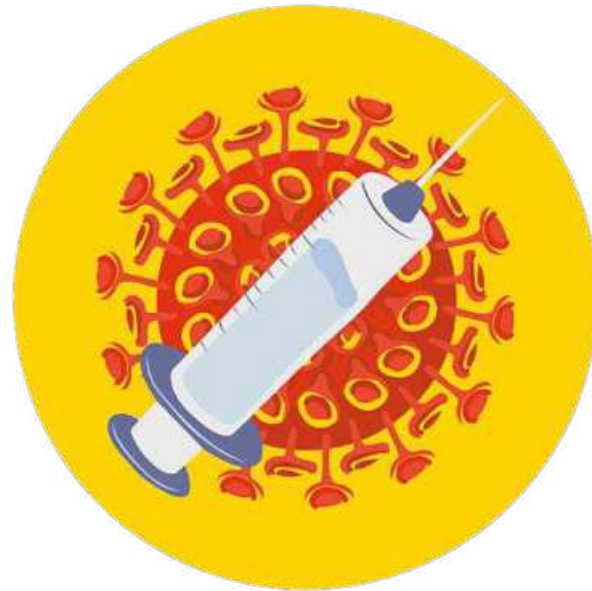
There are at least 87 pre-clinical vaccines and 58 clinical vaccines being tested and no approved vaccine yet for full use. Whoever reaches the finish line first, the vaccine should not be overvalued in terms of its efficiency and market dominance. More vaccines are to emerge over time and are predicted to outdo one another. Meanwhile anyone remotely being capable of fighting the virus would be heralded as the ultimate saviour.

Recently, three vaccines at Phase III trials have been taking the headlines by storm with staggering efficiency data. We know what these are. And each comes with certain logistical challenges to beat when it comes to mass production and consequently, distribution.

Pfizer and BioNTech's BNT162b2 and Moderna's mRNA-1273 are the same in a sense that both are made of a genetic molecule, mRNA which requires extreme cold conditions to keep it intact and functional. While Moderna requires a significantly lower temperature of -20 °C, Pfizer demands that it be -70 °C. However, both imperatives are posing outstanding difficulties in transport and storage in hospitals and clinics, from bottles to needles. Like many other vaccines, these too require two doses approximately a month apart, increasing the delivery load. It is said that the access and distribution is now a much greater problem than creating the vaccine itself. As countries place orders for millions of doses, these vaccines may be manufactured in one continent and required to be shipped to another, all the while maintaining arctic icy conditions.

This means that the planes, trucks, trailers, warehouses, and the provider facilities will have to be equipped with ultra-cold freezers for the first time. For developing and underdeveloped nations, where a regular fridge is a luxury, experts have expressed concerns and urged to find solutions for efficient delivery. The problem is that the countries that need vaccines the most, are the least ready to receive them.

The sub-zero temperature naturally calls for more dry



DESIGN: KAZI AKIB BIN ASAD

ice that has been in shortage in the wake of the pandemic. And, cold-resistant glass vials because glass cracks under extreme cold. To tackle this, Coming is on track to produce millions of a new type of pharmaceutical-grade glass vials to contain the frozen vaccine.

Pfizer has developed a special kind of GPS-tracked "cool box" meant to store 1,000-5,000 vaccines for up to 15 days, if the dry ice stock is carefully replenished. The boxes should be closed within a minute of opening and to add more, should not be opened more than twice in a day. When diluted, each vial makes up for 5 doses. Once thawed, the undiluted vial is usable for only 5 days while a diluted one lasts for 6 hours in a refrigerator. The strict terms imply that providers need to accurately predict how many arms to inject on a daily basis. Otherwise there is

either a waste or a deficit.

From manufacturing to distribution to provider facility to administration, the cold-chain needs to stay put. Logistics companies worldwide are striving to upgrade their cold infrastructure. The problem has arisen because these vaccines have been tested to be at least 90 percent effective in said conditions and have not had the chance to be investigated differently owing to the urgency of the matter.

The other leading vaccine by AstraZeneca and Oxford University, AZD1222, can be served chilled at 2 to 8 °C meaning no necessity of deep-freezers. It lasts as long as six months however, its efficacy ranges from 62 to 90 percent. Requiring two doses, it is priced at around USD 3 to 4 per dose, much cheaper than Pfizer's (USD 19.50) and Moderna's (USD 32 to 37). This vaccine is very feasible, especially for rural areas, to use with existing healthcare settings. But AstraZeneca and Oxford have faced criticism for lack of transparency with the results from trials. And most recently, a trial volunteer has claimed to suffer severe side-effects from the vaccine. However, the manufacturer, Serum Institute of India (who have also been conducting trials in India as per the manufacturing agreement), has denied the allegations and has assured that the product will be released only when proven to be completely safe.

There are still certain questions to be answered. How long does immunity last? So far, it is unknown if the mRNA vaccines affect infections. Only the clinical symptoms of SARS-CoV-2 were successfully combated. Preventing infections reduces the spread while preventing symptoms decreases the rate of hospitalizations. So would it stop asymptomatic transmission? We don't know, but the future is not as dark as we once thought.

References

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THE CREATIVE PROCESS



SYEDA ERUM NOOR

Have you ever looked at a painting and wondered what the artist was thinking when they made this? Found yourself wondering what the idea behind a beautifully written poem could be?

Most artists who indulge themselves in any form of art have a process that's unique to them. Artists see a world through a lens that only they can make sense of. It is then up to them to try and show others what they do. Their craft is the lens, helping you see into the beautifully complicated mess of an artist's mind.

I found myself wondering if all of these artists across all these mediums had a similar process for creation. I wanted to know how an idea was born, and how it ended up being prepared for an audience.

So I asked: *Where does one get ideas?* The most common response to this question was "personal experience". Almost everyone agreed that these ideas were born from an emotion so intense that something had to be done about it. An artist, no matter the medium of art, uses art to explain the very thing they can't seem to articulate in everyday language.

"I can't write about anything that doesn't have a little bit of me in it," explains Shounak Reza, reader and poet. "It would have to contain something from my own life. Something that impacted me on an emotional level, a memory, or a fleeting feeling."

Sharar Galeeb Chowdhury, singer/songwriter and copywriter at Adcomm Limited, tells us in detail how he came up with his very first song. "The song came at a time of great distress. I was eighteen and had just started dating. I came home a little earlier than usual so I had some time to talk to the girl. She didn't pick up. I knew it wasn't a big deal, rationally. But I felt something that, to this day, I cannot explain properly."

He further explains. "It can possibly be explained as insecurity, anxiety, worrying. So I picked up my guitar, strummed the last pattern we learned in class, and sang

whatever came to me naturally."

And a song was born. From a feeling so intense that it was almost too much for the human heart to contain.

Some get their ideas by allowing themselves to dream, letting their minds wander until something strikes them. A thought that drives them to action.

Aaqib Hasib, a development sector professional and fiction writer, explains, "Randomly thinking of the words 'what if'. Thinking up things that are crazy and stupid. Constantly being open to such ideas is important. Not every idea will be good. But the process helps with continuing to come up with more. One of which is bound to work out."

Then there are artists who look into inspiration. "I would say observing and looking at other people's creative work gets me started," Waeza Rafique Salwa, an artist and BRAC University architecture student states.

"Sometimes I'll be inspired by a movie," agrees Syed Afrid Iqbal, business analyst at Canadian Tire and a filmmaker/script writer. "Anything that intrigues me or if I find my observations to be different from others."

Quazi Abrar Hasan, photographer and environmental science student at Independent University, Bangladesh, tells how this medium of art is based mostly on inspiration. He tells us about his personal experience, "I'm an instinctive photographer. Whatever looks good or aesthetically pleasing to my eyes, I can imagine what it would like through a lens."

An idea or an experience is far from a fully-produced film or a painting hanging on a wall. But, what happens after?

"I take out my phone and write down whatever is in my head at that moment," explains Roshni Shamim, executive at Bangladesh Youth Leadership Center and fiction writer. "It doesn't have to make sense. Be it a word, a sentence, a tiny detail. It goes down in my notes, where I can deal with it later."

Most of these artists agreed on "word

vomit", as they discussed how the initial stages of getting an idea out of the head. When an idea is born, it isn't fully developed, nor can it be fully understood. All one knows, is that it excites them.

"Sketch, sketch, sketch," says Waeza, "I always note down or sketch my ideas."

"Get a guitar, figure out chords and record on my phone," Sharar agrees.

Other artists find that they need to bask in that moment, let that idea marinate within them — then and there.

"I do nothing but try to concentrate on it," Adhora Ahmed, another fiction writer and contributing writer at SHOUT, explains. "By focusing on the detail, I work out a scene or context in my head."

Some artists, however, find that a technical approach is best.

Afrid explains, "I break down the idea into different parts. Start a mind map, followed by a storyboard. Once I feel like I'm getting somewhere, that's when I start to write."

Similarly, Abrar shares how technicalities apply when taking the photo. "I like to keep my photos as raw as possible. I use the built-in filters of my camera carefully and choose them according to the lighting and the mood of the setting I am working on."

The raw form of one's craft is exactly what is best and hence, the job is done. Other times, however, the raw form isn't at its best. This is when artists take up the daunting task of drafting and redrafting. This process can, like most aspects of an artist's process, be rather experimental.

Most also agree that getting space from their art is important. The process of crafting can be so intimate that one can find themselves lost in the pursuit of perfection.

Abrar shares that he doesn't look at his pictures until he reaches his studio, giving himself the space he needs to get in the proper headspace to edit these photos. Similarly, after noting his feelings on paper, Shounak stays away from it, making sure he can come back to it with a fresh mind.

Most artists rely heavily on criticism and opinions from their audiences, ensuring

that they are covering every angle, taking everyone's perspective into account.

"The next step is critiquing. I make sure to show anyone who's willing," Afrid says, "And I want to hear what their take is. I want to see what they saw was what I was trying to show."

While it's important to take into account what other people say, Waeza comments that it's also important to stay true to oneself. "I get opinions and constructive criticism. According to which I make changes. Or sometimes don't."

As we can see, there's no one way to do it. Everyone operates differently and it takes time to figure out what exactly is your process. All aspiring artists, take years of experience and experimenting, to figure out which process brings the best out of them.

Throughout the process, what's important is to keep those creative juices flowing. When asked about how one can do so, the most popular response was maintaining journals. Why? Because this allows an artist's mind to run free. You pour out ideas, like an open faucet. Undoubtedly, the quality and originality gets better with time. It gives you the freedom to think, to let your brain run wild because that's how some of the best ideas are born.

When it comes to words of advice from one aspiring artist to the other, Aaqib urges that everyone should cut themselves some slack when it comes to the constant struggle of remaining original. The others agree.

"It's how you tell the story," he explains. "How would you take something someone else has done and do it differently?"

The creative process is a journey that's unique to every artist. The base concepts, however, remain the same. The need to create. To communicate through different mediums of art. To connect with people on a deeper, more intimate level.

So, what's your creative process?

Syeda Erum Noor is dangerously oblivious and has no sense of time. Send help at erum.noor1998@gmail.com

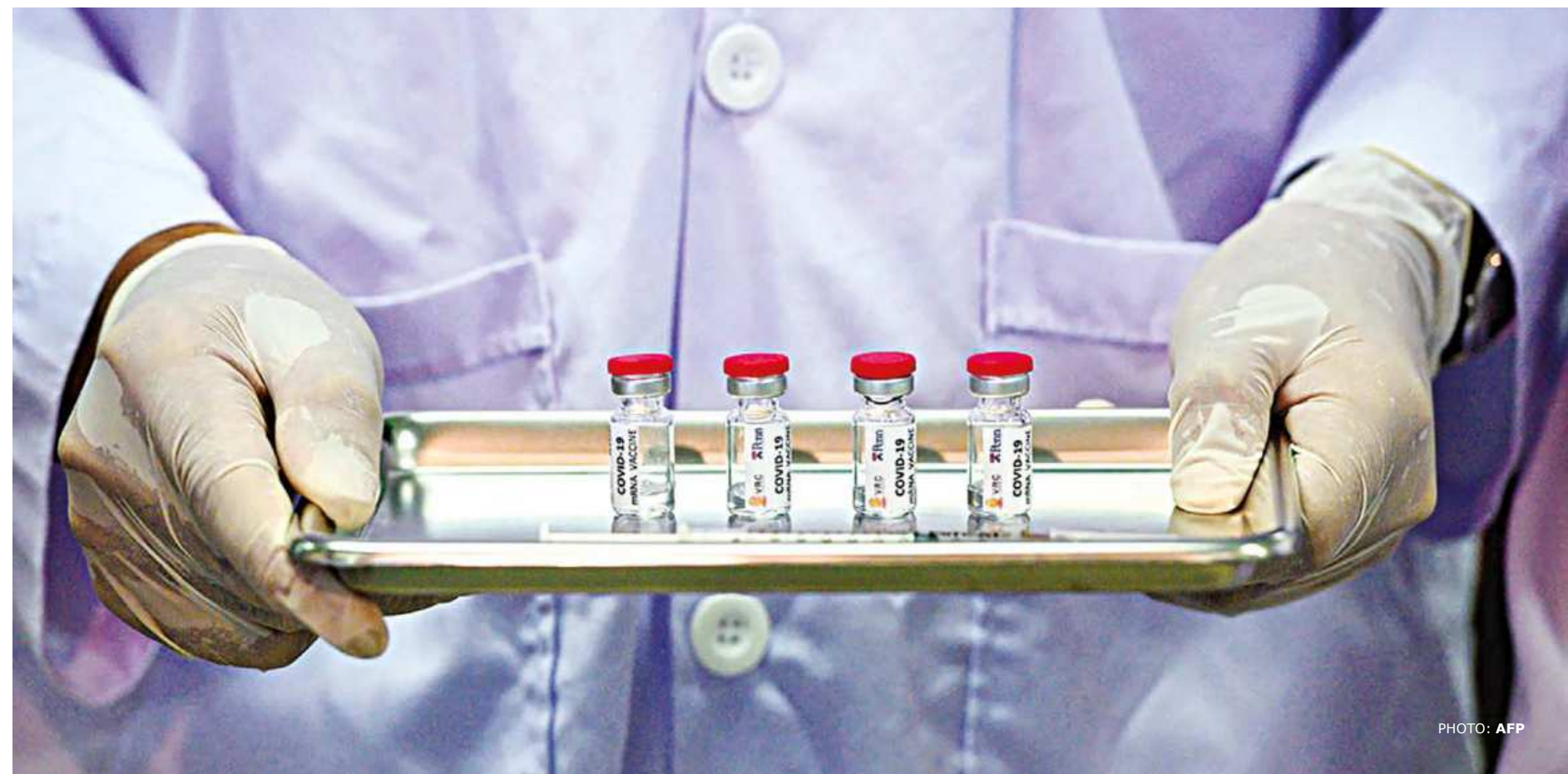


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