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Theme

COVID Vaccines:

What have we learnt?

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IAP Delhi Editor's Pen

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Treasurer cum Secretary Elect., IAP Delhi
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Dear Friends & Esteemed members

Greetings from Editor's Desk!

At the outset, I would like to extend my deep appreciation for **President Dr Deepak Gautam & Honorary Secretary Dr Pankaj Garg** along with whole EB who have **entrusted me with responsibility of being the Editor of Delhi Pediatrics.**

Dear Friends, I would try to do justice to the job with utmost sincerity and would like to increase the viewership of this publication by increasing the quality of content, trying innovations and theme based publications. I shall be able to do this because I know I have the support of the editorial board members who are not only the best academicians of this Nation but also the best team workers.

I would like to put on record my appreciation specially for Dr Vipul Jain for the same. He is doing exceptional work for cause of Delhi Pediatrics & Delhi IAP. We shall have Guest Editors for each monthly publication who are entrusted with job of making the publication even more interesting & worth collecting. I am a newcomer not only as an Editor but as Treasurer too, but I know you all shall ignore teething troubles & shall give us reviews & constructive criticism so that we can improve on each forthcoming publication. I also invite each one of you to send us interesting Case Studies, Articles, clinical reports, photographs or anything that you feel shall be appreciated by everyone.

Our Vision is to make this publication academically rich as well as an instrument to connect ourselves with IAP activities happening in & around the State & Nation. Our Goal would not be achieved without Collective efforts of all of us & I am sure we would achieve this Goal with your support.

Wishing You a great year filled with academics & Fun.

Regards

Dr Mukesh Verma
Editor, Delhi Pediatrics & Secretary Elect-cum-Treasurer, IAP Delhi

IAP Delhi President's Pen

Dr Deepak Gautam
President, IAP Delhi

Dear Seniors/ Colleagues/ Friends,

Wish you a Happy, Healthy, Peaceful and Blessed 2022.

With the COVID-19 pandemic refusing to die down, I am reminded of the iconic lines from Charles Dickens' Tale of Two Cities 'It was the best of times, it was the worst of times.....it was the spring of hope, it was the winter of despair'.

Things seem to get better, sowing hope in our hearts and then the grim shadow of COVID-19 looms again causing despair. But, we humans are resilient beings and are taking all the negativity in our stride and coming out stronger. Nothing exemplifies this better than our Delhi IAP 2021 executive team that overcame all challenges and took our branch to unprecedented heights. My full appreciation and admiration for them.

We have an equally committed and dynamic team this year and hope to carry on the good work. Being a grounded and simple person, I wish to connect and interact, listen and respond to all of you. Carry all of us together, generate energy and make one unstoppable force. May all our members be physically, mentally, emotionally, spiritually and financially healthy. Regards

Dr Deepak Gautam
President, IAP Delhi

IAP Delhi General Secretary 's Pen

Dr Pankaj Garg
General Secretary, IAP Delhi

Dear IAPians,

Happy New Year to all of you. The new year has brought laurels to Delhi IAP as it has bagged 32 CIAP awards including best branch award and first prize in many categories. The Delhi IAP team 2021 needs to be complemented for working hard for making it possible and raising the bars for the team 2022. We will definitely take Delhi IAP ahead in all spheres and look forward to the past presidents and secretaries for guidance from time to time.

The new team of Delhi IAP has taken over and I have taken over as secretary of this prestigious branch. At the same time, I have handed over the baton of editorship of the E Journal to Dr Mukesh Verma and I wish that the regularity of E Journal is maintained in this year as well.

I take this opportunity also to thank all executive board members of Delhi IAP who have started working like a unified force for the welfare of the members and the children at large. It has happened for the first time in the history of Delhi IAP that all the presidents and secretaries of the city branches are the executive members of Delhi IAP also and that has given us the unique opportunity of exchange of ideas and collective work at all city branch levels. A road map of all the activities planned for the year 2022 has been made in consultation with all the EB members and I am sure you have started seeing the efforts bringing sweet fruits. Various committees have been made for better functioning and all committees have been briefed about their roles and responsibilities in separate zoom meeting done for the purpose.

It is so heartening to see that the clouds of "CORONA SCARE" seems to be fading away and we are slowly inching towards normalcy in our normal routine and look forward to more physical meetings in the coming days.

The flagship program for the year 2022 is "Technical skills at your door steps" highlighting the importance of mini workshops which are being planned close to the

place of work of the office-based paediatricians of the city. All such workshops are being done on Thursdays (except the third Thursday reserved for clinical monthly meeting) between 2-5PM so that the office-based pediatricians don't have to miss their outpatient care and still able to learn lots of skills required for better patient care. Until now we have done two such workshops; Quick Development Assessment (MCHAT- R for autism and TDST for developmental screening) at Jaipur Golden Hospital on 10/02/2022 and interpretation of Complete Blood Count at Genesis Hospital, Janakpuri. Both workshops were attended by 30 delegates and were very well appreciated. All the faculties are making it very interactive and interesting for the participants. The next months will see workshops on Otoscopy, ECG, EEG, Genetic testing, antibiotic stewardship, interpretation of liver function tests, vaccination issues, growth monitoring, hearing screening, parenting workshop etc. in your nearest city branch and I request all of you to get benefits of this program.

Apart from the flagship program, the regular clinical monthly meeting was held in the months of January and February and we are trying our best to make these meetings more interesting and hassle free. Regular academic activities are also being done online which any member can access from the comfort of his/her home.

Delhi IAP is committed for the better health of the children as well its members. Keeping this in mind, we are doing sports and cultural activities at regular interval. Annual sports day was held on 13/02/22 at Bhagat Farms, Gurugram which was attended by more than 150 members and their families. Runathon 2022 is being done on 06/03/22 in association with IAP North Delhi branch and we are working hard to make it successful.

The secretariat has also started a program "Dil Ki Bat President Secretary ke Sath" in which members are invited on zoom platform to interact and share their experiences and expectations regarding Delhi IAP activities. We look forward to critical appraisal of all the activities of Delhi IAP.

Happy Holi in advance.

Dr Pankaj Garg
General Secretary, IAP Delhi

Section I: Academic

India's Win over COVID-19 Vaccine Hesitancy

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The reluctance, low acceptance, refusal (and even demonizing) has always been a part of history of vaccines[1]. When the very first vaccine-the smallpox vaccine-reached India in early 19th century, contrary to expectations, the uptake of the vaccine was very low and a section of society was unwilling to take the vaccine (2). And this was not very different from the events in rest of the world: Anti-Vaccination Society of America was formed as early as 1879 and was followed by an anti-vaccination movement in Europe soon after. Over next 200 years, vaccines became recognized as the most cost-effective public health intervention[3], even though issues of vaccine hesitancy persisted (most recently vaccine hesitancy to Oral Polio Vaccine (OPV) in 1990s and Measles-Rubella (MR) vaccine campaign in 2017-19). When the most modern vaccines-COVID-19 vaccines-were deployed in January 2021, the situation was not very different from smallpox time: the uptake of vaccines was low! And this time there were two peculiarities which were not there in any of the vaccine hesitancy issues in the past: One, this time the intended beneficiaries initially were health care workers (HCWs) themselves rather than general public. Second, there was very high perceived demand of the vaccine till the vaccines were actually launched. It was imagined that crowd control would be a task in India when the vaccination starts. However, once vaccination actually started, vaccine hesitancy sprang up like anything (Figure-1).

Figure-1. Turnaround from perceived high demand to vaccine hesitancy [Courtesy: African News Agency (ANA)]

India's journey from that stage in January 2021 when health care workers were hesitant to come forward for vaccination to administering over 1.72 billion doses (and counting) of COVID-vaccines till February 2022[4] overcoming the logistic, economic and technological challenges as well as vaccine hesitancy is a stupendous feat. This article focuses on India's overcoming vaccine hesitancy aspect and how we could have done even better.

Are Vaccine Hesitancy and Vaccine Refusal same?

Vaccine Hesitancy (VH) is a broad term and is set on a continuum between those who accept all vaccines without doubts to those who refuse all vaccines completely (Figure-2). Vaccine-hesitant individuals are a heterogeneous group in the middle of this continuum[5]. Vaccine hesitant individuals may refuse some vaccines, but agree to others; delay vaccines or accept vaccines but are unsure in doing so. Thus, the World Health Organization (WHO)'s Strategic Advisory Group of Experts (SAGE) working group on Vaccine Hesitancy has defined Vaccine Hesitancy as "delay in acceptance or refusal of vaccines despite availability of vaccine services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence".

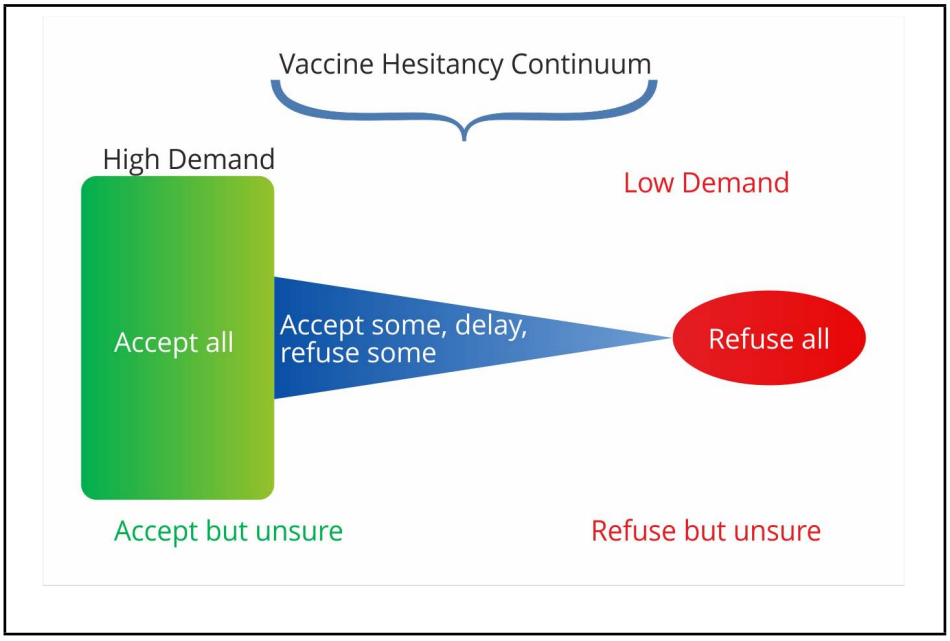

Figure-2. The Continuum of Vaccine Hesitancy between Full Acceptance and Outright Refusal of all Vaccines (Source: Reference no. 5)

This complex and dynamic nature of VH needs to be understood, since tackling it requires directed efforts towards the heterologous[6] group of individuals depending on the setting (context), time, vaccine and underlying factors. There is no "one size fits all" approach to tackle it.

Factors that helped India overcome Vaccine Hesitancy

1 Political will:

Political will is the driving force behind any public health program. Government of India started planning and investing in the COVID-19 vaccination program as early as early 2020[6]. Although details are not in public domain, but it is clear that the government had clear vision and will to get the whole programme run smoothly.

2 Communications and Media:

Mass media (including social media in current era) is a double-edged weapon and can be a factor in fuelling as well as tackling VH. India did reasonably well in this regard. The vaccination started initially at fewer centres, and leading hospitals (both Govt and private) were taken on board. This served dual purpose: one, any AEFI could get immediate, high-quality attention and second, as the HCWs of these institutions took the vaccines, they became "champions"/ influencers of the vaccination program with a force-multiplier effect on tackling VH going forward. Initial days of vaccination at most centres were consciously made "media events" with this intention[7]. Further, media was regularly seeded with advertisements, articles and interviews of experts giving reassurance regarding safety of vaccines as that was the significant area of concern fuelling VH for COVID vaccines. Academic associations, especially IAP also took a leading role in advocacy in this regard. Internet & Technology also played crucial roles. Almost real time updates (including AEFI) on the CoWin Dashboard[4], developed specially for this purpose and regularly updating website of Ministry of Health and Family Welfare and clear-cut guidelines had a significant role in debunking rumours and tackling VH. All the vaccination centres had carefully designed flyers and posters debunking the common myths around the vaccines and vaccine safety.

3. Endorsement by public figures:

There is enough evidence that messages by trustworthy public figures helps a lot in tackling VH (2, 8). Repeated messages from public figures from all walks of life helped a lot in countering the misinformation that was going on simultaneously, especially on social media. Our Prime Minister who is a mass leader with lot of "fan-following", led by example and was first to take the vaccine when vaccination for senior citizens started on 2nd March 2021and was well publicised by all media channels[9,10]. Even his birthday was marked by a new record in single day vaccination with administration of 23.1 million doses[11], again getting enormous media attention. Most people have a lot of trust on their health care provider for the decisions of vaccination. With COVID-19, HCWs were first to get the vaccine and it became almost a norm to post one's selfie getting the vaccination in various social media channels. This, in turn had a huge multiplier effect downstream and everyone inspired others by posting own pics in various WhatsApp groups and other social

media channels. It has been documented well that VH is dependent a lot on "social norm" and this seemingly innocuous selfie posting helped significantly in making a conducive ecosystem.

4. Motivational "Nudges"

Motivational individualized reminders by SMSes from CoWin portal (for 2nd dose), Ministry of Health and Welfare, and from local public representatives at many places helped to bridge the "intention to action" gap and reinforce the messages in media and public figure endorsements. Requirements and encouragements from employers for their employees to get vaccinated also helped.

5. Service delivery

A smooth service delivery system goes a long way in building confidence. The whole process was well designed and managed. Technology played a big role in registration of citizens for vaccination and planning of appropriate vaccination sites and management of vaccine stock. Starting from leading hospitals, the vaccination centres were gradually increased as the confidence was built and demand generated. When outreach centres/ dispensaries were designated as vaccination centres, each centre was tagged to a designated hospital in case of need for management of moderate to severe AEFI. Round the clock helplines (national as well as state-wise separately) have been functional throughout. One vaccination site was allowed to administer only one brand of vaccine to reduce errors due to mixing up of subsequent doses. It was because of smooth planning and execution, there have been no major glitches in the system in such a huge and diverse country of ours, barring some supply constraints in mid-2021 off and on in some areas.

Areas where we could have done better

1. Deployment of vaccine before interim phase-3 results:

This was the most controversial decision on India's COVID-19 vaccination program and was unparalleled anywhere in the world, except China. Vaccination program started on January 16, 2022 with two vaccines: Covishield and Covaxin. At that time, the results of phase-3 trial of Covaxin were not available. Covaxin was launched in the absence of data in "Restricted use in Emergency Use in Clinical Trial Mode" and the vaccinees were supposed to sign a 3-page consent form as they were considered to be part of trial; however, no details were released of this unprecedented type of "trial" and top experts gave different explanations of the same[12, 13]. Thus the scene was set for vaccine hesitancy, especially when HCWs were intended beneficiaries. The interim results of phase 3 trial of Covaxin were declared by the manufacturer on March 3, 2021[14]. When even the production and distribution was (and in fact is still) low, contributing just 12-15% of total vaccinations, at least this one factor for VH (lack of sufficient data) was not difficult to prevent.

2. Delayed decision of vaccination for lactating and pregnant mothers:

When India's COVID-19 vaccination program was launched in January 2021; many regulators and professional bodies globally were recommending vaccination in pregnant and lactating mothers (after explaining risks & benefits to them) (15-19). However, Indian authorities kept these as absolute contraindications. It took 4 long months to get vaccination allowed in pregnant and lactating mothers. However even today, in 2022, VH in this segment lingers on significantly, as is the personal experience of most clinicians.

3. Starting vaccination of a new category during a surge:

COVID vaccines were deployed in phases, starting from HCWs, then elderly, then middle aged. While vaccination for 45 plus age group started on 1st April, 2021; vaccination for all adults was opened on 1st May 2021 when there was a huge surge due to Delta variant. In that scenario, there were huge number of COVID cases who recently went for vaccination: possibly got infection during the 30-minute observation period with some slack in Covid appropriate behaviour. Similarly, 3rd dose (precautionary dose) of vaccination for HCWs and elderly was started in January 2022 when there was a surge due to Omicron variant…and this time there was lot of VH due to the fear of catching infection during the process of vaccination (personal communication) and this VH was preventable by a pro-active approach when Omicron surge had already started in other parts of the world in December 2021.

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COVID-19 Vaccine Platforms

Dr. Ajay Kumar Gupta
Muskan Clinic for Children and Adolescents
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Dr Punit Kumar Sharma
Jaymith Children Clinic

The emergence of SARS-CoV-2 has brought into sharp focus the need for a vaccine to prevent this disease. Technological advancements have led to development of newer Vaccine platforms. Each vaccine platform has a unique set of advantages and challenges, especially when considering manufacturing

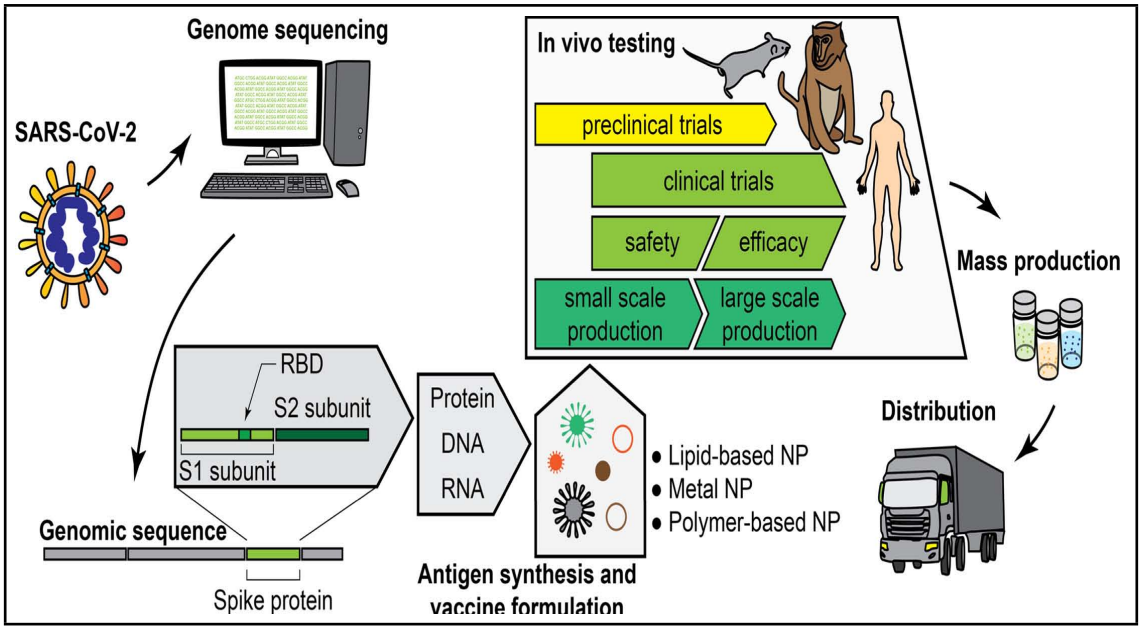

Fig 1. Development of Vaccine

Historically, four platforms (inactivated pathogen vaccines, recombinant subunit vaccines, conjugate vaccines and attenuated virus vaccines) have made up the bulk of vaccine products.

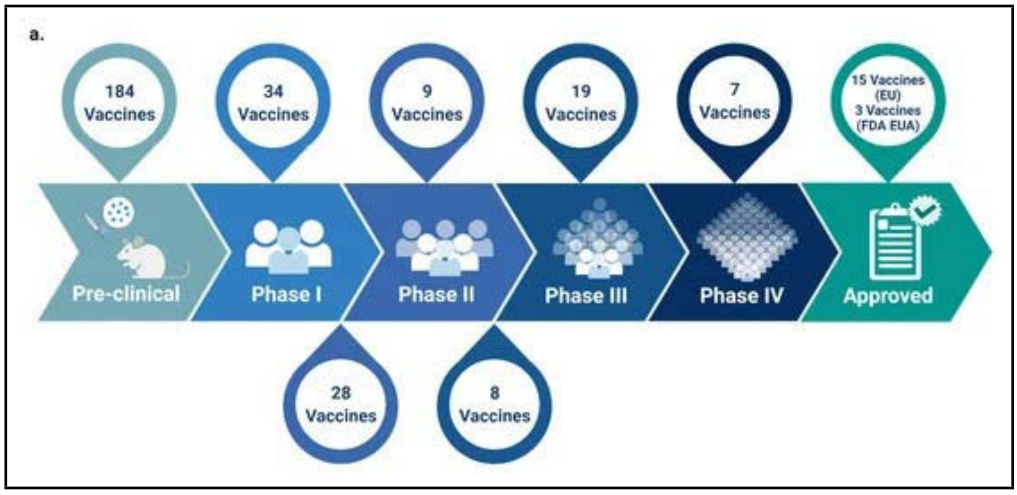

Fig 2. Number of Vaccines under Development in Different phases.

Let us study different platforms in little detail.

- ## Inactivated pathogen vaccines (Covaxin)

To make an inactivated viral vaccine, an individual viral strain is first isolated, sequenced, plaque purified, and passaged in a mammalian cell line to create a viral stock.The inactivated virus is often mixed with an adjuvant such as aluminium to enhance the immunogenicity of the final vaccine product. These procedures preserve the structure of the pathogen's protective epitopes, but remove the pathogen's ability to replicate or recover virulence.

Immunity is activated by recognizing the viral pathogen-associated molecular patterns (PAMPs), using innate immune cell receptors such as toll-like receptor (TLR) 7, which can induce T-cell-mediated immune responses.Due to the maintenance of the functional viral domains during inactivation, the immune response is similar to that which occurs in living viruses.

Advantages

Inactivated vaccines tend to be more stable than other platforms, making them less sensitive to cold chain disruptions. Inactivatedvaccines can also be administered using needle-free technology.

Challenges

Inactivated vaccines tend to be less immunogenic than live, attenuated vaccines. Vaccination also generally requires multiple doses of the vaccine to achieve and maintain protective immunity.

COVID-19 Vaccine Platforms Continued ...

- ## Live, attenuated vaccines

Live attenuated vaccines are closest to a natural infection; they act as suitable primers for the immune system to develop protection against natural disease.

Advantages

Live, attenuated vaccines can be very effective. The innate immune system is triggered through pathogen-associated signals, such as viral RNA, allowing recognition by TLRs.

Challenges

The principal risk with an attenuated vaccine is that it can rarely recover its virulence. Storage conditions are critical for live, attenuated vaccines because they are composed of a living organism.

- ## Viral vectors (Covishield & Sputnik)

Several recombinant viral vectors derived from other viruses have been studied as gene delivery systems for therapeutic intervention and vaccination.

These host-virus genomes carry out all the viral transmission and amplification functions, including antigen production, to present the chosen antigen to the patient's immune system. In particular, the Adenovirus vectors have been extensively tested as vaccine delivery systems studies.

In general, viral vectors induce the necessary strong antibody responses as well as a response from CTLs, including CD8 + T cells. The T cell response is critical in controlling intracellular pathogens but is not triggered by the traditionally purified inactivated or subunit vaccines.

Advantages

Large-scale cultivation to produce high cell densities of up to $5\text{-}10\times10^6$ cells per milliliter is possible.The combination of increased cell density and high viral titers results in higher yields. The result is lower production costs per vial of vaccine.

Challenges

Many people have pre-existing immunity to some viral vectors. This pre-existing immunity can lead to a premature clearance of the vaccine before an immune response can be mounted to the antigen of interest carried by the vector.

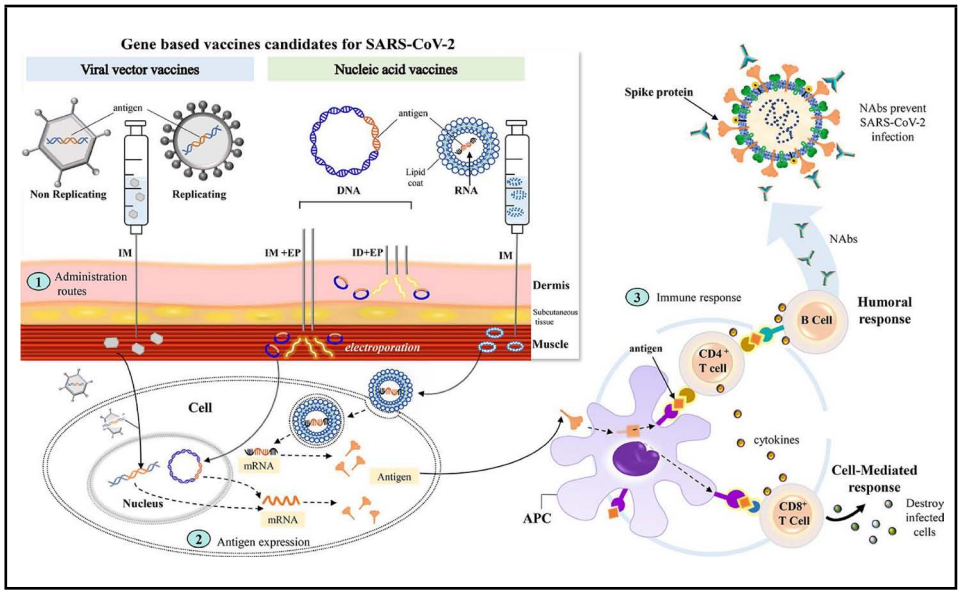

Fig3. Mode of action of Different Vaccines

- **Subunit vaccines(Covovax and Corbevax)**

Subunit Vaccines include only the parts of the virus necessary to elicit a protective immune response. Therefore, side effects are less common because subunit vaccines contain only the antigen and no other pathogen molecules.

Identifying which antigens best stimulate the immune system to develop protection against the pathogen can be challenging and time-consuming.

- **DNA vaccines (Zycov-d)**

DNA vaccines are bacterial plasmids that encode a vaccine antigen driven by a viral-derived RNA polymerase II promoter, such as the CMV or SV40 promoters. The local tissue becomes a protein factory for the presentation of antigen.

Advantages

DNA vaccines are antigen sparing since the antigen of interest is produced by endogenous cellular machinery.

- **mRNA vaccines (Moderna)**

Messenger RNA (mRNA) vaccines are a newer technology engineered to mimic processed, mature nucleic acid transcripts present in the cytoplasm of eukaryotic cells. The vaccine drug substance is made by in vitro transcription of a target gene from a linearized DNA template.

Advantages

Messenger RNA is a non-infectious, non-integrating technology with no potential to cause infections or insertional mutagenesis. The strong immune-stimulatory effect and intrinsic adjuvant activity of in vitro transcribed mRNA are added benefits and lead to potent antigen-specific cellular and humoral immune responses.

The platform enables a large amount of antigen production from a minimal vaccine dose because the mRNA can replicate intracellularly. Moderna's Phase I clinical trial for its mRNA vaccine for COVID-19, mRNA-1273, used doses between 25 and 250 µg for each patient. In contrast, other vaccine platforms may require milligram amounts of vaccine antigen per dose.

Challenges

Some concerns include the proper packaging of mRNA into LNP since extracellular RNA can induce thrombosis.mRNA is also inherently unstable, usually requiring storage temperatures of at least −20°C and possibly as low as −70°C.

- ## Oral Vaccines

A possibility of an oral bacteria-based vaccine that can be safely used as a platform for large-scale, long-term immunization was evaluated. Recombinant Salmonella cells expressing engineered viral proteins related with COVID-19 pathogenesis were engineered, and the formulation of the oral vaccine candidate strain was evaluated. When orally administrated to mice, the vaccine promoted antigen-specific antibody production and cellular immunity was induced with no significant toxicity effects.

Conclusion

An aggressive virus and a threatening health issue resulted in a worldwide coordinated effort to fight against the virus spread and boosted the development of innovative vaccine platforms. The results are highly promising for the design of future vaccines against other pandemics or even existing viruses for which effective vaccines have not been found yet.

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COVID-19 Vaccine Boosters

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Vaccines developed against COVID-19 have saved millions of lives in the past one year. A significant proportion, almost 40%, of the world's population is still to get the first dose of COVID-19 vaccination and yet the entire discourse is currently focused on booster doses[1].

Why is a booster needed?

Booster shots are required for waning immunity. While we were resigned to the inevitable drop in antibody levels and a consequent decrease in protection against infection and mild symptomatic disease; memory B cells and T cells were expected to ensure a robust and long lasting protection against severe disease, hospitalization and death.

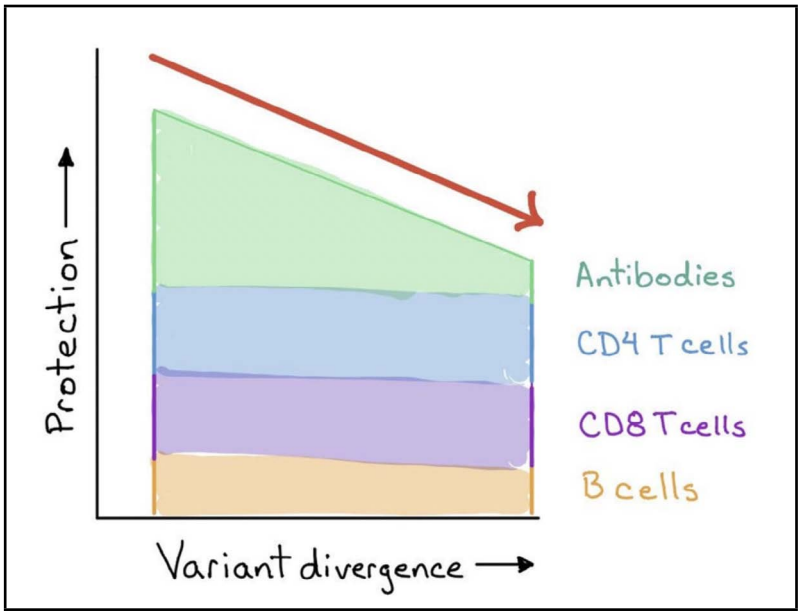


Fig 1. Levels of different parts of the human immune response to SARS-CoV-2. Illustration: https://twitter.com profshanecrotty

A review of 10 studies for vaccine effectiveness versus symptomatic disease during Delta waves shows that two doses of mRNA or Adenovirus vectored COVID-19 vaccines elicit high levels of protection from symptomatic disease, but this wanes over time. Emerging studies show that a third dose (booster) of the same type can restore effectiveness to >90%. Figure 2 shows data averages for Delta variant from multiple studies[2].

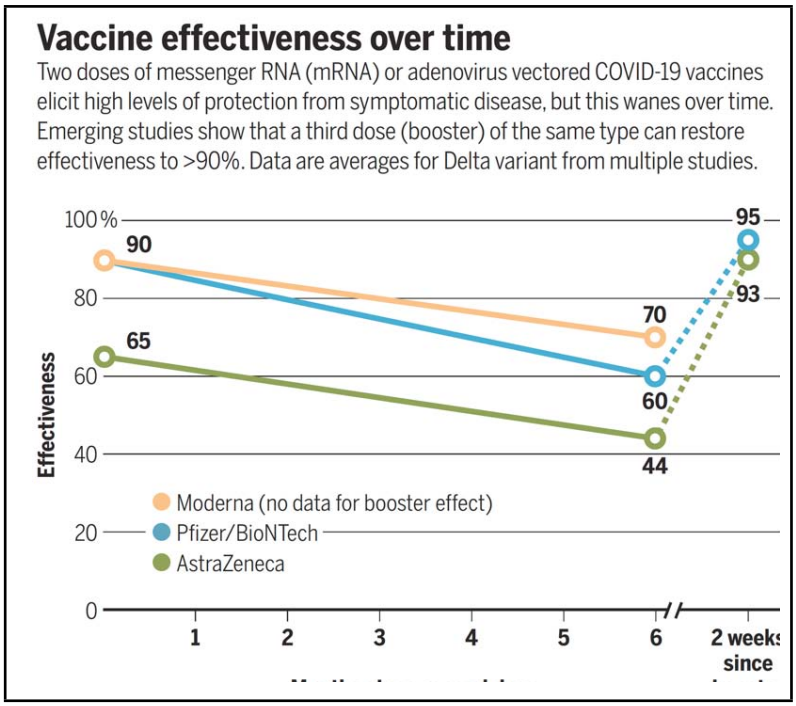


Fig 2. Summary of 10 studies for vaccine effectiveness against symptomatic disease during Delta waves

Unfortunately, there is lack of data from our country and we have to rely on Western reports to see how this translates into real world effectiveness. Data from the US shows us that vaccines work and two doses afford very good protection against death[3].

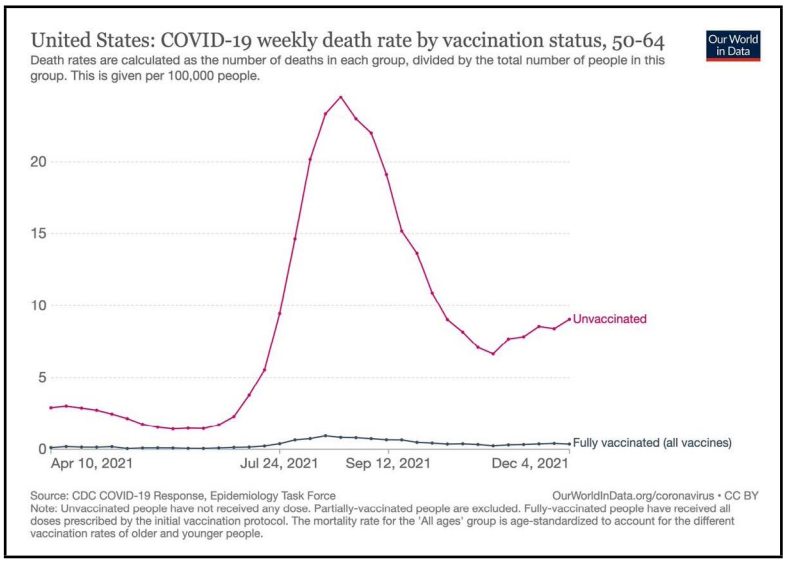


Fig 3. COVID-19 weekly death rate by vaccination status in US for age 50-64

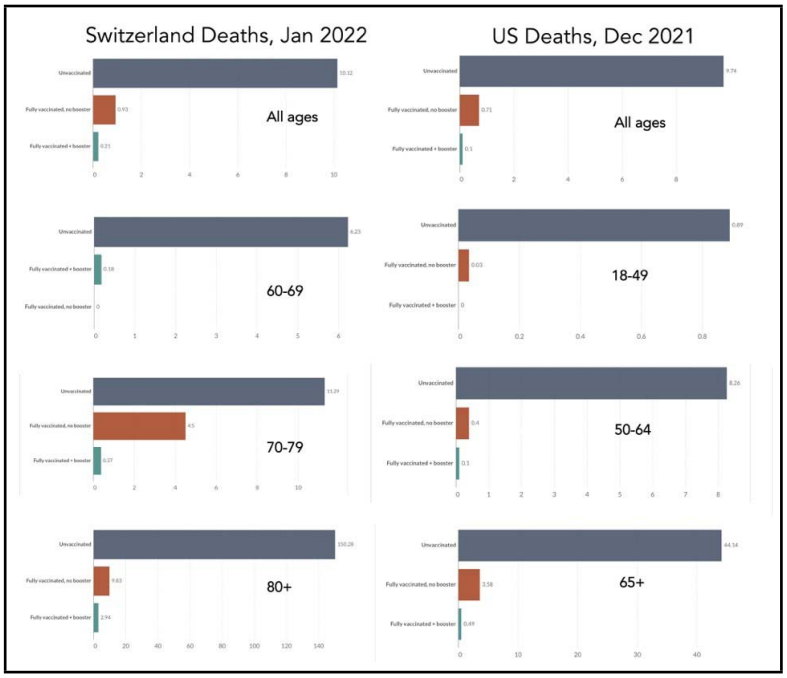


Figure 4 shows the highly consistent magnitude of % reduction of deaths by vaccination and boosters across all ages 18+ in 2 countries, per 100,000 people[4]
2-shots 91-93%
3-shots 99%

While the above figure (Fig. 3) is reassuring, updated data highlights the significant additional protection that boosted individuals get.

As majority of Americans received mRNA vaccines. We cannot directly extrapolate from their data.

Another reason why boosters are recommended is to augment our immunity against new and emerging variants. Even though the current vaccines were prepared against the original Wuhan strain they have continued to provide us sufficient protection against subsequent strains including Delta. However, the emergence of Omicron carrying multiple mutations has brought into sharp focus the significantly reduced levels of neutralizing antibodies afforded by all vaccines. This explains the poor protective levels against infection. Immunity against severe disease due to Omicron is also hampered, albeit to a lesser extent and a booster augments this remarkably as seen in Figure 5[5].

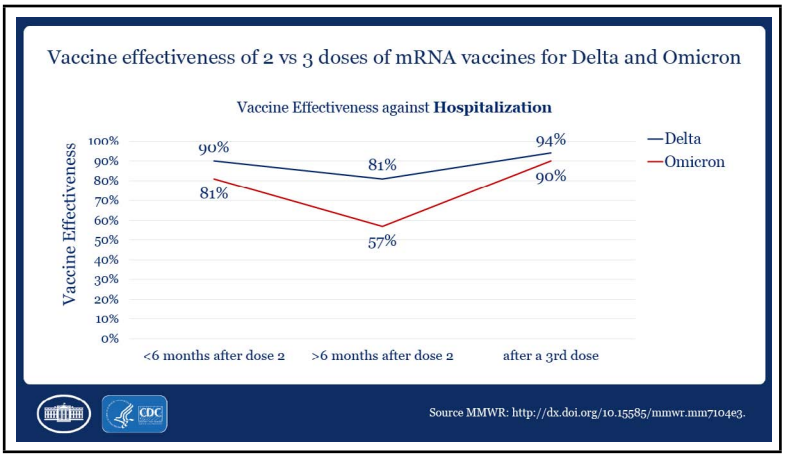


Fig 5.

Vaccine Effectiveness (VE) vs Omicron Hospitalization	UKHSA* (95%CI)	Kaiser Southern California (95%CI)	CDC VISION Consortium (95%CI)
2 doses, waned (>4-6 months)	44% (30-54)	68% (56-76)	57% (39,70)
3 doses (+booster)	88% (84,91)	89% (84,92)	90% (80,94)
< 3 months	88% (84,91)	89% (83,92)	NA
> 3 months	83% (78,87)	90% (57,98)	NA

*UK used AZ for 2-doses, and mix of boosters with Pfizer and Moderna, NA –not available

@erictopol

Fig 6. Compiled vaccine effectiveness data vs Omicron hospitalization. Table: https://twitter.com/EricTopol

All the evidence supporting boosters reviewed above is with an mRNA vaccine as booster, which unfortunately is not available to us.

Who needs the booster?

A booster dose is required for those who did not mount a robust immune response following the primary two dose schedule. This includes people with immunodeficiency as well as the very old and infirm and those suffering from chronic debilitating illness. In this population it is called an additional dose and part of an extended primary schedule[6].

A booster is also advisable for those with high or frequent exposure to COVID-19 cases, such as healthcare and other frontline workers.

Which vaccine to take as booster?

COV-BOOST is a multicentre, randomised, controlled, phase 2 trial of third dose booster vaccination against COVID-19[7]. The authors investigated the reactogenicity and immunogenicity of seven different COVID-19 vaccines as a third dose after two doses of ChAdOx1 nCov-19 (Oxford– AstraZeneca) or BNT162b2 (Pfizer–BioNtech). All the vaccines tested as third dose had acceptable reactogenicity.

COVID Vaccine Boosters Continued ...

As majority of people in India have received Covishield as primary vaccination, the results of this study pertaining to AstraZeneca vaccine interest us the most. They are summarised here:

Booster vaccine	Antibody response	Cellular response
ChAdOx	3 fold rise	No increase
Inactivated	2 fold	No increase
mRNA	24-32 fold	3 fold rise
Novovax	9 fold rise	3 fold rise

The data shows that a heterologous booster works better than a homologous one. While the inactivated vaccine used was a Chinese one, the platform was similar to our Covaxin. Novovax vaccine is being manufactured in India by Serum Institute and is likely to available soon.

There is no data available for booster effect following a primary course of an inactivated vaccine.

Variant specific vaccines as boosters were being positioned as a more effective option but by the time such a vaccine is developed and tested we may have a new and completely different dominant variant. Furthermore, recent data on this topic is not very encouraging with Omicron-specific mRNA vaccines inducing potent neutralizing antibodies against Omicron but not other SARS-Cov-2 variants[8].

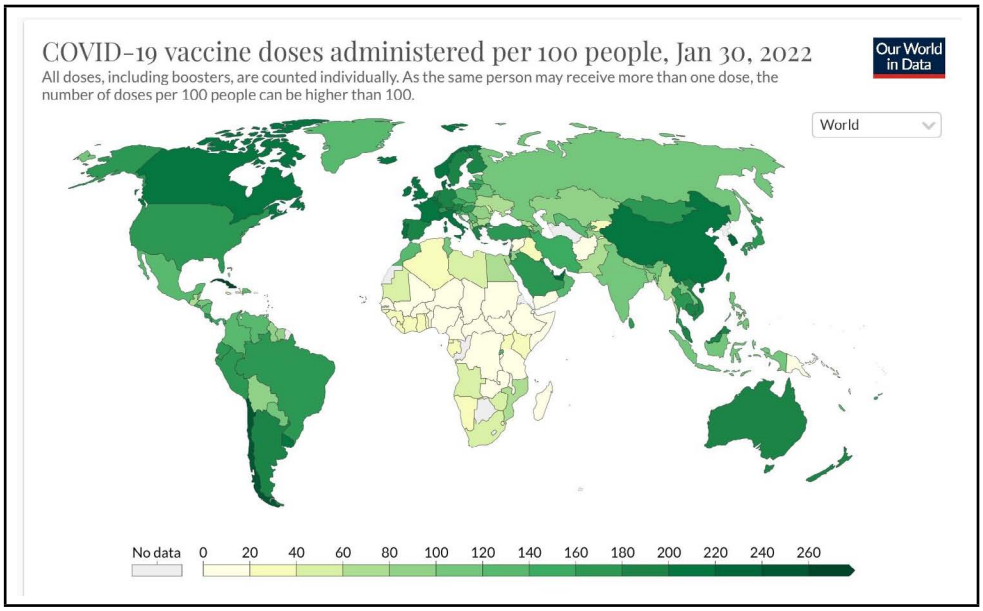
An exciting approach being contemplated is employing intranasal vaccines as boosters to provide mucosal immunity which is required to prevent infection and transmission. At least 10 nasal vaccines are in clinical trials currently, including one vaccine on adenoviral vector platform by Indian company, Bharat Biotech.

Are boosters a lasting solution?

We understand the current vaccines were not developed to provide sterilising immunity i.e. protection against asymptomatic infection and thus transmission. They were produced to protect against symptomatic and severe disease and they have fulfilled that mandate. There is no limit to the number of boosters that will be required to prevent infection and transmission since protection against infection does wane after a few weeks. This raises the question of how many doses would be enough, with Israel becoming the first country to have implemented fourth dose recommendation for all adults.

Endless boosting is not a practical or sustainable strategy. The global lack of vaccine equity is an important consideration and it has rightly been said that no one is safe from COVID till everyone is safe. As long as there are unvaccinated populations, variants with new clinical properties will possibly emerge and plague us for years to come. Vaccinating a majority of the world's population at the earliest is a vital step towards ending this pandemic. It is unfortunate that while some countries have started vaccinating young children and giving

fourth doses to its adult population there are numerous others with less than 10% of adult population having received a single dose. In fact, an entire continent has almost been left out in this global vaccination effort against COVID[1].



Rather than administering endless booster shots a better way to slow the pandemic would be to develop new vaccines that have a more enduring effect, and that allow adequate protection against multiple existing and emerging strains

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COVID-19 Vaccines Adverse Effects Profile

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All the covid vaccines given EUA by the various regulatory authorities have been found to be reasonably efficacious and safe during the trials as well as in 'real-world' post-deployment surveillance. Like all the vaccines of the past years for different infectious diseases these covid vaccines can also have some adverse effects in the recipients. While the minor adverse effects are common, the more serious ones are rare.

Pain, swelling and redness at the site of injection and some systemic symptoms in the form of fever, chills, headache, nausea, muscle pain and tiredness are encountered in the first 2 days after the vaccination, more commonly with second dose (Table 1, US data).

Table-1. Common adverse effects after three COVID-19 vaccines in USA.

Pfizer (mRNA vaccine)	Pain, redness, swelling	Fatigue	Headache	Myalgia	Fever, Chills
16 years +	65%	29-48%	25-40%	17-37%	20-22%
12-15 years	20%	66%	65%	32%	22%
5-11 years	……Slightly lower rates and milder ……				
Moderna (mRNA Vaccine)					
Dose 1	74%	33%	27%	21%	
Dose 2	82%	60%	53%	51%	40%
Janssen (Adenoviral vector vaccine)	61%	-	76%	-	-

Covid Vaccines Adverse Effects Profile Continued ...

Following are the more important serious adverse effects of the COVID-19 vaccines have been reported:

1. Anaphylaxis (With any vaccine)
2. Thrombosis with Thrombocytopenia Syndrome (TTS) (Mainly with AZ/Covishield, first dose)
3. Myocarditis and Pericarditis (Mainly with mRNA vaccines, second dose)
4. Guillain-Barré Syndrome (GBS) (Mainly with Janssen vaccine)
5. Death
6. (Rarely Bell's palsy, Tinnitus and Transverse myelitis have also been reported)

Anaphylaxis - is rare and has occurred in approximately 5 people/million vaccinated with Pfizer and 2.8/million vaccinated with Moderna mRNA vaccines in the US. With other vaccines also it is rare. Intramuscular adrenaline is the immediate drug of choice.

Thrombosis with Thrombocytopenia Syndrome (TTS)

TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets. Although extremely rare, there is a higher risk in people after the first dose of the Oxford AstraZeneca (AZ) vaccine. Overall, incidence is 10/million doses of AZ vaccine given. This is seen more often in younger people and tends to occur between 4 days and 4 weeks following vaccination. Current advice in UK is to avoid AZ vaccine for those in 18 to 40 years age group. However, if they have taken the first dose uneventfully, second dose can be the same since TTS occurs is more common after first dose.

As of January 13, 2022, more than 17.8 million doses of the J&J/Janssen COVID-19 vaccine have been given in the US. CDC and FDA identified 57 confirmed reports of people who later developed TTS. To date, 3 confirmed cases of TTS following Moderna vaccine have been reported after more than 505 million doses in US while with Pfizer mRNA vaccine no case has been reported. However, there is an alarming report from Norway where incidence was 1 in 26,000.

Thrombocytopenia, thrombosis within a time frame after covid vaccination and no other valid cause are essential for diagnosis.

Table-2. Scoring system for Vaccine induced Thrombosis with Thrombocytopenia Syndrome

Parameter	Point (s)
Thrombocytopenia	
Platelet count 10,000 to 90,000/microL	2
Platelet count <10,000 or between 1,00,000 and 1,49,000/microL	1
Platelet count >1,50,000/microL	0
Timing	
5-14 days post vaccine	2
15-30 days post vaccine	1
0-4 days or ≥ 30 days post vaccine	0
Thrombosis	
Definite thrombosis or D-dimer >10mg/L (>10,000 ng/mL)	2
Suspected (not documented) thrombosis or D-dimer 2.00-9.99mg/L (2000-9990ng/mL)	1
No thrombosis and D-dimer <2mg/L (<2000ng/mL)	0
Other cause of thrombosis or thrombocytopenia	
None apparent	2
Possible	1
Definite	0
Interpretation	
0 to 3 points: Low probability	
4 to 5 points: Intermediate probability	
6 to 8 points: High probability	

TTS has some similarities to HIT (Heparin Induced Thrombocytopenia). It appears to be caused by IgG class antibodies which bind to PF 4 epitope on platelets resulting in their activation (1). Activated neutrophils, monocytes and endothelial cells also play a part.

Cerebral as well as peripheral arteries can be involved as also the veins – DVT, PE (pulmonary embolism), splenic, mesenteric, portal, adrenal, cerebral and ophthalmic veins. Cerebral venous thrombosis accounts for 25-60% cases. In one series median platelet count was 47,000 and D-dimer 24,000 FEUs.

Treatment consists of DOAC (direct oral anticoagulants), IVIG (1 gm/kg/d for 2 days), and plasma exchange in resistant cases. Mortality is 20%. There is no role of prophylactic aspirin.

Myocarditis

In US as of January 13, 2022, VAERS had received 2,103 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines, of which 1,213 were verified.

According to a report on cases of myocarditis with the Pfizer/BioNTech or the Moderna mRNA vaccines more than 80% occurred in males ages 16 to 31 years, with rapid symptom onset occurring primarily after a second dose. While 96% required hospitalisation, symptoms were resolved completely in 87% by hospital discharge, 87% required only NSAIDs and there were no deaths.

CDC estimates that the risk is about 1/14,000 for 12-15 and 1/9,500 for 16-17 years, and risk decreases with increasing age. In 5-11 years' age-group risk is negligible (2). The median time to symptom onset after a second dose was 2 days, with 90% of myocarditis events occurring within 7 days. The cumulative incidence of carditis after vaccination was 0.57 per 100,000 doses with Pfizer/BioNTech and 0.31 per 100,000 doses with CoronaVac, driven by myocarditis rather than pericarditis. Symptom onset occurred in the first week in 75% of all carditis with Pfizer/BioNTech and more than 30 days after CoronaVac (An inactivated vaccine). The absolute risk of myocarditis after Pfizer/BioNTech vaccination was 0.25 per 100,000 after the first dose and approximately one per 100,000 after the second dose. On the other hand according to a study in Israel, there were only 54 reported cases of myocarditis among more than 2.5 million people vaccinated—or 0.002%. Another report puts the incidence as 70.7/million doses and 105.9/ million doses of Pfizer vaccine in 12-16 and 16-17 years' age group respectively. In 18-24 years' age group, the incidence was reported as 52.4 to 56.3/million doses Pfizer and Moderna vaccine respectively.

Almost all presented with chest pain. Electrocardiogram was abnormal in 70% (ST segment elevations or T wave abnormalities), cardiac MRI was abnormal in 77% (late gadolinium enhancement and myocardial edema), but systolic function on echocardiogram was normal in 80%. Nineteen percent were managed in the ICU, 2 required ionotropic or vasopressor support. Median hospital stay was two days, and those with decreased systolic function had normalized ejection fraction on follow-up. Ongoing monitoring is necessary to assess for long-term sequelae.

Two important hypothesis regarding the pathogenesis have been proposed. First, because this event occurs mainly in young males, testosterone is implicated (3). Second hypothesis considers it to be autoantibodies driven by molecular mimicry between the SARS-CoV-2 spike protein targeted by the mRNA vaccines and a structurally similar myocardial protein (similar to rheumatic carditis after a streptococcal-A infection).

The possibility of myocarditis should be considered in adolescents and young adults who develop new chest pain, breathlessness, or palpitations after receiving an mRNA vaccine. The possibility of other causes of myocarditis (including SARS-CoV-2 infection) should also be considered.

Guillain-Barre syndrome

A potential association between the adenovirus vector vaccines (Janssen and AstraZeneca/ Covishield) and Guillain-Barre syndrome (GBS) is being investigated. A similar signal has not been observed with the mRNA COVID-19 vaccines. Cases of GBS, including recurrent cases, have also been reported in the setting of SARS-CoV-2 infection and observational data suggest the risk of GBS after infection exceeds the risk after vaccination. Pending additional data, for individuals with a documented history of GBS, COVID-19 vaccines other than adenovirus vector vaccines are recommended

In the United States, as of July 24, 2021, there had been 132 preliminary reports of GBS among Janssen vaccine recipients after approximately 13.2 million doses. The estimated rate was 9.8 cases per million doses, a rate that is approximately four times the background rate. The median age was 56 years (interquartile range 45 to 62 years), the median time to onset was 13 days following vaccination, 35 percent had a life-threatening case, and 1 patient died (4). In an earlier report of 100 cases, a quarter of the patients reported bilateral facial weakness. In Europe, a total of 227 cases of GBS in 51 million doses of AZ vaccine had been reported to regulators as of June 27, 2021.

Deaths: From more than 529 million doses in US from December 14, 2020, through January 18, 2022 ,11,468 deaths were reported (0.0022%).

Indian Data AEFI: As of 30 November 2021, the national committee had received 49,819 adverse events reports out of 1.23 billion doses (i.e. 4 adverse events/100,000 doses. In contrast to 48/100,000 in Canada and UK had received 300-700 adverse events/100,000 doses in UK. Rate of reporting of adverse events following vaccination of less than ten is generally regarded as indicator of poor reporting and surveillance system.

Reporting rates for TTS are similarly low, with only 26 reports having reached the national committee so far. And the reports that do reach the national committee are investigated slowly. Of the 946 deaths reported up to November 2021, the committee had completed investigations for only 89. And of 26 TTS cases by mid-December 2021, only 6 have been investigated fully, with 5 attributed to Covishield (5).

To conclude, what we have learnt about the adverse effects of covid vaccines is that while the minor side effects are common, the serious ones are rare and most of them can be treated successfully if recognized early. The surveillance system for AEFI must be robust to pick up and analyze AEFI: it goes a long way in building vaccine confidence and evidence-based policy decisions.

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Fallacies in COVID-19 Antibody Measurement

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Infection with SARS-CoV-2 initiates a cell-mediated and humoral immune response that produces antibodies against specific viral antigens, such as the nucleocapsid (N) protein and the spike (S) protein. These include anti-S protein antibodies that target the spike's S1 protein subunit and receptor-binding domain (RBD).

- Antibody tests can detect the presence of these antibodies in serum within days to weeks following acute infection. However, antibody testing should not be used to diagnose acute SARS-CoV-2 infection.
- Antibody tests can identify persons with resolving or past SARS-CoV-2 infection and thereby help scientists and public health experts better understand the epidemiology of SARS-CoV-2.

Development of antibodies and immunity in SARS-CoV-2 infection

- In humans, the humoral response includes antibodies directed against the S and N proteins.
- The S protein contains two subunits, S1 and S2. The S1 subunit contains the RBD that mediates binding of virus to susceptible cells. The RBD is the main target for neutralizing antibodies.
- Antibodies-including IgM, IgG and IgA-against S and its subunits can be detected in serum within 1 to 3 weeks after infection.
- IgM and IgG antibodies can develop arise almost simultaneously; however, IgM (and IgA) antibodies wane more rapidly than IgG.

- The clinical significance of measuring serum IgA in SARS-CoV-2 infection is not known; however, secretory IgA plays an important role in protecting mucosal surfaces against pathogens.
- IgG antibodies, persist for at least several months in most individuals, but the precise duration of time that antibodies persist after infection is not known.
- Loss of previously detectable SARS-CoV-2 antibodies has been reported among individuals with mild disease.
- Individuals with more severe disease appear to develop a more robust antibody response all reaching higher titers and exhibiting longer persistence.
- The observed persistence of antibodies can vary by assay, and some studies have found that approximately 5% to 10% of individuals do not develop detectable IgG antibodies following infection.
- Although neutralizing antibodies might not be detected in individuals with mild or asymptomatic disease, the humoral immune response appears to remain intact even with the loss of specific antibodies over time, because of the persistence of memory B-cells.
- SARS-CoV-2 neutralizing antibodies that inhibit viral replication in vitro mainly target the RBD.

Reinfection

SARS-CoV-2 reinfection has been documented; however, studies indicate that individuals with SARS-CoV-2 antibodies are less likely to experience a subsequent reinfection or clinical disease than individuals without antibodies.

- In sequential outbreaks among staff and residents of two nursing homes in the United Kingdom (UK), individuals who tested antibody-positive following the first outbreak were 96% less likely to become infected during the second outbreak four months later.
- In a British cohort study of individuals with and without SARS-CoV-2 antibodies, the adjusted incidence rate ratio for subsequent infection was 0.11 among individuals followed up for a median of 200 days after a positive antibody test, compared with those who tested negative for SARS-CoV-2 antibodies.
- A large US study of commercial laboratory results found a 90% reduction in infection among individuals with antibodies compared with individuals without antibodies, over a 6-week period.
- Taken together, these findings suggest that SARS-CoV-2 infection and development of antibodies can result in some level of protection against SARS- CoV-2 reinfection.

Vaccination

- SARS-CoV-2 infection results in the development of antibodies against viral proteins including the N and S proteins.
- Vaccine-induced antibody development has implications for antibody testing. Before vaccination, a SARS-CoV-2 antibody test that detects any of the N, S, or RBD antibodies could be considered to indicate previous exposure to SARS-CoV2.

Considerations for public health and clinical practice

Evidence includes the following:

- Reduced incidence of infection among individuals with SARS-CoV-2 antibodies followed up for 3 months or longer.
- Findings from outbreak investigations that pre-existing detectable antibodies correlate with reduced incidence of infection.
- Viral neutralization has been demonstrated using serum from individuals following infection.
- Data demonstrating that vaccination, which also results in antibody production, can reduce the incidence of illness.
- Decreased disease severity and even prevention of infection associated with administration of monoclonal antibodies.

While it remains uncertain to what degree and for how long individuals with detectable antibodies are protected against reinfection with SARS-CoV-2 or what concentration of antibodies are needed to provide such protection, cohort studies indicate an 80% to 90% reduction in incidence for at least 6 months post-infection among antibody-positive individuals. It is also not known whether, and to what extent, viral evolution and the emergence of new SARS- CoV-2 variants could impact immunity from reinfection. One study in the UK found that among people with primary infections >180 days prior to reinfection, the risk of reinfection with the delta variant was increased compared to reinfection with the alpha variant.

Tests for the detection of neutralizing antibodies

There are three types of neutralization test:

- Virus neutralization tests (VNT), such as the plaque-reduction neutralization test (PRNT) and microneutralization, use SARS-CoV-2 or recombinant SARS-CoV-2 expressing reporter proteins..

- Pseudovirus neutralization tests (pVNTs) use recombinant pseudoviruses, (such as vesicular stomatitis virus (VSV) or lentiviruses, that incorporate the S protein of SARS-CoV-2. These tests can be performed in BSL-2 laboratories, depending on the virus strain used.
- Competitive viral neutralization tests (cVNTs) are binding antibody tests designed to qualitatively detect potentially neutralizing antibodies, often those that prevent interaction of the RBD with the ACE-2 receptor. The test mimics the interaction of the RBD with ACE-2 in an ELISA format. These tests can be conducted in BSL-2 laboratories because they are not performed on live virus.

Interpretation of anti-S and anti-N antibody results based on vaccination status

Vaccination status	Anti-S antibody	Anti-N antibody	Interpretation*
Vaccinated	+	+	Vaccinated and previously infected
Vaccinated	+	–	Vaccinated and not previously infected
Unvaccinated	+	+	Not vaccinated and previously infected
Unvaccinated	–	–	Not previously vaccinated or infected

Antibody tests can be used in seroprevalence studies to estimate the cumulative incidence of infection (or vaccination) in a community. However, a negative antibody test does not preclude previous infection. A proportion of individuals who are infected with SARS-CoV-2 might not develop measurable antibodies, thereby limiting the sensitivity of any antibody test to detect previous infection in these individuals. In addition, measurable antibodies might wane over time, and the extent to which seroreversion occurs could vary according to the antibody test used.

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Guideline Section

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WHO's Interim Recommendations for Heterologous (mix-and-match) COVID-19 vaccine schedules

These recommendations (1) were issued on 16th December 2021 based on assessment of current evidence on the topic by its Strategic Advisory Group of Experts (SAGE) on Immunization and these recommendations apply to all COVID-19 vaccines that have received a WHO Emergency Use Listing (EUL) as of 7 December 2021 [Ad26.COV2.S, BBV152 (Covaxin), BNT162b2, ChAdOx1-S (recombinant) (Covishield in India), mRNA-1273, Sinopharm-BIBP, and SinovacCoronaVac]. Due to the multiplicity of possible heterologous vaccine combinations, the limited direct evidence on the benefits of specific heterologous combinations against the primary outcome of interest (i.e. the level of protection conferred against severe COVID-19), and the lack of an established immune-correlate of protection against COVID-19, the available heterogenous body of evidence was deemed not to lend itself to formal GRADEing of evidence. Nevertheless, SAGE considered these indirect data from multiple sources as sufficient to proceed with issuing this good practice statement.

Recommendations

1. The recommendations make it clear that homologous schedules are considered standard practice based on substantial safety, immunogenicity, and efficacy data available for each WHO EUL COVID-19 vaccine.
2. It is also clarified that flexible approach is well-supported by WHO: two heterologous doses of any EUL COVID-19 vaccine is considered as a complete primary series.
3. Any vaccination scheduled that is planned to be implemented careful consideration of current vaccine supply, vaccine supply projections, and other access considerations, alongside the potential benefits and risks of the specific products being used.

Guideline Section Continued ...

4. Rapidly achieving high vaccination coverage with a primary vaccine series in high-risk groups should be utmost priority: using any kind of schedule (homologous/ heterologous) and this should not be delayed over considerations regarding the potential benefits of heterologous schedules.

5. For countries considering heterologous schedules, WHO makes the following recommendations on the basis of equivalent or favourable immunogenicity or effectiveness for heterologous versus homologous schedules:

    - Depending on product availability, countries implementing WHO EUL inactivated vaccines for initial doses may consider using WHO EUL vectored or mRNA vaccines for subsequent doses.
    - Depending on product availability, countries implementing WHO EUL vectored vaccines for initial doses may consider using WHO EUL mRNA vaccines for subsequent doses.
    - Depending on product availability, countries implementing WHO EUL mRNA vaccines for initial doses may consider using WHO EUL vectored vaccines for subsequent doses.

6. Recommendations as to the relative risks and benefits of homologous versus heterologous primary and booster doses will be reviewed and updated as additional data become available.

Reference

1. World Health Organization. Interim recommendations for heterologous COVID-19 vaccine schedules. Available online: https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-heterologous-schedules. Accessed on Febriary 19, 2022.

Journal Clippings

Dr. Puneet Kumar
Kumar Child Clinic, Dwarka, New Delhi

1. A mixture model for determining SARS-Cov-2 variant composition in pooled samples

Appearance of new variants of SARS-CoV-2 virus and their variable impact on the efficacy of current vaccines have led us into a complex and unpredictable phase of the pandemic and new and different approaches are needed to move ahead and tackle this virus. Valieris et al in current issue of Bioinformatics have proposed a statistical model for the estimation of the relative frequencies of SARS-CoV-2 variants in pooled samples. This model is built by considering a previously defined selection of genomic polymorphisms that characterize SARS-CoV-2 variants. Results obtained by using simulated data show that this method is quite effective in recovering the correct variant proportions. Further, results obtained by considering longitudinal data from wastewater samples of two locations in Switzerland agree well with those describing the epidemiological evolution of COVID-19 variants in clinical samples of these locations. Thus, this method can be a valuable tool for tracking the proportions of SARS-CoV-2 variants in complex mixtures such as waste water and environmental samples.

Courtesy:
©PubMed (Bioinformatics, February 2022)

Read the full article
https://pubmed.ncbi.nlm.nih.gov/35104309

4. A 6,80,000 person megastudy of nudges to encourage vaccination in pharmacies

It is said that vaccine does not save lives, vaccination does! Many a times, there is an "intention to action gap" when people are not averse to get vaccinated still don't turn up for vaccination because of some reason, including complacency. In this large study, Milkman et al tried to find whether sending text messages by SMS can encourage

Journal Clippings Continued ...

people to get vaccinated and thus improve uptake, and if yes, what kind of messages work best. They randomly assigned 689,693 Walmart pharmacy patients to receive one of 22 different text reminders using a variety of different behavioural science principles to nudge flu vaccination or to a business-as-usual control condition that received no messages. We found that the reminder texts that were tested increased pharmacy vaccination rates by an average of 2.0 percentage points, or 6.8%, over a 3-mo follow-up period. The most-effective messages reminded patients that a flu shot was waiting for them and delivered reminders on multiple days. The top-performing intervention included two texts delivered 3-days apart and communicated to patients that a vaccine was "waiting for you." Neither experts nor lay people anticipated that this would be the best-performing treatment, underscoring the value of simultaneously testing many different nudges in a such a highly powered mega study.

Courtesy:

©PubMed (Proc Natl Acad Sci U S A, February 2022)

Read the full article

https://pubmed.ncbi.nlm.nih.gov/35105809

2. Neutralizing Antibodies and Cytokines in Breast Milk After Coronavirus Disease 2019 (COVID-19) mRNA Vaccination

&

3. Effectiveness of Maternal Vaccination with mRNA COVID-19 Vaccine During Pregnancy Against COVID-19–Associated Hospitalization in Infants Aged <6 Months-17 States, July 2021, January 2022

These 2 studies published this month have studied passive effect of maternal vaccination during pregnancy/ lactation with (mRNA) COVID-19 vaccine on their baby. First study by Narayanaswami et al studied Neutralizing Antibodies and Cytokines in breast milk after maternal vaccination. Breast milk samples were tested for the presence of neutralizing antibodies against the spike and four variants of concern: D614G, Alpha (B.1.1.7), Beta (B.1.351), and Gamma (P.1). Levels of 10 cytokines were also measured in milk samples. Infant stool samples were also studies. It was found that milk from COVID-19-immunized women neutralized the spike and four variants of concern, primarily driven by anti-RBD IgG. The immune response in milk also included significant elevation of interferon-γ. The immune response to maternal vaccination was reflected in breastfed infants: anti-RBD IgG and anti-RBD IgA were detected in 33% and 30% of infant stool samples, respectively. Levels of anti-RBD antibodies in infant stool correlated with maternal vaccine side effects. However, median antibody levels against RBD were below the positive cut-offs in pre-pandemic milk and infant stool samples.

Journal Clippings Continued ...

Second study by Halasa et al studies effectiveness of maternal vaccination (mRNA vaccine) during pregnancy against severe COVID-19 in infants < 6 months of age. They found that effectiveness of maternal completion of a 2-dose primary mRNA COVID-19 vaccination series during pregnancy against COVID-19 hospitalization among infants aged <6 months was 61% (95% CI = 31% to 78%). Effectiveness of completion of the primary COVID-19 vaccine series early and later in pregnancy was 32% (95% CI = –43% to 68%) and 80% (95% CI = 55% to 91%), respectively.

Courtesy:

©PubMed (Obstet Gynecol, February 2022)

©PubMed (MMWR, February 2022)

Read the full article

https://pubmed.ncbi.nlm.nih.gov/35104067

https://pubmed.ncbi.nlm.nih.gov/35176002

5. COVID-19 outbreak in vaccinated patients from a hemodialysis unit: antibody titers as a marker of protection from infection

Boudhabhay et al attempted to find out immune correlate of protection for COVID-19 in patients who are on maintenance hemodialysis. These patients are known to have an increased risk of severe COVID-19 and a reduced response to vaccines. They did this by retrospective study of clinical data and serological response to Pfizer BNT162b2 vaccine following a COVID-19 outbreak among vaccinated patients in a hemodialysis unit. They found that among fifty-three patients present in the dialysis room, fourteen were infected by SARS-CoV-2 alpha variant (COVID_Pos) and 39 were not. In comparison to uninfected patients, COVID Positive patients more frequently had additional causes of immunosuppression (50% vs 21%, p = 0.046), and were more often scheduled on the Monday-Wednesday-Friday (MWF) shift (86% vs 39%, p = 0.002). Moreover, COVID positive patients had lower anti-Spike IgG titers than uninfected patients (24 BAU/ml [3-1163] vs 435 BAU/mL [99-2555], p = 0.001) and lower neutralization titers (108 [17-224] vs 2483 [481-43 908], p = 0.007). Anti-Spike and neutralization antibody titers are correlated (r = 0.92, p < 0.001). In multivariable analysis, MWF schedule (OR = 10.74 (1.9-93.5), p = 0.014) and anti-spike IgG titers one month before the outbreak (<205 BAU/ml: OR = 0.046 (0.002-0.29), p = 0.006) were independently associated with COVID-19 infection. None of the patients with anti-Spike IgG above 284 BAU/mL got infected. Ten out of fourteen COVID positive patients were treated with Casirivimab and Imdevimab. No patient developed severe disease.

Courtesy:

©PubMed (Nephrol Dial Transplant, February 2022)

Read the full article

https://pubmed.ncbi.nlm.nih.gov/35104884

Journal Clippings Continued ...

6. Route Optimization Tool (RoOT) for distribution of vaccines & health products

COVID-19 pandemic and vaccines have amply demonstrated yet again that economic and supply chain constraints can hamper vaccination program significantly. Thus any tool to make the vaccine distribution more efficient can go a long way in reducing wastage and increase vaccine coverage. Zabinsky et al have developed a computer program called Route Optimization Tool (RoOT) that helps to find out best and fastest route to distribute vaccines to various vaccination centres through the day. Unlike usual navigation apps that take only distance and traffic conditions into consideration, this program takes many other factors like vehicle condition, road condition, availability of different mode of transport for different stretches of day's route, demand/ requirement at each vaccination centre, availability and size/ type of cold chain infrastructure at respective vaccination centres and gives the best route accordingly.

Courtesy:
©NCBI (Gates Open Res, 2021)

Read the full article

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8771994

Pediatric Threads on Twitter

Dr. Vipul Jain

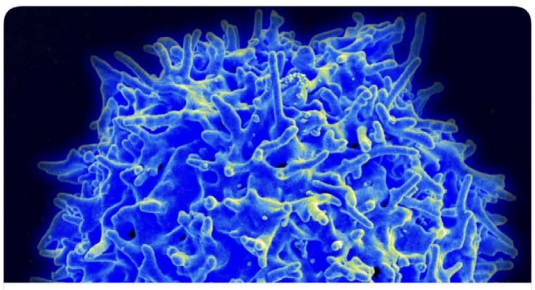
MD Pediatrics
Founder
In Good Hands Specialist Child Care Group, Delhi NCR

← **Thread**

Vipin M. Vashishtha
@vipintukur

The rise of #SARS2 variants & evidence of immunological interference (like OAS & weakened T-cell immunity) underscore the need for preemptive, next-gen vaccines that confer broad protection ag Covid

My piece in @theWireScience 👇
@fitterhappierAJ



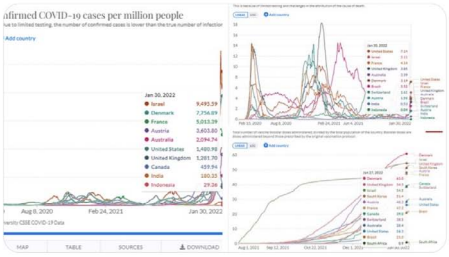
science.thewire.in
Omicron, T-Cells and the Science of Why We Need to Update Our COVID Vaccines

10:06 AM · 05/02/22 · Twitter for iPhone

298 Retweets **56** Quote Tweets **734** Likes

Vipin M. Vashishtha @vipin... · 05/02/22
Replying to @vipintukur

What is common between Denmark, Israel, Austria, France, Switzerland, the UK, and the US? They all suffered an unprecedented severe wave of Omicron despite having some of the highest vaccination rates in the world. 2/ @1amnerd @thewire_in



2 29 112

Vipin M. Vashishtha @vipin... · 05/02/22
Most of the Covid19 vaccines are based on spike-protein of SARS2. They have worked reasonably well so far. However, with the advent of #Omicron, one of the most mutated variants has exposed the limitations of these vaccines, particularly their ability to prevent infections 3/

2 12 92

Vipin M. Vashishtha @vipin... · 05/02/22
For this reason, many countries and regions are rushing to grant booster vaccinations. However, repeated vaccinations may not be sustainable. 4/

media.nature.com/original/magaz...

3 12 79

Thread Continued ...

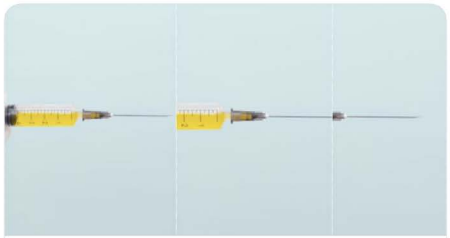
Vipin M. Vashishtha @vipin... · 05/02/22
There have also been concerns about the dangers of repeated booster doses. According to a report of European Medicines Agency, the repeat booster doses every four months could eventually weaken the immune response and tire out people. 5/

bloomberg.com
Frequent Boosters Spur Warning on Immune Response

2 17 92

Vipin M. Vashishtha @vipin... · 05/02/22
I had earlier raised two very pertinent issues: the key overall objectives of the vaccination during a pandemic, and the role of booster doses in context with ongoing Covid19 pandemic 👇

science.thewire.in/health/covid-1...



science.thewire.in
Do We Need Booster Doses?

1 11 61

Vipin M. Vashishtha @vipin... · 05/02/22
For the first, it is stated that though prevention of severe disease and deaths has immense individual benefits – but as such contributes little to the virus's transmission in the human population and ending the pandemic itself. 7/

science.thewire.in
Our COVID-19 Vaccines Are Good – But There's One Way They Can Be Better

1 8 69

Vipin M. Vashishtha @vipin... · 05/02/22
In a pandemic, vaccines should stop the virus ongoing transmission. The current generation of COVID vaccines don't provide significant protection on this front. And this is the reason why we are witnessing intense viral transmission even in the highly vaccinated countries 8/

2 27 109

Vipin M. Vashishtha @vipin... · 05/02/22
New studies suggest that it may be less rewarding to vaccinate individuals with vaccines based on the 'original' Wuhan-spike. There may be an additional risk of non-updated vaccines generating a suboptimal immune response against the omicron variant. 9/

twitter.com/vipintukur/sta...

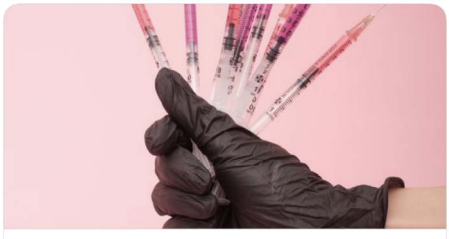
> **Vipin M. Vashishtha** @... · 28/01/22
> An interesting study!
>
> Researchers investigated whether antibodies stimulated by mRNA vaccination (BNT162b2), including 3rd...
> Show this thread

1 9 68

Vipin M. Vashishtha @vipin... · 05/02/22
The study finds that prior vaccination with Wuhan like antigens followed by infection w/ Alpha/Delta gives rise to Ab responses with apparent Wuhan-specific imprinting manifesting as relatively decreased responses to the variant epitopes, compared to unvaxxed infected w/ variant

1 9 49

Vipin M. Vashishtha @vipin... · 05/02/22
I had also earlier feared that the "Original Antigenic Sin" (older name for 'Antigenic Imprinting') could impact the performance of our Covid vaccine against the emerging SARS-CoV-2 variants. 11/
science.thewire.in/the-sciences/h...
tandfonline.com/doi/full/10.10...



science.thewire.in
How Novel Coronavirus Variants Could Complicate Our COVID-19 Vaccination...

3 10 49

Thread Continued ...

Vipin M. Vashishtha @vipin... · 05/02/22
This may have huge implications since the current vaccines/booster are still based on the Wuhan-like antigens & Omicron's spike is highly mutated. No wonder, vaccine developers are now evaluating updated vaccines based on Omicron. Will they succeed? 12/

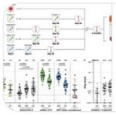
bioRxiv
mRNA-1273 or mRNA-Omicron boost in vaccinated macaque...
biorxiv.org

2 8 50

Vipin M. Vashishtha @vipin... · 05/02/22
Does it mean that the current Covid vaccines are useless?
No, the main merit of current vaccines is to provide protection against severe disease, hospitalization, & death. We know this protection is provided by our T cells—the last defence against the invading virus. 13/

1 7 60

Vipin M. Vashishtha @vipin... · 05/02/22
But to generate adequate T cells immunity at least 2 doses of Covid vaccines is essential. We know that even in Omicron's wave that led to great reduction in our NAbs, the T cells responses majorly preserved, & the virus couldn't escape our T cells 14/


Divergent SARS CoV-2 Omicron-reactive T- and B ce...
science.org

1 9 56

bioRxiv
mRNA-1273 or mRNA-Omicron boost in vaccinated macaque...
biorxiv.org

2 8 50

Vipin M. Vashishtha @vipin... · 05/02/22
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1 7 60

Vipin M. Vashishtha @vipin... · 05/02/22
But to generate adequate T cells immunity at least 2 doses of Covid vaccines is essential. We know that even in Omicron's wave that led to great reduction in our NAbs, the T cells

Vipin M. Vashishtha @vipin... · 05/02/22
In this process, the virus had to trade off its virulence to gain higher immune evasion--resulted in emergence of Omicron. CoV's virulence is a by-product of 2 factors : how inherently transmissible it is & how good it is at evading previous immunity 17/


theatlantic.com
The Coronavirus Will Surprise Us Again

1 13 43

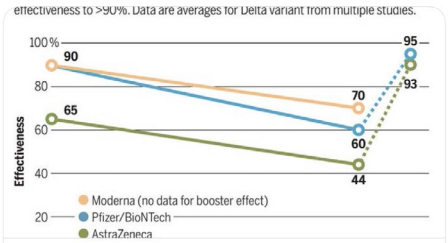
Vipin M. Vashishtha @vipin... · 05/02/22
But this is not the end of the story. The Omicron does not cease to amuse us. The recent @UKHSA report on vaccine effectiveness against death for Omicron variant showed significant waning of two-dose protection against severe disease and deaths. 18/

assets.publishing.service.gov.uk/government/upl...

	Dose 2			Dose 3	
	0-3 months	4-6 months	6+ months	0-3 months	4-6 months
	Insufficient data	Insufficient data	Insufficient data	Insufficient data	Insufficient data
c	25-70%	5-30%	0-10%	50-75%	40-50%
on	65-85%	55-65%	30-35%	80-95%	75-85%
	Insufficient data	Insufficient data	40-70%	85-99%	Insufficient data

1 18 61

Vipin M. Vashishtha @vipin... · 05/02/22
The VE of two doses against death waned to only 59% that rose to 95% after the 3rd dose. Similar waning in protection against severe disease and deaths was also noted by the CDC and other US researchers. 19/



erictopol.substack.com
Where do we stand with Omicron?

1 13 49

Thread Continued ...

Vipin M. Vashishtha @vipin... · 05/02/22
However, surprisingly, the protection accorded by the 3rd shot against hospitalization and death also waned after a few months and the 4th dose of the vaccine raised more than three-fold protection versus severe disease and hospitalization. 20/

nature.com
What's the magic number for booster shots?

1 11 61

Vipin M. Vashishtha @vipin... · 05/02/22
The waning in protection against severe disease has got far more sinister implications than mere waning in protection ag infection & symptomatic disease. We know that the memory T cell response has far more plasticity than NAbs for dealing with any new emerging variant 21/

1 13 55

Vipin M. Vashishtha @vipin... · 05/02/22
This means our memory T cells responses are not performing as per the expectations. Acc to renowned T cell immunologist @fitterhappierAJ, the T-cells are damaged by Covid potentially undermining not just Covid immunity but immunity to other diseases 22/

twitter.com/fitterhappiera...

> **Anthony J Leonardi, P...** · 30/01/22
> Excellent analysis. @ChristosArgyrop and I have conceded that much of the protection is NOT via immunological memory or cell priming but rather the antibodies. ...
> Show this thread

5 33 106

Vipin M. Vashishtha @vipin... · 05/02/22
@fitterhappierAJ adds that much of the protection against Covid is not via 'immunological memory' or 'T cell priming' but rather through neutralizing antibodies. The ORF8 gene of the SARS-CoV-2 virus suppresses MHC that prevents activation of T cells 23/
twitter.com/fitterhappiera...

> **Anthony J Leonardi, P...** · 30/01/22
> Excellent analysis. @ChristosArgyrop and I have conceded that much of the protection is NOT via immunological memory or cell priming but rather the antibodies. ...
> Show this thread

3 32 125

Vipin M. Vashishtha @vipin... · 05/02/22
This is indeed the most disturbing aspect of the whole pathogenesis of Covid19 infection. If our T cells are not able to function properly, then our most robust wall against the severe disease is demolished. 24/

1 31 105

Vipin M. Vashishtha @vipin... · 05/02/22
A recent study has also indicated that the T-cell reactivity to the Omicron variant is preserved in most but not all individuals and reduced by more than 50% in ~20% of individuals. Even the booster dose was not able to restore this to 100%. 25/

cell.com/action/showPdf...

1 27 85

Vipin M. Vashishtha @vipin... · 05/02/22
Taken together, while the 'antigenic imprinting' aka OAS decreasing our immunological response to the variant virus epitopes, on the other hand, the Omicron's impact on our antibodies and T cells compartments have rendered our current Covid vaccines almost redundant. 26/

2 17 64

Vipin M. Vashishtha @vipin... · 05/02/22
So, there is an urgent need to update our current Covid vaccines. Let us see what the options are available:
1-Continue to go for repeated boosting at regular intervals: But many believe that endless boosting might not be a practical or sustainable strategy 27/

3 7 59

Vipin M. Vashishtha @vipin... · 05/02/22
2-Develop new vaccines: For new vaccines, we have two options,
1-'Variant-specific vaccines'
2-A multi-antigenic, 'Pan-coronavirus vaccine'.

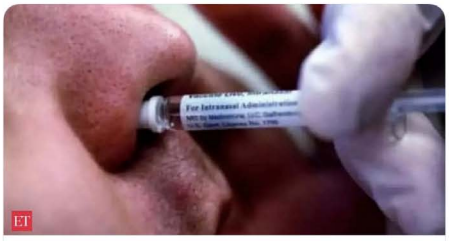
On the first front, it is feared that by the time an Omicron-specific vaccine is tested, we wouldn't have an Omicron wave anymore 28/

4 8 62

Thread Continued ...

Vipin M. Vashishtha @vipin... · 05/02/22
It makes a lot of sense to invest in a 'universal' or 'pan-coronavirus' vaccine that may not only be effective against the current variants but against future variants too. But this is a time-consuming process and not everybody is sure of its success 29/
tandfonline.com/doi/full/10.10...
1 9 67

Vipin M. Vashishtha @vipin... · 05/02/22
3-Adopt a different vaccination strategy: Prime with a systemic (mRNA) vaccine and boost with a mucosal (intranasal) vaccine. Intranasal vaccines may prove most handy as a boosters. 30/



economictimes.indiatimes.com
Bharat Biotech's nasal Covid-19 booster gets nod for trial in India
5 19 108

Vipin M. Vashishtha @vipin... · 05/02/22
This is a very attractive approach & some researchers have shown that by using divergent spike proteins, Prime and Spike enable the induction of cross-reactive immunity ag sarbecoviruses w/out invoking OAS. But this vaccine is still in early phase 31/

bioRxiv
Unadjuvanted intranasal spike vaccine booster elicits robust...
biorxiv.org

Read the full article online

https://twitter.com/vipintukur/status/1489820247163305985?t=po_jIt4OoGstnMTtuoTB6A&s=08

Cultural Page

Vaccine Dialogue
(5 Aspects)

1 Schools get open:
(Teacher Student talk)

In a class room, Neetu sat far apart,
Wearing a head gear and a mask,

Teacher came, smiled and asked
"Why Neetu, you are so sad and distraught?"

Neetu asked-"What's this SARS COV two?
It imprisoned me in the home and my grand pa in the hospital's ICU?"

2 Let's Know SARS COV2

"So dear children,
In 2019, a disease prevailed,
And globe was swamped by a rogue virus, covering Humans with masks, gloves, packing them in the confines of home!

"It kept cycling in people's throat & lungs,
To let them be in hospitals for days & months!"

3 Vaccines: the saviors

"With the help of genomics & artificial intelligence,
Scientists' world-over identified rogue viral antigen;"

"They chose the vectors, lipid bubble, adeno virus,
To boost body immune cells to meet the challenge;"
"Now world is rich with mRNA, DNA, nasal vaccines!
India produced vaccines to help countries in need!"

4 Neetu wants to help:

"Vaccinated adults are now our strength, they will also get precaution dose in addition; "

"Children are getting vaccinated too,
So that they can attend freely schools;"

"Neetu, you will get vaccine with your friends,
You are now older than 12 years of age!"

5 Pledge of Neetu:

"Yes Mam. Now we will be advocate of cause,
To prevent vaccine hesitancy and fear of shot;"

"Though, there may be fever, redness at needle site,
But it will resolve within few nights;"

"To win a war of humanity against the Covid 19,
To rekindle our economy, freedom, and normal life;"

"Salute to doctors, nurses, scientists, government,
Also, the volunteers for bringing us a bright smile!"

Dr Smita Mishra
Pediatric Cardiologist
HCMCT, Manipal Hospital
Sector-6, Dwarka, New Delhi

Section II:
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President, IAP Delhi

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General Secretary, IAP Delhi

Dr Prashant Seth
Vice President, IAP Delhi

Dr Anurag Agarwal
President Elect., IAP Delhi

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Treasurer, IAP Delhi

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Dr G P Kaushal

Dr R K Nabh

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Dr N P Singh


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Dr Ankit Parakh
President, IAP Central Delhi


Dr Naresh Lal
Secretary, IAP Central Delhi


Dr Devendra Mishra
EC, Indian Pediatrics

Section III:
Activity

IAP Delhi Event Calender 2022

Date	Academics
Friday, 4 March	**World Obesity Day**
Sunday, 6 March	**National Tuberculosis Elimination (NTEP) WS** under CIAP Program with partnership of Central TB Division (CTD), Ministry of Health & Family Welfare, GOI
Sunday, 6 March	**Runathon** Organized by IAP Delhi in association with IAP North Delhi City Branch
Sunday, 6 March	**Basic NRP Course**
Monday, 7 March	**District Task Force (Immunisation)**
Thursday, 10 March	**Workshop on Otoscopy** Organized by IAP Delhi in association with IAP South Delhi City Branch
Thursday, 17 March	**Third Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP West Delhi at VMMC & Safdarjung RML Hospital, Delhi
Monday, 21 March	**World down Syndrome** IAP Delhi Organized by IAP Delhi in association with IAP Central Delhi
Thursday, 31 March	**Workshop on Non-invasive Ventilation**
Saturday, 2 April	**Autism Day Celebration** Organized by IAP Delhi in association with IAP East Delhi City Branch
Thursday, 7 April	**Workshop on ECG** Organized by IAP Delhi in association with IAP East Delhi City Branch
Thursday, 14 April	**Workshop on Genetic Tests: How to Choose** Organized by IAP Delhi in association with IAP North Delhi City Branch
Thursday, 28 April	**Workshop on EEG** Sir Ganga Ram Hospital, New Delhi
Thursday, 21 April	**Forth Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP North Delhi City Branch
Sunday, 8 May	**Thalassemia Day** Organized by IAP Delhi in association with IAP West Delhi City Branch

IAP Delhi Event Calender 2022

Date	Academics
Thursday, 19 May	**Fifth Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP East Delhi City Branch
Thursday, 16 June	**Sixth Monthly Clinical Meeting** Organized by IAP Delhi in association with Central Delhi IAP
Thursday, 21 July	**Seventh Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP South Delhi City Branch
Thursday, 21 July	**BLS / CPR Day** Organized by IAP Delhi in association with IAP East Delhi City Branch
Monday, 25 July	**OSD Day** Organized by IAP Delhi in association with Central Delhi IAP
1st-7th August	**Breast Feeding Week** Organized by IAP Delhi in association with IAP South Delhi City Branch
Thursday, 18 August	**Eighth Monthly Clinical Meeting** Organized by IAP Delhi in association with Central Delhi IAP
Friday, 26 August	**Charity Day** Organized by IAP Delhi in association with IAP North Delhi City Branch
Thursday, 15 Sept	**Ninth Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP East Delhi City Branch
26th-29th September	**Rational Antibiotic Day and Antimicrobial Awareness Day** Organized by IAP Delhi in association with IAP West Delhi City Branch
Thursday, 20 October	**Tenth Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP North Delhi City Branch
29th-30th October	**Pediatric Conference of North India (PCNI-2022)**
Thursday, 17 November	**Eleventh Monthly Clinical Meeting** Organized by IAP Delhi in association with IAP South Delhi City Branch
Saturday, 26 November	**Anemia Prevention Day** Organized by IAP Delhi in association with IAP West Delhi City Branch
Sunday, 11 December	**Annual Day Function**

IAP Delhi Activity Report

(January-February 2022)

*Weekly Post Graduate OSCE Clinics in Pediatrics to teach the DNB students

Organized weekly Post Graduate OSCE Clinics in Pediatrics to teach the DNB students and to help them prepare for the final practical examination. Each session was a mock examination and it include a case presentation by a DNB student and assessment by a **moderator in collaboration with Sir Ganga Ram Hospital & ANBAI**.

1. ### Pediatric Hematology Oncology*

Saturday 1st January, 2022 | *Timing* ***(14.00-16.00)*** | **DDAP Online platform**

Weekly Post Graduate OSCE Clinics, collaboration with Sir Ganga Ram Hospital & ANBAI

2. ### Pediatric Nephrology*

Wednesday 5th January, 2022 | *Timing* ***(20.00-21.00)*** | **DDAP Online Platform**

Weekly Post Graduate OSCE Clinics, collaboration with Sir Ganga Ram Hospital & ANBAI

3. ### District Task Force (Immunisation)

Friday, 7 January, 2022 | *Timing* ***(14.30)*** | **Virtual Meeting**

Dr Deepak Gautam, President IAP Delhi & Dr Pankaj Garg, General Secretary, IAP Delhi attended Virtual Meeting of the District Task Force (Immunisation) under the **Chairmanship of District Magistrate East with Dr Veena Verma, DIO-East**.

4. ### Pediatric Infectious Diseases*

Saturday, 8 January, 2022 | *Timing* ***(20.00-21.00)*** | **DDAP Online Platform**

Weekly Post Graduate OSCE Clinics, collaboration with Sir Ganga Ram Hospital & ANBAI

5. ### Best Management & Vaccination Strategies, Both in Adults and Children

Friday, 14 January, 2022 | *Timing* ***(20.00-22.30)*** | **DDAP Online Platform**

Enriching discussion on Best Management & Vaccination Strategies, Both in Adults and Children with Central IAP. Dr Dhiren Gupta from IAP Delhi moderate the session.

6. ### COVID Vaccination for Adolescents

Monday 24th January, 2022 | *Timing* ***(14.00-16.00)*** | **DDAP Online Platform**

IAP Delhi in association with Adolescent Health Academy Delhi, attended by 164 delegates

7. ### First Monthly Clinical Meeting

Thursday 27th January, 2022 | *Timing* ***(14.00-16.00)*** | **DDAP Online Platform**

IAP Delhi in association with IAP West Delhi , attended by 112 delegates

8. ### Roadmap to school reopening

Friday 28th January, 2022 | *Timing* ***(14.30)*** | **DDAP Online platform**

Panel Discussion in association with IAP East Delhi Branch and various stakeholders to discuss the pros & cons of school reopening.

9. ### Quick Developmental Screening in Pediatric office practice

Friday 28th January, 2022 | *Timing* ***(14.30)*** | **Jaipur Golden Hospital, Delhi**

IAP Delhi in association with IAP North Delhi.

IAP Delhi Activity Report

(January-February 2022)

10. **Annual Sport Day-2022**
Sunday 13th February, 2022 | *Timing* ***(10.30-17.00)*** | **Dr Bhagat Farm, Sohna**
On the occasion of **International Childhood Cancer Day**, IAP Delhi organized Childhood Cancer Day 2022, attended by 106 participants

11. **Childhood Cancer Day-2022**
Tuesday 15th February, 2022 | **Dr Bhagat Farm, Sohna**
IAP Delhi organized Childhood Cancer Day 2022, attended by 106 participants

12. **State Task Force Immunization (STFI)**
Tuesday, 15 February, 2022 | *Timing* ***(15.00)*** | **Level-II, Delhi Secretariat.**
Dr Anurag Agarwal, President-Elect, IAP Delhi attended meeting under the Chairmanship of Principal Secretary (H&FW), GNCTD at Conference Hall 3 Level-II, Delhi Secretariat.

13. **Second Monthly Clinical Meeting**
Thursday 17th February, 2022 | *Timing* ***(14.00-16.00)*** | **Dr RML Hospital, Delhi**
IAP Delhi in association with IAP Central Delhi at ABVIMS and Dr RML Hospital, New Delhi

14. **Confidentiality, Consent & Medical Negligence (Criminal & Civil)**
Sunday 20th February, 2022 | *Timing* ***(16.00)*** | **Virtual Platform**
Dr Deepak Gautam, President IAP Delhi participated **Doctors & Law webinar.**

15. **Workshop on Interpretation of CBC**
Thursday 24th February, 2022 | *Timing* ***(16.00)*** | **Genesis Hospital, Janakpuri**
IAP Delhi in association with IAP West Delhi at Genesis Hospital, Janakpuri, New Delhi

16. **Basic NRP Provider Course**
Sunday 27th February, 2022 | **Karol Bagh, New Delhi**
Karol Bagh, New Delhi with course id 10477 with Dr. Anup Thakur, Course Coordinator

17. **Workshop on Otoscopy**
Sunday 27th February, 2022 | **Leela Mall, Patparganj, Delhi**
IAP Delhi in association with IAP East Delhi

18. **Constituted various committees of IAP Delhi for 2022**

Adolescent Health Committee	**Medicolegal Committee**
CIAP Co-ordination	**NGO Co-ordination Committee**
Constitution Committee	**Scientific / Academic Committee**
Cultural Committee	**Social Media**
Directory Committee	**Souvenir Committee**
Finance Committee	**Sports Committee**
Institution Coordination & PG Forum	**Website Committee** *(Website Would Be Revamped)*

IAP Delhi Membership Form

Name of the Applicant					Photograph
Designation		**Date of Birth**			
Email Id		**Sex: ☐ Male ☐ Female**			
Postal Address for Communications					
Tel Residence		Office		Mob	

Name of Zonal Branch you would like to join ☐ Central ☐ East ☐ West ☐ North ☐ South:

Whether Central IAP member, if so Membership No:

No	Educational Qualification	Name of the University	Qualifying Year
1			
2			
3			
4			

Medical Council Reg. No	Reg. Authority (e.g. MCI/State Medical Council)
Name & Address of the Proposer	
Membership No. of the Proposer	Signature
Name & Address of the Seconder	
Membership No. of the Seconder	Signature

Declaration : I hereby declare that I have never been arrested/prosecuted and convicted by a criminal court or involved in any case registered by the police.

Place & Date	Signature of the Applicant

Membership Category	**Fee**	**Admission**	**Total Amount Payable**
Life	**₹ 2,000/-**	**₹ 100/-**	**₹ 2,100/-**
Associate Life	**₹ 2,000/-**	**₹ 100/-**	**₹ 2,100/-**

Cash/Local Cheque/may be drawn in favor of "Indian Academy of Pediatrics Delhi" payable at New Delhi.

For office use only

Payment Details Received		Rupees					
by Cash/Local Cheque/DD No		Date		Bank			
Receipt No		Date			General Secretary / Treasurer		

Note: Please submit self-attested photocopies of Qualification & Registration Certificate & One Passport size photograph.

Delhi IAP Membership Link: *https://www.iapdelhi.org/become-a-member*

Cental IAP Membership Form

Personal Details			
Name of the Applicant			
	(Surname)	(First Name)	(Middle Name)
Date of Birth		Sex: ☐ Male ☐ Female	
Complete Postal Address for Communications			
Postal Pin	City	State	Nationality
Registered Mobile No		Alternate Mobile	
Registered Email		Alternate Email	
IAP State Branch		IAP Dist./City/Local Branch	

Qualification			
Medical / Pediatric Qualification	Name of the University	Qualifying Year	Registration with State Medical Council or Medical Council of India

Other Details		
IAP membership no. and name of the Proposer		Signature
IAP membership no. and name of the Seconder		Signature
Place		
Date		(Signature of the Applicant) (Use black ink pen)

Please provide following information for IAP Photo Identity Card. Please attach a stamp size photograph (3x2.5 cms) with this application.			
Doctor's Name		Mobile No	
Allergies		Emergency Medications	Blood Group

Central IAP Membership Link: *https://iapindia.org/registration/member-registration*

Cental IAP Membership Privileges

The Society provides-

- *Facilities to Students, Scholars and Institutions for the study of or Research in Pediatrics in any of its aspects by way of scholarships, fellowships, grants, endowments, etc.*
- *Either through itself or in cooperation with other bodies or persons fellowships, prizes, certificates, diplomas of proficiency in the science of Pediatrics and conduct such tests, examinations or other scrutiny as may be prescribed from time to time.*
- *Free of cost or at subsidized cost its official journals, books, periodicals or publications on pediatrics and allied subjects which the society thinks is desirable for the promotion of its objects.*
- *Opportunity to its member to participate in Conferences, Lectures, Meetings, Seminars, Symposia, Workshops, Continuing Medical Education Programs, etc.*
- *Opportunity to become members of its Branches / Subspecialty Chapters / Groups / Cells / Committees.*

Affiliations / Collaboration-

The Society is affiliated to:

i International Pediatric Association (IPA)
ii International Society of Tropical Pediatrics (ISTP)
iii American Academy of Pediatrics (AAP)
iv Asian Pacific Pediatric Association (APPA)
v Asian Society for Pediatric Infectious Disease (ASPID)
vi South Asia Pediatric Association (SAPA)
vii Royal College of Pediatrics and Child Health (RCPCH)

Categories of Membership-

1 *Life Member: Life Membership is granted to any person who is a residential Indian citizen possessing MBBS or equivalent degree in Modern Medicine recognized by Medical Council of India (MCI) and is holding a diploma/ degree in pediatrics (such as MD Ped., DNB Ped., DCH) recognized by Medical Council of India (MCI) or any equivalent Nation Statutory Body formed by Government of India.*

2 *Associate Life Member is granted to any person possessing MBBS or equivalent degree recognized by Medical Council of India (MCI) or any equivalent National Statutory Body formed by Government of India.*

How to Apply for Membership-

Application should be made in the prescribed form. Along with the application for membership of IAP, photo copies of the following documents should be submitted-

- *Photo copies of the M.B.B.S. & Post Graduation Certificates as (as per degrees listed in your application).*
- *Photo copies of the degrees registration certificates with State Medical Council OR Medical Council of India (as the case may be).*
- *ID Proof with Photo : Aadhar Card / Passport / Voter ID / PAN Card*

Membership Fee-

The Membership Fee Structure is as follows:

Category of Membership	*Admission Fee*	*Membership Fee*	*Total Amount Payable*
Life	***₹ 500/-***	***₹ 9,500/-***	***₹ 10,000/-***
Associate Life	***₹ 500/-***	***₹ 9,500/-***	***₹ 10,000/-***

The Membership Fee should be paid by a crossed bank draft / at par cheque drawn in favor of **"INDIAN ACADEMY OF PEDIATRICS"** *payable at Mumbai or NEFT.*
Bank details: **BANK OF BARODA**, *Branch-Juinagar, Navi Mumbai*
IFSC Code: **BARB0JUINAG** *(Fifth character is Zero) '*
Current A/c No. ***42080200000253***.

IAP guidelines for Pediatric skincare

state that the skin of the newborn undergoes various structural and functional changes*

Use of appropriate evidence-based skin care practices are important[2].

Protect the infant skin barrier function with safe, appropriate and evidence-based products

Johnson's® CHOOSE gentle™

CLINICALLY mildness PROVEN

Evidence based skin care regimen

Cleansing regimen

As mild as pure water to maintain the skin barrier function[3,4]

Helps maintain the skin barrier function[5]

Moisturizing regimen

Improves the skin barrier integrity[6,7]

Helps enhance the skin barrier function for moisture retention[7]

RA/JB/8Mar2021/05

*from birth to first five years of life

References: 1. DShastri DI, et al. Indian Academy of Pediatrics Guidelines for Pediatric Skin Care. Indian Pediatrics. 2021;58:153-161. 2. Telofski LS, et al. The infant skin barrier: can we preserve, protect, and enhance the barrier?. Dermatology research and practice. 2012 Jan 1;2012. 3. Data on file. 4. Lund C, et al. Baby's first bath: Changes in skin barrier function after bathing full-term newborns with water vs liquid baby cleanser. Pediatr Dermatol. 2019. 5. Garcia-Bartels N, et al. Use of baby wipes in the diaper area in newborns: A prospective, randomized clinical study on skin barrier. Archives of Disease in Childhood. 2008;93:ps222. 6. Johnson's clinical moisturizing report. Appendix 2. Claim table for F#1185-056. 7. Patzelt A, et al. In vivo investigations on the penetration of various oils and their influence on the skin barrier. Skin Res Technol. 2012;18(3):364–369. 7. Williams N, et al. Does evidence suggest that the use of barrier enhancing emollient is beneficial in the care of preterm neonates? Infant. 2012;8(4):120-25. 8. Patzelt A, et al. In vivo investigations on the penetration of various oils and their influence on the skin barrier. Skin Res Technol. 2012;18(3):364–369.