

### Voice of the Expert

## Corona Third Wave — Predictions & Preparedness

S Arul Rhaj

*Prof (Dr) S Arulrhaj is a renowned physician. He is the Past National President, IMA, Past National President, API & Past Commonwealth President, CMA, UK. Prof (Dr) Jyotirmoy Pal conducted an online interview on behalf of the JIMA regarding the current COVID Scenario.*

An unprecedented upsurge of COVID-19-positive cases and deaths is currently being witnessed across India. According to WHO, India reported an average of 3.9 lakhs of new cases during the first week of May 2021 which equals 47% of new cases reported globally and 276 daily cases per million population. The positive cases and death cases of COVID-19 in India have been highly increasing for the past few weeks, and India is in a midst of a catastrophizing second wave.

On behalf of the journal we would like ask you some questions regarding the CORONA Waves.

We thank you for your valuable time.

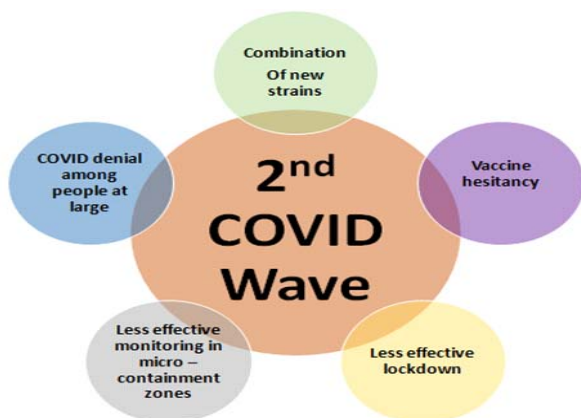
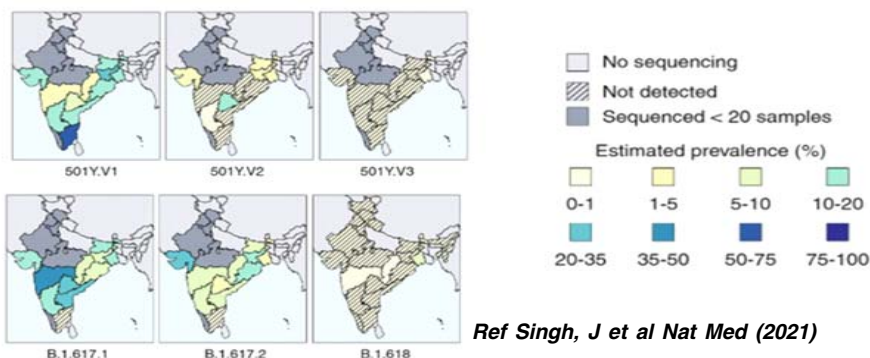


Fig 1 — COVID 2<sup>nd</sup> wave



Ref Singh, J et al Nat Med (2021)

Fig 2 — Estimated Prevalence of Variants of Concern and Variant of Interest (B.1.618) In Various States of India

#### (1) What is the meaning of a wave?

Devoid of a precise technical definition, the term 'wave' is used to signify the rising and falling trends of a disease over a long period of time. The term is also used to describe the seasonality of a disease or infection over successive periods of time. In India there were two distinct waves of Covid-19 infections over the last one year with the first wave reaching its peak in September last year and the second wave beginning from March-April, reaching peak in May. The states of India are interconnected so there are increasing chances of the virus spreading from one person to another person when social distance goes down. This is why states such as Delhi, Karnataka, Tamil Nadu, Kerala, and Maharashtra are mostly affected by the second wave. More penetration was found to Rural India.



Prof (Dr) S Arulrhaj  
MD, FRCP (Glasg)

#### (2) What is the 3<sup>rd</sup> wave?

The third wave currently under discussion refers to a possible surge in cases at the National level. The National curve seems to have entered a declining phase now, after having peaked on May 6. In the last two weeks, the daily case count has dropped. If current trends continue, it is expected that by July, India would reach the same level of case counts as in February. If there is a fresh

surge after that, and continues for a few weeks or months, it would get classified as **the third wave**.

**(3) Will the 3<sup>rd</sup> wave come ?**

**The Susceptible–Infected–Recovered (SIR) model is formulated for epidemiology.** As per SIR Model analysis the third wave will start in the first week of August 2021 and will end during October 2021. As per the result ,**the third wave will take a peak during the first week of September 2021 in India.** Like the second wave, the predicted epidemic rate of the third wave by fractal model shows some peaks after October. **The third wave may be controlled by preventive arrangements, if so then these peaks will not occur.**

Health authorities have been warning of a possible third wave of Covid -19 infections as in other Nations

**Kids usually have mild illness and improve fast.** Incidence of serious multi-inflammatory Syndrome MIS -C is less than 1: 1000 cases. **Also ACE 2 receptors which provide binding site to Virus for entry into cell are poorly developed in Children making them less vulnerable to COVID-19.**

This data may provide a sigh of relief to all mothers

**(5) Is coronavirus 3rd wave inevitable?**

The recent emergence of more transmissible COVID-19 variants with higher case fatality poses a serious threat to efforts to control the pandemic. Those variants already identified render anti-viral treatments ineffective, evade immunity from natural infection and, with emerging evidence that some variants reduce efficacy of the first-generation vaccines. It is inevitable that further variants will emerge that pose a more significant threat to vaccine efficacy.

If However, strong measures are taken then the country could altogether avert the third wave.

**(6) Will the 3rd wave be more lethal?**

Usually as the number of people who have been infected with the disease increases, the successive waves of infection are milder in comparison to the initial waves. However, in case

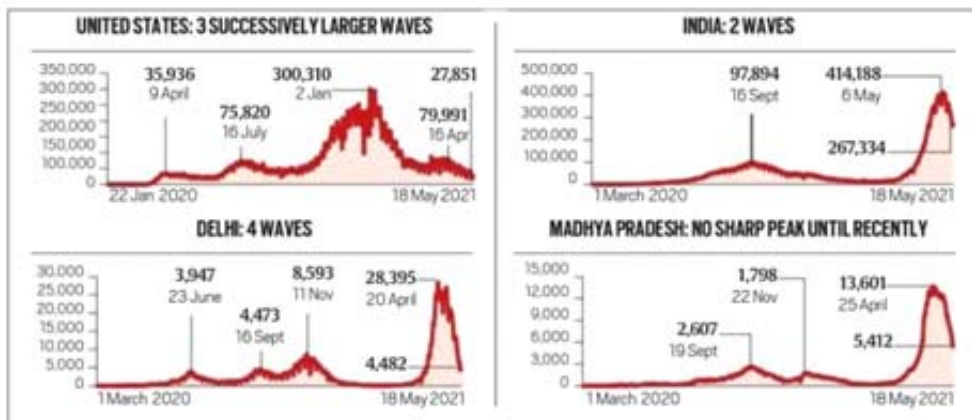


Fig 3

Ref : Clipped from *The Indian Express* – May 20,2021

**(4) Will third wave only affect Children ?**

**No.** Both waves till now saw virus affecting all age groups and mortality was predominantly high in old age people (22%) and the least among children (0.3%). Similar trends in other Nations too.

So clear indication that all age groups were affected in both waves and to large extent in similar way. But as Second wave had 4 times the positivity of first wave it involved much larger population causing bigger havoc. Above Table indicates that age Pattern remained same despite vaccination of older age population. On similar pattern should be the infectivity of Third wave though likely to be on much smaller scale.

of India, Coronavirus defied this logic as contrary to estimates only a miniscule population of the country had got infected with Coronavirus in the first wave and an overwhelming majority of people were still vulnerable

WHO label	Pango lineage	GISAID clade/variant	Nextstrain clade	Earliest documented samples	Date of designation
Alpha	B.1.1.7	GRY (formerly GR/501Y.V1)	20I/S:501Y.V1	United Kingdom, Sep-2020	18-Dec-2020
Beta	B.1.351	GH/501Y.V2	20H/S:501Y.V2	South Africa, May-2020	18-Dec-2020
Gamma	P.1	GR/501Y.V3	20J/S:501Y.V3	Brazil, Nov-2020	11-Jan-2021
Delta	B.1.617.2	G/452R.V3	21A/S:478K	India, Oct-2020	VOI: 4-Apr-2021 VOC: 11-May-2021

Fig 4

to Coronavirus. Both **alpha & delta variants** were the main drivers of the second wave in India. New mutants may arise and expected 3<sup>rd</sup> wave 1.8 time more affection than the second and more severe. Mortality may be reduced.

**(7) How to Gear up for third wave?**

**Govt and hospitals to focus on :**

1. Ramping up their ICU beds and facilities especially for children.
2. Improve the infrastructure in the ICU, pediatric and neonatal ICU.
3. Prepare rooms with two portions in room keeping in mind that an attendant will have to be kept with their Covid-positive child.
4. Procuring oxygen masks, high-flow nasal cannulas, pediatric oximeter probes, special ventilators and BIPAP machines & Drugs ,adults& children.
5. Training of health personel for pediatric interventions, neonatologists and paediatric intensivists which could be a serious limiting factor.
6. Installing Oxygen Generators in Hospitals.

**Universal Vaccination is the need of the hour**

**(8) What are the issues about vaccination ?**

- To Increase vaccination numbers
- **To Promote vaccination in Rural areas**
- High risk groups to be vaccinated 1<sup>st</sup>
- After lockdown vaccination to be initiated in big industries , as vaccination camp
- **Vaccine to reach doorsteps .**
- **To Start vaccine between 2 to 18 years soon.**
- **To Make Vaccines effective against Mutants too.** We can expect a more rapid evolution of the virus in 2021 and more new variants as it adapts to humans (biological adaptation) and is now under increasing immunological pressure from infection and vaccination(immunological adaptation).

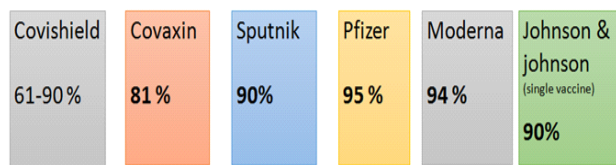


Fig 5 — Efficacy of Vaccines Available Worldwide

**(8) What are the Clinical Challenges in the 3rd wave ?**

- **Youth & children**
- **Clinical features**  
Early Breathlessness  
Early cytokinestorm
- **Diagnosis**  
Atypical Presentations  
Mutant Identification
- **Complications**  
systemic inflammation  
Skin & vascular lesions

Covid third wave seems inevitable in late 2021  
**Mostly caused by Mutants**  
 Sever lung Inflammatory disease will be seen.  
 Mortality may be reduced.  
 More Admission Beds& ICU care will be needed.  
**Will need Boosters with Mutants efficacy**

**(9) What are the New Normals in 3rd Wave**

**Treatments**

- Doxy Azithro HCQS Ivermectin gone
  - Antivirals – Guidelines. Remdesivir gone; New arrivals ?
  - Monoclonal Antibodies
  - Steroids
  - Heparin & Antiplatelets
  - Oxygen Administration Nasal catheter, Mask, Rebreatig bag, NIV- CPAP
  - Invasive Ventilation– Adult, Paediatric, Neonatal
- } SUPER HEROES

**This being a New Disease the management protocol is likely to undergo many alterations as new evidences trickle in.**

**(10) What are the responsibilities of the public , Professional Associations, Government ?**

- People should reduce hospital visit for simple issues
- **Avoid 3 Cs:** Crowded places, Close contact with others, Confined places with poor ventilation. Wash hands frequently. Wear mask properly

- Parents must not forget their bit to Educate Children and adolescents about Covid Appropriate behaviour, Disease treatment and Self management in Isolation

**Professional Associations:**

- Sensitise Family Physicians- First Responders.
- Education & Training HCP
- Promote Fever clinics
- Develop Management Protocols.
- Support Government with Bed, care , O2 &

Vaccination etc.

- **Public awareness on vaccine**

**Government of India**

Pandemic Preparedness

**UNIVERSAL VACCINATION including Mutants**

Invest on Health Infrastructure.

More Testing, Tracking Contacts & Isolation

Travel Checking – Airports.

**Vaccination policy for Domestic & International Airports**

The numbers, severity, deaths can be diminished or averted with preparedness and preventive measures

**(11) What is the Way forward :**

- Universal Vaccination
- Preventive Measures continuing-SMS
- More testing, Tracking& Isolation.
- **Target reduction of Infection & Death**

**Thank you again Dr Arul Rhaj for your time. We are sure our readers will love to go through this insightful perspective of the COVID waves. We hope to speak with you again in the future.**