Analysis Of Vaccination Data

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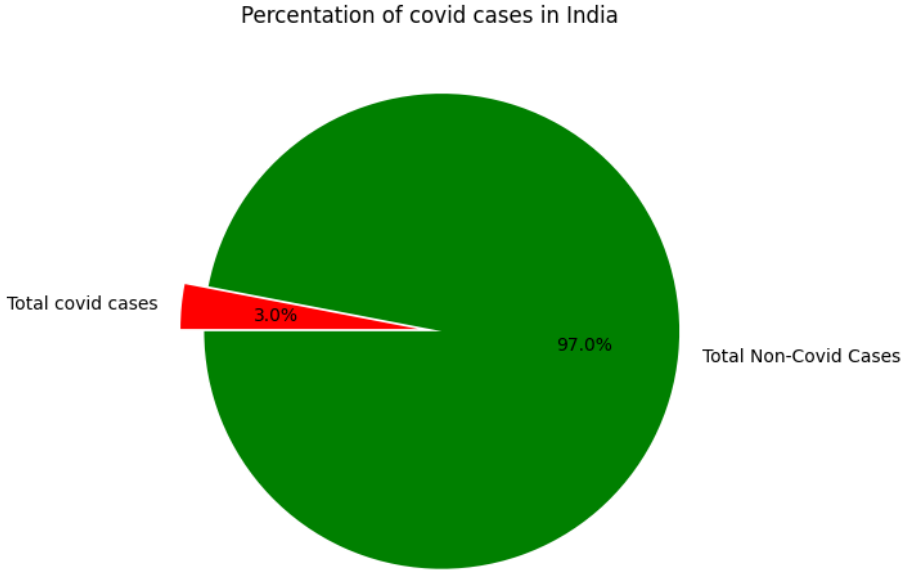
1 Introduction

In January 2020, the SARS-CoV-2 virus was identified as the cause of COVID-19. Pfizer-BioNTech and Moderna were the first mRNA vaccines to receive EUA from the FDA in December 2020. AstraZeneca and Johnson & Johnson followed soon after, these vaccines were approved in early 2021. Vaccines used Primarily were Covishield and Covaxin.

Covishield is a manufactured version of the AstraZeneca vaccine. Covaxin is an indigenous (made in India) vaccine by Bharat Biotech. Vaccination Rates: (As of March 4, 2023) Over 2.2 billion doses administered 95% of the eligible population has received at least one dose 88% of the eligible population is fully vaccinated.

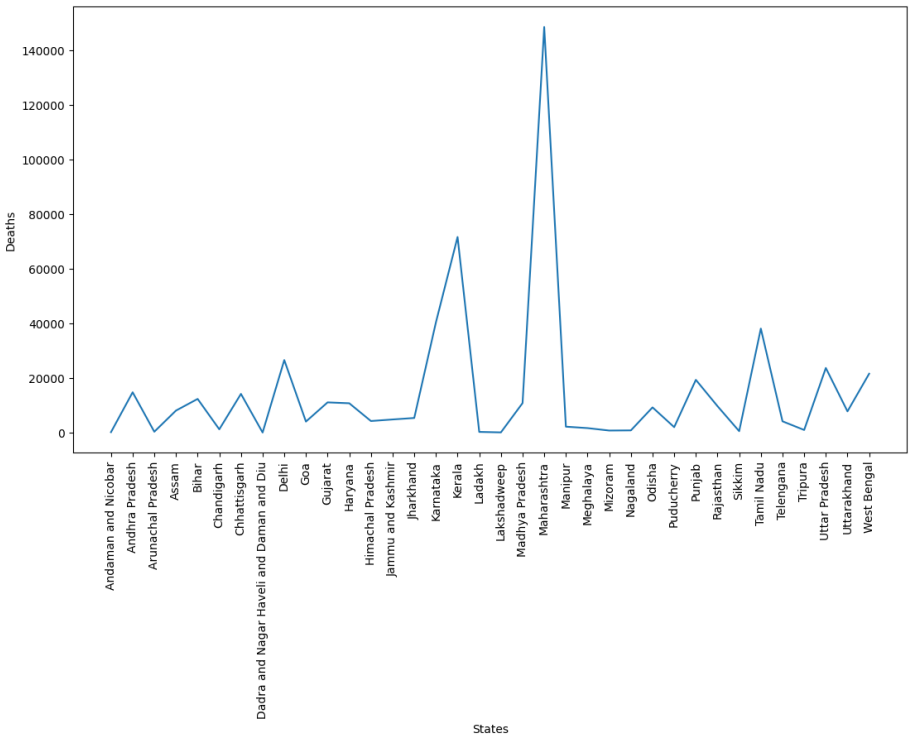
1.1 Covid Cases in India

Despite the significant hype and widespread concern surrounding COVID-19, recent data visualization reveals a different story for India. According to the latest figures, only 3% of the total health cases in the country are attributed to COVID-19 based on the total population, while a staggering 97% are non-COVID-19 related.



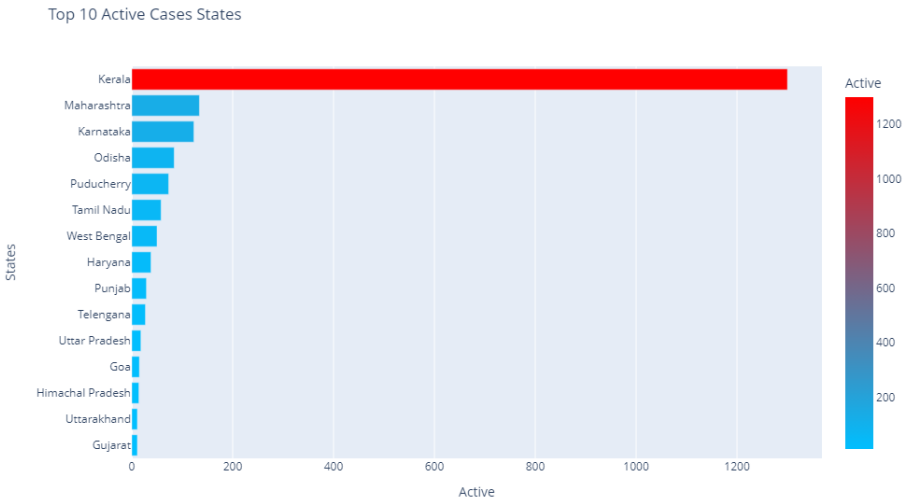
1.2 COVID-19 Related Deaths Across Indian States and UTs

The line graph depicts the number of COVID-19-related deaths across various states and union territories in India. The x-axis represents the different regions, while the y-axis shows the number of deaths. Notably, Maharashtra exhibits a significantly higher death toll compared to other states, peaking at over 140,000 deaths. Other states like Karnataka, Tamil Nadu, and Uttar Pradesh also show higher numbers, but they are considerably lower than Maharashtra's peak. Most regions exhibit relatively lower death tolls, indicating a disparity in the impact of COVID-19 across the country. This visualization highlights the uneven burden of the pandemic, with certain states experiencing a far greater number of fatalities.


Deaths
0
20000
40000
60000
80000
100000
120000
140000
Andaman and Nicobar
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Dadra and Nagar Haveli and Daman and Diu
Delhi
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu and Kashmir
Jharkhand
Karnataka
Kerala
Ladakh
Lakshadweep
Madhya Pradesh
Maharashtra
Manipur
Meghalaya
Mizoram
Nagaland
Odisha
Puducherry
Punjab
Rajasthan
Sikkim
Tamil Nadu
Telengana
Tripura
Uttar Pradesh
Uttarakhand
West Bengal
States

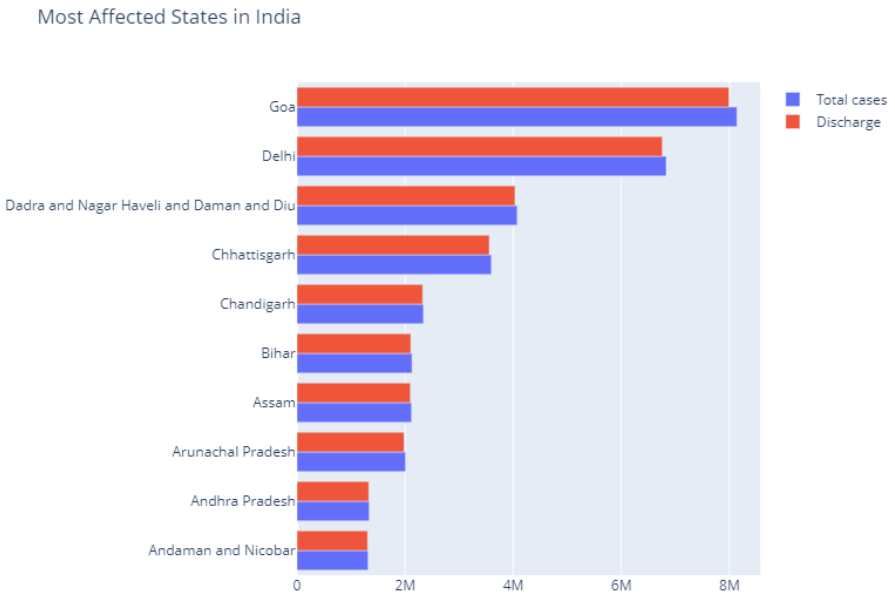
1.3 Highest Active COVID-19 Cases

The bar chart illustrates the top 10 states in India with the highest number of active COVID-19 cases. Kerala stands out significantly, with a considerably higher number of active cases compared to other states, exceeding 1200 active cases. Maharashtra and Karnataka follow but with much lower figures. Other states such as Odisha, Puducherry, Tamil Nadu, and West Bengal have relatively moderate numbers of active cases. Haryana, Punjab, and Telangana also feature in the list but have fewer active cases. This visualization highlights the disparity in the burden of active COVID-19 cases among different states, with Kerala experiencing the highest impact.

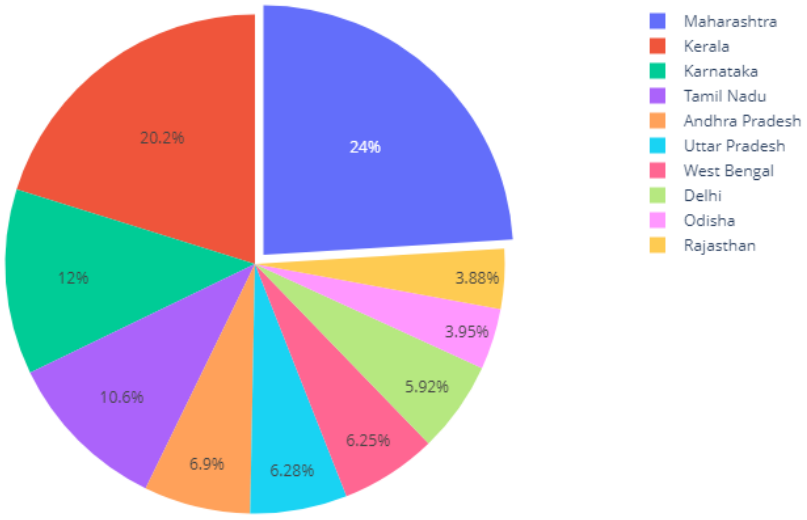


1.4 Most Affected States in India by COVID-19

The bar chart illustrates the most affected states in India by COVID-19, highlighting both total cases and discharge numbers. Goa reports the highest number of cases, followed by Delhi and Dadra and Nagar Haveli and Daman and Diu, all showing high discharge rates indicative of substantial recoveries. Chhattisgarh, Chandigarh, Bihar, and Assam also exhibit significant case numbers with corresponding discharge rates. Arunachal Pradesh, Andhra Pradesh, and Andaman and Nicobar, while having fewer total cases, demonstrate effective recovery efforts. This visualization underscores the varied impact of COVID-19 across different regions and the healthcare system's capacity to manage and discharge patients effectively.

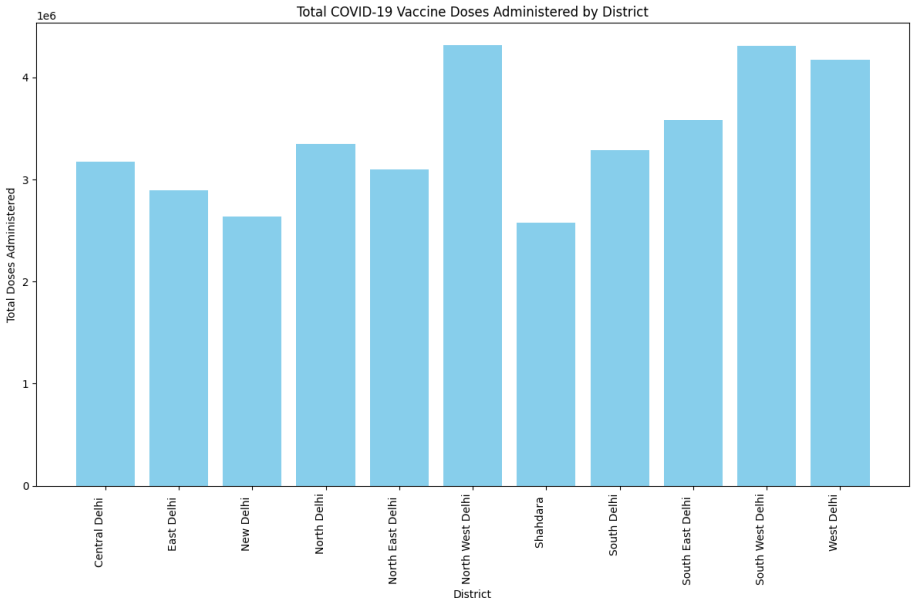


1.5 State-wise case distribution

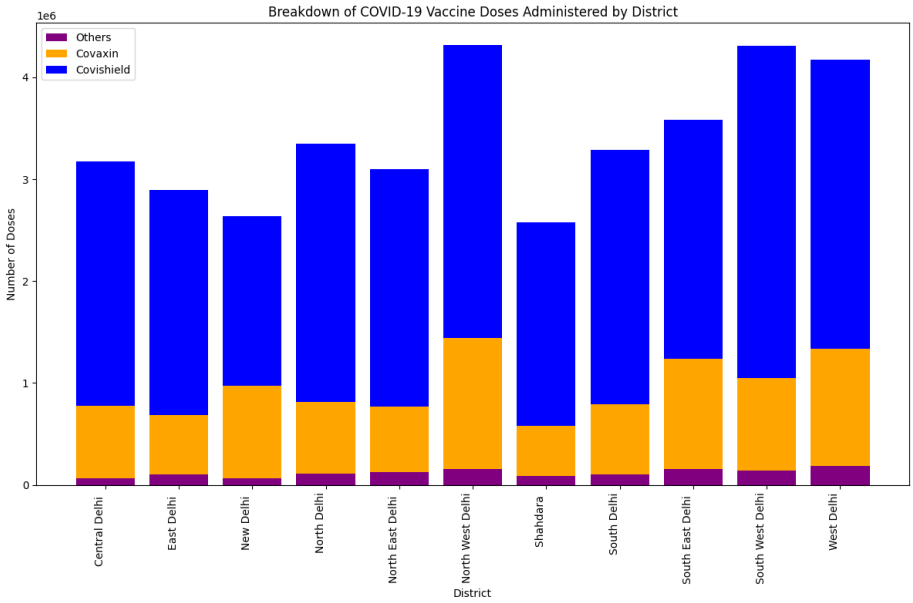


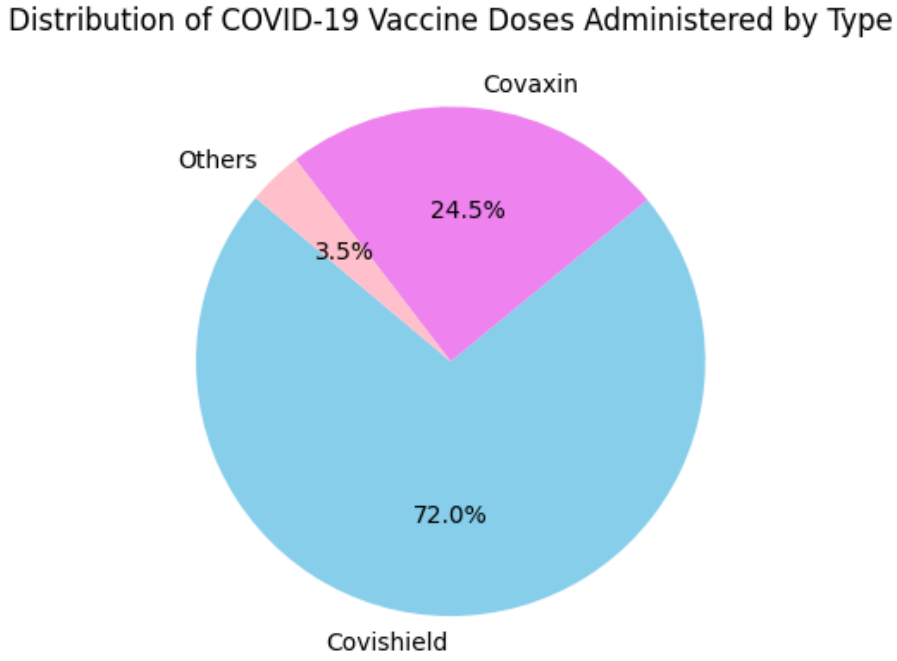
1.6 Covid-19 vaccine doses administered by Delhi's Districts

In the bar graph, we can notice that Central Delhi seems to have administered the most vaccine doses, followed by South Delhi and North Delhi. East Delhi, Shahdara, and North West Delhi seem to have administered the least number of doses among the districts shown on the graph.



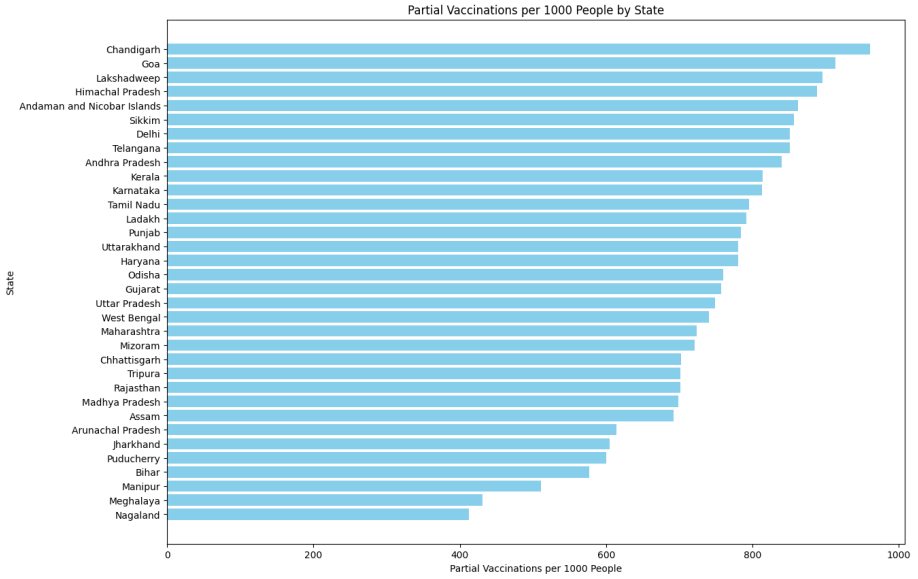
1.7 Breakdown of covid-19 vaccine doses





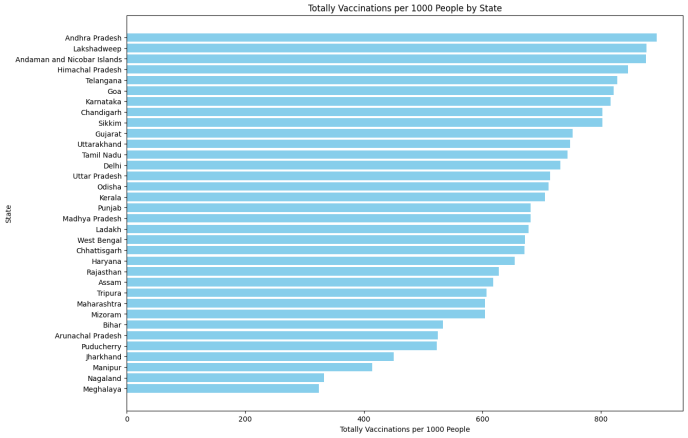
1.8 COVID Vaccinations in India state-wise

The horizontal bar graph shows the percentage of people who have received at least one dose of a COVID-19 vaccination per 1,000 people in various Indian states and territories. The y-axis shows the number of partial vaccinations per 1,000 people and goes from 0 to 1000. The x-axis shows the different states and territories. Chandigarh has the highest percentage of people with at least one dose at nearly 1000 vaccinations per 1,000 people. Goa, Lakshadweep, Himachal Pradesh, and Andaman & Nicobar Islands also have a high percentage of people with at least one dose, all above 800 vaccinations per 1,000 people. Several states and territories including Sikkim, Delhi, Telangana, Andhra Pradesh, Kerala, and Karnataka show a vaccination rate between 600 and 800 vaccinations per 1,000 people. Some states and territories including Puducherry, Bihar, Manipur, Meghalaya, and Nagaland have a vaccination rate below 200 vaccinations per 1,000 people.



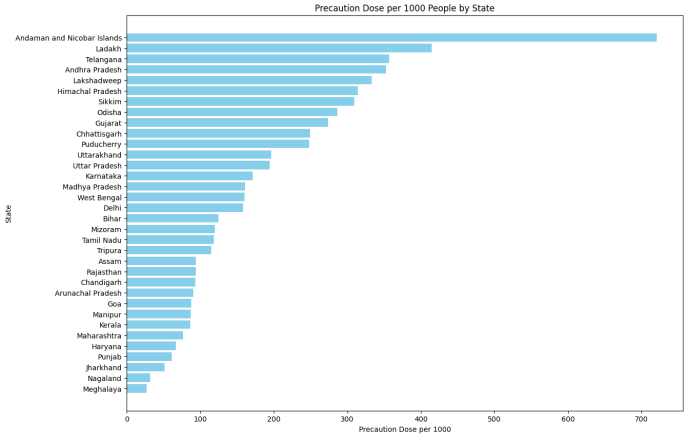
From the graph about the number of total vaccinations per 1,000 people by state and territory:

Andhra Pradesh seems to have the highest number of total vaccinations per 1,000 people at nearly 800. Lakshadweep and Andaman and Nicobar Islands also have a high number of total vaccinations, both above 600 vaccinations per 1,000 people. Several states and territories including Himachal Pradesh, Telangana, Goa, Karnataka, Chandigarh, Sikkim, Gujarat, and Uttarakhand show a vaccination rate between 400 and 600 vaccinations per 1,000 people. Some states and territories including Mizoram, Puducherry, Bihar, Manipur, Meghalaya, Nagaland, and Assam have a vaccination rate below 200 vaccinations per 1,000 people.



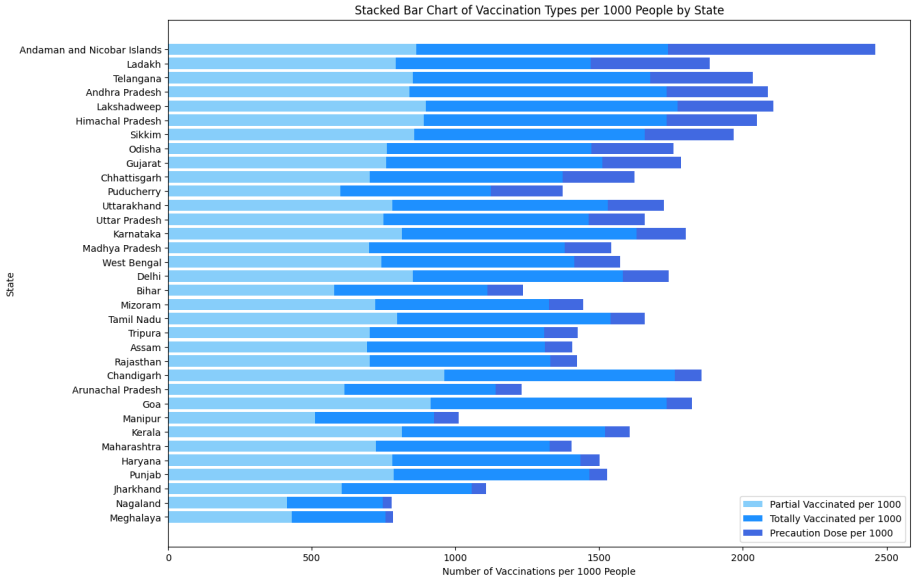
From the graph about the number of Precaution Doses per 1,000 people by state and territory:

Andaman and Nicobar Islands lead with a significantly higher number of precaution doses administered per 1,000 people, reaching almost 700. Ladakh follows but with a noticeable gap, at around 450 doses per 1,000 people. Telangana and Andhra Pradesh are also among the top states, with around 300-350 doses per 1,000 people. The lowest doses per 1,000 people are seen in Jharkhand, Nagaland, and Meghalaya, all below 100 doses per 1,000 people.



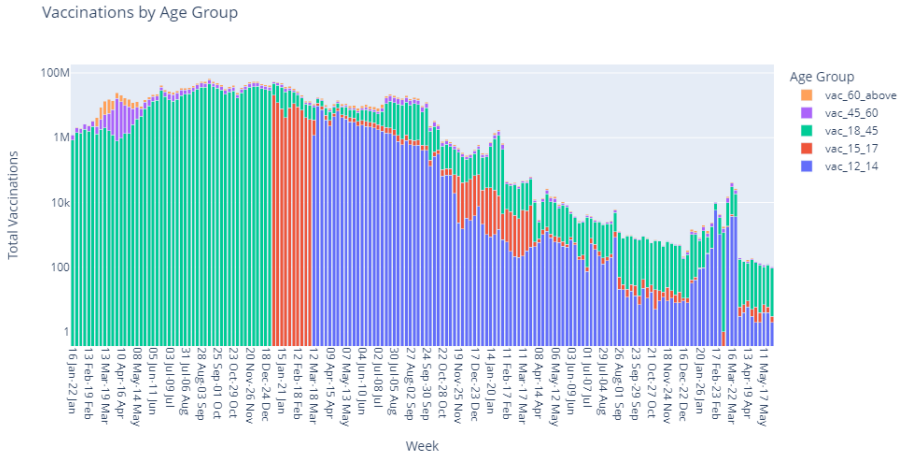
The stacked bar chart illustrates the vaccination coverage per 1,000 people across various states in India, segmented into partial, total, and precaution doses. The Andaman and Nicobar Islands, Ladakh, Telangana, and Andhra Pradesh lead with the highest vaccination rates, including substantial precaution doses. States like Himachal Pradesh, Sikkim, and Gujarat exhibit balanced vaccination numbers, while Delhi, Bihar, and Tamil Nadu show moderate levels with fewer precaution doses. The lowest vaccination rates are seen in Jharkhand,

Nagaland, and Meghalaya.



1.9 Vaccination Trends by Age Group Over Time

The chart displays the total number of vaccinations over time by age group on a log scale, revealing distinct trends and variations in vaccine uptake. Initially, there is a consistent rise in vaccinations across all age groups, peaking at around 100 million total vaccinations, followed by a notable decline to about 1 million. The 18-45 age group shows the highest vaccination numbers, often reaching over 60% of the total vaccinations at peak times, while younger groups (12-14 and 15-17) represent less than 10% at their highest points, likely due to later eligibility. Peaks and troughs in the data indicate periods of increased and decreased vaccination rates.



1.10 Distribution of Doses Over Time

The bar chart displays the distribution of vaccine doses over time from January 2021 to May 2023, segmented by Dose 1, Dose 2, and Precaution Dose. Initially, there is a rapid increase in Dose 1 administration, followed by a rise in Dose 2. Precaution Doses appear later and gradually increase. Over time, the overall number of doses administered decreases, with noticeable spikes indicating specific vaccination campaigns or events. The data reflects the initial intense vaccination efforts and the subsequent tapering as coverage increases and public health strategies evolve.