



## TESTING STRATEGIES AND KEY MEASURES: IN SURVEILLANCE & RESPONSE AGAINST COVID-19 IN SELECTED INDIAN STATES

<b>Dr Nidhi Singh</b>	Consultant Epidemiologists, IDSP, National Center for Disease Control, Delhi.
<b>Dr Samar Hossain</b>	Consultant Epidemiologists, IDSP, National Center for Disease Control, Delhi.
<b>Dr Rowanti Neha Bage</b>	Consultant Epidemiologists, IDSP, National Center for Disease Control, Delhi.
<b>Dr Himanshu Chauhan</b>	Joint Director, IDSP, National Center for Disease Control, Delhi.
<b>Dr Sujeet Kumar Singh</b>	Director, National Centre For Disease Control, Delhi

### ABSTRACT

**BACKGROUND:** Countries world over have implemented several measures ranging from aggressive containment to mitigation for responding to the COVID-19 Pandemic with varying degrees of success.

Effectiveness is enhanced when measures are implemented quickly, de facto mobility is curtailed timely and where there is availability of stronger health systems and trained manpower.

**OBJECTIVES:** To describe and evaluate the surveillance and containment measures implemented in Chhattisgarh, Dadra Nagar Haveli, Daman and Diu, Delhi, Goa, Haryana and Uttarakhand, where cases were confirmed with coronavirus 2019 (COVID-19) over the duration of one year (January 2021 to January 2022).

**METHODS:** A well-defined literature search was conducted so as to include published studies, reviews and guidelines that fulfilled the criteria to be included in this study. The time period of the study is from January 2021 to January 2022. Data extraction and analysis were completed for all the included articles.

**RESULTS AND CONCLUSION:** The review of data from the six States/UTs suggest that despite implementation of various containment strategies, the geographical and/or numerical containment of COVID-19 - a highly infectious respiratory viral illness - is not feasible. However, the spread can be staggered to prevent the overwhelming of the health care system through the judicious implementation of these strategies and ultimately reducing the mortality and morbidity. Graded response in the form of initial screening at Airports followed by community surveillance, contact tracing and ultimately mitigation is an effective public health measure that is in sync with the various phases of the pandemic. The lessons thus learned are also important for future preparedness and response to any major outbreak / pandemic.

**KEYWORDS :** COVID-19, Omicron, Mitigation, Control Strategy, Testing strategy

### INTRODUCTION

The World Health Organization (WHO) declared the Novel Coronavirus Outbreak (COVID19) as a pandemic on 11th March 2020, calling for immediate action to be taken by all countries in terms of stepping up detection, reduction of transmission and treatment. As of 26th January 2022, there were 356,955,803 confirmed cases including 5,610,291 deaths reported globally due to COVID-19 by the WHO.<sup>1</sup> The Ministry of Health and Family Welfare, Govt. of India reported over 2,98,18,442 cases across 36 states/union territories with 3,42,389 deaths. Despite an assumed uniform susceptibility of the Indian population to COVID-19 and intensive National efforts for more than two years the trends till now are showing a variegated force of infection in different states. The global trajectory of COVID-19 pandemic continues to increase slowly due to changing nature of the virus and evolution of SARS-CoV-2 Variant of Concern- B.1.1529, named Omicron which was reported from South Africa on 24th November 2021.<sup>2</sup>

The Government of India initiated various non-pharmaceutical interventions which include social distancing measures, vaccination coverage and addressing vaccine hesitancy, restrictions on unnecessary travel, closure of schools, colleges, and the prohibition of mass gatherings. Thus, it becomes important to capture these regional and state-specific variations as they may offer crucial insights into the current mitigation strategies.<sup>3</sup> The quantification of this variation may aid in planning future intervention strategies and be vital to understand the impact of these strategies adopted by the states to curtail the impact and flatten the peak of the third wave that arises from the Omicron variant.

### MATERIAL AND METHODS:

The paper is based on secondary data which is retrieved from the CoWIN portal, Ministry of Health and Family Welfare, WHO reports and data on COVID-19 released into bulletins of the respective states have been extensively used. The states of Chhattisgarh, Dadra and Nagar Haveli, Daman and Diu, Delhi, Goa, Haryana and Uttarakhand are taken to be the study area since the data relates to the whole state. Study duration was from January 2021 to January 2022. Appropriate quantitative techniques have been used to summarize the findings. Microsoft Excel has been used to analyze the data and for the graphical representation of the data.

### RESULTS:

#### State Specific Containment Strategies: Chhattisgarh:

The state adopted 5 Fold Strategy of "Test, Track, Treat, COVID Appropriate Behavior and Vaccination" with the objectives to significantly increase testing in all districts with a minimum of 70% RT-PCR tests and use of Rapid Antigen Tests as screening tests in densely populated areas as well as areas where fresh clusters are emerging. Mandatorily subject those who have tested negative in Rapid Antigen Test (RAT) to RT-PCR test. Ramped up effective and timely tracing, containment and surveillance activities and strict implementation of containment measures to curb the chain of transmission. Strict and effective enforcement of COVID safe behavior including the strict limitation of unnecessary movement of people and crowds. Time-bound plan of 100% vaccination of eligible population groups, especially in the high focus districts.

#### Dadra Nagar Haveli And Daman And Diu:

The UT has taken measures to ensure testing and containment

as per guidelines. Prompt cross notification of cases to other states is also being done. In addition the key indicators like test per million population and mortality rates are comparatively good when compared to the National figures and adjoining States. A total of 7324 samples were collected in Week no 3 (17th till 23rd January 2022) and sent for prompt testing, out of which only 233 samples tested positive.

#### Delhi:

Delhi adopted Corona Graded Response Action Plan (GRAP) for effective management of the pandemic. GRAP includes 4 types of alert levels, depending on the seriousness of the situation. Based on these levels, different types of restrictions are imposed to curb the Covid-19 cases in parts of the national capital. These levels are: Level-1 (Yellow), Level-2 (Amber), Level-3 (Orange) and Level-4 (Red). Night curfew is imposed in Level-1 alert. In addition to night curfew, weekend curfew is also applied in Level-2 and Level-3 alerts. Complete curfew is usually applied during a Level-4 alert. Apart from this, decisions on domestic travel and inter-state travel are taken according to the need and situation. At any level of alert, schools, colleges and educational institutions are directed to remain closed. No other social gatherings are allowed except for marriage ceremonies with some restrictions. Cinema halls, theaters, multiplexes, banquet halls, auditoriums, barber shops, salons, spas, gyms and yoga institutes and entertainment parks are directed to remain closed if any level of alert is activated. Strategic approach includes individual actions such as wearing of masks, maintaining social distancing, sanitizing one's hand and not attending mass gatherings and public health measures such as Containment, Testing and Surveillance (3T strategy: Test- track- treat-vaccinate) and Community engagement.<sup>4</sup>

#### Goa:

The Government has adopted various measures to combat the pandemic by creating new infrastructure besides augmenting the existing one apart from creating awareness among people of the facilities available by using various mediums of communications. The Government has endeavored to procure vaccines from other Government approved manufacturers. The process of procuring 2 Lakh doses of COVAXIN Vaccine from Bharat Biotech, Hyderabad has also been initiated. Guidelines for procurement of vaccines for children are awaited from GOI. The approximate population of persons in the 0-18 category is 4.65 Lakhs. Also, the process for Global Tendering for procuring vaccines has been initiated. The Government has already constituted a Task Force under the chairmanship of Honorable Chief Minister with induction of the Pediatricians including Government and private Hospital for formulation and implementation of strategy to tackle the possible third wave of COVID-19 pandemic.

#### Haryana:

The state adopted a scheme called "Haryana Village General Health Checkup Scheme". The scheme was initiated from May 15, 2021 and villages with high COVID-19 load were taken on priority. Rapid Antigen Testing (RAT) was the mainstay of screening. A lot many people were screened and cases of Influenza like Illness (ILI) detected and positive cases were diagnosed, isolated and treated to prevent the spread of disease. Control Room –cum- Helpline of 30 lines was made operational. Services of telemedicine and related services were being provided through a helpline. Mobile Health Teams were formed to check the health status in different geographical locations of Haryana. Dedicated COVID Care Centers, COVID Hospitals and COVID Health Centers were established. Home isolation kits were distributed. Third round

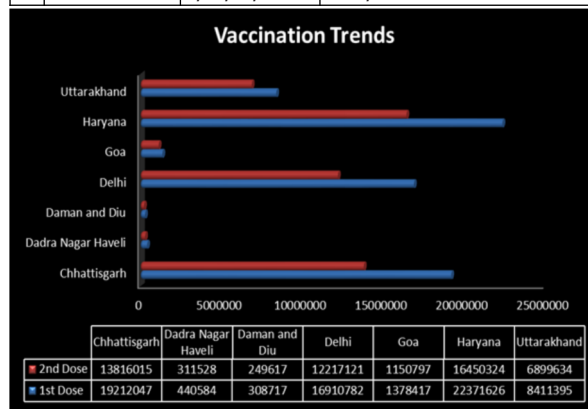
of Sero Survey was conducted in the month of September 2021 in the State, wherein seroprevalence was found to be 76.3 % (Urban 78.1 % & Rural 75.1 %). In the previous two rounds, the sero prevalence was found to be 8% in the 1st round and 14.8% in the 2nd round of the Sero Survey.

#### Uttarakhand:

Key strategies included lockdown and five point strategy. The Government of Uttarakhand is appreciated for timely implementation of lockdown, this included banning tourism entries, closing schools, cinema halls, places of mass gathering, Janta curfew, the National Bio Reserves, and the development of containment zones in different districts and high-risk areas. Five-point strategy includes surveillance, contact tracing, sample testing, clinical management and public awareness.

**Table No-1: Total Vaccinated Beneficiaries In 6 States (Source: CoWIN)**

S. No	States	Total Vaccinated	Proportion of eligible population vaccinated for 1st and 2nd Dose
1	Chhattisgarh	3,32,25,065	93%, 68%
2	Dadra Nagar Haveli	7,54,068	100%, 80%
3	Daman and Diu	5,60,954	87%, 73%
4	Delhi	2,93,67,247	100%, 80%
5	Goa	25,46,818	100%, 98%
6	Haryana	3,89,43,495	100%, 78%
7	Uttarakhand	1,54,78,358	99%, 84%



**Fig 1: Vaccination Trend Across 6 States Of The Country**

**Table No-2: Brief Of State Specific Containment Strategies**

S.No	States	Containment Strategies
1	Chhattisgarh	-5 Fold Strategy of "Test, Track, Treat, COVID Appropriate Behavior and Vaccination"
2	Dadra Nagar Haveli & Daman and Diu	-Prompt cross notification of cases to other states
3	Delhi	-Corona Graded Response Action Plan (GRAP) -3T Strategy: Test- track- treat-vaccinate
4	Goa	-Task Force established
5	Haryana	-Haryana Village General Health Checkup Scheme -Rapid Antigen Testing (RAT) testing -Control Room –cum- Helpline of 30 lines was established
6	Uttarakhand	-Banning tourism entries, closing schools, cinema halls, places of mass gathering -Janta curfew

Overall Common Strategies	<ul style="list-style-type: none"> <li>- Dedicated COVID Care Centers</li> <li>- Dedicated COVID Hospitals</li> <li>- Dedicated COVID Healthcare centers</li> <li>- Distribution of Home Isolation kits</li> <li>- Restriction on social gathering</li> <li>- Ramped up effective and timely tracing, containment and surveillance activities</li> <li>- Strict limitation of unnecessary movement of people and crowds.</li> </ul>
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### DISCUSSION & CONCLUSION:

This study evaluates the impact of nationwide curtailment strategies on COVID-19 cases in six states/UTs of India. In view of the large geographic and population size of the country, there were several phases of the pandemic simultaneously observed in different States/UTs. This calls for a need to evaluate the pandemic surveillance and response strategies at the State and District levels.<sup>5</sup>

The overall picture suggests that despite implementation of various containment strategies, the geographical and/or numerical containment of COVID-19, a highly infectious respiratory viral illness may not be feasible, however, the spread can be staggered to prevent the overwhelming of the health care system through the judicious implementation of these strategies and may ultimately contribute to the reduction of mortality and morbidity caused due to this deadly virus.

Genetics may also play a role in the spread of the SARS-CoV-2 and the clinical outcomes as the data from various countries and its comparison with Indian data suggests. Transmissibility of the virus also depends on the type of variant. Transmission of variants with high transmissibility such as Omicron, can be slowed down by timely imposing containment strategies. This helps the healthcare system to buy some time for the preparation and also to slow down the transmission

Studies on the impact of lockdown in other countries also reported a reduction in reproduction number, which translated into flattening of the curve and delaying of the peak. The probability of epidemic is further influenced by population density, mobility patterns and the general population's compliance with the non-pharmaceutical interventions (NPIs) such as following social distancing, use of masks, hand washing etc. Containment strategies like lockdown have given us the much-needed opportunity to delay the peak and flatten the epidemic-curve. The time thus bought was utilized for strengthening to intensify the public health response and the health infrastructure, including hospital beds with oxygen availability and critical care beds with ventilators and telemedicine. Continued efforts to strengthen the disease surveillance and response systems, health infrastructure and utilization of technology shall ensure that India is better prepared against future pandemic threats.

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