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Journal homepage: <https://www.jpmmh.org/>**Short Communication****COVID-19 pandemic- mitigation and governmental response, Uttarakhand****Pankaj Kumar Singh^{1*}, Akhilesh Tripathi², Paritosh Singh Rana²,
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ABSTRACT

The Health Department of the Uttarakhand State Government, in collaboration with various other departments, implemented a timely and comprehensive response to the challenges posed by the COVID-19 pandemic. A range of administrative and technical strategies were adopted, encompassing not only preventive and mitigation measures but also interventions designed to address the pandemic's economic and social impacts. This editorial highlights the coordinated efforts of different departments and the integrated governmental approach taken by the state of Uttarakhand to effectively respond to and mitigate the effects of the COVID-19 pandemic.

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For reprints contact: reprint@ipinnovative.com**1. Introduction**

The state government's response to the COVID-19 pandemic was pivotal in mitigating its widespread impacts. The Health Department of the Uttarakhand State Government, in collaboration with other departments, implemented a timely and well-coordinated approach to address the challenges posed by the pandemic. Guidelines and advisories issued by the Ministry of Health and Family Welfare, Government of India, were diligently and promptly followed.¹ A diverse range of administrative and technical strategies was adopted, encompassing not only preventive and mitigation measures but also interventions aimed at addressing the pandemic's economic and social repercussions.²

This editorial highlight the significant and collaborative contributions of various departments, reflecting an integrated state government approach to COVID-19

mitigation and response in Uttarakhand. The strategies employed include the following:

2. Strengthening Diagnostic Capacity

At the onset of the COVID-19 pandemic in Uttarakhand in March 2020, one of the primary challenges was testing suspected cases to enable effective contact tracing, limit the spread of the disease, and implement timely containment measures. Initially, all samples were sent to a single national laboratory, as it was the only facility available for testing in the country. To address this limitation, the state began enhancing its in-house COVID-19 testing capacity by utilizing the resources of government medical college laboratories and central government institutions. The state developed 11 government-operated RT-PCR testing laboratories with a combined capacity to process 15,000 samples per day. Developing this capacity required a multisectoral approach. State medical colleges were actively involved, and premier central government health institutions

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and laboratories with potential RT-PCR testing capabilities were identified and mobilized. Additionally, to further expand testing capacities, the support of private sector laboratories was sought and utilized effectively.

3. Screening Efforts

During the early stages of the pandemic, as international travelers arrived from affected countries, the state government promptly initiated screening at international borders. Measures were implemented to ensure proper quarantine, isolation, and transportation facilities for suspected and confirmed cases. To further contain the spread of infection, COVID-19 screening facilities, including RT-PCR testing and verification of negative test results, were established at airports, railway stations, and road entry points. These efforts were critical in limiting the transmission of the virus within the state.

4. Containment & Micro-Containment Zones

Upon the identification of a COVID-19 case, containment measures, including the establishment of containment and micro-containment zones, were promptly implemented in accordance with the guidelines issued by the Government of India. These strategies were dynamically adapted to align with evolving directives, ensuring timely and effective control of disease transmission.

5. Intersectoral Support

Intersectoral collaboration was crucial in managing travelers during the pandemic, including contacting them and monitoring their compliance with institutional or home quarantine protocols. This effort involved the State Disaster Management Authority, police department, Panchayati Raj department, and local administrative bodies. A significant challenge arose when large numbers of people began returning to their homes due to nationwide lockdowns. In response, the state government swiftly established institutional quarantine facilities in both urban and rural areas, utilizing funds from various sources, primarily the State Disaster Response Fund (SDRF). To prevent the transmission of infection to the resident population, isolated quarantine centers were strategically set up across urban and rural regions.

6. Panchayat Quarantine

To minimize population mixing and reduce the risk of infection transmission in rural areas, an innovative concept of Panchayat Quarantine was introduced. These quarantine centers were managed through a multidisciplinary approach involving Gram Panchayats, field-level workers, and support from the local administration. Efforts were made to ensure proper food provisions and maintain

sanitation standards, with regular monitoring to uphold these arrangements effectively

7. Village Level Monitoring Committees

To minimize the risk of infection spread to rural areas and ensure timely mitigation and response, the government established village-level monitoring committees through formal orders. These committees were tasked with a range of responsibilities, including early identification of infections, facilitating testing, monitoring home isolation, providing home medical kits, overseeing the health of isolated patients, and ensuring timely referrals for medical care when needed. This grassroots-level approach played a critical role in strengthening the pandemic response in rural communities.

8. Lock Down Measures

The Uttarakhand State Disaster Management Authority and the Police Department played pivotal roles in enforcing administrative measures to control the spread of COVID-19. They ensured the diligent implementation of directives issued by the Government of India, including airport and border screening, enforcement of lockdown measures, monitoring of containment zones, overseeing quarantine protocols, and supervising home isolation compliance. These coordinated efforts were instrumental in managing the pandemic effectively.

9. Home Isolation Monitoring

During the pandemic, it was observed that home isolation was a more suitable intervention for mild or asymptomatic COVID-19 patients compared to facility-based isolation. To ensure effective management, district-level home isolation control rooms were established, operated collaboratively by the State Disaster Response Force (SDRF) and the health department. These control rooms were responsible for monitoring the health of patients, providing home isolation medical kits, conducting contact tracing, and arranging referral transportation when necessary. This coordinated approach ensured efficient care and containment measures for home-isolated patients.

10. Engagement of Frontline Workers

To ensure effective monitoring of home-isolated COVID-19 cases, an adequate supply of pulse oximeters and thermometers was provided to ASHA workers and Auxiliary Nurse Midwives (ANMs). Home isolation medical kits were distributed widely, reaching the village panchayat level, urban ward level, and Community Health Centers (CHCs) and Primary Health Centers (PHCs), enabling timely treatment provision. Monitoring of home-isolated patients was conducted through district-level

control rooms and a state-level control room operated by the State Disaster Response Force (SDRF), ensuring comprehensive oversight and care.

11. Covid Dedicated Health Care Facilities

To manage the surge in COVID-19 cases, the state government implemented a three-tier system of dedicated COVID-19 facilities. Dedicated COVID Hospitals (DCH) were established in tertiary care government and private health facilities to treat severe cases. Dedicated COVID Health Centers (DCHCs) were set up in mid-level healthcare facilities, such as district hospitals and private hospitals, to manage moderate cases. For the clinical management of mild cases, Dedicated COVID Care Centers (DCCCs) were created in non-traditional healthcare settings such as hotels, lodges, and hostels. This tiered approach ensured the efficient utilization of resources and streamlined patient care based on severity.

12. Clinical Care Facility Upgradation

With the onset of COVID-19 in the state, the government proactively anticipated the increased demand for ICU beds and ventilators to manage severely ill patients. In response, the number of ICU beds and ventilators was significantly scaled up. To enhance the referral transport system, the fleet of ambulances was also substantially increased. To decentralize clinical care and improve coverage, COVID-19 care facilities were extended down to the level of Community Health Centers (CHCs) and Primary Health Centers (PHCs). Adequate supplies of oxygen concentrators and cylinders were ensured for all health facilities, with additional reserves maintained at the state level. Furthermore, oxygen generation plants were installed and made operational at major healthcare facilities to strengthen the oxygen supply infrastructure.

13. Medical Counsellors

During the pandemic, it became evident that patients in home isolation required medical counseling and psychological support to build mental resilience during their recovery period. To address this need, medical counselors from various disciplines, including allopathic, ayurvedic, and other healthcare streams, were engaged at district-level call centers. These counselors provided regular follow-ups on the medical condition of each patient while offering emotional and psychological support to help them cope effectively with the challenges of isolation and infection.

14. Flu Clinics

Specialized units were established within health facilities to enhance surveillance of Influenza-Like Illness (ILI) and Severe Acute Respiratory Infections (SARI). All identified

ILI and SARI patients were systematically tested and isolated as part of the Test-Track-Treat strategy. This approach ensured rigorous monitoring of the pandemic's progression and facilitated timely interventions to contain the spread of the virus.

15. Mobile Testing Teams

To enhance access to and coverage of COVID-19 diagnostic services, approximately 300 mobile testing teams were deployed. These teams were equipped to perform Rapid Antigen Testing (RAT) and collect samples for RT-PCR testing, adhering to the RAT diagnostic algorithm. This initiative significantly improved the reach and efficiency of diagnostic services, ensuring timely detection and management of cases.

16. Ayurveda Medical Kit

To support the immunity of COVID-19 patients, the Ayurveda Department provided Ayurvedic medical kits to all home-isolated individuals. These kits contained recommended Ayurvedic formulations and ingredients aimed at boosting immunity and aiding patients in their recovery and ability to combat the disease.

17. Capacity Building

Capacity building for healthcare workers, including medical doctors, paramedical staff, and surveillance teams, was a continuous focus during the pandemic. Regular online orientation sessions were conducted by faculty members from the Government Medical College, Dehradun, and the State COVID-19 Control Room. Additionally, numerous online training sessions and workshops were organized for doctors and paramedical staff on key aspects of COVID-19 clinical management, including Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), airway management, intensive care, epidemiology, emergency response, and personal and institutional protective measures. To prepare for potential future waves of COVID-19, specialized training sessions on surveillance and epidemiological aspects were conducted for state surveillance unit officials. The State Disaster Response Force (SDRF) played a critical role in training personnel from various departments, including police personnel, Provincial Armed Constabulary (PAC), Indian Reserve Battalion (IRB), fire services, home guards, and members of the health department. Drivers, factory workers, sanitation staff, and employees of other departments, as well as staff from GMVN/KMVN, hotel personnel, and community members in villages, also received targeted training. Moreover, online training sessions were provided by the SDRF, ensuring widespread dissemination of knowledge and preparedness to combat the pandemic effectively across multiple sectors.

18. Post Covid Management

During the pandemic, post-COVID complications and sequelae among recovered patients emerged as a significant challenge. To address this, large-scale awareness campaigns on post-COVID management were launched, along with counseling services aimed at supporting patients in their recovery journey. These initiatives focused on educating the public about recognizing and managing post-COVID symptoms, ensuring timely interventions, and promoting a faster and healthier recovery.

19. Micronutrient Supplementation

In preparation for the potential involvement of the pediatric population in the anticipated third wave of COVID-19, a state-wide micronutrient supplementation program was implemented for children. This initiative was carried out based on the recommendations of an expert clinical committee, aiming to strengthen the immunity and overall health of the child population to mitigate the impact of the pandemic.

20. COVID-19 Control Rooms

State and district-level control rooms were established to monitor and analyze the COVID-19 situation across the state. These control rooms were staffed with a multidisciplinary team of experts, including senior administrative officers, infectious disease specialists, public health professionals, disaster management experts, IEC design specialists, data analysts, IT experts, computer programmers, data entry operators, and volunteers. Functioning as a 24/7 unit, their primary objective was to maintain constant vigilance over the progression of the pandemic and the implementation of mitigation strategies.

21. Awareness Generation

The State Government undertook extensive publicity efforts to raise awareness among citizens about adopting safe behaviors to protect against COVID-19 infection. A strategic communication approach was implemented through multi-pronged campaigns coordinated among the Health Department, Information and Public Relations Department, State Disaster Response Force (SDRF), Disaster Management Unit, Nagar Nigam, and other associated divisions of the state government. Various media tools, including newspaper advertisements, hoardings, unipoles, electronic media, and social media platforms, were effectively utilized for disseminating messages and promoting health communication.

22. Daily Health Bulletin

The state regularly released health bulletins to the media, general administration, and associated central and state

government departments. These bulletins provided updates on the COVID-19 pandemic situation within the state and included key messages promoting recommended behaviors to prevent the spread of COVID-19. This initiative ensured consistent and accurate information dissemination to stakeholders and the public.

23. Treatment Support

To ensure that people received adequate treatment for COVID-19, medical expenses were covered under the Uttarakhand Ayushman Scheme. Eligible beneficiaries were provided financial support for medical costs incurred during their treatment, enabling access to necessary healthcare services without the burden of out-of-pocket expenses.

23.1. Monitoring of Quality Care

CCTV cameras were installed in Dedicated COVID Health Facilities and Dedicated COVID Health Centres to ensure the delivery of quality care to patients. Additionally, provisions were made to supply patients with nutritious, hygienic food and clean drinking water at these facilities, ensuring their well-being and comfort during treatment.

24. COVID-19 Vaccination Drive

The state government rigorously conducted the COVID-19 vaccination drive in strict adherence to the guidelines issued by the Government of India. Vaccination for all eligible beneficiaries was carried out promptly on a large scale. The "Har Ghar Dastak" vaccination drive, a flagship initiative by the Government of India to vaccinate remaining beneficiaries, was successfully implemented in Uttarakhand, ensuring comprehensive coverage across the state.

25. Source of Funding

None.


26. Conflict of Interest

None.

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