HEALTH SYSTEM RESILIENCE AND SUSTAINABILITY IN INDIA - ODISHA'S STRATEGIES ON HUMAN RESOURCES MANAGEMENT DURING COVID-19

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ABSTRACT

Background: The COVID-19 pandemic caused widespread loss of life, economic downturns, and emotional distress; it overwhelmed the public health delivery systems across the globe. Odisha was one of the few states in India that deployed proactive management of human resources in health (HRH) to fight the menace. This paper analyzes key decisions related to HRH during COVID-19. The findings aim to strengthen HRH practices to address future pandemics.

Materials and Methods: We analyzed the structures, functions, and processes related to HRH management during the COVID-19, using a qualitative lens. Through purposive sampling, in-depth interviews were conducted with 20 key informants, including policymakers and state-level managers. Data were analyzed thematically to reflect upon the perspectives of key stakeholders, identify barriers and enablers, and document the decision-making dynamics.

Results: Odisha state strengthened its hospital infrastructure and capacity of health workforce through additional deployment and skill upgradation in a short period. Restriction of movements and strengthening the health system pillars led to considerable success. As COVID-19 cases surged in mid-2020, focus shifted to clinical treatment, active case finding and surveillance. Specific training modules were developed with guidance from the Ministry of Health, WHO, and UNICEF. A whole range of human resources were trained by both online and offline modes. Community-level training programs focused on enforcing COVID-appropriate behavior and management of vulnerable population. Infusion of technology enhanced the system's capacity to deliver high quality training in a short period of time to a vast majority of stakeholders. Conclusion: The Odisha State Disaster Management Authority (OSDMA) and the National Health Mission (NHM) played critical roles in enhancing systems' preparedness and institutionalizing such large-scale capacity building initiatives during periods of crisis. The state's approach in terms of scale, skill, and speed of human resources management could be a model for addressing future health crises.

KEYWORDS

COVID-19, pandemic, policy analysis, disaster management, decentralization, Odisha, India

BACKGROUND

The world witnessed one of the most protracted and devastating health disasters of 21st Century in the form of COVID-19 that created havoc in terms of loss of life and livelihood, economic recession, emotional turbulence and incapacitation of public systems. Healthcare delivery units were pushed to the brink of collapse, governments struggled to implement timely and effective responses due to the unpredictability and severity of the outbreak.

In India, COVID-19 episode was brought under the Disaster Management Act (DMA) with overarching restrictions and regulations on movement and services. Critiques were explicitly opining about lack of appropriate legislative measures to deal with a COVID-19 like situation [1]. Throughout various phases of the pandemic, India in general and Odisha state in particular, were the focal points of scientific scrutiny [2]. For instance, the COVID-19 data reporting in India was scrutinized extensively because of its disagreement with crematorium data and paradoxically low case fatality rates compared to other countries [3, 4]. However, it was also acknowledged that the response of any country to an unprecedented pandemic is influenced by several underlying factors such as infrastructure, trained human resources, decision-making acumen, socio-cultural feasibility and scientific advances in vaccine development [4, 5].

Odisha government adopted multi-pronged strategies for managing and coordinating government operations that included appointing coordinators, creating new (and repurposing existing) health workforce, enforcing public health measures through law enforcement agencies, setting up specific institutional mechanisms for evidence uptake, and reframing policy decisions related to health and livelihood [6]. Odisha is one of the few Indian states that took swift and decisive actions against the rapidly spreading COVID-19 pandemic. Odisha was a 'first' in many steps - imposing partial lockdown in select districts, upgrading healthcare infrastructure in short time, establishing COVID-19 hospitals with intensive care units (ICU) through public-private partnership mode, and setting up COVID-19 hospitals in every district headquarters [7]. One of the most striking efforts in this direction was with regard to policies on management of human resources in health (HRH) which is the center of investigation of this paper.

This study synthesized important policy responses of the government of Odisha during the pandemic, particularly in the domain of human resources management. Further, it highlighted the barriers and enablers that influenced COVID-19 policy decisions. The findings will help reinforce existing systems and develop new mechanisms for improved crisis management in the future.

METHODS AND MATERIALS

STUDY DESIGN, SETTINGS AND PARTICIPANTS
Through the lens of HRH, the paper focused on the structures established, functions delegated, and processes followed during various phases of the COVID-19 pandemic. We used a cross-sectional qualitative study design. Through purposive sampling, we interviewed key informant interviews (KII) with decision-makers to gather comprehensive insight. Essentially, the study involved conducting a retrospective policy analysis pertaining to HRH and how it influenced the dynamics of COVID-19 progress in the state.

DATA COLLECTION TOOLS AND TECHNIQUES
We conducted in-depth interview of 20 key informants at the state level, mainly policy makers and state level managers across various departments, such as, nodal officers appointed for coordination and crisis management, officials of law enforcement agencies and partners from private sector/self-help groups/civil society organizations. Each interview lasted for about 40-90 minutes. Informed consent was obtained from each participant and anonymity of responses was maintained. During KII, questions included: key decisions taken by the department during the pandemic, roles during COVID pandemic, the challenges faced, and the mechanisms developed for coordinating / communicating with other departments and stakeholders. Specific questions were asked pertaining to the sphere of decision he/she has taken, bottlenecks and enablers during implementation of those decisions.

DATA ANALYSIS
Data collection and analysis was undertaken in a parallel manner to look for gaps in the information being collected. The transcripts were anonymized by assigning unique identifiers and secured in a password-protected computer accessible only to the research team. Atlas.ti. 8.0 software was used for text coding and categorization. Thematic analysis by Braun and Clark guided the data analysis [8].

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This process required the authors to read and re-read the transcripts to identify potential themes. Transcripts were analyzed alongside the original recordings to look for inconsistencies and ensure deeper understanding.

RESULTS

KEY DECISIONS

During March-April 2020, very few cases and fatalities were reported in India as well as in Odisha [9]. However, as days progressed, by May-June, cases surged; therefore, subsequent decisions related to 'lockdowns' and 'shutdowns' were taken with much caution and precaution. The State government and local governments had a herculean task of restricting movements and preventing infection on the one hand and preparing health systems on war footing to meet the case load on the other. Recognizing the limited effect that such 'lockdowns' and 'shutdowns' exerted on the public healthcare system, Odisha took proactive steps to enhance its capacity with regard to hospital beds, healthcare professionals and logistics [10]. Moreover, technological advances, supported by a strong research support base helped contain the damage. Through efficient public–private partnerships and infusion of technology India bounced back with two 'made in India' vaccines over a span of one year [11].

FIGURE 1- POLICY FORMULATION AND IMPLEMENTATION DURING COVID MANAGEMENT, ODISHA
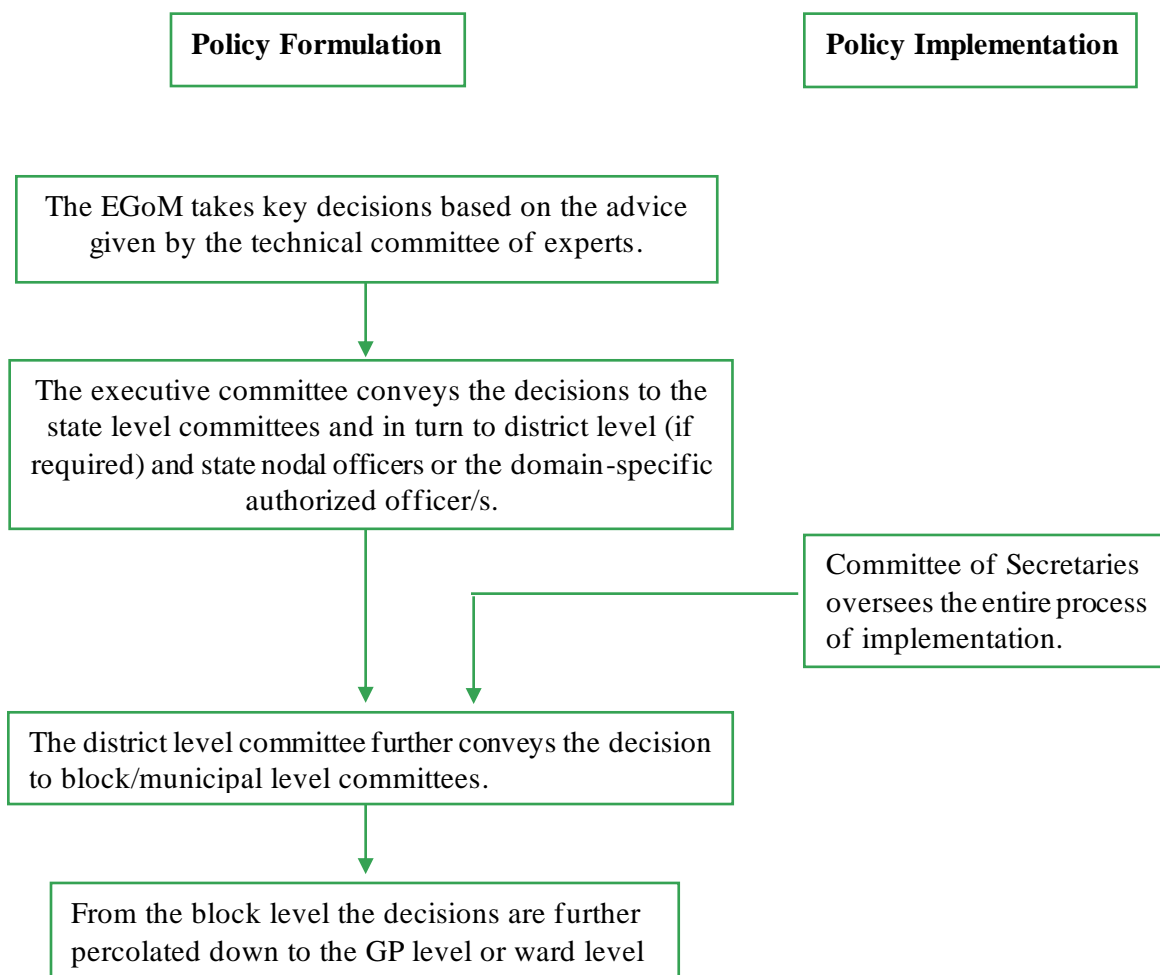
Government of Odisha formed an empowered group of ministers (EGoM) as the top-notch policy making body for managing COVID which was assisted by an executive committee and a committee of secretaries (Figure 1). At the district level, enormous powers were delegated to the District Collector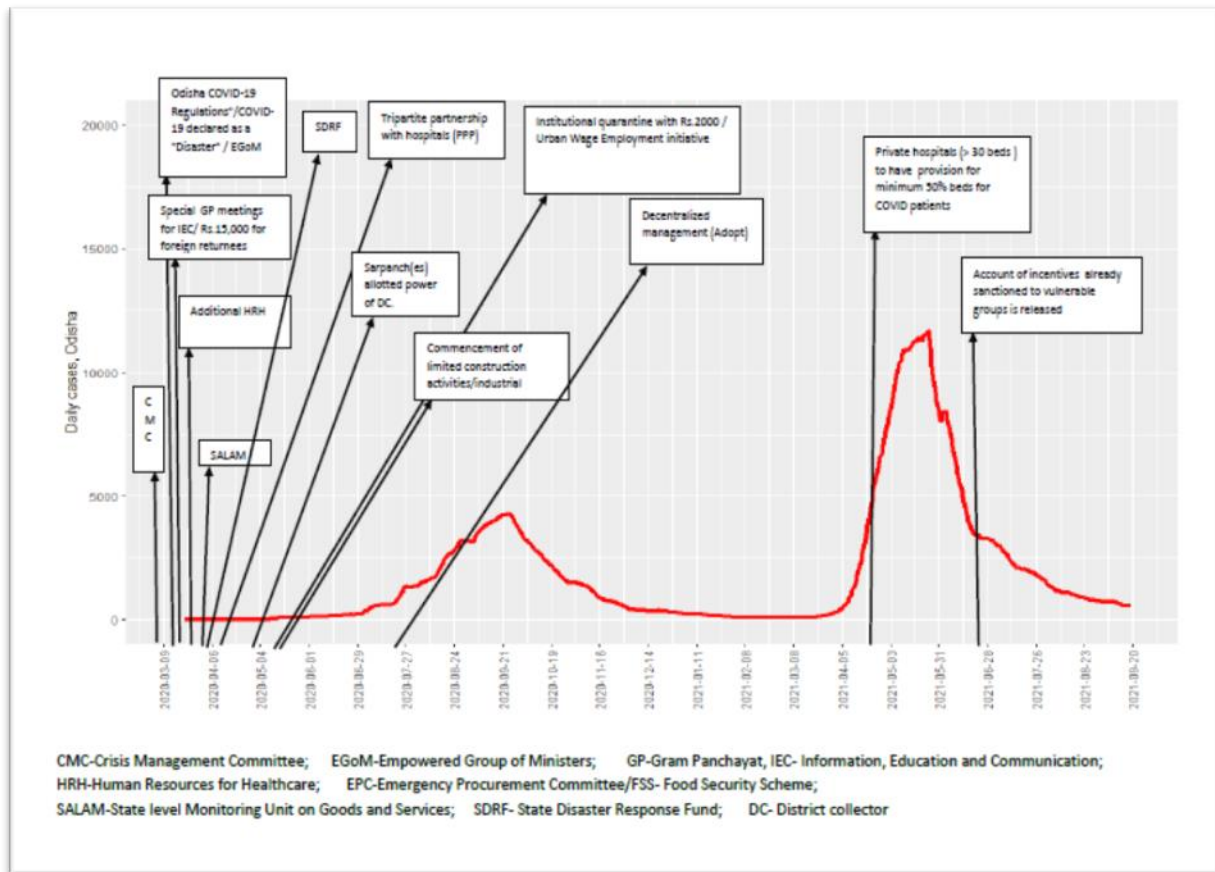s; and at the gram panchayat level, the Sarpanch embodied the powers of the District Collector with specific roles and responsibilities.

It is evident, the government of Odisha resorted to restriction of movement as the 'first decision' during March 2020 and in the subsequent four months introduced a

battery of decisions, the phase of 'maximum decisions' which temporally corresponds to the momentum gathered at government of India level and at international level (Figure 2). However, there were also instances of complacency and public unrest which eventually resulted in the second wave of 2021. In absolute numbers, the second wave was not as devastating for Odisha as for many other states owing to a variety of reasons; at the same time the state outsmarted because of high level of compliance with COVID protocol by the general public as well as a well-coordinated government machinery with a well-thought-out strategy. The role of Odisha's earlier experience of dealing with disasters was clearly visible in this context.

FIGURE 2 – MAPPING OF KEY POLICY DECISIONS DURING COVID-19, ODISHA

CMC-Crisis Management Committee; EGoM-Empowered Group of Ministers; GP-Gram Panchayat, IEC- Information, Education and Communication; HRH-Human Resources for Healthcare; EPC-Emergency Procurement Committee/FSS- Food Security Scheme; SALAM-State level Monitoring Unit on Goods and Services; SDRF- State Disaster Response Fund; DC- District collector

Source: Gazette notifications, Government of Odisha

HRH MANAGEMENT PROCESSES

As the number of cases started rising in Odisha, the government foresaw the demand of health care services in the near future. The focus was on two aspects: clinical treatment of the disease as well active case finding through surveillance. Thus, to address the unmet need of the population, additional recruitment and rapid training programs were urgently undertaken for both clinical and public health management.

Facility management comprised of assisting the patient's status; segregating into different grades – mild, moderate, severe, looking for the existence of co-morbidities, assessing the complication, and administration of drugs and oxygen during the first and second waves. Specific training modules were designed for these components under the technical guidance of the Ministry of Health and Family Welfare, WHO and UNICEF. The community training component comprised of enforcing COVID Appropriate Behaviour (CAB) at all levels (markets, quarantine centres etc.); managing milder cases at the local level; and orienting the front-line workers about the guidelines issued for the vulnerable groups.

CASCADING TRAINING MODEL

The state followed a 'cascading model' which meant, in the beginning nodal officers were trained at a tertiary health care institution. Next, under the leadership of a Professor of Internal Medicine, all doctors and staff nurses and other paramedics were trained in batches. Later, many other professors and technical experts from different medical colleges became trainers. Every training session

was overseen by a nodal person, appointed by the state government.

 "With the infection rate being low in the initial phase, in-house training was allowed for doctors because this was needed very much for practical training which is associated with the ICU management."

Practical training was given regarding the management of patients in the ICU. Thereafter, training program was extended to other health care providers: staff nurses, AYUSH doctors and MBBS doctors, medical students, nursing students, laboratory technicians, even veterinarians. Veterinary laboratory technicians were trained and involved in conducting the RT-PCR test and Rapid Antigen Test in different points of time.

At the district level, a nodal person typically an Additional Director of Public Health (ADPHO) ranked doctor, was designated. In some cases, the district level communication officers also shared responsibilities. The team, led by the Chief District Medical Officer (CDMO) and the District Program Manager under the National Health Mission (NHM) continuously monitored the district-level training. State-level master trainers, trained either in-person or virtually, became trainers for the district level participants. Simultaneous arrangements were made to train peripheral staff virtually. For three to four days a week, the SCB medical college training team served as a nodal team, providing virtual training to both government and private sector doctors. Further down, at the block level, the trained staff conducted capacity building for TMCs.

An innovative model was initiated - the members those who were kept under quarantine in the TMCs were trained about the basics of COVID transmission and the prevention at the community level so that they could be utilized later on as the change agents.

At the village level, front-line volunteers, such as ASHA workers served as the frontline workers. Due to limited resources, especially in remote tribal districts, they couldn't regularly attend district-level training. Instead, sector meetings were held where trained Medical Officers and other staff of the Primary Healthcare Centre (PHC) trained batches of 10 to 15 ASHAs.

Ambulance (108) workers and Rapid Response Team (RRT) members received virtual training both at state and district levels. Staff of Panchayati raj department, police personnel, social workers, even the sanitation workers of municipal corporations and the urban bodies were trained by their respective departments. Common training resources such as materials and presentations were developed with the help of SIHFW and technical groups.

TRAINING CONCEPTUALISATION AND DESIGN

A vertical team consisting of experts from different directorates and partners such as UNICEF, WHO and public health institutes was formed and led by a senior administrative officer. There used to be regular meetings for finalization of curriculum and training pedagogue. A brief Training Need Assessment (TNA) was done before finalising the topics of the training.

State used to get feedback from the district levels and the ground levels regarding the real requirement for the trainings; and the state designed it on a time-to-time basis and as per the need; it was also modified. It was a bi-lateral process between state and district.

Meetings were held almost on alternate days and different training topics were discussed and finalised. It was vetted by the entire technical committee. Some of the training programs for the block development officer (BDO) were also designed with the help of UNICEF.

Even from IIPH, which is one of the basic training units in the state of Odisha, on behalf of Government of India there were also active members in this committee and they were also providing support through information dissemination to us."

The NHM was an integral part of this training program. Officials of NHM were closely monitoring the training at district levels. Trained resource persons of the state helped training the Auxiliary Nurse and Midwives (ANMs), health supervisors other paramedics as well. Before implementation, mock drills were conducted in different hospitals to ensure that the training was effective. State and district-level experts supervised these drills to ensure accurate replication.

We conducted a mock drill involving a scenario in which a patient is coming and how to reduce the lag period in addressing the real need of the patient.

TRAINING COMMUNICATION

At the state level prior to finalizing the training, a list of the trainees, training modules, and resource persons was

finalized. WhatsApp numbers of the trainees were collected and shared with the state to keep them informed about the schedule. All the virtual training sessions were uploaded to platforms like YouTube and shared with all the trainees.

The list was also being circulated to all districts and in all WhatsApp groups relating to health care. There were some 12 or 14 WhatsApp groups relating to health which can cover, most of the health care providers both from the government side as well as the private sector, like IMA, like the doctors from Rotary group etc.

Special efforts were made to impart training in local language (Odia) especially for FLWs/Community managers, while doctors and nurses were rained in English. The sessions were tailored to the trainees' needs, with MoHFW, GoI modules being adapted for context.

The Government of India had also designed many other trainings and people from the states, they were also attending those trainings but the difference is that training should be context based....The things, the complicated things described in other languages, either in Hindi or in English may not be always palatable to them or acceptable by them easily.

ENABLERS AND BARRIERS
Odisha's intensive training efforts significantly enhanced the knowledge and skills of service providers and frontline workers. This preparation proved vital during the second wave, enabling the well-trained staff to effectively perform their duties and save lives.

In the second wave, the state had been to some extent stable in the sense that many of the persons existing in the system as well as the private sector were trained in the management of COVID, both at the facility level as well as the community level. So, many trained hands were available at the second wave.

Disseminating information about the disease and the expected behaviour from the public was carried out through different channels like government websites, social media in both audio and visual format. This also helped the trainers/ trainees getting access to credible information at rapid pace.

Virtual training allowed widespread participation, and the collaborative, selfless efforts of participants in quickly learning and sharing knowledge helped prepare the workforce to respond effectively to the disaster.

Virtual platforms became helpful. Had we taken the physical mode of the training, it would have taken a very long time. But training on virtual mode practically solved that problem. Many people could be connected in a single session.

Multiskilling of human resources through rigorous trainings and hiring in 25% over and above the criteria as laid down by Indian Public Health Standards (IPHS) helped the state to tide over the paucity of human resources in health. Increasing the digital literacy among front line workers by distributing electronic gadgets and striving to make them tech-savvy helped them access to the virtual trainings efficiently. At the same time, training session were also conducted in physical mode for batches of 10-15 participants; thus, there was sincere efforts to make sure no individual remained untrained owing to lack of network signal or any device-related barriers.

Probably Odisha is one of the few states which had not stopped these VHND sessions and immunization sessions. So, in those sessions, hands-on training was also imparted.

The lack of information about the disease behaviour, its' cure and treatment along with new influx of information circulating about the causes of the disease posed a challenge in training of the human resources. The nodal officers and the entire team of trainers had to work at an extremely fast pace for long hours to gather the information, prepare the training materials as per the guidelines and circulate it widely.

During the first wave much less was known regarding the virus because it was completely new. Even at the national level and international level there was no sufficient data or guidelines framed for addressing this disease.

Identifying the categories of HRs to be trained, designing the training modules, collaborating with trainers, making them available on time and use of IT infrastructure for virtual training at such a large scale was also a hurdle. The apprehension that whether training in virtual mode would be effective or not, how would it be managed and whether it would be beneficial to the trainees was a big question in the minds of planners.

CONCLUSION

Odisha was one of the few Indian states that mounted a proactive and sustained response to the rapidly growing COVID-19 pandemic. It was the first state to enforce a partial lockdown in select districts even before the national lockdown. It also invested heavily in proactively strengthening the healthcare system, establishing COVID-19 hospitals with intensive care units (ICUs) through a public-private partnerships (PPP). Odisha's extensive experience in disaster management in terms of preparedness, relief, operations, manpower augmentation, and community support came very handy in handling COVID-19. The Odisha State Disaster Management Authority (OSDMA) played a crucial role in terms of using its expertise and networks to shape an effective pandemic response, applying key disaster management lessons to combat the public health crisis. The NHM provided critical support to deployment of human resources and offering capacity building strategies to various district and sub-district functionaries. Capacity building initiatives of government of Odisha, in terms of scale, skill and speed, was one of the best practices. Additional deployment of human resources during non-crisis time, in a phased manner, would address the human resources gap during a crisis. A module on disaster management and crises of protracted period may be incorporated into the routine curriculum for various types of field level functionaries. Special emphasis may be laid down on addressing mental health issues of care givers and care seekers during any crisis. Investing in digitization of health informatics would have long-term rewards for the public health sector of the State.

ETHICS APPROVAL STATEMENT

Ethics approval for the research was obtained from the Institutional Ethics Committee of the Indian Institute of Public Health, Bhubaneswar (Reference # IEC No.: - IIPHB/IEC/2021/29) on 03/01/2022.

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DECLARATION OF CONFLICTING INTERESTS

The author(s) declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

AUTHOR'S CONTRIBUTION

BP led the conceptualization of the study and manuscript development; MZ contributed to the analysis of data and manuscript writing; NP interpreted the data, synthesized information and wrote the paper; JR analyzed the data, reviewed the manuscript and contributed to write-up; SRP analyzed the data and made revisions to the manuscript. BP finalized the manuscript.

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