



Original Research Article

CHALLENGES AND OPPURTUNITIES IN HOSPITAL ADMINISTRATION DURING COVID PANDEMIC - A SWOT ANALYSIS

Kuldip Singh Sandhu¹, Deepali Thakur², Harnam Singh Rekhi³, Vinod Kumar Dangwal⁴, Antarjot Kaur Rekhi⁵, Vartika Bhagat⁶

¹Assistant Professor cum Nodal Officer E- Hospital, Department of Orthopaedics, GMC Patiala, India.

²Senior Resident (Hospital Administration), GMC Patiala, India.

³Professor cum Medical Superintendent, GMC Patiala, India.

⁴Associate Professor cum Deputy Medical Superintendent, GMC Patiala, India.

⁵Junior Resident, Department of Radiodiagnosis, GMC Patiala, India.

⁶Undergraduate, Gian Sagar Medical College and Hospital, Banur, Punjab, India.

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Corresponding Author:**Dr. Vinod Kumar Dangwal**Associate Professor cum Deputy
Medical Superintendent, GMC Patiala,
India.

Email: rhpoxygen@gmail.com

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2024; 14 (1); 261-266**ABSTRACT**

The Covid-19 pandemic limitation has led to a variety of psychiatric manifestations in humans. These effects were brought about by insufficient planning and a lack of awareness of the epidemic. Infrastructure, human resources, and steady supply are all important, as is the transportation of medications, food, and surgical supplies for the patients. Managing biomedical waste, which includes collecting and segregating it, comes last, includes its storage and transit. Including the challenges, they face with regards to the disposal of dead bodies.

Keywords: Infrastructure, Administration, Equipment, Biomedical waste, planning, challenges.

INTRODUCTION

In the extant global panorama of COVID 19, it is imperative to identify the seriousness of our community's public health challenges and preparedness.^[1] Natural descent of such diseases and a poor response by the health systems is a recipe enough for insurmountable societal destruction leading to stunted evolution of a healthy and happy society.^[2,3] Therefore, the need of the hour is to pay attention to the health and well-being of different populations with suggested solutions through particular emphasis on psychological health.^[4,5] The current review compiles the overall physical and mental health-related issues,^[6] including the symptoms, risk and protecting factors, available medications, vaccines, and some recent patents and clinical trials in this area. Looking after our well-being in time like this can help to reduce stress and enable us to stay calm and joyful. In this context, the present topic provides a resource for the management of this pandemic and its related stress and anxiety in several communities and may act as a clinical update on health during COVID 19. The authors draw a categorical conclusion that the youth and health professionals need special care amidst this

pandemic as they have comparatively higher psychological sufferings.

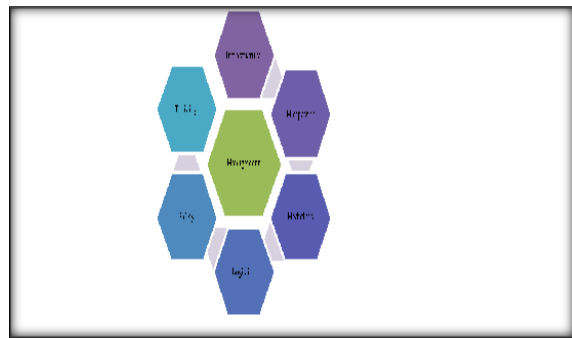
Our daily activities have ceased owing to Covid-19. Everyone feared Covid-19 since it was a new disease with potentially fatal repercussions. In 2020, the Covid-19 pandemic has afflicted more than 40 million people, and so forth. In order to provide these patients with the finest care possible, both public and private medical facilities were involved. Life has been chaotic during the announced lockdown, and numerous Covid-19 rules and regulations. Humans have experienced a wide range of psychological manifestations as a result of the Covid-19 pandemic limitation. These outcomes were the result of inadequate preparation and knowledge of the epidemic. Our institution, which is a teaching institute, was designated by the government as a 600-bed tertiary level facility to handle these cases during the epidemic. The Government of India's recommendations for this pandemic were laid down and carried out with the support of our authorities. Everyone feared COVID-19 due to the fact it was an unexplored illness with potentially fatal repercussions.^[7] Following the availability of medications, hospital infrastructure, staff behavior,

and medical information in our hospital's outpatient department, doctor behavior is of utmost significance and has the greatest impact on overall patient satisfaction.

The fact that the patient's seclusion is of utmost importance has largely impeded the normal development of nursing activities. The ICU personnel had to deal with an uncommon issue in this case with stringent precautions. The solitary setting, minimal contact with the patient, and the lack of intimacy are elements that hinder the best delivery of care; they are integrally connected to the supportive relationship provided by the nurse or health care worker. The unusual nature of care, characterized by the large number of patients receiving care alone, caused the workload of nurses to increase significantly. They were forced to handle care in a special method and without any prior training. For example, the nurse had to stay in the room longer than others and perform more interventions than usual because there could not be as many professionals in the room as there may have been. In other circumstances, these interventions would have been performed by other professionals. In this way, the pandemic hinders the current stream of humanization in healthcare. The use of personal protective equipment (PPE) and stringent isolation rules has an impact on the capacity to deliver great care and holistic treatment for patients. Five dimensions of perceived quality of care were identified- medicine availability, medical information, staff behavior, doctor behavior, and hospital infrastructure.

The availability of medications, access to medical information, physician and staff behavior, and hospital infrastructure are the five factors that make up the perceived excellence of treatment. We have created a blueprint outlining the resources available at our hospital and what is needed to combat this pandemic. It was envisioned that man and material will follow each other. Our authorities have constituted various committees to handle this pandemic and for smooth functioning of this facility. Infrastructure included a structure, vehicles, lodging for paramedics, a call center or information desk, and a continuous supply of water and electricity, medication, medical testing, and oxygen.

Doctors, Senior residents, Junior residents, nursing staff, Paramedics and House Keeping paramedics, and other related workers (DEO, Technicians, lift operators, plumbers, electricians, oxygen supervisors) made up the majority of the workforce. Logistics – Patient's food, lodging for family members, handling of dead bodies, stationary and hard ware like computers, a constant power source, rosters of health care workers, duty schedules, shifts, etc., fire safety with an evacuation plan and biomedical waste constitutes the important list of material that was required in pandemic period.



Building: Being our institute had been designated as a designated covid hospital in a already tertiary level center for the Covid-19 pandemic, initially we meant to treat these patients in a newly constructed block in our hospital premises in accordance with Covid-19 requirements. However, as the patient load has increased manifold, the authorities were compelled to find a solution. This has led to the designation of our recently built Mother and Child Health (MCH) building, which was having a bed capacity of roughly 600 beds with an inbuilt oxygen supply, as a special Covid hospital. Every pathway leading to this building was cordoned off after careful and meticulous planning. Authorities have established separate entrances for patients and medical staff, and different signage's were put up for patients, their families, and medical professionals.

Transport: According to Covid-19 protocol, the patient was evaluated by the doctor on duty in the triage area upon entering to the emergency department for treatment. On following covid guidelines, if necessary, the patient was shifted to a designated Covid hospital in a dedicated Covid ambulance. As covid pandemic has high mortality rate, a specific dead body management team was prepared by our own forensic and toxicology department. The personnel in charge of managing the dead bodies has methodically carried out their duties and designated committed ambulance as intended.

Beds: Our hospital being a tertiary care hospital, a total of 1287 beds were available at our hospital. We initially launched the Covid-19 pandemic in a small area of our hospital with a limited number of beds. Later, as the number of Covid cases increases, we relocated them to our special MCH building, which was having 600 beds, to make room for them. We had to reserve some of beds for non-Covid cases, and when we ran out of this facility, we shifted our non-Covid beds to this Covid facility. The requirement to shift these items from one place to another resulted in a personnel shortage. Our representatives faced a number of challenges in order to complete the given assignment. But this challenge has been over come because of relentless efforts and worker continuous motivation and dedication. The relevant authorities granted the request made by the medicine department to add more beds to this hospital.

Information center: Our recently built Mother and Child care (MCH) centre has been approved by the government as a specialized Covid-19 hospital to serve these patients in accordance with Covid guidelines. Due to the fact that they were managed based on both patient and physician demand, some facilities in this facility were insufficient. In meantime seven landlines and two cell phones were set up for a dedicated Covid-19 call center that work for around the clock and provided information to patients' relatives on demand and at least three times day. By soliciting input from patients who had been admitted in this facility and their families, the district administration assessed the effectiveness of this call center. Numerous factors can contribute to a variety of psychological and mental illnesses, including a heavy workload, an increasing number of infected cases, a rise in the death rate, the risk of contracting an infection while treating patients, a lack of any specific treatment/medications, extensive social media reporting, a lack of personal protective equipment, a lack of readiness, and the daily challenges. It may be more stressful on the job if additional morals and medical ethics emphasize self-sacrifice as a core value of this great profession. Health care employees who operate in environments where there is a significant danger of contamination are more likely to experience chronic stress, greater levels of anxiety, and depression.^[8,9]

Effective ways to deal with this issue include accurate and current information about the situation; support, direction, and advice from a doctor, particularly with regard to prophylaxis and treatment; support and care provided by family and medical professionals; proper counseling about the possibility of severity of disease and virtual support; social connectivity; personal hygiene; walking, yoga, or exercise. As the safety of both mother and fetus is of utmost concern, it is necessary to strategize and then arrive at clinical judgments for utilizing approved COVID 19 drugs in expecting mothers. Ideally, these decisions should be made jointly by the patient and the clinical team. Due to COVID 19's high rate of infection and transmission, increased mortality rate, and lack of effective therapy, patients' mental health may be negatively impacted. Social, emotional, and economic considerations also make the situation worse. Patients' mental health problems may result from both the physical side effects of the illness and the stress of the epidemic. The two symptoms that are most common in this demographic are anxiety, panic and depression. Additionally, after leaving the hospital, post-traumatic stress symptoms were surprisingly widespread. Nearly 20% of COVID 19 participants also experienced mental health problems at some point. Individuals who were hospitalized to ICUs and have a severe COVID 19 infection have been observed to experience disorientation and agitation. There should be an evaluation for future

implementation of quarantine policies and shut-down processes designed to prevent the transmission of Covid-19 and related diseases. These precautions have impeded the social interactions of these isolated people. It is advised to begin cognitive processing therapy for post-traumatic stress disorder during the COVID 19 session, with a focus on using telemedicine and tele-psychiatry. Nearly 20% of COVID 19 participants also occasionally struggled with mental health issues.^[6] Currently, internet cognitive behavior therapy (ICBT) has been shown to be more effective for treating mental health, especially during COVID 19 pandemic.^[7,10] It is a contemporary tool that has evolved as a result of recent technological advancements and is useful practically everywhere in the world where there are many cultures and languages. This is a potential strategy to lessen psychological stress with improved access and outcomes at a reasonable cost. It has been clinically demonstrated to be beneficial in treating depression and anxiety symptoms in children and adolescents, and it can help all of the aforementioned populations deal with the psychological suffering brought on by COVID 19.^[8,11]

Manpower: Our institute was designated by the state government as a dedicated covid hospital during the COVID-19 pandemic since it is a tertiary care facility. There were about 197 faculty members and about 250 junior and senior residents, and various paramedical support staff members was about 800. To address this severe condition, the government set up and implemented a number of committees. Educational workshops and seminars that followed COVID criteria were used to instruct and train everyone to this new disease. During this time, paramedics and other allied personnel were in short supply for the purpose of delivering patient care. In order to give patients with better treatment, the government has been obliged to employ outside labor due to a scarcity of these workers. For providing patient services like cleaning, moving, and personnel care of these patients, the requirement of Group 4 employees were crucial. Government has established a set of Standard Operating Procedures for carrying out these patient related services. Maintaining the both employee's motivation and completing their allocated responsibilities/task were crucial for authorities. Duty rosters were prepared centrally, and the appointed committees assigned each work in accordance with their job profiles. According to COVID regulations, handling dead bodies was challenging because it affected the patients' immediate family members, who had significant emotions. We also need to simultaneously take care of the non-covid patients. According to covid standards, our authorities have designated covid and non-covid operating rooms for these patients separately, and countless operations were performed during this epidemic period.

Medicine Availability: Several drugs or tools were required during the Covid era to combat the pandemic. It's unclear how directly supply chain delays will affect the bottom line, despite the fact that many commercial stage companies have claimed that they won't have a significant influence on financial performance. First and foremost, patients' anxieties are related to the availability of ventilators. This hue and cry was because of little knowledge of doctors about this deadly disease in European countries who have bought or installed them in every hospital in their country. Several drugs or drug combinations have received approval from the ICMR for use in either treating or avoiding the deadly outcomes. Our institute has experienced a sizable influx of very sick patients as a dedicated Covid hospital.

OPD: Health care worker especially Doctor's behavior and communication is of the paramount importance and has the greatest impact on total patient satisfaction, followed by the availability of pharmaceuticals, hospital infrastructure, staff behavior, and medical information in the outpatient environment (OPD). In contrast to this, however, staff behavior has a greater impact on patients than do doctor behavior, drug accessibility, medical knowledge, and hospital knowledge in inpatient settings. The biggest influence on patients, however, is staff behavior, followed by doctor behavior, drug availability, medical information, and hospital information.^[9]

Biomedical Waste Management

Management of Covid-19 contaminated waste: When contaminated garbage is improperly disposed of or handled, it might spread viruses to recycling and healthcare employees. Therefore, proper disposal of biomedical waste had a crucial role in order to preserve community sanitation while the corona virus is spreading. Typically, COVID-19 virus is active on a surface for 2 to 9 days.^[9,10] However, the virus's ability to survive on various surfaces, or fomites (items or materials that are likely to convey infection, such as clothing, utensils, furniture, etc.), varies. The temperature, relative humidity, and the sort of strain on the surface can all affect an organism's ability to survive.

Collection- All health-care waste produced during patient care, including those with confirmed COVID-19 infection, is considered to be highly infectious. This wastage should be first disinfected with sodium hypochlorite properly and packed in their respective standard waste disposal bags. For timely waste collection, separate and dedicated sanitization worker should be employed so that waste can be segregated, collected and transferred in right time to particular waste storage area. To ensure adequate strength, double layered leak proof bags should be used for the collection of waste where COVID-19 patients are kept. COVID-19 waste containers should not be placed in any public areas

as the chances of contamination and spreading the disease will be more when public will use the same containers. The amount of waste generated from the COVID-19 isolation ward was maintained daily in a record. The waste collectors who are collecting COVID-19 waste from hospitals, laboratories, infected patients under quarantine were to be provided with appropriate PPEs, so that any untoward virus infection can be prevented. As per the biomedical waste management policy red bags are specific for collection of PPEs such as goggles, face-shield, splash-proof apron, plastic coverall, hazmat suit, nitrile gloves etc. Non-chlorinated yellow plastic bags are used for collection of bedding or meters contaminated with body fluids or bloods. In case of any pathogenic microbial waste such as microbial culture, live attenuated vaccine, waste from biological cell culture, cultured agar petri dishes etc. have to be autoclaved first on site then should be sent for final disposal in yellow colour bags.^[11,12] Puncture proof and leak proof (Translucent) containers were used during collection of sharp objects like scissor, blades, burner, scalpel, needles, syringes with fixed needles, etc.^[12] Similarly puncture proof blue colored containers should be used for the collection of contaminated and broken glass slides etc. But before packing and final disposal these waste materials were disinfected for 30 minutes with 1 % sodium hypochlorite. Because chlorine present in sodium hypochlorite (NaOCl) is highly electronegative and can break the cell layers of the pathogens by denaturing the proteins due to oxidation of the peptide bond thus easily deactivate SARS-CoV-2.

Segregation and Storage: Before final disposal, COVID-19 wastes must be segregated, separated from regular solid waste and given special treatment. COVID-19 was kept and stored in a separate waste storage bin with the label COVID-19 so that it couldn't mix with other forms of waste. This made it easier for the person handling the waste to recognize it and treat it as soon as it is received. The COVID-19 waste material should not be kept in the COVID-19 storage room for longer than 24 hours, and it should be cleaned with a disinfectant (0.5-1% chlorine solution) right away.^[12] Any liquid leaks from the storage room was cleaned up before being disposed of in the medical waste water treatment system.

Transportation: Prior to transportation, all COVID-19-contaminated waste products were sealed; the quantity of bags is to be bar-coded, and carefully recorded. Firstly, the COVID-19-labeled separate trolley is used to move the waste products from the collection point to the storage facility. Following use, the cart used to transfer Covid-19 waste should be cleaned with 1% sodium hypochlorite. Any item used for transportation of Covid material or patient has to be sterilized as per Covid protocol before reusing it. The waste materials are carried to

CBWTF from the storage area. A proper transfer route, a dedicated, experienced driver, and a separate vehicle should be organized for safe transit.^[13,14] An exclusive COVID-19 waste transporter vehicle was used to transfer the gathered garbage. The material inside the vehicle container was sealed so that it cannot leak in the event of an accident or other extreme circumstances like heavy rain or wind. According to a CPCB directive from March 18, 2020, all workers involved in transportation should be provided with sufficient personal protective equipment (PPEs).^[15] After each voyage, the transport vehicle was sterilized with sodium hypochlorite (1%). Chemical methods are primarily used to handle COVID-19 waste.

Dead Body Management: Treatment and disposal of COVID-19 dead bodies was a hurricane task by the authorities. The COVID-19 wastes should be immediately disposed of after being brought to the disposal site. The delivered waste material may be temporarily held in a separate space designated for COVID-19 garbage for a maximum of 12 hours if the waste load is excessive.^[16,17] We constituted a dead body management committee under the headship of forensic and toxicology department to properly and efficiently dispose of these contaminated bodies.^[18,19,20]

As per Covid protocol, the police or local government should handle each issue with care. The family's rights and emotions should be respected, and a report should be given to the member of the family after an investigation into the cause of death.^[21] The family member may be regarded to observe the dead corpse from a distance without touching or kissing it (with the exception of young children and extremely old people above the age of 60) (WHO, 2020b). The number of persons or family members who can congregate at the crematorium or burial site should be limited as per covid guidelines. The PPEs should be worn by any mortuary or cremation personnel handling a dead body, and they should remove or dispose of it right after its use. When necessary, they took care of the victims of COVID-19's body care and disposal.

Even though a person died with COVID-19, the virus may still be alive in the lungs and other organs. Therefore, when handling such deceased bodies, proper hand hygiene and the usage of PPE should be followed. The associated catheters and tubes need to be taken out before the dead bodies are released to the mortuary. The holes created by removal should be adequately filled or patched after being cleaned with 1% hypochlorite. It must be appropriately plugged to stop leakage from the dead body's oral and nasal orifices. The deceased carcass can be packed for transportation in a leak-proof plastic bag after being externally cleaned with 1% hypochlorite solution. Dead COVID-19 subjects may be buried or cremated as per guidelines. Therefore, the deceased person was delivered to the cremation or burial crew

in a separate vehicle, especially designated for this purpose.



CONCLUSION

In this context, definitely awareness about the disease, its early diagnosis and treatment will help to overcome this COVID 19 pandemic challenge smoothly. Further, unchecked chronic conditions and a massive backlog of surgeries due to social isolation and loss of jobs may be waiting to unfold another potential disaster in the society. It is imminent that the political willingness along with a commitment of health leaders and policymakers to devise innovative policies that would enable the public to overcome this pandemic-driven adversity is the need of the hour. These cogent steps would not only bail us out in the present situation but would also enhance the public preparedness for any similar prospective disasters.

COVID-waste may cause to the community spread if it has not handled properly. In the present study, besides training programs and social awareness, strict execution of identification, segregation, disinfection, transportation and safe disposal practice are the key factors for effective and safe management of COVID-19 waste has been discussed in detail, which can assist the engineers, environmentalist, healthcare personnel and local municipal authorities to plan and manage the present pandemic hazardous waste. As community waste becomes logistical and practical challenge hence public participation along with proper micro-management policies for collection of community waste.

REFERENCES

1. Mohapatra S, Ayash Kumar P, et al; COVID 19 pandemic challenges and their management: A review of medicines, vaccines, patents and clinical trials with emphasis on psychological health issues. *Saudi Pharm J.* 2022 Jul;30(7):879-905.
2. Lee AM, Wong JG, et al; Stress and psychological distress among SARS survivors 1 year after the outbreak. *Can J Psychiatry.* 2007 Apr;52(4):233-40.

3. Rasmussen SA, et al; Coronavirus Disease 2019 (COVID-19) Vaccines and Pregnancy: What Obstetricians Need to Know. *Obstet Gynecol.* 2021 Mar 1;137(3):408-414.
4. Chen N, Zhou M, et al; Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet.* 2020 Feb 15;395(10223):507-513.
5. Moring JC, et al; Cognitive Processing Therapy for Posttraumatic Stress Disorder via Telehealth: Practical Considerations During the COVID-19 Pandemic. *Journal of traumatic stress.* 2020 Aug;33(4):371-379.
6. Aminoff V, Bobeck J, et al Tailored internet-based psychological treatment for psychological problems during the COVID-19 pandemic: A randomized controlled trial. *Internet Interv.* 2023 Aug 25; 34:100662.
7. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. *J Hosp Infect.* 2020 Mar;104(3):246-251
8. Clinical management of COVID -19: Living Guideline, Geneva: World Health Organization 18 August 2023.
9. Protocol for surgical site infection surveillance with a focus on settings with limited resources. Geneva: World Health Organization; 2018.
10. Clinical Guidance for management of Adult COVID -19 Guidelines, MoHFW, gov.in 2020.
11. Center for Disease control and Prevention; Isolation and Precautions for people with COVID-19; CDC, 2019
12. BMW Rule, 2016; Ministry of Ecology and Environment of the People's Republic of China, 2020.
13. Anantharam P, Hoffman A, et al; Addressing Operational Challenges Faced by COVID-19 Public Health Rapid Response Teams in Non-United States Settings. *Disaster Med Public Health Prep.* 2022 Aug;16(4):1599-1603.
14. Greiner AL, Stehling-Ariza T, et al; Challenges in Public Health Rapid Response Team Management. *Health Secur.* 2020 Jan;18(S1): S8-S13.
15. Anantharam P, Hoffman A, et al; Addressing Operational Challenges Faced by COVID-19 Public Health Rapid Response Teams in Non-United States Settings. *Disaster Med Public Health Prep.* 2022 Aug;16(4):1599-1603.
16. Marsh C, Salmon S, Housen T, et al; Ready to respond: adapting rapid response team training in Papua New Guinea during the COVID-19 pandemic. *Western Pac Surveill Response J.* 2022 Dec 21;13(4):1-7.
17. Bugli D, Dick L, et al; Training the public health emergency response workforce: a mixed-methods approach to evaluating the virtual reality modality. *BMJ Open.* 2023 May 9;13(5).
18. Parry AE, Richardson A, et al; Team effectiveness: epidemiologists' perception of collective performance during emergency response. *BMC Health Serv Res.* 2023 Feb 13;23(1):149.
19. Hossny, E.K., Morsy, S.M., Ahmed, A.M. et al. Management of the COVID-19 pandemic: challenges, practices, and organizational support. *BMC Nurs* 21, 196 (2022).
20. Potter, Christina MSPH; Kaushal, Natasha MSPH; et al; Identifying Operational Challenges and Solutions During the COVID-19 Response Among US Public Health Laboratories. *Journal of Public Health Management and Practice* 28(6): p 607-614,
21. Khlem R, Kannappan SR, Choudhury PP. Coronavirus disease-2019: Challenges, opportunities, and benefits in India. *J Educ Health Promot.* 2022 Mar 13