

COVID -19 Pandemic : Challenge Encountered

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ABSTRACT

Maharashtra has been one of the worst hit states by COVID -19. Nagpur faced an onslaught of this unprecedented crisis of Covid-19 cases. It had a severe impact on the health care facilities in Government Medical College & Hospital, Nagpur - "A tertiary care centre". This involved planning, formulation, coordination, and policy implementation for facing this responsibility. GMC&H, Nagpur cared for 8,297 hospitalised patients of Covid-19 till 31st December 2020. 600 beds were vacated and earmarked for the COVID-19 patients with facility of Intensive Care and High Definition Care at Government Medical College, Nagpur. In all a total of 2496 HCW were provided a two day training session including : Faculties (272), Residents (511), Interns (195), Nurses (1014) and Class IV (356) orienting them to the clinical scenario to be faced, with a focus on sanitation, biomedical waste management and treatment of Covid-19 patients in HDUs and ICUs. Infected persons were divided three categories - Mild, Moderate and Severe. The asymptomatic and mildly symptomatic cases were advised isolation in COVID CARE Centres (CCC) and at Home as per Government Guidelines. Moderate and Severe patients were hospitalised in Isolation Wards & ICUs. Under the Disaster Management Act, the District Collector was empowered as head, for Emergency purchases of Equipments and Recruitment of manpower. Till December 2020 a total of 1,05,332 COVID -19 RTPCR tests were performed with a total positivity rate of 12.65%. Provision for the second wave with additional 400 beds capacity and required equipments is ready. Surge plan, to increase the oxygen capacity of the hospital with two additional 20 KL Liquid Oxygen Plants is in process. Post Covid Care in a specially opened OPD to look after the long term residual disease and complications has been created. Support of drugs, physiotherapy, counselling is provided for in this out patient department. This pandemic gave a message that we need to have a strong and robust healthcare system in place. Scientists, industry and the government have to work together to invest for the healthy future while delivering for the present.

Introduction :

With the December of 2019, humanity was attacked by an unknown and threatening disease that is severe and fatal - "The COVID -19". Such a situation was not faced since the flu pandemic of 1918. WHO declared it a World Pandemic on March 11, 2020. Countries across the world declared mandatory stay-at-home measures, closing schools, businesses, and public places to curtail the spread of disease. This pandemic has affected a large population across borders and it cannot be predicted when it will end, as it is a new disease without vaccine or treatment. On March 14, 2020 the Central Government termed Covid-19 as a notified disaster "as a critical medical condition or pandemic situation". So isolation,

quarantine and complete lock-down had to be implemented to save the lives of the people, that had effect on the gross domestic product (GDP) due to loss of life, workplace closures and quarantine measures.

In the spring of 2020, Nagpur as well faced an onslaught of this unprecedented crisis of Covid-19 cases. It had a severe impact on the health care facilities in Government Medical College & Hospital, Nagpur and involved planning, formulation, coordination, and policy implementation for facing this responsibility. The institute cared for more than 8,267 hospitalised patients of Covid-19 till 31st December 2020. It encountered unique challenges based on its Resources and Care of Non Covid patients. A great responsibility was entrusted on as the head of the professional institute, committed to excellence, ethics, and accountable for the health care, and logistics in the campus. Managing an outbreak of this scale has been a challenging task. In addition to

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Received on 30th December 2020

Accepted on 31st December 2020

working as a medical professional, administration in campus supervising the care of infective patients including their segregation, sanitation and nutrition has been an arduous journey. Measures have been put in place for imposing strict interventions for social distance maintenance and preventing overcrowding. Security services had to stepped up in the process.

600 beds were vacated and earmarked for the COVID-19 patients with facility of Intensive Care and High Definition Care at Government Medical College, Nagpur. Our first case was admitted on 12th March 2020. We started with one ward in the main building. During the initial lock down period, the city had a slow progress till June 2020. The COVID-19 positive cases of the district were

initially isolated in the hospital for the period of communicability to minimise the transmission to others. As the numbers increased the entire 205 bedded Trauma Care Centre was vacated and patients were isolated there. However with the withdrawal of lock down there was a rapid surge in the cases witnessing the increase in number of cases rapidly to manifold. The ear marked wards and beds of the main building comprising of High Definition Units and 120 bedded newly furnished ICUs were then utilised and HCW teams recruited to take care of the patients.

Infected persons were divided into three categories - Mild, Moderate and Severe. The asymptomatic and mildly symptomatic cases were then advised isolation in COVID CARE Centres (CCC) and at



Arrangement being supervised by Dean - Dr. Mitra & Ex Medical Secretary - Dr. Mukerjee



Deciding Policies - Meeting of Deans with Hon Health Minister Amit Deshmukh



Indian Air Force expressing gratitude to COVID-19 warriors at GMCH, Nagpur



Covid-19 Patients being Managed in ICU - Trauma Building



Doctors and Nurses on Rounds



Patients being Managed in Main Building



The VIP Visits



The VIP Visits



**Meeting with State Authorities
Laying Down Policies**



The Oxygen Manifold in Trauma Building

Home as per Government Guidelines. Moderate and Severe patients were hospitalised in Isolation High Definition Units and Isolation Intensive Care Units of the Hospital. 6, 68, 203, 1348, **2536**, **1705**, 865, 679 cases were admitted in the months of March, April, May, June, July, **August**, **September**, October and November respectively. The month of December saw a decrease in the number of positive patients hospitalised to 472. Thus the peak surge was observed in the month of August and September. All Patients were enrolled under MPJAY.

All 600 beds allocated with 20 wards including the High definition Units and ICU during the surge were



The 20 KL Oxygen tank in Main Building

found to be full in August with 140 resident doctors and 40 faculties on duty in various teams looking after these patients. Also at the time there was an outpouring of Cases at Jalgaon and Akola where expert faculties were deputed from GMC, Nagpur to help them handle the situation there.

Thanks to the Government of India and Government of Maharashtra for the assistance through the District Administration for the support and guidance provided in handling the situation. Coordinated efforts of Administrative Authorities, Police Workforce, District Health Authorities along with the Medical and Paramedical workforce of the



The Training Sessions



The Video Conferencing

Institute has helped in facing the situation. Under the Disaster Management Act the District Collector was empowered as head, for Emergency Purchases and Recruitment of manpower. Police Force was provided for local discipline maintenance. Nagpur Municipal corporation was instrumental in providing Ambulance services for Patient transfers and Hearse vans for Dead Body shifting. Medical Education Department at Government Medical Colleges was instrumental in Providing for Health Care services in emergency with adequate availability of stuff, space and staff. The Private Sector was initially not permitted for isolating these patients and thereafter also the excessive financial drain on the non affording patients has been a persistent constraint in availing the facilities there.

With ongoing collaboration, leadership, integration and alignment, the institute developed protocols applicable across various departments. The medical work force comprised of faculties and residents from various clinical, preclinical and paraclinical departments. These collaborations demanded unprecedented mutual coordination and cooperation. Quarantine and isolation facilities were effectively managed with special arrangements in segregated areas of hostels and hotels for the health care workers.

Guidelines for treatment provided by the Government of Maharashtra and DMER helped in following a uniform treatment policy in treating the patients. All Faculties, Residents, Interns, Nurses and Class IV underwent a two day training session orienting them to the clinical scenario to be faced, with a focus on Covid-19 patient treatment and biomedical waste management. This was supplemented by a Covid-19 Update issued by the DMER and Secretary MEDD, Mumbai for a uniform treatment protocol to be followed on the lines of WHO, ICMR across all Medical Colleges of the State treating COVID-19 patients. A hand holding and constant support was provided by the Hon DMER by having a Video Conferencing, in which guidance was provided on a day to day basis on various aspects of Pandemic management including Administrative and Academic issues.

Effective Presumptive areas in Emergency to accommodate the incoming patients to the hospital were created and thereafter patients were segregated in separate COVID and NonCOVID wards after the availability of the test results.

There were four major considerations shared across sites in this approach : (1) Source of staff; (2) Onboarding of staff; (3) Construction of teams to ensure sufficient expertise within teams; and (4) Schedules to ensure time off and backup pools. The time table committee has been doing a commendable job meeting the ongoing situation, stepping up the teams promptly when required and maintaining the motivation of the groups for delivering the best care.

The clinical needs were met by General Medicine, Pulmonary Medicine and Anaesthesia Residents and Faculty initially. As the clinical needs escalated other departments contributed to delivery of care. Teams were constructed to ensure balance between level of expertise and knowledge for patient care and the administrative requirement of the system.

Diagnostics are a fundamental component of successful outbreak containment and control strategies, being involved at every stage of an outbreak, from initial detection to eventual resolution. The nasopharyngeal samples were initially collected by the team of ENT personnel, however later, training to residents from clinical departments made the collection of samples smooth and expedited.

The COVID-19 testing teams were provided by Microbiology Department. Started with 1622 test done in the month of April 2020, going on to 18179 in the month of November'20. The positive yield of the test was initially 2.71% in April'20 to 45.20% in September during the peak time. Total number of tests done in September were 17369 with 7851 turning out positive. Till December 2020 a total of 1,05,332 COVID-19 RTPCR tests were performed with a total positivity rate of 12.65%.

The Radiology Department was instrumental in providing on bed services for X-rays in various wards in addition to the ultrasound facility as and

when required. Dedicated CT Scan Machine was available for the COVID- 19 patients helping in evaluating the disease severity and deciding therapy. The Biochemistry department provided the values of Biochemical / Inflammatory markers that are very essential for following various treatment protocols.

In addition to General and Supportive care, early recognition of Complications was focussed on. Off label antiviral drugs with emergency authorisation along with immune modulators and as required Antibiotics, LMWH, Steroids were being used for patient management. Oxygen is an important part of COVID-19 management. The needs of oxygen have been met with a 20kL Oxygen plant in main building and 500 jumbo cylinder manifold in trauma building. “Refresher Training and Key Learning Sessions” were held from time to time to Update regarding changes in treatment protocols, ventilator management, pressor use, line placement to physicians and nurses staffing the ICUs.

We witnessed many life-threatening complications. This was more common amongst elderly patients and those with Systemic Co-Morbidities. Complicated emergency Covid-19 positive surgical cases were also looked after. Toxin or cytokine-mediated damage, metabolic derangements, coagulation abnormalities, sepsis etc. leading to multi-organ dysfunction were witnessed Proper and timely interventions were provided to prevent further deterioration and reverse the situation. The Super Specialty Care was provided by Cardiologist, Nephrologist, Endocrinologist, Neurologist with facility for in house ECHO-Cardiography and Dialysis to ensure the rapid dissemination of protocols. Renal Failure in COVID patients with facility for Renal Replacement therapies was made available both in trauma building and main campus.. 140 COVID positive patients have received 370 dialysis sessions still December 2020.

Handling of the dead body adhering to the infection control recommendations is very important. Death related issues of body packing and body handover strategies were effectively created & implemented. Counselling and cooperation from relatives and administration was ensured through out.

Research and ongoing data collection by various departments is being executed, embracing different aspects of the disease including testing, imaging, maternal care and disease management.

Integrated Disease Surveillance Project (IDSP) is the back bone of public health program as it provides information so that timely action can be taken in controlling and preventing diseases / outbreaks. Ongoing systematic collection, collation, analysis and interpretation of data and dissemination of information to those who need to know has been in order, so that actions can be taken. 6 faculty members from para and pre clinical departments have been working round the clock keeping track of the admissions, treatment given, discharges, deaths, stocks and inventory, oxygen status and uploading of data to Integrated Disease Surveillance Project.

Effective communication from leaders is essential to disseminate information and ameliorates anxiety and fear. Efficient communication within and amongst the hospital departments is vital and has strengthened the ability to respond to daily challenges faced. Periodic meetings with various heads of departments, nursing administrators, time table committee and Mard representatives helps in keeping the enthusiasm, dynamism and zest maintained. Whatsapp groups are in place for timely communications and information dissemination.

The additional unprecedented challenge faced was of the Health Care Workers turning Covid-19 positive. 492 health care workers turned positive during this period, including 51 Faculty members, 125 Residents, 275 Staff nurses, 22 Paramedical staff and 19 Class IV workers. It was of immense importance to preserve the moral of those affected and of the ones giving care to them. Access to mental health specialist to help them and other patients tide over the difficult phase of the disease was provided for. Staff wellness is an ongoing concern and priority.

Provision for the second wave with additional 400 beds capacity has been made. Surge plan, to increase the oxygen capacity of the hospital with two additional 20 KL Liquid Oxygen Plants and an additional 500 jumbo oxygen cylinder manifold is in

process. Logistics and equipments for these additional beds are ready.

The Post Graduate Medical education is training by immersion in work. This has been a unique opportunity in which the resident doctors learnt to manage serious patients and built up on their competencies. However with the reduction in number of COVID-19 cases in December'20 and increase in Non Covid cases, routine post graduate classes and practical trainings in their parent subjects have resumed back.

Many patients are likely to develop long lasting consequences after the acute illness - "The Long COVID". Such persons require long-term medical care along with social support systems. Post Covid Care in a specially opened OPD to look after the long term residual disease and complications has been

created. Support of drugs, physiotherapy, counselling is provided for in this out patient department. Palliative Care wards for future needs of these patient are foreseen. Provision for Lung transplant for the needy is also being created in the hospital. The patient may have some residual disease, but we shall definitely help them cope with the illness and give them hope for a better tomorrow

This pandemic gave a message that we need to have a strong and robust healthcare system in place. The state of one's health, has a bearing on presentation of the disease. Early hospitalisation of patients with high risk comorbid conditions gives an optimal outcome. Masses are to be encouraged to embrace preventive measures. Shortly the vaccines shall be made available. Scientists, industry and the government have to work together to invest for the healthy future while delivering for the present.