

Railway anaesthesiologists and Indian railway COVID-19 management system

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ABSTRACT

Ever since the outbreak of novel Corona Virus 2019 pandemic, Anaesthesiologists are among the frontline leaders in not only the prevention of and control over the spread of the pandemic but also planning, organizing and coordinating the deployment and utilization of the medical and all other resources effectively and efficiently in order to minimize the losses and sufferings of human lives and recouping the global wellbeing at large. This article briefly highlights the prompt, optimal and effective contributions of the Indian Railways, Indian Railway Health Services and the Railway Association of ISA (RAISA) towards the provision of safe and scientific health services to maximum number of our fellow citizens.

Key words: COVID-19, Indian Railway anaesthesiologists, Indian Railway Health Services, Railway Association of ISA, railway coaches COVID care centers

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INTRODUCTION

The World Health Organization (WHO) declared the outbreak of a Public Health Emergency of International concern on 30 January, and a pandemic due to the novel Corona 2019 virus on 11 March. In India, the Ministry of Health and Family Welfare (MoHFW), ICMR and NCDC are leading the fight against the novel Corona 2019 virus infection and the COVID-19 disease spectrum. MoHFW has issued important Guidelines for preventing spread of the novel Corona 2019 virus infection and for the management of COVID-19 suspects as well as positive cases.

Sustaining the fight against COVID-19, the Indian Railways is making an all-out effort to supplement the health care efforts of Government of India. Indian Railways has a very well placed administrative hierarchy from top office to field level, with well-planned, organized, motivated, coordinated and controlled health care delivery system with vast infrastructure and skilled and committed man power resources.

Before elaborating on the title of this document, we would like to put some interesting facts and figures^[1] which our esteemed Indian Society of Anaesthesiologists (ISA) members would love to know. Indian Railways is often called the lifeline of our nation as it not only transports passengers and goods, but it also connects the entire nation into a common fabric of social, economic, cultural, commercial health and welfare. Almost all Indians are directly or indirectly connected with the Indian Railways in some way or the other.

Indian Railways is one of the prime public facilities given by the Indian government which manages

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one of the largest railway networks in the world by size. Indian Railways has 67415 kilometers of route length and 108706 kilometers of track length. It has 12147 locomotives (electric and diesel engines). It has 67597 passenger coaches and 289185 goods wagons. It operates 13523 passenger trains daily, which pass through 7321 Railway Stations taking 8439 million passengers every single day to their destinations safely. These services are managed by 1.227 million strong work forces round the clock.

Indian Railway Health Services (IRHS)

The philosophy of Health Directorate in the Indian Railways is based on the idea that the output of a contented and healthy worker who is relieved of mental and financial worries on account of his own or some family member's sickness, will be better and more conducive to the efficient running of railways.

The Health care facilities of Indian Railways are spread all over the country to serve Railway Beneficiaries. It has a 3-tier system of health care facilities which includes health units meant for providing primary level health care, sub-divisional and divisional hospitals with specialty services for providing secondary level health care, and then there are tertiary level health care facilities with specialty and super-specialty care.

There are total 586 health units and 125 Railway hospitals having 13963 indoor beds. 2506 doctors and 54337 health care workers that extend their services to approximately 66 lakhs Railway beneficiaries. In the year 2018-19, about 20164464 beneficiaries attended OPDs and 508831 Indoor patients received treatment from IRHS. There are sixteen tertiary level hospitals. Nine out of the 16 tertiary care hospitals (Zonal Hospitals), which are located in Metros, conduct DNB courses in Basic broad specialties and super-specialties and several Divisional Hospitals also offer DNB courses in broad specialties.

Indian Railway COVID-19 management system

Indian Railways has adopted multipronged strategy to fight COVID-19. Indian Railways has deployed more than 2500 doctors and 35000 paramedic staff to meet the COVID-19 challenge in a phased manner. Around 5000 beds in 17 dedicated hospitals and 33 hospital blocks in Railway Hospitals have been identified for treatment of COVID-19 patients.

Its community centers have been converted into quarantine centers; additional doctors and paramedics

are engaged to manage added workload due to increasing COVID-19 cases. Railway production units and workshops are manufacturing sample collection booths [Figure 1], additional hospital cots and furniture, HAZMAT suits and coveralls [Figure 2], masks, alcohol-based sanitizers to support Railway Medical facility [Figure 3].

Railway Anaesthesiologists' role in Indian Railway COVID-19 management system

There are more than one hundred Anaesthesiologists in Indian Railways who are providing their services in Railway Hospitals. Some of them are teachers/guides to DNB residents. Railway Association of ISA (RAISA) is one of the branches of its parent body ISA National. RAISA members from all over the country are making their presence felt at national and state level academics as well as in various organizational activities.

Railway Board has designated some Railway Hospitals as Dedicated COVID-19 Hospitals or Dedicated COVID Block of Railway hospitals. Railway board has decided numbers of beds for COVID-19 patients in every Railway hospital. Certain numbers of beds have been created as per guidelines of MoHFW for care of COVID patients in Railway hospitals.

Anaesthesiologists are the actual back bone in the management of the COVID-19 pandemic scenario within any health care facility. Roles and responsibilities of Anaesthesiologists of these hospitals have increased naturally with the invasion of the pandemic. They are playing pivotal roles in prevention of the spread of the novel Corona virus 2019 infection and management of COVID-19 patients. ISA/RAISA members in Indian Railway Health Services are no exception! As a matter of fact, detailed Advisory and Position Statements of Indian Society of Anaesthesiologists (ISA National)^[2,3] on 'how to safely operationalize COVID Operation Theatre, ICU and pain clinic' are the first guidelines published to help the practicing anaesthesiologists all over the nation!

At the Railway Hospitals, RAISA members are involved in planning and organizing routine and pandemic health care services, procurement of medical equipments and consumables, developing protocols, training of the doctors/staff to manage the COVID-19 cases in the quarantine facility centers, isolation wards and basic ventilator management in Intensive Care Units. Anaesthesiologists in Western Railway Hospital, Mumbai, are ready with indigenously developed "Intubation Shield"* (*manufactured at



Figure 1: Sample collection booth crated by WR Workshop Mumbai



Figure 2: Coverall manufactured stitched at WR Workshop, Mumbai



Figure 3: Team ready for Isolation Duty at Jagjivan Ram Railway Hospital, Mumbai



Figure 4: Intubation Shield prepared at WR Workshop, Mumbai

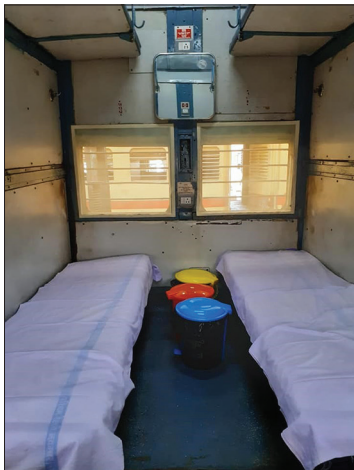


Figure 5: One cabin of Modified Coach for one person

Railway Workshop) for protecting the Anaesthesiologist during intubation of COVID-19 patients [Figure 4].

RAISA members are contributing significantly in the training of medical and paramedical staff for the “throat and nasal swab taking” along with Railway ENT specialists, training and demonstrations of



Figure 6: Oxygen cylinder for COVID Care Coaches

Donning and Doffing of PPEs, Video Laryngoscopy for intubation of critically ill COVID-19 patients, planning for converting normal ICU/Operation Theatre into Negative pressure ICU's and OT's.

Railway coaches as COVID care centers

One of the most remarkable and revolutionary development is that the Ministry of Railways has converted its 5231 coaches as COVID Care Centers [Figures 5 and 6]. These Coaches can be used for very mild cases that can be clinically assigned to the COVID Care centers as per guidelines issued by MoHFW. These coaches have been modified to be utilized in the areas where State has exhausted the facilities and needs to augment capacities for isolation of both suspect and confirmed COVID cases. These coaches act as LEVEL 1 COVID Care Centers and if oxygen supplement is required, then two beds have provision of Oxygen cylinder. Railways will provide healthcare facilities in 85 stations and in remaining 130 stations, State Government Health authorities will have to request for COVID care coaches if they agree to provide staff and essential medicines. The train with COVID Care Coaches shall be placed, at required station with necessary infrastructure.

These coaches can be moved from one place to other place depending upon its requirement when available public health facility is exhausted. Primarily these coaches are meant for providing basic health care with Quarantine facility and function as COVID Care Centers (Level 1). Any patient requiring hospitalization will be shifted to an identified (linked with COVID care coaches) tertiary level COVID care hospital in coordination with the linked COVID health care authorities. We are not performing CPR in the level 1 COVID care Railway coaches. Since each modified COVID-19 Care Coach has been fitted with facility of oxygen supply, it can be upgraded as Dedicated COVID-19 Health Centers (Level II) and transport ventilators can be arranged if any need arises. Each COVID-19 Care Coach will be able to accommodate 16 persons. Detailed Standard Operating Protocols have been issued and widely circulated to all the concerned Public and Health Administration authorities and the Railway administration from time to time in the government websites.^[4,5] We are strictly following OT and ICU protocols published in Indian journal of Anaesthesiologists.^[2,3] Indian Railway Health Services

officials are coordinating every step to ensure the efficient and effective utilization of this novel facility made available swiftly by the Indian Railways!

To summarize, as the novel Corona Virus 2019 pandemic is evolving, there can be sudden alarming surges of seriously ill patients and storming health care demands. The hospital resources can get exhausted quickly and medical personnel can get stuck under tremendous work stress, both clinically and psychologically. In coming days, a large number of patients may suddenly require oxygen therapy, tracheal intubation, CPR and ventilator support.^[2,3] Dedicated Railway COVID hospitals, COVID blocks of Railway hospitals are being equipped to take good care of patients along the lines of guidelines and advisory statements of Ministry of Railways,^[4] MoHFW^[5] and ISA.^[2,3] Creation of COVID care coaches is ample testimony of Railway's innovative efforts to contribute and support our Nation during this global health emergency situation. Railway anaesthesiologists and Railway doctors are doing their best to take care of COVID patients with the existing as well as innovatively modified and effective Railway health care facilities and services.

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Conflicts of interest

There are no conflicts of interest.

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