

# Converting a standard internal medicine ward into an isolation unit during the COVID-19 outbreak

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## Abstract

N/A

The COVID-19 pandemic has substantial implications on almost every aspect of life. Its ongoing influence on health care, as well as other financial, social, psychological, educational and emotional aspects are yet to be fully recognized. Although the COVID-19 outbreak emerged in China at the end of December 2019, the first patient arrived in Israel on February 21<sup>st</sup>. This nearly two month gap enabled the Israeli health system to implement preparations at a both national and institutional level. Every hospital established an isolated internal medicine ward, which was assigned to treat only COVID-19 patients. Since there was no previous experience or recommended published guidelines, on a national level the Ministry of Health instructed each hospital to convert at least one standard internal medicine ward into a specialized isolated COVID 19 unit, usually within a few days. Although several series of protocols to treat critical COVID-19 patients in ICUs have been proposed, similar recommendations for treatment in internal medicine wards are scarce (1,2). Hence, we would like to summarize our experience in the organizational aspects of managing COVID-19 patients in an isolated internal medicine ward of a tertiary medical center.

**Minimal exposure** . The major concept of working in the isolation ward is minimal exposure to the pathogen. The medical and nursing staff are essential resources and it is crucial to minimize their risk of SARS-COV-2 infection. The staff are also instructed to minimize social contacts outside of working hours to avoid infection risk outside of the hospital. The ward's staff is divided into two separate "capsules", each capsule with consistent personnel (nursing and medical staff) that work at separate shifts without physical interaction between the shifts. In this manner, if one member is accidentally infected, only one capsule is isolated instead of the entire staff.

Minimal exposure concept is facilitate in the following methods:

1. Medical staff enter the ward the least as possible – usually once for morning rounds and later only for new admissions or for deteriorating patients.
2. Every entrance to the ward is carried out only with the minimal staff needed (e.g. two physicians and two nurses). Communication with the remaining team situated outside of the isolation unit is continuous.
3. Every entrance is planned ahead and equipment (e.g. PCR swabs, fluids) are prepared a priori.
4. We conduct minimal procedures and only on an as-need bases.
5. We use point-of-care ultrasound for lung and heart physical examination instead of stethoscope use(3)

**Situation room.** We facilitate a situation room (SR) manned 24/7 by a physician or nurse. Patients' vital signs and medical follow-up are transmitted from the isolated ward to the SR. There are multiple communication channels for facilitating transmission of medical data to and from the SR. In addition, the SR is connected to other units inside and outside of the hospital who used as needed.

**Telemedicine.** Telemedicine devices allow the staff to monitor patients with little SARS COV 2 exposure(4). The ward is interconnected with cameras which broadcast to the SR, allowing continued monitoring of the patients. In addition, mobile sensors are attached to the patients, which wirelessly transmit vital signs, via wifi, to the SR. A remote control mobile robot with a screen, microphone and camera, can be remotely moved around the isolated ward, allowing constant communication with the patients.

**Patients examination.** Due to the use of personal protective equipment (PPE) the routine physical examination of COVID 19 patients is limited. Instead, we recommend focusing on appreciating the general condition of the patients, his/her speech flow, mobility level and in mild to moderate cases on POCUS of the lungs.

**Inter-disciplinary approach.** The significance of inter-disciplinary cooperation cannot be more emphasized. During rounds physicians assist nursing staff in their routine tasks: e.g. measuring vital signs, feeding patients and replacing bed ridden patient's diaper. We also are aided by social workers with routine talks with patients and family members for daily updates and for psychological support (5). In addition, a physiotherapist is involved to perform respiratory and ambulatory physiotherapy as needed.

**Research.** We initiated several small-scale studies in our ward. Data of the admitted COVID 19 patients are collected to evaluate possible association with demographical and clinical characteristics. We also evaluate several compounds with minimal adverse events, which were recently reported to have possible positive effect on disease progression, such as hydroxychloroquine, Zinc, vitamin C and N-acetyl-cysteine(6,7).

In conclusion, treating COVID-19 patients create unique clinical and institutional challenges. These challenges can be managed with minimal exposure to the medical staff, but without losing the therapeutic Continuum. Notwithstanding, the basic concept of internal medicine remain the same: maximal treatment with minimal risk for the patients (Primum non nocere), but also to the treating team. More studies are needed to investigate the functioning of the isolated COVID-19 wards in larger scales, and the preparedness of health systems to this pandemic at national levels.

All authors declare no conflict of interest

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