

1.

GENERAL RECOMMENDATIONS FOR THE WORK SYSTEM

BUILDING THE TEAM INCLUDING COMMUNICATION AND TEAM CULTURE

1. Emergency task-force should be promptly activated with a clear chain of command, roles and responsibilities, reliable information sharing tools and proactive approach.
2. Check frequently every day the communications sent by your institutions. Read carefully and respect them. Alternatively, print and make such communication available in the ward and share such information during handovers. Knowledge about epidemics is constantly evolving, so indications change frequently.
3. Clinical risk management units (CRMU) can support dissemination of documents, guidelines issued by the national institutions for supporting the emergency management.
4. The CRMU must keep contact with front line workers and provide

support. The reporting of Adverse Events must occur within the task-force activity and be primarily related to the core activities and should be encouraged in order to maintain the underpinning safety climate, essential to prompt corrective and improvement actions. Consider quick reporting tools such as confidential Istant Messages or audio-messages.

5. The CRMU should also receive evidence of good practice so this can be disseminated.

TASK TO BE UNDERTAKEN AND SKILLS REQUIRED

1. Organise brief educational training on the correct use of medical and protective devices targeted to all healthcare workers; develop video tutorials to be available on the healthcare trust website.
2. Hold refresher courses on hand-hygiene, prevention of Ventilator Associated Pneumonia, Central Line Associated Bacterial Infection and the SEPSIS bundles to all healthcare workers (2), but in particular to those not in the frontline of the emergency who could be called as replacements.
3. Organise early support of expert doctors/nurses with young or colleagues from other specialties who may be called upon to replace them to properly educate them
4. Do not forget appropriate instructions for environment disinfection to cleaners (3).

EQUIPMENT NEEDED TO PROTECT STAFF

1. Contact and droplet precautions can be used in routine care of patients

with suspected or confirmed COVID-19 (4); contact and airborne precautions when performing aerosol generating procedures (AGPS), including intubation and bronchoscopy (4).

2. Prevent biosafety precautions shortage by extended use and limited re-use of full-face shields and disposable facial filtering masks (5), by identifying a priority order to the different wards, by supply of reusable tyvek suits and by storing them in a locked or secured area and distributing appropriately (5).

EQUIPMENT NEEDED TO TREAT PATIENTS

1. Give suspected or confirmed patients a surgical mask to put on, at their first contact with healthcare services (6).
2. In the dedicated care areas for patients with COVID-19, ensure that:
 - a. haemo-gas analyzers
 - b. pulse oximeters
 - c. oxygen therapy
 - d. ventilator therapy equipment
 - e. suction pumps.
3. are available and well-functioning (7).

ENVIRONMENT

1. Strictly apply, without exceptions, the indications for disinfection of environments and tools (sodium hypochlorite at 0.5% or 70% ethyl alcohol solution) (8).
2. Prevent germicide deficiency by using galenic preparations.
3. Keep in mind that the creation of dedicated hospitals may divert from the urgencies /emergencies network. Evaluate carefully the fallout of the timing of treatment decisions for

time-dependent diseases. Consider the use of underused or quiescent equipped hospitals to meet this need.

4. Unless activity is suspended, in the outpatient (public or private) clinics:
 - a. avoid gatherings in waiting rooms;
 - b. inform symptomatic subjects with fever and / or cough and / or dyspnea not to go to clinics;
 - c. disseminate hygiene and health standards recommendations in the waiting room.

PATIENTS

1. Reduce elective and routine hospital care; regulate visitors' access and eventually provide authorized family members to enter the wards with medical masks, due to patients' frailty.
2. In the full-blown epidemic phase:
 - a. consider all patients with flu-like symptoms who access hospitals as potentially affected until proven otherwise (2 negative swabs at least 48-72h apart);
 - b. create separate unclean/clean paths, even with the help of external mobile structures (i.e. tents).
3. Contacts of positive patients must follow the instructions provided by those who carry out epidemiological investigation and be clinically evaluated in the locally designated sites, only if symptomatic.
4. Use a screening interview to identify suspected cases before admission to any healthcare service (i.e. surgery, coronary angioplasty, labour and delivery, etc.).

2.

RECOMMENDATIONS FOR DIAGNOSIS

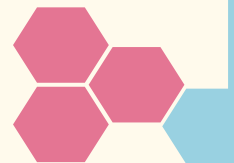
1. The adequate specimen for Real Time-Polymerase Chain Reaction (RT-PCR) testing is naso- and oro-pharyngeal sampling. Prefer lower respiratory tract (expectorated sputum, endotracheal aspirate, or bronchoalveolar lavage) when readily available (for example, in mechanically ventilated patients). Quality of RT-PCR testing is a crucial issue. Both pre-analytical and analytical variables should be carefully considered, and a validation process should be performed according to ISO 15189 (3 protocols) (9).
2. Many of the most common symptoms of novel coronavirus disease (COVID-19) are similar to those of common flu or cold. So, it is also suggested knowing which common symptoms of flu or cold are not symptoms of COVID-19. COVID-19 infection seems to rarely cause a runny nose.
3. The most common COVID-19 symptoms are: fever (88%), dry-cough (68%), fatigue (38%), thick sputum production (34%), shortness of breath (19%), arthromyalgia (15%), sore throat (14%), headache (13.6%), chills (11%), nausea/vomiting (5%), nasal congestion (4.8%), diarrhoea (3.7%) (11).
4. Beware of patients with gastrointestinal symptoms or unexplained hypo-, an- or dysgeusia to avoid omitted or delayed diagnoses (11, 12).
5. Vital signs measurements (mind the respiratory rate, please) and blood gas analysis in room air, if SpO₂ <94%, at triage or as soon as possible, are essential to correctly assess patients coming to the emergency room (13, 14).
6. Do not rely only on PO₂ <60 for the diagnosis of respiratory failure, always calculate the PaO₂/ FiO₂ ratio (P/F ratio), especially in young subjects.
7. Define a "COVID-19 profile" for the rapid order entry of blood tests (blood count, C-RP, creatinine, electrolytes, blood glucose, albumin, AST ALT, LDH, bilirubin, pneumococcal and legionella urinary agents, PT-INR, troponin and procalcitonin).
8. Chest X-rays have limited sensitivity in early stages of COVID-19 pneumonia, CT scan can raise logistical problems, so use chest US, but disinfect US probes after contact with every COVID-19 suspected patient (15).
9. Monolateral lung infiltrates do not exclude COVID-19 (15).
10. The most common laboratory abnormalities are: Lymphopenia (35-75%), increased C-RP (75-93%), LDH (27-92%), ESR (up to 85% of cases), hypoalbuminemia (50-98%) and anemia (41-50%) (16).
11. Leukocytosis, neutrophilia, increased procalcitonin, LDH, AST, ALT, total bilirubin, creatinine, troponin, d-dimer, PT and hypoalbuminemia, lymphopenia and thrombocytopenia, but also history of smoking, respiratory failure, maximum body temperature on admission $\geq 37.3^{\circ}\text{C}$ have been related to worse prognosis (16, 17).
12. Do not forget other respiratory infections (legionella, pneumococcus, mycoplasma, chlamydia, other respiratory viruses) even if during epidemics, so look for other pathogens and consider antibiotics (avoid availability bias).
13. Use disease severity stratification for the choice of the treatment setting (home, ordinary, sub-intensive or intensive care unit).
14. Pay attention to elderly people and immunocompromised subjects as they can present vague and/or atypical symptoms (2).
15. Immediately notify the Public Health Officials of COVID-19 positive patients (use infectious disease notification forms) (19).



3.

RECOMMENDATIONS FOR HOSPITAL TREATMENT

1. Before prescribing antiviral drugs (14, 20), verify drug-drug and drug-disease interactions, pay particular attention to oral anticoagulants that could be substituted by low molecular weight heparin.
2. Be aware that the association of chloroquine/hydroxychloroquine and macrolides may trigger fatal arrhythmias by prolonging QT interval.
3. Angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs) are safe and should not be discontinued during Coronavirus epidemics (21).
4. There is no proof that ibuprofen can aggravate COVID-19 clinical picture and the European Medicines Agency is monitoring this issue (22).
5. Start oxygen therapy at 5 L/min and titrate flow rates to reach SpO₂ ≥90% in non-pregnant adults and SpO₂ ≥92-95% in pregnant patients (2).
6. High-flow nasal oxygen (HFNO) or non-invasive ventilation (NIV, mainly c-PAP) should only be used in selected patients with hypoxemia, respiratory failure (P/F next to 300 for HFNO and 250-300 for NIV), but with alerts and with preserved ventilator dynamics. Monitor closely for clinical deterioration (7, 23).
7. Do not prolong HFNO or NIV for over 2 hours in the case of failure to improve (HFNO: respiratory rate ≥24/min, NIV: respiratory rate ≥28/min and/or worsening P/F for both) (7, 23).
8. Avoid nebulisation therapies for the potential spread of bacteria (24).
9. Administer intravenous fluids only if needed and avoid steroids, unless for other indications.
10. Assess thromboembolism and bleeding risk of every patient and provide appropriate thromboprophylaxis.
11. The Respiratory rate, peripheral oxygen saturation (SpO₂) and arterial blood gas analysis results must be monitored closely during hospital stay due to insidious presentation of severe hypoxemia in this disease. Intra-arterial radial catheters insertion is to be considered to reduce arterial punctures, even outside ICU.
12. Also monitor white blood cells, lymphocytes and platelets count, LDH, procalcitonin and d-dimer are considered alarm flags (13, 15, 17).
13. Be aware of an eventual development of severe form +/- 7 days after symptom onset (13).
14. If a patient reports a SpO₂ ≤90% in free air or ≤92% in conventional oxygen therapy and/or presents ≥30 acts/min and/or severe respiratory distress, intensive care therapist consultation must be required (25).
15. Use biosafety precautions when handling oxygen therapy devices (23); cover the patient's face with a surgical mask during HFNO or C-PAP (23); to reduce the risk of aerosolization:
 - a. possibly use a dual or single circuit non-invasive ventilator with an integrated expiratory valve and an helmet that allows to insert a filter as interface (7).



4.

THE ETHICS OF TREATMENT DECISIONS

This is a complex issue which will be decided upon in the local setting as per previous ethical frameworks.

We recommend that the ethical decision-making process be developed in anticipation of making complex decisions, rather than in reaction to the need to decide.

With regard to management of

the patient affected by COVID-19 in intensive care, we offer a number of references which will assist in developing the local ethical guidelines. (19, 25, 26, 27).

Other important publications (not included among references). These provide recommendations that can assist in developing local, though may be context specific.

Giacomo Grasselli, Antonio Pesenti, Maurizio Cecconi. Critical Care Utilization for the COVID-19 Outbreak in Lombardy,

Italy Early Experience and Forecast During an Emergency Response. JAMA published online March 2020.

<https://jamanetwork.com/journals/jama/fullarticle/2763188>

Robert D. Truog, Christine Mitchell and George Q. Daley, Robert D. Truog., Christine Mitchell, George Q. Daley. The Toughest Triage — Allocating Ventilators in a Pandemic. This article was published on March 23, 2020, at NEJM.org.

<https://www.nejm.org/doi/pdf/10.1056/NEJMp>

2005689?listPDF=true

Ethical Framework for Health Care Institutions Responding to Novel Coronavirus SARS-CoV-2 (COVID-19) Guidelines for Institutional Ethics Services Responding to COVID-19 Managing Uncertainty, Safeguarding Communities, Guiding Practice Hastings Institute

<https://www.thehastingscenter.org/wpcontent/uploads/>



5.

RECOMMENDATIONS FOR SURGERY

These recommendations apply to the medical staff of the operating blocks in case COVID-19. Patients with COVID-19 may need to undergo emergency and/or emergency surgery. The following recommendations should be observed (29, 30, 31).

COVID-19 PATIENT POSITIVE ASYMPTOMATIC

1. Surgical team

- wearing disposable masks, caps and gloves correctly. Anesthesiologist and assistant nurse: FFP2 masks.
2. Patients must wear a medical mask until I.O.T. (oro-tracheal intubation).
3. Airway protection of the patient also intubated with TNT drapes compatible with anesthesiologist assistance.

SYMPTOMATIC/HAVING FEW OR MINOR SYMPTOMS POSITIVE COVID-19 PATIENT

1. Surgical team wears Personal Protective Equipment (PPE) and FFP2 or FFP3 masks.

2. Anesthesiologist and nurses assigned to direct assistance: FFP2/FFP3 masks and PPE.
3. Patients must wear a medical mask for the entire time of surgery and / or after the IOT procedure for airway protection with compatible TNT drapes.

PATIENT COVID-19 SICK AND IN INVASIVE AIRWAY MANAGEMENT

1. Professionals must wear PPE and FFP2/FFP3.

While staying in the operating room it is recommended to utilise laminar flow according to current legislation and post-

intervention sanitisation for at least 1 hour.

TEAM WORKING AND ORGANISATION

Surgical teams in order to stay healthy and maintain continuity of care should divide into teams of senior and junior doctors and work for a 2 week period. After the 2 weeks, teams will come in to release the other. This will allow easier replacement of team members should they fall ill and potential containment of the virus to smaller staff numbers and an ability to maintain some service provision and clinical care.

6.

RECOMMENDATIONS FOR PREGNANT WOMEN

1. Reduce access of pregnant women to prenatal care, limiting only to high-risk cases (32).
2. Infants born to mothers with confirmed COVID-19 should be considered as suspects. As such, these infants should be isolated from others (33).
3. Separation (i.e. in an individual room) of the infant from the mother with COVID-19 confirmed or suspected, until the precautions based on the transmission risk of the mother are suspended. The decision should be discussed carefully between the caring team and the mother, evaluating risk and benefits of this choice, including the protective potential of colostrum, breast milk and feeding time (32,33).
4. The discharge of mothers after childbirth must follow the recommendations for discharge of COVID-19 or suspected patients (32).
5. In the case of a woman with suspected SARS-CoV-2 infection or with COVID-19, according to her clinical conditions and desire, breastfeeding should be started and / or maintained directly on the breast or with expressed breast milk (33). If mother and child must be temporarily separated because of mother clinical conditions, one should help the mother to maintain milk production through manual or mechanical/electric expressing (33). In a limited series reported to date, the presence of the virus in the breast milk of infected women has not been reported, but anti-SARS-cov2 antibodies have been found (31). So breast milk would be protective.
6. A mother with confirmed COVID-19 or ongoing swab samples because symptomatic should take all possible precautions to avoid spreading the virus to the baby, including washing hands before touching the baby and wearing a face mask, if possible, during breastfeeding. If using a manual or electric breast pump, the mother must wash her hands before touching the breast pump or parts of the bottle. If possible, have another person administer the milk to the baby (33). It is not yet known whether COVID-19 can be transmitted through breast milk. At present, the main concern is not whether the virus can be transmitted through breast milk, but rather whether an infected mother can transmit the virus through respiratory droplets during breastfeeding (32).
7. For assisting the delivery of women with confirmed or suspected COVID-19, staff must use the safety precautions provided for non-pregnant patients (33).
8. Pregnant women with suspected or confirmed SARS-COV2 infection should be treated with supportive therapies, however taking into account the physiological characteristics of pregnancy (2).
9. The use of experimental therapeutic agents outside of a research study should be guided by an individual risk-benefit analysis based on the potential benefit to the mother and the safety of the foetus, with the consultation of an obstetrician specialist and an ethics committee (2).
10. The decision to proceed to a pre-term birth is based on many factors: gestational age, maternal conditions and foetal stability and requires a collegial evaluation by obstetric, neonatal and intensive care specialists (depending on the mother's condition) (2).
11. Positivity in itself to Coronavirus is not an indication for a caesarean section which in these patients should only be performed based on other obstetric or medical indications (33).
12. In COVID-19 pregnant women, it is useful to be very cautious in inducing maturity of the lung by means of corticosteroids, since these drugs seem to worsen the course of the infection. If possible, evaluate each case with a neonatologist.



7.

RECOMMENDATIONS FOR PEDIATRIC PATIENTS

Keep in mind

1. To date there is a paucity of information regarding COVID-19 in children.
2. Children and infants are affected and with milder forms (X-ray more often negative; CT more sensitive) (34, 35).
3. A small series of children with COVID-19 has shown a greater prevalence of peripheral halo (halo-sign) lung consolidations on CT (35). The criteria for the definition of Acute Respiratory Distress Syndrome (ARDS) and septic shock, the guidelines for the management of sepsis and septic shock and the use of non-invasive ventilation in children are different from those of adults (2).
4. Children desaturate more easily during intubation; therefore, it is important to pre-oxygenate with 100% O₂ with a mask with a reservoir before intubating (2).
5. A rectal swab may be useful in children to determine the timing of the termination of quarantine. Some authors have used the cycle threshold values of the serial rectal and nasopharyngeal swab tests to indicate viral load. Interestingly, the measurements have indicated that viral shedding from the gastrointestinal system could be greater and last longer than the respiratory tract (36, 37).

8.

RECOMMENDATIONS FOR HOSPITAL DISCHARGE

1. The patient with fever without respiratory failure (normal EGA and walking test) and normal chest x-ray, <70 years and without risk factors (lung disease, diabetes mellitus and / or heart disease) can be discharged from the emergency room (14, 20) with indication of home isolation, waiting to run the swab sampling or its result.

THE DISCHARGE PHYSICIAN:

- obtains a telephone number to contact the patient for swab sampling and / or to communicate the result;
- provides information on how to access the pad (where and when).

If the swab test does not take place in the emergency department, but is performed elsewhere to another area or hospital, it is strictly suggested to use systems to avoid the loss of information.

THE FACILITY / SERVICE RUNNING THE BUFFER

- must report the result as soon as it is available to the patient and, if positive, to the Public Health Department for establishing active surveillance.

At the end of the hospitalisation, write clearly on the discharge letter:

CLINICALLY CURED PATIENT

(patient with clinical symptoms resolution, but still positive for swab) (38)

or

CURED PATIENT (patient who, in addition to resolving the symptoms, is negative in two consecutive swabs, carried out at least 24 hours apart) (38)

or

CLINICALLY CURED PATIENT

Write clearly on the discharge letter the indication to be observed at the home quarantine until the swab is negative on two determinations after 24 hours and the execution methods of the control buffer.

Although there is no clear supported evidence, it is considered appropriate to suggest patient retesting no earlier than 7 days and, if negative, confirm the negativity after at least 24 hours (38)

or

DISABLED PATIENT, roommate of patient with positive swab or whose result is not yet known:

- write clearly the indication of home isolation on the discharge letter (up to 14 days from contact with the infected person) and indication to call the appropriate number (in Italy 112) if symptoms appear;
- assure a telephone number to communicate buffer result;
- communicate swab results as soon as available to the patient and, if positive, to public health trusts, in order to establish active surveillance (38).



9.

RECOMMENDATIONS FOR HOME ISOLATION

1. Provide prevention measures and explain them to patients in home isolation also by using designs, charts or pictures.
2. Give also clear indications on alarm symptoms:
 - a. promote information;
 - b. diffusion of telephone numbers to call in case of occurrence of symptoms;
 - c. arrangements for support e.g. shopping.
3. Provide call centers, online chats, FAQs and video tutorials to consult when there is doubt.



10.

RECOMMENDATIONS FOR PERSONS IN QUARANTINE

1. Information represents the key success factor; quarantined persons must be constantly informed and updated on the epidemic progress.
2. It is necessary to provide food and other materials and any necessary drugs without making people feel abandoned or alone.
3. The quarantine period should be short, and the duration should not be modified except in extreme circumstances.
4. Most of the side effects derive from the freedom restriction imposition; voluntary quarantine is associated with less stress and fewer long-term complications; therefore, it is necessary to explain clearly the reasons for such suggested behaviours.
5. Public health officials should stress the selfless choice of self-isolation.
6. Quarantined healthcare workers can be helpful in producing useful documents or other materials while at home for their colleagues. They could contribute by making suggestions and stay in touch with social media.



11.

RECOMMENDATIONS ONCOLOGIC - IMMUNOSUPPRESSED PATIENTS

1. Do not indiscriminately discontinue antineoplastic or immunosuppressive therapies (40-42).
2. In cancer patients, consider the possibility of postponing the treatment cycle on a case-by-case basis (40).
3. Immunosuppressant withdrawal is indicated if symptoms suggestive of infection appear (41); in this case it is good practice to inform the physician responsible for the treatment promptly.
4. Steroids can be continued, but with caution (41).
5. New immunosuppressant prescriptions or dose increases are not recommended during an epidemic (42).
6. Consider the switch from parenteral drugs to others that can be administered at home (e.g. subcutaneously) to reduce access to outpatient clinics (41).
7. Ensure non-deferred outpatient visits and postpone visits for long-term follow-up, after remote evaluation (telephone, email, etc.) (40, 41).
8. Do not allow visitors in therapy rooms and allow the presence of a maximum of one visitor per patient in hospital stays (40).

Please refer also to General Recommendations (section 1) for other indications relating to outpatient clinics.

12.

MORTUARY/ MORGUE OPERATING PROCEDURES

The proposed procedure is aimed at the safe management of the phases of acceptance, handling, custody, and discharge of the body with suspected, probable or confirmed diagnosis of COVID-19 (42). The objective has been pursued by drawing up the following recommendations.

1. The acceptance and handling of the body must be done by personnel equipped wearing the recommended PPE.
2. The body must be positioned on a sanitised metal stretcher for custody and subsequent investigations.
3. At the end of the investigations, the body must be placed in the coffin with the clothes and wrapped in a sheet soaked in disinfectant solution.
4. If the corpse is required to remain in the mortuary is necessary, pending or at the conclusion of the investigations, the same

must take place inside a special closed body bag and dedicated refrigerated room.

5. At the end of the handling and transport operations, all the equipment used must be subjected to sanitisation.

RECOMMENDATIONS FOR AUTOPSY INVESTIGATION IN CASES OF SUSPECT, PROBABLE OR CONFIRMED COVID-19

For the safe and effective performance of HG3 (Hazard Group 3) autopsy investigations, is required:

- generic risk assessment and adoption of universal standard precautions;
 - knowledge of possible pathological findings that can be highlighted;
 - the definition of SOP (Standard Operating Procedures) for the management of autopsies with high biological risk.
1. The use of universal precautions effectively protects against most risks related to SARS-CoV-2 infection. Professionals have a duty to carry out risk assessment for each case in order to prevent actions that could put operators at risk (43).
 2. At the end of the autopsy investigations, the body must be positioned in a body bag and transported in a refrigerated room.
 3. Disinfect the outside of the body bag with a hospital disinfectant applied according to the manufacturer's recommendations. It is also recommended in this phase the use of suitable PPE by each operator involved in the movement and exit phases of the body.

DISINFECTION OF AUTOPSY ROOMS

The following recommendations for disinfection of autopsy rooms should be applied (44):

1. keep ventilation systems active during cleaning;
2. wear disposable gloves when cleaning and handling cleaning or disinfectant solutions;
3. dispose of gloves after cleaning; do not wash or reuse the gloves in any case;
4. use eye protection, such as a visor or goggles, if splashing is expected;
5. if necessary, use respiratory protection based on the type of detergent or disinfectant;
6. wear a long-sleeved waterproof device to protect skin and clothing;
7. use disinfectants with indications of efficacy against human coronaviruses;
8. clean the surfaces and apply the disinfectant ensuring an adequate contact time for effective disinfection;
9. comply with the safety precautions and warnings indicated on the product label (for example, allow adequate ventilation in restricted areas and ensure correct disposal of the unused product or used containers);
10. avoid product application methods that cause the production of splashes or aerosols.

Regarding environmental disinfection, the available evidence has shown that coronaviruses are effectively inactivated by adequate sanitisation procedures that include the use of common hospital

disinfectants, such as sodium hypochlorite (0.1% -0.5%), ethanol (62- 71%) or hydrogen peroxide (0.5%).

1. Hard and non-porous surfaces can be cleaned and disinfected as previously described.
2. Handle with gloves and disinfect properly after use, equipment such as cameras, telephones and keyboards, as well as all objects that remain in the autopsy room.
3. Cleaning activities must be supervised and periodically checked to ensure that correct procedures are followed. Sanitation personnel must be properly trained and equipped with suitable PPE.
4. After cleaning and removing the PPE, wash the hands immediately. Avoid touching the face with gloved or unwashed hands.
5. Environmental disinfection must include cleaning with water and detergent soap on all vertical and horizontal surfaces, followed by disinfection with hospital disinfectants effective against SARS-CoV-2.
6. For environmental decontamination, it is necessary to use dedicated or disposable equipment. Reusable equipment must be decontaminated after use with a chlorine-based disinfectant. The use of special trolleys is strongly recommended, different from those used for cleaning common areas.
7. The instruments used for autopsies should be autoclaved or treated through chemical sterilisers.

13.

PSYCHOLOGICAL SAFETY OF STAFF

1. Create a healthy work, ethos and environment during crises and also to have systems in place to deal with subsequent distress and disorder.
2. Organisations which have the foresight to prepare their staff to deal with trauma might consider using interventions such as PFA (Psychological First Aid is a humane, supportive response to a fellow human being who is suffering and who may need support).
3. Consider that factors negatively affecting the psychological well-being of staff are:
 - concerns over the contracting the illness;
 - concerns for safety of their family;
 - witnessing the death of colleagues;
 - isolation from family and colleagues;
 - sense of being underappreciated;
 - extended length of epidemic
4. Reduce mental health stigma. The best ways of reducing stigma were believed to be raising awareness of mental health issues and telling people that it's quite normal to feel that way and have those feelings.
5. Educate healthcare workers who are exposed to trauma about the effects of cumulative stress. The training should be delivered either online 'because they can do it at their own convenience' or via educational leaflets 'rather than finding the time to spend on a day course'. The education about psychological trauma may lead to better understanding, better recognition of symptoms in oneself and in others, less judgement, and therefore reduced stigma, and that positive relationships with others in the workplace can have a positive impact on psychology.
6. Maintain teamwork and effective leadership while at the same time providing individuals the opportunity to provide input into the decisions that affect their lives. Staff often experience severe emotional stress during viral outbreaks. It is often the nursing staff who feels the greatest level of stress due to their constant contact with sick patients, who may not be improving despite the nursing staff's best efforts. Physicians usually cope somewhat better with this situation because they are in a position to make treatment decisions and are less directly involved in implementing patient care.
7. Be receptive to suggestions from nursing staff and support personnel. Input is empowerment and provides a sense that these critical staff retain some control over their situation. If suggestions are not acted on, clear explanations as to why they were not should be provided and alternatives should be explored.
8. Administration needs to be supportive of staff and not be seen as pedantic and overly controlling. In cases where staff and support personnel did not feel appreciated or listened to, there was a high degree of dissatisfaction and an increased occurrence of absenteeism and staff strikes, which further reduced personnel in an already-strained system.
9. Take care of yourself and your loved ones. Healthcare providers are not invulnerable to experiencing their own emotional distress during outbreaks, and this distress can be compounded by caring for sick and distressed patients.
10. Make sure your basic needs are met, including: eating, drinking, and sleeping; take a break when you need one; check in with loved ones; practice the strategies to reduce distress listed above; and monitor yourself for stress reactions too.
11. Make efforts to ensure that your office and/or organisation has a viable plan to monitor the course of the outbreak and take rapid and appropriate action if needed.



14.

MENTAL WELL-BEING OF PATIENTS

1. Medical and mental health clinicians are likely to encounter patients who are experiencing various levels of emotional distress about the outbreak and its impact on them, their families, and their communities. We must consider that COVID-19 patients have long hospital stays and in the early stages they will experience the anguish of having an aggravation of the disease with the possibility of being intubated. Furthermore, the limited staff available will not be able to guarantee them continuous assistance and their relatives as well.
2. Providers should acknowledge uncertainty about emerging diseases and help patients understand that there is often an emotional component to potential health concerns.
3. Providers should be cognisant that the

symptoms might extend beyond classical mental health symptoms to include relational struggles, somatic, academic, or vocational issues.

4. Every person, including mental health providers, can either react in fear, anger, or despair and regress, or can choose resilience and play as an active part of the solution.

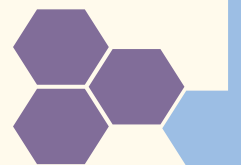
In addition, providers should consider the following recommendations for promoting patients' mental wellbeing during emerging infectious disease outbreaks.

Be informed: Obtain the latest information about the outbreak from reliable public health resources in order to provide accurate information to your patients.

Educate: Healthcare providers are on the front lines of medical intervention and in a position to influence patient behaviors for protecting individual, family, and public health.

Psycho-education is of utmost importance in the aftermath of disasters. Patient education plays a critical role in both containing the disease and mitigating emotional distress during outbreaks. Depending on the nature of the outbreak, this can range from education about basic hygiene such as hand-washing and cough etiquette to more complex medical recommendations for prevention, diagnosis, and treatment.

5. Let patients know what you, your office, or your organisation is doing to reduce the risk of exposure.
6. **Correct misinformation:** In this age of social media, misinformation can spread quickly and easily, causing unnecessary alarm. If patients present you with inaccurate information related to the outbreak, correct their misconceptions and direct them to vetted public health resources.
7. **Limit media exposure:** the excess media exposure to coverage of stressful events can result in negative mental health outcomes. Use trusted media outlets to gather the information you need, then turn them off—and advise your patients to do the same
8. **Anticipate and counsel about stress reactions:** emotional distress is a common mental condition in the context of uncertain and potentially life-threatening situations, such as COVID-19 epidemic. A good first step for mitigating your patients' stress is to acknowledge that it exists and help normalise it ("I see that you're stressed, and that's understandable. Many people are feeling this way right now").
9. Teach patients to recognise the signs of distress, including worry, fear, insomnia, difficulty concentrating, interpersonal problems, avoiding certain situations at work or in daily living, unexplained physical symptoms, and increased use of alcohol or tobacco. This will help them become more aware of the state of their mental health and head off distress before it becomes harder to manage.
10. Discuss strategies to reduce distress, which can include:
 - being prepared (developing a personal/ family preparedness plan for the outbreak);
 - taking everyday preventive measures (e.g., frequent handwashing);
 - maintaining a healthy diet and exercise regimen;
 - talking to loved ones about worries and concerns;
 - engaging in hobbies and activities you enjoy to improve your mood;
 - if a patient is experiencing severe emotional distress or has a diagnosable mental illness, refer for specialized mental health care.



15.

MEASURES

It is important that we measure the impact of our actions. We include some measures that may be of use.

OUTCOME MEASURES

Outcome measures should be collected in order to support the monitoring of effective provider (hospital) epidemic/pandemic response including the capacity to adequately treat patients with other common severe conditions like heart attacks, strokes, trauma, COPD in order to assure that the health of the public is protected to the fullest extent possible:

1. Hospitalisation rate for COVID-19 (indirect outcome measure of the territory).
2. In-hospital Mortality rate of patients hospitalized for COVID-19.
3. Average Length of Stay of COVID-19 patients.
4. Percentage of COVID-19 patients admitted to ICU.
5. In-hospital mortality rate of NO-COVID-19 patients hospitalised for AMI.
6. In-hospital mortality rate of NO-COVID-19 patients hospitalized for Stroke.
7. In-hospital mortality rate of NO-COVID-19 patients hospitalized for COPD.
8. Percentage of NO-COVID-19 hospitalized patients that acquired COVID during the hospitalisation.

9. COVID-19 infection rate among staff / Number of tests performed to hospital staff (as process measure).
10. Survival rates.

Where possible indicators 1-7 should be stratified by age groups.

Additionally, the proposed outcome measures should be used and interpreted with great caution if used to benchmarking care quality between providers. In this case, consistent data definitions should be adopted and measures from 1 to 7 should be adjusted for potential confounding factors (i.e. patient case mix) in order to draw meaningful and correct comparisons among providers of Mortality rate.

LENGTH OF STAY MEASURES

1. Length of Stay.
2. Average length of stay in ICU of infected.
3. Average length of stay in hospital.

PROCESS MEASURES (SOME EXAMPLES)

1. Percentage of infected individuals admitted to ICU
2. Percentage of people with comorbidities
3. Percentage of staff with and without correct equipment
4. Number of patients not treated in appropriate level of care
5. Percentage staff trained to use equipment

BALANCING MEASURES

1. Staff infection rate.
2. Staff mortality rate.
3. Staff well being.
4. Illness and sickness rates.
5. Mental illness.

PATIENT PROFILES TO CONSIDER

- Age.
- Gender.
- Ethnicity.
- Comorbidity.
- Region.
- Contacts.

