

PIH TECHNICAL TOOLKIT:

BUILDING EMERGENCY AND CRITICAL CARE (ECC) CAPACITY TO CARE FOR SEVERELY ILL COVID-19 PATIENTS AND STRENGTHEN HEALTH SYSTEMS



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INTRODUCTION

Timely, effective, and high-quality emergency care decreases mortality, connects patients to long term care, and strengthens health systems. By one estimate, well-functioning emergency departments (EDs) could treat the causes of over half of the deaths in low- and middle-income countries ([Thind et al.](#)). Despite this, emergency care remains woefully inadequate in most low-income countries.

As confirmed cases of COVID-19 continue to rise, health systems must be equipped to respond to heightened need for emergency and critical care. Severely ill COVID-19 patients require rapid recognition and treatment, making timely access to emergency and critical care (ECC) a decisive factor in survival. Yet, COVID-19 is weakening already-fragile emergency and critical care services in low- and middle-income countries (LMICs), presenting a critical opportunity to make investments in life-saving services.

Improvements in ECC systems through the continuum of care will strengthen identification, urgent diagnosis and prompt treatment of COVID-19 patients and others in need of these essential services. The cross-cutting nature of emergency and critical care means that investments in these systems lead to gains in many disease areas, including respiratory emergencies. When patients initially present to a health facility, they present with a symptom rather than a diagnosis: the hypoxemic COVID-19 patient arrives complaining of shortness of breath, rather than COVID-19 itself. However, patients with TB, congestive heart failure and pneumonia may all present with the same complaint. All need similar diagnostic tests and initial treatments while the diagnosis is determined. Thus, integrated approaches to strengthening the care for one disease area strengthen the care for all. Similarly, most essential equipment, monitoring and medications used in emergency care settings are also utilized in cross-cutting care, so investments in these areas further strengthen systems for responding to all types of emergencies as well as future outbreaks.

Since early 2020, prioritization of COVID-19 has led to siloed response efforts that align efforts and resources away from broader health systems. Yet as patients continue to present to health facilities with severe and at times multiple illnesses, COVID-19 has drawn attention to the importance of an integrated approach to implementing ECC services for COVID-19 and beyond. Currently, many barriers remain: staff training on ECC in many LMICs remains limited, lack of isolation spaces in emergency wards exposes other patients and medical workers to risk of COVID-19 exposure and infection, and lack of supplies and equipment limit the care that can be delivered. These and other conditions must be addressed to be able to respond to all inpatients with critical illness with high-quality, life-saving emergency care. Thoughtful investments to strengthen the emergency and critical care of severely-ill COVID-19 patients will result in stronger long-term emergency and critical care systems for patients of all disease types, including HIV, TB, malaria, non-communicable diseases (NCD), and maternal and child health emergencies.

GOAL

Increase timely access to high-quality emergency and critical care for severely ill patients with COVID-19 and other diseases

ACRONYMS

BEC	Basic Emergency Course
ECC	Emergency and Critical Care
ED	Emergency Department
EWS	Early Warning Systems
HCW	Health Care Worker
HDU	High Dependency Unit
HMIS	Health Management Information System
ICU	Intensive Care Unit
LMIC	Low- and Middle-Income Countries
NCD	Non-Communicable Disease
SOW	Statement of Work
WHO	World Health Organization

OBJECTIVE 1: Align national emergency and critical care strategies and COVID-19 response plans to support immediate COVID-19 response and build long-term health system capacity.

An integrated approach to the development of ECC systems for COVID-19 and beyond is essential to ensuring that short-term investments have long-term value. Aligning national planning efforts between disease areas and types of care is critical.

Strategy 1.1 Form a national task force to align ECC services and protocols with national COVID-19 response frameworks. Include key stakeholders including from Ministries of Health, ECC experts, care delivery teams, relevant health Directorates, and technical working groups.

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| Intervention | Collect recent assessments and/or assess the current status of ECC services using standardized assessment tools (See WHO Tools for Strengthening Emergency Care Systems). |
| Intervention | Adapt lists of essential emergency and critical care clinical services and processes to develop a context-specific foundational package of ECC services to provide at each health system level (e.g., secondary, referral), inclusive of services for COVID-19. (See WHO Maintaining Essential Health Services during the COVID-19 Outbreak and DCP3 Emergency and Trauma Care Essential Services .) |
| Intervention | Adapt or create ECC protocols, focusing on addressing gaps in the current system and desired foundational package of ECC services, as well as COVID-19 considerations (see Objective 3 for additional details on protocols). |

Strategy 1.2 Design a strategic implementation plan to guide the integration of short-term interventions (i.e., strengthening services for COVID-19 response) as a foundation for long-term strengthening of ECC systems, including the development or strengthening of EDs, high dependency units (HDUs) and intensive care units (ICUs).

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| Intervention | Focus strategic implementation plan around gaps identified between the current state of services and the desired foundational package of ECC services at health facilities. Ensure all necessary inputs are accounted for, including equipment, staff resources and development, and physical infrastructure. |
| Intervention | Plan for development of EDs and ICUs by health facility level, focusing on more advanced units at higher-level facilities or those serving larger patient populations. |
| Intervention | Review all partner investments to ensure they align with and support government emergency and critical care strategy and implementation. |
| Intervention | Designate national policy coordination mechanisms and relevant directorates who will guide and monitor dissemination and implementation of updated ECC protocols. |

OBJECTIVE 2: Develop and disseminate emergency and critical care protocols inclusive of the care of patients with COVID-19.

Patients with COVID-19 present similarly to those with a number of other acute conditions, including TB, Malaria, pneumonia, and sepsis. Much of the initial assessment and treatment is similar across these diverse disease areas. Where possible, integrated procedures and protocols are preferred to strengthen the health system long-term.

Strategy 2.1 Develop or adapt existing emergency and critical care protocols that are inclusive of evaluation and treatment of COVID-19, including when and how to test for COVID-19 and TB, when to keep patients in isolation, and when to initiate specific therapeutics such as dexamethasone. Clinical care protocols are extensively detailed elsewhere; key protocols include:

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| Intervention | Adapt or develop approach to patients with difficulty in breathing, fever, and shock. |
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Intervention	Adapt or develop protocols for oxygen therapy and titration.
Intervention	Adapt or develop protocols for advanced respiratory interventions, including non-invasive and mechanical ventilation when applicable.
Intervention	Adapt or develop approach to shock.

[See WHO Clinical Care for Severe Acute Respiratory Infection, WHO Tools for Strengthening Emergency Care Systems, WHO COVID-19 Clinical Management: Living Guidance, and WHO/ICRC Basic Emergency Care: Approach to the Acutely Ill and Injured.](#)

Strategy 2.2 Develop or adapt protocols and systems to facilitate the care of severely ill COVID-19 patients.

Intervention	Define criteria for transfer and protocols to facilitate the transfer of patients between different levels of the health facility.
Intervention	Define clear pathways for where critically ill COVID-19 patients are cared for when they arrive at health facilities that both maintain IPC and consider where equipment for the care of critically ill patients is located. Integrated approaches to care are preferred as it is not always clear what disease or diseases a patient has at presentation. In the short term, isolation spaces may not be adequately available within existing EDs or ICUs and protocols may need to be adapted to ensure similar care can be provided in an isolation ward. In the long-term, ED and ICU spaces should be adapted to allow an integrated approach to future respiratory illnesses, including TB.
Intervention	Establish staffing ratios for emergency and critical care areas and adapt these to COVID-19 isolation areas, if separate. Plan for backup and relief staffing in the case of staff illnesses or patient surges.
Intervention	In settings with a single isolation ward, design protocols for when and how patients can move between different acuity levels of the COVID-19 unit.
Intervention	Advocate for and establish national policies and protocols so that emergency and critically ill patients are treated prior to payment. This is critical to encouraging care-seeking behavior, avoiding fatal delays in care, and to protecting patients from the financial burden of ill health. (See WHA Resolution 17.16: Emergency care systems for universal health coverage: ensuring timely care for the acutely ill and injured). Consider a special pooled fund to reimburse health facilities who treat patients prior to payment.

OBJECTIVE 3: Implement acuity-based triage systems at all health facilities to rapidly identify sick patients on arrival.

Acuity-based triage systems ensure that critically ill patients are rapidly identified so they can receive time-sensitive interventions to improve outcomes. In some settings, particularly at smaller primary level facilities, triage may be combined with screening. In others, triage for patients presenting for acute unscheduled care will occur immediately after screening. The priority for triage in both scenarios is to ensure that patients presenting with emergent or urgent conditions are prioritized and directed for early appropriate treatment while still ensuring IPC standards are upheld.

Strategy 3.1: Identify the preferred triage system to use based on setting and staff. Multiple triage tools exist. Some, including the WHO/ICRC/MSF interagency tool and the South African Triage Scale are designed for settings with limited resources and limited provider experience. Others, such as the Emergency Severity Index, rely more on provider experience to determine triage acuity.

Intervention	Consult the WHO/ICRC/MSF Interagency Integrated Triage Tool, published on pages 11-15 of the WHO Clinical Care for Severe Acute Respiratory Infection: Toolkit: COVID-19 Adaptation .
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- Intervention Consult existing ED triage programs (see the [ENA Emergency Severity Index](#)).
- Intervention Employ existing triage trainings for health staff in limited resource settings (see [South Africa Triage Scale](#)).

Strategy 3.2: Identify and equip spaces for triage at each health facility.

- Intervention Identify space for triage at each health facility. Triage space should be easily accessible to arriving patients, have a private area for the triage staff to evaluate patients, and be accessible both to a waiting area and to a resuscitation area for when patients are identified as critically ill.
- Intervention Develop essential medical equipment (pulse oximeters, thermometers, blood pressure cuffs, face masks, basic wound care supplies, etc.) that needs to be in the triage room and ensure availability of the equipment at all times.
- Intervention Develop and implement a maintenance plan for essential medical equipment to ensure quality of triage and patient care.

Strategy 3.3: Develop and validate forms or registers for triage tracking.

- Intervention Engage stakeholders in developing forms and registers through technical working groups or other coordinating bodies, if applicable.
- Intervention Adapt existing clinical forms and health management information systems (HMIS) to document triage acuity. If standardized emergency unit forms do not exist, consider developing one that is inclusive of triage acuity, such as the [WHO Standardized Clinical Form](#). See also Objective 9.

Strategy 3.4: Assign and train staff on triage system.

- Intervention Designate staff responsible for conducting triage. Dedicated staff are essential for triage systems to function effectively. Triage staff can be a licensed health professional or in some cases an experienced, well-trained lay health professional with immediate back-up from a licensed health professional.
- Intervention Develop or adapt a training curriculum on the chosen triage system. In our experience, we recommend focusing particular attention on the evaluation of symptoms and danger signs, which are often less familiar to staff.
- Intervention Implement initial triage trainings at all target health facilities. Incorporate practical skills sessions and simulations into the training plan.
- Intervention Ensure ongoing mentorship and supportive supervision to support staff and strengthen triage systems.
- Intervention Develop supportive supervision checklist.
- Intervention Develop mentorship plans.
- Intervention Develop a feedback mechanism through debriefing meetings with frontline staff and sharing reports.

Strategy 3.5: Communication via signs/messaging in appropriate language and visuals for non-literate patients on triage.

- Intervention Develop posters in local languages to illustrate the purpose and process of triage. Use video or other messaging when possible.
- Intervention When possible, post a phone number to call for emergencies (this can be a phone number of the health facility).

Objective 4: Implement systems to identify critically ill patients in inpatient wards, including systems to identify declines in patient condition.

Strategy 4.1: Establish coordinated early warning systems in inpatient areas.

Even with high quality medical care, patients admitted to medical wards have the potential to rapidly deteriorate and develop critical illness. When this happens, delays in clinical response increase the risk of morbidity and mortality. However, patients often show signs of clinical decompensation as much as 48 hours prior to serious clinical events, providing a window of opportunity for interventions to improve patient outcomes. Early Warning Systems (EWS) help inpatient teams recognize early signs of clinical deterioration and initiate additional measures to treat the patient. Use of an EWS enables hospitals to identify patients at higher risk of morbidity and mortality and improve outcomes.

Intervention	Establish criteria for an EWS system. Consider adapting an existing system when possible. Possible criteria for an EWS include level of nursing concern, vital signs, changes in respiratory status, mental status, or urinary output, or abnormal lab values. One example of an EWS is the Modified EWS from Uganda (see Kruisselbrink et al., 2016).
Intervention	Establish workflows for integrating the EWS into the clinical workflow, either through paper checklists or electronic medical record systems
Intervention	Establish protocols for the clinical response when patients trigger the EWS. Possible interventions include increased frequency of vital signs and monitoring, additional laboratory testing, clinician or team re-evaluation, or transfer to a higher acuity area.

Strategy 4.2: Develop protocols and evidence-based practices for multidisciplinary handovers in patient movement between clinical spaces or at shift change.

Strategy 4.3: Develop procedures and protocols for multidisciplinary ward rounds that incorporate reporting of patient status.

Strategy 4.4: Develop protocols to implement [evidence-based ICU Liberation Bundle](#) in all units with mechanical ventilators. These intervention pillars are:

Intervention	Assess, Prevent, and Manage Pain
Intervention	Both Spontaneous Awakening Trials (SATs) and Spontaneous Breathing Trials (SBTs).
Intervention	Choice of Analgesia and Sedation
Intervention	Delirium: Assess, Prevent, and Manage
Intervention	Element: Early Mobility and Exercise
Intervention	Family Engagement and Empowerment

Objective 5: Build health care worker capacity to ensure high quality emergency and critical care services.

Strategy 5.1: Address the immediate need to improve health care worker (HCW) capacity to address emergency and critical illness related to COVID-19 and other priority diseases.

Intervention	Ministries of Health and relevant health directorates to conduct initial WHO/ICRC Basic Emergency Course (BEC) for all HCWs in emergency units with the option of including additional HCWs who would require cross training in order to meet facility needs during a surge. Staff
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	trained should include nurses, clinical officers, and physicians. The BEC course covers many topics relevant to COVID-19, including difficulty in breathing, shock, and altered mental status, while also addressing other causes of these illnesses that providers should consider.
Intervention	Ministries of Health and relevant health directorates to conduct initial critical care training for all inpatient clinicians and nurses (e.g. WHO short critical care course , BASIC course, SCCM Critical Care for Non-ICU Clinicians , pre-existing modular courses , and courses on opencriticalcare.org).
Intervention	Adapt and administer additional trainings specific to COVID-19 to the local context, including trainings on disease epidemiology, symptoms and treatments.
Intervention	Where relevant, train emergency medical service (EMS) and ambulance staff on COVID-19 and other infectious diseases. (See WHO recommendations for pre-hospital EMS during COVID-19 .)
Intervention	Provide ongoing longitudinal mentorship by peer and specialist mentors to support immediate emergency and critical care delivery, including at sites where baseline ECC capacity is limited. Ideally, there will be at least one mentor at each health facility. Additional mentorship can be offered through formal and informal telehealth platforms, including mentorship groups on WhatsApp.
Intervention	Support HCW capacity and clinical care delivery through visual job aids and tools, such as posting the WHO emergency care checklists for medical and trauma resuscitation in emergency departments.

Strategy 5.2: Leverage needed COVID-19 ECC investments to support long-term health systems strengthening for ECC systems, including developing long-term HCW capacity development for ECC care. These investments will help future patients with TB, HIV, Malaria, and other diseases, and build resiliency the event of future outbreaks.

Intervention	Coordinate between health officials and professional/accreditation bodies to establish certification courses and systems for robust and high-quality basic emergency and critical care.
Intervention	Establish continuous professional development courses and requirements for all cadres of HCWs.
Intervention	Establish or revise long-term national curricula for emergency and critical care.
Intervention	Create secondary specialty education tracks (bachelors, masters, etc.) for mid-level providers (nurses, clinical officers, medical assistants, physician assistants, etc.) in emergency and critical care.
Intervention	Create in country residency programs for physicians in emergency medicine and critical care.

Objective 6: Implement systems to allow for the timely transfer of patients with emergency and critical illnesses including COVID-19.

Most tertiary care facilities are concentrated in urban areas and are thus inaccessible to the majority of the population. For this reason, many patients present initially to primary or secondary facilities even when critically ill. Rapid stabilization followed by rapid transfer is critical for severely ill patients with COVID-19 and other illnesses. However, in many LMICs, transfer systems are underdeveloped with multiple barriers to transfer including staff training and available transportation.

Strategy 6.1: Ensure staff recognize when patients require transfer for different illnesses, including for COVID-19, and know how and where to transfer patients in need.

Intervention	Map and define the range of available services at different facilities including COVID-19 isolation spaces.
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| Intervention | Train staff on the levels of care available at different facilities, inclusive of COVID-19 isolation capability as well as availability of advanced interventions. |
| Intervention | Establish, distribute, and train staff on criteria for transfer to higher-level facilities. |

Strategy 6.2: Promote communication prior to transfer by establishing functioning communication system for referral, consults and feedback between the community, primary care and secondary/tertiary facilities.

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| Intervention | Ensure fixed means of communication at each facility, either by phone or radio, with phone numbers published and available to other facilities. |
| Intervention | Develop and distribute referral procedures that define expectations for verbal communication prior to transfer as well as expectations for documentation and results to accompany the patient. |

Strategy 6.3: Establish effective, immediately-available ambulances for transfers to higher level facilities.

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| Intervention | Procure or distribute a sufficient number of ambulances that are geographically distributed to provide coverage to first and secondary level facilities. |
| Intervention | Plan for needed vehicle maintenance and fuel to ensure that vehicles are functional when needed. |
| Intervention | Train staff to deliver supportive care during transportation. |

Strategy 6.4: When health facility capacity is limited, consider systems that allow counter referral of low-acuity patients from higher-level facilities back to lower-level facilities to free space for critically ill patients at higher-level facilities. Counter referral systems are particularly important in times of surge.

Objective 7: Ensure adequate and appropriate emergency and critical care spaces in primary, secondary and tertiary health care levels adapted to COVID-19.

Strategy 7.1: Establish emergency departments at all secondary and tertiary facilities including isolation rooms to care for COVID-19 patients.

When planning for physical space design, dedicated emergency departments should include a trauma and/or resuscitation area, as well as general care beds, isolation areas, and staff working areas. There should be adequate triage and reception space as well as waiting areas that allow for social distancing and have adequate ventilation and social distancing for IPC. Ensuring that EDs and critical care units have sufficient isolation spaces is critical to allowing integrated approaches to disease management in the future.

For guidance on resuscitation areas, see [WHO Resuscitation Area Designation Tool](#).

Strategy 7.2: Leverage needed COVID-19 ECC investments to support long-term health systems strengthening for ECC systems, including developing long-term HCW capacity development for ECC care. These investments will help future patients with TB, HIV, Malaria, and other diseases, and build resiliency the event of future outbreaks.

Strategy 7.3: At primary level facilities, dedicate a resuscitation room for critically ill patients to receive care prior to transfer. Ensure adequate isolation rooms in all primary health care facilities to prevent spread of COVID-19 while patients are awaiting transfer, including toileting facilities separated from other patients and staff.

- Intervention Ensure all EDs and critical care spaces have continuous and adequate electricity.
- Intervention Ensure all EDs and critical care spaces have adequate water supply for handwashing, patient care, and basic needs.

➔ See PIH infrastructure toolkit for additional details.

Objective 8: Adequate and functioning equipment, supplies and medications are available for the care of emergency and critical patients.

Strategy 8.1: Ensure all necessary emergency and critical care biomedical equipment.

- Intervention Define a national list of biomedical equipment needed for each level of facility, including equipment such as pulse oximeters, vital sign machines, and monitoring systems, furniture such as beds where the head of bed can be elevated, oxygen delivery systems and advanced respiratory equipment such as non-invasive and invasive ventilators, and diagnostic equipment such as X-ray equipment and ultrasound. See [WHO list of priority medical equipment for COVID-19](#) and [WHO inventory tool – biomedical equipment for COVID-19 case management](#).
- Intervention Assess and identify gaps in biomedical equipment at health facilities, including oxygen delivery systems.
- Intervention Procure biomedical equipment to meet identified gaps, focusing efforts on high-impact equipment. Ensure there is a sufficient quantity for isolation spaces and wards.
- Intervention Train staff on use of biomedical equipment, including on safe cleaning procedures and on troubleshooting equipment in the event of errors.
- Intervention Establish or revise protocols for maintenance of medical equipment. Identify and train technicians responsible for equipment maintenance.

➔ See PIH infrastructure toolkit.

Strategy 8.2: Ensure adequate medications and supplies for emergency and critical care.

- Intervention Establish, or review and revise, medication and supply lists for emergency and critical care areas by facility level. Ensure they are inclusive of needed medications for severe COVID-19 treatment, including direct therapeutics such as dexamethasone as well as supportive medications for critical care. See [DCP3 Emergency and Trauma Care Essential Services](#) for examples of emergency care medication needed by facility level.
 - Intervention Ensure stock systems are in place to have supplies available at the ward level.
- ➔ See PIH supply chain toolkit.
- Intervention Ensure functioning oxygen systems are in place and available throughout the ED and critical care spaces
- ➔ See PIH oxygen toolkit.
- Intervention Ensure forecasting systems for supply needs. See [WHO COVID-19 essential supplies forecasting tool](#).
- See PIH supply chain toolkit.

Strategy 8.3: In all emergency units, resuscitation areas, and critical care spaces, ensure that equipment and supplies are readily available.

- Intervention Allocate funding for shelving, cabinets and trolleys to facilitate access to equipment within spaces.
- Intervention Establish stock lists and systems for monitoring stock and equipment function including daily

checks of critical equipment.

Objective 9: Ensure monitoring, evaluation and health informatics systems inclusive of emergency and critical care.

Strategy 9.1: Establish national level standard patient screening, emergency unit, outpatient and inpatient charts.

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| Intervention | Review existing documentation forms, including available national forms and any available facility level forms. For emergency unit forms, standardized forms for medical and trauma care from WHO can be adapted for use (see WHO Standardized Clinical Forms). |
| Intervention | Ensure planned forms include standardized documentation for the history and physical exam. Forms for ongoing monitoring and patient flow sheets should include spaces for vital signs monitoring, oxygen delivery, early warning systems, and medication administration. Ensure space to document diagnostics and standardized documentation of daily medical and nursing plans inclusive of planned changes in care. |
| Intervention | Distribute and implement patient forms to all facilities. Budget for and plan for ongoing form distribution to ensure a sufficient supply for ongoing clinical care. |

Strategy 9.2: When possible, ensure forms are transferred onto digital electronic patient medical record systems. Support needed investments in hardware and connectivity to support ward level access to electronic medical record systems.

Strategy 9.3: Introduce robust health monitoring information system to show the impact of triage, emergency and critical care on the identification and treatment of severely ill patients.

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| Intervention | Develop systems for better data management (e.g., CommCare, DHIS2, etc.). |
| Intervention | Train data officers and frontline health care workers on using data systems. |
| Intervention | Develop data quality checks and monitoring plans. |

Objective 10: Improve leadership and governance for emergency and critical care systems.

Strategy 10.1: Establish a long-term national multidisciplinary committee to monitor ECC system development and progress.

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| Intervention | Plan for meetings of the multidisciplinary committee at least annually, with period virtual check-ins between annual meetings. |
| Intervention | Within the multidisciplinary committee, organize technical sub-committees comprising of different cadres in the delivery of health services. |
| Intervention | Equip and encourage community leaders to voice emergency and critical care needs within the community to direct and strengthen care delivery. Though this process will begin locally, ensure community representation and voices in the national planning process. |
| Intervention | Define leadership roles and SOWs for multidisciplinary team members (Emergency and Critical Care clinical and nursing experts, community-based organizations, and supply chain, pharmacy and infrastructure representatives, etc.) with national ministry of health structures (care and treatment, emergency care systems, infrastructure and maintenance, etc.) to strengthen and integrate ECC care systems throughout the continuum of care. |

Strategy 10.2: Establish district-/county-level multidisciplinary technical working groups charged with coordinating district-level implementation of emergency and critical care services and protocols.

Strategy 10.3: Define and distribute care standards and measure of quality clinical performance at facility level with certification of quality and care.

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| Intervention | Incorporate care standards and measures of quality clinical performance within certification courses and systems. |
| Intervention | Develop and test efficient and effective service provision arrangements, regulatory frameworks and management systems. |

Strategy 10.4: Create leadership and management courses for emergency and critical care leaders for effective facility level leadership and governance.

Resource: WHO Emergency Unit Management Course, contact emergencycare@who.int.

Objective 11: Ensure adequate mental health and psychosocial support for emergency and critical care services, including of patients and staff.

Strategy 11.1: Develop and implement plan for adapting and maintaining mental health and psychosocial support services for patients in emergency and critical care settings.

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| Intervention | Develop protocols for communication with patients around positive test results, duration of isolation, and providing psychological and social support during quarantine and isolation. |
| Intervention | Support patients and family members coping with severe illness. In particular, consider needs for support for patients in family members in need of palliative care. |
| Intervention | Train <i>all front-line workers</i> on essential psychosocial care principles, including communication techniques, psychosocial care principles, psychological support, and referral pathways for additional psychological and social needs. |
| Intervention | Establish integrated training program to train frontline staff to deliver Psychological First Aid . |
| Intervention | Develop supervision and mentorship structure to support frontline staff on Psychological First Aid . |
| Intervention | Utilize digital technologies such as a phone helplines or mobile apps as methods of communication. |

Strategy 11.2: Provide essential psychological and social support to health care workers to prevent and address burnout with increased workload during COVID-19 response.

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| Intervention | Establish dedicated roles to supporting staff wellness and mental health needs in collaboration with human resource and occupational health departments. |
| Intervention | Establish peer support structure for staff to conduct group and individual peer support sessions focused on wellness on a regular basis. |
| Intervention | Conduct trainings on wellness and recognizing and addressing burnout. Develop an accessible resource library with informational materials, tools, and exercises to support one's own mental health and well-being. |
| Intervention | Ensure access to clinical support including mental health services. Establish referral pathways for |

staff who require additional mental health services.

COST CONSIDERATIONS

Objective 1:

- Meeting costs for assessments and national strategic planning around short term and long term ECC interventions

Objective 2:

- Meetings costs for emergency and critical care protocol development/adaptation
- Costs for printing and dissemination of protocols

Objective 3:

- Procurement of essential medical equipment:
 - Pulse oximeter
 - Thermometers
 - Blood pressure cuffs
 - Face masks
 - Basic wound care supplies
- Meeting costs for convening Technical Working Groups to develop forms and registers
- Triage training costs for all target health facilities
- Printing of supportive supervision checklists
- Development and printing of posters in local languages on triage practices

Objective 4:

- NA

Objective 5:

- Trainings for nurses, clinical officers, physicians on meeting facility needs during a surge
- Critical care training for all inpatient clinicians and nurses
- Trainings on disease epidemiology, symptoms and treatments
- Train emergency medical service (EMS) and ambulance staff on COVID-19 and other infectious diseases
- Emergency and critical care training in physiology, treatment modalities, procedures, etc.
- Printing of visual job aids and tools
- Adequate numbers of staff for delivery of high quality and comprehensive patient centered care
 - Emergency and critical care staff
 - Include M&E/informatics staff
 - Community-based and primary health care HCW, organizations and leadership
 - National level policy and strategy teams

Objective 6:

- Training of staff on timely transfer of patients with emergency and critical illness including COVID-19
- Phones or radios for transfers or referrals
- Printing of referral procedures for verbal communication prior to transfer, documentations, results to

accompany patients

- Procurement of ambulances
- Vehicle maintenance, fuel
- Training on supportive care during transportation
- Protocols for communication

Objective 7:

- Electricity costs for emergency departments
- Water supply and handwashing infrastructure

Objective 8:

- Biomedical equipment
- Training on use of biomedical equipment (safe cleaning procedures, troubleshooting equipment)
- Shelving, cabinets, trolleys
- PPE and hygiene supplies
- Medical consumables (pulse oximeter, hemoglobin device and cartridges, etc.)
- Infrastructure for triage, emergency care, critical care, and transport of critically ill patients

Objective 9:

- Systems and devices for data collection like mobile devices, hardware, software, etc.
- Training for data officers and frontline health care workers on data systems

Objective 10:

- Costs for virtual check-ins between annual meetings
- Costs for national steering committee meetings

Objective 11:

- Printing of protocols on mental health and psychosocial support
- Training for front line workers on essential psychosocial principles and psychological first aid
- Trainings on wellness and recognizing and addressing burnout

RESOURCES:

[Basic Assessment and Support in Intensive Care \(BASIC\) Course](#)

[Disease Control Priorities \(DCP3\) – Strengthening Health Systems to Provide Emergency Care](#)

[ENA Emergency Severity Index Training Courses](#)

[Open Critical Care Courses](#)

Kruisselbrink R., Kwizera A, Crowther M, Fox-Robichaud A, O’Shea T, Nakibuuka J, et al. Modified early warning score (MEWS) identifies critical illness among ward patients in a resource restricted setting in Kampala, Uganda: a prospective observational study. PLoS ONE. Feb 2016; 11(3): e0151408.
<https://doi.org/10.1371/journal.pone.0151408>

[SCCM Critical Care for Non-ICU Clinicians training portal](#)

[SCCM ICU Liberation Bundle \(A-F\)](#)

[South Africa Triage Scale](#)

Thind A, Hsia R, Mabweijano J, et al. Prehospital and Emergency Care. In: Debas HT, Donkor P, Gawande A, et al., editors. Essential Surgery: Disease Control Priorities, Third Edition (Volume 1). Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2015 Apr 2. Chapter 14. Available from:
<https://www.ncbi.nlm.nih.gov/books/NBK333513/> doi: 10.1596/978-1-4648-0346-8_ch14

[WHA Resolution 17.16: Emergency care systems for universal health coverage: ensuring timely care for the acutely ill and injured](#)

[WHO Biomedical Equipment for COVID-19 Case Management – Inventory Tool](#)

[WHO COVID-19 Clinical Management: Living Guidance](#)

[WHO COVID-19 Essential Supplies Forecasting Tool](#)

[WHO Clinical Care for Severe Acute Respiratory Infection](#)

[WHO Critical Care Training Short Course](#)

[WHO List of Priority Medical Devices for COVID-19 Case Management](#)

[WHO Maintaining Essential Health Services During the COVID-19 Outbreak](#)

[WHO Psychological First Aid: Guide for Field Workers](#)

[WHO Resuscitation Area Designation Tool](#)

[WHO Standardized Clinical Form](#)

[WHO Tools for Strengthening Emergency Care Systems](#)

[WHO/ICRC Basic Emergency Care: Approach to the Acutely Ill and Injured](#)

[WHO/PAHO COVID-19 Recommendations: Prehospital Emergency Medical Services](#)