

The following suggestions regarding health system preparations (compartment hardening) for COVID-19 are offered by James Lawler, M.D., M.P.H., Associate Professor, Department of Internal Medicine at University of Nebraska Medical Center. Dr. Lawler is also Director, International Programs and Innovation, Global Center for Health Security; and Director, Clinical and Biodefense Research, National Strategic Research Institute.

NCHA encourages our members and partners to consult and follow guidance provided by the North Carolina Department of Health & Human Services here: <https://epi.dph.ncdhhs.gov/cd/coronavirus/providers.html> and the Centers for Disease Control here: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>. Both state and federal guidance are frequently updated.

Considerations for Hospitals and Health Systems to Prepare for COVID-19 Response

In thinking about novel coronavirus (COVID-19) preparedness from the perspective of three compartments of the healthcare system – patients, facilities and staff – it is believed that if we can proactively prepare and communicate with these three stakeholder groups, we can avoid overwhelming surge and mitigate impact. The idea is to combine this with non-pharmaceutical interventions in the community (social distancing, school closure, etc., if and when needed) to soften impact and create resilience in the healthcare system.

Following is a checklist of activities that hospitals and health systems can consider doing in the three compartments. Thinking about these actions is a starting point that can be adapted for your organization.

Patient Care Preparation – Create more resilient patients insulated from risk of transmission (especially the elderly >65 y/o and those with underlying comorbidities such as heart, lung, kidney disease, diabetes, etc.)

Actions include:

- Consider moving up to immediate semi-elective surgeries and procedures (those that can avoid complications and will need to be done in the next 6 months) to get them off the table.
- Continue purely elective surgeries/procedures/admissions until triggers indicate it is time to commence non-pharmaceutical interventions (NPI) in that community and then cease until epidemic wave passes and health system unloads.
- Tune up complicated patients as best as can be over the next several weeks to allow “cruise control” for two to three months without accessing health care in person
- Ensure people are up to date on flu shots and pneumococcal vaccines.
- Strengthen internet and telehealth communications between patients and healthcare systems so patients can get advice and care while remaining at home, e.g., nurse advice lines, new smartphone apps and web-based portals, etc.
- Augment home health services for the most vulnerable and fragile patients (must insure proficient infection prevention and control skills in home-health personnel)
- Work with payors and patients to provide additional prescription medication (ideally up to 2 to 3 months’ supply), if possible. Encourage patients to check with their insurance companies about waiving co-pay penalties and insurance restrictions.
- Utilize mail-order or other remote refill mechanisms that do not require an in-person visit for patients who cannot get large stockpiles (narcotics, etc.).

- Facilitate disease-specific social network and support groups (e.g., diabetes group) where healthcare providers and experienced patients can share lessons, insight, and support.
- Engage family members and social support systems to prepare vulnerable patients to shelter in place for one to two months.

Facility Preparation – To ensure the continued functioning of the healthcare system, protect patients and staff from nosocomial spread, and absorb a large surge of severe respiratory disease, hospitals and other healthcare facilities must take action now. Skilled nursing facilities (SNFs), dialysis clinics, cardiac rehab, and other facilities with high concentrations of especially vulnerable patients should make special preparations.

Actions include:

- Outpatient clinics, ERs, acute care clinics, etc., should, to the extent possible, initiate parallel/separated triage lines for influenza-like illness (ILI)/upper respiratory infection (URI) patients that do not cross streams with non-ILI/URI immediately.
- Admission screening should occur for all elective or non-acute infectious disease admissions.
- URI/ILI should be identified and either cared for at a remote site for non-serious patients; if admission CDC-recommended isolation/precautions should be implemented asap. Although it may be difficult, cohorting patients in a separate area with dedicated staff should be considered and implemented, if possible.
- Hospital systems, clinics, etc., should work with state/local public health labs, commercial labs, and academic reference labs to get testing protocols in place as diagnostic availability ramps up.
- Hospitals should examine options and guidelines for ward cohorting, e.g., should admissions with pneumonia be cohorted with dedicated wards and staff that do not mix.
- Outpatient practices should consider engaging home visit/home care options starting now to defer visits when needed.
- ERs and outpatient clinics should engage telehealth resources for acute issue triage, follow-ups, medication refills, etc., to defer visits to clinics or ERs.
- Health plans and health departments should activate protocol-driven advice lines.
- Facilities should start expanding inventories of all major drugs and consumables supply stocks to be able to absorb interruptions of supply chain but should avoid excessive hoarding.
- Arrange alternate suppliers for critical supplies in case of shortages.
- Renovation/construction projects that may interrupt workflow or space capacity should be delayed or adjusted.
- Put in place the conserve/reuse/recycle approach for critical supplies such as PPE.
- Strengthen tele-education and tele-ICU arrangements, so ICUs can get remote help and support when overwhelmed. Identify remote providers now and practice systems.
- Develop alternate sites of care for hospital ward expansion, including on- and off-site options with surge capacity to 5 to 10 times normal number of pneumonia and influenza admissions at peak flu season.
- Engage private sector partners to assist in supply and logistics chain strengthening/back up, transportation, communication, surge space, and other critical needs.
- Hospitals and health systems must create regional coordination through healthcare coalitions or other mechanism (healthcare emergency operations center) that uses Incident Command System (ICS) and maintains visibility of essential supply chains, patient load and distribution, resource sharing, transportation assets, private sector partners.
- Consider enhanced EMS/paramedic scope of practice for remote case management.

Staff Preparations – Health systems depend on staff who are healthy, unconstrained by home needs, illness or economic burdens, and confident of their skills and safety while at work. Employers should consider immediately taking action to do the following:

- Address personal medical conditions of staff and provide two to three months’ supply of medications, if necessary and appropriate.
- Address family member medical issues and medication supply to avoid staff distraction.
- Assess family support resources that should be made available for healthcare workforce planning – elder care, childcare, dog walking, family meals for lower income families, etc., and facilitate these services.
- Hire and train additional staff and/or engage locums and travel nurses to supplement ward staff.
- Academic medical centers should provide additional inpatient care and skills training for medical, nursing, and allied health students to enable to provide care and support hospital key functions.
- Coordinate with regional partners and assemble volunteer staff lists of retirees, non-practicing, and other health care professionals
- Cross-train professionals for out of scope practice – dentists, pharmacists, etc.
- Accelerate education and training for appropriate inpatient care practices and PPE use
- For staff who have significant health risk factors, provide paid furlough or alternate duties away from high-contact environments.
- Implement paid sick leave protocols for low wage workers on contracts.
- Examine options for rotating blocks of staff (i.e., 5 on q12, 5 quarantine, 5 off)
- Provide hotel option for staff who do not feel comfortable sharing home with loved ones.

Vulnerable populations – fatality data from China CDC as of March 4, 2020

COVID-19 Mortality Stats		COVID-19 Fatality Rate by COMORBIDITY:	
COVID-19 Fatality Rate by AGE:		PRE-EXISTING CONDITION	DEATH RATE
AGE	DEATH RATE	Cardiovascular disease	10.5%
80+ years old	14.8%	Diabetes	7.3%
70-79 years old	8.0%	Chronic respiratory disease	6.3%
60-69 years old	3.6%	Hypertension	6.0%
50-59 years old	1.3%	Cancer	5.6%
40-49 years old	0.4%	no pre-existing conditions	0.9%
30-39 years old	0.2%		
20-29 years old	0.2%		
10-19 years old	0.2%		
0-9 years old	no fatalities		