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Influenza Surge Capacity Guidance for General Hospitals

The purpose of this document is to provide guidance to general hospitals to better enable them to prepare for a surge in health care demand this season as a result of patients presenting with influenza.

Every year hospitals in New Jersey experience a surge in demand for services at the height of influenza season. It is not possible to predict the severity of an influenza season nor its impact on an individual hospital. The implementation of strategies to best manage surging patient volume is dependent on multiple factors. Administrators need to take into account both the absolute number of patients seeking medical attention, the intensity of services required by these patients, and the availability of staff and appropriate supplies.
Much of the guidance offered below should be helpful in dealing with this expected seasonal surge. With the ever-present threat of an influenza pandemic, New Jersey hospitals need to be ready to deal not only with the normal seasonal increase in volume of hospital patients, but also with the potential for a more significant increase, which could be felt locally, regionally or statewide.

Should the increase in demand for the hospital's services be so large that it significantly impairs the ability of a hospital to offer its full array of regular services, the Department expects that the hospital will, as a result, activate its disaster plan and curtail all admissions for elective procedures. Should a hospital activate its disaster plan, it must notify the Department immediately at 1-800-792-9770. At the time of notification, the hospital should discuss with the Department any measures it plans to take that deviate from licensure standards. The Department will work cooperatively with facilities that have activated their disaster plans to ensure they have the maximum flexibility consistent with patient safety to respond to extraordinary service demands. Any anticipated deviation from the Emergency Medical Treatment and Labor Act (EMTALA) should be discussed with the Centers for Medicare and Medicaid Services (CMS), Region II at 1-212-264-1590.

In the guidance below, those recommendations that might entail deviations from licensure standards and presume an activated disaster plan are presented separately.

Surveillance

Health care facilities will play a key role in surveillance for influenza. Health care providers need to be alert to the signs and symptoms of influenza in patients presenting to their facility. Diagnostic testing for influenza should be considered in any individual presenting with pneumonia, severe respiratory illnesses, or influenza-like illnesses (ILI). Health care providers should receive education regarding the type of influenza testing available in the facility and the proper method of specimen collection. Diagnostic testing methods include the use of rapid diagnostic tests as well as more sensitive techniques, including polymerase chain reaction (PCR) and viral isolation. (http://www.cdc.gov/flu/professionals/diagnosis/index.htm). Rapid diagnostic tests are valuable because they allow the provider to make more informed and timely decisions regarding patient treatment and disposition. In addition, rapid testing might influence a provider's decision to offer antiviral prophylaxis to high risk contacts of the patient. Early identification is valuable to the public health community and might help to avert more wide-spread disease. The infection control professional should play an active role in surveillance and should be alerted to any positive influenza test result, any patient with suspected influenza, and any suspected death related to influenza in the facility.

Local health departments and the NJDHSS Communicable Disease Service are available for consultation, regarding outbreak identification and management; NJDHSS reminds health care facilities that any suspect or confirmed outbreak is reportable to local health departments, per N.J.A.C. 8:57. Finally, NJDHSS encourages health care facilities to regularly visit its website on influenza, including the influenza surveillance page (http://www.state.nj.us/health/flu/surveillance.shtml), for updated information on statewide ILI activity (including data from emergency departments) and new surveillance initiatives.

Transmission and Infection Control Strategies in the Health Care Facility

Observational studies and observations in hospitals indicate that transmission from one patient to others occurs most often in persons nearest the infected patient and that health care workers are important vehicles of transmission to patients on the same or different
wards. These observations suggest that instituting contact and droplet precautions might be helpful. There is less data to support the clinical importance of isolation procedures (such as negative pressure rooms) to limit airborne transmission in the setting of normal air exchange. Further, the number of such rooms is limited and likely would be insufficient to handle the number of hospitalized patients expected with a surge in volume. Influenza viruses are known to survive on non-porous surfaces for up to 24 – 48 hours after contamination and on porous surfaces (tissues, cloth, paper) for up to 8 – 12 hours. Viable virus can be transferred from non-porous surfaces to hands for up to 24 hours after contact and from tissues to hands for up to15 minutes after contact. The typical incubation period for influenza is two days (range one to four days). Viral shedding, and the period during which a person might be infectious to others, generally peaks on the second day of symptoms, but might begin the day before symptoms start, and typically lasts five to seven days in adults.

Recommended infection control precautions:

- Patients with ILI should be placed in a private room. When a private room is not available, patients with ILI may be cohorted. In an outbreak of influenza, most patients with suspected influenza will not have a specific laboratory diagnosis; such patients should be cohorted with other patients who have or might have influenza. If cohorting is not achievable, at least 3 feet spatial separation should be maintained between the infected patient and other patients and visitors. Special air handling and ventilation are not required.
- Health care personnel should use standard precautions and droplet precautions. These precautions include hand washing, use of gloves, gowns, masks and eye protection as outlined by the CDC. (http://www.cdc.gov/flu/professionals/infectioncontrol).
- Currently available federal guidance suggests that surgical masks provide adequate protection against seasonal influenza. However, an individual health care provider may choose to use a higher level of respiratory protection, such as an N-95 respirator. All individuals should wear a mask upon entering the patient's room or when working within 3 feet of the patient. Remove the mask when leaving the patient's room and dispose of the mask in a waste container. Individuals should wash their hands after mask removal.
- Limit the movement and transport of patients from the room for essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplets by having the patient wear a surgical mask.
- The appropriate method and sequence of donning and doffing personal protective equipment should be reviewed with the staff.
- The facility should redouble efforts to comply with requirements to clean surfaces that have been contaminated with respiratory secretions with which staff or patients might subsequently come in contact (e.g., bedside tables, telephones).
- Staff should be educated about the epidemiology and prevention of influenza. Education should be a regularly scheduled event and should be repeated and geared toward a wide audience. Additional methods of education, including teleconferencing and mass mailing, may be considered. Extra effort should be made to ensure that all staff participates in this program, including nurses who work on a part-time basis, other staff who might not routinely care for patients but might be required to do so,

volunteers, and non-patient care staff (e.g., staff who work in administrative, medical records, food service, environmental services departments, engineering, maintenance).

- Education should be provided to patients. Information on Universal Respiratory Precautions (http://www.nj.gov/health/flu/education.shtml) or Respiratory Etiquette (http://www.cdc.gov/flu/protect/covercough.htm) should be posted widely throughout the facility. Tissues and stations to facilitate hand hygiene should be made available throughout the facility.
- Visitors with ILI should be asked not to visit hospitalized patients. Signs should be posted outside the facility asking visitors with symptoms of influenza to defer visiting. Visitors with symptoms should be handed a mask or tissues at the door, if they must enter the facility, and be instructed on appropriate infection control practices.

- Visitors to an area with influenza-infected patients should receive educational material, should follow appropriate infection control practices, and be provided with appropriate PPE. Consideration should be given to restricting visits from children.

Isolation and quarantine are not recommended. They can be very effective in preventing the spread of infectious conditions but several substantial challenges may limit their usefulness during an influenza outbreak.

- The short incubation period for influenza makes it difficult to identify and quarantine contacts of influenza-infected case-patients before they become ill and have spread infection to others. By contrast, the longer incubation periods for smallpox (about 14 days) and SARS (up to 10 days) make this a more effective control strategy for those infections.
- The high rate of asymptomatic influenza illness (the majority of those infected) means that many potential disseminators of influenza will not be identified nor will their contacts.
- The wide range of clinical symptoms that might be expressed by influenza infected persons are common to many different pathogens and would necessitate isolation and quarantine of large numbers of persons, many of who would not be infected with influenza.

Emergency Department and Hospital-based Ambulatory Clinic Settings

As patient volume surges, crowded waiting areas might be a source of influenza transmission. Therefore, strict adherence to infection control practices in these settings is paramount. To prevent the transmission of influenza, it is important to implement infection control measures at the first point of contact. Personnel well trained in triage are vital. These individuals will play a key role in maintaining the integrity of the health care delivery system.

Potential strategies to help manage influenza patients in these settings include:

A. Minimal Interventions to Prevent Exposure

- At a minimum, patients should be asked to self-report influenza-like symptoms immediately upon arrival. Signs, in appropriate languages, should be posted instructing individuals with fever and respiratory symptoms to alert the staff immediately. These patients should be asked to wear a mask or use tissues to cover their mouth and nose while in the facility. In ambulatory settings, patients who call for an appointment should be asked if they have ILI; this will enable the staff to make arrangements for minimizing exposure of others (e.g., arrival through a separate door directly into an exam room).
- Consider the installation of plexiglass barriers at the point of triage or registration to protect healthcare personnel from contact with respiratory droplets.

- Waiting areas should have information on “Universal Respiratory Protection” or “Respiratory Etiquette.” The waiting areas should have an ample supply of tissues with proper receptacles for disposal. These receptacles should be emptied regularly. The waiting areas should have hand sanitizers available, disposable towelettes or pump bottles, if hand washing facilities are not available.
- Patients with respiratory illnesses should be kept as far from other patients as possible (at least 3 feet) if they cannot be removed from the common space. Patients reporting ILI should be evaluated as

expeditiously as possible. Staff caring for these individuals should wear appropriate personal protective equipment (PPE).

- The use of objects shared by patients, such as pens, pencils and clip-boards, should be evaluated and procedures should be put in place to minimize contamination (disposable pens or pencil, wipes for clipboards). .
- Movement of patients with ILI through the facility should be limited. Portable radiographs should be considered. Normal administrative procedures, such as registration, might be altered to restrict patient movement and limit the time in the facility. Standing orders for the basic laboratory evaluation of a suspected influenza case-patient might be created to speed progress through the system.

B. Alternate Emergency Department and Hospital-based Ambulatory Clinic Triage Stations

- Space permitting, facilities could consider having a triage station outside the usual waiting area.
- A standard set of questions should be used to screen patients.
- Patients presenting with ILI would be directed to wait in a room separate from individuals presenting with illnesses thought not to be infectious. Since many of the individuals presenting with ILI will not be diagnosed with influenza, these individuals should be asked to follow the precautions as outlined in "A".

C. External Emergency Department Triage Stations
This type of measure should be considered only in conjunction with activation of a hospital's disaster plan.

- The hospital might utilize locations outside the emergency department for triage and evaluation of patients with influenza-like illnesses. These might include, administrative buildings, trailers, etc.
- Those patients with ILI who are stable and thought **not** to need acute care would be directed to another external structure for evaluation. Those patients who present with non-infectious complaints or those with ILI thought to need acute care could be sent to the main building (wearing masks).
- The location used for patient evaluation should have as much diagnostic capability as possible. Considerations should be given to the availability of portable radiography, phlebotomy, pulse oximetry and arterial blood gas assessment. Again, the infection control precautions as outlined in "A" are still appropriate.

Deferred Hospitalization

Hospitals should, in conjunction with their medical staff, develop policies and recommendations for physicians concerning criteria for deferring admissions of patients when the hospital is experiencing a high volume of influenza-related admissions. With scarce hospital resources and the potential for nosocomial transmission, deferred admissions might be prudent, unless patient care would truly be compromised.
Those individuals with solid home supports would be ideal candidates for home management. Hospitals, in conjunction with their medical staff, should encourage development of systems and partnerships in advance, to assure appropriate home management of care.

- Detailed written instructions should be prepared describing what the patient can expect in terms of the clinical course and where to direct questions and concerns.
- Written instructions should stress the importance and methods of maintaining hydration.
- Written instructions should include information (e.g., infection control guidance) for the household care provider on how to best manage the infected individual as well as measures to protect his/her own health and others in the household.
- Partnerships with home health agencies should be encouraged. These agencies would be a valuable resource in caring for patients at home.
- Partnerships with other community providers should be encouraged to ensure that patients receive adequate follow-up and that there is continuity of care.
- Systems for follow-up for those patients who do not have primary care providers should be planned. This may entail the establishment of a follow-up influenza clinic/session at the facility.
- The availability of social services should be ascertained to help coordinate efforts for optimal patient care and safe discharges.

- Partnerships with public health, volunteer organizations, meal delivery services, and mental health providers might be encouraged or strengthened as well.
- "Short stay" outpatient areas within the hospital should be considered for patients to receive hydration, intravenous antibiotics, or monitoring.

- **In the event the hospital's disaster plan is activated**, use of unlicensed areas outside the main hospital building could be considered for these "short stay" areas discussed above.

Intensive Care

The ability to provide intensive care will likely be the rate-limiting step in a facility's ability to handle a significant surge in patient volume**.** It is estimated that, at the peak of a flu epidemic, approximately 21 percent of patients hospitalized with influenza will require care in an intensive care setting. Of those patients, 50 percent will require ventilatory support. In the event of a large surge in patient volume secondary to influenza, intensive care resources, including skilled nursing staff and ventilators, will be stressed. Once again, it is prudent to establish policies and partnerships in advance to deal with the following:

- Developing and/or reviewing policies for cohorting patients.
- Reviewing criteria for admission into and transfer out of the intensive care unit. Given that resources may be stressed, criteria may be considered that differ from those normally in place at the facility.
- Minimizing, to the extent possible, invasive respiratory procedures, such as bronchoscopy and sputum induction. During the SARS outbreak, staff who participated in the performance of invasive respiratory procedures were more likely to have become infected. In one study, greater than 60% of the health care workers affected by SARS had either performed procedures associated with aerosolization of secretions, or were present in the room at the time of the procedures.
- Considering intubation procedures. If intubation is being considered, an effort should be made to do it electively. This will enable the procedure to be performed in a controlled environment with the staff wearing appropriate PPE. Emergent intubation might be associated with more nosocomial transmission.
- Considering the ethical and religious issues involved with the allocation of limited resources. The institution's ethics committee and clergy, along with the clinical staff, will need to play a key role in making difficult decisions expeditiously.

- **If a hospital's disaster plan is activated,** unconventional settings could be utilized to increase intensive care capacity. Ambulatory and inpatient surgery units as well as recovery rooms might be utilized for this purpose.

Facility Planning for Inpatient Care

As mentioned previously, patients should be maintained at home if feasible. Hospital administrators, facility managers, and clinical staff need to complete an assessment of their facilities and devise a plan for dealing with increasing numbers of patients with influenza.

- Influenza patients may be cohorted if the supply of private rooms is exhausted.
- Standing orders for patients with influenza should be considered to expedite transfer from the emergency department to the floor.
- If more than a few patients with influenza are admitted to the facility at a given time, it is prudent to designate a particular area, unit or floor for the care of these individuals. Limiting the geographic area will make it easier to optimize infection control measures and limit the number of staff exposed to the virus. If possible, the area chosen should not be highly trafficked and should not be adjacent to areas where patients at high risk for influenza-associated complications are admitted (e.g.,labor and delivery, HIV wards, hemodialysis units, oncology units). The area chosen should have the potential for expansion as patient numbers increase. For instance, patients may be placed on one floor of a particular building in the hospital complex with the expectation that, as patient volume increases, the entire building will be used to cohort influenza patients by adding one floor at a time. Patients without

influenza would be cared for in another building of the hospital complex. Obviously, the choice of location will depend on each facility's layout and resources. The plan should not necessitate moving large numbers of influenza-infected patients to a distant site because patient volume has outgrown the originally designated area; relocation of patients would only increase the risk of nosocomial transmission.

- The transportation of patients outside this designated area should be discouraged. Efforts should be made to provide as many clinical services on site as possible (e.g., physical therapy, radiology, PICC line placement). Each patient should be provided with a mask when leaving his/her room.
- Care should be taken to screen ***all patients*** admitted to other areas of the hospital for influenza symptoms before arriving on the floor or presenting for elective procedures. This would include patients scheduled for elective surgery and women who present in labor. If patient care would not be compromised, patients with ILI should be cared for with other influenza-infected patients. If it is not feasible, strict infection control precautions need to be in place at the site of patient care.
- Policies to expedite the discharge or appropriate transfer and transport of patients not infected with influenza to alternate care sites should be considered. Discharge planning, social and transportation services should be readily available to the clinical staff on a daily basis to allow for the expeditious and safe transfer and discharge of patients.

- Identification should be made of alternate space in the hospital that could be used for patient care **after activation of a hospital's disaster plan**. This might include areas not typically used for patient care (administrative offices, conference rooms) as well as external structures, such as trailers. Ambulatory and inpatient surgical suites, endoscopy suites, recovery rooms and day-stay units should become available if elective medical and surgical procedures are cancelled as part of the disaster plan.

Staffing Issues

Human resources are likely to be scarce if there is a large outbreak of influenza. Not only will the volume of patients increase at health care facilities, but staff members might not be able to work because of personal or family illness. Thus, provisions should be made for how best to maintain patient care in the face of scarce human resources.

- The facility's time-off policies and procedures should adequately consider staffing needs during the expected peak influenza season.
- The facility should identify, in advance, staff that might have scheduling difficulty because of child or elder care responsibilities and make appropriate accommodations.
- If possible, staff members caring for patients with ILI should not be used to care for patients without influenza-like illnesses. Rotating staff to different services is more likely to spread influenza throughout the facility.
- The facility's employee health service, in conjunction with management, should play an active role in developing policies during this time. Consider developing procedures to screen employees reporting to work for symptoms of ILI and establishing policies in advance for accepting employees back to work after an ILI. Rapid influenza testing of symptomatic employees may help to make better-informed staffing decisions as well as help to make more effective use of scarce antivirals and vaccine (http://www.cdc.gov/flu/professionals).
- When the employee health service determines a staff member is symptomatic with influenza, that individual should be sent and remain home until afebrile (T <100.5) and symptomatically improved. Employees who meet criteria for pneumococcal vaccine should be encouraged to be vaccinated.
- The facility should consider using clinically trained administrative staff not usually engaged in patient care services. Consider "refresher courses" in advance for these staff members and be sure to comply with licensure standards regarding qualifications and orientation.
- Staff should be advised to maintain personal care kits, including necessary personal items and medications, in the event there is an unforeseen emergent circumstance that requires them stay beyond a scheduled shift. Note that rules limiting the imposition of mandatory overtime will not

be relaxed unless the situation clearly qualifies as one of the exceptions provided for under the law governing mandatory overtime.

- **In the event that the hospital's disaster plan has been activated,** the facility should consider identifying a family member or friend of each inpatient to help with personal care of the patient, thus alleviating the need for hospital personnel to perform non-medical duties. These individuals must receive instruction in and practice infection control precautions.

Nosocomial Transmission

If an outbreak of influenza occurs, transmission within the facility is more likely to occur because of the large number of persons (patients, staff and visitors) who will be infected. There may be difficulties implementing optimal infection control practices due to increased patient loads, staff shortages, and use of non-routine or volunteer staff. Active surveillance for nosocomial influenza infection needs to be implemented by the initiation of enhanced infection control measures.

- Implementation of surveillance for nosocomial onset of acute febrile respiratory illness or pneumonia (onset $\geq$ 48 hours after admission). The former would include documenting new onset of fever > 100.5 F, with or without myalgia, malaise, or headache and with one or more of the following symptoms: sore throat, cough, rhinorrhea, or nasal congestion. When a suspect case or cluster of cases is identified, obtain specimens for viral testing. Rapid testing should be considered for more expeditious diagnosis.
- Investigation by infection control personnel to identify potential causes of the outbreak or factors that contribute to ongoing spread. These investigations might identify a specific area of the facility that is the focus, determine whether infected health care workers might be transmitting the virus, and assess how well infection control practices are being implemented.
- Control measures should be implemented. These might include cohorting patients, educating staff members, placing staff on leave or changing their patient-care responsibilities, and use of vaccine or antiviral prophylaxis, if available.
- Communicating with the local health department for assistance with coordination. Patients might need to be diverted to other facilities until the internal chain of transmission is broken.

Other Issues

- The facility should ensure that adequate security is available to handle high volumes of patients in the emergency department
- The facility should redouble efforts to ensure compliance with licensure standards requiring that all patients age 65 and over shall be screened and, if eligible, offered vaccination against pneumococcal disease. Providers in ambulatory settings could review the guidelines for pneumococcal vaccine and offer vaccine to high-risk individuals (http://www.cdc.gov/mmwr/PDF/rr/rr4608.pdf).
- The facility might need to request additional supplies (ventilators, intubation equipment, intravenous catheters, intravenous pumps) from new sources. These supplies may not be those normally used in the facility and might have to bypass normal committee and clinical engineering review. The hospital should make arrangements in advance for the use of these supplies.
- The facility should partner with community providers. Patients with identified primary care physicians should be encouraged to contact their provider prior to presenting to an acute care facility. Primary care providers should make every effort to accommodate patients; physician groups might consider providing extended evening or weekend hours to alleviate the volume at acute care facilities.
- The facility should ensure that the staff, patients, and visitors receive accurate information; the information should be consistent with the messages from local and state health agencies.

- Mental health providers should be available to help patients and staff deal with heightened stress and anxiety levels.
- Facilities should review policies regarding ambulance diversion. Ambulance diversion is a response to overcrowding that should be used sparingly; it is an advisory status, not a mandate. In the event of a surge in patient volume as a result of influenza, all hospitals in the region are likely to be experiencing similar stresses; therefore, diversion will only place a greater stress on the overall health care delivery system.

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