Infrastructure Failure

I. Introduction

Two broad areas of concern regarding infrastructure failure include:

- *Episodic failure*: temporary loss of power, technology associated with maintenance of the babies may fail, or some other temporary issue may occur.
- *Catastrophic failure:* significant damage to hospital infrastructure or anticipated prolonged outage of critical systems may trigger a decision to perform a hospital evacuation. Preplanning requires recognition of potential threats or hazards and then development of management strategies to locate the resources and support patient needs.

- In disasters, departmental leaders need to develop an operational chart to plan for a minimum of 96 hours for staff needs, as well as patient care needs and supplies that may be depleted as supplies are moved with the patients. In the event that supplies or equipment cannot be replenished, staff may need to improvise. It is important that staff become familiar with non-traditional methodologies to assist equipment-dependent emergencies for neonatal patients.

- The first task in dealing with infrastructure emergencies is to complete a pre-disaster assessment of critical infrastructure (see Appendix A). A key consideration in deciding whether to issue a pre-event evacuation order is to assess vulnerabilities and determine anticipated impact of the emergency on the hospital and its surrounding community.

II. Critical Infrastructure Self-Assessment Worksheet

A Pre-Disaster Assessment of Critical Infrastructure Worksheet (Appendix A) is divided into eight sections: municipal water, steam, electricity, natural gas, boilers/chillers, powered life support equipment, information technology, telecommunications, and security. The Worksheet can be used in conjunction with the National Infrastructure Protection Plan (NIPP), which is a management guide for protecting critical infrastructure and key resources. https://www.dhs.gov/sites/default/files/publications/NIPP_Plan.pdf

Decision teams should know how long their hospitals can shelter-in-place if critical infrastructure is damaged.

Example: How long could the hospital maintain a safe temperature without city water during the summer months and how long could essential power be maintained with only the current on-site fuel supply?

The Pre-Disaster Assessment of Critical Infrastructure Worksheet is designed to help decision teams consider the vulnerabilities of their critical infrastructure and their hospital's ability to shelter-in-place, which in turn may guide investment decisions for mitigating vulnerabilities.

If critical infrastructure has not sustained damage, the hospital's ability to shelter-in-place will be affected by the extent to which staffing levels can be maintained, and whether the supply of critical consumable resources—such as food, blood, and medications—can meet the needs of patients and staff, drawing on existing caches within the hospital and regular and backup supply channels. Maintaining safe levels of staffing and consumable resources should be addressed in a hospital's plan for sheltering-in-place. If there is no such plan, the ability to shelter-in-place for more than a few days may be degraded.

III. Loss of Water Supply

Considerable anecdotal evidence, as well as published reports, indicates that loss of water will lead to hospital evacuation if not promptly restored. Loss of the municipal water supply also jeopardizes hospital sprinkler systems and, in some hospitals, heating systems. A hospital pre-disaster self-assessment should recognize the presence/absence of backup water supply lines (in the event that the main line fails) and any on-site water reserves, such as a storage tanks or wells.

In order to maintain daily operations and patient care services, health care facilities need to develop an emergency water supply plan to deal with total or partial interruption of the facilities' normal water supply. Water supply interruption can be caused by several types of events such as natural disaster, a failure of the community water system, construction damage or even an act of terrorism.

Examples of critical water usage in a health care facility that could be impacted by a water outage:

Water may not be available for:

Hand washing and hygiene

Drinking at faucets and fountains

Food preparation

Flushing toilets and bathing patients

Laundry and other services provided by central services (e.g. cleaning and sterilization of surgical instruments)

Reprocessing of medical equipment, including that typically performed by special services (e.g. bronchoscopy, gastroenterology)

Patient care (e.g. hemodialysis,, hemofiltration, ECMO, hydrotherapy

Radiology

Fire suppression sprinkler systems

Water cooled medical gas and suction compressors (a safety issue for patients on ventilation)

Heating, ventilation and air conditioning

Decontamination/ hazmat response

Regardless of size, a health care facility must have a defined emergency water supply plan in place to ensure patient safety, quality of care while responding to and recovering from a water emergency

Take Action in the NICU

Expected Problem	Possible Solutions
Ice machine not working	Call nutritional services for emergency ice needed for medical treatments
Water lines broken	Move patient/ staff to safe area. Notify HCC via hospital specified disaster assessment form; use courier if necessary
Toilets not functioning	Toilets are bagged with plastic bags to collect raw sewage (red biohazard bags are not required unless there is visible blood; also increased disposal costs if red bags are used)
No water	Use moist towelettes or alcohol wipes to clean hands. Notify HCC via hospital specified disaster assessment form

The following water resources could be utilized if the water supply is disrupted:

<u>For Human Consumption</u>

- Bottled water from in-hospital supplies and vendors (primary source)
- Pharmacy IV and irrigation bottles
- Ice machines
- Distilled water from central service department within the hospital

<u>Highest Consideration for use of water shall be as follows:</u>

- Provide drinking water for patients and staff
- Complete critical in-process hemodialysis
- Cleanse skin of patients after removal of as much soilage as possible

- Perform oral hygiene
- Cleaning and low level disinfection of non-critical patient care items or equipment within the patients' environment, reprocessing and high level disinfection of critical and semi-critical patient care items and surgical procedure instruments
- Food preparation
- Hand hygiene

IV. Steam

Some municipalities use large steam production plants to create steam and pipe it underground to buildings in local areas, including hospitals. Steam production plants are critical infrastructure, as are the pipes that deliver steam to area hospitals. Loss of water to steam production plants, inability to generate steam, or inability to pipe it underground to hospitals would jeopardize heat and could lead to hospital evacuation within 1-2 days during the winter months. Some hospitals also use the incoming steam to generate electricity and for such hospitals, loss of steam would also mean loss of some of their electrical capacity. A hospital self-assessment should therefore include recognition of reliance on steam that is generated off-site and piped in for heating purposes, electricity generation, or both.

V. Natural Gas

For hospitals that use natural gas for heat and/or hot water, damage to gas mains lasting more than 1-2 days (especially in the winter) could lead to an evacuation. A hospital self-assessment should therefore recognize reliance on natural gas, whether there is more than one gas line feeding the hospital, and whether gas from just one intact gas line could meet the most critical needs of the hospital.

VI. Boilers/Chillers

Some hospitals use boilers to generate hot water; others use them for heating purposes, as well. Most hospitals also have chillers for air conditioning (with or without cooling towers). Redundancy in these types of critical infrastructure is rare, and their loss could necessitate an evacuation, depending on weather conditions. A hospital pre-disaster self-assessment should therefore recognize vulnerabilities due to the loss of boilers or chillers, irrespective of the loss of electricity, water, or steam.

VII. Electricity

Prolonged loss of electricity can lead to HVAC loss, which can necessitate evacuation. In addition to controlling ambient temperature, electricity is essential for many medical technologies (e.g., monitors, CT scanners, dialysis machines, ventilators, incubators, ECMO pumps) as well as other critical functions. Patients dependent on electricity-driven life support equipment would require evacuation soon after power failure. Ventilator battery packs, for example, last only 2-3 hours, and the accompanying suction devices generally have no battery packs. NICU leadership should know which neonatal ventilators have battery backup. The

number of hours that a hospital can function without municipal electricity, or adequate fuel for backup generators, may be critical factors in an evacuation decision.

Most hospitals have backup generators, although the adequacy of these generators should be carefully assessed. For example, backup generators require fuel, and hospitals vary considerably in their on-site fuel storage capacity, whether there is a direct feed from the fuel tank to the generators, and whether it would be possible to refill the fuel storage tank—which is often underground—after an earthquake. Hospitals may need additional portable generators which can be brought to individual units to supply limited emergency power.

A hospital pre-disaster self-assessment should include the number and size of backup generators and an estimate of the length of time these generators can sustain electrically powered life-support equipment and HVAC. A self-assessment should also consider the fuel storage capacity on site and any potential refueling issues. The emergency power is tied to essential life support systems, emergency lighting, elevators, and fire and life control systems.

Take Action in the NICU

If the power goes out in your NICU, what should you do?

- Wait 8-10 seconds; the emergency generator will turn on the power. Notify HCC. Check that all essential equipment is plugged into red outlets and all life support equipment is properly functioning.
- Disconnect or turn off non-essential equipment that may be plugged into emergency power (red outlets). Examples of non-essential equipment include: fans, personal portable equipment, redundant computers and printers.
- Switch CPAP patients to gas only
- consider using pulse oximeters in lieu of bedside monitors
- consider using headlamps which should be stocked in the NICU
- have emergency flash lights available for hallways and stairs
- Stabilize sedated patients. Turn off all non-essential electrical equipment.
- Staff should remain calm. Locate flashlights, if necessary, and await instructions from your immediate supervisor.
- What should you do if you get stuck in the elevator?
    - Stay calm
    - Use the elevator phone or emergency alarm to call for assistance.
    - Do NOT try to climb out of the elevator.

VIII. Powered Life Support Equipment

Some powered life support equipment (e.g., ventilators, IV infusion pumps) have backup battery packs in the event of an electricity failure. The life of these batteries is generally 2-3 hours; patients dependent on such equipment may therefore need to be evacuated more quickly than others. A self-assessment should include an inventory of the powered life-support equipment in use on an average day, how many of these have backup battery packs, and how many hours these

batteries will last (the latter being a critical factor in deciding how quickly such patients must be evacuated). Check to see whether your neonatal ventilators have built in batteries and if so, how long the batteries power will last. Patients that are stable may need to be converted to T-piece ventilators (e.g. Neopuff). Centers that are providing ECMO need to identify other ECMO centers to arrange for transfer.

IX. Health Information Technology

Loss of health information technology (IT) and telecommunications systems may significantly reduce a hospital's ability to deliver health care services efficiently. For example, if a hospital's computerized provider order entry (CPOE) system suddenly goes offline; substantial delays in order completion can be expected, as well as increased risk of errors. In other instances, service delivery may cease altogether because automated systems cannot be quickly replaced by manual systems. For example, hospitals that rely on decentralized pharmacy and automated dispensing units may no longer have redundant systems for safely filling patient medication orders.

If patients must be evacuated, paper records are relatively easy to send with them, but many hospitals are moving away from paper records in favor of electronic medical records (EMRs). Some EMR systems can rapidly create and print a paper discharge summary to accompany each evacuated patient; other systems cannot, and the time required to create a useful discharge summary (current medications, allergies, orders, brief history) may substantially delay evacuation.

Take Action in the NICU:

NICUs need to confirm the capabilities of their EMR provider and whether relevant medical records can be generated in a timely fashion.

NICUs may opt for pre-printed copies of admission H and P, physician order sheets, progress notes, as well as a condensed plan covering list of medications with dose, vent settings , oxygen settings.

Example: electronic cardex from EPIC with diagnoses, MAR. This will serve to signout present patient’s status, problems, and medications in paper form, include hard copy of charge nurse signout

Need physician to physician transfer prior to actual transfer of the patient

Preservation of Vital Records: Hospitals must identify the most critical information needs for patient care, treatment and services when creating the Emergency Operations Plan. Plans must be in place to identify alternative means for processing data, providing for recovery of data and return to normal operations. The types of vital records that will accompany patients in the event of a disaster, how charting will occur when computer systems are down, and how records will be stored must be considered

The Hospital Incident Command System Documentation Forms are used to collect patient information and track patients, victims and fatalities. HICS forms are also used to account for communications, decisions, operation activities, personnel time and resources utilized. In addition, after a disaster, these forms may be valuable tools when seeking reimbursement from government agencies and insurance companies. HICS form's and downtime charting forms necessary for the preservation of vital records are included in the appendix. (Disaster Documentation and Forms Go-Kit)

X. Telecommunications

It is recommended that facilities test for communication redundancies due to inherently fragile condition of the NICU population and their needs.

Redundant communication strategies must be established to direct staff and communicate information to patients, families and external agencies. It is important to address all communication systems available to staff as well as the person or department that is responsible for maintain such systems or devices. Landline phones, cell phones, 2-way radios, two way pagers, fax machines, mass notification systems, television/radio stations and internet websites all the way down to couriers or runners are all methods that may be listed as communication systems in hospitals. These devices may be used alone or in combination, should one or more systems fail. This information should be included in unit-specific emergency plans as well as the Hospital-wide Emergency Operations Plan.
Internal communication should include a range of methods to communicate to staff, patients, as well as the hospital command center. Current standards in communication rely profoundly on landlines and radio communication during disasters. Potential problems with these methods are that landlines are not portable and can incapacitate a leader in a unit. Make sure that two-radios can connect with the Hospital Command Center. Radio airwaves can become very congested due to numerous participants on the same channels which can cause detrimental errors in communication. Radio waves also have difficulty with some hospital infrastructures and can become ultimately non-functional. The loss of cellular phones may also occur leaving a hospital with ultimately no form of communication (www. calhospitalprepare.org). Satellite media have been proven to be one of the most reliable forms of communication during disaster situations. Using wireless technology along with high speed broadband connectivity can improve disaster communication and help keep everyone informed (www.calhospitalprepare.org). If the emergency operation plan is activated, care givers must follow the chain of command.

Local wireless cell phone networks may fail as well because the data systems that exchange information for routing and billing may lose power. Because information for each account holder and cell phone device is generally stored on computers in the "home" market where the account is held, every customer with accounts originating in the local area may lose wireless service.

Institutions and individuals with computers equipped for Voice Over Internet Protocol (VOIP), and who have power and Internet access may retain telephone communication. In VOIP the audio (voice) signal is converted to digital packets of information that travel from one Internet address to another on the same VOIP system. VOIP networks were deployed by FEMA, and by fire and other emergency responders, in the days and weeks following Hurricane Katrina.

Finally, lack of radio interoperability between hospitals and emergency responders, as well as between different teams of emergency responders (fire, military, police, EMS) may also jeopardize essential communication. (The Federal Government does not mandate how a State or local community organizes incident response activities or communications.) The self-assessment focuses on the extent to which computer servers and essential data are backed up or managed offsite, whether redundant hardware and software systems exist, whether manual, paper-based systems can be quickly reintroduced, and whether the hospital has backup telephonic communication that does not rely on local service providers.

XI. **Medical Gas Failure** (oxygen, nitrous oxide, nitrogen, vacuum, and compressed air)
Should a failure of the medical gas system occur - **Take Immediate Action:**

Take Action in the NICU:

1. At the first sign of failure, utilize portable gas cylinders to stabilize patients. Every department that uses medical gas should maintain actively charged portable bottles. How to charge your system using H cylinders. If system wide gas failure, isolate the zone before you open the H cylinders. Must have approval from hospital and fire department before isolating zones and charging with H-cylinders. These bottles must be easily accessible. It is the individual department's responsibility to make sure that actively charged portable bottles are present.
2. Have someone in the affected area report the system failure to engineering. Do not leave patients unattended while reporting the failure.
3. For compressed air and/or vacuum failures, call Facilities Services. Physical backup is maintained two and three levels deep andthese services should be restored momentarily. Shut off zones, plug in H cylinders with oxygen and compressed air, must have safe storage in your action plan.

Problem	Possible solution
Vacuum not working	Notify HCC via disaster assessment form. Contact central service for portable suction machines. Use handheld suction that should be included in room disaster bags discontinue unnecessary suction
Air/oxygen not working	Discontinue unnecessary oxygen contact respiratory care for emergency oxygen Use medical gas back-up system
Ventilators not working	Use self-inflating bas valve mask Use Neopuff (preferred) have adequate personnel to ventilate manually use compressed air and oxygen cylinders, regulators (use transport grab and go cylinders)

Heat/Air Conditioning Loss	Have additional blankets/hats use chemical warming mattresses provide kangaroo care by family members use battery-operated fans

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Appendix A

Pre-Disaster Critical Infrastructure Self-Assessment*

***** U.S. Dept. of Health and Human Services, Agency of Health Care Research and Quality, Hospital Evacuation Decision Guide, 2011

Evacuation-Relevant Resources	Implication
City Water	
• Is water used for heating the hospital? • Is water used for cooling? • Does the hospital have a well? • Is there one water line going into the hospital, or also a backup line? • Is there a water storage tower/tank on the roof? • If the water tower/tank collapsed, would the hospital then be without water (or sufficient pressure)? • How long can the hospital maintain a safe temperature without city water in summer heat? • How long can the hospital maintain a safe temperature without city water in winter cold?	Y= more vulnerable Y=more vulnerable N=more vulnerable Only 1=more vulnerable Y=more vulnerable to earthquakes (but good backup water source) Y=more vulnerable Hours = time until evacuation Hours = time until evacuation
Steam	
• Does the hospital receive steam for heat from a separate steam-generation plant? • Is that steam plant on the hospital premises? • Is there one steam line into the hospital, or also a backup conduit? • How long can the hospital maintain a safe temperature if the steam-generation plant is off line? • Is steam also used to generate electricity? • If so, what % of electricity would be lost if the steam-generation plant went offline?	Y=more vulnerable N=more vulnerable Only 1=more vulnerable Hours = time until evacuation Y=more vulnerable >50%=vulnerable
Electricity	
• Does the hospital have a central backup generator? • More than 1? • Is there a fuel storage tank on site with a direct line to the backup generator? • Is the fuel storage tank underground? • In a flood, would the intake be underwater? • How long can essential power be maintained using the current fuel supply? • Does the hospital have smaller or portable generators for floors/sections of the hospital? • Can all essential areas of the hospital be powered with these smaller generators?	N= more vulnerable N= more vulnerable N= more vulnerable N= more vulnerable Y= more vulnerable Hours = time until evacuation N=more vulnerable N= more vulnerable

• Is fuel stored on site for these smaller generators? • How long can essential power be maintained using the current fuel supply and these smaller generators?	N= more vulnerable Hours = time until evacuation
Natural Gas	
• Is the boiler or other heating equipment fired by natural gas? • Is there one gas line into the hospital, or also a backup pipe? • How long can the hospital maintain a safe temperature if the gas stops?	Only 1= more vulnerable Hours = time until evacuation
Boilers/Chillers	
• Does the hospital have backup/redundant boilers? • Does the hospital have backup/redundant chillers? • How long can the hospital maintain a safe temperature without the chiller in summer heat? • How long can the hospital maintain a safe temperature without the boiler in winter cold?	N= more vulnerable N= more vulnerable Hours = time until evacuation Hours = time until evacuation
Powered Life Support Equipment	
• On a typical weekday, how many patients are on ventilators or other powered life-support equipment (including neonatal incubators and ventilators)?	<10 ____ 11-25 ____ 26-50 ____ 51-100 ____ 100+ ____
• Does each of these ventilators or other pieces of equipment have a battery pack? • What is the average battery life per ventilator/equip? • How many patients are otherwise oxygen dependent?	N= more vulnerable Hours = time until evacuation <10 ____ 11-25 ____ 26-50 ____ 51-100 ____ 100+ ____
• Does the medical gas system rely on electricity? • If the medical gas system fails, how long can these patients be maintained using the current stock of portable/backup oxygen?	Y= more vulnerable Hours = time until evacuation
Information Technology and Telecommunication	
• Are servers and other telecommunication systems on the hospital premises or offsite? • Are redundant hardware and software systems deployed offsite? • Are critical databases (e.g. EMRs) managed or backed up offsite? • Can the EMR quickly generate patient discharge summaries to accompany each evacuated patient? • Can manual, paper-based backup systems and procedures be	On premises = more vulnerable N = more vulnerable N = more vulnerable N = more vulnerable N = more vulnerable N = more vulnerable

rapidly reconstituted (e.g. manual order entry, manual medication dispensing), and have staff been trained to safely use these systems? • Does the hospital have VOIP capabilities or two-way radios that interoperate with local emergency responders?	
Security	
• Does the hospital employ its own security staff or contract with an outside security firm? • Are sufficient security staff on site during every shift (including nights and weekends) so that two can be stationed at every entrance/exit? • Can sufficient additional security staff be brought in to escort/guard transport vehicles? • Does the hospital evacuation plan assume that municipal or State police will be available to assist?	Own staff____ Contracted____ N= more vulnerable N= more vulnerable Y= more vulnerable

Appendix B

NICU Equipment Needs during an Emergency

When planning and purchasing equipment for specialized populations, hospitals should prepare for the number of patients expected based on the anticipated surge in patients. These patients will require specialized devices and equipment, large numbers of which may not be adequate in the normal hospital inventory.

Suggested Equipment – Generalized List

Utilize HICS 260 to document all equipment transported with the Patient

• Know battery life/promote extension of battery life by plugging in electrical equipment

• Charge all equipment in emergency outlets if power is available while preparing for evacuation

• Consider bed batteries as back up

• Consider purchase of back up batteries for equipment and a method to assure charging capabilities and testing based on recommendations of manufacturer or hospital based Biomedical/Clinical Engineering

• Portable cardio-respiratory monitors

• Pulse oximetry monitors

• Point of Care Testing (i.e. EPOC, AccuCheck)

• Syringe pumps/IV

• Drug box/Transport bag/Organized supply kit, i.e. Kangaroo Board

• Airway kit and supplies

• O2 source and supplies

• Portable Suction Equipment

• Transport Ventilators, if available

• Consider taking a Crash Cart/Transport Bags if going to a non-clinical on a horizontal move

Considerations for Evacuating Infants

Evacuate infants in beds or isolettes for Horizontal Evacuation, if possible

• Evacuate infants in specialized evacuation equipment made for vertical evacuation

*This is especially critical to avoid extubation and pulling on central IV lines or chest tubes

• Infants who are the least sick (without oxygen, chest tubes, etc.) may be transported using evacuation vests with a limit of 2 infants in each vest

• Unstable Infants should be secured in a specialized infant evacuation device (i.e. bassinet insert/infant evacuation bed/sled)

Infants receiving oxygen via nasal cannula or hood should be evacuated using oxygen tanks and blended oxygen, when possible

• Infants requiring Continuous Positive Airway Pressure (CPAP) may be switched over to high flow nasal cannula or bubble CPAP with oxygen tank during evacuation. Use blended oxygen, if possible

• Infants requiring mechanical ventilation should be evacuated using the Neopuff and blended oxygen, if possible. Otherwise, hand-ventilate using the patient's bedside ambu bag or self-inflating bag with oxygen attached, if needed

• Additional ancillary staff may carry oxygen tanks and other equipment during evacuation

Maintaining Ventilation

If electricity or generator power is unavailable, intubated infants should be ventilated using the Neopuff and blended oxygen, if possible

• May hand-ventilate using the patient's bedside ambu bag, or self-inflating bag with oxygen tank

• Care should be taken to hand-ventilate for short periods of time, switching off with another healthcare provider, as needed

Suction

Use portable suction to maintain airway patency for ventilated patients

• Maintain chest tube systems to water seal, keeping collection chambers below the level of the infant's chest. Heimlich Valves are preferred for transport.

Maintaining Heat

• Closely monitor the temperature and glucose of all infants

Use regular and warmed blankets and hats, as needed, to maintain temperature

• Place infants weighing less than 2,000 grams in isolettes or on open warmers, if available

• Consider using K-pads or chemical mattresses, as needed and if available

Maintaining Infusions

• Check battery power for IV pumps. If not working, locate another pump with functional battery

• If unable to locate battery-powered pump, give slow IV pushes of appropriate IV fluids

• Do not exceed the hourly IV rate ordered

• Provide continuous feedings manually if necessary, with small boluses every 30-60 minutes

Monitoring Vital Signs

• Use battery-powered pulse oximeters for patients who require continuous monitoring

• If portable monitoring equipment is temporarily unavailable, assess infant's color visually

Appendix C

NICU Pharmaceutical Considerations

Follow hospital's emergency operational plan for pharmacy

Disaster pre-planning for a critical care in-patient pharmacist includes: ensuring proper packaging, storage, handling, labeling and dispensing of emergency supplies of pharmaceuticals.

Pharmacy personnel should be prepared for medical management of anticipated injuries and illnesses and ensure appropriate education and counseling for unit staff receiving and dispensing pharmaceuticals from an emergency supply.

A detailed plan for the hospital in-patient units is critical when planning for a large scale disaster. The following are suggested actions to review and include in a hospital/unit Emergency Operations plan:

After a disaster has occurred the first step is:

• Contact pharmacy supervisor—phone or pager

• Initiate Team: Coordinate personnel and review pharmacy/technician roles and immediate tasks for the initial (first 2 hours) operational period along with completing the Emergency Evacuation Pharmaceutical Supplies (listed on Pharmacy Supply Checklist – see Appendix B)

• During a large-scale disaster a pharmacist will initiate printing/furnishing paper MARs for affected unit

• Pharmacist in charge of critical care area will provide a current list of patients on vasopressors (dopamine, dobutamine) or any continuous narcotic infusion

• Other pharmacists will immediately stock medication/supplies from main pharmacy; controlled substances are filled from the narcotic vault with critical patient care areas needing a re-supply of medications receiving priority

If normal communication systems are not working a pharmacist/tech should hand deliver medications to designated area

• Once a specialty area has requested assistance for medical surge or evacuation, the pharmacist should go to the unit location immediately to assist with medication needs

• One pharmacist and one technician should set up a dispensing area (planned area) or multiple areas if necessary, i.e. dispensing IV infusions, IV piggybacks, oral medications, etc.

• Provide medications for patient transport, i.e. evacuation of critical care pediatric/neonatal patients on vasopressors and continuous narcotic infusions. Ensure there will be enough medication to last the estimated transit time to the referring facility destination.