

Supplemental Material C: Critical Care and Surgical Surge - Actions and Observations of Nurses

Domain 1: Preparation and Planning

Observations for Organizational Support

- Quality improvement projects to improve efficiency in patient processes (e.g., managing the movement of patients being admitted and discharged) can prepare nurses for surge (NE3)
- Drills should extend to all units and include physical participation and discussion (NE3, NE4)
- Prepare OR nurses to manage a surgical surge event in the absence of leadership (NE4)

Domain 2: Communication

Actions of ED Nurses

- Positioned themselves outside to call/text off different cell phone towers to neighboring hospitals to receive delivery of equipment and supplies (NE3)

Actions of OR Nurses

- Used downtime forms until paper supply/print function ceased (NE4)

Observations for Organizational Support

- Phone tree lists were difficult to find, and numbers were often outdated (NE3)
- Hospital phone/computer systems failed due to community phone overuse/failure (NE3, NE4)
- Plans for a naming nomenclature (AA, BB, CC) did not keep up with the flow of unidentified victims (NE3, NE4)
- Life-saving activities took priority over attempting to reconcile failed naming nomenclature for unidentified victims (NE3)
- Admitting/registration staff needed to be mobile, traveling throughout the hospital (NE4)
- Nurses used personal cell phones as phone system failed (NE3, NE4)

Domain 3: Incident Command

Actions of All Nurses

- Made and acted on immediate team decisions in absence of ICS (NE3)

Observations for Organizational Support

- Administrator on call was non-clinician (NE3)
- Received a large number of victims who were already dead (NE3)
- Received large numbers of grieving family members and friends, provided support (NE3, NE4)

Domain 4: Safety and Security

Observations for Organizational Support

- Many nurses were traumatized and showed signs of isolation and behaviors unusual for their normal personality and others behaved as though nothing had happened (NE3, NE4)
- Many nurses felt most comfortable presenting anonymously for mental health care from the VA who set up a remote bus in the parking lot (NE3)
- Self-reporting OR staff and surgeons shared badge to enter the perioperative department (NE4)

Domain 5: Assessment

Actions of PACU nurse

- Alerted NE of incident and the onset of surgical surge (NE4)

Domain 6: Intervention

Actions of ED Charge Nurses

- Teamed with MDs to triage victims in the parking lot and transported to specialty units (NE3)
- Assessed/restored respirations, assessed/stopped bleeding (NE3)

- Served in advisor role, communicating with people outside of the hospital using alternative communication devices when hospital and community phone were overwhelmed (NE3, NE4)
- Requested additional staff and supplies (NE3, NE4)
- Functioned as clearinghouse to assign hospital and guest responders (NE3)

Actions of ICU Nurses

- Teamed with MDs/respiratory therapists to triage/stabilize incoming victims for OR (NE3)
- Tracked flow of patients to and from diagnostic departments and OR (NE3)
- Turned-over each ICU bed at least twice (NE3)
- Provided just-in-time training to unit nurses so they could assist at a higher skill level (NE3)

Actions of Post-Partum/Labor and Delivery nurses

- Rapidly administered blood to victims (NE3)

Actions of unit nurses

- Rearranged patients who could double/triple-up to accommodate surge (NE3)
- Communicated with sister hospitals to immediately receive 50 patients (NE3)
- Reported to ICUs and worked at skill level above what they were trained (NE3)

Actions of OR Nurses

- Self-reported (most) (NE4)
- On-call RN initiated call list (NE4)
- Processed instruments using immediate-use steam sterilization between cases (NE4)
- Communicated directly with friends at neighboring hospitals to bring extra equipment and supplies (NE4)
- Completed 50 emergency/critical cases within 24 hours (NE4)

Actions of PACU Nurses

- Called NE and advised to report (NE4)
- Monitored and medicated stable patients waiting for surgery in the PACU setting (NE4)
- Bypassed automated medication dispensing system to accommodate demand (NE4)
- Comforted large numbers of families in surgical waiting room (NE4)
- Provided support to large numbers of grieving family members and friends (NE3, NE4)

Actions of Self-Assigned Nurses

- Assumed roles that ranged from technical to nontechnical: advisors, triage, direct care giver, comforter, pseudo-paternal, orchestrator/organizer, guardian (NE3)
- Self-reported (most) (NE3)
- Surveyed area regularly to organize chaos, find needed equipment (e.g., ventilators) (NE3)
- Tracked unconscious unnamed patients who arrived without identification (NE3)
- Collected identifying features (e.g., piercings, tattoos, scars, moles, etc.) (NE3)
- Maintained confidentiality of deceased victims until identity confirmed (NE3)
- Provided comfort and calm to large numbers of grieving family members and friends (NE3)
- Stationed themselves in waiting areas to calm and comfort family and friends (NE3)
- Worked beyond their shift and until the disaster was well under control (NE3)

Actions of Nurse (Admin)

- Created a makeshift morgue (NE3)
- Protected deceased until each body was identified and turned over to loved ones (NE3)
- Used vital information (e.g., moles, scars, tattoos, and piercings) to identify victims (NE3)
- Provided comfort and calm to family and friends of victims (NE3)
- Stayed in morgue until each body was identified and turned over to family/friend (NE3)

Observations for Organizational Support

- Chest tubes, Camino monitors, vital sign monitors, were quickly exhausted (NE3)
- Trauma certified staff allowed for efficient case assignments (NE4)

- Chest tubes, quickly exhausted (NE4)
- Narcotics and anesthesia medications were quickly exhausted (NE4)
- Pharmacy responded w/pharmacist and supply carts stationed in OR (NE4)
- Sister hospitals provided chest tubes (NE4)
- Immediate-Use Steam Sterilization used between cases (NE4)
- OR managers and surgeons from other hospitals self-responded (NE4)
- Surgeons asked for “trauma trays”, did not exist as named (NE4)
- All OR cases were trauma/unnamed victims (NE4)
- Large numbers of family/friends wanted to know if their loved one was alive (NE4)

Domain 7: Recovery

Actions of Most Nurses

- Participated in formal or informal post-event debriefing sessions (NE3, NE4)
- Participated in immediate and ongoing counseling (NE3, NE4)

Domain 8: Law and Ethics

Actions of Self-Assigned Nurses

- Complied with law to maintain confidentiality of victims until cleared by Coroner (NE3)