The Impact of Nurse-Led Innovations and Tactics During a Pandemic

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The COVID-19 pandemic hit southeast Michigan hard and a rapid influx of patients forced Beaumont Health to shift rapidly into an emergency management model with a laser focus on transforming clinical care and administrative processes to meet complex patient care needs. Navigating this landscape required agility, surge planning, strong interprofessional teams, transformational leadership, nurse-led innovations, support, and transparency to manage the ever-changing environment. This article explains nursing’s response and nurse-led innovations that were implemented to meet the needs of the community, patients, and staff, as well as lessons learned to ensure preparedness for any potential future surge. Key words: COVID-19, emergency management, nurse-led innovations, surge planning

The CORONA VIRUS DISEASE-2019 (COVID-19) pandemic has created a myriad of complex and unpredictable challenges for health care organizations including inadequate bed capacity, workforce shortages, personal protective equipment (PPE) supply demands, rapidly changing patient care guidelines, and the need for care model redesign. As the surge in southeast Michigan began to accelerate in mid-March 2020, Beaumont Health’s 8 acute care hospitals saw the largest number of COVID-19 patients in the state of Michigan and had to rapidly rise to the challenge to meet the needs of prevalence within its communities.1

The first COVID-19 positive patient was admitted on March 12, 2020, and by the peak on April 13, 1318 patients or 68% of total inpatient volume were confirmed positive for COVID-19 across the system (Figure 1). Leadership needed to quickly determine how to support the volume and complexity of patient care demand with supplies, staff, and space.
Within 1 week, Beaumont Health converted to a full emergency operations structure with an emergency operations center (EOC).\(^2\)

Nursing played a critical and valuable role in addressing widespread panic within the community and providing care to these seriously ill patients. To meet the demanding needs of this crisis, the organization had to swiftly respond to public and staff concerns, while finding the safest way possible to provide safe, competent care. This response inspired multiple nurse-led innovations including a community call center, expanding intensive care unit (ICU) bed capacity, a corporate nursing labor pool, rapid education and redeployment of registered nurses (RNs) and advanced practice providers (APPs), development of patient proning teams, development of a family/patient communication liaison program, tactics for nursing administrative support, and lessons learned. This article outlines the nursing strategies Beaumont Health employed to respond quickly to the demands during the surge.

COMMUNITY CALL CENTER

In response to widespread community trepidation and concern, Beaumont Health was the first health system in southeast Michigan to set up a COVID-19 community call center. Within 72 hours the community call center was created, and the call lines opened on March 12, 2020. In partnership with nursing and support leaders, an infrastructure was created to manage, train, and staff the call lines to answer questions, to provide resources and emotional support, and to direct the callers to the appropriate level of care.

RNs with clinical knowledge were essential to respond to the caller’s questions and needs. These RNs were quickly solicited from non-patient care departments, as well as inactive and retired RNs. Over 200 RNs were trained to respond using current Centers for Disease Control and Prevention (CDC) guidelines,\(^3\) a developed response algorithm, scripting, and documentation. The call lines began with 4 RNs per 4-hour shift, but quickly increased within 2 days to 16 RNs per 4-hour shift. The call center remained operational 7 days per week to handle the call volume throughout the surge. At peak activity, the RNs answered 2926 calls in 1 day, and by April 21, had answered almost 54,000 calls.

Expansion of ICU bed capacity

Within 3 weeks of the first admitted COVID-19-positive patient, all hospitals were at critical care bed capacity and began bed...
expansion at a rapid pace. Elective care was cancelled, and rapid conversion of surgical and procedural areas followed to provide overflow capacity for the rapid influx of critically ill patients. Each campus evaluated ICU bed capacity options including pre- and postanesthesia care units (PACUs), procedural areas, emergency rooms, and conversion of progressive care beds. Cohorted COVID-19 units were created to isolate patients for infection prevention control, preservation of PPE, and implementation of COVID-19 care teams. Each hospital created a cohort phasing plan based upon current and possible future admission activity. At the height of the surge and based upon individual admission activity, anywhere from 2 to 9 units per hospital were converted to all COVID-19 units and 134 additional ICU beds were created.

Corporate labor pool

A corporate nursing labor pool was created within a 5-day period to address critical patient care needs across the system and was composed of nursing and support leaders. The labor pool prioritized critical staffing needs across the system, including emergency room, ICU, progressive care, and hemodialysis support. This team created a shared database for requests and scheduling, which also provided a tracking methodology. At the surge peak, over 450 RNs were added to the scheduling database.

Nursing needs were evaluated across the system including Beaumont Health’s 8 hospitals and 2 skilled nursing facilities. Requests were prioritized and RNs were redeployed based upon the greatest need. As elective care began to shut down, similar locally based teams were created at each hospital campus to internally manage their needs and redeploy staff. Throughout March and April, there were 19,037 hospital nursing reassignments across the system. Retired RN staff, non-ICU RNs, nondirect patient care RNs (quality, informatics, research, legal, ambulatory, etc), and those in departments where main functions had ceased were evaluated for competency based on experience and self-assessment. Throughout March and April, there were 597 RNs redeployed from nonpatient care settings.

Rapid RN education for redeployment

It was overwhelmingly apparent that demand for critical care nurses far exceeded the current resources. Guidelines for nursing staff redeployment were developed and approved by the executive nursing team. Nursing staff with recent critical or progressive care experience were prioritized for redeployment. The high demand for ICU nurses also called for immediate action to prepare non-ICU RNs to be able to safely care for high-acuity ICU patients. Senior nursing leadership reviewed the “Tiered Staffing Strategy for Pandemics” published by the Society for Critical Care Medicine and a modified version of the model was implemented across sites.

Redeployment education was rapidly created for hospital-based RNs. Progressive care nurses were deployed to ICUs and medical surgical nurses were deployed to progressive care units. Education focused on supporting emergent intubation and vasoactive drugs for maintaining hemodynamic stability. Training binders with written materials were created and provided to bedside staff. Prework modules were created, and content included a review of basic assessment, medication administration, emergency codes, and PPE. Hands-on skills validation included a review of infusion pumps, oxygen delivery equipment, tracheostomy care, chest tube management, and IV infusion therapy. Redeployment guidelines and policies were reviewed with these direct patient care RNs and the receiving nursing units.

An educational program to support the transition of redeployed nurses from nondirect care roles to the bedside was also developed with the goal of reviewing basic skills and providing preparation for support to the direct bedside care RN. Information of each nondirect care RN’s previous clinical experience, length of time away from the direct
Table 1. Guidelines for Redeployment

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<tr>
<th>Bedside Experience</th>
<th>Deployed to</th>
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<tr>
<td>Experience within the last year (critical care,</td>
<td>Direct care assignment with site orientation of</td>
</tr>
<tr>
<td>progressive care, medical-surgical)</td>
<td>1-2 wk</td>
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<tr>
<td>Experience within the last 2-5 y (critical care,</td>
<td>Support RN with transition to direct care</td>
</tr>
<tr>
<td>progressive care, medical-surgical)</td>
<td>responsibilities after ≥2 wk of site orientation</td>
</tr>
<tr>
<td>Experience (other specialty or ambulatory)</td>
<td>Regular medical unit patient care assignment with</td>
</tr>
<tr>
<td>within the last 2-5 y</td>
<td>1-2 wk of site orientation</td>
</tr>
<tr>
<td>Bedside experience &gt;5 y ago</td>
<td>Assigned as support RN in critical care,</td>
</tr>
<tr>
<td></td>
<td>progressive care, regular medical floor,</td>
</tr>
<tr>
<td></td>
<td>hemodialysis, or extended care facility after</td>
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<td></td>
<td>refresher orientation</td>
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Care environment, and the employee’s self-assessment were collected. These RNs also attended a 1-day on-site orientation with review of basic bedside care skills and basic life support training. Tools were developed to ensure that nursing orientation was also provided at a unit level and basic information about the redeployed nurse’s level of experience was provided to the unit preceptor. General guidelines for the redeployment program and anticipated length of orientation were shared via nursing leadership at town halls (Table 1).

Redeployment of APPs

Advanced practice providers also played an integral role across the system to respond to the urgent demands during the surge. Nurse practitioners, physician assistants, and certified registered nurse anesthetists (CRNAs) were mobilized and deployed in multiple ways after an executive order by the state governor was declared on March 29, 2020.8 This order provided temporary relief from certain restrictions related to practice, supervision, and delegation to provide critical medical services in response to the pandemic. The federal government and many states had also temporarily loosened practice restrictions on APPs and physicians to maximize the availability of clinicians to treat patients during the COVID-19 pandemic.9,10

Due to closure of surgical and procedural areas, APPs were redeployed to support patient care in many areas. Some were redeployed to patient care units based upon their previous bedside nursing experience. Redeployment required expedited education and information technology access to allow for medication access and nursing documentation. Some APPs were paired in teams with an APP “buddy” in all COVID-19 units to support caring for groups of patients, while some were deployed to a patient proning team. CRNAs were deployed primarily to areas of highest acuity where patients experienced rapid deterioration. They took direct patient assignments in the ICUs and staffed a makeshift overflow ICU in the PACUs, thereby increasing ICU bed accessibility. CRNAs developed a 24/7 airway team who responded to all urgent intubation requests and created a “grab and go” airway bag with the required PPE, sedation medication, and intubation supplies for rapid floor intubation.

APP leaders at our largest campus created a shared drive with available resources vital to APPs caring for COVID-19 patients. This was shared with the system APP-shared governance council and was then adopted at each of the remaining hospitals. The shared drive provided both local and system COVID-19 information and schedules for all redeployed APPs, including those from the corporate labor pool. The shared drive also included daily COVID-19 updates, a site-specific APP orientation guide, tip sheets for the ICU, progressive
and regular medical floors, current treatment guidance, isolation guidelines, PPE information, and external COVID-19 clinical resource links.

**Development of patient proning teams**

Therapeutic prone positioning is an important adjunct to therapy for patients with acute respiratory distress syndrome (ARDS) receiving mechanical ventilation and has been recommended by the World Health Organization to potentially improve oxygenation and overall patient outcomes. Some evidence also shows that self-prone positioning in alert patients without mechanical ventilation may also improve oxygenation and overall patient outcomes. Processes to support prone positioning in both mechanically ventilated patients and alert, nonmechanically ventilated patients with ARDS due to COVID-19 were deployed.

Rapid implementation of CRNA-led prone teams was prioritized to assist with prone positioning of mechanically ventilated patients for 12 to 16 hours a day. Evidence-based self-prone positioning guidelines for alert nonventilated patients were rapidly developed and approved. Nursing and patient education was provided and the self-prone positioning technique was implemented at several sites across the health system.

**Development of a patient and family communication liaison**

Beaumont’s Supporting Family Presence policy is a cornerstone to growing and sustaining a patient- and family-centered care culture steeped in family presence, participation, and partnership. However, with the onset of the pandemic, these foundational principles were fundamentally challenged and required an innovative approach.

Nursing staff was empowered to explore ways to enhance family presence. They became social media experts connecting patients with their families by setting up video chats with family members. A redeployed APP set up video connections with one family of a critically ill ventilated patient. She was able to provide video tours of the critical care room to the family and suggested they record their loved one’s favorite stories, music, and other important messages for the patient. Twenty-two hours of audio recordings was recorded and continuously played for the ventilated patient. Soon thereafter, the patient’s physical health began to improve, and he was weaned from the ventilator. Now at home with his family, the patient believes that the voices of his loved ones gave him hope and the will to live.

This redeployed APP felt the loneliness and fear in patient rooms, heard the anxiety in the voices of families, and empathized with her overwhelmed and exhausted colleagues. Following the surge, nursing leadership talked with this APP and nursing staff to understand what was important to assist them in communication between families and the health care team should we surge again. This conversation resulted in the creation of a new role, the Nurse Communication Liaison (RN-CL), which facilitates communication among patients, families, and staff (Table 2). With the help of grant funding, a 6-month RN-CL pilot program started in July 2020 that facilitates clinical, social, and emotional support, ensures seamless communication among patients, families, and health team members, and creates opportunities for family partnership and informed decision-making.

**Tactics for nursing administrative support**

While the surge of COVID-19 continued, the focus of supporting staff also became a top priority during these unchartered times and encompassed multiple different support mechanisms. Emphasis on emotional support was identified early on related to fear of the unknown, frequently changing guidelines, urgency of procuring adequate PPE, and rapidly rising critical patient acuity and volumes. Leadership set up virtual emotional well-being support group sessions for frontline staff. Unit and department sessions were...
Table 2. Role of Nurse Communication Liaison

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<th>Task</th>
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<tr>
<td>Collect and deliver information and updates via phone, video chat, or texting</td>
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<tr>
<td>Field calls from family</td>
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<tr>
<td>Identify family contact person</td>
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<tr>
<td>Prepare families for and facilitate in-person visitation including personal protective equipment support</td>
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<tr>
<td>Arrange and facilitate family visit, conversation, or meeting</td>
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<tr>
<td>Help patient/family organize thoughts for conversation with provider</td>
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<tr>
<td>Arrange for interpreter services</td>
</tr>
<tr>
<td>Arrange and establish virtual visits between patients and families and between families and health care team</td>
</tr>
<tr>
<td>Facilitate family recording of audio messages for patient</td>
</tr>
<tr>
<td>Provide bereavement follow-up contact with family</td>
</tr>
<tr>
<td>Complete “get to know me” poster so staff may know the person behind the illness</td>
</tr>
<tr>
<td>Facilitate paperwork completion including advanced directive, texting authorization, and portal proxy</td>
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Leader visibility was foundational in building trust, hearing staff concerns, and setting the tone for the environment. Leadership was present on all shifts 7 days per week to ensure staff had the appropriate equipment needed for safe patient care, were up to date on the local- and system-level communications that were at times changing hourly, and to ensure staff were able to take hydration and meal breaks. It was also imperative to gain staff feedback in real time on what was working and what was not. Information was then shared at the site and system daily EOC team meetings. This process created a feedback loop where staff gave real-time feedback on their current concerns, issues were then addressed, and updates were given back to the front lines during rounding and on the daily communications.

The overwhelming community support of food donation for staff became difficult to manage at the unit level. A process was established to ensure meals were evenly distributed across shifts and units. Leadership also looked at the necessities that staff worried about such as childcare issues and home life. A daycare assistance Web site was established with staff volunteers to help their peers with childcare depending on shifts and needs. The system was also able to connect staff to alternate housing options and local hotel accommodations donated for those that worried about exposing their family to COVID-19 or were working many hours and needed a close place to sleep.

To improve staff morale hospitals began highlighting patients being successfully extubated with unit board displays and playing the song “Here Comes the Sun” overhead and upon COVID-19 patients being discharged from the hospital. Cards, letters, and pictures to thank our staff came from across our communities and were displayed prominently via screen savers and displays throughout our campuses. Local police and fire departments,
as well as our local community neighbors, paraded around our campuses with honking horns and flashing lights to salute the heroism of our frontline staff.

LESSONS LEARNED AND CONCLUSIONS

Following the COVID-19 surge, leadership felt it was imperative to gain insight from frontline staff on what they felt went well and where there was opportunity for improvement in the event of a future surge. Nursing leadership hosted many local and system feedback listening sessions from nursing staff, along with a nurse practice council survey to obtain suggestions and lessons learned from the frontline nurses. With their feedback and participation, local and system task force teams were formed to work through the challenges together. These teams provided a forum for transparent and honest dialogue about the issues and progress toward a goal of process improvement in the future. The feedback from staff was incredibly positive regarding their involvement in the process.

Hospital-based site interviews were conducted, and feedback was solicited from redeployed nurses to also identify areas for improvement. Barriers and opportunities to improve the redeployment process were identified. A system town hall event was hosted to share the collective nursing feedback, which included a variety of suggestions regarding themes around communication, teamwork, technology, documentation, staffing, operations, and decision-making. Many ideas from staff feedback were identified including PPE and scrub distribution, team flexibility and partnership, iPads for connecting patients and families, disaster charting, patient cohorting, daily team meetings, virtual town halls, and badge “buddy” identification for redeployment roles. Many of their ideas to improve processes were developed and implemented.

Ongoing educational opportunities were identified, and action plans rolled out to maintain clinical competency, consistency in deployment sites, clarification of direct care versus supportive care RN roles, and removal of barriers to practice. Nursing education teams partnered with nurse practice councils and leadership to develop continual educational opportunities for nonbedside RN participation in clinical immersion programs to

Figure 2. Patients in COVID-19 isolation at Beaumont Health—fall 2020. Reprinted with permission from Beaumont Health.
maintain clinical competence for these support RNs at the bedside.

These approaches have evolved into a long-term strategy across the organization to assure appropriate and adequate staffing for repeated surges in COVID-19 activity and emergency preparedness. As we entered late fall, Beaumont Health began to see an increase in COVID-19 admissions in November 2020 (Figure 2). The system reinstated EOC system and local calls, the system labor pool, daily COVID-19 communications, and increased leader visibility. With visitor restrictions reinstated, the Nurse Communication Liaison role became vitally important again to communicate with families of hospitalized patients. More funding was secured to maintain additional communication liaisons across the 3 largest hospitals. Staff re-deployment now included the ideas that were identified during the earlier staff feedback sessions.

Vaccine planning began in late October 2020 in preparation for pending CDC approval under emergency use authorization. A system Vaccine Steering Committee was developed in November and led by nurse and physician leader and key system stakeholders. This team developed the scope of planning, timeline, and action plans for mass vaccination as well as the creation of subcommittees with nursing leader involvement: an Ethics Subcommittee charged with ethical decision-making regarding vaccine allocation; and a Logistics Subcommittee charged with vaccine administration.

Executive and nursing leaders were then tasked with setting up a corporate vaccination clinic and the first vaccine was administered on December 15. Nursing staff from around the system were asked to help support the vaccine clinic and vaccine administration capability increased to 3200 vaccines given daily within 4 weeks’ time. With the new CDC guidelines to expand to citizens older than 65 years, 2 additional vaccine clinics opened in mid-January 2021 to assist in vaccinating our community members as well as our employees.

The COVID-19 pandemic and rapid surge at Beaumont Health provided an opportunity for nursing to shine in a time of uncertainty and highlighted nursing’s integral role in emergency response and preparedness. This opportunity empowered our leaders and nursing staff to tap into their ingenuity and birth innovative ideas that added value and improved care and experiences for our patients, families, and staff. Nurses stepping out of their comfort zone led to rapid solutions in anordinate amount of time. Through teamwork, creativity, flexibility, and support, the need for complex care was met while maintaining high-quality, safe patient care. Modeling with trust and transparency and fostering out-of-the-box thinking has prepared Beaumont Health with a framework to be successful for future emergent situations.

REFERENCES