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Pandemic Preparation & Response: A Case Study Applying Kotter's 8 Step Change Management Theory to Improve Pandemic Response in an Acute Care Setting

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BY

Michael A. Mayo

A doctoral project submitted to the faculty of the Medical University of South Carolina

in partial fulfillment of the requirements for the degree

Doctor of Health Administration

in the College of Health Professions

"Change is the only constant in life" -Heraclitus, Greek Philosopher

"Leadership has always been difficult, and in the face of a rapidly changing environment, it will only get harder. But it won't be impossible, and it will be essential."

-General Stan McChrystal (US Amy, Retired)

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Abstract of Dissertation Presented to the

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In Partial Fulfillment of the Requirements for the

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by

Michael A. Mayo

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For healthcare CEOs and leaders, much time is spent planning and strategically assessing our

organizations' overall health and status. Planning cycles vary from 1 year to 5 years and, in

some cases, 10-year plans. However, with the onset of the COVID-19 pandemic, healthcare

leaders have been forced to pivot and embrace a sense of resilience. Today, we are leading

and making decisions on a day-to-day basis and even hour-to-hour based on the uncertainty

and needs of our organizations and communities we serve. The crisis of a pandemic requires

leadership to act swiftly and with a cadence of assurance to all. We are learning in a time of

crisis that some processes work, and others do not. Leaders must meet immediate needs and

make changes to the status quo that drives the best results. Kotter's change management

model is an 8-step method for implementing change that can significantly improve

operational processes. This case study will demonstrate how change management theory can

set the framework and guidelines for a response to a pandemic event and hardwire into a new

approach for rapid recovery of operations; thus, creating a standard set of guidelines to meet

the demands of future pandemic events, which can assist health system leadership in the

future.

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I dedicate this paper to the outstanding caregivers and team members at Baptist Medical Center Jacksonville who stood on the front line caring for patients during COVID-19. I admire each of you and am honored to serve alongside you. Your actions during this pandemic saved lives, comforted family members, and inspired many to pursue a career in healthcare. You are all heroes!

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Chapter 1 Introduction

<u>1.1 Background and Need</u>

Pandemic events come with little or no warning; thus, planning may be limited. However, an organization and its leadership can mitigate the disruption and improve readiness for such events. A pandemic is defined as an epidemic occurring worldwide or over a vast area, crossing international boundaries, and usually affecting many people (Doshi, 2022). Most healthcare systems plan for disasters such as hurricanes or mass casualty incidences (MCIs), usually short-term events met with quick and immediate recovery. Conversely, pandemic events are typically prolonged and inflict specific drain and fatigue on supplies, personnel, and mental focus. Often, anecdotally characterized as a "90-day hurricane". A well-documented plan based on assessing prior pandemic experiences and addressing all aspects of a pandemic event would allow for the development of guidelines or reference manuals for the assessment, response, and recovery needed for a comprehensive readiness plan healthcare system or entity.

Pandemics have inflicted their strain on the public and healthcare organizations in the past, depending on the severity of the pandemic event, whether in 1957 and 1968 when there was a mild flu outbreak or the more severe as in 1918 Spanish Flu; preparation and response to managing such a challenge with millions of people in need of inpatient and outpatient care (Glaser, Gillian & Thompson, 2002).

Our emergency plans in the United States are usually equipped to deal mostly with property destruction or a single major event. However, unlike a hurricane, earthquake, or bomb, a pandemic will leave facilities and equipment not destroyed but abandoned, unable to be of value to recover. The people needed to run or operate machinery would be unable to do

so or refuse due to the concerns of contracting the virus. A pandemic is also different in that it would be prolonged and the potential for surges, where the timing and duration are difficult to predict (Levin, Gebbe & Qureshi, 2007). Even with the historical perspective, leaders may not be prepared for events of this nature. Developing a guide or template for action in the event of this magnitude would be invaluable.

1.2 Problem Statement and Relevance

Responding to a pandemic event requires leaders to respond with a calm and orderly approach. Coronavirus Disease 2019 (COVID-19) originated in Wuhan, China, and rapidly became a global pandemic, and its impact continues throughout the world at a rapid pace. By late January 2020, the virus had infected close to a million individuals, and the casualties have exceeded 45,000 (Gupta and Federman, 2020). As of March 2021, there are 126,359,540 COVID-19 cases and 2,769,473 deaths worldwide (WHO Coronavirus Disease Dashboard, 2021). In the United States there are 28,859,706 cases and a total of 543,003 deaths (CDC COVID Data Tracker,2021).

The severity and extent of this pandemic have challenged and, in many cases, overwhelmed healthcare systems and front-line caregivers (Adams &Walls, 2020). While densely populated areas are most affected, multiple rural areas are vulnerable as well (Ranscombe, 2020). Preparing to implement measures for an efficient hospital-wide approach to manage the surge of hospitalized COVID-19 positive patients is critical. Lessons learned from this pandemic in assessing, responding, and managing the patient population is essential for healthcare leaders in the future.

On March 11, 2020, the Novel Coronavirus Disease, COVID-19, was declared a pandemic by the World Health Organization (WHO, 2020). On March 13, 2020, a national

emergency was announced in the United States concerning the COVID-19 Outbreak (NCSL, 2020). Pandemic events are not everyday occurrences. However, compared to the types of events that a healthcare organization or hospital system is required to react to and deliver care in the face of adversity, the ability to be prepared and respond to a pandemic event is by nature at the core of what healthcare providers do. Pandemics threaten the population and cause widespread panic and confusion and the severe health risks that accompany such an event. In the course of day-to-day operations, the ability to have a plan, healthcare leaders, and their respective institutions must be prepared. With the widespread impact that overwhelmed many organizations and ill-equipped to respond, a case study of this nature with a deliverable of a step-by-step plan is relevant for survivability.

A vision of the impact a viral pandemic could wage on the U.S. was articulated by former Senator and physician Bill Frist, MD, in an address he made to the National Press Club in 2005 (Alexander, 2020). In his remarks, he outlined how the U.S. has faced outbreaks, including H1N1, Ebola, Zika, and Sudden Acute Respiratory Syndrome (SARS). Many actions were taken post these events to better prepare for the next threat. Even with preparations including the establishment of BARDA, Biomedical Advanced Research and Development Authority, the Centers for Innovation and Advanced Development and Manufacturing, many public health initiatives, and the creation of the Assistant Secretary for Preparedness and Response. While these actions resulted from what was learned from each previous events, most of these outbreaks did not become pandemics. With the emergence of COVID-19, this crisis has tested our systems of preparedness and response capabilities far more significant than before (Alexander, 2020).

Challenges for hospitals and healthcare providers pushed many to their limits. In

contrast, others were able to capitalize on the pandemic to push past bureaucracy to implement the use of advanced technology such as telehealth and launch virtual physician visits via a computer or hand-held device, but all the while concerned as to privacy and regulatory issues (Shachar, Engel & Elwyn, 2020).

In preparation for a pandemic, hospitals need a strategy to manage their space, staff, and supplies to provide optimum care to patients. These logistical and operational duties are challenging in normal time and compound during a pandemic. Specifically, infection prevention measures need to be implemented to reduce in-hospital transmission for patient protection and team members. One critical area is in the operating room, where preparations involve multiple stakeholders and present a significant challenge. Wong et al. wrote about the outbreak response measures of the anesthetic department staffing the largest (1,700-bed) academic tertiary level acute care hospital in Singapore (Singapore General Hospital) and a smaller regional hospital (Sengkang General Hospital). These measures include engineering controls such as identification and preparation of an isolation operating room, administrative measures such as modification of workflow and processes, the introduction of personal protective equipment for staff, and formulation of clinical guidelines for anesthetic management (Wong et al., 2020). Lessons learned for this busy perioperative facility are the preparation that involves considering the different levels in the hierarchy of controls and the different phases of the pandemic. In the Operating Room (OR) setting, these measures include modifying infrastructure and processes, management of staff and patients, infection prevention strategies, and clinical recommendations. The perioperative suite is a complex environment with multiple stakeholders, including anesthesiologists, surgeons, nurses, scrub techs, and vendor representatives. It can be a challenge to align the interests and concerns of all parties. However, the authors believe that these containment measures are necessary to

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optimize the quality of care provided to COVID-19 patients and to reduce the risk of viral transmission to other patients or healthcare workers, which is the critical takeaway (Wong et al., 2020).

A critical operational challenge was the supply chain, PPE acquisition, and necessary supplies that became difficult to secure during the pandemic's height (Francis, 2020). One lesson learned with logistical operations was to consider having a planned agreement with distributors to place trailers with supplies in advance or the early stages of a pandemic event (Neil, 2020).

Accelerating and leveraging innovation was another discovery in these challenging times that may have historically been unable to perceive. Case in point, Intermountain Healthcare was discovering that their infection control professionals collaborating with materials management team members created disinfection processes and protocols which preserved respirators and limited supply of N-95 masks (Harrison, 2020).

These challenges, made evident during a pandemic experience, highlight the reality that change is happening whether or not we are ready. Heraclitus, the Greek philosopher, said, "Change is the only constant in life" (Singer, 2018, p.1).

Therefore, a life-changing event may be an excellent time to implement the change needed to operationalize response plans. Kotter's 8-Step Change Management Model provides the best format that engages and meets the organization's needs and stakeholders. A Harvard Business School Professor and expert on change leadership, John Kotter designed an 8-step model for leading change (Kotter, 2012). Originally, Kotter's change management model was introduced and described in a corporate business context. However, it has been applied to human service organizations and in educational settings (Henry, Hanson &

Haughton, 2017). The Kotter model's value to a healthcare organization's leadership is that it incorporates multiple themes that underscores effective change management strategies. These include embarking on and streamlining change activities, assessing areas for improvement, and planning, implementing, and incorporating change. The Kotter Change Management Model is a simple approach that allows for direct engagement with key stakeholders in the change process. It is relevant to this study in that preparing for and leading through a pandemic event requires leaders to determine what works, what needs to be implemented and what needs to be changed in deference to how we may have handled a pandemic event in the past. Kotter's model provides a workable framework to make change happen and is adaptable to any setting where change needs to be implemented.

1.3 Study Objective

The objective of this study is to describe the steps in change management theory for assessing, responding, and recovering from a pandemic event experienced during the 2020 COVID crisis. Following Kotter's 8 Step Change Management Theory, create response guidelines for a multi-hospital system to be prepared for future pandemic events.

1.4 Research Question

How can change management theory be employed in developing guidelines for response to a pandemic event that can be standardized and lead to new processes and rapid recovery of operations?

1.5 Study Setting

Baptist Health, founded in 1955 and headquartered in Jacksonville, Florida, is a faith-based, not-for-profit health system comprised of 6 hospitals, including the regions only children's hospital, with 1,168 beds, a cancer center, four satellite emergency departments, and more than 200 patient access points of care, including 50 primary care offices located throughout northeast Florida and southeast Georgia. All Baptist Health hospitals, along with Baptist Home Health Care, have achieved Magnet™ status for excellence in patient care. Baptist Health has the area's only dedicated heart hospital; orthopedic institute; women's services; neurological institute, including comprehensive neurosurgical services, a comprehensive stroke center and two primary stroke centers; a Bariatric Center of Excellence; a full range of psychology and psychiatry services; urgent care services; and primary and specialty care physicians' offices throughout Northeast Florida. The Baptist MD Anderson Cancer Center is a regional destination for multidisciplinary cancer care, clinically integrated with the MD Anderson Cancer Center. (Baptist Health, 2020).

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In 2020, the Baptist Health system had 72,391 inpatient stays with an average of 788 hospitalized each day in five hospitals, 320,467 emergency room visits, 47,052 total surgeries, 6,069 deliveries, 55 newborn intensive care patients daily, and 11,911 team members (Baptist Health,2020).

Chapter 2 Literature Review

The literature is replete with historical accounts of pandemic events and the planning or lack thereof for these events. Much has been written regarding post responses to such events, specifically about vaccine development, clinical & public health actions, foreign aid, security policies, military intervention, emotional effects, and supply chain disruption. These accounts are well documented based on notable worldwide events such as the Pandemic of 1918, SARS, and H1N1. Most previous works have been focused on a single aspect of the pandemic or event being studied. Existing research has proposed fundamental formats for responding and addressing pandemic events; none of the research has taken a specific assessment of how leadership might address the entire scope of the assessment, preparation, and recovery from the event and present in a single source format for operational implementation.

Based on existing research and information from previous pandemic events, most approaches or study designs have been retrospective and highlight a "what can be done better" assessment. The evolution of the present pandemic of COVID-19 allows us to examine the response to real-time events, document best practices, and provide data that validates what changes to response and recovery worked best. Other organizational research has focused on a single component of the disaster event, which has been challenged by scientific uncertainty, scarcity of research, poor news, time constraints, and lack of collaboration among stakeholders (El-Jardali 2020). There is a lack of analytical or statistical approaches to the problem. One work which assessed the use of telehealth as a response tool for the pandemic collected data on the number of increased visits via telemedicine and what impact that had on access and later in the reduction of diagnostic tests being ordered as compared to in-person visits with physician (Baptist Health, 2020). Other works assessed the

failure of reaching underserved communities during the pandemic with limited access to care (Bush, 2009). One particular study pointed out the need for additional research based on why COVID-19 was asymptomatic in many but catastrophic to others (Shapiro, 2020).

The amount of research and academic papers originating from the recent COVID crisis is phenomenal. Added to previous theoretical research of global pandemics in our history, one finds an enormous body of research conducted in journal articles, literature reviews, and practical application papers for operational leadership. However, there is a notable lack of research assessing pandemic responses from the perspective of operational leadership. These leaders would benefit from a functional and well-documented analysis from the beginning to the end of a pandemic event which adequately addresses keys areas of testing, personnel, supply chain, policymaking, collaboration with other public health entities, and providers in a "how-to" model of balancing existing care delivery for non-COVID patients while simultaneously caring for the COVID population. Outside the peer-reviewed literature, there are also many online podcasts, webcasts, discussion boards, and entrepreneurial solicitations for consulting services dealing with the COVID-19 crisis. These sources of information and often merely personal experiences do not capture succinctly as full assessment, response, and recovery model.

<u>Historical Pandemic Responses</u>

In 2014, the Ebola Virus Disease (EVD) outbreak challenged Nigeria's response capabilities but proved a proactive and effective outbreak response is not impossible. The spread of EVD in Nigeria in 2014 caused significant concern locally and internationally when the Director-General of WHO declared the event a Public Health Emergency in International Concern (PHEIC). The major cities impacted were Lagos and Port Harcut, with combined

populations of over 30 million. It was a powder keg situation but was effectively addressed

with a response of collaboration by the Ministries of Health of both communities and utilized

an integrated disease surveillance and response (IDSR) system for contact tracing, rapid

identification of suspected cases, laboratory diagnosis of confirmed cases and clinical

management of cases. Also, a part of the response plan involved strategies for protecting the

entry points, managing rumors and alerts for the populace, encouraging awareness, and

mobilizing support and goodwill from the public. An Emergency Operations Center (EOC)

was established by the Nigerian Center for Disease Control (NCDC). The Nigerian

experience with Ebola and other infectious disease outbreaks proved that even low resource

countries have a chance in deadly pandemic outbreaks with the right structure and

coordination of local and national public health institutions. The structure to address these

needs in an outbreak must be accompanied with the appropriate personnel, commitment from

political leaders, and the foresight to purposefully plan for these events (Olumade et al.,

2020).

     The 1918-1919 influenza pandemic marked another historical outbreak that saw

various levels of response. The American Red Cross (ARC) was at the forefront of the

response, and their actions hold lessons for current day pandemic responses. In an article by

Marian Jones, Ph.D., she illustrates how the ARC's local pandemic response demonstrates the

importance of close, timely and sustained coordination between local, state, federal, and

volunteer organizations before and after a public health emergency (Jones, 2010). This article

highlights how localism and the coordination of response is primarily state and local health

departments and providers, along with physicians, provide the first line of defense in response

to a pandemic event. The findings of Dr. Thomas's work, surveying the ARC work, suggest

that critical gaps can exist at the local level. The use of volunteers like the ARC is vital in

filling these gaps. Local partnership and advance planning exercises that coordinate with local organizations and public health departments prove most beneficial in future pandemic response (Wayne et al., 2009; Gaynard, 2009 as cited in Jones, 2010).

Another assessment of response to the COVID-19 pandemic, Pisano, Sadun, and Zanini (2020), provides insight into policymakers' role in controlling the coordination of efforts in a pandemic. From February 21 to March 22, 2020, Italy converted from a state of discovery of the first official COVID-19 case to a full government decree, which prohibited all population movement and the closure of non-essential businesses (Pisano, 2020). The article reviews areas of failure and what can be learned for future response to pandemics. Leadership decisions are difficult to make in real-time as a crisis is unfolding. Two crucial lessons are learned from this Italian experience. Foremost, there is no time to waste because of the rapid spread of the virus. This is noted by the Italian Protezione Civile (the Italian version of FEMA), who stated, "The virus is faster than our bureaucracy" (Pisano, 2020, p.9). The second lesson is there needing to be an effective approach to the virus, which requires a "war-like" mobilization that includes human and economic resources. Extreme coordination is also a need across different parts of the health system in both the public and private sectors (Pisano, 2020).

<u>Human Resources</u>

Significant in the preparation and planning for a pandemic is addressing the human capital needs. Basic needs are supplying enough personnel, clerical and non-clerical, to meet all the demands placed on a healthcare institution and its providers. The literature is replete concerning assessing the needed workforce. However, even more striking is the literature discussion about the perceived behaviors needed and staff resiliency to face the demands of a

crisis of the magnitude of a pandemic like COVID-19. There are many other factors to consider; the supply of personnel, the cost associated with the deploying staff, ethical considerations, the staff's resilience, and providing a clear leadership directive to motivate and encourage participation during the crisis. In a study of the tertiary facility, King Fahad Medical Center, it was determined that staff's attitudes and familiarity with where and when to access critical resources in an emergency or disaster required practice and reinforcement (AlHarastani, 2020).

Surge capacity for staffing and availability of the appropriate personnel resources will be the most critical planning process (Levin, 2007). Staff must be prepared in advance to assure the ability and willingness to work. Prominent requests and critical issues of support to personnel in a pandemic follow these themes:

- Restoring resilience
- Gratitude
- Overcoming emotional exhaustion
- Leading through change
- Reducing blame and incivility
- Building trust
- Engaging in difficult patient and family communications
- Managing stress
- Reducing anxiety
- Motivating caregivers
- "Communicating Up" to keep leadership informed (Owens, 2020)

Burke et al. identified in their study that the number of dependents and resources available were significant factors in an individual's willingness to respond in a crisis. Healthcare organizations must communicate their disaster plans and all provisions planned for employees and families to improve the worker's willingness to be present during the crisis (Burke, 2020).

Another critical consideration during a pandemic or other crisis over a protracted period is the action taken to address the team members' concerns providing care during the crisis. Healthcare workers' well-being, emotionally, mentally, and physically, must be addressed, as illustrated in a study of workers in South Korea during the early stages of a pandemic. This study emphasized caregivers' intentions to continue to work during a pandemic based on the workers' perception and effectiveness of the organization's response to the outbreak and address the perceived threats to them individually (Jang et al., 2020).

Lastly, the financial toll of disasters and public health emergencies and drain on staffing resources can be minimized through the cooperative use of academic, community, county, federal and state volunteers (Frasca, 2010). With volunteers and other workers, interprofessional education among various team members is characterized as an "all hands-on deck" response. All team members must learn to work together with clear communication of direction among all staff, leadership, and the Incident Command Center (Langan and Krieger, 2019).

<u>Operations (Leadership)</u>

Actions to address disasters have evolved into a complex subsystem with disaster policy implemented through a series of functions known as emergency management framework (NRC, 2007). Literature has historical and present writings on how organizations have approached and dealt with a pandemic crisis. The Veterans Affairs Connecticut Healthcare System documented their experience in a recent article outlining their response plan. The lessons learned centered around an effective and accessible leadership team with an immediate and cohesive response plan. Their successful preparedness experience emphasized employing a multidisciplinary approach with a central incident command body

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that ensured a rapid and thoughtful application of response measures. These measures

included (1) establishment of an Incident Command Center (ICC) that included all leaders

from pertinent departments, (2) designating a COVID Response Coordinator, (3) gatekeeping

measures such as screening at entrances, offsite testing, and emergency department

safeguards, (4) strict adherence to droplet precautions, personal protective equipment and

masks (PPE), and social distancing, (5) bed redistribution system, and lastly, (6) specific

testing and order sets (Gupta and Federman, 2020).

A review of the CDC Tool Kit for COVID-19 preparedness provides a well-

documented, easily follow checklist (CDC, 2019). The document identifies the top priorities

for hospitals involved in regional coordination of pandemic preparedness. The focus should

be on "priority areas"; (1) surge planning with a realistic predictive tool, (2) a plan to limit the

nosocomial spread of the virus to healthcare workers (HCW) and patients, (3) maintaining,

expanding, and adjusting the healthcare workforce continually, (4) allocation limited

resources with a rational, ethical and organized plan to impact the most significant number of

individuals and communities (CDC, 2019), (Chopra, Toner, and Waldhorn, 2020).

Supply Chain

The COVID-19 pandemic created global health and economic calamity. Hospitals

and core provider organizations were dramatically hit hard. The effort by supply chains to

support the provision of necessary supplies, including PPE, is critical. Supply chain

leadership must continually evaluate their real supply needs. Given the unpredictable supply

shortages of PPE and other needed surgical supplies, continued assessment and tracking of

supplies are warranted (Francis, 2020).

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Several lessons learned by Mayo Clinic are documented in the Francis article. The enterprise-wide collaboration contributed to the clinic's success in meeting demands, including standardized practices, accountability of all clinicians to conserve PPE, and identification of new sources of PPE, such as innovated use of 3D printers to make face shields. Other supply chain management lessons learned include (1) Update business continuity plans, (2) Supply Chain Leadership must instill agile culture and communication practices, (3) Deploy and adhere to PPE protocols, (4) Increase suppliers and capacity, (5) Invest and embrace IT technology and predictive analytics, (6) Cost savings and value have been a focus for viability but with supply chain needs, assuring availability of needed supplies in a pandemic by paying a premium for that assurance is a smart practice, (7) Lastly, build relationships with regulatory and governmental partners for sustainability in future emergencies and public health crisis's (Francis, 2020); (Kraemer, 2020).

Another supply chain lesson learned from hospitals in Florida, specifically on the Gulf Coast, is facilities' practice to have a pre-arranged agreement with distributors to locate trailers of pre-specified supplies deployed when a storm is developing. These planned discussions with distributors and suppliers can mitigate a catastrophe of low or no supplies available during a protracted pandemic (Neil, 2006).

Policy

Strengthening the capacities to respond to emergencies, disasters, and pandemics will improve organizations and nations' ability to protect better the lives of their citizens they serve. Improving the ability to respond requires political will, coordination, and planning (Ugarte et al., 2018).

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In a white paper by Tennessee Senator Lamar Alexander, Chairman, U.S. Senate Subcommittee on Health, Education, Labor, and Pensions, *Preparing for the Next Pandemic*, he outlines critical actions in legislation. His points include (1) make telehealth changes permanent, (2) provide sufficient funding for offshore manufacturing of supplies, (3) funding for states to maintain stockpiles of supplies such as ventilators and masks, and (4) boost federal Strategic National Stockpile allowing the federal government to create partnerships with companies to maintain additional supplies and manufacturing capabilities (Alexander, 2020).

Unlike natural disasters, which are confined geographically, COVID-19 is a global pandemic. Therefore, policies that encourage collaboration and improved communication among constituents, including healthcare providers and on a larger scale, across countries, is needed (Fakhruddin, Blanchard, and Ragupathy, 2020).

Lastly, policy considerations for functioning pre, during, and post pandemics are needed. Austerity policies have reduced investments in health systems, human resources, and healthcare technologies during the last decade. At the same time, it is imperative to cut waste in our healthcare system; the COVID-19 pandemic has shown a bright light on the importance of having adequate capacity and resources to address a crisis. The pandemic also served as a reminder of publicly accountable systems' strategic importance, supported by investment in human resources (people) and technologies (Forman, Atun, McKee, and Mossialos, 2020).

In returning to some sense of normalcy post-COVID-19, what part will policy and reform play? The seeming failure of government and health policy to adequately address the pandemic's challenges only creates distrust in the "system." Distrust of the government is

difficult to overcome. In an op-ed by Victor Fuchs Ph.D., Dr. Fuchs opines that reform is possible, as witnessed in President Roosevelt's New Deal Reforms. While it is assumed major healthcare reform can only occur amid a major war, depression, or large-scale civil unrest that can unseat the political balance, it appears that the COVID-19 pandemic may provide the catalyst for major political change. Health care reform may be attainable (Fuchs, 2020).

<u>Change Management</u>

While not all changes lead to improvement, all improvement requires change (Langley, Moen, Nolan, et al., 2009 as cited in Hass et al., 2020). The COVID-19 pandemic brought unwanted change to so many, extremely fast. Navigating the implications of COVID-19 and responding to the pandemic is unprecedented. Experiencing change during normal circumstances is one thing, but leading change in operational functions as a crisis unfolds calls for extraordinary resolve and leadership (Burton and O'Neill, 2020).

Change, by its nature, leaves people and organizations in a state of confusion, vulnerability, and fragmented at a time when resilience and collaboration are vital in order to function at a high performing level. Chima and Gutman note in the Harvard Business Review article, *What It Takes to Lead Through an Era of Exponential Change*, there is an emerging body of literature that points to psychological safety, shared purpose, and group comprehension as powerful drivers of leadership, team, and organizational performance in rapidly changing environments such as experienced in a pandemic crisis (Chima and Gutman, 2020).

COVID-19 has fundamentally challenged organizations through culture and how work is accomplished and distributed among the workforce (Lahiri and Shankar, 2020). In the transition of change, how you protect yourself in a pandemic will challenge organizations

and individuals. Based on the findings in a study by Cvetkovic et al., the differences in the public's perception of risks posed by a pandemic and what actions can be personally taken is varied. The reality that masking and social distancing could become the standard in day-to-day life going forward is difficult to consider (Cvetkovic et al., 2020). Another long-term change is how the workforce of the future will be trained to meet the demands of a pandemic event. Cross-functional training to prepare individuals to carry out various roles will be required to complement the surge in staffing needs in a disaster or public health emergency (Langen, 2019). The key to going forward and preparing for future pandemics is how well leadership can identify those changes that enable better care to be delivered, hardwiring for future success, and discarding actions that do not contribute to the successful provision of care. The Kotter 8 Step Model of Change becomes a framework to accomplish this goal.

Successful change in an organization starts with visionary leadership and is championed by all leaders in an organization. Consistent adherence to the plan of change and continually communicating the success will gain more support and accelerate the rate of change and "stick," as noted by Kotter in his 8 Step Model of Change (Kotter, 2012). The Kotter Change Management Model is a simple approach that allows for direct engagement with key stakeholders in the change process.

The literature review also allows assessment of specific pressure points impacting an organization's ability to respond to the demands of the crisis. A historical survey of other pandemics and how leadership, organizations, and countries reacted, allows the researcher to ascertain lessons learned and what initiatives remain and those changed. The study of pressure points included operations, leadership, data/information, supply chain, human resources, change management, governmental readiness, policy, and research.

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Kotter's Change Management Model can be applied to assess the pressure points actions taken during the pandemic event. By taking each action initiated in the pandemic and using the 8 Steps of Change by Kotter (Figure 1), we will determine which activities were practical, need to be hardwired in our guidelines, and what actions need to be discarded or revamped to prove useful.

Phase One
Create the Climate for Change
- Create a Sense of Urgency:
- Create a guiding coalition:
- Create a Strategic Vision or Change:

Phase 2
Engaging and Enabling the Organization
- Communicate the Vision
- Empower others to act on the Vision
- Create Short Term Wins

Phase 3
Implementing and Sustaining Change
- Consolidate Improvements and build in change
- Make Change Stick or Institutionalize New Approaches

Chapter 3 Methods

3.1 Research Design

This study will use a single case study approach to explore how change management theory can be employed in response to a pandemic. Findings will be utilized to develop guidelines for a pandemic event that can be standardized and hardwired into new processes and rapid recovery of operations. Thus, creating a standard set of instructions and manual for health system leadership to meet the demands of future pandemic events. Implementing change in the middle of responding to a pandemic crisis may seem to defy any leader's abilities and purpose. Areas of focus will specify the response to the pandemic related to testing, access to care, personnel, communications, supplies and logistics, coordination with public health entities, and other providers.

The study's significance is to equip healthcare leaders and their organizations with preparation for pandemic events in the future. Rather than merely reacting to the change and disruption brought on by a pandemic event, leaders will have assessed institutional needs such as supplies, personnel, and coordination with other entities and have a step-by-step process to follow and maintaining focus and mental stamina during the catastrophic event. This process is vital to the health system leadership engaged in response to the pandemic event. It will need collaboration with other local, state, and federal entities to provide the best response plan. This plan's success depends on close and timely sustained coordination among all of these entities (Jones, 2010). Healthcare is local, and a response to a pandemic event depends on public health leadership, municipal leadership, state, and federal leadership, requiring a realistic planning process (Toner, 2020).

Pandemic Preparation and Response

Much has been written and suggested to address components of a pandemic, i.e., assessment steps, recovery steps, and financial impact. A well-documented plan addressing all aspects of a pandemic event from assessment to response and recovery is needed for a healthcare system's comprehensive readiness.

3.2 Data Set Description

Multiple qualitative data sources will be utilized for the project, including secondary documents, policies, and program tracking data, including:

- Hospital Incident Command Center (HICS) Action List
- Baptist Health Epidemic Response Plan (ERP)
- Baptist Health COVID 19 OPI Leading Indicators Report
- 2019 Novel Coronavirus (COVID-19) Daily Situation Report &Update
- Relaunch/Recovery Minutes (System Preparedness Committee)
- Operations Council Minutes (Enterprise Oversight of Operational Activities)
- COVID 19 Updates for BMCJ & WCH Leadership Team
- Relaunch Dashboards
- Patient & Visitor Screening Assessment
- COVID 19 Hospital-Based Resiliency Plan
- Hospital Capacity Report

3.3 Data Analysis

This study will use a timeline approach to describe and document the response through observation of actual actions taken and changes made by trial and error to develop a best practice response plan. Data sources will be read, and milestones and actions taken to respond to the pandemic will be summarized chronologically. The method will identify responses specific to testing, access to care, personnel, communications, supplies, and logistics in coordination with public health and other providers. Potential categories of guidance will include:

Pandemic Preparation and Response

- Initial Assessment
  - ➤ Day to Day and Preparedness – Any mounting concerns/issues with people, supplies, and equipment.
- Daily Assessment
  - ➤ Communication of present situational analysis with constituents.
- Analytics
  - ➤ Readiness responses and mitigation strategies – (1) Hospitalizations, (2) ICU Bed availability, (3) Mechanical ventilation, (5) Surge Capacity Planning.
- Operational & Financial Reporting
  - ➤ Monitoring of Patient Volume & Types, Provider Numbers & Types, Clinical Staff Numbers & Types, Administrative Staff, Environmental Staff (EVS) and Month to Date Daily percentage of Gross Charges trend, and Cash committed to PPE and surge capacity.
- COVID-19 Recovery Plan
  - ➤ Levels of pandemic periods to have a contingency plan - (1)" Inter-pandemic Period, (2) "Pandemic Period," (3) "Between the Waves," (4) "Post-Pandemic Recovery – rebuild/reinstate and service recovery operations.

Kotter's 8-step change management model will provide the framework for the study. Each milestone in the case study timeline will be examined under the context of the 8-step change management process to categorize the actions used to "steer" or monitor pandemic responses. Each action will be categorized into one of the eight steps. Discrepancies will be resolved through discussion and review of the documentation. In addition, when utilizing change management theory, this process may identify gaps in the "real world" response. Gaps, where no actions correspond to one of the eight steps, will be evaluated and compared to best practices from the literature to identify emerging areas to be incorporated into the pandemic response guidelines. This plan will produce contextual real-world knowledge about behaviors, social structures, and shared beliefs by the organization team members as they address needs during the crisis.

Chapter 4 Article

Abstract

For healthcare CEOs and leaders, much time is spent planning and strategically assessing overall organizational health and status. Planning cycles vary from 1-5 years and, in some cases, 10-year plans. However, with the onset of the COVID-19 pandemic, healthcare leaders have been forced to pivot and embrace a sense of resilience. Today, leaders are making decisions daily and hourly based on the uncertainty and needs of our organizations and communities we serve. The crisis of a pandemic requires leadership to act swiftly and with a cadence of assurance to all. Healthcare leaders are learning in a time of crisis that some processes work, and others do not. Leaders must meet immediate needs and make changes to the status quo that drive the best results. Kotter's change management model is an 8-step method for implementing change that can significantly improve operational processes. This case study will describe the experiences of one health system during COVID-19 and utilize change management theory to design a framework and guidelines for a response to a pandemic event. Results will discuss how to hardwire a new approach for rapid recovery of operations; thus creating standard guidelines to assist health system leadership to meet the demands of future pandemic events.

<u>Introduction</u>

Pandemic events come with little or no warning; thus, planning may be limited. However, an organization and its leadership can mitigate the disruption and improve readiness for such events. A pandemic is defined as an epidemic occurring worldwide or over a vast area, crossing international boundaries, and usually affecting many people (Doshi, 2022). Most healthcare systems plan for disasters such as hurricanes or mass casualty incidences (MCIs), usually short-term events met with quick and immediate recovery. Conversely, pandemic events are typically prolonged (anecdotally characterized as a "90-day hurricane") and inflict drain and fatigue on supplies, personnel, and mental focus. A well-documented plan based on assessing prior pandemic experiences and addressing all aspects of a pandemic event would allow for the development of guidelines or reference manuals for the assessment, response, and recovery needed for a comprehensive readiness plan healthcare system or entity.

There are different emergency preparation considerations between isolated major events and ongoing conditions like a pandemic. Emergency plans in the United States are usually equipped to deal mostly with property destruction or a single major event. However, unlike a hurricane, earthquake, or bomb, a pandemic will leave facilities and equipment not destroyed but abandoned. The workers needed to run or operate machinery may be unable to do so or refuse due to fear of the unknown with a pandemic, therefore creating a loss of productivity. A pandemic is also different in that it would be prolonged and has the potential for surges, where the timing and duration are difficult to predict (Levin, Gebbe & Qureshi, 2007).

Pandemic Preparation and Response

        Pandemics have inflicted their strain on the public and healthcare organizations in the past, depending on the severity of the pandemic event, whether in 1957 and 1968 when there was a mild flu outbreak or the more severe as in 1918 Spanish Flu; preparation and response to managing such a challenge with millions of people in need of inpatient and outpatient care can overwhelm healthcare systems (Glaser, Gillian & Thompson, 2002). Responding to a pandemic event requires leaders to respond with a calm and orderly approach. Originating in Wuhan, China, Coronavirus Disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), rapidly became a global pandemic. By late January 2020, the virus had infected close to a million individuals, and the casualties have exceeded 45,000 (Gupta & Federman, 2020). On March 11, 2020, COVID-19 was declared a pandemic by the World Health Organization (WHO, 2020). On March 13, 2020, a national emergency was announced in the United States concerning the COVID-19 Outbreak (NCSL, 2020). As of March 2021, there were 126,359,540 COVID-19 cases and 2,769,473 deaths worldwide (WHO Coronavirus Disease Dashboard, 2021). In the United States, as of March 2021, there are 28,859,706 cases and a total of 543,003 deaths (CDC COVID Data Tracker, 2021).

        The severity and extent of this pandemic have challenged and, in many cases, overwhelmed healthcare systems and front-line caregivers (Adams & Walls, 2020). While densely populated areas are most affected, rural areas are vulnerable as well (Ranscombe, 2020). Preparing to implement measures for an efficient hospital-wide approach to manage the surge of hospitalized COVID-19 patients is a priority.

        The COVID-19 pandemic has tested our systems of preparedness and response capabilities far more significantly than before (Alexander, 2020). Challenges for hospitals

and healthcare providers pushed many to their limits. In contrast, others were able to capitalize on the pandemic to implement the use of advanced technology such as telehealth and launch virtual physician visits via a computer or hand-held device yet maintaining concern for privacy and regulatory issues (Shachar, Engel and Elwyn, 2020).

These challenges made evident during a pandemic experience highlight the reality that change is happening whether or not we are ready as noted by the Greek philosopher, Heraclitus, who said, "Change is the only constant in life" (Singer, 2018, p.1).

Even with the historical perspective, leaders may not be prepared for events of this nature. Developing a guide or template for action in the event of this magnitude would be invaluable.

With the widespread impact that overwhelmed many organizations and ill-equipped to respond, a case study of this nature with a deliverable of a step-by-step plan is relevant for preparing for future pandemic events. Lessons learned from this pandemic in assessing, responding, and managing the patient population are essential for healthcare leaders in the future.

Therefore, the study will examine the phases experienced during COVID-19 and demonstrate to healthcare leadership of the future how change management theory can set the framework for a systematic response with specific recommendations to speed the recovery of operations.

Study Setting

Baptist Health, founded in 1955 and headquartered in Jacksonville, Florida, is a faith-based, not-for-profit health system comprised of six hospitals with 1,168 beds, a cancer center, four satellite emergency departments, and more than 200 patient access points of care,

including 50 primary care offices located throughout northeast Florida and southeast Georgia.

The system consists of six hospitals including the region's only children's hospital. All

Baptist Health hospitals, along with Baptist Home Health Care, have achieved Magnet™

status for excellence in patient care. Baptist Health has the area's only dedicated heart

hospital; orthopedic institute; women's services; neurological institute, including

comprehensive neurosurgical services, a comprehensive stroke center and two primary stroke

centers; a Bariatric Center of Excellence; a full range of psychology and psychiatry services;

urgent care services; and primary and specialty care physicians' offices throughout Northeast

Florida. The Baptist MD Anderson Cancer Center is a regional destination for

multidisciplinary cancer care, clinically integrated with the MD Anderson Cancer Center,

(Baptist Health, 2020).

In 2020, the Baptist Health system had 72,391 inpatient stays with an average of 788

hospitalized each day in five hospitals, 320,467 emergency room visits, 47,052 surgeries,

6,069 deliveries, 55 newborn intensive care patients daily, and 11,911 team members (Baptist

Health, 2020).

Kotter Model of Change as a Framework

While not all changes lead to improvement, all improvement requires change

(Langley, Moen, & Nolan, et al. 2009 as cited in Hass et al., 2020). The COVID-19

pandemic brought unwanted change to so many, extremely fast. Navigating the implications

of COVID-19 and responding to the pandemic is unprecedented. Experiencing change during

normal circumstances is one thing, but leading change in operational functions as a crisis

unfolds calls for extraordinary resolve and leadership (Burton and O'Neill, 2020).

Pandemic Preparation and Response

The key to going forward and preparing for future pandemics is how well leadership can identify those changes that enable better care to be delivered, hardwiring for future success, and discarding actions that do not contribute to the successful provision of care. The Kotter 8 Step Model of Change offers a framework to accomplish this goal.

According to Kotter's framework, successful change in an organization starts with visionary leadership and is championed by all leaders in an organization. Consistent adherence to the plan of change and continually communicating the success will gain more support and accelerate the rate of change and "stick," as noted by Kotter in his 8 Step Model of Change (Kotter, 2012).
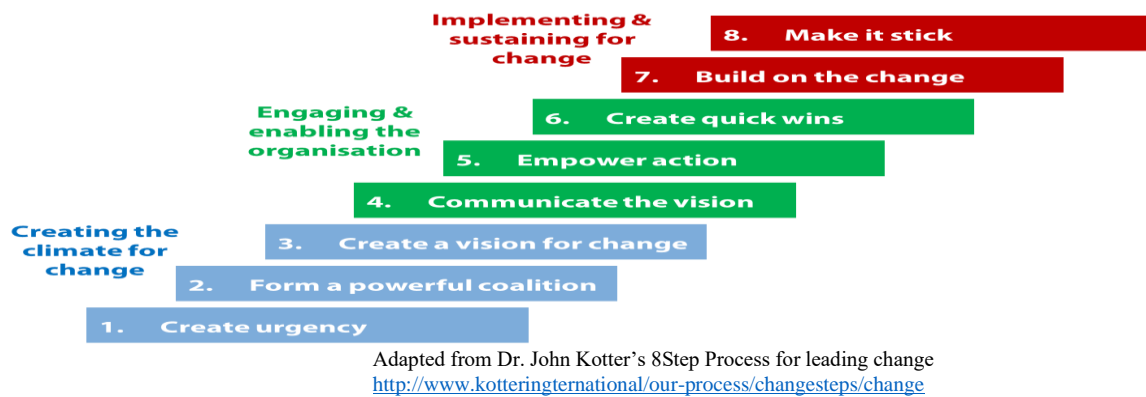
However, a life-changing event may be an excellent time to implement the change needed to operationalize response plans. Kotter's 8-Step Change Management Model provides the best format that engages and meets the organization's needs and stakeholders. John Kotter, a Harvard Business School Professor, and expert on change leadership, designed an 8-step model for leading Change (Kotter, 2012). Originally, Kotter's change management model was introduced and described in a corporate business context. However, it has been applied to human service organizations (Henry, Hanson & Haughton, 2017). Kotter model's value to a healthcare organization's leadership is that it incorporates a theme that underlies effective change management strategies. These include entering and contracting change activities, assessing areas for improvement, planning, implementing, and evaluating change. The Kotter Change Management Model is a simple approach that allows for direct engagement with key stakeholders in the change process.

Kotter's Change Management Model can be applied to assess the pressure points and actions taken during the pandemic event. By taking each action initiated in the pandemic

Pandemic Preparation and Response

and using the 8 Steps of Change by Kotter (Figure 1), leaders can determine which activities were practical, need to be hardwired in our guidelines, and what actions need to be discarded or revamped to prove useful.

Figure1 Kotter 8 Step Change Management Model

Adapted from Dr. John Kotter's 8Step Process for leading change
http://www.kotteringternational/our-process/changesteps/change

Timeline: Healthcare Leadership During One Year of COVID-19

Before applying Kotter's model, it is important to first understand how healthcare leadership responded to the pandemic during the year of March 2020-March 2021. This year can be best understood according to three separate, but contiguous, "phases" signaled by specific events. First, the initial response to the first pandemic victims being received by the hospital and the coordination of staffing, testing and PPE. Second, the lifting of the governor's executive order which signaled the beginning of recovery with elective surgeries reinstated, and third, the Thanksgiving holiday which brought on a slight surge in patient volumes followed by the anticipation of a vaccine.

After many weeks of observing the coronavirus concerns arise across the globe, leadership came to the reality of and intensity of the moment when a noon meeting on March 13, 2020, it was requested of system leadership to discuss the implementation of our Hospital Incident Command System (HICS). During this meeting, the magnitude of what we were

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potentially facing was far greater than any hurricane or previous disaster we had met.

Historically, one system command center (HICS) was initiated to oversee all operations

during a disaster. However, due to the anticipated protracted nature of this COVID-19

pandemic, basic plans were initiated to establish the system command center with further

instruction to stand up the HICS at each of our acute care hospitals. Each facility needed a

leadership command center, and these facility command centers would coordinate actions

with the system Incident Command Center. The Center's Initial assignments included the

assessment of bed availability, staffing, PPE, testing capabilities, and physician availability.

In other words, people, supplies, and equipment to care for a significant number of patients

needed to be assessed and made available immediately.

Effective and accessible leadership with a rapid and cohesive response was critical.

Leadership quickly determined there are essential components of daily actions that must be

followed in the future. These include (1) Initial Approach, (2) Daily Approach, (3) Surge

Planning/Analytics, (4) Financial Assessment and Reporting, and, finally, (5) a Recovery

Plan. These will be discussed in more depth in the Phase Sections.

Phase I (March 2020 – May 2020)

The Florida Department of Health reported the first cases of COVID-19 on March 1,

2020. The health system's immediate response was to set up a COVID-19 Update distributed

to all health system team members via email. The primary purpose was to inform and advise

team members of the virus's risks and clinical features and advise what steps to take if

experiencing any symptoms with contact numbers to employee health. In addition, this same

information was posted on our Intranet and the Physicians Portal. Transparency and full

disclosure of all information were the intent of leadership's communication.

Pandemic Preparation and Response

Initial Approach – Early on in Phase I the initial approach was to focus on daily needs and on-going preparedness. System HICS would look for a daily report from the local units and logistics areas for mounting issues or concerns with People, Supplies, and Equipment. An assessment of the community continuum of care was required over three key areas: (1) Community Based Care (Ambulatory Care) including, physician offices, imaging, and lab centers, ambulatory surgery centers, and your local health department; (2) Acute Care including Hospitals and freestanding emergency departments; (3) Post-Non-Acute Care including Home Health, Skilled Nursing Centers and Hospital Outpatient Services.

Daily Approach – Accountability was established for Senior Leadership Team (SLT), Physician Leadership, System Incident Command, Hospital Incident Commands, Physician Enterprise Incident Command, and connectivity with community partners, City/County Emergency Management Operations, State Health Department, and local health department. Report outs were established for daily noon HICS Conference Calls. Table 1 highlights the Sections of Report.

Table 1: Discussion Topics for Daily Report

Section I
• Situational Update
Section II
• Review of decisions made,
• decisions pending,
• offline discussions items
Section III
• COVID-19 Projections/Analytics
• COVID-19 Surge Plan
Section IV
• Flow: (1) Testing, (2) People, (3) Supplies, (4) Equipment/Facilities, (5) Treatment, (6) Recovery
• Resiliency Team
• Communication Update
• Open Discussion

Pandemic Preparation and Response

Analytics/Surge Planning –An important tool used in Phase I and throughout the year is predictive analytics which is statistical analysis that uses data mining and algorithms against historical data to assist in identifying patterns. Modeling of this data allows for consideration of alternative approaches to a problem and initiate the best course of action. Figure four depicts the four areas of bed capacity across the system. For example, The Institute for Health Metrics and Evaluation (IHME) model is based on matching regional and demographic data within the United States to worldwide locations further along in the epidemic (Challener, 2020). Analytic assessments are used to inform our readiness responses and mitigation strategies. Table 2 shows the five predictive analytic models used for tracking cases. Loading your census data into these models will yield a picture of what to expect at you highest surge of patients.

Table 2: Predictive Analytic Models

Five Analytical Models
- UPenn
- Sg2
- IHME
- Oliver Wyman
- Qventus

Table 3: Bed Inventory Locations

Assessment of all potential space where beds could be placed for COVID patient use.

Inventory of Space
- Inside the walls of the hospitals
- Within the hospital campuses
- Inside our network
- In our market

Pandemic Preparation and Response

As noted in the literature, and similar to Baptist, the Veterans Affairs Connecticut Healthcare System documented their experience in a recent article outlining their response plan (Gupta & Federman, 2020). The lessons learned centered around an effective and accessible leadership team with an immediate and cohesive response plan. Their successful preparedness experience emphasized employing a multidisciplinary approach with a central incident command body that ensured a rapid and thoughtful application of response measures. These measures included (1) establishment of an Incident Command Center (ICC) that included all leaders from pertinent departments, (2) designating a COVID Response Coordinator, (3) gatekeeping measures such as screening at entrances, off-site testing, and emergency department safeguards, (4) strict adherence to droplet precautions, personal protective equipment and masks (PPE), and social distancing, (5) bed redistribution system, and lastly, (6) specific testing and order sets (Gupta and Federman, 2020).

A HICS list was created to ensure all critical components of maintaining operations were addressed. This list included the following:

- Securing and limiting access to the facility, with visitation restrictions for the Emergency Department, Children's Hospital, Adult Hospital, and OB/Women's facility.
- Screening of team members, visitors, patients, vendors, volunteers.
- PPE/Masking.
- Inpatient care for COVID positive patients: Stand up COVID Units.
- Use of telehealth for virtual visits.
- Hotlines for contact: team members, Human Resources (HR), Employee Health & Patient Safety Hotline.
- Wellness & Resilience for Team Members.
- HR Implications:
    - Hiring process during the pandemic
    - Virtual interviews
    - Orientation
    - Office spaces/work from home
    - Self-attestations
    - Labor Pool
- Expansion units/field hospitals.

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Pandemic Preparation and Response

- Surgery continuation/scheduling.
- Testing capabilities and procedures.
- Communication strategies.
- Exposure Tracking.
- Care at Home Model.

On April 7, 2020, the Governor's Office issued an Executive Order to suspend all elective surgeries. Meetings were immediately initiated with chiefs of each surgical department to discuss how we would comply. Each section looked at their respective schedules for the next 30 days and began to delineate those surgeries deemed emergent/life-threatening and those that could be postponed and rescheduled. On April 17, 2020, all Baptist facilities suspended elective surgeries and followed the same procedures. Status updates were included in the twice-daily HICS calls.

Operationally, COVID Units were established at each facility. Plant Operation leadership determined which units had appropriate HEPA filtering and which units would require additional construction to install air filtration systems. As the units were stood up, patients testing positive were placed on these units and were restricted from entrance except for team members assigned to these units.

Simultaneously, to assist the community, we collaborated with the local health department and an emergency physicians' group to set up drive-up testing sites. Appointments were made on an app established by the ED group, and the hospital provided staffing and supplies. A courier system to transport specimens to the hospital laboratory for testing was initiated. Testing kits were a challenge, and multiple efforts were made with national lab groups to acquire the kits and distribute them to testing sites as appropriate.

Pandemic Preparation and Response

Multiple qualitative data sources were utilized during this Phase and throughout the

duration of the pandemic, including secondary documents, policies, and program tracking

data to facilitate decision making, including:

- Hospital Incident Command Center (HICS) Action List
- Baptist Health Epidemic Response Plan (ERP)
- Baptist Health COVID 19 OPI Leading Indicators Report
- 2019 Novel Coronavirus (COVID-19) Daily Situation Report &Update
- Relaunch/Recovery Minutes (System Preparedness Committee)
- Operations Council Minutes (Enterprise Oversight of Operational Activities)
- COVID 19 Updates for regional hospital leadership teams
- Relaunch Dashboards
- Patient & Visitor Screening Assessment
- COVID 19 Hospital-Based Resiliency Plan
- Hospital Capacity Report

Phase II (May 2020 – November 2020)

Phase II began on May 8, 2020, with the governor's executive order lifting he

moratorium on elective surgeries. Communication to all surgeons was rolled out, and

operating rooms were ramped up to bring back elective procedures. Recovery actions began

to develop by establishing an opportunity to allow patients to reschedule surgeries and

ancillary testing such as imaging, rehab, endoscopy procedures, and elective cardiac

procedures. Twice daily HICS Calls were reduced to daily communications.

Field hospital beds were utilized on and off during this Phase II. Leadership daily

monitored the multiple surge models with specific attention to the UPenn and Sg2 models,

which appeared to reflect most closely what was happening in our state. The patient census

was growing in Phase II, influenced by the continued community testing yielding more

patients presenting to our ED's with positive COVID conditions.

Pandemic Preparation and Response

Supply chain monitoring and challenges continued in Phase II. Decisions were made to set up a disinfection process for N-95 masks as established by Nebraska Medicine with heat treatment (70°C for 30 min), UV-C radiation (Lowe, J. 2020). A drop-off and pick-up process was developed in coordination with Central Supply Management.

Visitor and staff access was limited to two locations. Each location was staffed with personnel to check temperatures and ask screening questions. In order to reduce the burden of additional FTEs at the entrances, we deployed a thermal screening camera system. The technology will scan multiple people as they enter and determine the body temperature. Team members and physicians with body temperatures were not allowed access were redirected to contact Employee Health and their Manager.

Patient surge was anticipated for the July 4 holiday and noted on two of our surge models. The week of July 5 did see a patient surge. Census across all facilities jumped with an increased need for COVID inpatient beds. Expansion into the field hospital beds was experienced in one facility. We were shifting patients and expanding COVID designated beds at the flagship facility with a high of 89 COVID positive patients and a system census of 190 positive patients.

Financial Reporting

As the pandemic progressed and our system was sensing early signs financial stress due to the continued unbudgeted expenditures with PPE, additional labor costs and decreased volume which impacted revenue generation. It was essential that a discipline for monitoring financial metrics must be in place, especially as we received CARES Act stimulus payments. Table 4 lists the financial metrics reported with the same frequency as operational metrics during the pandemic:

Table 4: Financial Metrics

Financial Metrics
- Liquidity, balance sheet, and debt strategy
- CARES Act and stimulus Plan
- Monthly operating results consistently reported with projections.
- Fluid Variables – COVID-19 duration, severity, economic bounce back, and recovery
- Cumulative MTD reporting of gross charges-*Revenue recovery is the Road to Recovery.*
- Investment in Cash committed for PPE (Personal Protective Equipment) and Surge Capacity (building field hospitals for additional beds)

Phase III (November 2020 – March 2021)

Phase III began with a slight surge in November, post-Thanksgiving. Surge was not as impactful as anticipated. Leadership continued refinement of the access and screening process. All COVID testing sites were closed except for those on hospital campuses, primarily for pre-procedure clearance. HICS calls are now once a week rather than daily. PPE monitoring continues with a healthy 300+ days' supply of gloves, masks, & gowns on hand.

As the pandemic approached one year, addressing human capital needs became a priority. Bedside caregivers have been in this work model with acute attention to PPE, masking, and hyper-sensitive hygiene needs for eleven months. Increased rounding by leadership was initiated to show support and seek out suggestions on what can be done to relieve stress. Rest & resiliency rooms were developed to offer a respite to team members. Rest, Information and Transition Services (RITS) based on the International Critical Incident Stress Foundation, Inc.'s model was deployed. This model originated from military demobilization during disaster and war-time operations (ICISF, 2020). RITS locations provide a quiet and comfortable place to destress from the day's work or a particularly intense

patient care time with a COVID patient. The goal was to provide a place to assess the stress level of team members, mitigate the impact of stress, provide stress management information, provide an opportunity to rest with food & drink and provide team member referrals for employee assistance if needed.

During Phase III, the anticipation of a vaccine and other therapies was growing. Monoclonal Antibody Therapies became available for COVID positive patients who were ambulatory and asymptomatic. We established an Infusion Center in an outpatient location for this therapy on December 20. Careful planning and setup were required as we would be bringing positive patients into an outpatient clinic building which was also being utilized by non-COVID patients in another part of the building. Treatment was well received by the public and effective. During the first week in January, we also began receiving the first doses of the Pfizer COVID vaccine. Two vaccination locations were set up on two hospital campuses for vaccinating team members. To date, 7,778 team members and 16,592 other community members greater than 65 years of age have been vaccinated.

COVID-19 Recovery Plan

The pandemic determined that healthcare organizations should develop short and long-term pandemic contingency planning for the various levels of pandemic periods:

- *Inter-pandemic Period* – Planning preparation updating the current plan and begin workforce training.
- *Pandemic Period* – management planning and activate all contingency and business continuity plans.
- *Between the Waves* – implement recovery operations and adapt plans as needed.
- *Post-Pandemic Recovery* – rebuild/reinstate& services/recovery operations.

Recommendations for Guidelines

This study's purpose was to equip healthcare leaders and their organizations with a set of guidelines to prepare for pandemic events in the future. Rather than merely reacting to the change and disruption brought on by a pandemic event, leaders should methodically assess their institutional needs such as supplies, personnel, and coordination with other entities and have a step-by-step process to follow and maintaining focus and mental stamina during the catastrophic event. This process will need collaboration with other local, state, and federal entities to provide the best response plan. The success of the plan depends on close and timely sustained coordination among all of these entities (Jones, 2010). Healthcare is local, and a response to a pandemic event depends on public health leadership, municipal leadership, state, and federal leadership, requiring a realistic planning process (Toner, 2020).

By examining the experiences of one healthcare system through the lens of framework of the Kotter Change Management model the following guidelines are recommended:

Create a Sense of Urgency

Urgency is recognizing impending problems as opportunities. Immediately identify a reputable predictive analytical model and load your patient census to determine the impact of a surge in patient census.

When our own COVID census and doubling days were loaded into reputable models (IHME, UPenn (CHIME), Sg2, Qventus, Oliver Wyman, etc.), we could potentially expect a surge in census two-to-four-fold our capacity within 2-3 months. This modeling drove the decision to stand up field hospitals in two of our facilities—78 beds at BMC Jacksonville and 100 beds at BMC South.

Pandemic Preparation and Response

In preparation for a pandemic, hospitals need a strategy to manage their space, staff, and supplies to provide optimum care to patients. These logistical and operational duties are challenging in normal times and compound during a pandemic. Specifically, infection prevention measures need to be implemented to reduce in-hospital transmission for patient protection and team members. Wong et al. (2020) noted these outbreak response measures in a large (1,700-bed) academic tertiary level acute care hospital in Singapore (Singapore General Hospital) and a smaller regional hospital (Sengkang General Hospital). The findings by Wong et al. are similar to the recommendations made in as a part of this case study that these containment measures are necessary to optimize the quality of care provided to COVID-19 patients and to reduce the risk of viral transmission to other patients or healthcare workers.

Build a Guiding Coalition

The second recommendation is to initiate the local HICS (Hospital Incident Command System), including your key Senior Leadership, Policy Group and Physician Partners/Leaders. Conduct multiple calls/day 7days/week. (Follow actions on the HICS list see Exhibit 5). Identify key constituents and responses specific to testing, access to care, personnel, communications, supplies/PPE, and logistics in coordination with public health and other providers.

In collaboration with City/County and Emergency Physician group, we initiated the stand-up of an off-site drive-up COVID Testing Site. In Phase I, initiated vendor collaboration with GPO for PPE and other needed supplies.

Pandemic Preparation and Response

Create a Vision for Change

The third recommendation is to shape a vision to drive change and develop strategic initiatives. Within two weeks prepare to accommodate the maximum number of patients as determined by an analytical model. Include assessment for team members, immediate supply needs and space for expansion of care sites.

Within three weeks, we prepared to accommodate 2,000 inpatients (double current capacity) across our health system, ensuring a safe environment for our patients and care teams. With the Governor's Executive Order for suspension of elective surgeries issued in April, we assembled chiefs of each surgical section and asked for a plan to cancel/reschedule non-emergent elective surgeries.

Communicate the Vision and Engage Stakeholders

The fourth recommendation is to initiate a cadence of calls daily or multiple times a day to assess current situation and needs.

A challenge in communicating vison and engaging a specific stakeholder was the supply chain, PPE acquisition, and necessary supplies that became difficult to secure during the pandemic's height (Francis, 2020). One lesson learned with logistical operations was to consider having a planned agreement with distributors to place trailers with supplies in advance or the early stages of a pandemic event (Neil, 2020).

Empower Action by Removing Barriers

The fifth recommendation is for leaders to take immediate action to remove barriers team member encounter. Call on team members and physicians and informed on how they could help. Create focused teams to resolve issues: Resource Conservation and Control

Pandemic Preparation and Response

(CRCC teams for vent usage, gloves/gowns/face protection, PAPRs/N95s, MedSurg/ICU Supplies, Usage/Storage/Flow), Lean Care Team Design (Staff Planning), Lean Physician Staffing, Space Planning, Clinical Transformation Workgroups, Lean Documentation, Training & Education, Home Care Model, Communications, Modeling, Dashboards, Finance, Resiliency.

We embraced a "Just do it" mentality! There are 24 hours in a day and 7 days a week. Use them all! We pushed decision-making down to the unit level for determining functional needs. Hospital Incident Command Centers (ICCs) were given authority to act on matters that impacted direct patient care.

Create short-term wins

The sixth recommendation is to conduct daily assessments and communicate the present situational analysis with all constituents. Identify innovative ideas implemented and celebrate success by highlighting those responsible in the daily calls/updates. Keep a sense of humor and in recognition you will create a strong culture of teamwork.

Accelerate and Build on Change

The seventh recommendation is to learn from each innovation and hardwire where appropriate such as initiation of virtual visits via phone apps and use of telehealth. Expect shifts and possible surges in census. Identify innovated new processes that improve access, communication and maintain patient access to care sites. Replicate those changes that work and improve your delivery of care and communications.

We established a Monoclonal Antibody Infusion Center and Vaccination Clinics which were staffed by pediatric nurses with just-in-time in-services utilizing these nurses who had been furloughed due to reduced volumes in the children's hospital.

Initiate Change and Hardwire

The final recommendation is to initiate near real-time dashboards, predictive analytics, telehealth visits, online scheduling, virtual waiting rooms, and on-line bill pay. What was once a necessity needs to become part of everyday operations.

Identify changes that can be normalized in daily workflow. Any new technologies initiated, ask how can be maintained going forward. Emphasize prevention techniques that can be made standard procedures. Eliminate wasteful actions that did not contribute to success or survivability. It is not possible to outsource change or innovation. Look to those internally that stepped up as change leaders and demonstrated a bias towards action.

Accelerating and leveraging innovation was another discovery in these challenging times that may have historically been unable to perceive. Case in point, Intermountain Healthcare was discovering that their infection control professionals collaborating with materials management team members created disinfection processes and protocols which preserved respirators and limited supply of N-95 masks (Harrison, 2020).

Limitations

The study has several limitations. First, we examine the experiences of one health system. Response to a pandemic event is a local characteristic dependent on close, timely, and sustained coordination among local, state, public health, and voluntary organizations (Jones, 2010) and therefore the results may not be generalizable to other health systems. Yet

we suggest utilizing lessons learned and the change management theory will be a useful tool for others. While universal in theory, this approach could be adjusted or aligned to fit a facility or health provider organization's specific needs in their market during the crisis. Next, the study focused on examining the decision and process during the initial 12 months of the pandemic. This exploratory work can inform future studies in comparing change management approach and outcomes across health systems.

Conclusion

The importance of this study is that the pandemic has shown us how it is a different type of emergency than the typical emergency situations we plan for. The Kotter Model of Change Management is an effective approach for preparing for and addressing pandemic preparation. The Kotter model is as highly effective as it is easy to follow, provides structure and a practical framework to initiate and sustain change in an acute care setting. Leading an organization through a pandemic is a daunting task. Team members, physicians and caregivers are fearful, yet the responsibility to meet the needs of patients must be met. Standard practices may not meet the demands. Kotter's Model assists leaders identify the right people who will, in turn, motivate others to make necessary changes until it becomes the norm. In a pandemic event, Kotter's model allows for real-time correction of processes amidst the hour-by-hour, day-by-day challenges a leader and an organization face. People naturally resist change, but the Kotter Model proves to be a best practice to orchestrate and encourage change.

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Table 5

HICS List

- Screening:
    - FTEs
    - Patients, visitors, vendors
    - Volunteers, team members
- Visitation Restrictions:
    - Children, Adult, OB,
    - ED
- PPE/masking:
    - Protocol for PPE standards
    - CSM- within hospital

    - Metro- centralized supply warehouse
    - Monitoring PPE supplies/orders
    - Ensuring adequate supplies for BPE as well as hospitals
- Inpatient Care for COVID positive patients:
    - COVID units
- Virtual Visits/Telehealth:
    - Continue/Expand?
    - Eligibility
    - Compensation
    - Education of practitioners
- Online form completion (opportunity to expand)
- Hotlines:
    - 202-0202 (employees)
    - HR Hotline
    - Employee Health Hotline
    - Patient Safety Hotline
- Wellness and resilience
    - Recharge and Restoration Rooms- continue?
    - Support Groups/BBH
    - Community Outreach specifically for COVID
- Self-Attestations
    - Timeframe
    - Would it be helpful with flu in the future?
- Hiring process through HR
    - Release non-critical hire freeze?
    - Return to previous hiring process or continue expedited process in place?
    - Orientation- virtual, etc.
    - Virtual interviews

- Expansion units/field hospitals
    - o Decommission and/or continue?
    - o Utilization or shifting of "extra supplies" and HVACs
- CTW:
    - o Continue or expand?
- Virtual Meetings-
    - o Timeframe to move back to in person CMEs, conferences, large group meetings, etc.
- Office spaces, and work from home procedures
- Utilizing modeling for future hazards and predictions/ OPI dashboard
- Testing capabilities and procedures
- Elective procedure deference threshold
- Labor Pool
    - o Can something similar be utilized for future to utilize staff in needed positions
- Communication Strategies:
    - o SLT/Physician Leadership Calls
    - o COVID Alerts
    - o IPADS for family/patient/healthcare team communication
- Exposure Tracking
- Care at Home Model
    - o Expand for other services

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