

Leveraging Advanced Practice Providers during a Crisis: Lessons Learned from Top Healthcare Systems

Advanced Practice Provider Leadership White Paper Fall 2020

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Introduction and Overview

On average, advanced practice providers (APPs) constitute more than one-third of a U.S. healthcare provider organization's clinical workforce.¹⁰ Moreover, in response to COVID-19, more than three-quarters (78.6%) of organizations are redeploying or plan to redeploy APPs to frontline specialties as a result of clinical staffing shortages in critical departments.¹¹ This highlights APPs' clinical and leadership role in achieving operational needs in times of crisis.

The intent of this article is to share crisis strategies from APP leadership across the nation during the surge and recovery of the COVID-19 pandemic. We wish to showcase the innovative ways the APP leadership directed their workforce to meet unprecedented demands. Moreover, lessons learned by these contributing organizations will assist with future efforts requiring a swift and significant response. Finally, the response of the APP workforce during the COVID-19 pandemic may shape the future of APPs' reskilling and scope of practice. This collaborative of nationwide leaders discusses the APP response to the pandemic in relationship to strategic leadership, communication, staffing, crisis areas, reopening, wellness, and future innovations.

Keywords: APP, COVID-19, leadership

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1. Inclusion and Strategic Leadership

In many institutions, the utilization of a hospital incident command system (HICS) model was crucial to the planning and execution of COVID-19 initiatives. APP leadership was involved in HICS and was critical in establishing and staffing APPs in a variety of COVID-19 areas. Primary inclusion and strategic leadership objectives included collaboration with key stakeholders, identifying APP leaders to help staff COVID-19 areas, and addressing frontline providers' workforce bandwidth.

1.1 Rush University Medical Center

At Rush University Medical Center (RUMC), HICS included APP leadership from its inception. Senior leadership was aware that 400 versatile APPs would be an integral part of the institution's response to COVID-19. APP leaders were responsible for standing up crisis areas, organizing redeployment, and responding to requests for media involvement. This increased the visibility of APP practice at RUMC and nationwide. APPs were included in the crisis response at a time when many APPs across the country were furloughed or terminated. RUMC is unique in that the APP directorship is shared between an advanced practice registered nurse (APRN) and a physician assistant (PA). Each director first assessed their own strengths, then acted to divide the tasks at hand.

Workforce bandwidth quickly became a rate-limiting step. Visibility of APP leadership quickly gave way to the request for APP directors to lead numerous projects and attend multiple meetings. The RUMC APP directors worked quickly in this framework to identify APPs willing to lead in specific COVID-19 areas. These leaders were trusted to work independently. Duplicate efforts were avoided, and APP directors could devote time to other tasks at hand.

Communication during crisis is a challenging tightrope to walk. Limited leadership visibility and the quickly changing environment can be anxiety-producing for employees. Timely, informative dialogue is important. APP leadership used means other than email to provide intentional communication to increase visible leadership at an uncertain time. To this end, lead APPs in each department were expected to attend mandatory debriefings and disseminate information to their direct reports. It was communicated early and directly that flexibility and adaptability were professional expectations of all APPs at RUMC. At times this direct and firm messaging was difficult, but necessary.

Directors of advanced practice at RUMC had leveraged institutional partners from marketing and media relations to assist with communication to the institution and the public. APP directors were involved in television and print interviews as well as social media communications. This increased the visibility of APP practice at RUMC and nationwide as well as relayed gratitude to APPs during this time of uncertainty.

1.2 Stanford Health Care

In the early stages of the COVID-19 response at Stanford Health Care, lead APPs were utilized as primary resources for getting the employee and community drive-thru testing centers implemented. This dissemination of leadership allowed APP managers and directors to focus on broader areas of planning and preparation. APP directors served on committees related to the COVID-19 surge as well as organizational planning and oversight committees (e.g., labor committee). When organizational resources were depleted due to significant decreases in volume and revenue, APP directors were involved in evaluating all open positions to determine alternative ways to recoup lost funds. Similarly, APP directors participated in resource allocation and strategic planning in order to bring patients safely back to clinics.

Communication during crisis is a challenging tightrope to walk. Limited leadership visibility and the quickly changing environment can be anxiety-producing for employees.

1.3 University of Alabama

As the first cases of COVID-19 were discovered in Alabama, University of Alabama at Birmingham (UAB) Medicine, the state's largest and only academic health system, began to mobilize resources to address the wave of admissions that would soon arise. In response to the declared state of emergency, all hospital operations were centralized using the HICS model. This model included senior physician leadership and APP leadership shortly after HICS was stood up.

The assistant vice president (AVP) for APPs was tasked with determining care delivery models that could flex to meet surge criteria and sustain ongoing COVID-19 care in the acute and critical care settings. The AVP worked with the Alabama Board of Nursing and the Alabama Board of Medical Examiners to determine the emergency scope of practice for APPs in the health system. This information was then used to guide the development of an emergency policy governing the privileges of APPs with-in UAB Medicine. Discussions were held with departments and service line leaders to anticipate the downstream impact to typical operations that new care delivery models would bring. APP team leads and managers were given direct support in creating schedules that would reduce the risk of disseminated infection across provider teams and received guidance on training for APPs to practice in unfamiliar care settings.

In collaboration with senior leadership, the AVP for APPs was also responsible for developing a central drive-thru COVID-19 testing site, which included designing, staffing, and operating the test site. Initially, the freestanding clinic was developed to test 100 patients per day. Through rapid cycle process improvement, the test site was able to quickly increase capacity and now tests 400–500 patients daily and operates seven days a week.

The success of the freestanding drive-thru COVID-19 test site led to collaborations with the UAB School of Medicine's Minority Health & Health Disparities Research Center (MHRC) to develop strategies for COVID-19 testing outside the UAB Medicine footprint and into the surrounding communities. The focus of this alliance was to reach the most vulnerable populations within the Birmingham metropolitan area. The AVP strategized with population health–focused physician leaders to identify hot spots from the surrounding neighborhoods through analysis of hospital admission data overlaid with current community testing through the existing test site at UAB Medicine. This data revealed gaps in testing and led to further collaboration with the MHRC, civic leadership, and local pastors to ensure that testing locations could be created in hot spots across the city. These temporary test sites have continued twice a week at varying locations based on the most current testing and hospital admission data.

2. Communication Strategy

Throughout the COVID-19 pandemic, communication has been instrumental in order to convey transparency, reliability, and trust. With this in mind, cadence and consistent communication platforms have been necessary to prevent miscommunication within organizations.

2.1 NYU Langone Health

On March 1, 2020, the first confirmed case of COVID-19 was reported in New York State.³ By June 22, 2020, New York State had more than 387,000 confirmed cases with more than 24,000 deaths due to COVID-19.⁵ New York City quickly became the epicenter of the global pandemic. As of June 22, 2020, more than 212,000

New York City residents had contracted the disease. The rapid spread of the disease required healthcare leaders to nimbly adapt to the onslaught of infected patients and communicate with their teams to ensure an appropriate response.

Communication updates to the diverse team of healthcare providers and support personnel were crucial. Treatment protocols, personal protective safety measures, and other vitally important information required frequent updates as local, state, and federal entities made changes to their guidance. Communication needed to convey transparency, reliability, and trust. Any lack of timely communication had the propensity to lead to misinformation and disinformation being shared locally and through other communication channels.

NYU Langone Health tasked the office of emergency management to lead the institution's response to COVID-19. The team established a HICS that held regular meetings to discuss the situation followed by written debriefings with highlights from each meeting. Information flowed from this single source of official communication to the rest of the organization. The cadence of this communication increased as the number of COVID-19 related patients flowed through NYU Langone Health's doors. In addition, a dedicated COVID-19 intranet portal was created to share policies, standards, and other information with the broad community within the medical center.

The senior director of PAs at NYU Langone Health created email distribution lists to allow for the dissemination of information to APPs. In an effort to not duplicate information already flowing to the APPs from other sources, communication was kept brief and original sources of information were attached to any forms of communication. In addition, daily meetings were held with PA managers and APRN leadership to share data and discuss any concerns. Finally, NYU Langone Health's PA Council held weekly meetings via virtual town halls where data and facts were disseminated with APPs throughout the institution.

COVID-19 created and continues to create significant challenges in healthcare. Communication is a key component to an organization's response to a mass casualty/ emergency situation. Leaders should engage in active listening and ensure that their communication is transparent, reliable, and conveys trust.

2.2 UW Health - University of Wisconsin

As progressive operational planning and surge preparation escalated, multiple modalities and techniques were utilized by UW Health to enhance effective, transparent communication. At UW Health, APP and clinical department leaders were involved in provider HICS huddles to support bi-directional communication to APP groups. Additional communication means included daily email briefings, a COVID-19 intranet hub with up-to-date information and resources, live weekly broadcasted leadership briefings and town halls. To respond to real-time challenges and questions, the APP leadership team quickly stood up thrice weekly cascading huddles from the APP Director to the next level APP leader and subsequently to the frontline APPs. Huddles were followed by end-of-day email updates from the APP Director with real-time answers that arose during the huddle. As COVID operations escalated, ad hoc virtual town halls were broadcasted and included transparent Q&A chats. Lastly, as physical distancing and remote work predominated, the APP leadership team hosted virtual office hours for staff, rounded and sent personal recorded messages of appreciation. These techniques supported UW Health's management system principles of visible and engaged leadership; something that was particularly important in this time of crisis. A multi-modal communication approach allowed for transparent, visible, efficient and bi-directional messaging from senior leaders to frontline APPs.

2.3 Wake Forest Baptist Health

During the pandemic, information has been delivered rapidly, resulting in an increased need for providers to stay cognizant of practice-related changes. Monthly APP Grand Rounds at Wake Forest Baptist Health (WFBH) served as a platform for further education. Early in the pandemic, the format transitioned to a virtual webinar and topics included infectious disease and a targeted APP COVID-19 pandemic update provided by public health experts. The APP leadership council hosted a multi-topic session with APP presenters from areas around the health system to identify APP opportunities to lead in patient-centred care and find resilience during times of significant change.

Practice leadership reinforced systemwide APP communication. This highlighted the importance of a well-defined local APP leadership structure and role delineation to ensure transparent communication to APPs. Additionally, practice leadership promoted bi-directional feedback to senior leadership in order to address frontline issues and concerns. Providers have high levels of engagement and less risk for burnout when effective leadership is in place*. Theories on successful change management have consistent and open communication in varied delivery methods as a prevailing theme for success*. This is especially important in a time of rapid evolution.

3. Staffing

As the COVID-19 pandemic spread across the world and entered the United States, APP leaders from across the country began surge planning at different points of urgency based on local patient volume surges. Approaches to staffing varied based on surge capacity and available workforce, while staggered surge timing created opportunities to learn from other organizations. Planning was essential to successfully deploy APPs and ensure practice requirements were in place to optimize this critical workforce. Organizations recognized APP deployment planning was best in collaboration with physician, resident, and fellow leadership in order to develop comprehensive staffing plans. Nationally, opportunities emerged to reduce legislative and local practice barriers in order to enhance patient care access, maintain high quality, ensure safe patient care, and mobilize staffing from all providers.

3.1 Medical College of Wisconsin

Medical College Physicians, the adult specialty group from the Medical College of Wisconsin (MCW), practices at Froedtert Memorial Lutheran Hospital, a 750-plus bed academic medical center in Milwaukee, Wisconsin. Learning from the prior experiences across the world and within the United States, the Medical College was able to anticipate and prepare for high demands on its material and human resources, particularly in its COVID-19 facing service areas of emergency rooms, inpatient hospitalist teams, and critical care units. A centralized provider redeployment team (PRT) was seated and charged with logging all physicians and APPs' current practice locations and scope. PRT members included the chief medical officer (CMO) from the community practice, chief strategic officer (CSO), director of APPs, radiology department administrator, and project manager. Human resources and the medial staff office (MSO) provided names, practice locations, and credentialing and privileging status of all providers. Medical students, residents, interns, and fellows were also categorized in this process. The PRT worked with the medical school, department leaders, and CMO to categorize all providers by skill set, comfort level outside of primary appointment, and level of retraining required if redeployed. The PRT compiled provider skills and learning needs on a master document, and based on surge levels triggered by the capacity and surge committee, the PRT redeployed individuals across all areas of the enterprise except for critical care units.

A separate redeployment team, inclusive of critical care APP leaders, was charged with managing critical care physician and APP resources through surge phases. With a centralized critical care department, cross-department collaboration of APPs created a pool of critical care providers and developed an APP team to inform cross-educational support. Training and educational resources were created to prepare providers pre-deployment and were available in electronic format for mobile devices to provide support and resources in real-time. The critical care APP team formalized a support team structure if non–critical care trained APPs were deployed for surge patient care. The physician and APP collaborative team also assessed innovative opportunities to create teams with complementary provider skills if patient surge expanded critical care beds.

The strong relationship of APP leaders and foundational work of the MSO within the institution enabled a smooth APP transition for deployment including optimized policies, privileges, and reduced barriers for practice. For example, prior optimization and standardization of privileges for critical care APPs across all services included standardized certifications of Advanced Cardiac Life Support (ACLS) and Fundamental Critical Care Support (FCCS), education collaboration, and privileging competencies for core skills (e.g., mechanical ventilation management and critical care procedures). The established standardized privileging reduced barriers to create an APP critical care pool for surging across intensive care units (ICUs).

Anticipating a surge of COVID-19 patients, the Wisconsin legislature implemented reduced regulations for healthcare emergency deployment. Prior to the COVID-19 pandemic, a new bill was under review to modernize Wisconsin law, increasing patient access and reducing barriers for PAs to provide patient care. Planning for surge response highlights the limitations in current law for PAs to provide patients with quality healthcare access if patient volumes surge beyond current capacity.

3.2 Rush University Medical Center

Shortly after the HICS was stood up, HICS leaders developed the labor pool command center. The directors of APPs oversaw the task force, which deployed clinical and non-clinical workforce to 25 areas including surge ICUs, surge internal medicine, ambulance bay triage, forward triage, lab results callback, and more. The labor pool command center centralized and managed redeployment operations including daily staffing needs, staffing requirements, training, schedules, and de-escalation concerns for all areas. The office hosted daily staffing calls as well as housed a live, centralized database on OneDrive. The labor pool command center was responsible for organizing the redeployment of 240 providers (APPs and physicians) and 475 staff, responding to the daily needs of the institution. Redeployed staffing in this area included a lead APP, managers, a project manager, and administrative staff.

APP leaders were identified early by the directors of APPs and were tasked with standing up areas such as the COVID-19 testing clinic, ambulance bay triage, result callback teams, and the expansion of virtual care. As outpatient clinics closed, APPs in ambulatory areas were trained to provide virtual care, inpatient care, or COVID-19 testing and assessment. In many cases, physicians and nurses were trained by APPs in crisis areas.

APP faculty members in the College of Nursing (CON) and the College of Health Sciences (CHS) were another potential source of labor. With the help of the medical staff office, more than 50 faculty members received disaster privileges that allowed them to practice in COVID-19 areas.

It was important that expectations of redeployed staff were clearly defined. APPs were informed from the start that they would be expected to work at times and in ways they were not accustomed. Early and firm communication of expectations helped redeployment go more smoothly. Payroll during redeployment was maintained with the providers' existing manager, and employees were to maintain their time at 40 hours per week or less; limited to no overtime was authorized during the surge. Extra shift stipends for exempt staff were submitted by the home department manager using the appropriate COVID-19 account unit (AU). The staffing office added rosters with providers' full-time equivalent (FTE) information in order to track redeployed hours.

3.3 Stanford Health Care

Early in the pandemic, Stanford Health Care recognized that APPs may need to be mobilized to provide services in areas with more critical need. During the initial lull as patient visits and hospital census dropped, downtime was utilized for surge planning. Each team was asked to develop an onboarding "crash course" with training resources that could be utilized if another APP was deployed to their team. In the meantime, a contingency staffing pool was created for the APPs, which was separate from the general hospital staffing pool. APP leadership evaluated skills, ability, and availability of each APP to create matches for COVID-19 areas in need. In preparation for needs in more complex areas, Stanford offered shadowing for additional training opportunities. APP leadership then worked closely with its credentialing department to streamline the additional privileges needed to provide care in different clinical areas.

4. Crisis Areas

To meet the demands of COVID-19, crisis areas were developed to support patient and staff needs. Crisis areas included a COVID-19 hotline, COVID-19 testing areas, new surge units, fit testing, and more.

4.1 Cleveland Clinic

In preparation for COVID-19, Cleveland Clinic needed to create new areas to support the needs of the health system during the pandemic. First, a COVID-19 hotline was created to answer questions and screen patients for symptoms. APPs assigned to COVID-19 hotline stations were responsible for placing testing orders and having patients scheduled for a COVID-19 test. The COVID-19 hotline consisted of all clinical workforce redeployed from surgical and medical departments.

Screening stations were also enforced at all building entrances of the Cleveland Clinic campus. Screening stations were composed of redeployed clinical staff that were responsible for temperature screenings of employees and patients as well as providing masks to anyone in need.

Finally, Cleveland Clinic converted its Health Education Campus building into a 3,000-bed hospital to take care of minimally to moderately ill COVID-19 patients. The space was transformed in less than a month to house all COVID-19 patients who required less oxygen and were in the recovering stage of COVID-19. These COVID-19 patients could be discharged directly from the new space as needed. The transformed space included redeployed clinical and non-clinical workforce.

Throughout the initial months of the COVID-19 outbreak, masses of caregivers were redeployed and upskilled to meet the needs of new COVID-19 areas. Through all of this, Cleveland Clinic was instrumental in keeping caregivers safe and providing quality care to its patients.

4.2 Lurie Children's Hospital of Chicago

In the early stages of the pandemic, several crisis areas arose at Lurie Children's Hospital promoting immediate action and intervention. One crisis perceived by faculty and staff was the limitation of personal protective equipment (PPE). Lurie Children's implemented a PPE spotter program whereby RN staff, infection prevention specialists, and infection control specialists rounded on all the inpatient units with a cart complete with PPE and swabs to distribute in a methodical yet trackable way, and reinforcing education on necessary PPE utilization.

As previously mentioned, APPs were a key component to COVID-19 hotline support and drive-thru testing. APPs were redeployed to support hotline efforts through guidance, support and order entry for testing. Drive-thru testing was established at satellite sites to address the geographic spread of the institution's population. Multiple sites allowed for enhanced testing, greater patient satisfaction and faster turn-around times.

The APP contribution was significant as Lurie Children's accommodated increased staffing needs in the pediatric intensive care unit (PICU). This unit was hit with the most positive patients and highest census for the majority of the COVID-19 pandemic. Lurie Children's was able to deploy APPs from ambulatory sites previously privileged in the PICU to support some of the increased volume and staffing needs. This overwhelming contribution showcases the adaptability of the APP team during a crisis to support one another and meet the needs of our patients.

5. De-escalation and Reopening

As healthcare institutions planned for COVID-19 recovery, primary objectives focused on deploying providers back to home units while still optimizing care delivery in ambulatory settings, inpatient settings, and necessary COVID-19 areas.

5.1 Stanford Health Care

In preparation for reopening the hospital and clinics following a significant decrease in volume, Stanford Health Care developed ambulatory transformation teams (ATTs)—teams of leaders to collaborate on ideas and strategies for reopening clinics to safely bring patients back while also maximizing opportunities unveiled during the crisis. Each specialty ATT group included an APP leader, who helped guide strategies to maximize utilization of APPs, particularly in areas where there were opportunities for growth. One example was stratifying the types of patient complaints or visit types that could be handled virtually or in person by APPs, allowing physicians to focus on procedures or more complex cases. Other examples included creative use of space, particularly with the acceptance of telehealth visits, drive-thru immunization stations and evaluation centers for the upcoming flu season or potential second COVID-19 wave.

5.2 Wake Forest Baptist Health

During North Carolina's state-enforced COVID-19 stay-at-home order, WFBH adjusted to only providing essential visits and surgeries. As the phases of reentry occurred, APPs were critical to reintegration of patient-centered care in every medical specialty and clinical setting. APP leaders participated in strategic planning to determine which patients should be prioritized for in-person visits versus continued virtual care in the ambulatory setting. Chronically ill patients at risk for complications as well as pediatric patients requiring vaccination were given priority, followed by patients whose routine specialty appointments were previously canceled. APPs were

In preparation for reopening the hospital and clinics following a significant decrease in volume, Stanford Health Care developed ambulatory transformation teams (ATTs)—teams of leaders to collaborate on ideas and strategies for reopening clinics to safely bring patients back while also maximizing opportunities unveiled during the crisis. encouraged to utilize telehealth visits to assess patients' need for in-person visits while educating patients on COVID-19 safety precautions. Schedule modifications were made to group well-patient visits separately from sick visits. Through the APP Grand Rounds education forum, providers were informed of these scheduling strategies, telehealth integration,⁹ and how to maximize billing opportunities. APPs were empowered to be leaders in this process.

WFBH APPs continue to be primary providers for respiratory assessment clinics that are responsible for preoperative and symptomatic patient testing. The generalist training, especially of PAs and family nurse practitioners (FNPs), allows flexibility in adult and pediatric patients served as well as collaboration with usual source providers to reinforce evidence-based education on testing process, clinical presentation of the virus, and post-testing quarantine instructions.

Surgical APPs, including certified registered nurse anesthetists (CRNAs), were critical for the reintegration of elective surgeries, transitioning pre- and postoperative assessments, and telehealth visit education. Surgical APPs functioning in first-assist roles improved the efficiency and speed of operations, which was critical in resumption of care with a backlog of cases. Inpatient APPs have focused on holistic care to ensure medical and psychosocial care is addressed in the hospital as well as working with care teams to ensure appropriate discharge planning for successful transition in the hopes of reducing readmissions.⁷ Under the CARES Act,² which draws on the framework of the April 2019 Home Health Care Planning Improvement Act, APPs can now prescribe home health orders that support patients' continued medical care at home.1 In a time of uncertainty with restricted visitor access, the continuity of care and communication provided by APPs is critical to the patient and family member experience. This is especially important in end-of-life care discussions where APPs can lead in empathetic care and communication as part of interdisciplinary teams.⁸ Historically, APPs throughout the health system have been available and ready to serve in times of change, embracing flexibility in clinical settings, hours, and roles to maintain a patient-centered approach to care.

5.3 NYU Langone Health

At the beginning of April 2020, during the height of COVID-19 activity in New York City, NYU Langone Health increased its bed census from 671 beds to 862 beds. Teams of healthcare providers included physicians, APPs, nurses, respiratory therapists, and more. Many members of this team were redeployed from their typical clinical area to the inpatient services now inundated with COVID-19 patients. At NYU Langone Health's main campus, more than 245 APPs were deployed from various clinical settings to care for COVID-19 patients on teams in the inpatient setting.

As the inpatient census began to contract, NYU Langone Health's clinical leadership, supported by project managers, began the process of de-escalation including returning resources to their pre-COVID-19 state. Physical space that had been transformed into treatment areas was returned to its pre-COVID-19 state, clinical staff deployed from ambulatory settings were returned to their clinical service, and life began to normalize.

The process of returning clinical staff, including PAs and APRNs, was supported by a dedicated project manager and done in collaboration with the clinical service leadership. The first group to be returned to their clinical service included clinicians deployed from the ambulatory setting. As a group, NYU Langone Health leadership reviewed pre-COVID-19 staffing for each service, evaluated current and projected volume, and ensured continued staff for the inpatient setting with competent staff to care for patients. Teams of healthcare providers included physicians, APPs, nurses, respiratory therapists, and more. Many members of this team were redeployed from their typical clinical area to the inpatient services now inundated with COVID-19 patients. In some services, including the emergency department, volume has yet to return to a pre-COVID-19 state. NYU Langone Health leadership continues to analyze volume data to support the redeployment of PAs and APRNs. As volume increases in various clinical services and its COVID-19 volume continues to contract, leadership anticipates redeploying the remaining PAs and APRNs to their home service or a new clinical service that has volume to support staffing. NYU Langone Health is utilizing this time to focus on well-being, ongoing clinical up-training in hospital medicine and critical care, and other high-value opportunities to strengthen this resilient workforce.

6. Wellness

In an effort to address burnout and access to mental health support, many institutions formalized a wellness program during the COVID-19 pandemic. Wellness programs offered virtual events and resources in order to normalize and publicize wellness.

6.1 UCHealth-University of Colorado Hospital

Prior to March 2020 and COVID-19, UCHealth-University of Colorado Hospital (UCH) and the University of Colorado School of Medicine (CU-SOM) began partnering to develop a wellness program focused on clinical providers and hospital staff. The program design involved stakeholders from leadership and frontline clinicians. While COVID-19 ultimately slowed the implementation of the overall program, the urgency for wellness support quickly highlighted the need for such a support program.

The overall framework of the program focuses on interprofessional clinical provider teams, engaging frontline APPs and physicians in faculty engagement workshops, and steering committees on a leadership level. This initial organization laid the foundation for urgent development of mental health support with the transition to COVID-19 care systems. The framework was designed to address systemic drivers of burnout and rapid access to mental health support. Clinical providers' work and personal stressors emanated from the urgent transitions to COVID-19 care systems, which included complex workflow changes that impacted their normal clinical work as well as their responsibilities outside of work.

Urgent need for provider wellness support required multiple means of communication and access. Typical routes of communications were disrupted, leading UCH/ CU-SOM wellness initiatives to leverage virtual meetings and virtual communications, which ultimately enhanced APPs' ability to access wellness supports.

At the local level, academic departments initiated support for their providers by holding recurring virtual town halls for clinical and workflow updates, collegial socialization sessions with non-work themes, and clinical team support sessions with mental health providers either on-site or after clinical hours. At the regional level, the office of advanced practice (OAP) organized several formats to connect with APP leaders and to support APPs on the frontline. The OAP communicated directly to the frontline APPs via email, monthly town hall open question and answer sessions, monthly newsletters, and the internal APP website. For lead APPs, who represent the majority of the academic divisions and clinical services, daily APP lead huddles addressed system changes and opened discussion of frontline APP challenges and stressors. At the system level, the department of psychiatry began "Mind the Brain" support programs across the campus, for various types of staff and clinical providers. Professionally led mental health support sessions, called "Brain Health for APPs" were directed toward frontline APPs. A subset of support sessions was created to support APP leads as well, recognizing the emotional stressors of leadership.

Clinical providers' work and personal stressors emanated from the urgent transitions to COVID-19 care systems, which included complex workflow changes that impacted their normal clinical work as well as their responsibilities outside of work. At a broader system level, the CU-SOM hosted multiple mental health and wellness programs, quickly implementing virtual access for the SOM faculty and staff. Virtual access wellness programs included CU-SOM Brain Health Sessions for clinicians, webinars focused on the emotional challenges of remote working, resources for self-care activities, and podcasts specifically for providers managing work and home stressors hosted by the National Mental Health Innovation Institute.

For longer sustainability and to address individuals' mental health and coping strategies, the department of psychiatry opened direct access to virtual mental health appointments with no cost to participants. This Faculty and Staff Mental Health Clinic improved access to mental health care and offered a convenient entry point of care for APP faculty.

6.2 University of Alabama at Birmingham Health System

The UAB School of Medicine created the position of the chief wellness officer (CWO) in 2018 to focus on the well-being of physician faculty. The vision of the inaugural CWO was to partner with the AVP of APPs to broaden the scope of the wellness program to include all providers within the UAB Medicine health system. This partnership led to the collection of data regarding the well-being of UAB Medicine's advanced practice workforce prior to the arrival of COVID-19 in Alabama. As COVID-19 rapidly transformed the practice of medicine within UAB Medicine and across the nation, this alliance became critical in assessing and supporting the well-being of the frontline workforce.

The AVP for APPs continues to partner with the CWO and his staff to create ongoing assessments of current well-being and to provide insight to individuals regarding self-care in unprecedented times. This work includes pulse surveys to gather critical information that can be used to guide workforce strategy and to develop meaningful wellness programs. The AVP and the CWO share resources that support APPs in physical, mental, social, and spiritual wellness. For example, mental health resources from the CWO's program once dedicated only to physicians were specifically expanded to include access for APPs. Data from pulse surveys indicated a need for these resources and a need for expanded hours of access. This data was used in real-time to develop a meaningful response to the needs of the APP workforce in a time of crisis.

The AVP for APPs promotes ongoing wellness through distribution of online resources designed to promote and sustain well-being. These resources include newsletters with a focus on self-care as well as recognition of APPs' value to UAB Medicine and the Birmingham community.

6.3 UW Health - University of Wisconsin

The foundation of wellness during COVID-19 was springboarded by the Provider Wellness Committee, which includes representation from APPs, physicians within clinical departments and the employee wellness department. The multilayered approach included formal and informal daily offerings, visibility, normalizing, and acknowledging self-care and wellness. Formal facets of the wellness program included trained provider and staff peer support specialists, a behavioral health hotline for employees staffed by the psychiatry department, and support groups for units and teams facilitated by psychiatry. Additionally, peer support specialists completed rounds throughout the health system offering support, nourishment and simply checking in on staff. Examples of the informal aspects of the wellness offerings included yoga sessions led by staff via Zoom calls and publicized offerings in daily briefs.

The COVID-19 pandemic has pushed healthcare leaders personally, professionally, and within their organizations into a space of uncertainty that most have never experienced before. While formalized and reactive programming emerged throughout the organization, there were few that targeted a pro-active approach to supporting APPs. Identifying an opportunity, the APP office developed a "Stronger Together" buddy system. The buddy system was modeled after conceptual models from the military, disaster response, first responders, veterans and suicide prevention programs. The system was designed to be a proactive, volunteer approach to support coworkers (during COVID-19 and beyond) before stress, reduced resilience or inadequate self-care became evident. The program utilized a regular cadence of formal and informal check-ins with the goal of reducing the effects of sustained emotional or physical stress during COVID-19 and beyond. Through all of its approaches, UW Health utilized organizational and external resources, ensuring that wellness and self-care was normalized, publicized and made accessible for all providers and staff.

7. Future Innovations

The COVID-19 pandemic has pushed healthcare leaders personally, professionally, and within their organizations into a space of uncertainty that most have never experienced before. Moreover, the pandemic stressed the financial and human resources within the industry, pushing healthcare leaders to respond in a different manner, often outside their comfort zone. Healthcare leaders who adapted to and engaged with the new needs of their institution were the architects of innovations in delivery of patient care and employee safety.

7.1 Medical College of Wisconsin

At MCW, APPs deliver about half of the clinical care at the academic medical center, making this provider group key stakeholders in drafting the pandemic response. MCW APP leaders were tapped to participate in HICS meetings to collect a variety of assessments in both inpatient and ambulatory areas. The purpose was to plan for changes in the way both physicians and APPs would be redeployed during anticipated surges of either infected patients or infected provider team members. A by-product of COVID-19 response planning was recognition that there were true opportunities for innovation, such as using APPs with more flexibility and efficiency. The APP skill assessment identified only a few cross-trained APPs, which was most likely due to highly specialized inpatient and ambulatory practices. APPs within primary care settings at MCW were more homogeneous, making it easier to move those providers across practices. However, nonstandardized workflows became evident in these settings and made it harder to assimilate APPs and physicians across primary care practice locations. As a result, APP leaders identified an innovation opportunity to develop a cross-training model for APPs across MCW's intensive care, acute care, and non-ICU teams such as trauma surgery and hospital medicine. Additionally, the innovative establishment of an APP critical care fellowship program ensured the content needed to create modules that could be used asynchronously by APPs to build core critical care skills (e.g., mechanical ventilation). Individuals in the acute care setting who would have lower learning curves in acquisition of this skill set have been identified for cross-training.

Prior to COVID-19, foundational assessments and tools were created to evaluate ambulatory and critical care physician/APP team models. A collaborative team defined standardized definitions, team best practices, and created data models to create a foundation for understanding workforce and workload. With an evolving work environment, MCW is evaluating workforce needs to assess standard operations for efficiency and effectiveness leading to innovative models of care.

7.2 OSF Healthcare

"Digital Hospital at Home" is a program that was in the planning process when the pandemic hit and was quickly operationalized to decompress OSF Healthcare's acute care facilities that needed beds to care for patients. "Digital Hospital at Home" allowed OSF Healthcare to take patients from the hospital to their homes in order to be safely cared for in collaboration with home health and their OSF medical team. Patients with comorbidities that put them at a higher risk of complication from COVID-19 were remotely monitored with digital equipment for any changes in vital signs that could indicate a change in condition. Without the pandemic, much of this work likely would have moved more slowly, but the pandemic allowed OSF Healthcare to move quickly to meet the needs of its communities.

7.3 UCHealth-University of Colorado Hospital

As the patient census increased at UCHealth-University of Colorado Hospital due to the COVID-19 pandemic, redeployment of the clinical APP workforce into areas outside of their specialty was necessary. However, this was hampered by several issues: (1) specialty medicine and the narrowed scope of practice in inpatient and critical care settings decreased availability of APPs with hospital medicine inpatient skills; (2) there was no tracking of APP specific certification, clinical education, and prior-work experience of the APP workforce; and (3) the academic organizational structure of departments/divisions/clinical services created both communication and financial barriers in designing cross-covering clinical services.

The logistics of identifying APPs with the clinical skill sets to function in hospital medicine, emergency medicine, and critical care were tackled by a combination of manual identification via medical staff credentialing and privileging as well as a survey to the APPs. Having a centralized office supporting advanced practice proved imperative as urgent communication, data gathering, and redeployment options of the APP workforce required a breadth of knowledge of the APPs' clinical scopes and certifications. The clinical orientation specific to APPs, clinical onboarding planning specific for their specialty, oversight of APP credentialing and privileging by APP leaders, and the clinical Lead APP organizational structure all worked together to allow for the planning of redeployment.

At UCHealth-UCH, there are multiple APPs that are dual privileged in more than one clinic setting and in differing academic departments. For example, emergency medicine has several providers who are dual privileged within another clinical setting (e.g., gynecology, oncology, orthopedic nurse, medicine hospitalist, and inpatient surgery APPs). This dual privileging could expand further and be more intentional which would support cross-coverage and more effective use of the APP workforce when needed. During the COVID-19 pandemic this was particularly needed in hospital medicine and critical care.

8. Conclusion

The COVID-19 pandemic has forced healthcare to adapt in innovative ways to rise to the challenge of providing care for patients in need. It is important for leaders to be able to implement proven strategies to address a problem of this magnitude. From redeployment of staff to provider wellness, APP leaders have played a significant role in the implementation of these strategies at their respective institutions. Since APPs make up 30% of the healthcare workforce in the United States, they add value to dealing with large scale provider resource issues. APPs can utilize their skills to contribute

to patient care in a variety of innovative ways during a time of crisis. The versatility of APPs in this type of situation cannot be overstated at a time when the need for a targeted approach to workforce deployment is necessary.

Each of the APP leaders that contributed to this white paper faced similar challenges, and each dealt with them in different ways. For example, communication strategies differed between each contributing institution, but the goals of transparency, efficiency, and cadence remained a theme throughout. Approaches developed by each institution's APP leaders early in the pandemic can be scaled appropriately and implemented in any institution that employs APPs. The input of each institution reveals that APP leaders are poised and ready to join institutional leadership in response to crises. It also suggests that an APP leadership structure is beneficial not only to APPs but institutions at large.

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