NCSBN's Environmental Scan COVID-19 and Its Impact on Nursing and Regulation

National Council of State Boards of Nursing

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Advancing nursing excellence for public protection

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In recognition of the 200th Anniversary of Florence Nightingale's birthday, the World Health Organization (WHO) declared 2020 the International Year of the Nurse and the Midwife. In an unexpected twist of fate, the yearlong celebration was replaced by a tumultuous worldwide coronavirus pandemic. COVID-19, an infectious disease caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (hereafter referred to as COVID-19), created illness, wreaked havoc, and casted a spotlight on the vital role, importance, and heroic actions of nurses around the world.

On March 11, 2020, the WHO declared the coronavirus outbreak a pandemic, and shortly thereafter, the White House proclaimed a U.S. national emergency (Beckman, 2020; White House, 2020; World Health Organization, 2020a). Nurses and other healthcare workers cared for COVID-19 patients on the frontlines, where they encountered challenges including critical shortages of personal protective equipment (PPE) (Beckman, 2020). Despite the risks to their own well-being, nurses worked around the clock to care for patients and their families, who were not allowed in the healthcare facility, even when the patient was dying. It was indeed the year of the nurse.

Throughout the pandemic, nurse regulators have played a pivotal role by working with their state governments to get nurses licensed and into the workforce. For instance, in many states, retired nurses were granted waivers to return to practice, nurses not part of the Nurse Licensure Compact (NLC) could practice across state lines, and advanced practice nurse collaborative agreements were relinquished. All of these actions represented an effort to meet the demands of the burgeoning number of ill patients challenging the healthcare system.

The annual National Council of State Boards of Nursing (NCSBN) Environmental Scan is a present- and future-based resource that highlights professional, political, and social changes for nurse regulators and other nursing leaders with a current and comprehensive portrait of nursing in the United States, including emerging issues and challenges.

The COVID-19 pandemic is affecting every aspect of daily life in all corners of the world. How it impacted the nursing workforce, nursing education, healthcare delivery, and policy and legislative issues are the foci of this 2021 environmental scan. Included are perspectives on how nurse regulators and other nurse leaders responded to numerous new challenges posed by COVID-19 and what these responses may mean for the future. Several international viewpoints are also included that serve to expand the knowledge of regulators to the rest of the global healthcare community.

The Nursing Workforce

WHO, in partnership with the International Nurses Association and Nursing Now, published the *State of the World's Nursing 2020* (WHO, 2020a). WHO estimates there are 27.9 million nurses worldwide, which accounts for 59% of the total healthcare professions (WHO, 2020a). There was an increase of 4.7 million nurses between 2013 and 2018; however, there is still a global shortage estimated at around 6 million nurses. The greatest gaps, in terms of the number of nurses per 10,000 people, are in "low- and lower middle-income countries" in Africa, the Eastern Mediterranean, Latin America, and Southeast Asia (WHO, 2020a, p. 3). The majority of the 36 million nurses expected to leave the workforce by 2030 are expected to come from these regions, but the American and European regions are also included in this number. WHO posits that each country will need to increase its number of nursing graduates by 8% on average per year, will need to create jobs for these new nurses, and will need to work to retain these nurses over the long term.

Nursing is critical to achieving the world's 17 sustainable development goals, outlined in the *State of the World's Nursing 2020* report. All 191 United Nations members agreed to work toward these goals leading up to 2030 (WHO, n.d.). To drive progress toward the SDGs, WHO presents 10 concrete recommendations for nursing workforce policy (WHO, 2020a) (Table 1). The report concludes that countries need to make financial resources available but that investing in nursing promises measurable returns (WHO,

2020a). Not only will it result in a strengthened nursing workforce, it will "improve the health outcomes for billions of people" (WHO, 2020a, p. 13). Likewise, a sustained investment in nursing will create millions of jobs and support global health security.

TABLE 1

World Health Organization's Recommendations for Nursing Workforce Policy by 2030

- Countries affected by shortages will need to increase funding to educate and employ at least 5.9 million additional nurses.
- Countries should strengthen capacity for health workforce data collection, analysis, and use.
- Nurse mobility and migration must be effectively monitored and responsibly and ethically managed.
- Nurse education and training programs must graduate nurses who drive progress in primary healthcare and universal health coverage.
- Nursing leadership and governance is critical to strengthening the nursing workforce.
- Planners and regulators should optimize the contributions of nursing practice.
- Policymakers, employers, and regulators should coordinate actions in support of decent work.
- Countries should deliberately plan for gender-sensitive nursing workforce policies.
- Professional nursing regulation must be modernized.
- Collaboration is key.

Source: World Health Organization, 2020b

The U.S. Nursing Workforce

NCSBN's National Nursing Database tracks the number of U.S. licensed nurses from 57 boards of nursing (BONs) and is updated daily (excluding Michigan). There were 4,204,723 registered nurses (RNs) and 934,245 licensed practical or licensed vocational nurses (LPNs/LVNs) in the United States as of September 30, 2020. (NCSBN, 2020a). The most recent Occupational Employment Statistics data from May 2019 indicate that 2,982,280 RNs and 697,510 LPNs/LVNs were employed in the United States (U.S. Bureau of Labor Statistics [BLS], 2020a). Figures 1 and 2 illustrate growing RN employment and steady LPN/LVN employment.

FIGURE 1

Number of Employed Registered Nurses in the United States, 2000–2019
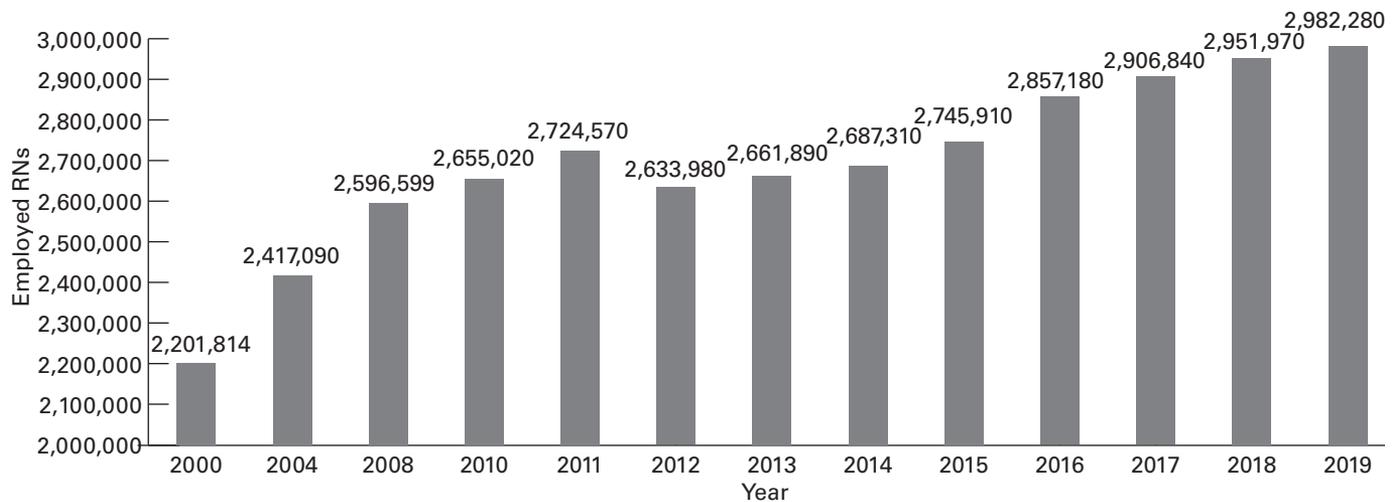
Note. The 2010-2019 data were taken from the semiannual Occupational Employment Statistics survey published by the U.S. Bureau of Labor Statistics (2020a). The 2000, 2004, and 2008 data were taken from the Health Resources Services Administration's National Sample Survey of Registered Nurses (2010).

FIGURE 2

Number of Employed Licensed Practical Nurses/Licensed Vocational Nurses, 2012–2019
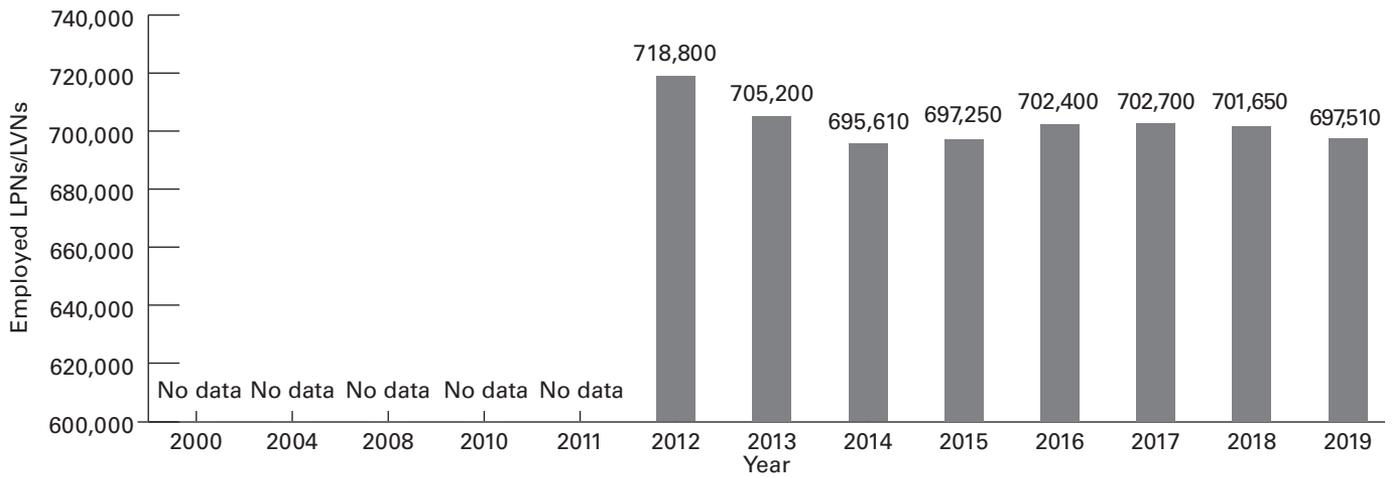
Note. Data were taken from the semiannual Occupational Employment Statistics survey published by the U.S. Bureau of Labor Statistics (2020a).

The number of employed RNs per 100,000 people in each state varies widely across the country, from fewer than 700 RNs per 100,000 people in Utah to nearly 1,550 RNs per 100,000 in the District of Columbia (Figure 3) (BLS, 2020a; U.S. Census Bureau, 2019). States in the upper Midwest—specifically South Dakota (1,464 RNs per 100,000), North Dakota (1,279 RNs per 100,000), and Minnesota (1,259 RNs per 100,000)—have among the highest ratios of employed RNs per population. States in the West and Southwest regions have among the lowest ratios, though Georgia and Virginia, in the Southeast have the lowest ration. The ratio of employed LPNs/LVNs is lowest (between 50 and 75 LPNs/LVNs per 100,000 people) in Alaska, Utah, and Hawaii and highest (more than 400 LPNs/LVNs per 100,000) in Louisiana (Figure 4).

FIGURE 3

Number of Employed Registered Nurses per 100,000 People
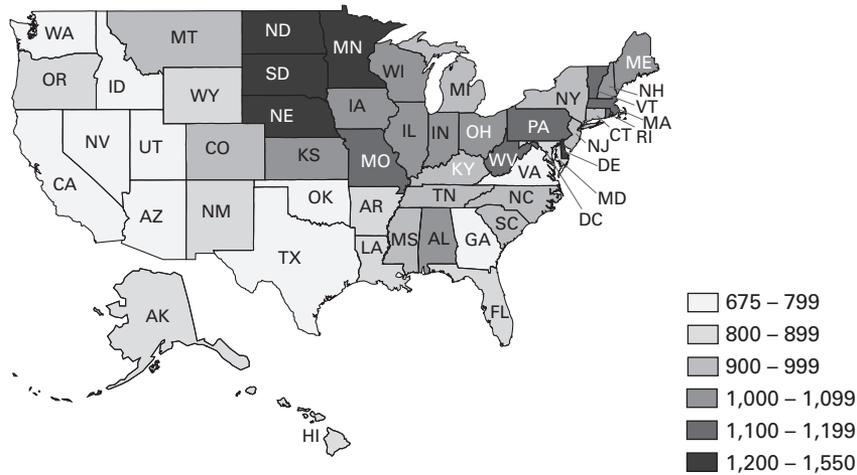
Note. Number of employed registered nurses per 100,000 people by state as of May 2019.

Source: U.S. Bureau of Labor Statistics, 2020a; U.S. Census Bureau, 2019.

FIGURE 4

Number of Employed Licensed Practical Nurses/Licensed Vocational Nurses per 100,000 People
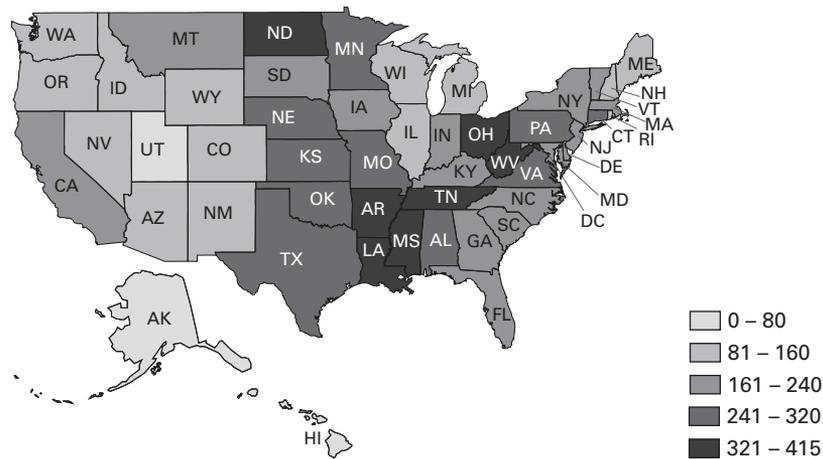
Note. Number of employed licensed practical nurses/licensed vocational nurses per 100,000 people by state as of May 2019.

Sources: U.S. Bureau of Labor Statistics, 2020a; U.S. Census Bureau, 2019.

The maps in Figures 3 and 4 provide a quick state-level snapshot of the supply of employed nurses; however, there are regional differences within each state that could be different from the overall state-level view. These regional differences within states are often the main concern for individuals involved in studying and monitoring the nursing workforce. For instance, California has one of the lowest employed nurse-to-population ratios, but city centers like San Francisco may have very high nurse-to-population ratios whereas rural areas may have very low nurse-to-population ratios. Within-state regional nurse employment data are available from the BLS (2020a).

The *Occupational Outlook Handbook* (BLS, 2020b) reported that the median pay for RNs in 2019 was $73,300. The RN workforce is expected to grow in the United States by a faster-than-average pace of 7% from 2019 through 2029, adding an additional 221,900 jobs. The median pay for LPNs/LVNs in 2019 was reported to be $47,480. The LPN/LVN workforce is expected to grow by a much faster-than-average pace of 9% from 2019 through 2029, adding an additional 65,700 jobs.

Figure 5 (NCSBN, 2020b) extends the narrative of the nursing workforce. As shown in this graph, 171,387 nurses took the NCLEX in 2019. This number does not mean all those nurses were licensed and entered the U.S. workforce, but it does reveal that the number of individuals graduating from nursing programs has steadily risen since 2010. The question remains as to whether the pipeline is adequate to supply the present and future needs of the U.S. healthcare system.

Ten-Year Trend of U.S. RN and LPN/LVN First-time NCLEX Takers, 2010–2019

Figure showing a bar chart. Y-axis labeled "Volume of NCLEX Exam Candidates" ranging from 0 to 180,000. X-axis labeled "Year" with years 2009–2019. RN bars (black) values: 134,708; 140,889; 144,583; 150,226; 155,098; 157,372; 157,882; 157,073; 157,720; 163,238; 171,387. LPN/LVN bars (gray) values: 63,526; 66,831; 65,334; 65,350; 58,574; 55,489; 50,958; 47,284; 46,939; 47,031; 48,234. Legend: RN (black), LPN/LVN (gray).
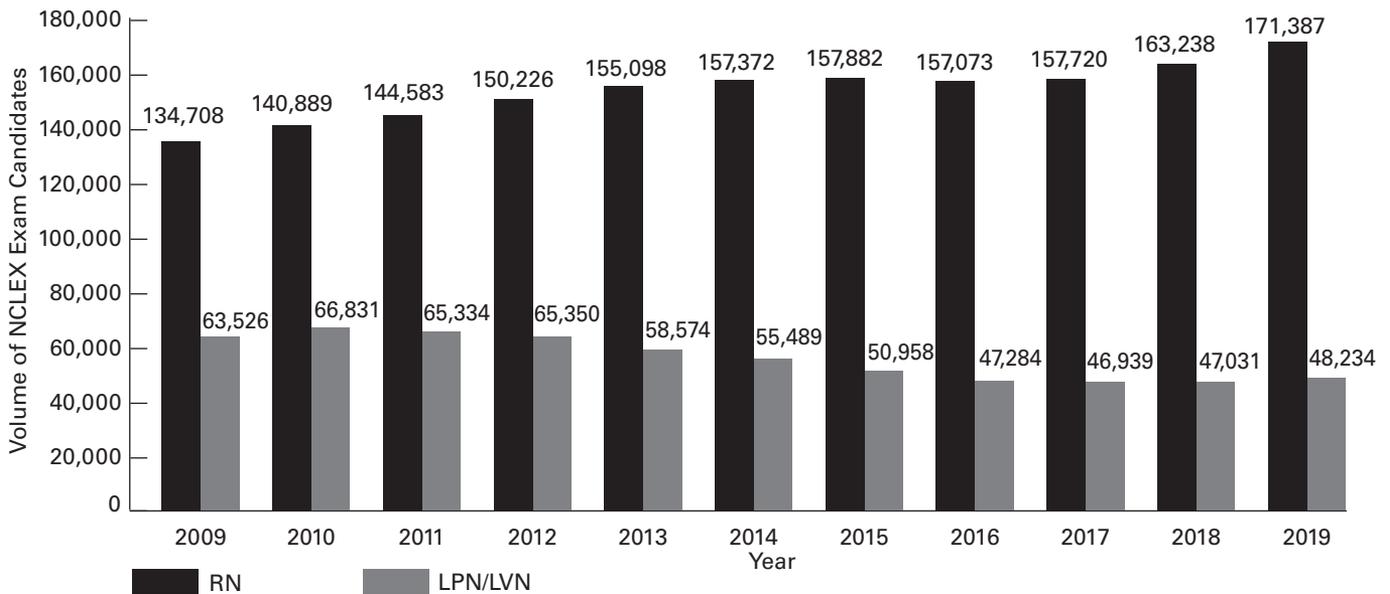
Note. RN = registered nurse; LPN/LVN = licensed practical nurse/licensed vocational nurse.

Source: National Council of State Boards of Nursing (2020b).

The advanced practice registered nurse (APRN) profession consists of four roles: the certified nurse practitioner (CNP), certified nurse midwife (CNM), clinical nurse specialist (CNS), and certified registered nurse anesthetist (CRNA). An exact census of the APRN profession is difficult to accomplish due to variances in title and classification between the states, but all indicators suggest that this fast-growing profession will continue to grow. According to the latest data from May 2019, the BLS (2020b) estimates a total of 263,400 APRNs in the United States, though this number excludes the CNS role, which is not tracked independently by the BLS at this time.

Number of Certified Nurse Practitioners in the United States, 2012–2019

Figure showing a bar chart. Y-axis labeled "Number of Nurse Practitioners" ranging from 100,000 to 220,000. X-axis labeled "Year" with years 2012, 2013, 2014, 2015, 2017, 2017, 2018, 2019. Bar values: 105,780; 113,370; 122,050; 136,060; 150,230; 166,280; 179,650; 200,600.
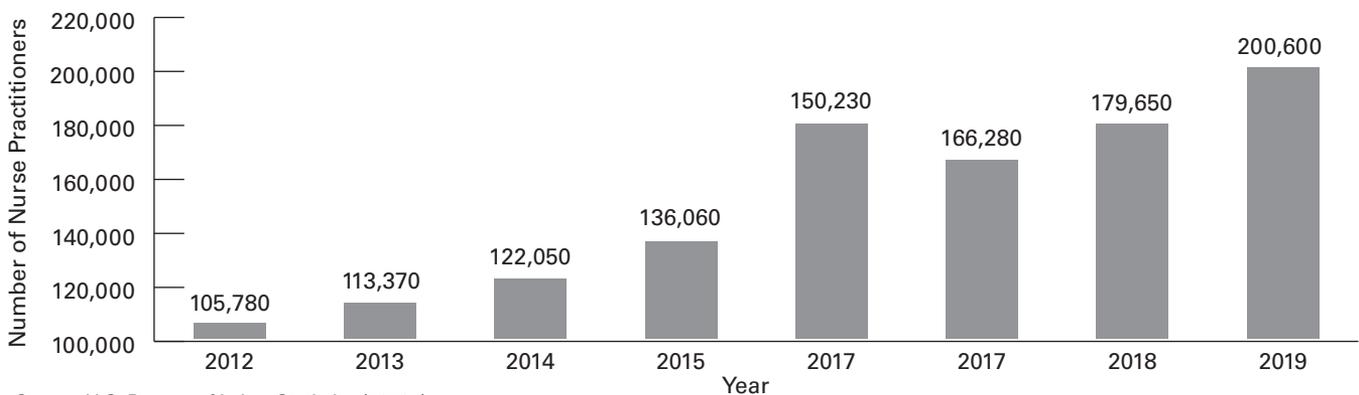
Source: U.S. Bureau of Labor Statistics (2020a).

The largest of these roles continues to be the CNP, and the number of CNPs in the United States has nearly doubled since the BLS began collecting data on the role in 2012. At that time, the BLS reported just over 100,000 CNPs in the United States. As of 2019, BLS estimates show that the number of CNPs has crossed the 200,000 threshold (BLS, 2020a) (Figure 6).

The number of CNMs and CRNAs, in contrast, increased only slightly according to 2019 estimates. CRNAs now number 43,570 across the entire Unites States (BLS, 2020b), and CNMs are estimated to number 6,930 (BLS, 2020c).

The BLS calculates employment projections for the three APRN professions it currently tracks—CNPs, CNMs, and CRNAs—in aggregate, and latest predictions indicate explosive growth. In 2018, BLS predicted the professions would grow 26% by 2028 (BLS,

2019). Based on 2019 data, that number was revised upward and is now expected to increase 45% by 2029, adding over 117,000 individuals to the profession within that 10-year span (BLS, 2020d).

The National Sample Survey of RNs

In December 2019, results from the U.S. Department of Health and Human Services (HHS) Health Resources Services Administration's (HRSA's) *2018 National Sample Survey of Registered Nurses (NSSRN)* were released (HRSA, 2019). The average age of an RN was 50 years; however, most nurses (53%) were younger than 50 years. The RN population was more diverse than it was in 2008, with proportions of both minority groups and men slightly increasing within the RN population.

The survey found that most of the RN workforce (63.9%) is college educated, with APRNs accounting for approximately 11.5% of the nursing workforce. Telehealth capabilities were reported in 32.9% of nurses' workplaces. Among those with capabilities, 50.3% of nurses used telehealth in their practice.

In spring 2020, HRSA evaluated the *NSSRN* data in light of the COVID-19 pandemic (HRSA, 2020). The report found that among the nearly 4 million RNs, 2.7 million were involved in patient care. The most common work setting for nurses with patient care responsibilities across the inpatient-subacute-outpatient spectrum was non-critical inpatient care for RNs (more than 710,000, or 29.6%) and ambulatory care for APRNs (more than 127,000, or 38.6%).

The two most common categories of clinical specialty for RNs and APRNs with patient care responsibilities were general medical-surgical care and ambulatory and primary care. Less than 1% of RNs and APRNs worked in pulmonary/respiratory or infectious/communicable disease specialties, both of which are relevant and needed for addressing infectious disease pandemics.

The highest number of RNs and APRNs with patient care responsibilities per capita nationally were in the West North-Central Census Division (958 RNs per 100,000 population) and the New England and East South-Central Census Divisions (157 and 153 APRNs per 100,000 population, respectively) (HRSA, 2020).

Implications for Regulators

COVID-19 has demonstrated an even greater need for workforce data collection, planning, and mobility. In the future, researchers, policymakers, and public health planners will expect that state and national workforce databases will help deploy nurses in future emergencies to areas of need. Pressure may increase on BONs to add workforce data collection to the licensure renewal process. Currently, workforce data are collected and analyzed by both NCSBN and HRSA. The data, however, are based on national samples. While accurate, the ideal remains a national workforce repository of data from all nurses in the United States.

NCSBN's E-Notify allows nurses to self-enroll and receive licensure expiration reminders. When enrolling, the nurse enters workforce information into the database. Currently, over 580,000 nurses have self-enrolled and entered their workforce data. NCSBN continues its work to expand this database.

Nursing Education

In March 2020, with the outbreak of the COVID-19 pandemic, many senior nursing students were in their final clinical rotation and preparing to graduate when the faculty were called upon to improvise the remainder of the school year. As states issued lockdown orders, healthcare facilities began placing restrictions on entry into their institutions. Hospitals and long-term care facilities considered students "nonessential" and denied students the opportunity to continue their clinical rotations. Many reasons existed for these decisions, including a lack of PPE, a desire to limit the number of individuals who could carry the virus into the institution, and an attempt to prevent students from being exposed to the virus. Faculty and students had to quickly adjust to online teaching and alternate learning activities.

At the same time, more than 100 BON education consultants participated in a discussion on ways that BONs could assist nursing programs and foster progression in nursing programs during COVID-19 while adhering to standards. Strategies were disseminated among the BONs, and biweekly calls were subsequently held with education consultants to share new ideas and successes. This regular, proactive collaboration contributed to nursing programs' ability to continue providing education to their students.

In September 2020, NCSBN surveyed U.S. BONs regarding strategies used for replacing clinical experiences during the pandemic. Common strategies included (a) increasing the percentage of simulation, sometimes up to 100%; (b) using a 2:1 ratio of clinical hours to simulation; (c) using virtual reality,* virtual simulation,** and augmented reality***; (d) and using unfolding case studies. Although there is strong evidence supporting the use of up to 50% simulation for clinical experiences (Hayden et al., 2014), there is no evidence supporting the use of a higher percentage of simulation. Likewise, although there is ongoing research,

* "The use of computer technology to create an interactive three-dimensional world in which the objects have a sense of spatial presence" (AHRQ, 2020).
** "The recreation of reality depicted on a computer screen" (AHRQ, 2020).
*** The enhancement of reality with virtual content, such as with smartphones, head-mounted displays, helmet-mounted displays, Microsoft Holo-Lens, etc. (Wüller et al., 2019).

there is a lack of strong evidence supporting the other commonly used strategies for replacing clinical experiences. However, there were not a lot of choices for the nursing programs during the pandemic. Other strategies that were identified in this survey included the following:

- Working across disciplines to seek funding to cover costs of PPE and required testing in long-term care sites
- Conducting reverse case studies*
- Depending on the community positivity rates, either front-loading clinical experiences (because of worry about later surges in the virus) or front-loading didactic classes
- Using alternative clinical sites, such as phone calls to seniors in isolation who may be suffering from depression or lack of support
- Participating in telehealth experiences with faculty or APRNs
- Taking fewer students for clinical rotations for shorter hours
- Rotating students through several types of experiences clinical rotations
- Participating in reflective journaling
- Holding skill checks by video
- Developing a skills boot camp

To satisfy leadership clinical hours of students employed at qualified clinical sites, the school developed strategies with the employer to satisfy the required clinical hours.

In addition to clinical sites discontinuing student clinical experiences, many universities and colleges closed, sending students home and forcing faculty to teach didactic courses online.

In March 2020, 10 nursing organizations collaboratively developed, endorsed, and disseminated a policy brief describing the use of a practice/academic partnership during this crisis (NCSBN, 2020c). In this model, healthcare facilities and nursing programs are encouraged to partner during the COVID-19 crisis. The model includes all prelicensure nursing students, including LPN/LVN, associate degree in nursing (ADN), diploma, and bachelor of science in nursing (BSN) students, who are enrolled in BON-approved nursing programs. Students may be employed by the healthcare setting and, in conjunction with the academic facility, would receive academic credit to meet their clinical experience requirements. Employment is not mandatory; however, students are considered essential support staff, not visitors, in the healthcare setting.

The National Student Nurses' Association (NSNA) explored the impact that the transition to online coursework had on the current cohort of nursing students. To learn the impact of alternative learning activities on students during March and April, NSNA conducted a short questionnaire. Of the 1,885 students who responded, 75% reported having their classes moved to online platforms because of the pandemic and 31% reported several "other" offerings, including class and clinical simulations, virtual clinicals, case studies, or indefinite delays (Feeg & Mancino, 2020). Table 2 shows the percentage of students reporting the clinical options that were used before the pandemic compared to those used during the pandemic, showing a wide disparity in how clinical teaching was conducted (Feeg & Mancino, 2020).

TABLE 2

Clinical Options Before and During the Pandemic

Modality	Before the Pandemic	During the Pandemic
Direct patient contact	92.26%	2.50%
In-person simulation	70.54%	0.95%
Online/virtual simulation	25.67%	73.90%
Written or clinical group case studies	41.33%	61.27%
Clinical rotations canceled	0%	24.19%
Volunteer clinical experience counted as clinical hours	0%	2.81%
Paid time (e.g., CNA) counted as clinical hours	0%	1.33%

Note. CNA = certified nursing assistant

Source: Feeg & Mancino (2020).

A survey conducted by Quacquarelli Symonds (2020b), which studies international education and students abroad, showed striking results. The sample was composed of 781 current students from 125 countries and 6,958 prospective students from 173

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* Students are given patient information on the morning of clinical. They then develop a typical clinical presentation of a patient with that diagnosis and the care that will be involved. Virtual pre-conferences are held to discuss priorities of care, and virtual post-conferences are held to allow the students to discuss the patient case, skills required for care, and a teaching plan.

countries. Fifty percent of the students who responded to the survey stated they are being taught all online, 45% were being taught in a hybrid modality, and only a small percentage were being taught face-to-face. When asked what their universities were doing to limit the spread of the virus, the most popular response was online classes (Quacquarelli Symonds, 2020b).

Interestingly, when asked how worried they were that they would contract COVID-19, a majority (59%) reported being extremely to moderately worried. When asked when they thought healthcare would be back to normal, the majority (63%) were optimistic and responded that normal conditions would return within 1 year. However, 3% predicted that there would never be a return to normalcy (Quacquarelli Symonds, 2020b).

It is clear that COVID-19 affected the plans of prospective international students wishing to study abroad. Thirty-five percent had anticipated beginning their international studies in 2020, but only 3% had enrolled in a university, mainly because of restrictions of their home country or the country where they planned to study (62%). Most prospective students, however, altered their plans and either intend to delay study until next year (57%) or to study in another country (13%). Prospective students were also asked how well they thought New Zealand, Germany, Canada, Australia, the United Kingdom, and the United States handled the outbreak of COVID-19. Of these, New Zealand was rated most favorably (76% rated it as very or fairly well), and the United States was ranked least favorably (19% rated it as very or fairly well) (Quacquarelli Symonds, 2020b).

U.S. Department of Education Regulations Implemented July 1, 2020

On July 1, 2020, the U.S. Department of Education implemented new regulations that nursing programs (LPN/LVN, RN, and APRN) must adhere to if they participate in funding from Title IV of the Higher Education Act of 1965. This new regulation applies to programs using all learning modalities, including online, in-person, or a combination of both. The proposed amended regulation (34 C.F.R. § 668.43[a][5][v]) reads as follows:

> *If an educational program is designed to meet educational requirements for a specific professional license or certification that is required for employment in an occupation, or is advertised as meeting such requirements, information regarding whether completion of that program would be sufficient to meet licensure requirements in a State for that occupation, including—*
>
> *(A) A list of all States for which the institution has determined that its (A) curriculum meets the State educational requirements for licensure or (A) certification;*
>
> *(B) A list of all States for which the institution has determined that its curriculum does not meet the State educational requirements for licensure or certification; and*
>
> *(C) A list of all States for which the institution has not made a determination that its curriculum meets the State educational requirements for licensure or certification* (Student Assistance General Provisions, 2019, p. 58932)

Additionally, a direct disclosure to the student in writing is required in this regulation by the educational institution if the program leading to professional licensure or certification falls in one of the latter two categories above. The nursing program, not the BON, makes this determination based on the state's licensure requirements and their curriculum. To assist programs in meeting these requirements, NCSBN has developed a website with each BON's licensure requirements for LPNs/LVNs, RNs, and APRNs (NCSBN, 2020a).

Nursing Education Trends in the U.S.

An adequate workforce requires an ongoing supply of RN and LPN/LVN students who continually replace the nurses who retire or leave the profession for other reasons. NCSBN examines and monitors ongoing a number of trends related to new and existing U.S. RN and LPN/LVN education programs, including: growth and numbers, accreditation, faculty, quality, competency and diversity.

Growth and Numbers of Nursing Programs

The NCSBN monitors the number of nursing programs across the country. The growth since 2003 for RN programs is 61% and LPN programs is 17%. Comparable to the workforce data, RN program growth continues to increase, though growth has been slower since 2015. LPN program growth has decreased steadily since 2013 and has remained moderately stagnant since 2017 (Figure 7 and Table 3) (Hong Qian, NCSBN psychometrician, personal communication, October 2020).

FIGURE 7

Number of Approved Nursing Programs in the United States, 2003–2019
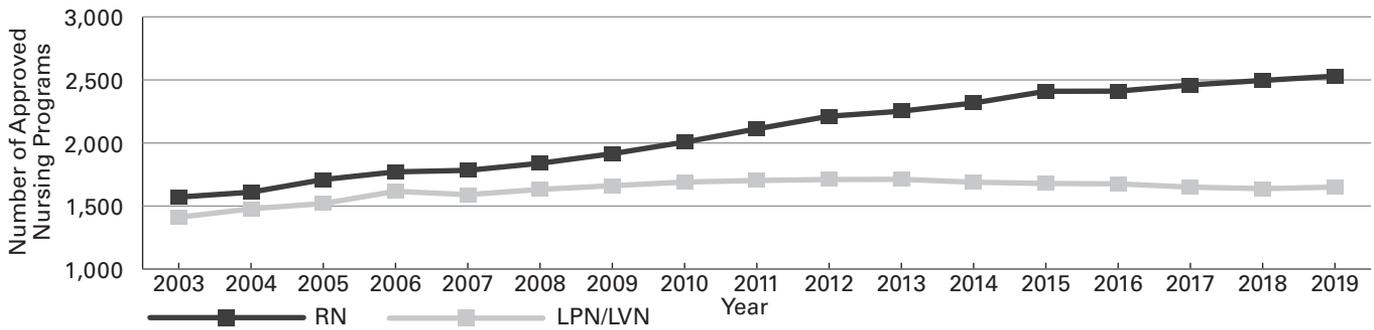
TABLE 3

Number of Approved Nursing Programs in the United States, 2003–2019

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
LPN	1,411	1,478	1,520	1,617	1,590	1,632	1,661	1,690	1,703	1,710	1,712	1,689	1,678	1,676	1,650	1,638	1,650
RN	1,571	1,610	1,710	1,771	1,783	1,839	1,915	2,007	2,112	2,212	2,252	2,347	2,410	2,414	2,460	2,496	2,530

A 10-year analysis of U.S. RN first-time NCLEX takers by program type indicated that ADN graduates still account for the largest number of nursing program graduates; however, the number of bachelor degree (bachelor of science [BS] and bachelor of science in nursing [BSN]) graduates has grown considerably during the past year, almost reaching the same level. Additionally, the growth rate of BS/BSN graduates (52%) has surpassed the rate of growth of ADN graduates over the 10-year period (4%) (Table 4) (NCSBN, 2020b).

TABLE 4

Ten-Year Trend of U.S. Registered Nurse First-time NCLEX Takers by Program Type, 2010–2019

Year	Bachelor Degree	Associate Degree in Nursing	Diploma	Unclassified or Special Program Codes
2010	55,414	81,618	3,753	104
2011	58,146	82,764	3,476	97
2012	62,535	84,517	3,173	41
2013	65,406	86,772	2,840	80
2014	68,175	86,377	2,787	33
2015	70,857	84,379	2,607	39
2016	72,637	81,653	2,745	34
2017	75,944	79,511	2,222	43
2018	79,235	82,000	1,968	35
2019	84,298	84,794	2,247	48

The national NCLEX pass rates in 2019 were 91.2% for BSN graduates, 87.9% for diploma graduates, and 85.2% for ADN graduates.

Nationally Accredited Nursing Programs

Currently, 31 U.S. BONs require national nursing accreditation and 27 do not. In 2020, NCSBN surveyed programs to learn how many were accredited. As can be seen in Figure 8, 88.8% of BSN programs, 53.2% of ADN programs, and 10.6% of LPN/LVN programs are nationally accredited (Silvestre, 2020).

FIGURE 8

Accreditation Status of Prelicensure Nursing Programs
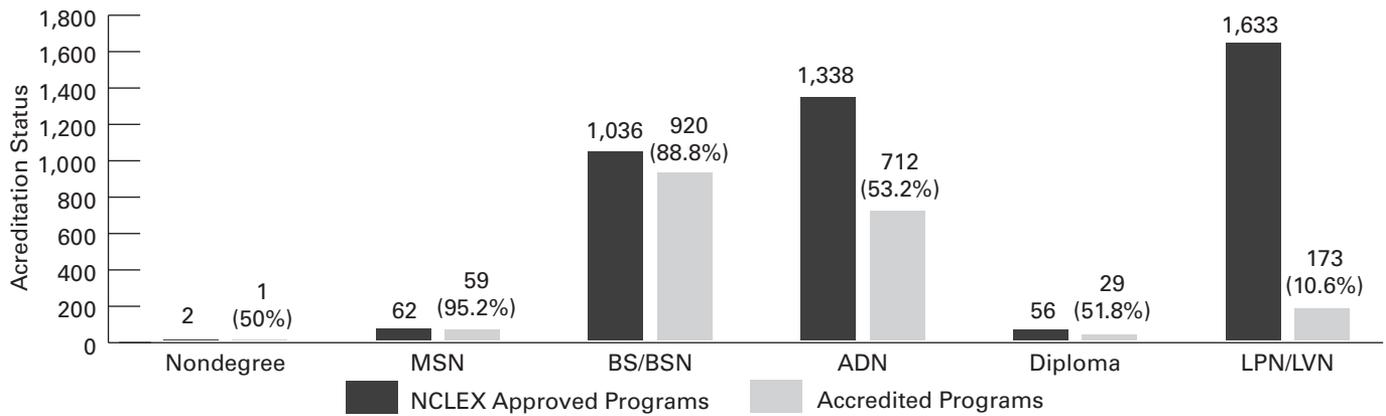
Note. MSN = Master of Science in Nursing.

When NCSBN studied the percentages of accredited programs in 2012, 96% of BS/BSN programs were accredited, whereas 52% of ADN programs and 10% of LPN/LVN programs were accredited. While there have been slight increases in the percentage of accredited ADN and LPN/LVN programs, there has been a decrease in the percentage of accredited BS/BSN programs (88.8%) (Silvestre, 2020).

Nursing Faculty Trends

The American Association of Colleges of Nursing (AACN) *Special Survey on Vacant Faculty Positions for Academic Year 2020–2021* (Fang et al., 2020) reports the issues and trends related to nursing faculty in baccalaureate or higher nursing education. The total number of budgeted faculty positions has continued to increase since 2008 (Table 5). This year's survey data show a gradual improvement in the faculty vacancy rate (6.5% in 2020 compared to 7.2% in 2019), with fewer schools overall with faculty vacancies (*n* = 461 in 2020 compared to *n* = 475 in 2019). Regional data indicate that the Midwest is experiencing the lowest vacancy rate (Figure 9).

TABLE 5

Nursing Program Full-time Faculty Positions and Needs, 2008–2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Budgeted faculty positions	14,166	15,574	16,444	18,010	18,511	19,830	21,533	21,685	22,649	22,838
Number of faculty vacancies (vacancy rate)	1,088 (7.7%)	1,181 (7.5%)	1,358 (8.3%)	1,236 (6.9%)	1,328 (7.1%)	1,567 (7.9%)	1,565 (7.3%)	1,715 (7.9%)	1,637 (7.2%)	1,492 (6.5%)
Number of filled faculty positions (filled rate)	13,078 (92.3%)	14,393 (92.4%)	15,086 (91.7%)	16,744 (93.1%)	17,183 (92.9%)	18,263 (92.1%)	19,968 (92.7%)	19,970 (92.1%)	21,012 (92.8%)	21,346 (93.5%)
Mean faculty vacancies per school	1.8	1.8	2.0	1.7	3.1	1.9	1.9	2.0	1.8	1.7
Range of faculty vacancies	1-16	1-20	1-29	1-20	1-26	1-36	1-31	1-38	1-26	1-31
Number of schools with faculty vacancies	353	377	414	403	429	461	480	488	475	461
Number of schools with no faculty vacancies, but need additional faculty	104	103	98	124	130	133	128	138	134	136
Number of schools with no faculty vacancies, do not need additional faculty	145	182	168	187	182	220	224	245	284	287

FIGURE 9

Full-time Vacancy Rates by Region for 2020–2021

West   7.4%
South   7.2%
North Atlantic   6.5%
Midwest   5.1%
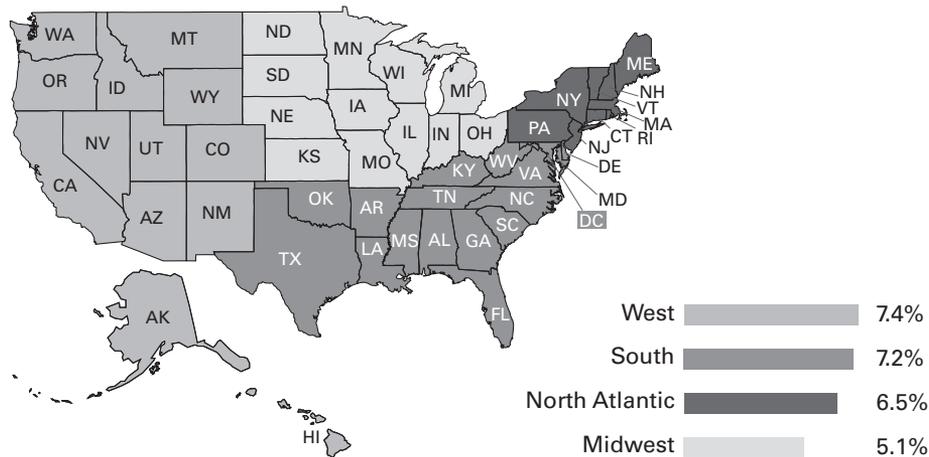
Source: Fang et al. (2020).

According to the faculty vacancy survey (Fang et al., 2020), the nursing programs' major barriers to hiring new faculty members are in line with previous years' data and include the following:

- insufficient funds to hire additional faculty
- administration is unwilling to commit to additional full-time positions
- competition in other marketplaces causes an inability to recruit qualified faculty
- qualified applicants for faculty positions are unavailable in the geographic area.

Additionally, nursing programs continue to report the following critical issues related to faculty recruitment (Fang et al., 2020):

- finding faculty with the right specialty mix
- noncompetitive salaries
- limited pool of doctorally-prepared faculty
- finding faculty willing and able to conduct research
- finding faculty willing and able to teach clinical courses
- high faculty workload.

Other significant critical issues regarding faculty recruitment include the following (Fang et al., 2020):

- challenging location (rural areas or areas with a high cost of living)
- institutional budget cuts, restrictions, or hiring freezes due to COVID-19
- finding faculty who fit well with school culture
- recruitment from historically underrepresented populations.

For some nursing programs, COVID-19 forced budget cuts and faculty hiring freezes (Fang et al., 2020). The impact of this remains to be seen; however, the major barriers contributing to faculty vacancies remain the same as previous years' barriers, and the most critical issues related to faculty recruitment align with previous years' data.

Nursing Education Program Quality Indicators and Warning Signs

In 2020, NCSBN's national mixed methods study on nursing program outcome metrics was published and provided quality indicators for nursing education programs as well as warning signs that a program may be experiencing difficulties and falling below standards (Spector et al., 2020). The study results were subsequently analyzed by a panel of experts, including educators, regulators, researchers, and attorneys, to develop evidence-based and legally defensible regulatory guidelines for BONs to use during the nursing education program approval process and as guidance for nursing programs. The guidelines serve as an early intervention and assist nursing programs in acting before NCLEX pass rates fall below the state requirement and/or receives BON sanctions or program closures, thus allowing the programs to graduate safe and competent nurses in adequate numbers.

From these data, new annual report templates for nursing programs have been developed to bring uniformity to nursing education data collection. These data will be entered into a national database for nursing education—the first of its kind in the United States.

Competency-Based Nursing Education

Competency-based education has gained popularity in higher education over the past 10 years. It requires graduates to have a consistent set of skills and core knowledge, which employers and consumers expect (Giddens, 2020). In 2020, AACN released their draft of *The Essentials: Core Competencies for Professional Nursing Education* (AACN, 2020). In this new model, competency-based education provides the structure for nursing across degrees and identifies concepts, competency domains (broad areas of competency), competencies, and subcompetencies (AACN, 2020). Concepts and competencies have a complementary relationship: concepts are the disciplinary knowledge, while competencies are observable and measurable expectations for learners (Giddens, 2020). Giddens states that a common misunderstanding of competencies is that they refer simply to a skills checkoff. While checking off skills may be a part of competency assessment, competency assessment is much broader. The eight featured concepts identified in the new AACN *Essentials* document include (a) clinical judgment, (b) communication, (c) compassionate care, (d) determinants of health, (e) diversity, equity and inclusion, (f) ethics, (g) evidence-based practice, and (h) health policy. The 10 competency domains include: (a) knowledge for nursing practice, (b) person-centered care, (c) population health, (d) scholarship for nursing practice, (e) quality and safety, (f) interprofessional partnerships, (g) systems-based practice, (h) information and healthcare technologies, (i) professionalism, and (j) personal, professional, and leadership development.

Diversity, Equity, and Inclusion

Reflecting the nation over the past few years, nursing and higher education in the United States have been increasingly focused on identifying and eliminating structural systemic racism (DeWitty & Murray, 2020; Koschmann et al., 2020; Ritter & Raphael, 2020; Villarruel & Broome, 2020). DeWitty and Murray provide statistics elucidating the problem in higher education: Although White people make up 60% of the U.S. population, they hold 81% of the full-time professorships. African Americans and Hispanics comprise approximately 31% of the population, but they only represent 4% and 3%, respectively, of full-time professorships. In nursing, minority faculty make up 17% of all faculty positions, with more than half of these serving as associate or assistant professors or instructors, rather than as full professors (DeWitty & Murray, 2020). On a positive note, the nursing profession has seen an increase in the number of minorities in doctor of philosophy (PhD) programs (23.3% to 33.6%) and doctor of nursing practice (DNP) programs (21.1% to 36.0%) (DeWitty & Murray, 2020).

While DeWitty and Murray (2020) report a lack of research regarding why academic nursing has a limited number of minority professors, some themes emerge from the literature, such as minority populations feeling underappreciated/marginalized. Some have experienced tokenism, microaggressions, and an unwelcome climate, and there have also been reports of racism, exclusion, and alienation. Metzger et al. (2020) conducted a scoping literature review of inclusivity in baccalaureate nursing education. Three themes emerged from this review, including the following: (1) minority students experienced discrimination from peers, faculty, the clinical setting, and the larger institutional and community setting; (2) the cumulative effect of discrimination is a lack of belongingness, which is associated with adverse academic outcomes; and (3) all aspects of the learning community (peers, faculty, those in the clinical setting, the larger institutional culture, family, and friends) act as facilitators or barriers to inclusivity. With the latter theme, when the learning community was supportive, students had more positive academic outcomes than those in communities that did not foster inclusivity.

Villarruel and Broome (2020) call it a "watershed moment" in which we can no longer be silent. They call on leaders in nursing education to change policies, practices, and traditions that diminish people of color in nursing programs and challenge leaders to move from simply naming racism to dismantling it. Likewise, Koschmann et al. (2020) call on nursing education to increase diversity in the nursing workforce by providing financial and academic resources to support student retention and success. Additionally, faculty must confront their own biases by intentionally incorporating difficult conversations into the classroom.

The Future of Nursing Education

Despite challenges such as the COVID-19 pandemic, immigration policies, and high tuition, the United States likely will remain a leading destination for international students. In a 2020 survey of prospective international students, with 78,578 respondents across eight countries,* 19,608 were interested in studying in the United States (Quacquarelli Symonds, 2020a). Fifty-five percent of respondents indicated the most important reason for choosing to study in another country is the high quality of teaching. When looking toward the future, 46% of the respondents predicted that in 10 years, more students will be attending universities, thus increasing the number of students coming to the United States. When assessing quality, 64% of respondents rated the university's staff as the most important attribute, which illustrates the importance of a qualified faculty.

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* China, India, Republic of Korea, Saudi Arabia, Canada, Vietnam, Taiwan, and Japan. Additional nationalities accounted for 1% or less of the respondents' nationalities.

Considering new education approaches, 58% would most like to experience personalized learning using artificial intelligence, while the next two popular choices were blended learning and interactive simulation. This finding emphasizes the need for continued development of education technologies, as well as faculty who are prepared to use them (Quacquarelli Symonds, 2020a).

Thibault (2020) analyzed future trends in healthcare professions education based on his 4 decades as a faculty member at Harvard Medical School and a decade of leading the Josiah Macy Jr. Foundation, which is the only national foundation devoted to improving health through innovations in healthcare professions education. The six trends he identified include (1) interprofessional education to better prepare students for collaborative practice; (2) integrated clinical education with more of a focus on the patient, community, and chronic diseases; (3) education in the social determinants of health and the social and humanistic missions of the healthcare professions; (4) more emphasis on lifelong learning and long-term well-being of healthcare professionals; (5) a shift to competency-based education; and (6) the integration of artificial intelligence and new educational and information technologies into the healthcare professions education and practice. While many of these trends are well on their way in nursing education, as Thibault (2020) observed, we are poised for a decade of "explosive innovation."

Implications for Regulators

Regulators are encouraged to review the AACN *Essentials* document and the competency-based education model (AACN, 2020), as these will impact nursing education in the near future. Also, regulators are encouraged to use the NCSBN "Guidelines for Evidence-Based Program Approval" and the annual report template that was developed based on the outcomes and metrics study (Spector et al, 2020). These tools allow for a consistent and uniform assessment of programs and data collection in addition to building a national database that will provide regulators, educators, and researchers access to a plethora of data about nursing education.

Collaboration between academia and practice should be encouraged to develop methods for allowing students to continue their education under these extraordinary circumstances. Innovation and flexibility are imperative. As an example, the practice-academic partnerships described previously allow students to serve as support staff in healthcare facilities, to be paid, and to receive academic credit. When imagining future lessons from this pandemic, Maryann Alexander, PhD, RN, FAAN, in an editorial of the *Journal of Nursing Regulation,* asked:

> *What if education and practice became true academic partners? And, healthcare facilities made a true commitment to participate in the education and mentoring of the next generation of nurses? Instead of shutting their doors to students during an emergency, students and faculty would be integrated into the workforce* (Alexander, 2020, p. 3).

This practice/academic model is a true reflection of that imagination.

COVID-19 has provided regulators and nursing educators the opportunity to examine new ways of educating students. To prepare regulators for future decisions that involve substituting traditional clinical experiences with virtual simulation and more than 50% high-fidelity simulation, NCSBN has embarked upon a series of studies. The Prelicensure Nursing Cohort Study is following the 2022 class of nursing students through their program and into their first 6 months of practice to determine the effects of the pandemic and the effects of the abrupt changes made in clinical and didactic teaching on their education outcomes. In addition, beginning in 2021, NCSBN will be conducting a study examining the role of virtual simulation and whether high-fidelity simulation can be substituted for more than 50% of a traditional clinical experience. As Barton et al. (2020) observed, it is time to co-create a new world order within nursing education. At the same time, research is needed that will support and help direct these strategies (Barton et al., 2020; Fauteux, 2020).

Healthcare Delivery

The structure of the nation's healthcare system has been harshly tested this year as it faced what may be the worst public health crisis in history. Health systems, unprepared for the pandemic and strained to their limits, struggled to accommodate every COVID-19 patient who sought medical care in their facilities. To care for patients with COVID-19, many hospitals were forced to cancel elective surgeries, procedures, and outpatient services, which are vital to a hospital's existence and produce a substantial amount of institutions' annual revenue. In addition, no facility, when budgeting for fiscal year 2020, accounted for the abundance of supplies that would be required and difficult to obtain. The cost of surgical masks increased six-fold, the cost of isolation gowns doubled, and the cost of N95 respirators tripled (WHO, 2020b). This hardship may impact the nursing budget in these institutions (Blumenthal et al., 2020; Schutz & Shattell, 2020), and evidence shows many of these budgets were already insufficient to support nursing staffing (Lasater et al, 2020).

A recent article in *BMJ Quality & Safety* by Lasater et al. (2020) examined nurse staffing in hospitals across Illinois and New York just prior to the onset of the COVID-19 pandemic. The survey sample included RNs working in medical surgical units across 254 hospitals, as well as RNs working in intensive care units in 179 hospitals. The findings underscore significant variability in hospitals' patient-to-nurse ratios, with the highest and, thereby, least favorable mean estimates located in New York City immediately prior to the pandemic. Adjusted models found that an increase of just one additional patient per bedside nurse resulted in an array of significant and negative nurse- and patient-reported outcomes. Lasater et al. concluded that chronic nurse understaffing in a significant share of U.S. hospitals in the early months of the pandemic required a temporary surge of nurses to adequately address patient demand. They also concluded that policy solutions to this issue exist, not only in the form of pending safe staffing legislation in both states, but also in the NLC, which enables greater mobility of nurses to work across state lines.

Disproportionate cases of COVID-19 affecting minority populations illustrate the inadequacies of the U.S. healthcare delivery system. Disadvantaged and minority populations are among the majority of patients afflicted with the disease. Thirteen percent of the country's population is black; however, among those affected by the virus, 20% are Black and, as of July 2020, 22% of the deaths were among the Black population. Similarly, the Hispanic population makes up 18% of the U.S. population, yet they account for 33% of new COVID-19 cases (Centers for Disease Control and Prevention [CDC], 2020a). Cases in black counties are associated with more than 50% of the COVID-19 cases and 60% of the mortality (Millet et al, 2020). Attention must be paid to the social determinants of health with a focus on access to care, control of chronic conditions, and elements of basic living, such as food and housing.

Global Technology During COVID-19

COVID-19, seemingly overnight, changed how healthcare was delivered and increased the focus on the technologies used to provide care. Globally, healthcare providers and systems used technology in novel ways to help combat the virus and its spread.

The United States has focused technology on the expansion of telehealth, the delivery of healthcare services at the bedside, and the monitoring of patients at home. Other countries used big data, artificial intelligence and mobile devices in new ways as a method of prevention and reduction of transmission. Many of the countries that used these tools have the lowest rates of transmission and death rates in the world; however, there is a trade-off in benefits. The methods used carry many privacy implications and may violate security and U.S. privacy and confidentiality laws. The following examples are discussed in this report to illustrate how technology is being used and likely will be used in the future to address crises and other healthcare situations.

China used migration maps of data collected from mobile phones, mobile payment applications, and social media to track and collect real-time data on the movement of people throughout the country. These data were then translated into machine-learning models that portrayed regional transmission. China also used machine learning and developed algorithms for CT scanners to predict the possibility of a patient acquiring severe disease and acute respiratory distress syndrome. These prediction models were used to enhance clinical decisions and identify areas and facilities in need of critical care resources and medical supplies (Whitelaw et al,, 2020).

Taiwan used big data for surveillance and testing. Immigration records were combined with the national health insurance database. Health authorities then identified who recently traveled to Wuhan, China, and pinpointed individuals who needed to be tested. Even before visitors to Taiwan entered the country, their health status was monitored. High-performance infrared thermal cameras at airports displayed thermal images of travelers and allowed authorities to quickly identify individuals with a fever. Singapore took this methodology one step further. Like many places in the United States, temperatures are taken at the entries of workplaces, schools, and public transport. These data, however, were tracked, analyzed, and used to detect emerging COVID-19 hot spots in Singapore. Testing was then focused on these areas (Whitelaw et al., 2020).

In Iceland, the symptoms of COVID-19 patients were combined with clinical and genomic sequencing data to learn more about the pathologic process and spread of the virus. These data helped scientists to learn more about the prevalence and transmission of asymptomatic COVID-19 (Whitelaw et al., 2020).

In Korea, new COVID-19 cases are reported via emergency text alerts to all people in the region of an infected individual. Those who were possibly exposed to infected individuals are requested to get tested and quarantine (Whitelaw et al., 2020).

Despite the benefits and success of these methods, gathering data from individuals' digital devices, tracking their mobility, requesting testing, and enforcing quarantine is often seen as an infringement on privacy and a threat to civil liberties. To balance the need for contact tracing and privacy, European authorities suggested the data be discarded after 14 days, the timeframe of possible viral transmission. Whitelaw et al. (2020) suggested that privacy and data security concerns were offset because "they facilitate a return to normal routine without a rebound in infections."

Telehealth

Although many changes have been made in the healthcare delivery system during the pandemic, no other aspect has seen a more dramatic shift than the expansion of telehealth services. Since WHO declared COVID-19 a global pandemic and states and mu-

nicipalities issued shelter-in-place orders during peak infection periods, demand for telehealth services has exponentially increased around the world.

Fair Health, the nation's largest repository of private insurance claims data in the United States, found a 4,346% increase in the volume of U.S. claim lines for telehealth between March 2019 (0.17%) and March 2020 (7.52%) (FAIR Health, 2020a). Between April 2019 and April 2020, there was an 8,335% increase, and the 2019-2020 increase has remained above 3,000% in every subsequent month of 2020 on record (FAIR Health, 2020b; 2020c; 2020d; 2020d; 2020e). These data are sourced from the Fair Health National Private Insurance Claims database of more than 31 billion privately billed medical and dental procedures based on data contributions from more than 60 payors nationwide.

U.S. hospital systems also reported sudden, widespread telehealth utilization. The University of California, San Francisco Health, which had seen steady adoption of their telehealth platform since its introduction in 2015, conducted about 3,600 telehealth visits in February 2020 and more than 50,000 in April 2020—an increase of 1,389% (Castellucchi, 2020). New York City Health + Hospitals reported an even more substantial increase, growing from fewer than 500 per month before the COVID-19 pandemic to almost 83,000 in the first month of the pandemic (a 16,600% increase in the utilization of telehealth visits), as well as more than 30,000 behavioral visits (Lau et al., 2020).

International examples of the extremely rapid expansion of telehealth amidst the pandemic are also numerous. In the United Kingdom, one case considered typical of other providers saw "service [that] has gone from 5% virtual patient contact to 95%" (Scott, 2020). In March 2020, France's National Health Insurance began reimbursing video visits for patients with COVID-19 symptoms or diagnoses without requiring a preexisting provider-patient relationship and subsequently began funding teleconsultations for nurse follow-ups, midwives, and speech therapists. In the second week of France's national stay at home order, beginning March 23, teleconsultations made up approximately 11% (n = 486,369) of all consultations (Ohannessian et al., 2020).

The Australian Government made changes to its Medicare system to better facilitate delivery of telehealth services, authorizing these changes through at least March 31, 2021, and possibly beyond, "if the Australian Health Protection Principal Committee (AHPPC) recommends it" (Australian Government Department of Health, 2020). NPs are included in the range of healthcare providers who can now provide telehealth services to Australian patients. This shift to virtual care has not only been extremely rapid in deployment and widespread in application, but a substantial proportion of it may prove long lasting.

The shift to telehealth has not been a uniform one, with disparities persisting on both regional and socioeconomic levels. At the onset of the pandemic in March 2020, less than 1% of people living in rural U.S. areas had ever used telehealth services. In Australia, only 1% of specialist consultations were delivered via telehealth, even in the wake of government incentives for their use (Smith et al., 2020; Wade, Eliott, et al., 2014; Wade, Soar, et al., 2014). While the pandemic did result in an overall global shift toward telehealth adoption, with 70% of countries utilizing telehealth to mitigate the healthcare delivery disruptions of the pandemic, that adoption is disproportionately concentrated in high-income countries (80%) as opposed to low-income countries (50%) (WHO, 2020c).

Emergency Policy Changes to Telehealth Regulation

Among the many lessons the COVID-19 pandemic has imparted is the need for a common regulatory terminology that facilitates communication and stimulates research. In 2014, the NCSBN Delegate Assembly updated a 1997 position paper in which NCSBN defined "telehealth nursing practice…as the practice of nursing delivered through various telecommunications technologies, including high speed Internet, wireless, satellite and televideo communications" (NCSBN, 2014). At that time, the American Telemedicine Association defined telehealth as "the remote delivery of healthcare services and clinical information using telecommunications technology. This includes a wide array of clinical services using internet, wireless, satellite and telephone media" (NCSBN, 2014). However, the term "telehealth" is not yet universal, and the events of the pandemic have accentuated the ways in which existing policies, particularly related to reimbursement frameworks, have not kept pace with the proliferation of telehealth services. Bashshur et al. (2020), for example, acknowledged the state of confusion then they commented that "it is no surprise that health systems within the United States and globally are now resorting to telemedicine and (whatever else it is called) to provide care while keeping patients in their homes" (p. 571). Ohannessian et al. (2020) called for "the definition of national regulations and funding frameworks for telemedicine in the context of public health emergencies."

In the United States, the slow pace of change for regulation related to telehealth was rapidly mitigated in 2020 by the use of state and federal public health emergency powers. The Centers for Disease Control and Prevention (CDC) noted that "recent policy changes during the COVID-19 pandemic have reduced barriers to telehealth access and have promoted the use of telehealth as a way to deliver acute, chronic, primary and specialty care" (CDC, 2020c).

In many healthcare delivery systems, all members of the outpatient care team, including nurses, have transitioned to virtual visit workflows during or even before the pandemic (Lau et al., 2020). However, curricula in many healthcare professions have provided limited training in telehealth (Cottrell et al., 2018; Edirippulige et al., 2018; Smith et al., 2020;).

Among the changes were a number of executive orders that affected the ability of NPs to provide telehealth services. In an August 2020 national survey by the American Association of Nurse Practitioners (AANP), respondents "overwhelmingly report[ed] that federal telehealth waivers and state policy waivers aimed at temporarily suspending practice barriers and expanding access to NP-provided care have proven highly beneficial or beneficial in fighting COVID-19" (PR Newswire, 2020). Specifically, the NP respondents named changes to telehealth reimbursement (76%) and expansion of covered telehealth services (68%) as instrumental to combatting the pandemic (Heath, 2020).

Implications for Regulators

It is hoped that the extraordinary circumstances of the pandemic have shed more light on the need for a compact nation. Telehealth services, nurse staffing, and access to care will be maximally facilitated when all states and U.S. territories are a part of the NLC and APRN Compact. For telehealth services within the United States, the NLC allows nurses in compact states to communicate and provide digital and telehealth services to patients across state boundaries. Like many other changes that have resulted from COVID-19, telehealth services will continue long after the pandemic.

The importance of a clear and cohesive regulatory framework for telehealth has never been more paramount. Issues regarding licensure and patient care across international boundaries will increasingly become more prevalent and warrant development. NCSBN has targeted telehealth regulations as part of its strategic plan.

Safety

The year 2020 presented challenges to adherence to even the most basic, longstanding quality and safety standards. Practices that would have been considered breaches in protocol, such as reusing a surgical mask, became the new standard in the face of significant shortages in PPE, especially at the outset of the pandemic (CDC, 2020d).

Numerous guidelines and policy statements related to standards of care during the pandemic have been published since March 2020 from a variety of sources, including the CDC; the National Institutes of Allergy and Infectious Diseases; the National Academies of Science, Engineering, and Medicine; the American Nurses Association (ANA); and many professional specialty organizations. Some of these recommendations have changed over time, benefitting from greater experience with COVID-19 and additional scientific data.

This adaptation of standards of care guidelines to evolving data left healthcare providers, administrators, and regulators scrambling in the early months of the COVID-19 pandemic. In instances of an emergent public health crisis, health systems typically rely on crisis standards of care (CSCs). Although such standards are meant to provide equity of care, a systematic review (Cleveland Manchanda et al., 2020) found wide variability among the states, thus possibly defeating the overall purpose of CSC.

The definition of CSCs developed by the Institute of Medicine (now the National Academy of Medicine) in 2009 was:

…a substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster. This change in the level of care delivered is justified by specific circumstances and is formally declared by a state government, in recognition that crisis operations will be in effect for a sustained period. The formal declaration that crisis standards of care are in operation enables specific legal/regulatory powers and protections for healthcare providers in the necessary tasks of allocating and using scarce medical resources and implementing alternate care facility operations (Institute of Medicine, 2009).

In 2020, at the outset of the pandemic, while many healthcare facilities were awaiting guidance from their states, some created their own processes out of necessity. For example, Milliken et al. (2020) reported on the formation of a CSC working group in their health system that developed protocols for a scoring process to guide decisions about allocating scarce resources based on a structured triage process.

Of note, many states have or developed guidance for healthcare delivery and triage through the COVID-19 crisis. In their systematic review, Cleveland Manchanda et al. (2020) identified and reviewed CSCs for 29 states. Fifteen states developed or updated their CSC (51.7%) and eight (27.5%) specifically addressed the COVID-19 pandemic. The following data reflect the components of these documents and guidance for the states:

- 29 states specifically outlined ethical principles (79.3%)
- 16 state documents identified equality as a guiding ethical principle (51.7%)
- 19 state CSCs stated that decisions should not be based on race, ethnicity, disability, and other identity-based factors (65.5%)

- 10 states allowed for "consideration of societal value," which could imply prioritization of healthcare workers and other essential personnel (34.4%)
- 21 states' CSCs provided a specific strategy for prioritizing patients for critical care resources (e.g., ventilators) (72.4%)
- 15 of these specific CSCs considered comorbid conditions (e.g., cardiac disease, renal failure, malignancy) in resource allocation decisions (71.4%)
- 29 states incorporated Sequential Organ Failure Assessment scores.

The amount of details in the documents examined varied widely. The CSCs varied from including broad-based ethical directions to guide local-level or hospital policy to very specific criteria and algorithms that would assist in the allocation of ventilators and other similar decisions. In general, these algorithms included the following:

(1) exclusion criteria based on a low likelihood of survival despite maximal resource allocation; (2) a calculation of an objective score to reflect the severity of the present illness and thus prioritization category; and (3) repeated evaluation over time to determine ongoing priority status (Cleveland Manchanda et al., 2020, p. 7).

Implications for Regulators

While CSCs are not routinely a consideration by nurse regulators, in the time of a pandemic, ethical decision-making by a nurse may come into question. Although many states have developed, updated, or are in the process of creating CSCs for the COVID-19 pandemic, the development of these should be a collaborative process with "broad input from the affected community" (Cleveland Manchanda et al., 2020; p. 10). For those interested in accessing their state's CSC, links are provided in the systematic review by Cleveland Manchanda et al. (2020).

Quality

The ability to collect and evaluate quality data on everything from patient outcomes to the impact of regulatory waivers may be more important now than at any time in recent history. However, the benefits of evaluating quality must be weighed against impacts on administrators, clinical leaders, and staff providing direct patient care. COVID-19 has made maintaining adequate staffing very difficult in many areas of the country. The need for "all hands on deck" has not eliminated the importance of evaluating quality, but priorities have shifted, at least for a time, to focus on immediate needs such as preserving and allocating resources, ensuring safe staffing levels, and reducing disease transmission.

Implications for Regulators

Although the extraordinary conditions of the current healthcare climate have, to some extent, led to the suspension of norms, it is in fact more vital than ever that outcomes measurement continues. Data collected and lessons learned during this time of public health crisis will have enormous implications for the future, both in terms of being better prepared for any future public health crises and in the systemic weaknesses that have now been exposed as ripe for process improvement, even in normal conditions.

The mission of nurse regulators during this time—to hold nurses to standards of professionalism, competence, and ethical practice—has not changed. Although execution of this mission takes a different form during the current public health emergency, regulators can be proactive through transparent communication with nurses in the clinical setting and positive partnership with clinical facilities.

Legislation and Policy Issues

The conversation around professional licensing changed significantly over the course of 2020. When the year began, the focus of licensure reform revolved around criminal justice reform, reducing regulatory barriers to employment, and state legislation related to universal licensing aimed at improving portability (Carpenter, 2020; Peterson & Slabinski, 2020; Arnold, 2020). When COVID-19 reached the United States, the focus of policy makers at state and federal levels shifted to address the potential licensing issues and ways to allow healthcare workers to serve where they were most needed.

State-Level Action

Much of the 2020 legislative session was dominated by states' urgent needs to respond to the pandemic. Quickly, governors and state legislatures were forced to tackle barriers to practice to address the healthcare worker shortages across the country. These barriers were addressed primarily in three ways: (1) expanding the scope of practice for select practitioners; (2) allowing for easier access to practice via telehealth; and (3) allowing out-of-state licensees to provide the urgent care that was so badly needed.

To prepare for the administration of a COVID-19 vaccine, there have been bills authorizing pharmacists to independently administer COVID-19 vaccines and tests. California recently enacted A.B. 1710 (2020), which authorized pharmacists to independently initiate and administer any COVID-19 vaccines approved by the U.S. Food and Drug Administration (FDA). Similar legislation was also enacted in New York (S.B. 8182) and New Jersey (S.B. 2436).

Additionally, telehealth has been vital during the pandemic. Most telehealth bills focus on increasing access to telehealth services, expanding the telehealth services available, and expanding insurance coverage of these services. Indeed, many telehealth bills have codified governors' executive orders that expanded telehealth in order to ensure that access and coverage of services remain available through the duration of the state of emergency. Both Delaware (H.B. 348, 2020) and Michigan (H.B. 5412, 2020), enacted legislation that no longer requires patients be present in person before telehealth services may be used. Furthermore, New Jersey enacted Senate Bill 2467, which requires health benefits coverage for COVID-19 testing and healthcare services provided via telehealth to continue until 90 days after the emergency declaration is lifted (A.B. 2467, 2020).

In addition to expanding scope of practice and telehealth services, states have almost universally addressed their healthcare licensure laws by executive order or legislation. COVID-19 has demonstrated how critical licensure portability is during a national healthcare emergency. When a state's COVID-19 infection rate surged, that state would be in dire need of nurses to fill staffing shortages. For many states, the answer to this problem was simple. States that are members of the NLC were immediately able to recruit nurses from out of state to assist during a COVID-19 surge. Additionally, because the NLC requires criminal background checks and 10 other universal licensure requirements, those NLC states were assured that the compact nurses were already vetted and free of any discipline when they arrived to help (NCSBN, 2015). In fact, New Jersey, which was in the midst of implementing the NLC legislation, fast-tracked the process to allow compact nurses to practice in New Jersey because they recognized what an asset the NLC is for states during a pandemic (New Jersey State Board of Nursing, 2020).

For the 2020 legislative session, the NLC increased to 34 member states, and 11 more states filed legislation to join the NLC, including two states, California and Ohio, that filed NLC legislation for the first time that year. As of October 2020, five states and the territory of Guam still had pending legislation (NCSBN, 2020e).

Many other healthcare professions have interstate licensure compacts. The Interstate Medical Licensure Compact (n.d.), a licensure compact for physicians, is currently enacted in 29 states, the District of Columbia, and Guam. Additionally, the Physical Therapy Compact (n.d.) is in effect in 28 states (Physical Therapy Compact, n.d.). The Recognition of EMS Personnel Licensure Interstate CompAct has been enacted by legislation in 21 states (Interstate Commission for EMS Personnel Practice, n.d.). The Psychology Interjurisdictional Compact (n.d.) has been enacted by 15 state legislatures. Finally, the Audiology and Speech-Language Pathology Interstate Compact (n.d.) has been enacted in 5 states and will become operational when 10 states have enacted compact legislation. The Emergency Management Assistance Compact (n.d.) granted states the ability to facilitate private telehealth, reducing the strain on their healthcare system.

While compacts have been a crucial tool for many states to address healthcare worker shortages, many other states are not currently a member of the various healthcare compacts. For this reason, almost all states issued executive orders to address licensure laws during the pandemic. Typically, orders waived licensure requirements for their state if the practitioner currently had a license in good standing in another state (NCSBN, 2020f). States differed in the way they waived these requirements; for instance, some states issued expedited licensure, others offered temporary permits to practice, and others issued nothing at all with no vetting process (NCSBN, 2020f).

Some states also codified executive orders that allowed for expedited or reciprocal licensure as well as permitted previously licensed practitioners to provide healthcare services both in person and through telehealth without meeting state licensure requirements (NCSBN, 2020f). For example, New Jersey enacted A.B. 3862 (2020) to grant expedited licenses to individuals who are currently licensed in good standing in another state. New Jersey also enacted A.B. 3901 (2020), which permits occupational licensing boards to reactivate the license of any individual who held a corresponding license in good standing at the time that the individual retired from active practice or was placed on the inactive status, within the past 3 years, during a state of emergency or public health emergency. Similarly, Wisconsin enacted A.B. 1038 (2019) authorizing former healthcare providers and healthcare providers licensed in another state to obtain a temporary credential granted by the Department of Safety and Professional Services to provide healthcare services for which they had been previously licensed.

Federal-Level Action

In addition to the waivers issued by many state governments, the Centers for Medicare and Medicaid Services (CMS) also issued temporary waivers to allow providers to bill for services delivered to patients located outside of their state of licensure. CMS does not have the authority to make this waiver permanent, so it will be rescinded following the end of the federal public health emergency declaration. CMS also issued waivers regarding full practice authority for CRNAs, allowing these practitioners to practice indepen-

dently of a physician and to practice to the full extent of their education and training. Additionally, under these waivers, nurse aide exams were waived, allowing those who completed the required education to enter the field without examination (CMS, 2020).

Members of Congress, in a further effort to address the challenges presented by the COVID-19 pandemic, have introduced pieces of legislation that would temporarily allow providers to practice across state lines when a public health emergency has been declared.

The Equal Access to Care Act (2020), sponsored by Senators Ted Cruz (R-TX) and Marsha Blackburn (R-TN), would allow healthcare providers to deliver telehealth services in any U.S. jurisdiction with only one license. The provider would not need to be licensed in the state where the patient is located to deliver telehealth services. It would move the location of care to the location of the provider, requiring the provider to follow the practice laws and regulations in the state where they are licensed as opposed to the state where the patient is located.

The Temporary Reciprocity to Ensure Access to Treatment (TREAT) Act (2020), sponsored by Senators Chris Murphy (D-CT) and Roy Blunt (R-MO) and Representatives Bob Latta (R-OH) and Debbie Dingell (D-MI), seeks to provide temporary licensing authority for healthcare professionals to practice in person or via telehealth anywhere in the United States with a license in good standing in only one jurisdiction during a period in which both a public health emergency has been declared by the secretary of the HHS and a national emergency has been declared by the president. This bill has taken steps to address concerns related to state-based licensure through provisions that address investigative and disciplinary concerns related to multistate practice, which clarify that providers must practice under the laws and regulations of the state where the patient is located. Providers practicing under an already-established interstate compact, such as the NLC, would not be subject to the provisions of this act. The TREAT Act has been endorsed by academic medical institutions, staffing organizations, and hospital associations (Murphy, 2020).

As of December 2020, none of these bills had yet been passed into law.

There have also been conversations regarding the role of state licensing boards in determining the qualifications of providers. Some conservative think tanks have been calling for a private certification system that would determine the quality of providers as well as the scope of practice for each level of provider (Svorny & Cannon, 2020). Those who argue for this system believe that malpractice insurance provides enough protection for patients and that reviews from patients help individuals determine which providers are safe and competent. Although these arguments have been made for many years, COVID-19 has renewed calls for a national or federal license for occupations such as nursing.

APRNs

The APRN role saw a number of important changes in 2020, especially those relating to practice barriers. During the COVID-19 pandemic, state emergency declarations often included temporary suspensions or waivers of practice agreement requirements for APRNs. Additionally, the NCSBN Delegate Assembly voted to approve a new APRN Compact Model Act, and bills in three states succeeded in adopting the Consensus Model.

APRNs and COVID-19

APRNs continue to play a vital role during the COVID-19 pandemic. State emergency declarations in response to COVID-19 often include temporary suspensions or waivers of practice agreement requirements for APRNs. Both NCSBN and the AANP—the largest national association of NPs of all specialties—have tracked these executive orders throughout the pandemic (AANP, 2020; NCSBN, 2020g). Outside of the 22 full practice authority states, the District of Columbia, Guam, and the Northern Mariana Islands, 21 states have issued some form of executive order relating to APRN practice.

CRNAs, with their specialty skills and critical care background, are on the front lines of caring for the sickest COVID-19 patients in rural and urban areas (Ciaramella, 2020). In states where CRNAs practice without state and federal restrictions, CRNAs were able to immediately mobilize to meet the patient surges in intensive care units (Ciaramella, 2020). Recognizing the importance of access to CRNA care at this critical time, the federal government and several state governors used emergency powers to reduce the restrictive practice environments for CRNAs. West Virginia Governor Jim Justice issued an executive order permitting the West Virginia Registered Nursing Board to suspend or modify regulations governing anesthesia administration (State of West Virginia Executive Department, 2020). In subsequent emergency rulemaking, the board suspended the requirements for supervision or presence of a healthcare provider when anesthesia is administered by a CRNA (AANA, n.d.).

Other APRN roles provided vital primary and specialty care during the pandemic, often moving their practice to a telehealth platform due to facility or state and local orders that required closure of nonessential healthcare services. In Mississippi, Governor Tate Reeves issued a proclamation on March 14, 2020, invoking the emergency powers to suspend or modify rules and regulations that would "hinder or delay necessary action in coping with the emergency" (Mississippi State Board of Nursing, 2020). The Mississippi BON subsequently complied and, on March 16, 2020, issued a proclamation that in part suspended the need for an APRN providing telehealth services in Mississippi from another state to hold licensure in Mississippi as long as they were licensed in good standing in a different jurisdiction (Mississippi State Board of Nursing, 2020). In addition, the proclamation allowed APRNs

to prescribe controlled substances over telehealth without any regulations that would require an in-person visit (Mississippi State Board of Nursing, 2020).

Although various barriers were removed for APRNs practicing telehealth, many APRNs, including those in Mississippi, continue to be restricted by collaborative practice agreements with physicians in order to practice to the full extent of their education. Various states, however, took proactive steps to waive these restrictions during the COVID-19 pandemic to facilitate access to care and remove unnecessary barriers for APRNs responding to the crisis (Wilson, 2020). The policies included waiving physician collaboration or supervision entirely, waiving collaboration or supervision in certain settings or circumstances, or suspending some restrictions associated with the collaborative practice agreement (Wilson, 2020). Most of these actions took place through executive action by governors; however, in Kentucky, both legislative and executive action led to the suspension of the collaborative agreement required for APRNs to prescribe controlled substances. On March 30, 2020, the state passed legislation authorizing the Kentucky BON to relax scope-of-practice regulations (S.B. 150, 2020). Subsequently, the governor's executive cabinet issued an order to suspend the collaborative agreements during the State of Emergency (Brown, 2020). An APRN coming to Kentucky to aid in the state's response to COVID-19 would not need to enter a collaborative agreement with a physician in order to prescribe controlled substances as part of patient care. The greater mobility allowed by waiving these restrictions allows these crucial providers to provide care faster.

In the coming 2021 legislative session, COVID-19 and its economic and public health implications are likely to be front and center. Stakeholder groups, including those advocating for greater access to care and APRN practice issues are sure to advocate for permanent removal of these unnecessary barriers.

APRN Compact

On August 12, 2020, the NCSBN Delegate Assembly voted to approve a new APRN Compact. The previous compact had failed to gain traction, seeing enactments in only Idaho, North Dakota, and Wyoming. The compact was short of the 10 state enactments needed for the compact to become effective, and no state had enacted the legislation after the 2017 legislative session. One of the key roadblocks for success was the continued variation among state laws and regulations governing APRN practice. Although states are moving toward adoption of the Consensus Model for APRN Regulation (Consensus Model), state-specific issues and political compromises often result in variations in APRN regulation and practice across the states. A taskforce appointed by NCSBN's Board of Directors was formed to explore the roadblocks to the APRN Compact's success and make recommendations for a way forward.

The three major changes in the newly adopted APRN Compact include (1) reducing the number of state enactments needed for the compact to become effective; (2) codifying elements of the Consensus Model into the compact's uniform licensure requirements (ULRs); and (3) requiring 2,080 hours of clinical practice before eligibility for a multistate license (NCSBN, 2020h).

It is common for compacts to set a threshold number of states needed before a compact becomes effective (National Center for Interstate Compacts, n.d.). The newly adopted compact requires seven states to enact the legislation before the compact goes into effect—a decrease from 10 states in the previous compact legislation. This reduction will allow for APRN licensure mobility to become effective sooner while additional states work toward enactment (NCSBN, 2020h).

ULRs set the minimum requirements needed for a practitioner to obtain a multistate license. Like the NLC, the APRN Compact provides for ULRs, which include meeting the home state licensure requirements, submitting to a federal criminal background check, not having any felonies or any misdemeanors related to the practice of nursing, and not currently participating in an alternative-to-discipline program (NCSBN, 2015). The ULRs specific to the APRN Compact include codifying elements of the Consensus Model, such as graduate education, RN licensure, licensure in one of the four APRN roles and population foci, national certification, and passage of a national certification examination (NCSBN, 2020h). In addition to assuring multistate licensees meet the same uniform standards to practice under the compact, the ULRs provide added transparency to lawmakers and the public and further advance the elements of the Consensus Model.

In addition to the ULRs above, the newly adopted APRN Compact requires all applicants for multistate licensure to have "practiced for at least 2,080 hours as an APRN in a role and population focus congruent with the applicant's education and training" (NCSBN, 2020h). The practice hour requirement was inserted into the APRN Compact as a response to states, beginning in 1995, adopting into statute what are referred to as "transitions-to-practice" for newly licensed APRNs (ANA, 2020). These transitions generally require an APRN to have a set number of hours or years of practice under a supervisory or collaborative relationship with a physician prior to independent practice. The transitions are predominantly negotiated during the legislative process by stakeholder groups to appease physician groups and legislators opposing a full practice bill—there is no evidence that they increase safety or quality of APRN care (ANA, 2020). The APRN Compact looks to address this growing policy trend with a practical compromise—2,080 hours of practice (without requiring physician supervision or collaboration) in order to be eligible for a multistate license.

As the COVID-19 pandemic increases calls for licensure mobility for both in-person and telehealth practice, state legislatures are likely to consider the APRN Compact in the upcoming 2021 legislative session (Wilson, 2020).

APRN Consensus Model

Strides forward and some troubling precedents were outcomes of enacted APRN legislation in the 2020 legislative session. Bills in Colorado, South Dakota, and Virginia succeeded in further adoption of the Consensus Model. In Colorado, House Bill 1216 carried the nursing sunset review recommendations. The bill modernized the Colorado "advanced practice nurse" title to "APRN" and reduced the number of transition hours needed for a Colorado APRN from 1,000 to 750 (H.B. 1216, 2020). South Dakota continued its success in granting full practice authority to APRN roles. Senate Bill 50 was championed by Senator Deb Soholt, the lawmaker who carried the 2017 legislation that granted full practice authority for CNPs and CNMs and removed regulatory authority of the roles from the state's board of medicine. Senate Bill 50 removed restrictive collaborative agreements with physicians that were required of CRNAs and expanded their prescriptive authority (S.B. 50, 2020). The CRNAs also had a legislative victory in Virginia, where Senate Bill 264 granted prescriptive authority to CRNAs, a practice other APRNs had been previously granted. Although the practitioners remain under physician supervision in Virginia, the bill will increase access to care for those patients needing anesthesia services (Code of Virginia, 1991/2020).

Progress was also made in Florida in the 2020 session, though its potential was stunted by late-session amendments. The legislation in Florida advanced through the State House of Representatives as a priority bill of then-House Speaker Jose Oliva. Despite strong support in the house, the bill took on troubling amendments in the Senate that will lessen the benefits of APRN full practice authority for Florida's patients, healthcare workforce, and economy. House Bill 607 created a path for APRNs to apply for "autonomous practice" by meeting specific education and discipline requirements as well as a 3,000-hour transition period (H.B. 607, 2020). The bill was limited to apply to only those APRNs engaged in "primary care practice" and CNMs. Pending administrative rulemaking and the impact of a new council composed of both physicians and APRNs, the impact of the bill is unknown but will surely reveal that additional work is needed to move Florida toward full consensus.

In California, Assembly Bill 890 was signed into law in late September 2020. The bill, a multiyear effort carried by Representative Jim Wood, was introduced as a full practice authority bill for NPs in the state, but it quickly took on troubling amendments (A.B. 890, 2020). One such amendment established a Nurse Practitioner Advisory Committee comprised of four CNPs, two physicians, and a public member (A.B. 890, 2020). The Committee is charged with making recommendations to the BON on matters pertaining to CNPs, including disciplinary matters (A.B. 890, 2020). Although it created a pathway for CNPs to practice without physician oversight, the CNPs must complete a 3-year transition period, and those CNPs who own their own business or practice in a CNP-owned business must complete an additional 3 years under physician oversight (A.B. 890, 2020). Additionally, the possibility exists for CNPs in the state to be required to take a state-based examination in order to be licensed—a first-of-its-kind statute. The California Office of Professional Examination Services is tasked with conducting an analysis to determine whether there are CNP competencies that are needed to perform their scope of practice in the state that the national certification examination does not adequately evaluate. If those are found, the Office of Professional Examination Services shall "identify and develop a supplemental exam that properly validates identified competencies" (A.B. 890, 2020).

Troubling provisions in these bills are sure to surface from physician groups opposing APRN full practice legislation. Stakeholder groups supporting greater access to care by removing barriers to APRN practice will need to be ready to combat these proposals and look to the successes in Colorado, South Dakota, and Virginia, which have moved APRN progress forward in 2020.

Occupational Licensing: Military Spouses

Continuing a trend from the past few years, several states in the 2020 session enacted legislation to expedite the occupational licensure process for military spouses. Upon frequent relocation, military families are faced with countless burdens, chief among these being both the financial and administrative burden of applying for a new occupational license (National Military Family Association, n.d.). By enacting legislation that expedites the licensure process, allows for licensure by endorsement, or provides for temporary licensure for members of the military and their spouses, military families will no longer face an unnecessary delay to their healthcare practice when relocating to a new state.

In July 2020, North Carolina enacted H.B. 1053, which required that an occupational licensing board issue a license or notify an applicant that their experience and training do not satisfy the licensure requirement no later than 15 days after an application from a military spouse is received (H.B. 1053/SL2020-87, 2020). With more than 100,000 activity-duty military personnel residing in North Carolina as of June 30, 2020, such legislation is crucial to ensure that relocation does not result in economic strain and unemployment for military families (Department of Defense, 2020). Seven other states (Georgia, Kentucky, Louisiana, Mississippi, Ohio, South Carolina, and Virginia) also enacted similar legislation in 2020 to ease the licensure process for military spouses (H.B. 914, 2020; H.B. 357, 2020; H.B. 613, 2020; S.B. 2117, 2020; S.B. 7, 2020; S.B. 455, 2020; S.B. 981, 2020).

Social Issues Impacting Nursing Workforce and Regulation

Compounding the COVID-19 pandemic is the United States' continued opioid epidemic, which remains a paramount social issue impacting nurses and nursing. Additionally, recent cannabis legislation may result in outcomes that also affect nursing in 2021.

The Opioid Epidemic

Provisional 2019 CDC data indicate that after decreasing from 2017 to 2018, drug overdose deaths increased in 2019, largely driven by opioid-involved and stimulant-involved overdose deaths (O'Donnell et al., 2020). Specifically, the CDC notes that overdose deaths increased 4.8% in 2019, killing roughly 71,000 Americans, with opioid overdoses accounting for more than 50,000 of those deaths (National Vital Statistics System, 2020). Data from Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health (NSDUH) estimates that in 2019, 10.1 million people aged 12 years or older misused opioids in the past year (SAMHSA, 2020). Most of the people who misused opioids misused prescription pain relievers, and this misuse was the second most common form of illicit drug use in the United States in 2019, with 9.7 million people aged 12 years or older misusing pain relievers. Of those, 37.5% obtained pain relievers through prescriptions or stole from a healthcare provider.

Different from misuse, use disorder indicates a pattern of misuse. A study exploring rates of opioid use disorder (OUD) diagnoses, treatment patterns, and spending through claims data representing 12 to 15 million non-elderly commercially insured adults during 2008–2017 found three patterns. First, the rate of diagnosed OUD nearly doubled between 2008–2017 with a shift to older age groups. Second, OUD-diagnosed patients will likely receive less treatment than in the past, particularly among those aged 45 years or older, because the use of medication assisted therapy (MAT) has declined despite clinical evidence demonstrating its efficacy. Third, treatment spending is lower for patients who choose MAT. Study findings suggest "that policies supporting the use of MAT are critical to addressing the undertreatment of OUD among the commercially insured and that further research to assess the cost-effectiveness of treatment with versus without medication is needed" (Shen et al., 2020)

A study on buprenorphine treatment, a MAT drug, by primary care providers and others used a national prescription database covering 72% to 79% of the U.S. population from 2010 through 2018 to analyze trends in buprenorphine treatment by prescriber specialty. Over that period, researchers found an increase in buprenorphine treatment rates by primary care providers, psychiatrists, and addiction medicine specialists overall. However, buprenorphine treatment declined significantly for people aged 15 to 24 years. Additionally, "[a]cross all patient age and provider groups, most patients were not retained on buprenorphine for the benchmark period of at least 180 days" (Olfson et al., 2020).

New data from the CDC show that deaths from drug overdoses increased sharply during the first part of 2020 compared with the same period in 2019. The CDC notes that if the trend of increased overdose deaths does not change, the United States is on track to record more than 75,500 drug overdose deaths in 2020 compared with 70,980 deaths in 2019 (CDC, 2020b).

The Opioid Epidemic and the COVID-19 Pandemic

Because SAMHSA data do not reflect real-time changes in opioid use, it is difficult for researchers to know the true extent to which the COVID-19 pandemic has affected the opioid epidemic. However, a number of indicators suggest the pandemic has exacerbated what SAMHSA data indicate was already a growing problem. Studies comparing random drug test samples during the 4 months before the national emergency declaration in March 2020 and the 4 months after it found increases in both fentanyl and heroin among the samples, although researchers acknowledged that the nature of the sample—those at risk for drug use—may not accurately reflect the entire population (Wainwright et al., 2020; Millennium Health, 2020). One hospital emergency room saw opioid overdose cases more than double when comparing March–June 2019 to March–June 2020 (Ochalek et al., 2020). More than 40 states have reported increases in opioid-related deaths (AMA, 2020). Haley and Saitz (2020) suggest that while these and other circumstantial indicators point to an adverse effect on the opioid epidemic by COVID-19, "a more definitive answer … will require linked patient data (before and after COVID-19) to examine changes in an individual's substance use or overdose over time."

Anecdotally, researchers have noted the many dangerous factors that increase vulnerability to OUD during the pandemic, including the isolation of social distancing and the economic uncertainty as many businesses reduce their personnel or close entirely, as drug use typically increases during economic downturns (Nagelhout et al., 2017). Treatment facilities may have closed, and those vulnerable to OUD may also fear risking exposure to the virus to seek treatment for their disorder (Weiner, 2020). Furthermore, "individuals with a [SUD] are more likely to experience homelessness or incarceration than those in the general population, and these circumstances pose unique challenges regarding transmission of the virus that causes COVID-19" (Volkow, 2020). In addition to the heightened danger of overdose, recent evidence suggests that COVID-19 patients with SUD face a heightened risk of both hospitalization and death from the virus due to the effect of opioids on respiratory and pulmonary health (Volkow, 2020; Wang et al., 2020). The National Academy of Medicine released a statement noting that individuals with SUD "are among the most at risk

and susceptible to COVID-19, and their care and treatment are among the most disrupted by physical distancing and other measures that have been put into place to prevent the spread of the virus" (National Academy of Medicine, 2020).

Substance Use Disorder Treatment Initiatives During COVID-19

The declaration of the COVID-19 public health emergency triggered the allowance for the expanded use of telemedicine in prescribing controlled substances for the duration of the emergency. The U.S. Drug Enforcement Administration (DEA) outlined conditions that must be met in order to prescribe controlled substances in the absence of an in-person medical evaluation, including that the prescription is issued for a legitimate medical purpose by a practitioner acting in the usual course of his/her professional practice, that telemedicine communication is conducted using an audio-visual, real-time, two-way, interactive communication system, and that the practitioner is acting in accordance with applicable federal and state laws (DEA, 2020).

SAMHSA and the DEA provided increased flexibility for clinicians providing buprenorphine and methadone to patients with OUD during the COVID-19 pandemic (AMA, 2020). The DEA issued a letter "informing qualifying practitioners that beginning March 31, 2020, during the public health emergency, buprenorphine can be prescribed to new and existing patients with OUD for maintenance or detoxification treatment on the basis of a telephone evaluation" (Prevoznik, 2020). A decision tree was developed by the DEA that was intended to help DEA-registered practitioners prescribe controlled substances without having to interact with their patients. The DEA notes that the "chart only addresses prescribing controlled substances and does not address administering or direct dispensing of controlled substances, including by narcotic treatment programs or hospitals" (DEA, 2020).

The National Academy for State Health Policy featured several state strategies that support providers in increasing telehealth access for providing OUD treatment during COVID-19. They note:

> State policymakers are quickly restructuring OUD treatment, including the administration of medications for opioid use disorder that include buprenorphine and methadone, and addressing barriers to telehealth for OUD by coordinating with providers to streamline processes and adapt to a rapidly changing landscape in accordance with federal guidance (Long, 2020).

Haley and Saitz (2020) point out that many of the changes in care delivery brought about by various emergency orders might also be instrumental in mitigating the opioid epidemic. The emergency expansion of Medicaid, changes to methadone dispensing to reduce social contact (allowing patients to take home several weeks' worth of doses instead of being observed receiving a dose directly each day), and expansion of telehealth, among other changes, all promote access to care and remove barriers to use disorder treatment. "COVID-19," the authors write, "has ushered in the introduction of policies that, if made permanent, have the potential to not only mitigate the effect of the COVID-19 pandemic on overdoses, but also address long-standing structural barriers to accessing proven treatments" (Haley & Saitz, 2020).

Federal Initiatives Addressing the Opioid Epidemic

The federal government initiated several programs that address the opioid epidemic, including increasing funding, mandating electronic prescribing of opioids, and requiring labeling and prescription of opioids to include recommendations for naloxone.

The Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act of 2018 mandated a move toward electronic prescribing with the intention of deterring fraud and allowing better tracking through prescription drug monitoring programs. Clinicians will be required to electronically submit prescriptions for opioids covered by Medicare's Part D pharmacy benefit starting January 1, 2021. According to a CMS request for information, a significant number of clinicians may be unprepared for this transition, despite significant progress in the electronic prescribing of controlled substances. In a published report of 2019 data on prescribing activities across the United States, CMS noted that "97% of U.S. pharmacies were capable of processing electronic prescriptions for controlled substances, yet only 49% of prescribers were capable of electronically prescribing controlled substances" (Young, 2020).

In a drug safety communication, the FDA (2020a) recommended that healthcare professionals discuss naloxone with all patients when prescribing opioid pain relievers or other medicines to treat OUD. The FDA (2020a) also requires that:

> …labeling for opioid pain medicine and medicine to treat {OUD} be updated to recommend that as a routine part of prescribing these medicines, health care professionals should discuss the availability of naloxone with patients and caregivers, both when beginning and renewing treatment.

Additionally, the FDA requires that the new labeling requirements be applied to manufacturers of OUD treatments, including buprenorphine, methadone, and naltrexone (FDA, 2020b).

Cannabis

Recent cannabis legislation, the Secure and Fair Enforcement Banking Act of 2019 (2019–2020) and the Marijuana Opportunity Reinvestment and Expungement (MORE) Act of 2019, have stalled in Congress this year. The MORE Act of 2019 seeks to decriminalize marijuana by removing marijuana from the list of scheduled substances under the Controlled Substances Act and eliminating criminal penalties for an individual who manufactures, distributes, or possesses marijuana. The bill, which was introduced in July 2019 and moved through various committees, seeks to make other changes, including to:

- replace statutory references to *marijuana* and *marihuana* with *cannabis*
- regularly publish demographic data on cannabis business owners and employees
- establish a trust fund to support various programs and services for individuals and businesses in communities impacted by the war on drugs
- impose a 5% tax on cannabis products and require revenues to be deposited into the trust fund
- make Small Business Administration loans and services available to entities that are cannabis-related legitimate businesses or service providers
- prohibit the denial of federal public benefits to a person based on certain cannabis-related conduct or convictions
- prohibit the denial of benefits and protections under immigration laws based on a cannabis-related event (e.g., conduct or a conviction) and establish a process to expunge convictions and conduct sentencing.

Implications for Regulators

Occupational hazards are often some of the environmental factors related to the causation of SUD in nurses. In the healthcare setting, some well-known occupational hazards may influence the nurse, including role strain, lifestyle disruption due to work schedule, and access to prescription medications (Bettinardi-Angres, Pickett, & Patrick, 2012).

The COVID-19 pandemic has certainly increased the occupational hazards for nurses. Healthcare workers, especially nurses, have been challenged during this pandemic with the unprecedented influx of patients and their acuity, multiple simultaneous treatment modalities, increased complexity of care, uncertainty of the duration and progression of the disease process, grim patient prognosis, and subsequent deaths (Caroselli, 2020). The added stress, fear, and anxiety associated with the COVID-19 pandemic and with caring for those with COVID-19 may be just the influencing factor to cause a relapse of SUD or entry into SUD.

Some nursing leaders met the challenge to care not only for their patients but also to care for their staff, providing emotional support, celebrations and rewards, ethical decision-making discussions, formalized referrals for assistance, and sometimes just a "listening ear" (Caroselli, 2020). However, others may not have been able to meet that additional challenge.

Acknowledging the challenge for nurses and nursing leaders alike, the ANA provided a variety of resources to assist nurses and other healthcare providers with mental health resources and later created their Well-Being Initiative (ANA Enterprise, 2020) with the goal of providing free tools to support the mental health and resilience of all nurses.

Once the COVID-19 pandemic has passed, the mark left on healthcare workers may not disappear. Many who cared for COVID-19 will suffer from post-traumatic stress disorder. Nurses have been "first in line facing the clinical challenges intrinsically linked to the course of the disease while under the constant personal threat of being infected or representing a source of infection" (Carmassi et al., 2020). Timely response to this psychological pressure on nurses in order to prevent negative mental health outcomes such as SUD requires development of specific intervention strategies.

Summary

The COVID-19 pandemic has greatly impacted the nursing workforce, nursing education, healthcare delivery, policy and legislative issues, and social issues.

Nursing Workforce. COVID-19 has exposed a need for increased workforce data collection, planning, and mobility. The pandemic has highlighted the critical need for a flexible and mobile nursing workforce, which requires state and national workforce databases to be current and comprehensive. Research, policy, and public health stakeholders will expect this type of real-time data that can assist in deploying nurses during future emergencies. BONs may begin to feel increasing pressure to add workforce data collection to their licensure renewal processes.

Nursing Education. Stronger collaboration between academia and clinical practice, which were needed prior to the pandemic, needs to be fostered to help develop innovative and flexible methods that allow students to continue their education. The practice-academic partnerships that permit students to serve as support staff in healthcare facilities, receive payment, and earn academic credit serve as a model example of education and practice becoming true academic partners.

Nursing educators and regulators have an opportunity to examine novel methods of educating students during the pandemic. Regulators will need to be prepared to make future decisions involving increased reliance on virtual simulation and high-fidelity

simulation rather than traditional clinical experiences. Further research is needed to help support these strategies, but the time to co-create a new world order within nursing education may be at hand (Barton et al., 2020; Fauteux, 2020).

Healthcare Delivery. The number of disproportionate cases of COVID-19 affecting minority and disadvantaged populations shines a light on the shortfalls of the U.S. healthcare delivery system. Addressing the social determinants of health must become part of standard practice. Patient access to care, chronic condition management, and fulfilling basic needs such as food and housing needs greater attention (Blumenthal et al., 2020).

The need for a compact nation has been evident during these extraordinary circumstances of the pandemic. Telehealth services, nurse staffing, and access to care can only be fully facilitated when all states and territories are a part of the NLC and APRN Compact. It is expected that telehealth services will continue long after COVID-19; thus, a clear and cohesive regulatory framework for telehealth is vital. Solutions to the increasingly prevalent issues surrounding licensure and patient care across international boundaries are needed.

It is more vital than ever to continue measuring outcomes despite the suspension of norms due to COVID-19. Data collection and subsequent analysis should better inform, improve, and prepare the healthcare system for any future public health crises.

Holding nurses to standards of professionalism, competence, and ethical practice has not changed during the pandemic. Yet, the situation remains a public health emergency and regulators help by communicating transparently with nurses and creating positive partnership with clinical facilities.

Legislation and Policy Issues. In the beginning of 2020, the occupational licensing conversation focused on licensure reform, particularly criminal justice reform, reducing regulatory barriers to employment, and state legislation related to universal licensing aimed at improving portability (Carpenter, 2020; Peterson & Slabinski, 2020; Arnold, 2020). COVID-19 shifted the focus to licensing issues and how to get nurses to go where they were needed the most. State emergency declarations included temporary suspensions or waivers of practice agreement requirements for APRNs. Additionally, the NCSBN Delegate Assembly approved a new APRN Compact Model Act, and three states adopted the Consensus Model.

In the coming 2021 legislative session, the economic and public health impacts of COVID-19 are likely to be paramount. Stakeholders advocating for greater access to care are sure to promote the permanent removal of unnecessary barriers. To triumph over COVID-19 and to surmount future healthcare issues, nurses—who have made highly valuable academic, clinical, and leadership contributions during the COVID-19 crisis—need to have "a stronger voice in influencing future policy and practice" (Bennet, James, & Kelly, 2020, p. 2754).

Social Issues Impacting the Nursing Workforce and Regulation. The COVID-19 pandemic has undoubtedly placed nurses in harm's way. Nurses are challenged with the unprecedented number of patients who present with dire and complex care needs. Stress, fear, and anxiety associated with being infected or representing a source of infection and with caring for patients may lead to a relapse of SUD or entry into SUD. COVID-19 will leave an indelible mark on healthcare workers. Timely intervention strategies for the psychological pressure on nurses are needed to help prevent negative mental health outcomes such as SUD.

Conclusion

Nurses, nurse educators, regulators, legislators, and many others have worked tirelessly to address the numerous challenges present by the COVID-19 pandemic. We learned that being prepared and having systems and resources ready to meet a public health crisis is vital (Benton et al., 2020). As vaccines begin to rollout, there will be a gradual return to everyday life; however, nurses, regulators and educators will be forever changed. COVID_19 will have a lasting impact on all dimensions of health care.

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Conflicts of interest: None.

Appendix

APPENDIX A

State Position Statements and Opinions Practice

A review of position statements, practice statements, clinical practice advisories, advisory/declaratory rulings, advisory opinions, and interpretive guidelines developed by boards of nursing (BONs) was conducted. Eight states (Kentucky, Nevada, Ohio, Oklahoma, Oregon, South Carolina, Texas, and Washington) revised or adopted new statements on the role and scope of practice of the RN. Six states (Arizona, Idaho, Nebraska, Ohio, South Carolina, and West Virginia) adopted or revised rulings/opinions related to administration of sedation, anesthesia, or analgesia. Five States (Nevada, Oregon, South Carolina, Texas, and Washington) made changes to LPN/LVN scope of practice by revising or adopting statements on the topic. Five states (Arizona, Colorado, Kentucky, Oregon, and South Carolina) amended statements/opinions on the role and scope of practice for advanced practice registered nurses (APRNs). The purpose of these guidance documents is to provide direction to practicing nurses. They reflect the decisions made by the BONs regarding specific nursing practice concerns. BONs can review the existing guidance documents with the intent of anticipating any emerging issues and trends that may affect their BON in the upcoming year.

The following is a list of the position/practice statements, clinical practice advisories, advisory/declaratory rulings, advisory opinions, and interpretive guidelines issued or revised by BONs between October 2019 and September 2020:

Arizona

- Adopted the following advisory opinions: Administration of Radioisotope for Subtraction Ictal SPECT Co-Registered to MRI (SISCOM), APRN Care for Transsexual, Transgender, and Gender Nonconforming Populations, Auricular Acupuncture, Administration of Intrapleural Medications, Sedation: Deep, Moderate, Palliative and Analgesia
- Revised the following advisory opinions: Nitrous Oxide Administration, Intraventricular Implanted Devices Temporary Intracranial Catheters, Ketamine Administration, Nitrous Oxide Administration, Peripherally Inserted Central Catheter (PICC) Insertion, Suturing, Maintenance, Removal & Verification of Tip Placement, Scope of Practice Decision Tree, Sheath Removal, Placement of Mechanical Compression Devices, & Deployment of Vascular Closure Devices

Arkansas

- Adopted the following position statement: Role of the Licensed Nurse in Nurse Driven Standing Orders Working in Hospitals That Have Adopted and Are Subject to the Center for Medicare and Medicaid Conditions of Participation

Colorado

- Adopted the following rule: Guidance to Physicians/Dentists/Advance Practice Nurses Who Make Medical Marijuana Recommendations, in Light of Executive Action Taken Pursuant to COVID-19

Connecticut

- Adopted the following declaratory ruling: Scope of Practice for School Nurses to Adjust Insulin Doses for School Children With Parental Input

Georgia

- Adopted the following position statement: Telephonic Nursing

Idaho

- Adopted the following position statement: Certified Registered Nurse Anesthesiologist Title

Kentucky

- Approved the following advisory opinion: Telehealth and Nursing
- Revised the following advisory opinions: Resuscitation Orders, Pronouncement of Death, and Death Certificates, Scope of Registered Nursing Practice in the Deactivation of Implanted Cardioverter Defibrillators (ICDS) and Ventricular Assist Devices (VADS), Nurses Practicing in the Perioperative Setting, School Nursing Practice, Implementation of Patient Care Orders, Supervision and Delegation of Nursing Tasks to Unlicensed Personnel, Administration of "PRN" Medication and Placebos
- Posted the following practice opinions: APRNs – Cannabidiol or CBD Oil, Scope of Practice APRN CRNAs in the Independent Practice of Cosmetic and Dermatologic Procedures, Scope of Practice of an RN in the Removal of Scope of Practice of an RN in the Removal of a Laryngeal Mask Airway (LMA), Scope of Practice of Nurses in the Removal of Chest Tubes, Role of Nurses in the Placement of Arterial Lines

Maine

- Released the following statement on Prescribing Chloroquine, Hydroxychloroquine, and Azithromycin

Missouri

- Revised the following position statement on Patient Abandonment

Nebraska

- Adopted the following advisory opinion: Safe Practice: Fitness to Practice
- Revised the following advisory opinions: Patient Abandonment, Analgesia/Anesthesia by Catheter, Nurse's Accountability to Perform Cardiopulmonary Resuscitation, Sub-Anesthetic Ketamine, Team-Based Nursing Care Services, Verbal Orders, Wound Debridement

Nevada

- Adopted the following practice decisions: Role of the RN in Intubation, Role of the RN in Thrombolytic Therapy, LPN Scope of Practice Regarding Suprapubic Catheter Replacement

North Carolina

- Adopted the following joint position statement: Alternative Practice Settings for EMS Personnel
- Revised the following position statements: Complementary Therapies, Infusion Therapy/Insertion/Access Procedures, Medication Aide Education & Role in Long Term Care/Skilled Nursing Facilities vs Adult Care Settings, Staffing and Patient/Client Safety

North Dakota

- Approved the following guidance statement: Role of the Licensed Nurse in Aesthetic Practices
- Revised the following practice guidance statements: Safety to Practice, Temporary Reassignment, Sexual Assault Forensic Examination Procedure

Ohio

- Adopted the following joint statement: Nurses and Emergency Use of Naloxone
- Revised the following interpretive guidelines: Guidelines for Registered Nurse Filling and Un-filling a Patient's Gastric Band, Registered Nurse Care of Patients Receiving Intravenous Moderate Sedation for Medical and/or Surgical Procedures, Registered Nurse Role in Emergency Intubation Performed by an Authorized Provider, Registered Nurse Role in the Care of Patients Undergoing Exercise Cardiac Stress Training, Registered Nurse Role in the Care of Patients Receiving Intravitreal Injectable Medications

Oklahoma

- Revised the following position statements and guidelines: Licensure Verification of Nursing Licenses, Patient Assessment Guidelines, Placement of Nasogastric Tubes by Registered Nurses in Post Bariatric of Anatomy Altering (Upper Gastrointestinal Tract and Stomach) Surgical Patient Guidelines, Policy on Names

Oregon

- Approved the following interpretative statements: Clinical Education Roles and Responsibilities for Clinical Faculty and Nursing Staff at Clinical Facilities, Counseling Clients About the Use of Marijuana (Including CBD Oil) for the Alleviation of Symptoms Related to Illness or Injury, "Delegation Process" and "Assignment and Supervision," APRN Scope of Practice Decisioning Algorithm
- Amended the following interpretive statements: Foot Care Provided by the Registered Nurse, Foot Care Provided by the Licensed Practical Nurse, Practice Requirements for the Licensed Practice Nurse, Registered Nurse & Advanced Practice Registered Nurse

South Carolina

- Approved the following position statements: Practicing at Level Other Than Highest Licensure/Approval/Recognition for RN, LPN, and APRN Practice
- Formulated the following advisory opinions: Registered Nurse (RN) Scope and Role when Assisting Physician With Injecting Botox, Role and Scope of Registered Nurse (RN) in Regards to Precepting Emergency Medical Technicians (EMTs) and Paramedics (AEMT) During Student Clinical Training
- Revised the following advisory opinions: Scope of Practice of Licensed Nurse Performing Acupuncture, Role and Scope of Practice of a Registered Nurse (RN) or Licensed Practical Nurse (LPN) Practicing in a School Setting to Train Unlicensed School Personnel for Assisting Students with Medications Taken on a Routine Schedule, Role and Scope of Responsibilities of Unlicensed Assistive Personnel to Perform Digital Intervention for Treatment of Fecal Impaction, Role and Scope of Responsibilities of Licensed Practical Nurse (LPN) to Evaluate and/or Stage Vascular, Diabetic/Neuropathic of Pressure Ulcers, Registered Nurse (RN) Performing Endotracheal Intubation and/or Insertion of a Supraglottic Airway in an Emergency Situation, Registered Nurses (RN) Performing Duties of Registered Nurse First Assistant (RNFA) in the Operating Room Setting, Can a Registered Nurse (RN) Determine if a Patient is in Labor, Registered Nurse (RN) Role and Scope in Regards to Administering Pharmacological Agents Intravenously for Sedation
- Revised the following joint advisory opinion: Regarding the Presence of a Pharmacist in a Methadone Clinic with Nurses During Dosing Hours

Texas

- Revised the following position statements: LVNs Engaging in Intravenous Therapy, Venipuncture, or Peripherally Inserted Central Catheter (PICC) Lines, Role of LVNs & RNs in Management and/or Administration of Medications via Epidural or Intrathecal Catheter Routes, Nurses Carrying Out Orders From Pharmacists for Drug Therapy Management, LVN Role in Pronouncement of Death, LVN Scope of Practice, RN Scope of Practice

Vermont

- Revised the following position statement: Role of the Nurse in Delegating Nursing Interventions

Virginia

- Adopted the following guidance document: Practice of Conversion Therapy
- Reaffirmed the following guidance document: Attachment of Scalp Leads for Internal Fetal Monitoring

Washington

- Adopted the following interpretive statement: Clarification on Opioid Prescribing Rules
- Adopted the following advisory opinions: Death with Dignity (Aid-in-Dying): Role of the Nurse, Delegation of Blood Glucose Monitoring to Nursing Assistants or Health Care Aides in Community-Based Settings, Regis-

tered Nurse (RN) and Licensed Practical Nurse (LPN) Scope of Practice, Naloxone Prescribing Clarification, Role of the Nurse in Supervised Injection Services (SIS) Facilities

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West Virginia

- Revised the following position statement: Administration of Anesthetic Agents

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Wyoming

- Approved the following advisory opinions: Practice During COVID-19 Declared State of Emergency, Temporary Permits During COVID-19 Declared State of Emergency, Emergency Direct Care Worker, Nursing and Electronic Delivery of Care, Emergency Direct Care Worker