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Addressing Personnel Shortages in Hospitals

Department of Executive Engagement,
Research
American College of Healthcare Executives



**CEO Circle White Paper
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The information presented in this white paper is based on a survey that was conducted before the onset of the COVID-19 pandemic. While we understand that circumstances may be different during and after the pandemic than they were at the time of the study, addressing staffing shortages remains of critical importance to advancing health outcomes, and the study results provide valuable information for addressing shortages in some key front-line positions.

Introduction

Personnel shortages ranked as the second most pressing challenge to U.S. community hospitals¹ in the *2019 Top Issues Confronting Hospitals Survey*. This survey, conducted annually by the American College of Healthcare Executives (ACHE), asks community hospital CEOs to rank the issues of major concern to the organizations they head. In 2015, personnel shortages moved from being the 10th ranked challenge in the *Top Issues* survey to the 4th and has remained among the top four challenges occupying hospital leaders in subsequent years.

This is not the only period during which personnel shortages have been a significant factor for hospitals. During the first four years in which the *Top Issues* survey was conducted, from 2002 through 2005, personnel shortages ranked among the top three issues for U.S. community hospitals. The issue then abated in terms of being a pressing challenge for hospitals for a number of years, dropping to the 4th or 5th position in the next three years, then ranking 8th or lower in the order of challenges for hospitals until 2015.

To examine the current situation regarding personnel shortages in community hospitals in the U.S. more closely, ACHE conducted the *Personnel Shortages Survey*. The survey asked community hospital CEOs more specifically about the personnel shortages currently facing the organizations they led, the reasons for the shortages, and how the shortages were being addressed. This white paper reports the findings of this survey.

Methods

In January 2019, the *Personnel Shortages Survey* questionnaire was sent electronically to community hospital CEOs who were ACHE members. Those who did not respond within one week were sent a reminder, and a second reminder was sent to those who did not respond within two weeks. Of the 1,555 CEOs who received the survey, 431 responded for an overall response rate of 28 percent. CEOs of hospitals that were investor owned, part of multihospital systems, larger and located in metropolitan areas were less likely to respond to the survey.

¹ Non-federal general medical/surgical hospitals, including children's hospitals

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Staffing Shortages

Community hospital CEOs responding to the *Personnel Shortages Survey* were asked to rate how significant an issue personnel shortages were to the hospitals they led on a scale of 1 to 5, where 1 was “Not at all Significant” and 5 was “Very Significant.” The majority, 68%, scored the issue as significant, that is, gave a score of 4 or 5. A small proportion of CEOs, 12%, rated the significance of personnel shortages to their hospitals as a 1 or 2.

Survey respondents were asked to list the types of personnel who posed the No.1, No. 2 and No. 3 challenges to their hospital with respect to staffing shortages. Bringing the data together, **Table 1** shows the proportion of CEOs who named the staff listed among their top three personnel shortages.

A shortage of registered nurses (RNs) was the most likely to be included on the short list of staffing concerns for hospital CEOs. The majority, 81%, said one of their top three challenges regarding personnel shortages was the availability of RNs.

A shortage of primary care physicians was the next most frequently reported concern. A little more than half, 55%, of CEOs surveyed said primary care physicians were among the top three types of personnel in short supply.

Slightly more than one-third, 37%, of hospital CEOs listed a shortage of technicians, such as medical or laboratory technicians, among their top three concerns about staff availability. A little over one-quarter, 28%, of CEOs surveyed named the availability of physician specialists among their top three staffing concerns. A shortage of mental health professionals was included among the top three staffing concerns for 27% of CEOs answering the survey.

Availability of nursing assistants, therapists and advanced practice providers such as physician assistants and nurse practitioners, were named among the top three staffing concerns by 20%, 17% and 7% of responding CEOs, respectively. Small numbers of respondents named shortages of ancillary staff or other staff such as managers, medical assistants, entry-level workers, paramedics, auditors, revenue cycle specialists, data analysts and social workers as one of their top three staffing concerns.

Table 1. Percentages of hospital CEOs who named different staff among their top three concerns

Staff	Percentages or numbers of CEOs naming shortages of these staff among their top three staffing concerns
Registered nurses	81%
Primary care physicians	55%
Technicians (e.g., medical technicians, lab technicians)	37%
Physician specialists	28%

Table 1. (continued) Percentages of hospital CEOs who named different staff among their top three concerns

Staff	Percentages or numbers of CEOs naming shortages of these staff among their top three staffing concerns
Mental health professionals	27%
Nursing assistants	20%
Therapists	17%
Physician assistants, nurse practitioners and similar healthcare providers	7%
Other (please specify):	
Ancillary (housekeeping, food services, dietary, maintenance, environmental etc.)	(N=11)
Other	(N=12)
(N)	(424)

Each of the following sections addresses one of the three groups of staff that appeared most frequently among the top three types of personnel in short supply, as reported by responding CEOs: registered nurses, primary care physicians and technicians. For each group, we present information gathered in the survey about why the staff shortage is occurring and how different organizations are addressing it. We also include descriptions of the most effective or creative things that hospital CEOs in the survey had done to attract qualified staff.

Registered Nurses

Most hospital CEOs responding to the *2019 Personnel Shortages Survey* said that availability of registered nurses was a challenge for the hospitals they led. Shortages of registered nurses are not new in healthcare (Coile, 2001). Nursing shortages were a major concern for hospital CEOs in the early 2000s, and literature from that time references previous periods when qualified nurses were in short supply. The following sections present what hospital CEOs in the 2019 survey felt were the reasons for the lack of availability of registered nurses and how they were addressing it.

Reasons for Staffing Shortages

Community hospital CEOs surveyed were asked what they believed to be the reasons they were experiencing shortages of registered nurses. The results are shown in **Table 2**.

Competition from other hospitals was listed most frequently as the cause for staffing shortages among RNs; 75% of responding CEOs named this as a reason their hospitals were having difficulty filling these roles. Almost half, 45%, said their hospital was located in an area to which it was difficult to attract registered nurses. Forty percent of CEOs felt that the numbers of nurses graduating from schools was insufficient to meet the demand. Almost as many cited staff

retirements (36%) and competition from other non-hospital providers (35%) as reasons for registered nursing staff shortages. Competition from non-healthcare employers was also mentioned by 13% of responding CEOs.

Small numbers of respondents cited additional reasons for registered nursing staffing shortages. Seven respondents mentioned a desire on the part of registered nurses to move from nursing to become advanced practice providers such as nurse practitioners. Six respondents mentioned a shortage of *experienced* RN staff, and three mentioned competition from staffing agencies as a reason for shortages of registered nurses. Two respondents mentioned that the compensation they were offering or could offer was not attractive enough. Two other reasons mentioned to explain RN shortages included a lack of long-term commitment to nursing and that a significant portion of nurses in the hospital’s area were military spouses.

Table 2. Reasons for registered nurse staffing shortages

Reason for shortage	Percentages or numbers of CEOs citing reason for shortage
Competition from other hospitals	75%
Hospital is located in an area to which it is difficult to attract staff	45%
Insufficient numbers of staff graduating from schools	40%
Staff retirements	36%
Competition from other providers	35%
Competition from non-healthcare employers	13%
Other (please specify):	
Nurses moving to higher degree programs/management (NP, APRN, etc.)	(N=7)
Lack of experienced personnel	(N=6)
Competition from agency staffing firms	(N=3)
Compensation/reimbursement not attractive	(N=2)
Other	(N=2)
(N)	(341)

Addressing Staffing Shortages

Hospital CEOs participating in the survey named a number of different ways in which they were addressing the shortage of RNs available to the hospitals they led. These are listed in **Table 3**.

The most-often-cited method for addressing registered nursing staffing shortages had to do with financial incentives, either increasing compensation (mentioned by 77% of respondents) or providing signing bonuses (mentioned by 61% of respondents). Filling positions using contract staff who travel was the second most frequently mentioned way to address shortages among registered nurses (after increasing compensation), reported by 64% of respondents. Offering flexible hours was named by 41% of respondents. Filling positions with contract staff who worked on a per diem basis was mentioned by a little more than one-third of respondents. A little more than one-quarter of respondents mentioned establishing a nursing residency program and 14% provided assistance with finding employment for a spouse or partner in the area.

Smaller numbers of respondents, between one and eight each, mentioned other ways in which they were addressing their registered nurse shortage. The largest group of strategies were education-related, including partnering with schools in different ways to try to increase the number of nursing graduates, providing loan repayment or tuition assistance, and establishing training programs or internships and fellowships. One mentioned subsidizing a BSN class at a local university where participants had their education costs billed directly to the hospital in exchange for a subsidy and three years' work at the hospital. Another mentioned converting their own nursing school from a diploma to a BSN program. (These last two are classified as "Other" in **Table 3**.) Expanding recruiting efforts in different ways, including foreign recruitment, establishing a nurse recruitment and integration manager, having a summer work program for student nurses and recruiting student nurses as nursing assistants, was mentioned by six respondents. Working on creating a culture more welcoming to nurses was mentioned by five respondents. Providing housing or relocation assistance was mentioned by two respondents. A small number of those answering the survey spoke of filling roles by offering overtime, employing part-time or "as-needed" (PRN) staff, or taking on staff with less experience than desired.

Table 3. How organizations are addressing registered nurse staffing shortages

Strategy	Percentages or numbers of CEOs who have used strategy
Increasing compensation for the position (including salary or bonuses)	77%
Filling in with contract (agency) staff who are travelers	64%
Offering signing bonuses	61%
Offering flexible hours	41%
Filling in with contract (agency) staff who work on a per diem basis	35%
Establishing a residency program	29%
Assisting with finding employment for spouse/partner in the area	14%

Table 3. (continued) **How organizations are addressing registered nurse staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Other (please specify):	
Relationship with schools to produce more graduates	(N=8)
Providing loan repayment/tuition assistance	(N=6)
Changing culture/increasing engagement/good work environment	(N=5)
Training programs	(N=5)
Internships/fellowships	(N=3)
Expanding recruitment	(N=2)
Foreign recruitment	(N=2)
Providing housing help/relocation assistance	(N=2)
Filling in role with PRNs, part time staff/providers	(N=1)
Recruit nursing students as nursing assistants	(N=1)
Summer employment for nursing students	(N=1)
Hiring less experienced personnel	(N=1)
Overtime	(N=1)
Created a nurse recruitment and integration manager	(N=1)
Other	(N=2)
(N)	(340)

Hospital CEOs responding to the survey were then asked what they felt were the most *effective* ways in which they had addressed their nursing staff shortages. The results are shown in **Table 4**. **Table 4** has a considerable degree of detail to present the list of suggested solutions as completely as possible.

Financial incentives were again at the top of the list, with 67 respondents naming different types of increased compensation, alternative benefits and performance incentives as the most effective means of attracting nursing staff. An additional 46 mentioned other types of financial incentives including bonuses and incentive payments. Partnering with schools to provide training or funding for students, including executing programs to convert students to staff, was the second most frequently mentioned method of increasing RN staffing, as was offering residency programs. Thirty-seven respondents mentioned each of these different educational strategies to attract nurses. Nineteen respondents mentioned other types of educational assistance such as training programs, and eight mentioned internships, externships or fellowships.

Forty-four respondents named six different strategies for improving the work environment for registered nurses. Thirty-two respondents named 15 different strategies to adjust staffing or staffing practices, 28 mentioned four different recruitment strategies, and 22 mentioned flex scheduling, creative scheduling or guaranteed hours. Two strategies for providing assistance to nursing staff were named by 12 respondents, eight respondents mentioned approaches to providing more professional development opportunities to nurses, and four mentioned an increased focus on nurse retention.

Table 4. Most effective means of addressing registered nurse staffing shortages

Strategy	Percentages or numbers of CEOs who have used strategy
Financial Incentives	
Increased compensation/benefits, variety of benefit options, performance incentives	(N=67)
Sign-on bonus	(N=30)
Referral/recruitment bonus	(N=6)
Incentives designed for commitment to work at organization for so many years	(N=4)
Retention bonus (including one respondent who moved away from a sign-on bonus to a retention bonus)	(N=4)
Increased pay with no benefits (flex pay)	(N=1)
Other (working to increase hourly wage)	(N=1)
Education	
Relationships/partnerships with schools (colleges, high schools), partnerships to provide training, funding, scholarships, programs to convert students to staff, scholarships/funding for education, relationships with students, offering clinical rotations, paid students while in class	(N=37)
Residency programs	(N=37)
Training programs, offered/funded certification programs, provide scholarships, started own school/started own programs, program/funding to train people into needed positions, funded education for employees to fill needed roles	(N=19)
Internships, fellowship programs, externships	(N=8)
Work Environment	
Change culture, more staff empowerment/engagement	(N=23)

Table 4. (continued) **Most effective means of addressing registered nurse staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Better work environment, new facility/equipment, more security, desirable location, change configuration of beds	(N=10)
Adjust patient-to-staff ratios	(N=4)
Better onboarding	(N=4)
Work/life balance	(N=2)
Created more support for general nurses in key areas of the hospital	(N=1)
Scheduling	
Flex scheduling	(N=16)
Restructure scheduling/nontraditional shifts/creative scheduling	(N=5)
Offered guaranteed hours	(N=1)
Staffing	
Changed staffing model, shared roles, shared employees with other hospitals or within system, cross-training, internal pool of staff/floats	(N=11)
Hire more new graduates	(N=5)
Contract with traveling providers, contract with third parties	(N=2)
Minimize use of travelers/no longer use travelers, minimize or no longer use agency staff	(N=2)
Converted agency staff to permanent staff	(N=2)
Hire over budget	(N=1)
Recruit previous workers	(N=1)
Hired nurses from hospital that was closing	(N=1)
Hired up to cover leaves of absence	(N=1)
Did not require nurses to take low census	(N=1)
Opened up more general nursing positions	(N=1)
Mandated overtime by hiring in nurses at 1.05 FTE	(N=1)
Direct contracting with nurse “travelers”	(N=1)
Increased the number of students taken	(N=1)

Table 4. (continued) **Most effective means of addressing registered nurse staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Hired nursing students as CNAs	(N=1)
Recruitment	
Contract with foreign providers/recruitment of foreign providers	(N=10)
More active/aggressive in recruitment, hired a recruiter, improved recruitment process, use search firms, advertising	(N=10)
Job fairs	(N=6)
Social media	(N=2)
Assistance	
Loan repayment/tuition assistance	(N=7)
Relocation incentives, finding jobs for spouses, reimbursement for housing, car, on-call housing	(N=5)
Professional Development	
Mentoring, preceptor programs	(N=4)
Availability of career progression	(N=3)
Offered nurse executive program	(N=1)
Retention Strategies	
Focus on retention, succession planning	(N=4)
Other	
Develop groups to address shortages and find solutions	(N=1)
Removed requirement for obtaining a BSN within a specified time of employment	(N=1)
(N)	(252)

Respondents to the *Personnel Shortages Survey* were also asked for their most creative solutions to address their staffing shortages of RNs. Many of the comments echoed the themes presented in **Table 4**, above. There were, however, some suggestions ranging over many aspects of employment. Regarding financial incentives, different respondents mentioned an inpatient pay differential, and revising the raise structure to provide more pay increases in early years of tenure to address higher attrition occurring at the two- to four-year mark. In addition to a number of comments about providing a positive work environment that staff do not want to leave, one

leader mentioned sending personalized notes to nurses at 2 weeks, 30 days, 60 days and 90 days in their tenure as check-ins.

Regarding professional development, three leaders mentioned creating career ladders for nurses employed in the hospitals they led. One of the different staffing models mentioned was to train nurses in all departments so they could shift to different areas of the hospital according to need. One idea for recruiting was to directly target specific nursing schools in job postings to stimulate more candidates from those schools. On the subject of training programs, several leaders mentioned creating boot camps to provide intensive training in nursing specialty areas. To increase retention, one CEO mentioned creating a Daisy award program, another had instituted “stay interviews” to surface and address dissatisfiers before the nurse left the organization, and another created a social network for new nurses.

A creative solution mentioned by one CEO on the subject of rehiring former staff was to take on nurses who had left the organization in good standing and allow their benefits to continue as if they had not separated from the hospital. Finally, another offered internships in areas of the hospital where nurses were hard to find, thus helping to establish a pipeline for hard-to-fill nursing positions.

In addition to advice and experiences of respondents to the *Personnel Shortages Survey*, there is a literature about addressing nursing staff shortages. Since much of the advice now offered in online blogs and toolkits for retaining nurses echoes themes from studies done over the last 20 years, we have included some of these older works in our review.

Suggestions for attracting and retaining qualified nursing staff in this literature focus on the notion that while pay and benefits are important, they may not be the deciding factors in where nurses choose to work. There are a number of factors in organizational and unit culture that play a significant part in whether an organization attracts nurses and where they elect to stay. This was addressed by some survey respondents when they reported the effective and creative things they had done to attract and retain their nursing staff. The following is a list of factors that studies have suggested make workplaces attractive to nurses.

- **Respect and recognition.** Nurses need to be respected as highly trained professionals, who are key to the care process and positive patient outcomes. They also need to be recognized and acknowledged for their contributions (Buffington, Zwink, Fink, DeVine & Sanders, 2012).
- **Professional development opportunities.** More than ever, with the growing proportion of millennial workers in the workforce, nurses need to know they have opportunities to grow and develop professionally (Gifford, Zammuto & Goodman, 2002).
- **Patient-centered environment.** Caring and a commitment to putting the patient first at all levels of the organization, from top management down, has been shown to increase retention among nurses in Magnet hospitals (Coile, 2001; Anthony et al., 2005).

Qualified nurses are invested in good patient outcomes, and these environments allow nurses to function as patient advocates.

- **Good, accessible and transparent leadership.** As is often the case, leadership is critical to the culture of an organization or unit. At the organization level, leaders who are accessible, participate in one-on-one interactions with nursing staff, and act honestly and transparently are more likely to create environments of trust (Coile, 2001; Kaplan, 2018), which lead to better outcomes for patients and staff. At the unit level, nurses are looking for leaders who are supportive, promote teamwork and create positive work environments (Anthony et al., 2005).
- **Being part of the decision-making process.** Nurses are looking for their opinions to be heard and respected, and organizations that involve practicing nurses in decision making and planning at the unit, departmental and hospital levels are more likely to retain nursing staff (Gifford, Zammuto & Goodman, 2002).
- **Autonomy.** Organizations where leaders recognize the autonomy of the professional nurse and allow as many decisions as possible about patient care, quality and management issues to be made at the unit level are likely to be more attractive to nursing staff. (Coile, 2001).
- **Clear, fair and blame-free systems for surfacing and resolving issues.** Having nurses feel safe about raising issues and concerns, and having effective ways for resolving them, lead to higher nurse retention (Coile, 2001).
- **Mentorship.** Effective onboarding and support from leaders are two important factors in creating a work environment attractive to nurses (Anthony et al., 2005).
- **Reasonable staffing/workloads.** Based on their survey of RNs, Buffington, Zwink, Fink, DeVine and Sanders (2012) named workload/staffing as one of the primary reasons that registered nurses left their positions.
- **Good relations between nurses and physicians.** Good working relationships between doctors and nurses, and effective exchanges of vital information between these professionals, is another element of a desirable workplace for nurses (Gifford, Zammuto & Goodman, 2002).
- **Safety.** Worker safety is an increasingly talked-about subject. Creating a safe environment for nurses is part of being a desirable workplace for nurses (Wallis, 2015). In fact, increasing security, particularly for late-shift nurses, was mentioned by one survey respondent as an effective way of addressing nursing shortages.

Primary Care Physicians

A shortage of primary care physicians was the second-most-often reported staffing concern of respondents to the *Personnel Shortages Survey*. A little more than half, 55%, of survey respondents reported that finding sufficient numbers of primary care physicians was one of their top three staffing challenges.

This finding is well-supported by the literature. The Association of American Medical Colleges (AAMC) has estimated a national shortfall of between 21,100 and 55,200 primary care physicians by 2032 (AAMC, 2019). According to this model, while the number of primary care physicians is expected to rise modestly between now and 2032, the demand will well outpace that growth. A growing and aging U.S. population is the major factor driving demand for physicians. The AAMC’s model predicts that even emerging healthcare delivery trends and new care models involving advanced practice providers will not have a significant impact on this shortage of primary care physicians. The following sections describe what respondents to the *Personnel Shortages Survey* reported as the reasons for shortages in primary care physicians and how they were addressing them.

Reasons for Staffing Shortages

Reasons for shortages of primary care physicians reported by respondents to the *Personnel Shortages Survey* are shown in **Table 5**. The reason most often-cited for a lack of primary care physicians, named by 61% of respondents, was that hospitals were located in areas to which it was difficult to attract physicians. A little more than half of respondents, 51%, reported that competition from other hospitals was the reason they had difficulty attracting primary care physicians to the hospitals they oversaw, and an equal proportion cited an insufficiency in the numbers of staff graduating from schools. A little less than one-third, 32%, of responding CEOs named staff retirements as the reason they were struggling to fill primary care physician roles. Competition from other, non-hospital, providers and from non-healthcare providers were named as reasons for the shortage of primary care doctors by 16% and 3% of respondents, respectively. Two respondents mentioned they felt that the compensation they were offering, or could offer, was not attractive to primary care physician candidates. Finally, there were four other responses relevant to the circumstances of specific organizations, including California mandates restricting hiring of hospitalists, the area’s cost of living and difficulties recruiting physicians to provide outpatient care.

Table 5. Reasons for primary care physician staffing shortages

Reason for shortage	Percentages or numbers of CEOs citing reason for shortage
Hospital is located in an area to which it is difficult to attract staff	61%
Competition from other hospitals	51%
Insufficient numbers of staff graduating from schools	51%

Table 5. (continued) **Reasons for primary care physician staffing shortages**

Reason for shortage	Percentages or numbers of CEOs citing reason for shortage
Staff retirements	32%
Competition from other providers	16%
Competition from non-healthcare employers	3%
Other (please specify):	
Compensation/reimbursement not attractive	(N=2)
Other	(N=4)
(N)	(236)

Addressing Staffing Shortages

Survey respondents named a number of ways in which they were addressing the shortage of primary care physicians in the hospitals they led. These are shown in **Table 6**. Again, financial incentives topped the list, with 75% of respondents saying they offered some form of increased compensation, and 67% saying they offered signing bonuses.

Assisting with finding employment for spouses was the next most frequent response, with 45% of CEOs answering the survey saying they offered this form of incentive to primary care physicians. Offering flexible hours was mentioned by a little more than one-third of respondents, while about one-fifth had established residency programs. Filling their primary care physician positions with agency staff who either traveled or worked on a per diem basis was mentioned by 21% and 16% of respondents, respectively.

Table 6 also lists other solutions tried by survey respondents to address their primary care physician staff shortages. The most-often-cited additional solutions were staffing more mid-level providers (mentioned by 8 respondents), expanding recruiting efforts (mentioned by 6 respondents) and providing tuition or loan repayment assistance (mentioned by 5 respondents). Seven additional means of addressing primary care physician shortages were named by 10 respondents, as shown in the table. A small number of additional suggestions included succession planning and signing on physicians early.

Table 6. How organizations are addressing primary care physician staffing shortages

Strategy	Percentages or numbers of CEOs who have used strategy
Offering signing bonuses	67%
Assisting with finding employment for spouse/partner in the area	45%
Offering flexible hours	36%
Establishing a residency program	22%
Filling in with contract (agency) staff who are travelers	21%
Filling in with contract (agency) staff who work on a per diem basis	16%
Other (please specify):	
Using mid-level providers	(N=8)
Expanding recruitment	(N=6)
Providing loan repayment/tuition assistance	(N=5)
Providing housing help/relocation assistance	(N=3)
Limiting services/unable to provide service/refer patient to other providers	(N=2)
Changing culture/increasing engagement/good work environment	(N=1)
Contracting w/ third party	(N=1)
Partnering with other organizations	(N=1)
Telemedicine	(N=1)
Training programs	(N=1)
Other	(N=3)
(N)	(233)

CEOs answering the survey were asked what were the most *effective* ways in which they had addressed their shortages of primary care physicians. Those are listed below, in **Table 7**. Again, the table is fairly detailed to provide the breadth of suggestions. Different types of financial incentives were at the top of the list again, headed by increasing compensation (mentioned by 15 respondents) and sign-on bonuses (mentioned by 6 respondents). Two others mentioned

incentives for committing to the organization and recruiting or referring other primary physicians to the organization.

A dozen respondents mentioned five different types of educational assistance or training programs they established as effective means for addressing their shortages of primary care physicians. Establishing a residency program was the most commonly named solution, mentioned by 7 respondents. Six respondents mentioned increasing their recruiting efforts, while five mention different types of assistance such as tuition repayments, loan repayments or relocation assistance. Additionally, 6 respondents mentioned improvements to the work environment for primary care physicians, and eight mentioned changing staffing or scheduling models. The final group of strategies listed under the “Other” category addressed circumstances specific to particular organizations.

Table 7. Most effective means of addressing primary care physician staffing shortages

Strategy	Percentages or numbers of CEOs who have used strategy
Financial Incentives	
Increased compensation/benefits, variety of benefit options, performance incentives	(N=15)
Sign-on bonus	(N=6)
Incentives designed for commitment to work at organization for so many years	(N=1)
Referral/recruitment bonus	(N=1)
Education and Mentoring	
Residency programs	(N=7)
Relationships/partnerships with schools (colleges, high schools), partnerships to provide training, funding, scholarships, programs to convert students to staff, scholarships/funding for education, relationships with students, offering clinical rotations, paid students while in class	(N=2)
Internships, fellowship programs, externships	(N=1)
Mentoring, preceptor programs	(N=1)
Training programs, offered/funded certification programs, provide scholarships, started own school/started own programs, program/funding to train people into needed positions, funded education for employees to fill needed roles	(N=1)
Recruitment	
More active/aggressive in recruitment, hired a recruiter, improved recruitment process, use search firms, advertising	(N=6)

Table 7. (continued) **Most effective means of addressing primary care physician staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Assistance	
Loan repayment/tuition assistance	(N=4)
Relocation incentives, finding jobs for spouses, reimbursement for housing, car, on-call housing	(N=1)
Work Environment	
Better work environment, new facility/equipment, more security, desirable location, change configuration of beds	(N=3)
Change culture, more staff empowerment/engagement	(N=2)
Work/life balance	(N=1)
Staffing	
Changed staffing model, shared roles, shared employees with other hospitals or within system, cross-training, internal pool of staff/floats	(N=2)
Hiring nurse practitioners or other mid-level providers	(N=2)
Allowed providers to subspecialize/work at top of license	(N=1)
Increase the number of residents and give them more opportunity to interact with primary care doctors	(N=1)
Scheduling	
Flex scheduling	(N=2)
Other	
Partnerships with other organizations	(N=2)
Other	(N=3)
(N)	(53)

Hospital CEOs responding to the survey were asked for the most creative things they did to attract primary care physicians to work in the hospitals they led. This list had many of the same components as the list of the most effective methods used. Additionally, two types of solutions were suggested by several respondents each. One was to adjust staffing models so physicians divided their time between primary care duties and practicing in other specialties or other areas of the hospital. This included having a hospitalist work remotely part time. The second was to provide stipends to medical students or residents, or providing signing bonuses to them, well before graduation. Another solution mentioned by two respondents was to provide scribing assistance to physicians, either by assigning a staff member to the task or by piloting a scribing software. Allowing physicians more time off, including time off for mission work, was also mentioned. Another respondent mentioned involving private donors with helping to meet the needs of newly recruited physicians such as housing and other financial challenges.

Available literature on the subject of addressing primary care physician shortages focuses largely on solving the problem at a national level — including offering incentives for doctors to enter primary care as students and remain as practitioners, and addressing the shortage of residency positions and training opportunities (Pettersen, Liaw, Tran & Bazemore, 2015; Fodeman & Factor, 2015). As can be seen in **Tables 6** and **7**, a number of respondents to the *Personnel Shortages Survey* reported that their organizations were creating their own residency programs to address some of these needs. At the individual organization level, little authoritative literature exists about creating good working environments to attract primary care physicians (other than the results from this survey). Various blogs and websites offering anecdotal advice mentioned ensuring adequate compensation, flexibility in scheduling and making doctors more productive by employing more mid-level providers and support with scribing or other clerical tasks. Rural areas have their own challenges in recruiting and retaining primary care physicians. The AAMC has reported some success from efforts by universities to increase the numbers of physicians in rural areas by instituting rural training programs (Jaret, 2020). These programs include outreach to recruit medical students from rural areas, supporting medical students likely to practice in rural settings, requiring a rural rotation for medical students and providing more residency opportunities in rural areas.

Technicians

Just over a third of respondents, 37%, to the *Personnel Shortages Survey* named shortages of technicians such as medical and laboratory technicians among the top three staffing challenges for the organizations they led. This echoes the findings of ACHE's annual *Top Issues Confronting Hospitals Survey* over the past two years. Whether it was included among their top three staffing challenges, a little over half of the respondents, 52%, to the *Top Issues* survey cited a shortage of technicians in 2018, while 61% of respondents cited a shortage of technicians in 2019. The perceived shortage of technicians reported by CEOs responding to ACHE surveys in recent years is well supported by the literature. In 2015, the American Association for Clinical Chemistry (AACC) warned of an increasing shortage of laboratory technicians, largely due to more technicians retiring, fewer graduating from training programs, fewer training programs available and more demand because of an aging population (Scott, 2015). The advent of new technologies such as molecular testing has also increased the demand for technicians with specialized skills (ASCLS, 2018). The following sections present what hospital CEOs in the *Personnel Shortages Survey* felt were the reasons for the lack of availability of technicians and how they were addressing it.

Reasons for Staffing Shortages

The reasons for shortages of technicians named by respondents to the *Personnel Shortages Survey* are presented in **Table 8**. The most-often-cited single reason for the shortage of technicians was insufficient numbers of staff graduating from schools, mentioned by about two-thirds of respondents. Collectively, however, the largest proportion of respondents cited competition of one type or another as a reason for the shortage. A little over half cited competition from other hospitals, about a quarter mentioned competition from other healthcare providers and 6 percent cited competition from non-healthcare employers.

Forty percent of respondents said their hospital was located in an area to which it was difficult to attract staff. Staff retiring was mentioned by sixteen percent of respondents as a reason for the shortage of technicians. A few respondents also mentioned other reasons. Two said that the compensation they offered or could offer was not attractive, and one respondent mentioned lack of available experienced personnel.

The observations reported by respondents to the survey are supported by data from the AACC, the American Society for Clinical Laboratory Science (ASCLS) and the American Society for Clinical Pathologists (ASCP). Regarding the numbers of technicians graduating from training programs, there has been a 15 percent decrease in the number of university programs for training technicians since 1990 mostly due to the high cost of running the programs (Scott, 2015; ASCLS, 2018). There has also been a decrease in the number of clinical rotations provided by hospitals and other healthcare organizations (Scott, 2015). Additionally, there are challenges with attracting students to the field. Many who would be good candidates, such as biology and chemistry majors, are unaware of the profession (ASCLS, 2018).

As can be expected, technicians are more inclined to accept job offers from organizations that can afford higher salaries and benefits. A 2018 ASCP Vacancy Survey found that top challenge cited by managers for recruiting lab technicians was better pay from other employers. The degree to which technicians are in demand varies by location. In 2018, the Central Northeast region had the highest job vacancy rates for technicians while the Central Northwest had the lowest (Garcia, Kundu, Kelly & Soles, 2019). Rural areas often experience shortages of laboratory technicians due to lower wages and the lack of training programs in those areas (Giraldi, Garcia, Kundu & Famitangco, 2018).

According to the 2018 vacancy survey, a significant number of technicians had retired over the past few years, and about 19 percent planned to leave the field. While retirement rates had decreased for the first time since 2012, the number of new technicians has not been able to meet the demand left from those vacancies. (Garcia, Kundu, Kelly & Soles, 2019). The most cited reason for non-retiring technicians leaving the field was low pay and lack of career mobility (Strain & Sullivan, 2019). Higher vacancy rates create a high-stress environment and lead to burnout for the remaining laboratory technicians (ASCLS, 2018).

Table 8. Reasons for technician staffing shortages

Reason for shortage	Percentages or numbers of CEOs citing reason for shortage
Insufficient numbers of staff graduating from schools	67%
Competition from other hospitals	58%

Table 8. (continued) **Reasons for technician staffing shortages**

Reason for shortage	Percentages or numbers of CEOs citing reason for shortage
Hospital is located in an area to which it is difficult to attract staff	40%
Competition from other providers	27%
Staff retirements	16%
Competition from non-healthcare employers	6%
Other (please specify):	
Compensation/reimbursement not attractive	(N=2)
Lack of experienced personnel	(N=1)
(N)	(158)

Addressing Staffing Shortages

Table 9 lists how survey respondents to the *Personnel Shortages Survey* were addressing staffing shortages. Most respondents said they were doing this by increasing compensation in some form. About two thirds of respondents mentioned increasing compensation for the position. Almost half of the respondents cited offering signing bonuses. Filling in with contract staff (either travelers or per diem) was the second-most-common way respondents said they were addressing the shortage of technicians. Almost half of the respondents cited filling in with contract staff who are travelers, and 18 percent of respondents cited filling in with contract staff who work on a per diem basis. Additionally, twenty-seven percent of respondents offered flexible hours. Eight percent of respondents mentioned assisting with finding employment for spouses or partners in the area, and seven percent of respondents mentioned establishing residency programs.

Eighteen respondents also provided other strategies for addressing the shortage of technicians. Five respondents mentioned they were addressing the shortage through foreign recruitment. Five respondents also mentioned creating relationships with schools and other organizations to produce more graduates, including working with local colleges to bring biology graduates into the profession. Three said they were offering overtime, and another three respondents mentioned providing loan repayment and tuition assistance.

Offering training programs was mentioned by two respondents as a way of addressing their technician staffing shortages. One respondent mentioned contracting with a third party, and one mentioned expanding recruitment by advertising well outside the area. Other comments included providing a clinical ladder for some positions, establishing student contracts and revising workflow.

Table 9. How organizations are addressing technician staffing shortages

Strategy	Percentages or numbers of CEOs who have used strategy
Increasing compensation for the position (including salary or bonuses)	67%
Filling in with contract (agency) staff who are travelers	46%
Offering signing bonuses	46%
Offering flexible hours	27%
Filling in with contract (agency) staff who work on a per diem basis	18%
Assisting with finding employment for spouse/partner in the area	8%
Establishing a residency program	7%
Other (please specify):	
Foreign recruitment	(N=5)
Relationship with schools to produce more graduates	(N=5)
Overtime	(N=3)
Providing loan repayment/tuition assistance	(N=3)
Training programs	(N=2)
Contracting w/ third party	(N=1)
Expanding recruitment	(N=1)
Other	(N=3)
(N)	(155)

Table 10 lists the most *effective* ways in which respondents said they addressed technician staffing shortages. A small number of respondents provided responses to the question. Providing education and altering staffing and recruitment approaches were the strategies most commonly named. Four respondents mentioned partnering with schools and students to produce more graduates to fill technician positions. These included hiring lab technicians as student technicians to develop loyalty (not as successful as they hoped) and working with graduating seniors with biology degrees to get them into technician programs. Three respondents mentioned providing funding for training programs for their employees, including paying for schooling and training when they discovered exceptional employees and paying for lab technician college training (which helped with staffing numbers, but staff still lacked experience). One additional respondent mentioned residency programs as the most effective way for addressing the shortage. With respect to staffing and recruitment, three respondents mentioned foreign recruitment, and two respondents mentioned contracting with traveling providers or third parties. Two

respondents mentioned more active or aggressive recruiting such as daily calls with the CEO and HR director about recruitment of technicians. Other staffing and recruitment strategies mentioned included a partnership with another organization to establish a workforce recruitment strategy and using personal references from other staff.

A few respondents mentioned using financial incentives and providing assistance as the most effective ways to address the technician shortage. Three mentioned increasing compensation, two mentioned providing sign-on bonuses and one respondent said they offered an allowance for moving expenses. Additionally, three respondents mentioned strategies involving scheduling, which included cross-training current staff, flexible scheduling and restructuring the staffing schedule.

Table 10. **Most effective means of addressing technician staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Education	
Relationships/partnerships with schools (colleges, high schools), partnerships to provide training, funding, scholarships, programs to convert students to staff, relationships with students to produce more graduates	(N=4)
Training programs, offered/funded certification programs, provided scholarships, started own programs, program/funding to train people into needed positions, funded education for employees to fill needed roles	(N=3)
Residency programs	(N=1)
Staffing and Recruitment	
Contract with foreign providers/recruitment of foreign providers	(N=3)
Contract with traveling providers, contract with third parties	(N=2)
More active/aggressive in recruitment, hired a recruiter, improved recruitment process, use search firms, advertising	(N=2)
Partnership with another organization to establish workforce recruitment program	(N=1)
Personal references from other staff	(N=1)

Table 10. (continued) **Most effective means of addressing technician staffing shortages**

Strategy	Percentages or numbers of CEOs who have used strategy
Financial Incentives and Assistance	
Increased compensation/benefits, variety of benefit options, performance incentives	(N=3)
Sign-on bonus	(N=2)
Moving expense allowance	(N=1)
Scheduling	
Cross-training of current staff	(N=1)
Flex scheduling	(N=1)
Restructuring staffing schedule	(N=1)
(N)	(22)

Survey respondents also described the most *creative* ways in which they had addressed their technician shortages. While many of these strategies were the same as those mentioned as effective solutions, a few additional responses included increasing compensation to help with retention such as enhancing salaries of employees who remained and giving retention bonuses. One respondent mentioned working with their local community college to introduce a shared faculty program and onsite technician training program that has started to become successful. Other comments included adding technicians to the loan repayment program, merging services to minimize the need for technicians, sharing employees with other facilities and offering non-traditional shifts such as 7 on and 7 off.

While most respondents cited compensation and contract staffing as ways to address the shortage of technicians, these strategies may not provide a long-term solution. Increasing compensation is not always viable since many laboratory budgets are shrinking. Disadvantages of using contract staff like travelers are that they often have short-term contracts, are trained to fill immediate needs and cannot contribute to all areas in the laboratory. Rural laboratories may be staffed by mostly contract travelers, which affects the readiness of those labs (ASCLS, 2018). The following list includes other suggestions from the literature about ways to address the technician shortage.

- **Increasing visibility of laboratory technicians.** Most people outside the healthcare field are unaware of the laboratory technician profession. Outreach to high school and college students, especially biology and chemistry majors, in addition to partnering with STEM programs can help raise awareness (ASCLS, 2018). Several respondents to this survey said they created relationships with schools and students to increase visibility and recruit more students to become lab technicians.

- **Increasing training and education of technicians by hosting clinical rotations.** Many educational programs for laboratory technicians have had to reduce the number of weeks of clinical rotations because of fewer sponsorships from organizations. Labs are decreasing clinical rotations due to the loss of productivity and that they often do not see the return on investment. On the other hand, having well-trained students decreases the training hospitals' need to provide to new staff. One way schools are looking to address this issue is by using virtual labs in addition to clinical rotations (Scott, 2015).
- **Focusing on retention through job satisfaction and recognition.** Retention efforts are also needed to address the shortage because many technicians are planning on leaving the field. Since there are limitations on career mobility and pay, other retention strategies include increasing job satisfaction and recognition of technicians. Allowing staff to plan projects or participate in stretch projects and providing professional growth and leadership opportunities can help increase job satisfaction in lieu of higher pay. Other ways to increase job satisfaction are for organizations to recognize technicians through reward programs and social events. (Strain & Sullivan, 2019).

Discussion

The results of the *Personnel Shortages Survey* provide a view of how hospital CEOs are addressing shortages of three types of staff in the hospitals they lead: registered nurses, primary care physicians and technicians. These three types of staff members were those most likely to be named by survey respondents as being in short supply. This survey was conducted before the onset of the Coronavirus pandemic. This major disruptor may have changed the situation regarding medical staffing needs in ways we cannot immediately predict. It has certainly accelerated the adoption of telemedicine solutions, which may have down-the-road impacts about how physicians and other practitioners engage their patients and allocate their time. Still, we believe the availability of these key staff will continue to challenge hospitals and that the study results may be useful to hospital leaders working to meet those challenges.

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