YEAR IN REVIEW

COVID-19 Impact: Challenges and Implications for Digital Health

CHIME DIGITAL HEALTH LEADERS

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EXECUTIVE SUMMARY

One year ago this month, the World Health Organization designated COVID-19 a pandemic and soon after the U.S. federal government declared a national emergency. The days and months that followed are now an all-too familiar story of stay-at-home orders, surges, under-resourced hospitals and overburdened clinicians battling the novel coronavirus. Their heroic efforts saved countless lives, serving as a counterforce against COVID-19's mounting toll. With vaccinations under way, the pandemic appears to be waning although it remains volatile.

Behind the scenes, digital health executives and their teams have been providing support with solutions that kept pace with the pandemic's ever-changing challenges: One day it might be building dashboards to track personal protective equipment (PPE) supplies, the next launching a chat bot to augment the help desk, the next aligning registries in the electronic health record (EHR) to monitor distribution of COVID-19 vaccines. Perhaps the most heralded has been the rapid rollout of telehealth programs that spring-boarded many hospitals and health systems into the digital health era.

The College of Healthcare Information Management Executives (CHIME) is using this anniversary to explore health IT's role during the pandemic, based on responses to two online surveys conducted in 2020 that were completed by members of CHIME. The results, along with selected comments from respondents, illustrate 2020's challenges and successes with insights into 2021 and beyond.

KEY FINDINGS

- Most healthcare organizations had a multi-phased approach to reopening.
- Limited supplies hampered healthcare organizations. Difficulties included procuring PPE and technologies used to support telehealth.
- Most healthcare organizations had prepared dual systems to care for COVID-19 and non-COVID patients but doing so created financial and staffing pressures.
- Many organizations struggled to reach pre-COVID levels of elective surgeries six months after restrictions were lifted. Patient fear of becoming infected was cited as one reason.
- The use of telehealth skyrocketed during the pandemic, and although it decreased slightly after restrictions were lifted, it remained popular.
- Respondents reported several technical and user-related challenges with telehealth but also noted enthusiastic adoption.
- Telehealth is expected to be a permanent feature in healthcare but there will still be a need for in-person interaction and in-facility care.
- The pandemic has had a negative financial impact on healthcare organizations, and many health care IT departments experienced budget cuts and took other cost-cutting measures to compensate for the losses.
- Looking to the near-term future, digital healthcare executives expect to invest in technologies to support telehealth and cybersecurity.

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BACKGROUND

To better understand the impact and ongoing information technology-related challenges from COVID-19, CHIME surveyed digital health executives in the spring and fall of 2020 through e-mail, newsletters and other electronic communication. The surveys were conducted May 16-June 1 and Oct. 13-Nov. 1 using a qualitative and quantitative questionnaire. A total of 348 responses were collected and analyzed: 202 in the spring and 146 in the fall.

RESULTS & FINDINGS

STRATEGIES FOR REOPENING

At the time of the survey in late May, national COVID-19 statistics were improving. Infection rates were decreasing in the hardest hit states and hospitals were rebuilding ICU capacity. Many believed that the first wave was contained, and attention could turn to lessons learned and preparation for a second wave after summer, which was expected to bring additional challenges due to coinciding with influenza season.

Although some facilities were operating at near normal operations at the time of the spring survey, most were in various stages of a multi-phased reopening. Most respondents also projected that they would be fully reopened by July 2020.

"Our response was a multi-phased approach driven by service availability by market. As each market demonstrates a path to normal operations, we are bringing back staff and associated services. This must be done in a manner that is safe for our staff and patients, therefore this is guarded by our ability to provide necessary PPE and cleaning procedures for all areas. Non-patient facing staff are continuing to work remotely and will be last of staff to return to the place of work."

Supply chain limitations presented significant reopening challenges as PPE, testing supplies and telehealth resources remained scarce in many parts of the country. Hospitals operating in multiple states or near state border areas also reported challenges staying abreast of and compliant with differing regulations and guidance issued by multiple states and across state lines.

"Getting equipment for video visits has been problematic. Orders for monitors with video capability have been delayed and we had to pull iPads purchased for other purposes to help with the process in some areas."

The vast majority of respondents in the spring survey believed their organizations were prepared to serve both COVID-19 and non-COVID patients. Informed by their experiences with the initial surge, many had developed metrics and protocols to respond quickly if another wave took place in their communities.

"We put together a facility that was able to handle both C-19 [sic] positive and non-positive during the original surge; we have the supplies, plans and labor parties prepared to go back to that state if we hit our trigger points."

CHALLENGES AS THE YEAR PROGRESSES

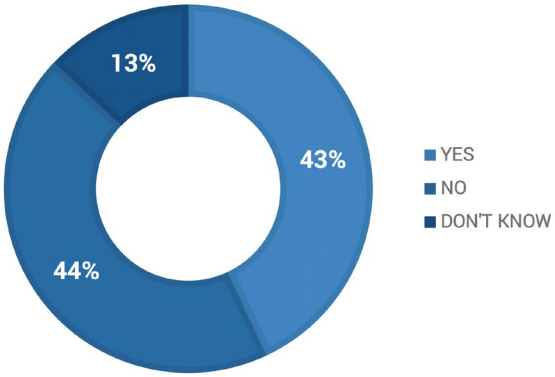
For many respondents, the organizational impact of preparing for and maintaining dual systems of care resulted in extensive financial impacts as staffing and resource costs increased and productivity decreased. While most hospitals adjusted to increased inpatient demand and low hospital bed availability, others felt the strain of preparing for a surge that never came.

"For clinical operations we are incrementally performing non-emergent surgeries and procedures. Primary care is moving quickly to get back to pre-COVID volumes and Specialty is also moving back towards pre-COVID volumes."

"We have had 0 positive cases and have been advised to increase bed count due to possible surge. Surge has not happened. Loss of revenue 47-55%."

Shelter-in-place orders and the ban on non-essential medical services began easing over the summer and were fully lifted in most states by the fall. However, more than six months after the onset of the pandemic, 44% of hospitals indicated that elective surgeries had still not returned to pre-COVID levels.

HAVE ELECTIVE SURGERIES RETURNED TO PRE-COVID LEVELS?



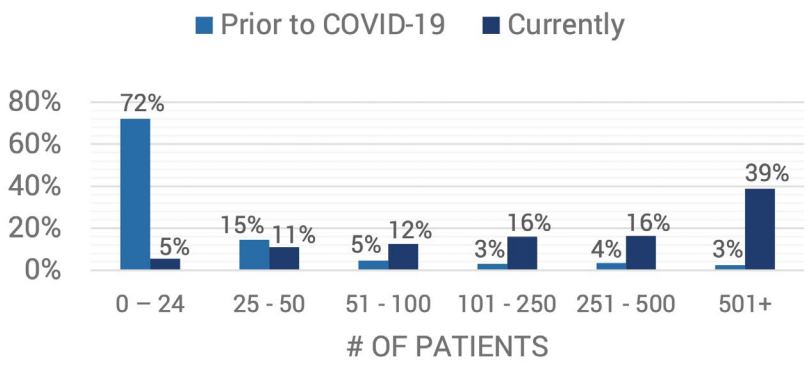
Patient reluctance and fear were cited as the main factor for the slower than expected return to care at facilities. Some hospitals continued to be overwhelmed with COVID-19 cases and converted beds to increase ICU capacity. Other reasons included reduced capacity due to distancing needs, reserving operating rooms (OR) for COVID-19 patients, limited availability of pre-surgical COVID-19 testing, lack of PPE and reduced staffing levels.

"First the state had to approve opening and supporting more types of cases/care. Now working to reopen many types of services, limited by availability of testing and PPE. About 15-20% of patients still not comfortable to return for care fearing they will be exposed to COVID-19."

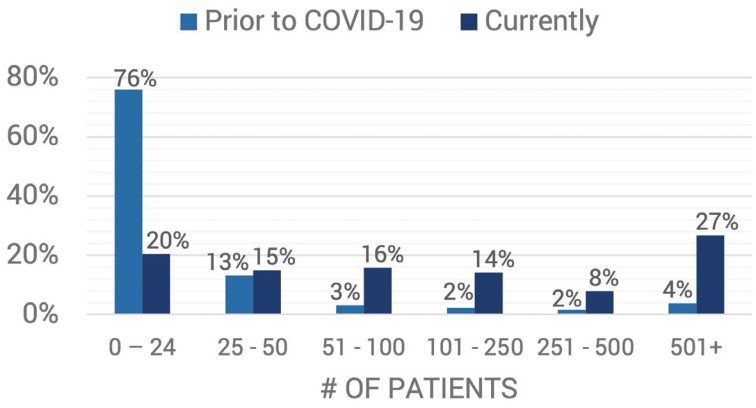
COVID-19 USHERED IN A NEW AGE OF TELEHEALTH AND VIRTUAL CARE

Prior to COVID-19, most healthcare was delivered in a traditional face-to-face environment. As the crisis deepened, hospitals scrambled to rapidly deploy telehealth capabilities. According to the spring survey, approximately 7% of responding organizations provided greater than 250 average daily visits via telehealth pre-COVID; by June that number jumped to 55%. As pandemic restrictions were eased, telehealth usage numbers decreased slightly, as can be seen by comparing the spring and fall results.

AVERAGE DAILY OUTPATIENT / URGENT CARE TELEHEALTH USAGE (SPRING REPORT)



AVERAGE DAILY OUTPATIENT / URGENT CARE TELEHEALTH USAGE (FALL REPORT)



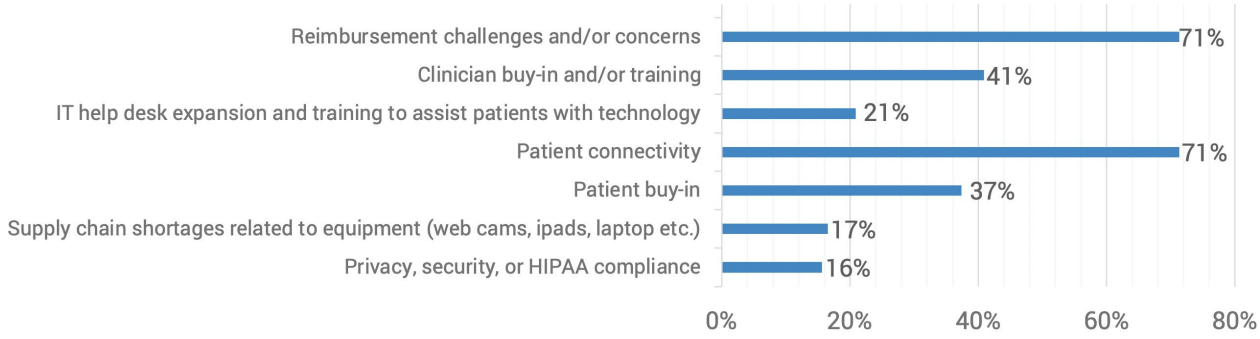
The necessity for rapid deployment of telehealth during the pandemic was both a challenge and success, with respondents remarking the need to do it was challenging but that it was done so quickly was a success. Although some organizations saw significant challenges related to staff resistance and rapid training, acceptance and learning of new technology was embraced by clinicians at most facilities.

"Great adoption by clinicians, physicians and patients. Certainly (we) had bumps but more positives than negatives. Change adaptability has been awesome."

Connectivity challenges were a significant barrier for widespread implementation and contributed to disparities in care. Some patients' digital illiteracy also posed problems. Many respondents remarked on the unexpected need to develop a "geek squad" type of tech support to assist patients in troubleshooting connectivity and device issues.

"Patient connectivity has been the largest challenge. … Many patients lack broadband internet or live in rural areas with spotty cell service. Also, the technical know-how of clients on basic troubleshooting has prevented some video calls from happening."

WHAT ARE YOUR CONCERNS RELATED TO TELEHEALTH IMPLEMENTATION AND SUSTAINABILITY?



The supply chain for technology-related equipment is likely to be an ongoing issue for telehealth and remote workforce development. Shortages and difficulties procuring web cameras, video conferencing equipment, laptops, iPads and other devices were reported by respondents. An additional challenge was determining when to use telehealth and when traditional face-to-face appointments were needed.

"Not all patients want to use telehealth and not all providers want to use telehealth. Not everything in our business can be done via telehealth."

Different types of organizations faced challenges specific to their situation, as described by one respondent from an academic center.

"We've succeeded in converting some of the in-office visits to telehealth. We are a research center; how a patient is seen is dictated by the protocol of the clinical study. It required working with sponsors and IRBs (Institutional Review Boards) to get protocol changes approved for visits that can be done via telehealth without jeopardizing the outcome of the study."

Other reported challenges included:

- Billing, coding, reimbursement mechanisms and delayed payments
- Integration of EMR and telehealth platform/lack of integrated telehealth solution in EMR
- IT staff support/shortage of web cams video conferencing equipment/supply chain for laptops/i-Pads/troubleshooting
- Privacy and HIPAA compliance; maintaining regulatory compliant solutions in the face of high demand is a challenge
- Remote monitoring capabilities
- Patient education and support and comfort level challenges with elderly patients
- Vendors were challenged with scaling up

Despite the challenges, respondents believed that telehealth was going to become a permanent feature in healthcare.

"Telemedicine will now be a part of our practice even after COVID where it wasn't really on the radar before!"

THE FINANCIAL IMPACT LIKELY WILL BE LONG LASTING

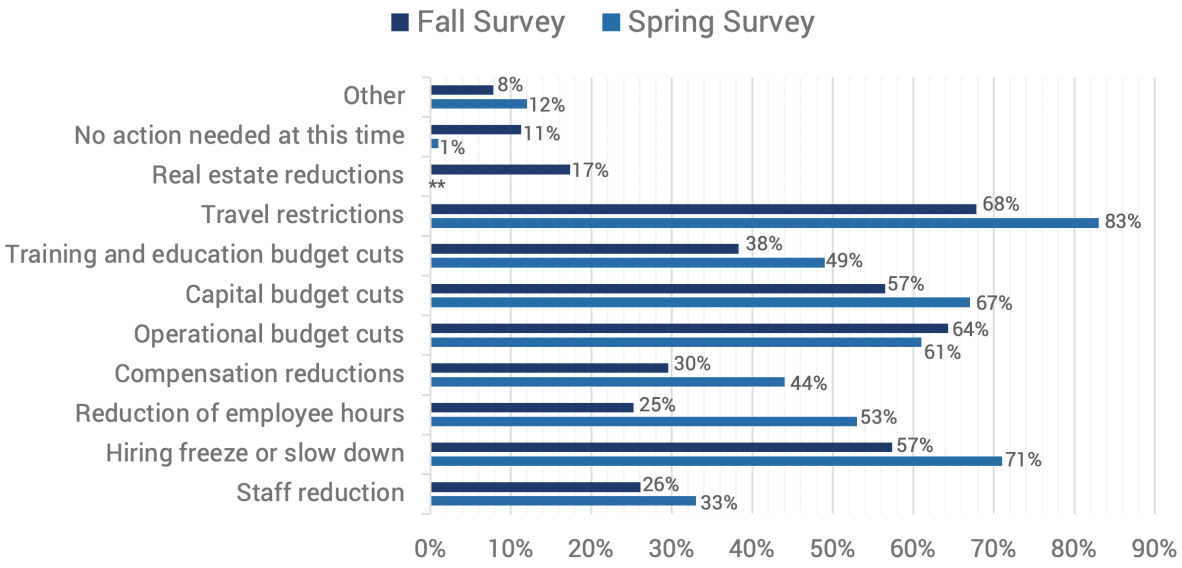
Epidemiologists expect the pandemic to continue well into the year 2021 and the financial impact on the health system could be long-lasting. Decreasing revenue coupled with a rise in uninsured rates due to historic unemployment and issues related to telehealth reimbursement will drive financial uncertainty. Managing the conflicting priorities of cost containment and budget reduction efforts with much needed investments will be an ongoing struggle for hospital leadership.

"(We are concerned about) surviving the financial impact of reduced volumes in an already stressed business environment."

"Virtual visits will remain and grow. ED (Emergency department) volumes will gradually pick up again. But we are having to conduct major cost cutting."

Most organizations began addressing budget shortfalls at the onset of the pandemic. With the exception of operational budget cuts, most cost-containment activities had eased slightly by the fall, which may signal that the financial outlook is improving for some hospitals.

INITIATIVES TO ADDRESS FINANCIAL CONSTRAINTS (TAKEN OR PLANNED)



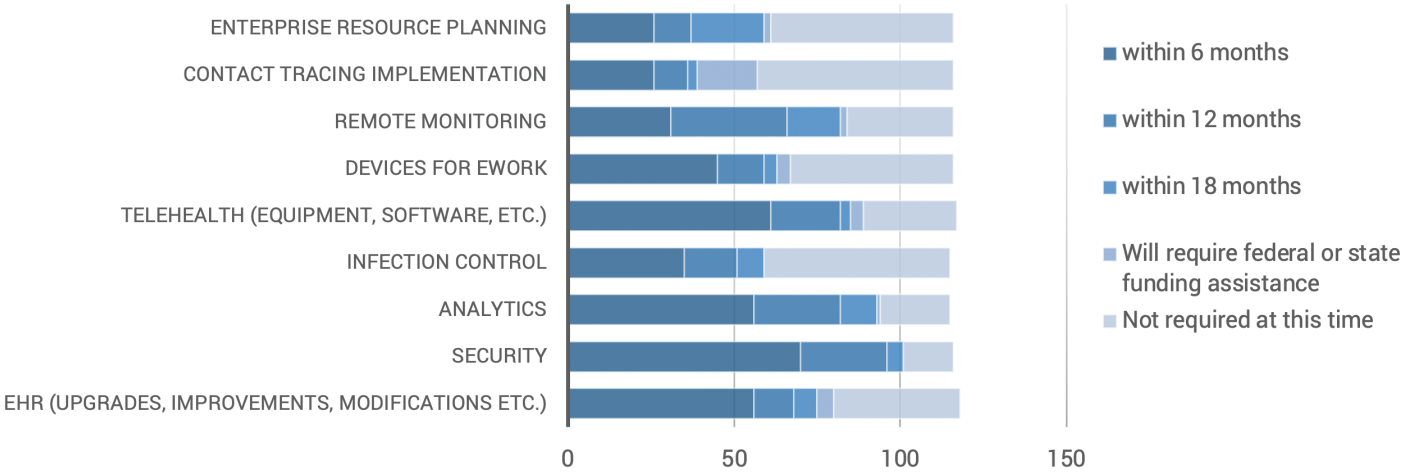
INVESTMENTS ARE NEEDED, PARTICULARLY IN THE AREA OF SECURITY

The health system rapidly adapted to changes in care delivery and the rise of a remote workforce. These adaptations have brought with them security challenges that will necessitate infrastructure investment. The number of cyberattacks in the health sector escalated during the pandemic with increasingly sophisticated tactics. Most respondents anticipated making investments in security within the next 12 months.

INVESTMENTS ARE NEEDED, PARTICULARLY IN THE AREA OF SECURITY CONTINUED

Telehealth and telework are widely expected to continue. Respondents expected investments in technologies that support telehealth and virtual care. Other investments will be needed to accommodate a changing work environment, including devices to support remote employees and facility reconfiguration to allow for social distancing of onsite staff. Investments in analytic tools and electronic health records (EHRs) also are a priority.

WHEN DO YOU ANTICIPATE YOUR ORGANIZATION MAKING INVESTMENTS IN THE FOLLOWING CATEGORIES?



LESSONS LEARNED AND NEXT STEPS

The agility, resourcefulness and ingenuity of digital healthcare executives and their teams during the pandemic helped to ease some of the burdens the COVID-19 pandemic placed on their healthcare organizations. Healthcare systems have shown they can be flexible and adapt when faced with a crisis. Perhaps the most striking example is the successful adoption of telehealth. The urgent need to care for patients without exposing them or clinicians to the virus paved the way for widespread acceptance of a platform that previously was not widely used or embraced.

The next chapter in the pandemic – the distribution and administration of vaccines – offers a ray of hope; it also raises a myriad of new challenges. Concurrently, healthcare systems are still treating patients for COVID-19, with more transmissible variants fueling concerns. Healthcare IT teams are now being tasked to find solutions that support vaccine rollouts, vaccine follow-ups, contact tracing and data-related components of COVID-19 testing. After a year battling COVID-19 and facing financial losses, healthcare organizations are stretched thin and their clinical and technical workforces are drained. They are juggling multiple COVID-related initiatives while maintaining existing operations and worry about pandemic fatigue.

Digital healthcare leaders are sensitive to the possibility that remote staff are burned out, feeling isolated, frustrated and struggling to balance work with childcare or remote schooling. They will need resources

to successfully support remote or hybrid work models during the ongoing crisis and beyond. Many recognize that technology is only part of the answer; they also support investing in employee mental health and programs to engage and retain remote staff as well as training to manage a remote workforce.

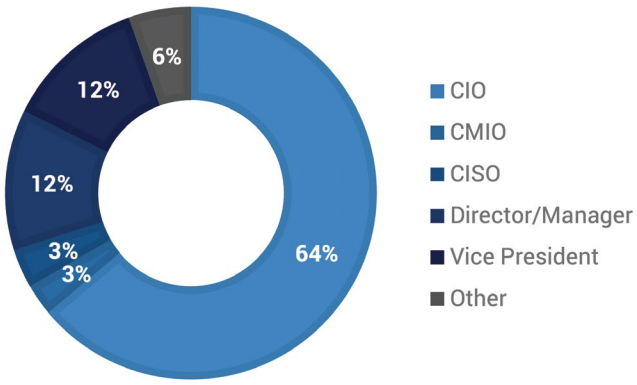
Telehealth is expected to become a permanent feature in healthcare, offering convenient access to patients who are not willing or unable to visit physical centers. Telehealth also may help to address equity issues if broadband can be widely deployed across the U.S. to reach unserved and undeserved communities. Telehealth is only one aspect of virtual care, and the lessons learned from rolling out and refining telehealth during the pandemic provide a roadmap for virtual care. Forward-looking healthcare organizations are developing long-term strategies and building a talent pool to sustain and expand virtual care capabilities. They recognize that introducing new technologies across multiple sites also potentially creates vulnerabilities that need to be addressed with strong cybersecurity and privacy protections.

The benefits demonstrated with telehealth and other advanced technologies have opened doors and minds to other technology-enabled possibilities in healthcare. Time will determine if that is fleeting or durable. The impact from the pandemic likely will be felt for many years across the globe, and COVID-19 is likely to remain an infectious disease that will require careful monitoring and treatment. All signs point to technology playing an essential supporting role with this pandemic and in the future.

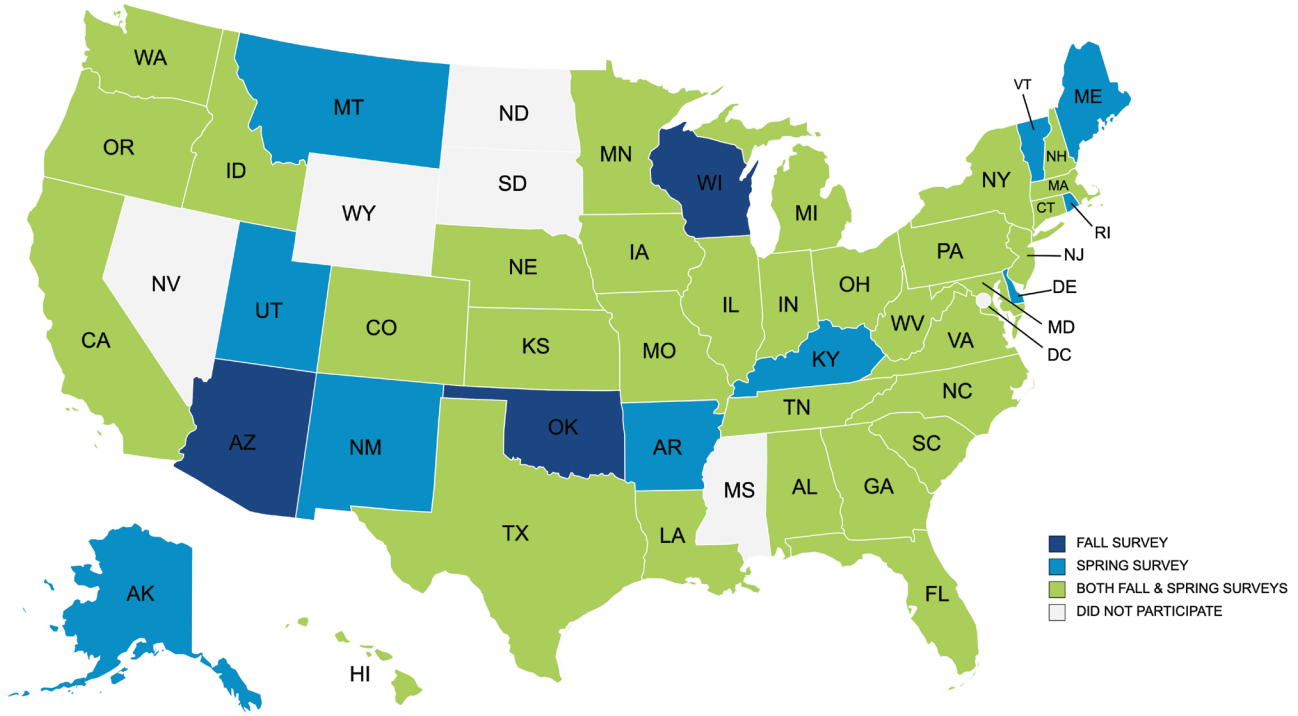
METHODOLOGY

All respondents to the two surveys described earlier had key leadership IT roles within their organizations with the following breakdown:

- 70% had a CIO, CISO, or CMIO role.
- 12% were in director or management roles.
- 18% were in vice president or other executive roles.



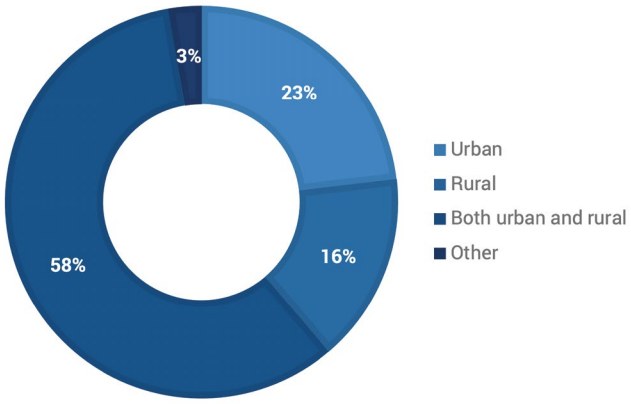
Both rural and densely populated states were represented. California, Texas, Pennsylvania and Florida had the most respondents while North Dakota, South Dakota, Nevada, Wyoming and Mississippi had none.



A broad spectrum of provider organizations participated, with some reporting several types of care:

- 45% multi-hospital system
- 34% ambulatory and outpatient practice
- 24% stand-alone hospital
- 26% academic medical centers
- 16% behavioral health facilities
- 12% specialty hospital
- 11% critical access hospital
- 9% long term-care/skilled nursing facility

Additional responses were received from federally qualified health centers, primary care providers, visiting nurse and home health organizations, pediatric specialties, hospice organizations and tribal health providers.



The sample included a balance of urban and rural populations.