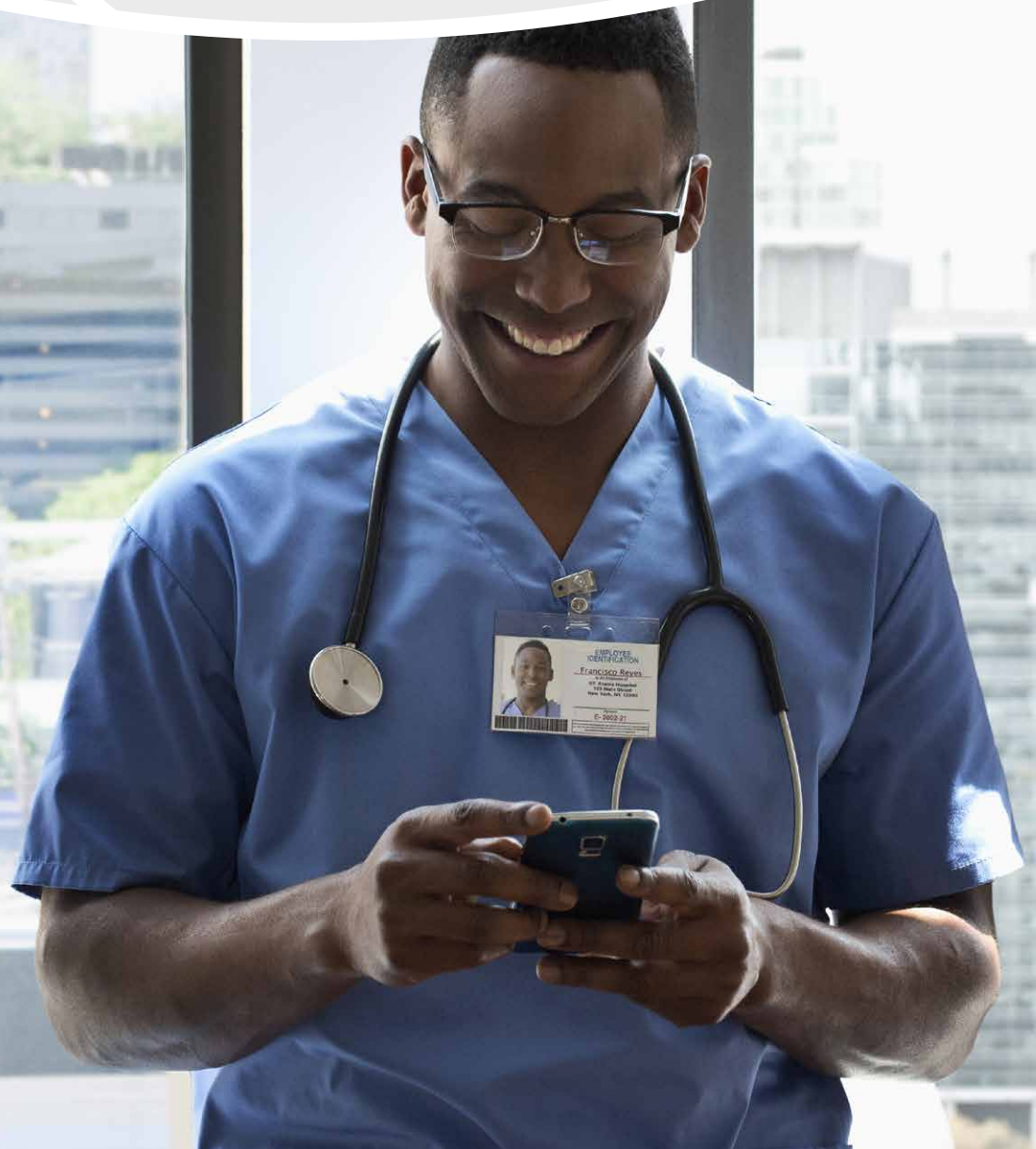2019 REPORT

Mobile Communications in Healthcare

9TH ANNUAL SPOK SURVEY

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Mobile communications in healthcare: An ever-changing landscape

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Technology is accelerating at an exponential rate never seen before. During the 19th century, there was more technological change than in the previous nine centuries combined. In the first 20 years of the 20th century, we made more advancements than in the entire 19th century. Now, these shifts happen in just a few years' time. Communications in healthcare is no exception.

We conducted our first survey on mobile communications in healthcare in 2011. At that time, the state of smartphones in healthcare required organizations to develop and establish clear mobility strategies. Our survey largely focused on understanding those strategies—what they included, who was involved and the role bring your own device (BYOD) policies played.

As a reminder, in 2011:

- The U.S. Supreme Court agreed to hear arguments to determine if elements of the Affordable Care Act, signed into law in 2010, were unconstitutional.

- Many healthcare organizations were undergoing intense work on their electronic health record systems (EHRs) to meet the incentives of the American Recovery and Reinvestment Act.

- Only 38% of healthcare organizations had mobile technology policies.

- A short four years had passed since the introduction of the Apple iPhone in 2007, which launched the smartphone revolution.

- Just 35% of Americans owned smartphones (now, in 2019, that number is 81%).

- Mobile use among older generations was modest. In 2011, only 25% of Boomers owned smartphones. In 2019, 79% of U.S. adults ages 50–64 and 53% ages 65+ own smartphones.

As healthcare, technology and their intersection has drastically changed since 2011, so too have our survey questions and goals. In 2019, as mobile devices are more firmly rooted in healthcare organizations and strategies are well-developed and implemented, our focus has shifted to the "next phase" of mobile communications in healthcare—the biggest opportunities, ways to include patients and families, and understanding where mobile devices are invaluable.

In our ninth annual survey, we seek to understand where mobile communications are in 2019, the plans healthcare professionals have for the future and how responses have changed over time.

Survey participants

Spok collected online responses in June 2019. In total, 460 healthcare professionals across the U.S. participated. The participants covered a wide range of roles—38% of respondents were physicians, nurses, or other clinicians; 21% were IT and telecommunications staff; 10% were executive leaders; and 7% were clinical application staff. The remaining 24% included business analysts, pharmacists, and roles related to patient services.

For the first time in the history of our survey on mobility, more than half (59%) of survey participants were either clinicians or IT and telecommunications staff.

Who uses mobile devices in healthcare in 2019?

It likely comes as no surprise—a large majority of healthcare organizations permit mobile device use for hospital staff. Physicians were selected as the staff most often permitted to use mobile devices at 90%, followed by administrators (84%), nurses (79%), and IT staff (76%).

The same is true of nonclinical staff who rely on a variety of devices to perform their work. Survey respondents reported nonclinical staff use pagers (53%), smartphones (17%), Wi-Fi phones (13%), voice badges (6%), and tablets (4%). Of the 7% who selected "other," many were unsure what devices were used by nonclinical staff.

Which hospital staff members are permitted to use mobile devices for work purposes at your organization?

90%
Physicians

84%
Administrators

79%
Nurses

76%
IT staff
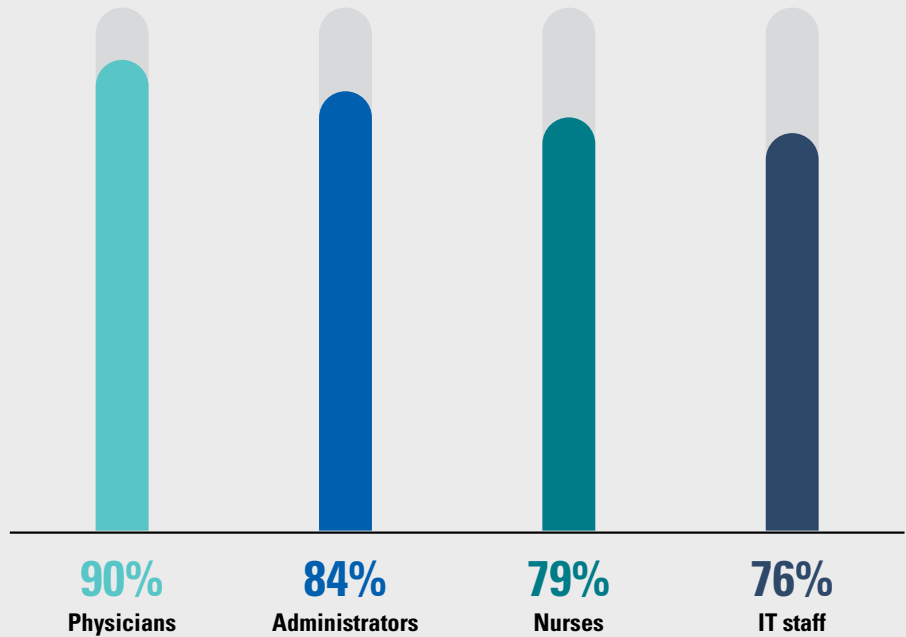
Nurses have the biggest change over time in smartphone use.

53%
2011

VS.

79%
2019
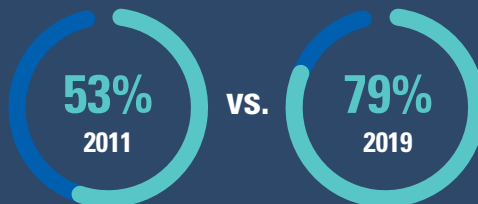
In 2011, 53% of nurses reported using smartphones. That number has jumped to 79% in 2019 (assuming nurses who are permitted to use mobile devices do use them).
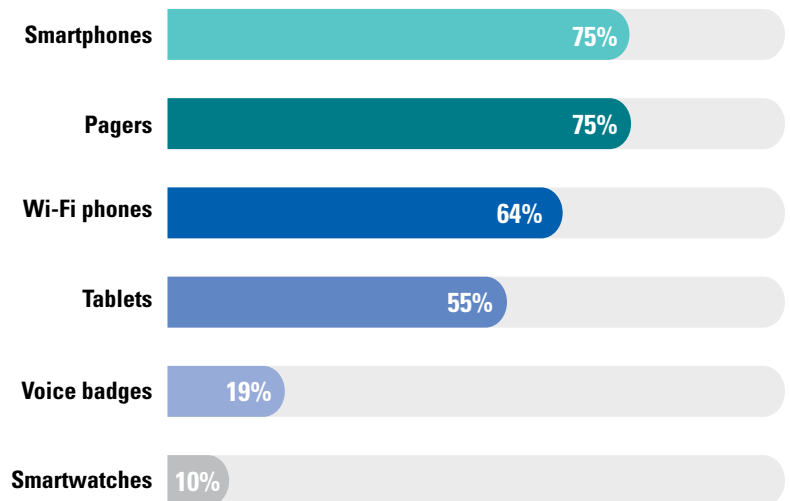
What types of devices are supported?

Survey respondents report their organizations support a variety of mobile devices. In 2019, smartphones are supported by 75% of organizations, and 75% of organizations support at least one type of pager. Sixty-four percent support Wi-Fi phones, 55% tablets, 19% voice badges, and 10% smartwatches.
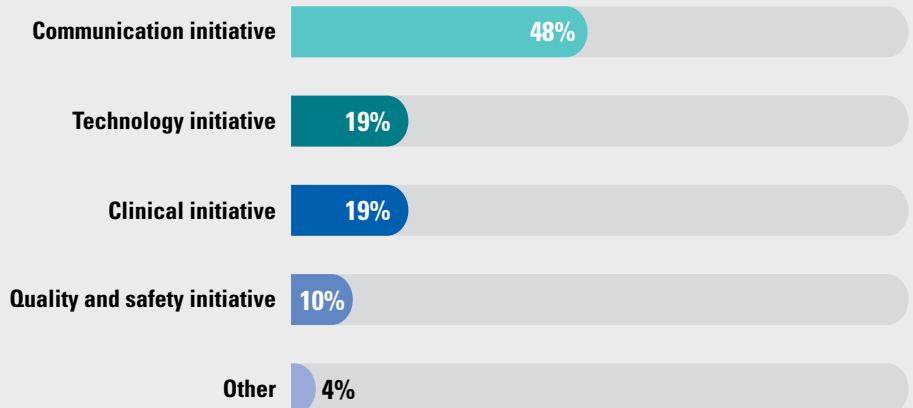
New devices introduced in our survey since 2011 include smartwatches, voice badges, and encrypted pagers. In 2017, encrypted pagers became a device option. Now, it's a device supported by 27% of organizations.
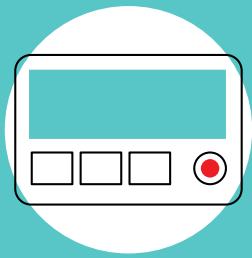
Though still the least-supported device in 2019, smartwatches have seen steady increases since their introduction in 2015. In 2015, smartwatch usage was supported by a mere 4% of organizations, and has jumped to 10% in 2019.

Organizations' support of mobile devices

Device	%
Smartphones	75%
Pagers	75%
Wi-Fi phones	64%
Tablets	55%
Voice badges	19%
Smartwatches	10%

The use of mobile devices is considered primarily a:

| Initiative	%
Communication initiative	48%
Technology initiative	19%
Clinical initiative	19%
Quality and safety initiative	10%
Other	4%

The role of pagers

Though communication devices in healthcare have shifted since our first survey in 2011, pagers continue to show their relevancy year-over-year. 2019 was no different.

Nonclinical staff depend on pagers

At 53%, more than half of nonclinical staff—including housekeepers, transport technicians, dietary staff, etc.—use pagers as their primary communication device for work. The remaining 47% use a variety of devices as their primary communication device, including smartphones (17%), Wi-Fi phones (13%), voice badges (6%), and tablets (4%). Of the 7% who selected "other," many were unsure what devices were used by nonclinical staff.

7%
Other

4%
Tablets

6%
Voice badges

13%
Wi-Fi phones

53%
Pagers

17%
Smartphones
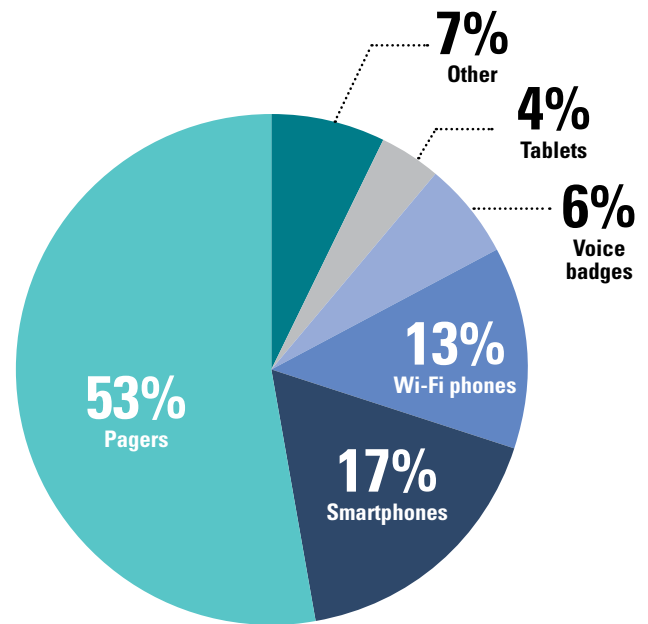
Pagers still have the best coverage

The survey participants selected the coverage area for paging networks as "excellent" or "good" more than any other option, at 65%. Wi-Fi networks followed at 62%, and cellular networks at 51%. Only 7% said paging had "fair" or "poor" coverage, compared to cellular networks at 15%.

"Excellent" or "good" coverage

65%	62%	51%
Paging network	Wi-Fi network	Cellular network

"Fair" or "poor" coverage

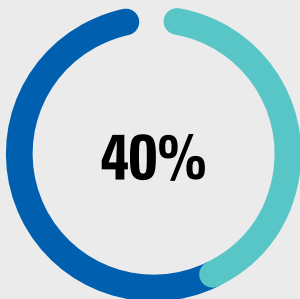| 7%	15%
Paging network	Cellular network
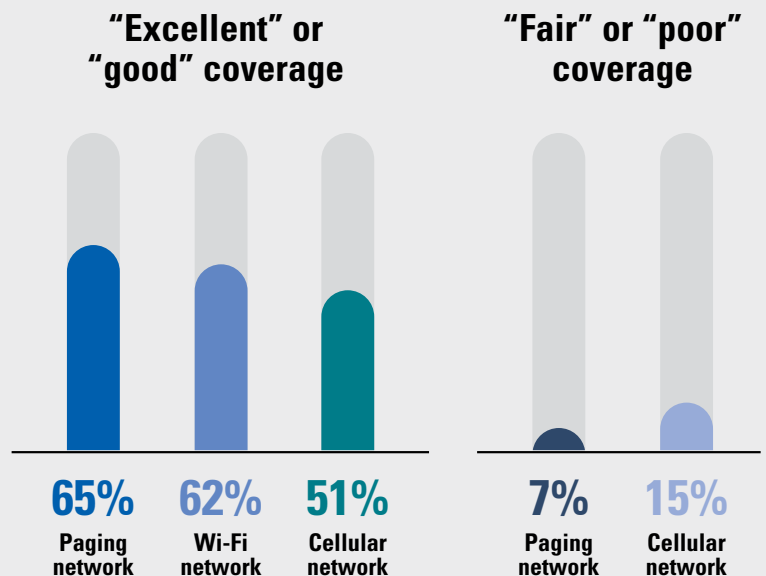
Pagers are still widely supported

When asked which types of devices their organization supports, 75% of respondents selected at least one type of pager. The most common type of pagers supported is onsite pagers (57%), followed by wide-area pagers (40%) and encrypted pagers (27%).
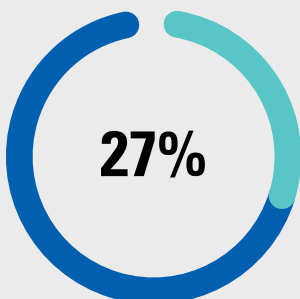
Supported pagers

57%

Onsite
pagers

40%

Wide-area
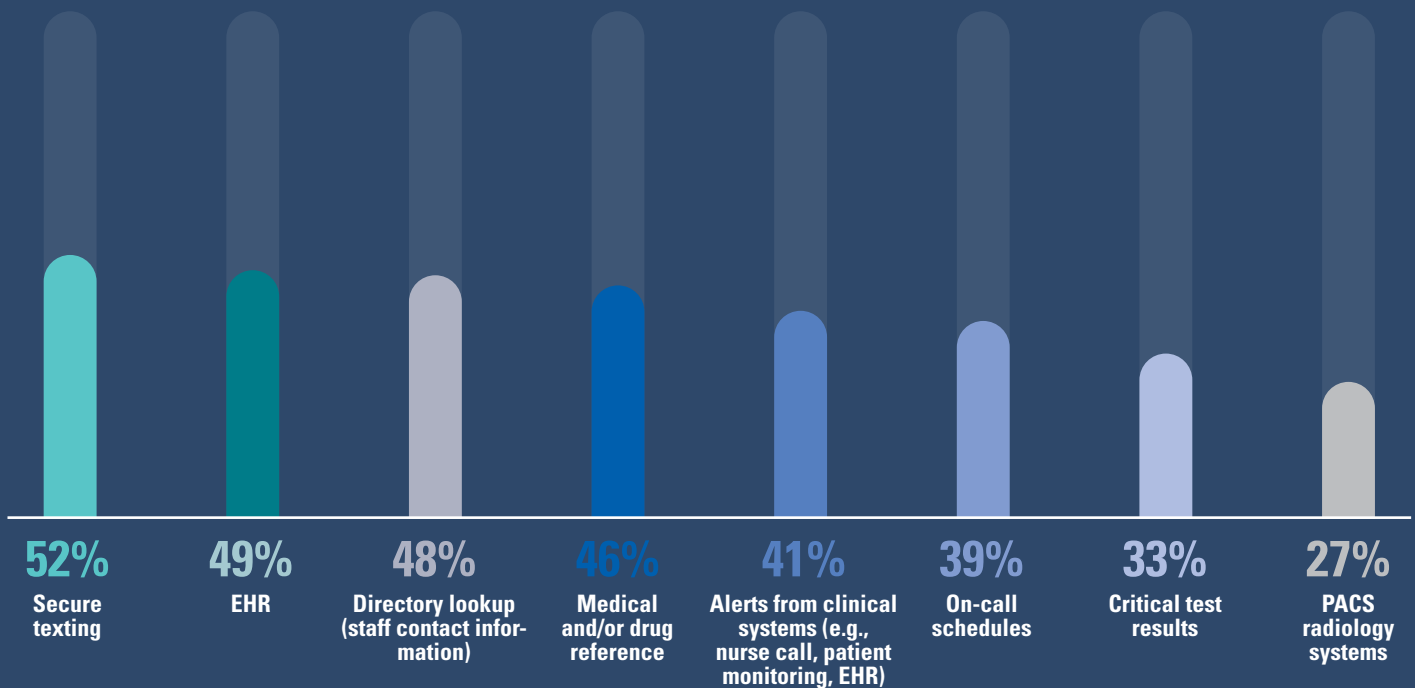pagers

27%
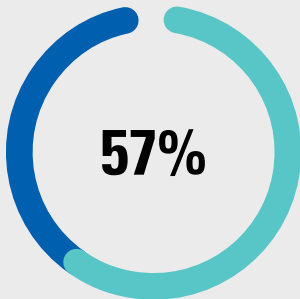
Encrypted
pagers

How are devices used?

Among the hospital-approved systems and applications users access through their smartphones and tablets, respondents reported similar uses.

What types of hospital-approved systems and applications can smartphone and tablet users access?

52%
Secure texting

49%
EHR

48%
Directory lookup (staff contact information)

46%
Medical and/or drug reference

41%
Alerts from clinical systems (e.g., nurse call, patient monitoring, EHR)

39%
On-call schedules

33%
Critical test results

27%
PACS radiology systems

In what activities are mobile communication devices essential?

As a new question in 2019, we asked respondents to identify the essential functions of mobile communication devices. Almost 80% identified communicating with care team members as essential, followed by delivering real-time clinical information (67%), receiving actionable information, such as nurse call alerts (67%), and sending and receiving protected health information (60%). Almost half also identified sharing information from the EHR as essential. The activity identified most often as not at all important was providing real-time web-based education for clinical staff (21%).
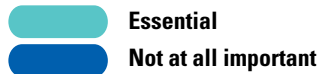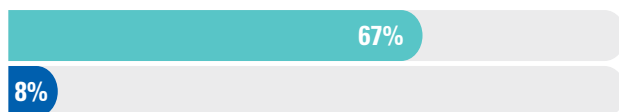
Essential

Not at all important

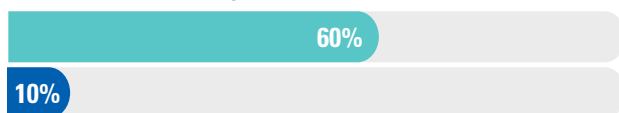**Communicating with care team members**
79%
2%

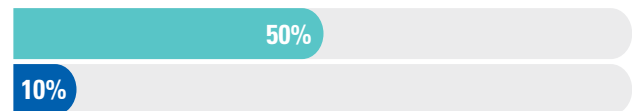**Receiving actionable information, such as nurse call alerts**
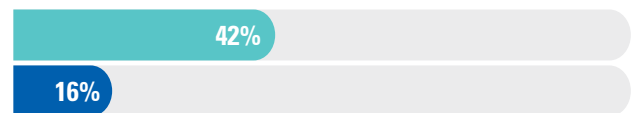67%
8%
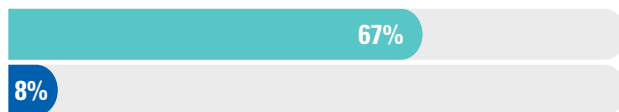
Delivering real-time clinical information
67%
8%

Sending and receiving protected health information (PHI)
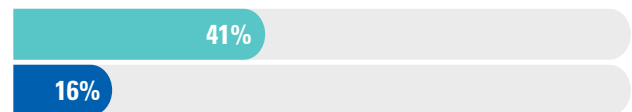60%
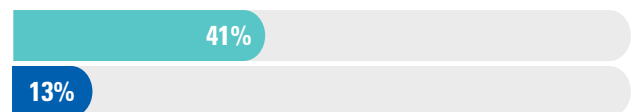10%

Sharing information from the EHR
50%
10%

Accessing and making changes to on-call schedules
42%
16%

Accessing and making changes to staff shift schedules
41%
16%

Communicating with patients and families
41%
13%

Providing real-time web-based education for clinical staff
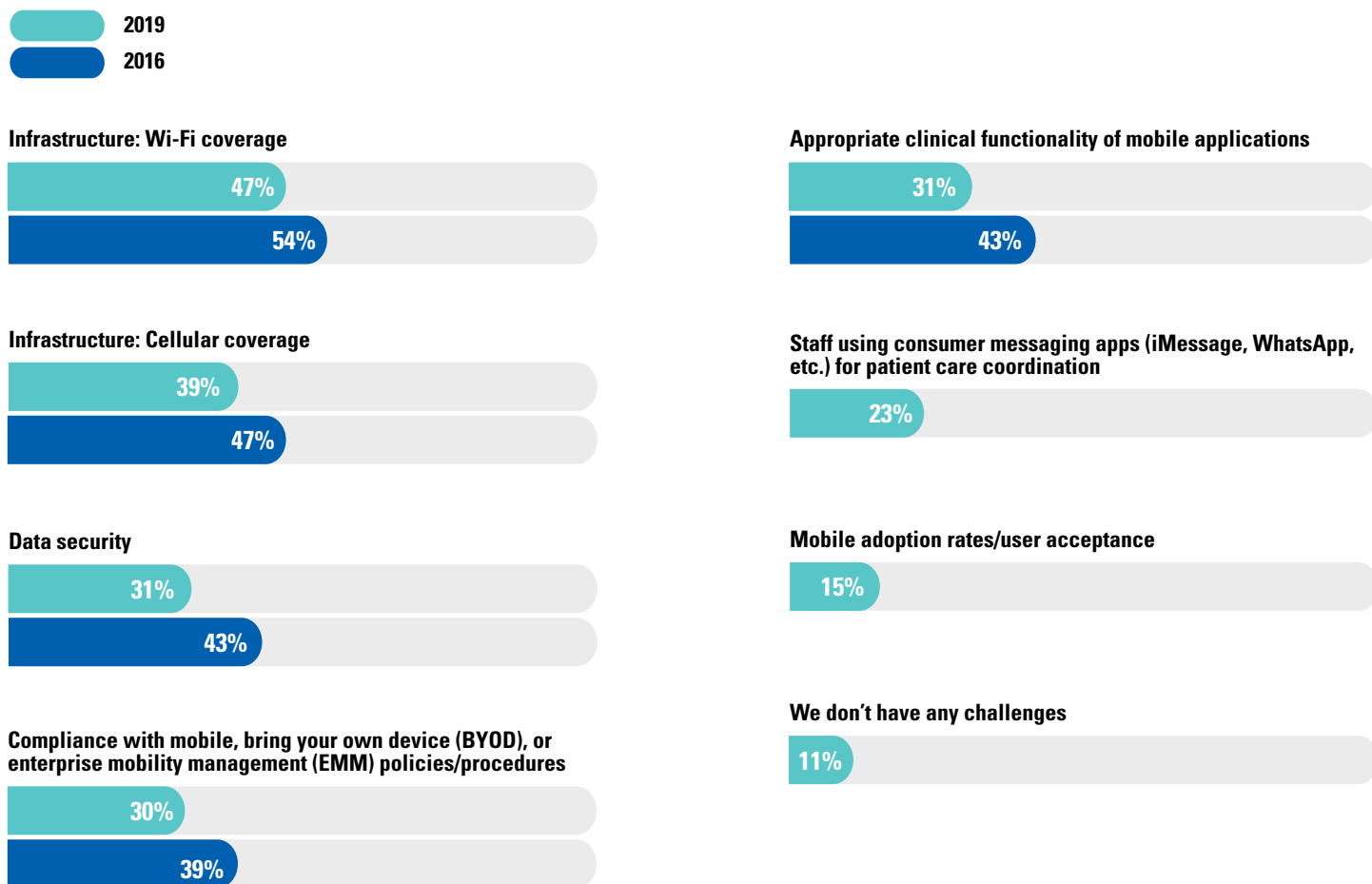36%
21%

What mobile communication challenges do healthcare organizations face?

Hospitals are making progress in improving the challenges they face in mobile communication. Since 2016, respondents noted improvements across the board in areas such as infrastructure, data security, and compliance. However, the results indicate there is still room for improvement, with Wi-Fi coverage still a challenge for 47% of respondents. Some respondents reported having no challenges in mobile communications, at 11%.

In 2019, we added an option about consumer messaging apps (iMessage, WhatsApp, etc.) for use in patient care coordination. Almost a quarter of respondents indicated this is a challenge. This suggests that although hospital guidelines generally prohibit the use of consumer apps to protect patient health information, hospital staff are still using them.
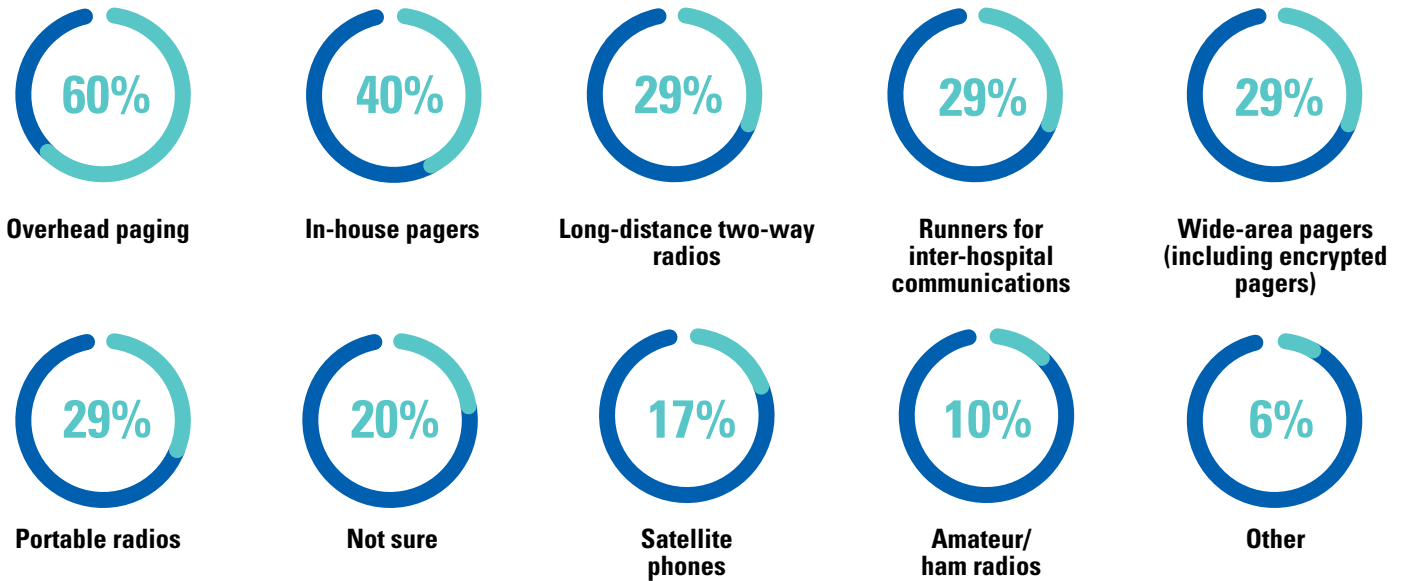
What challenges are you experiencing with mobile device usage at your hospital?

2019
2016

Infrastructure: Wi-Fi coverage

47%

54%

Infrastructure: Cellular coverage

39%

47%

Data security

31%

43%

Compliance with mobile, bring your own device (BYOD), or enterprise mobility management (EMM) policies/procedures

30%

39%

Appropriate clinical functionality of mobile applications

31%

43%

Staff using consumer messaging apps (iMessage, WhatsApp, etc.) for patient care coordination

23%

Mobile adoption rates/user acceptance

15%

We don't have any challenges

11%

Backup plans

In case of an emergency when cellular networks are down or overloaded, most (60%) respondents identified using overhead paging as a backup plan, followed by in-house paging (40%). Approximately 20% did not know what their backup plan was in case of emergency.

What backup plans for communication are in place for when cellular networks are down or overloaded?

60%
Overhead paging

40%
In-house pagers

29%
Long-distance two-way radios

29%
Runners for inter-hospital communications

29%
Wide-area pagers (including encrypted pagers)

29%
Portable radios

20%
Not sure

17%
Satellite phones

10%
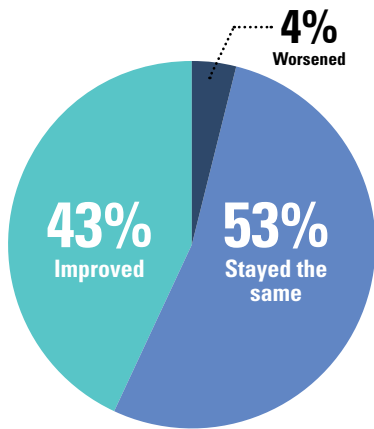**Amateur/ ham radios**

6%
Other

Interestingly, though 60% of respondents identified overhead paging as a backup plan, it was also the option most frequently chosen to have poor reliability among communication channels for sharing clinical information, with 9% reporting "poor" reliability on a scale from poor to excellent
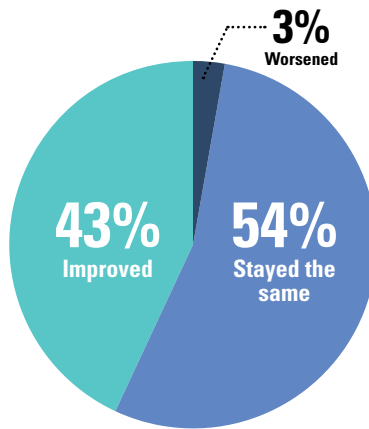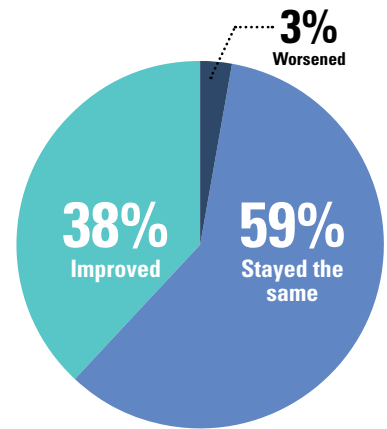
Overall, a stable environment

Consistent with respondents reporting no challenges with mobile communications for the first time, the majority of respondents also feel the speed, ability to reach others, and information quality had either stayed the same or improved in the past year, which is another indicator of progress.

4% Worsened

43% Improved   **53%** Stayed the same

Speed

3% Worsened

43% Improved   **54%** Stayed the same

Ability to reach others

3% Worsened

38% Improved   **59%** Stayed the same

Information quality

How does the future look?

When asked about the future in mobile communications, the survey told a story of varying priorities and strategies. The results of the survey did not show one consistent trend or clear vision for the future of mobile communication in healthcare.
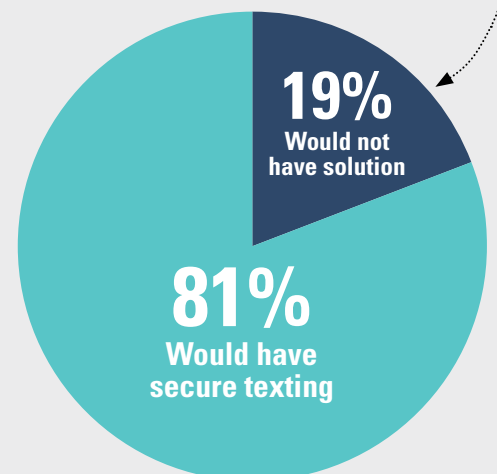
The future: Secure texting?

Though most (56%) of the respondents have a secure messaging/texting solution, of the 44% who do not, 57% are evaluating one. If those who are evaluating a solution implement one in the near future, 81% of all respondents would have a secure texting solution at their organization.
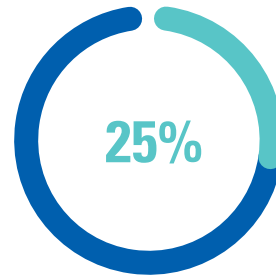
56% Currently have solution

44% Do not have solution

57% Evaluating
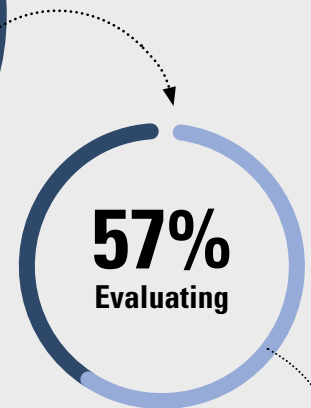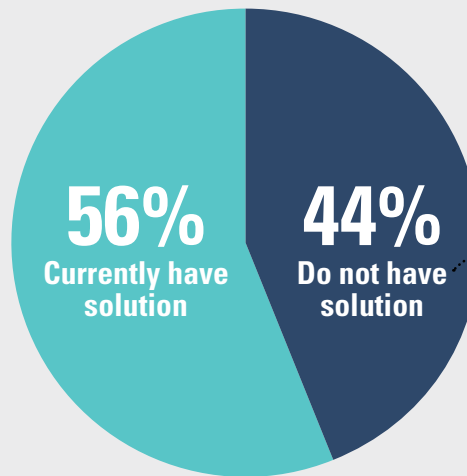
Secure texting

If implemented

19% Would not have solution

81% Would have secure texting

The future: One of many opportunities?

The healthcare professionals who participated in the survey varied on their goals for mobile communication in the next 3–5 years. There is not one trend that stood out among the various options. Implementing secure text messaging, improving communication between devices and the EHR, and improving Wi-Fi coverage all received equal weight, with each option selected by 25% of healthcare professionals. Only 6% chose improving business continuity planning as the biggest opportunity.
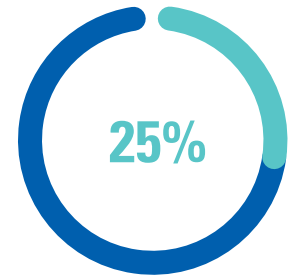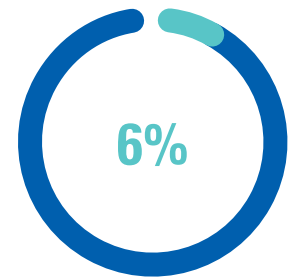
25%

**Implementing secure
text messaging**

25%

**Improving communication
between devices and the EHR**

25%

**Improving Wi-Fi
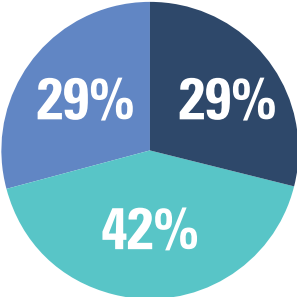coverage**

6%
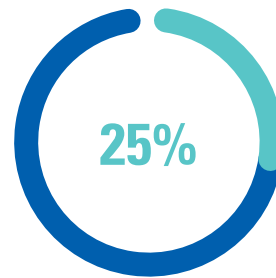
**Improving business
continuity planning**

The future: Mobile communications and patient engagement?

We asked when mobile solutions will be used to communicate information with patients and families, including patient chart access, appointment reminders, secure messaging, bill pay, and wayfinding. If respondents don't currently offer these services, they often had no plans or were unsure about a timeline for implementation, suggesting extending mobile communications to patients and families is not a top priority at this time.
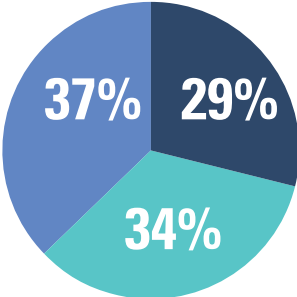
Timeline to extend mobile solutions to patients and families

- **Now** (medium blue)
- **In the next 5 years** (dark blue)
- **No plans or unsure** (teal)

Patient chart access
- 29% (Now)
- 29% (In the next 5 years)
- 42% (No plans or unsure)

Appointment/follow-up reminders
- 37% (Now)
- 29% (In the next 5 years)
- 34% (No plans or unsure)

Secure messaging
- 31% (Now)
- 35% (In the next 5 years)
- 34% (No plans or unsure)

Bill pay
- 28% (Now)
- 25% (In the next 5 years)
- 47% (No plans or unsure)

Wayfinding
- 11% (Now)
- 31% (In the next 5 years)
- 58% (No plans or unsure)

Conclusion

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When we started our survey on mobile communications in healthcare in 2011, it was impossible to anticipate how quickly healthcare organizations would use mobile communication technology to improve efficiency and outcomes. In 2019, healthcare professionals reported more use, fewer challenges, and varying strategies on what's next for mobility in their organization.

Infrastructure as a challenge

As the priorities and emerging challenges in healthcare shift, no one can say for certain how mobile communications will evolve in 2020 and beyond. The results of the survey suggest continued room for improvement exists for Wi-Fi and cellular network infrastructure. Though organizations report fewer challenges with Wi-Fi and cellular coverage than in previous years, progress has been slow. Wi-Fi coverage is still a challenge for 47% of respondents (a decrease of 8% in three years). Similarly, 39% reported cellular coverage as a challenge (a decrease of 7% in the same period).

Do challenges impact patient communication?

These consistent challenges in coverage may influence the uncertainty around extending mobility solutions to patients and families. Most respondents had no plans or were unsure about implementing mobile solutions outside of their staff in areas of patient chart access, secure messaging, bill pay, and wayfinding. Only appointment reminders were selected as currently being implemented (37%) more often than having no plans or unsure of plans (34%).

Protecting patient health information

As we reflect on the history of mobile communications and work to understand the future, there remains one necessary commitment—to protect patient health information. No matter how patient care coordination may shift, it's crucial these changes keep the protection of patient data at the forefront. With 23% of respondents reporting staff use of consumer messaging apps (iMessage, WhatsApp, etc.) for patient care, it's imperative these organizations address the security risks of these apps.

Though mobile devices are now firmly rooted in hospitals, challenges still exist—particularly in infrastructure, expanding to patients and families, and protecting patient health information. We are certain healthcare professionals will continue to work tirelessly on these challenges to improve patient outcomes and make technology decisions that will escalate the quality of care.

Are you interested in staying up-to-date on Spok research on mobile communications and other issues healthcare leaders face? Sign up today.

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ABOUT SPOK, INC.

Spok, Inc., a wholly owned subsidiary of Spok Holdings, Inc. (NASDAQ: SPOK), headquartered in Springfield, Virginia, is proud to be a global leader in healthcare communications. We deliver clinical information to care teams when and where it matters most to improve patient outcomes. Top hospitals rely on the Spok Care Connect® platform to enhance workflows for clinicians, support administrative compliance and provide a better experience for patients. Our customers send over 100 million messages each month through their Spok® solutions. Spok is making care collaboration easier.

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