



THE STATE OF
MOBILE
COMMUNICATIONS
IN HEALTHCARE:
DEVICES,
INFRASTRUCTURE,
AND ACCESS

SURVEY RESULTS
PART 2

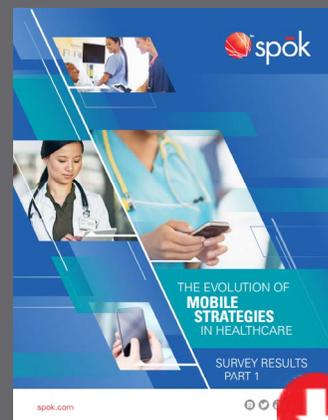
THE STATE OF MOBILE COMMUNICATIONS IN HEALTHCARE: DEVICES, INFRASTRUCTURE, AND ACCESS

Spok has asked healthcare professionals about the state of mobile communications at their hospital since 2011. We have seven years' worth of data that tells an evolving story of mobile devices, their use cases, and the system integrations hospitals choose to support for mobile care team members. This year the survey was expanded to include a deeper dive on specific areas of mobile strategies. We added questions about how long mobile strategies have been in place, how they are monitored and enforced, what strategic hospital goals are part of these plans, and more.

Part 1 of our two-part series presenting the results of our annual survey, *The Evolution of Mobile Strategies in Healthcare*, focused on the bigger picture and overall mobility strategies. This eBrief, the second part of our series, focuses on the details—what devices are supported, what challenges hospitals are experiencing with mobile device usage, and what healthcare professionals see as the biggest opportunities for mobile improvements over the next three to five years.

Our data, collected in February 2017, represents more than 300* healthcare professionals from around the U.S. Twenty-two percent of our respondents were physicians, 13 percent were nursing staff, 10 percent were IT staff, and 7 percent were executive-level leaders. The remaining 35 percent were an assortment of other hospital roles, from risk managers and mobility engineers to infection prevention specialists and a director of quality, risk, and compliance. We hope you find this analysis interesting and informative as you continue your own path toward integrated healthcare communications.

*This figure includes only respondents who answered more than 75 percent of survey questions.



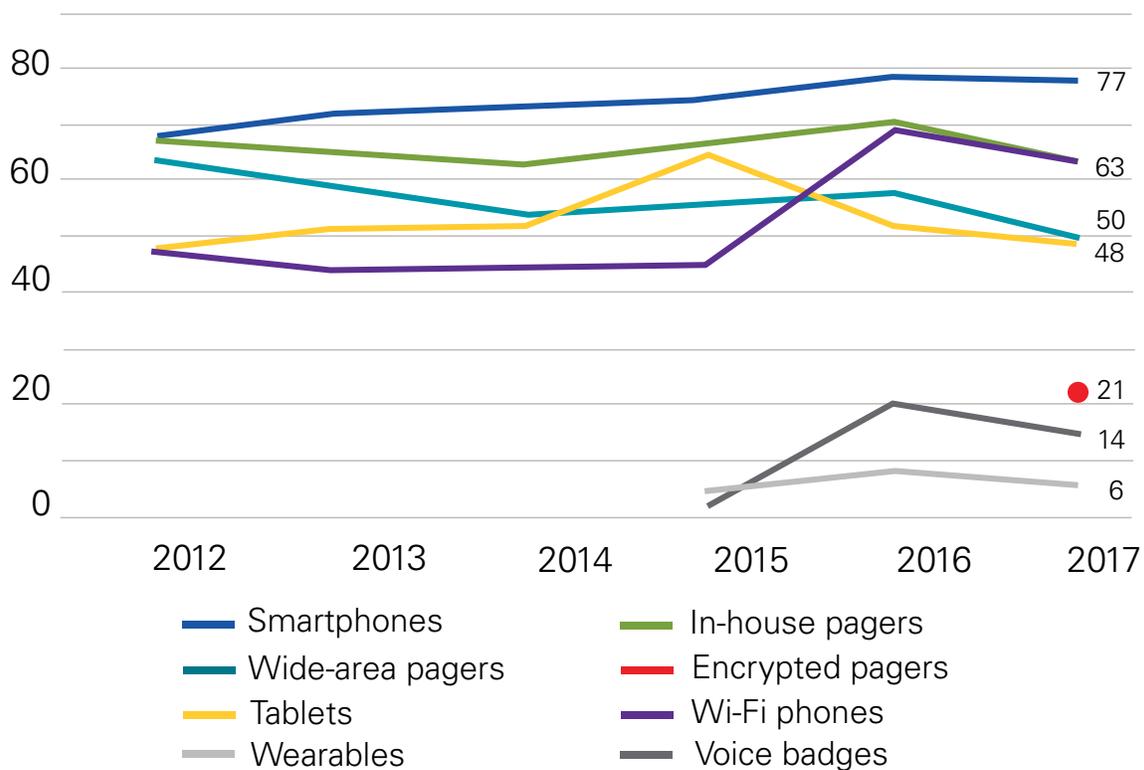
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THE DIVERSITY OF MOBILE DEVICES

Mobile device usage in hospitals has changed significantly over the last seven years. Smartphone use has continually increased, and 77 percent of respondents report that their hospital supports them. Wide-area pagers are gradually declining but are still used by 50 percent of respondents. And then there are the other devices that show a mixed trajectory. In-house pagers initially declined between 2012 and 2014, increased from 2014 to 2016, and this year are reported to have declined again, ending up only four percentage points lower than first reported in 2012. Tablets made a gradual increase from 2012 to 2014, experienced a sharp 13 percent rise in 2015, and then decreased just as quickly and returned to 48 percent this year, the same as 2012. And Wi-Fi phones have declined, increased, and declined again, ending up at 63 percent in 2017.

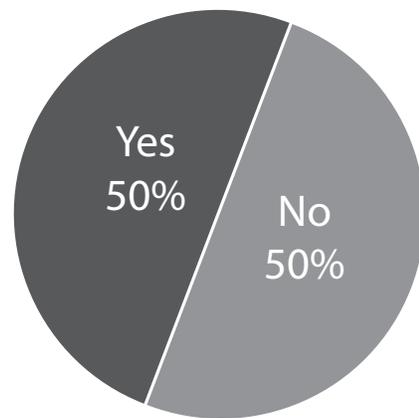
Which types of mobile devices does your organization support? (check all that apply)



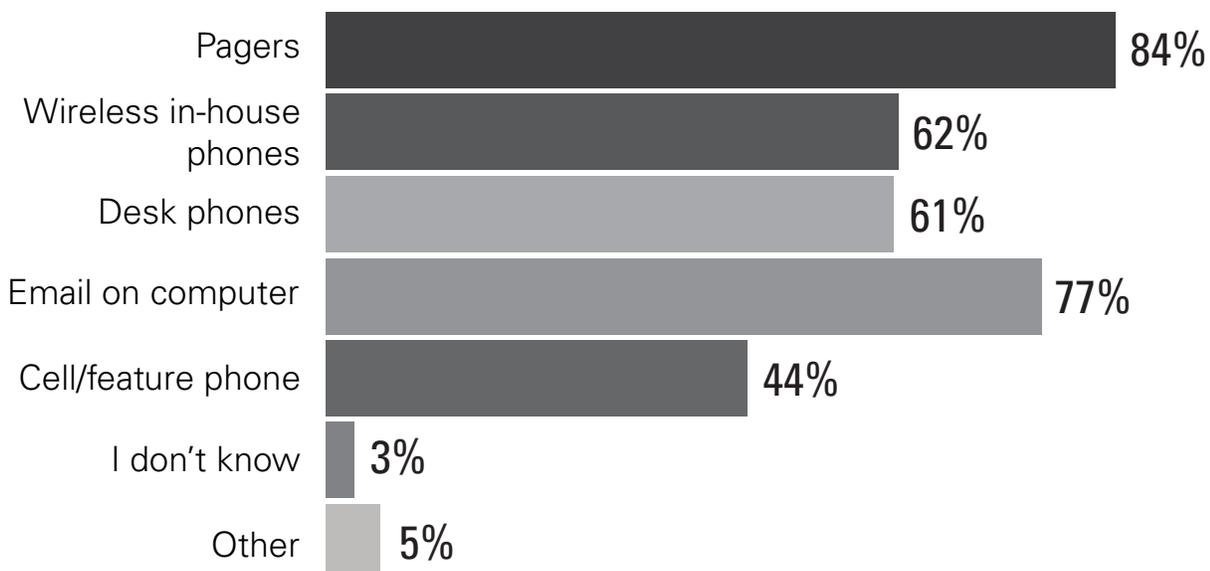
LOOKING BACK AT 2011

The question we used in 2011 is not directly comparable to the one we have been asking since 2012, but it exemplifies the dramatic shifts toward mobility that have been taking place in hospital workflows: The 2011 question included desk phones, email, and regular cell phones as device options for communications. We asked about smartphone usage separately, and 50 percent of respondents said personnel received job-related alerts on a smartphone. If this number is considered the baseline in 2011, smartphone usage has increased 27 percent and become far more mainstream as a communication device within hospitals. Other device types appear to wax and wane in popularity as hospitals try them out, assess what works well and what doesn't, and adjust accordingly. These changes over time clearly show that there is no standard device and that hospitals are still figuring out what is most appropriate for different members of their staff given hospital resources, functional requirements, and staff expectations. For this reason, it remains critical that health systems implement communication solutions that are device neutral.

2011: Does your facility currently send job-related alerts (pages, codes, other critical messages) to personnel on their smartphones?



2011: Which of the following devices do personnel currently use to receive job-related alerts (pages, codes, other critical messages) at your facility? (check all that apply)



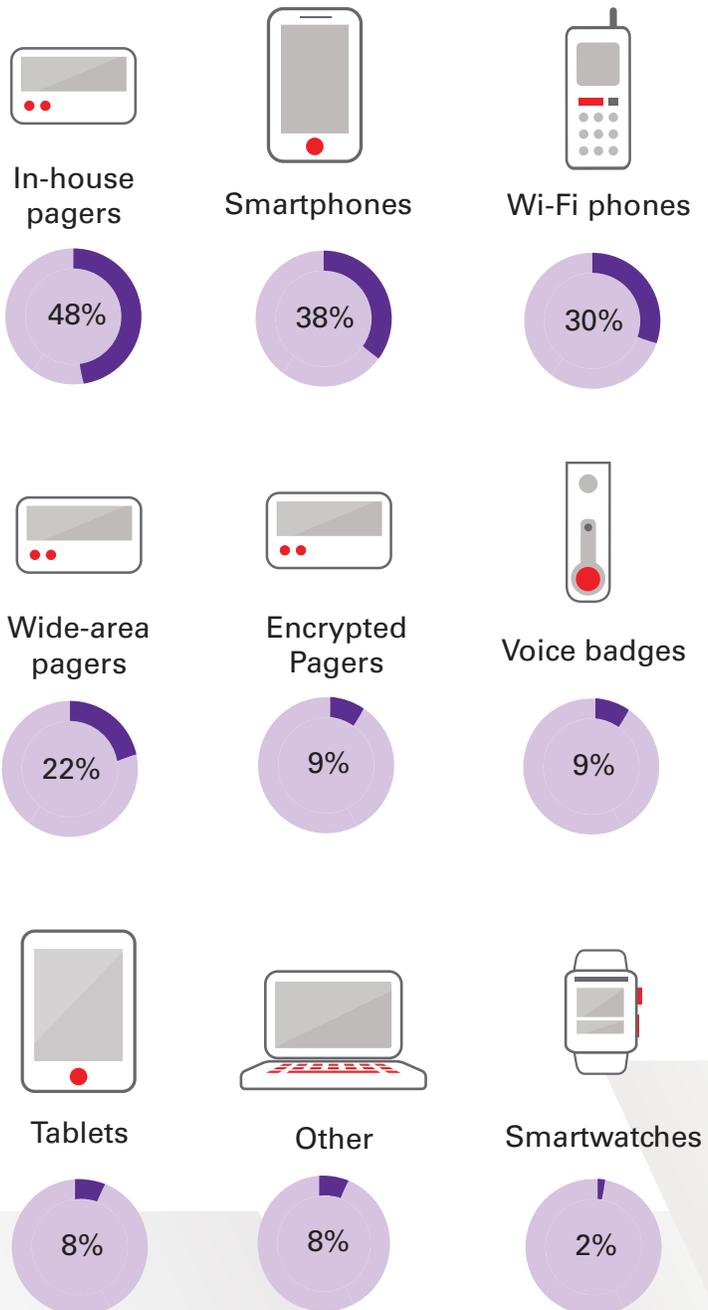


RETURNING TO PRESENT DAY

What is the primary communication device for work carried by non-clinical staff at your hospital (e.g. housekeepers, transport technicians, phlebotomists?) (check all that apply)

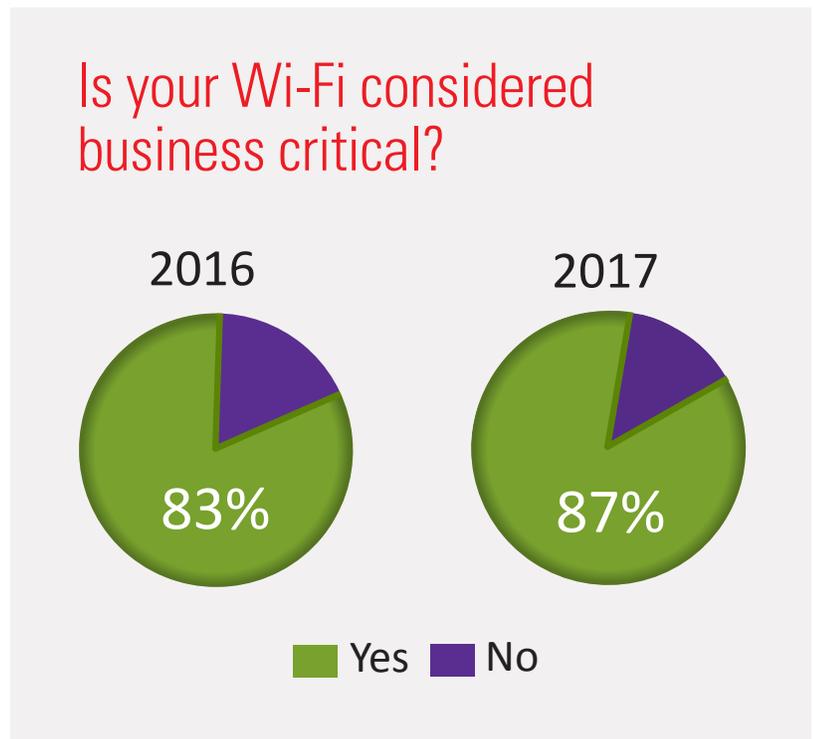
We know from working with our customers that smartphones are not the preferred device for all staff. In order to quantify our observations, this year we specifically asked respondents about the primary devices used by non-clinical staff. In-house pagers dominate as the device of choice for these roles (48 percent), smartphones rank second (40 percent), and Wi-Fi phones came in third (30 percent). This corroborates what we see and hear at hospitals. In-house pagers are often preferred because they cost at least 30 percent less to purchase (up to 87 percent less if compared to purchasing newer smartphones) and approximately 67 percent less per month to operate.¹ Pagers are also easier to set up, operate, and perhaps most importantly, these devices are easy to hand off to staff on the next shift.

¹ Conservatively comparing the approximate unit cost of a Spok T5 pager versus a used iPhone 5, and the average plan costs for a T5 pager and a very basic cellular connection.

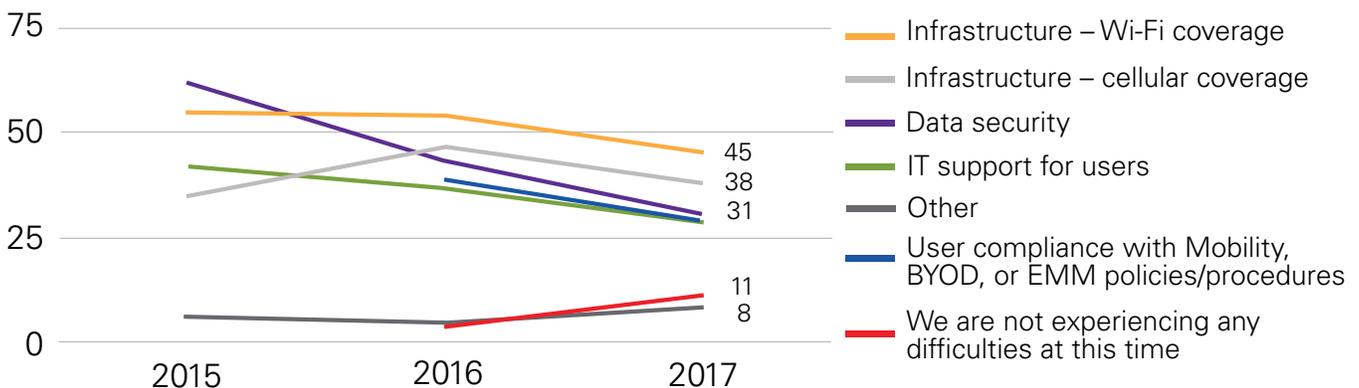


MOBILE DEVICE CHALLENGES

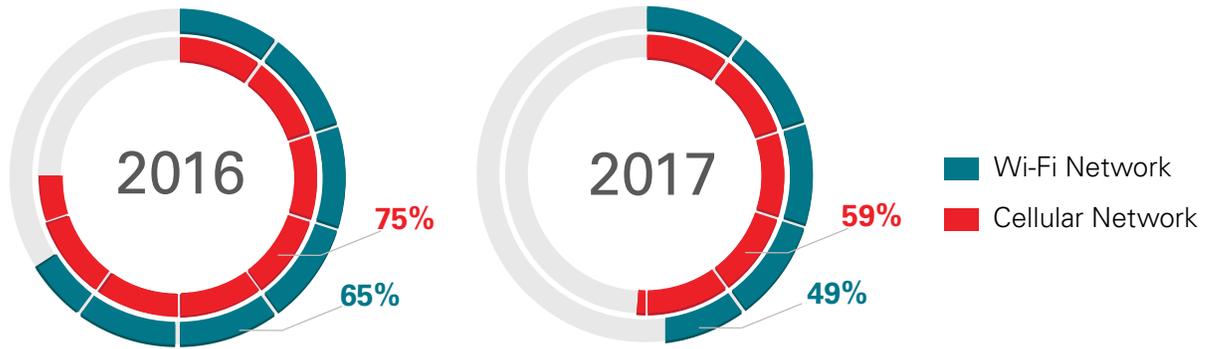
A picture of the mobile device landscape is incomplete without understanding the challenges users experience as well as the supporting infrastructure. Last year when we asked survey participants if their Wi-Fi network was considered business critical, 83 percent said yes. This year that number increased to 87 percent, revealing that the vast majority of healthcare organizations depend on this component of their communications infrastructure. Given that hospitals rely so heavily on the Wi-Fi network, it is not surprising that hospitals are working to make improvements. The number of survey participants citing Wi-Fi coverage as a challenge for mobile device usage dropped from 54 to 45 percent between 2016 and 2017. We also noted declines in other previously reported challenges, such as data security and employee adoption rates for mobile devices, providing further evidence that hospitals are making concerted efforts to improve mobile communications. We also asked healthcare professionals if there are areas of poor network coverage in their hospital and found that these numbers are declining as well. Reported gaps in Wi-Fi coverage have moved from 65 to 49 percent, while reported holes in cellular coverage have dropped from 75 to 59 percent. Taken together, the answers to these three questions show that there is still a lot of room for improvement. However, they also demonstrate that hospitals are aware of these hurdles interrupting mobile communications and are making progress in correcting these issues.



What challenges are you experiencing at your facility with mobile device usage? (check all that apply)



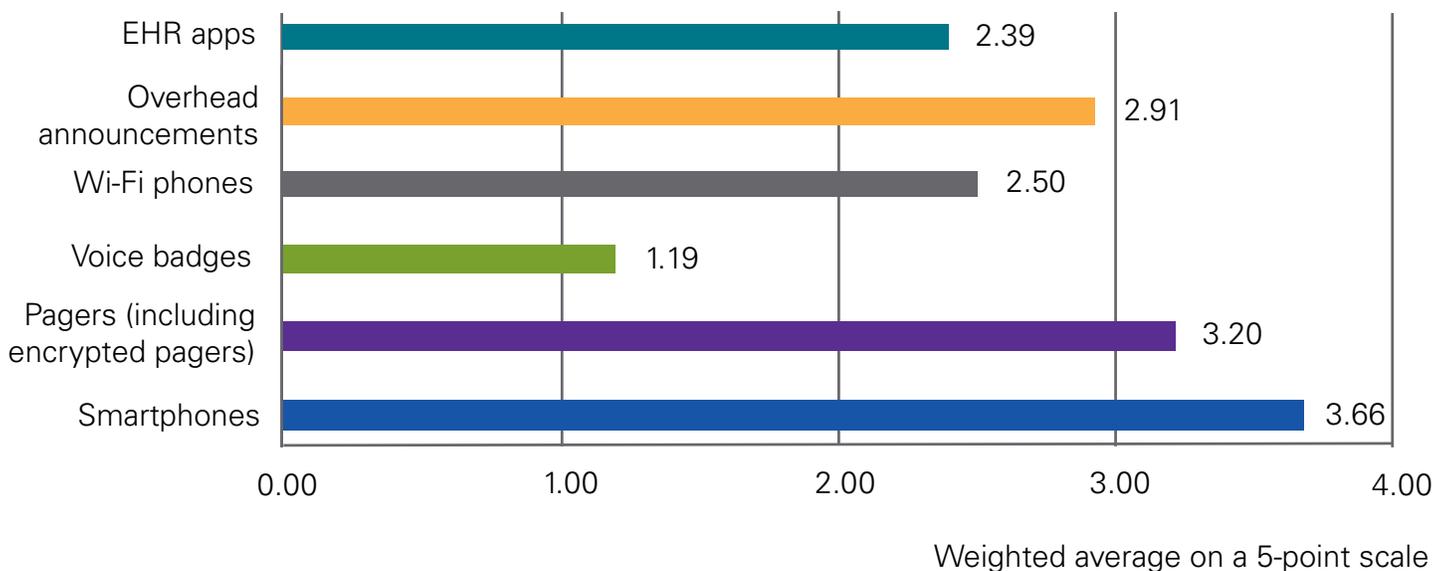
Are there areas of poor network coverage in your hospital? (check all that apply)



COMMUNICATION CHANNELS: RELIABILITY AND CONTINUITY

In addition to asking pointedly about challenges related to communication infrastructure, we also wanted to get a sense for how healthcare professionals feel about various communication options. We asked survey participants for their thoughts on the reliability of communication channels for sharing clinical information. With choices from Poor to Excellent, the weighted averages of the responses reveal that smartphones are perceived as the most reliable, with pagers ranking second and overhead announcements coming in third.

How would you rank the reliability of the following communication channels for sharing clinical information:



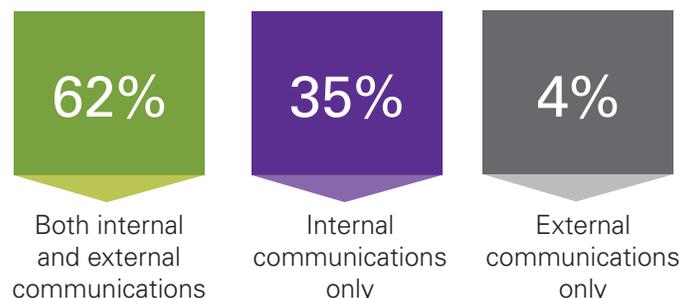
Voice badges ranked the lowest in reliability, perhaps because their usefulness for verbally conveying patient information is limited by HIPAA regulations. However, overhead announcements fall under the same verbal restriction, and respondents ranked it nearly three times as reliable. These are one of the oldest forms of communication on this list, and no matter where you are in the hospital you don't need a special device to receive a critical message such as a code call; perhaps because overhead announcements are familiar and simple and they are perceived as highly reliable. The use cases are also different among all of these communication channel options. Pagers are more reliable in terms of signal availability, but since only certain pager models support two-way messaging, encryption, or longer-form messages, these tools may have lost reliability points when compared with the efficiency of a smartphone for conveying detailed clinical information.

What backup plans or alternative sources of communication are in place for use during times of emergency when cellular networks are either down or overloaded? (check all that apply)



Further exploring the reliability question, we also asked what backup plans or alternative communications are in place for use during emergencies when cellular networks are down or overloaded. In this instance, overhead paging is the overwhelming favorite as a backup communication method for 66 percent of respondents. In-house and wide-area pagers came in second and third at 43 and 32 percent, respectively. Pagers work reliably in disaster situations like hurricanes that can disable cellular and internet networks and disrupt power. It is actually surprising that more hospitals aren't prepared with more diverse communication options in this type of scenario. We examined the data further and found that a full third of respondents, 33 percent, selected only one of these back-up methods, and an additional 4 percent selected 'other' and wrote in that they were uncertain or did not know what communication methods were in place should cellular networks fail. This seems like a topic that warrants closer scrutiny during business continuity planning sessions and disaster drills to test emergency preparedness, especially if 62 percent plan to conduct both internal and external communications with their identified back-up method(s).

Are the emergency communication resources you selected intended to be used for:



ON BEING MOBILE: ACCESS, BYOD, SECURE MESSAGING, AND EMM

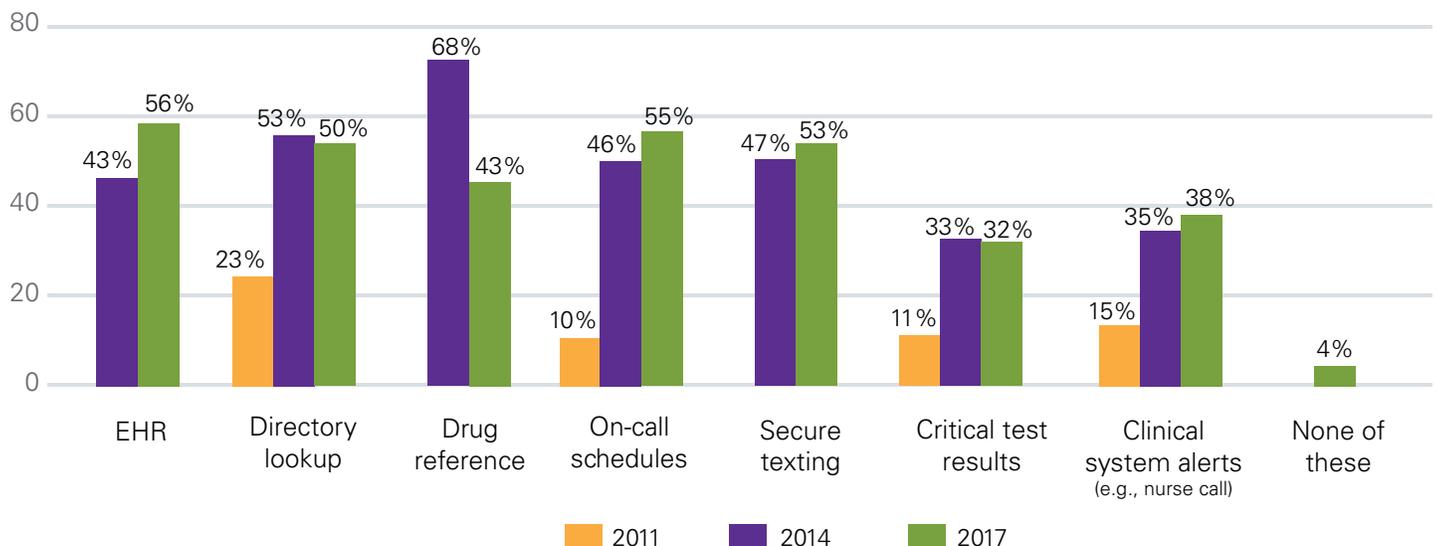
A mobile device by itself is useful, but its value as a tool increases considerably as more information sources are added for important notifications, collaboration tools, reference materials, and interactions with clinical systems. In general, the system access for mobile devices is growing or remaining about the same. Not surprisingly, all options that were included in the survey from 2011 showed significant growth three years later in 2014. The changes in the following three years, from 2014 to 2017, show a 13 percent rise in EHR access, a 9 percent increase in on-call schedule availability, and a modest 6 percent lift in secure texting. The intriguing point here is the 25 percent decline reported for drug reference access. There were more physician and nurse responses than in the past, so perhaps part of this decline is a modest reality adjustment between theoretical availability and practical usage. There could also be a decreased need for drug reference as a separate system because some of this information is now directly incorporated into EHR workflows on the desktop. It will be interesting to watch how these change over time as EHR systems continue to mature at individual locations as CIOs focus on maximizing their usage.



Related Resource

EHRs are fantastic repositories of patient data, but they aren't designed for supporting communications or sharing actionable information in time-sensitive situations. Learn why a dedicated, enterprise-wide communication system that complements the EHR is vital to improving patient outcomes.

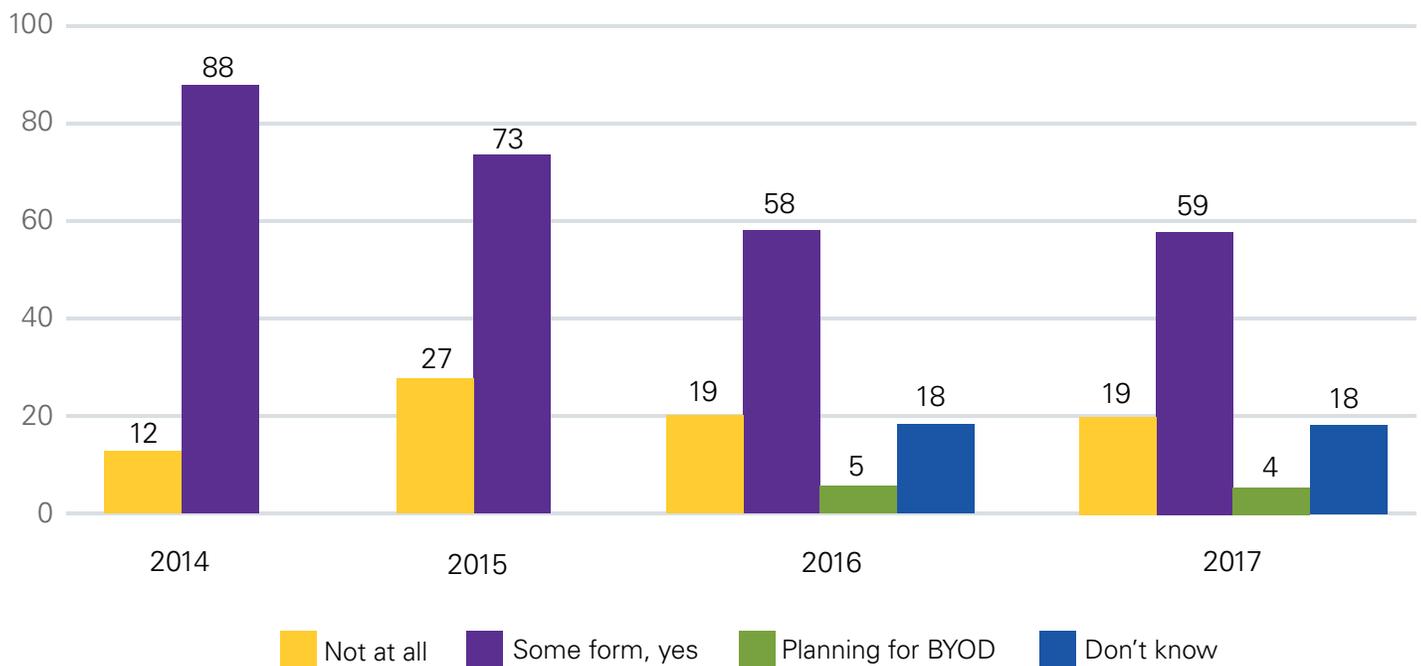
What types of hospital-approved systems and applications do smartphone and tablet users have access to?



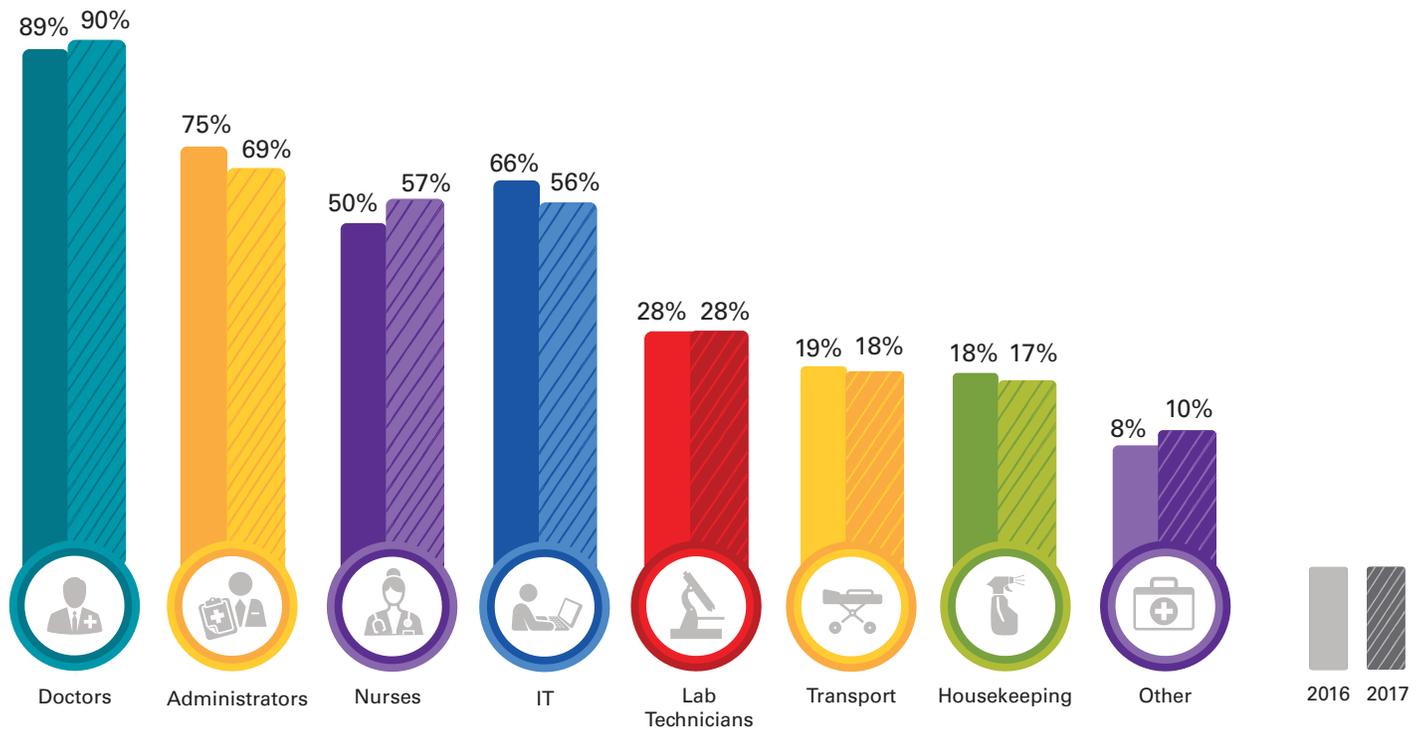
Whether to allow users to access these systems on personal devices is a question many health systems are still assessing, and there is wide variation in approaches. Some hospitals support full 'bring your own device' (BYOD) programs, while others prohibit all staff from using personal mobile devices for hospital-related work. And then there is a wide middle ground where BYOD is supported for some groups of staff and not for others. Overall, the number of respondents reporting that BYOD is permitted has declined from 88 percent in 2014 (the first year we asked this question) to 59 percent in 2017. The number of health professionals reporting that BYOD is not allowed in any form has varied from a low of 12 percent in 2014 to a high of 27 percent in 2015, landing at 19 percent in 2017. Some of this variation between the Yes and No responses from 2014 to 2017 is an artifact of the question which added 'planning for BYOD' and 'I don't know' as additional choices, but the trend is still clear: Whether to allow BYOD is a question that will continue to have differing answers in the foreseeable future.

The healthcare professionals who indicated their organization allows some form of BYOD were further asked which staff members are allowed to participate in the program. The results indicate physicians can use personal devices at 90 percent of hospitals that support BYOD, by far the largest group of participating staff. Nursing staff inclusion has climbed 6 percent and surpassed IT staff for the first time. Personal device usage among both administrators and IT staff declined by 10 percent between 2015 and 2017. BYOD participation among lab and transport technicians as well as housekeepers remains relatively flat. As we noted in last year's survey analysis, the communication requirements are not the same for all of these roles and are most likely the reason for this variation. Nurses and non-clinical staff rely on communications largely during their shift, while physicians also answer patient-specific questions when on call or traveling between locations.

Does your organization currently allow some form of Bring Your Own Device (BYOD)?

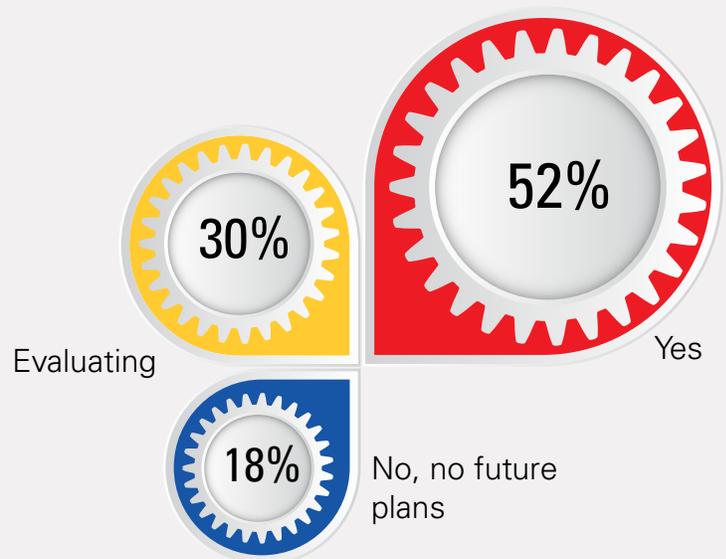


What staff members are allowed to participate in the BYOD program? (check all that apply)

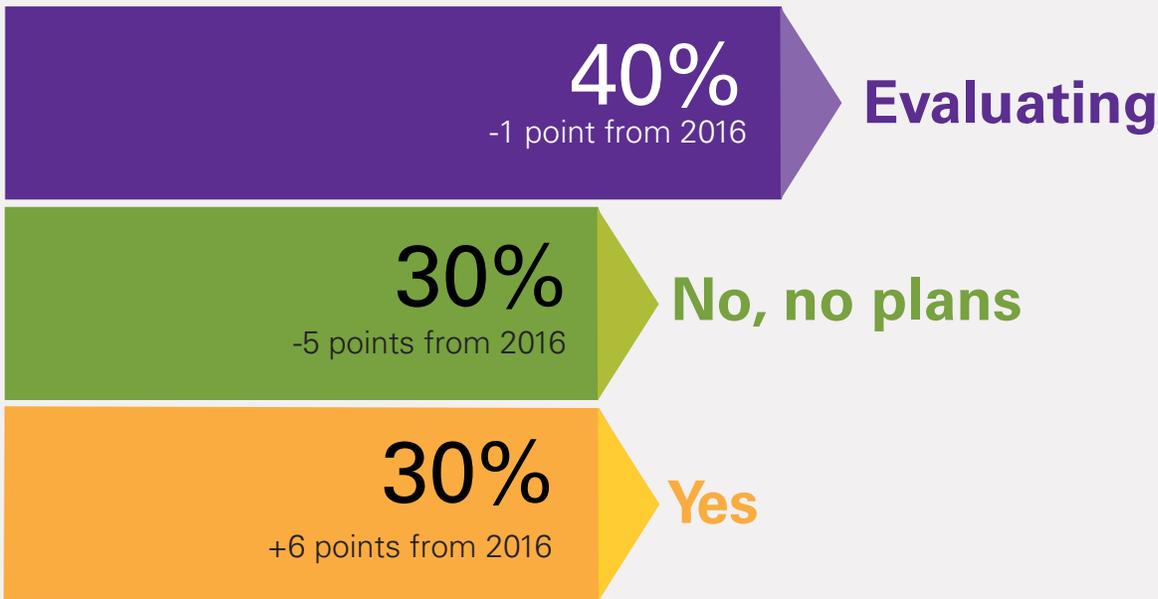


In past years we have asked simply if the respondent's organization used a secure text messaging solution. This year we wanted a little more clarity and added 'evaluating' to the list of options. Last year, 55 percent of participants said yes, their organization allowed secure text messaging. This year that number declined slightly to 52 percent. The important thing to note here that 30 percent of healthcare professionals stated their organizations are thinking about a secure texting app (or perhaps are in the process of purchasing one), while only 18 percent have no plans to add this type of healthcare collaboration solution to their menu of options for mobile device users. In years past these two segments would have been combined and we would have seen that 48 percent of participants do not use a healthcare collaboration solution. This year we are able to see that a third of respondents are considering adding a healthcare collaboration solution to their mobile enablement portfolio, providing further insight on this topic.

Does your hospital use a healthcare collaboration solution (i.e. secure text messaging)?

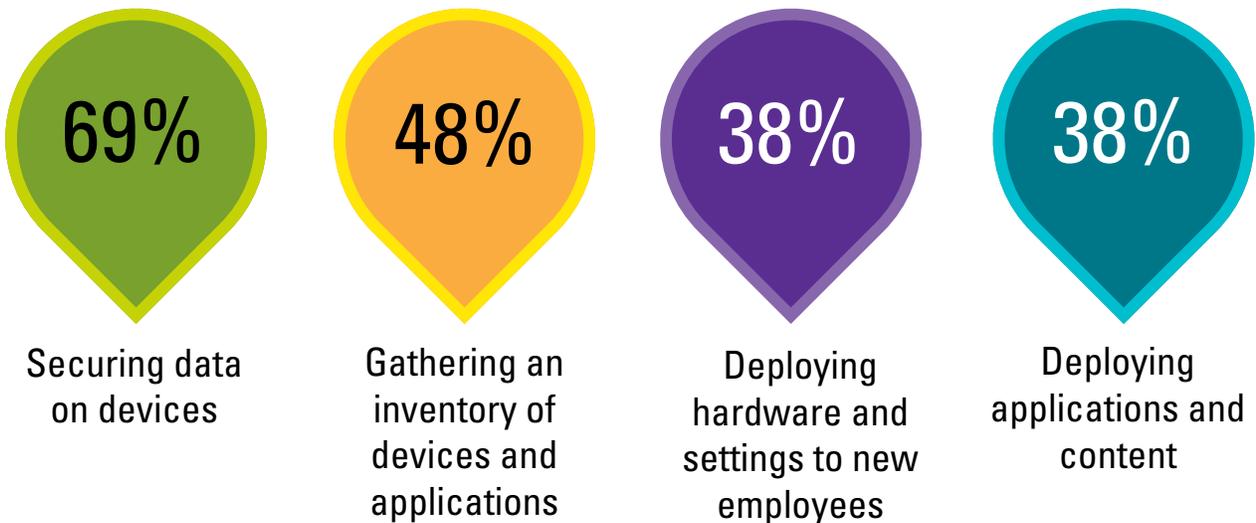


Does your hospital use an enterprise mobility management (EMM) solution?



Enterprise mobility management (EMM) solutions are another avenue for providing security on mobile devices (and 69 percent of respondents who have an EMM solution cited security as one of the ways they use the technology). The number of healthcare professionals reporting EMM use at their facility increased 6 percent over last year, while the percent with no plans to use an EMM solution declined by five points.

What is your EMM solution used for? (check all that apply)



BIG OPPORTUNITIES

We asked survey participants what they think their biggest opportunity for mobile communication improvements will be over the next three to five years. Twelve percent of responses included mention of secure text messaging, demonstrating that this singular solution is top of mind for a lot of folks. The remaining responses varied from the necessities such as better Wi-Fi coverage, to planning for disasters. Here are excerpts from the hundreds of ideas we received (most of these ideas were mentioned multiple times):



THE FUTURE

In Part 1 of our survey results we found that hospitals have a big opportunity to more closely align mobile strategies with larger hospital goals and bring more clinicians into the planning process. Here in Part 2, which examines the details related to these mobile plans, we found that mobile device types still vary widely across the industry, and the particular device a person carries may depend in large part on the communication requirements of their role. The supporting infrastructure for wireless and cellular communications appears to be getting better, but there is still room for improvement. And the existing plans for backup communication systems for emergencies likely warrant closer scrutiny.

Overall, the ability of mobile devices to access hospital systems is slowly increasing. In fact, several responders identified EHR access through smartphones as an area for future opportunity. More than 80 percent of surveyed healthcare professionals currently have or are considering secure text messaging, and 70 percent have or are evaluating EMM solutions. Personal devices are permitted at nearly 60 percent of organizations, and BYOD participation varies widely by role. Taken together, this data paints a favorable outlook for end users who are looking for stronger communication tools to support their work. Looking to the future, survey participants see a lot of opportunity to improve mobile communications in the hospital setting. Examples these healthcare professionals are thinking about include using mobile strategies to simplify technology and bring uniformity across hospital systems, and enhancing the collaboration between members of a patient care team. Mobility in healthcare is still truly an evolving story, and we look forward to continuing it with our report next year.





ABOUT SPOK, INC.

Spok, Inc., a wholly owned subsidiary of Spok Holdings, Inc. (NASDAQ: SPOK), headquartered in Springfield, Va., is proud to be the 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. When seconds count, count on Spok.

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