

# THE HIDDEN COST OF PAGERS IN HEALTHCARE:

How Outmoded Technology Is Draining Healthcare IT Budgets

## ABSTRACT

### Background:

Even in the age of smartphones, an astounding number of pagers are still used throughout the healthcare industry. When compared with other forms of mobile technology, pagers are clearly not the most efficient and cost-effective means of communication. The economics, however, of pager use can be somewhat difficult to evaluate as industry data on pager use is rarely examined as the focus has shifted to emerging technologies. This makes it challenging for healthcare professionals to evaluate the true cost of continued support for pagers against the value they deliver.

## **Objective:**

Evaluate the true cost of using pagers in the healthcare industry, and compare it to the cost and preference for alternative technologies, such as secure messaging apps for smartphones.

## **Methods:**

HIMSS Analytics, a global healthcare advisor, providing guidance and market intelligence solutions that move the industry forward with insight to enable better health through the use of IT, performed an in-depth study of paging costs at U.S. hospitals. The study included a quantitative survey of more than 200 pager users at hospitals throughout the U.S., with a bias toward large organizations with more than 100 patient beds. The majority of participants had a direct role in the selection, purchase, or management of pagers at their organizations. The study also included detailed interviews with senior executives at the largest participating hospitals.

TigerText research surveyed more than 1,000 healthcare organizations to ascertain the average price paid for secure messaging. The survey included single location acute care facilities to healthcare systems with multiple locations.

## **Results:**

Ninety percent of respondents had some level of pager usage at their hospital; the larger the hospital, the higher the correlation to pager use. Respondents reported that physicians (82%) were the main users, followed by nurses (69.9%) and IT (52.5%). Respondents reported using pagers for their perceived: reliability (21.4%), lower cost (21.3%) and ability to reach clinicians remotely (20.2%). Only 18.2% of respondents perceived that pagers save them time. The average paging service cost per device, per month was \$9.19. The study revealed that large organizations spend an average of more than \$179,000 a year to support paging services.

In contrast, an analysis of 5,000 healthcare facilities using a secure messaging app found the average cost per user, per month was less than \$5<sup>1</sup>. Secure message apps offer additional benefits, as noted by the executives who were interviewed, including: reducing the number of devices clinicians carry, two-way communication, access to on-call schedules, and updated contact directories. From a reliability perspective, smartphones communicate across multiple networks (cellular, WiFi), whereas paging devices operate on a single network.

## **Conclusion:**

It is no surprise that pager use is declining by 11% per year<sup>2</sup>. What is surprising is the high costs hospitals incur each year supporting pager use, particularly when 96% of physicians already carry smartphones<sup>3</sup>. Thanks in part to behavioral preferences, it's anticipated that pager use will continue its orderly decline as organizations recognize the true cost of pagers compared to alternative solutions; however, as more hospitals wake up to the true cost, this decline could accelerate.

<sup>1</sup> TigerText survey of 5,000 healthcare facilities using secure messaging, January 2016.

<sup>2</sup> Dobby, Christine. 2015. Telus Drops Paging Service as Demand Declines. The Globe and Mail. <http://www.theglobeandmail.com/report-on-business/telus-drops-paging-service-as-demand-declines/article22753554/>.

<sup>3</sup> Comstock, Jonah. 2015. Most Physicians Use BYOD Smartphones, But Lack Support From Hospital IT. <http://mobihealthnews.com/39718/report-most-physicians-use-byod-smartphones-but-lack-support-from-hospital-it>.

## INTRODUCTION

Smartphones have taken over the workforce as the go-to method of mobile communication, but the healthcare industry lags behind, despite the extraordinary advances of medical technology. A startling number of physicians and nurses still use pagers, a technology more than a decade past its peak in 2005—in spite of their limited functionality and tendency to delay communication and workflow. This is largely due to misperceptions from decision-makers about pager cost and reliability. However, it's difficult to gain a comprehensive view of the true cost of supporting pagers; paging industry data is rarely updated as the demand for emerging technologies like smartphones has multiplied. These challenges have made it easy for healthcare organizations to allow pagers to linger versus seeking smarter alternatives.

In contrast, secure messaging via smartphones brings a more efficient, safe and effective means of communication to healthcare. Secure messaging apps offer robust features, with HIPAA-compliant two-way communication, and the ability to transmit files and share extensive patient information. Moreover, unencrypted alphanumeric pagers create a security and privacy risk in healthcare if the devices are lost, leaving potentially sensitive patient information in jeopardy.

The positive impact of smartphone use, such as increased productivity and faster communication, is difficult to argue, yet, pager use in healthcare persists. This study aimed to measure the true costs of supporting pagers, as well as perceptions about why they are still used despite their shortcomings. This study also sought to measure how users perceive smartphones as an alternative, and to evaluate the cost of supporting secure messaging apps in lieu of paging services.

## METHODS

TigerText commissioned HIMSS Analytics, a global healthcare advisor, providing guidance and market intelligence solutions that move the industry forward with insight to enable better health through the use of IT, to conduct a detailed study on the use and costs of pagers in healthcare. The study consisted of two parts:

- (1) a quantitative online survey and,
- (2) in-depth phone interviews with senior IT leaders at the study's largest hospitals

### The survey:

The survey included 204 participants. More than half (55%) of respondents had a direct role in selecting, purchasing or managing pagers, with roles such as Director of IT, Chief Information Officer, Manager of Procurement, and Vice President of Technology. The study focused on larger healthcare organizations—the majority of respondents (87.3%) were from hospitals with more than 100 beds. To effectively evaluate the cost of pagers, the survey included questions about monthly device fees and additional fees required to support usage.

**The interviews:**

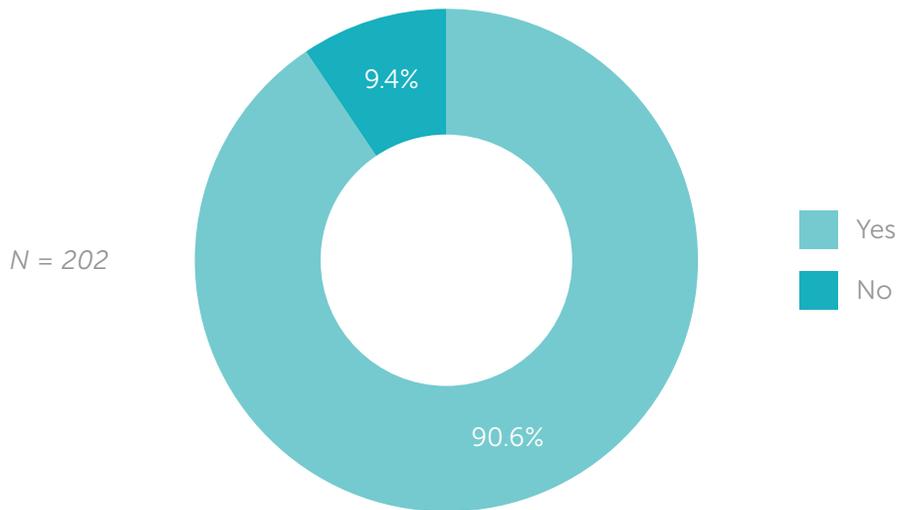
The interviews sought to gauge how users perceived pager expense and how pagers folded into a hospital’s daily operations. Each participating hospital had more than 390 beds and was located in a major U.S. metropolitan area. Hospitals fell between Electronic Medical Record Adoption Model (EMRAM) stages 5 and 7, meaning they are progressive organizations. HIMSS awards the EMRAM score on a scale of 0 to 7, reflecting a hospital’s adoption of electronic records. Level 7 hospitals have absolutely no paper records in use.

**RESULTS**

The majority of responses were from large organizations (66.5% from hospitals with greater than 250 beds) and nearly all respondents (90%) reported pager utilization at their facility.

**NEARLY ALL ORGANIZATIONS STILL USE PAGERS**

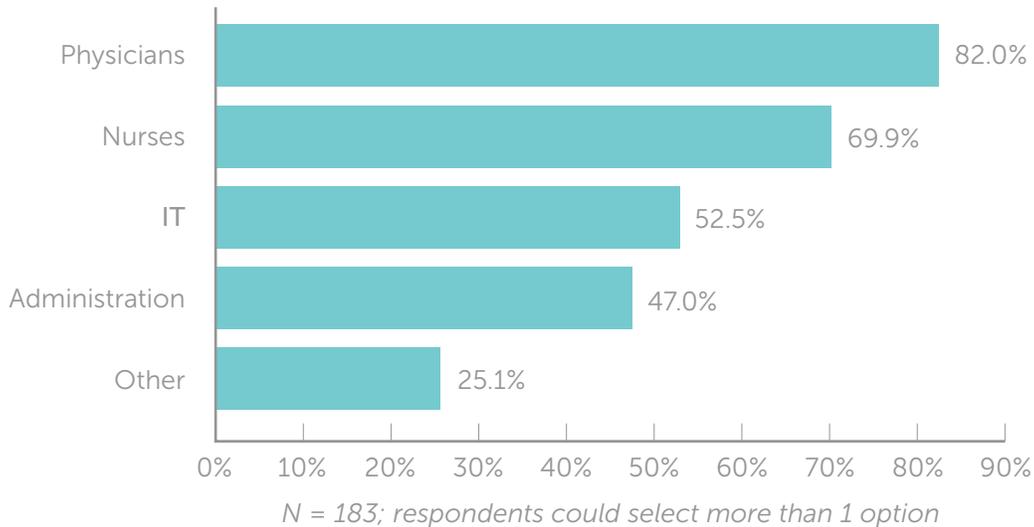
*Do employees at your organization utilize paging devices?*



The primary users were physicians (82%), followed by nurses (69.6%) and IT (52.2%).

### CLINICIANS USE PAGERS THE MOST

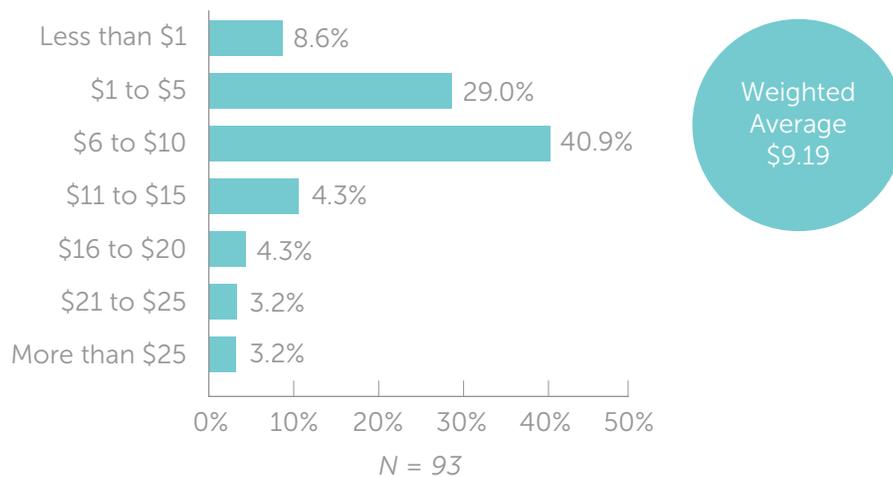
*Who in your organization uses pagers?*



For a cost assessment, the average monthly paging service fee, per device, was \$9.19.

### PER DEVICE PER MONTH FEE \$10 OR LESS

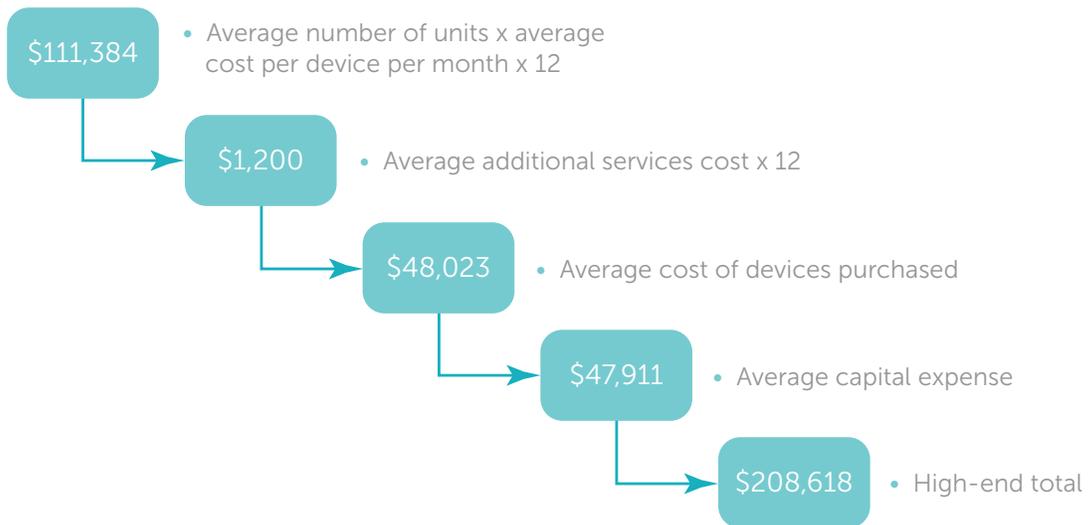
*What is the approximate cost per paging device, per month?*



Furthermore, nearly half of respondents (46.9%) reported paying additional monthly fees, ranging from \$50 to more than \$250. The most common additional expenses were paging software and the cost to integrate pagers with other systems. All in all, large organizations can spend over \$200,000 per year to support paging services. This figure does not include other costs, such as telephone operators, dedicated IT personnel, antennae leases and space, and device repair cost.

*“Large organizations can spend over \$200,000 per year to support paging services.”*

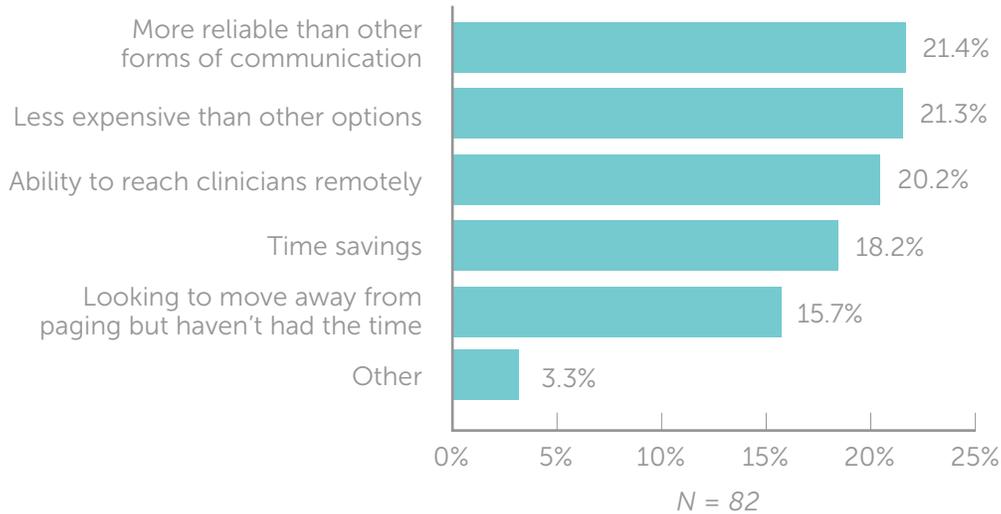
**ESTIMATING PAGER TOTAL COST OF OWNERSHIP: HIGH END**



Respondents reported using pagers for their perceived reliability (21.4%), lower cost (21.3%) and ability to reach clinicians remotely (20.2%). Only 18.2% of respondents see pagers as a tool that saves time.

### PERCEIVED RELIABILITY & COST

For what reasons does your organization utilize paging devices?  
Please rank each of the following from 1 to 5, using each number once.



The percentages reflect weighted percentages where the top attribute was multiplied by 6, the second by 5, the third by 4, the fourth by 3, the fifth by 2 and the sixth by 1. The weighted scores for each attribute were summed and then divided by the total weighted score of all attributes to derive the top reasons.

Despite these perceptions, executives in the interview portion of the study were aware of the numerous benefits of migrating away from pagers, including: two-way communication, access to on-call schedules, updated contact directories and a reduction in the number of devices clinicians carry. Of these, two-way communication was the most frequently called out feature that pager users wished they had. Recipients of one-way pages lack full context and the option to provide feedback or ask questions. Additionally, contact directories and on-call schedules are critical since pager use requires constantly updated schedules to effectively reach clinicians. When these schedules are not updated, it creates a void in communication. Lastly, all of the executives agreed that migrating to smartphones and managing just one device would be substantially more convenient for all involved.

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*“All of the executives agreed that migrating to smartphones and managing just one device would be substantially more convenient for all involved.”*

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To provide a cost comparison to paging services, TigerText analyzed 5,000 healthcare facilities that use a secure messaging smartphone app. The average service cost for secure messaging was under \$5 per user per month. Additionally, smartphones communicate across a range of networks, including WiFi, cellular and SS7, making them highly resilient

during network failures. In contrast, pagers operate on a single vendor's network, leaving them at a greater risk during paging system network failures. Pager reliability is further impacted by the limited reach of pager networks. Pagers may operate within a hospital building, but there is little guarantee a clinician will receive a page if they are far from their hospital. Smartphones, on the other hand, have coverage across the U.S.

## DISCUSSION

The study shows hospitals are paying significant sums to support legacy paging infrastructures; what's surprising is that senior executives are aware of the numerous benefits of smartphone alternatives. One theory that could explain why they continue to allocate budgets for paging services, beyond that it's a challenge to evaluate their real cost, is that pagers are ingrained in the fabric of medical culture. Although pagers cause process lags—clinicians wait an average of 46 minutes a day for information<sup>4</sup>—for some, pager use is pure habit. An IT executive from a large hospital in Minnesota pointed out that “[Pagers] have been weaved into operations. One physician said he has had the same number for 19 years. The people he works with, and his wife, they all have it memorized.”

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*“Clinicians wait an average of 46 minutes a day for information.”*

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*“One person had to carry seven pagers because they were on a trauma team.”*

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However, this culture of pager use is on the decline with the onset of Bring Your Own Device (BYOD) policies. These policies can help to reduce the number of devices clinicians carry, a key benefit of migrating away from pagers. A Vice President of Technology in our study acknowledged the burden of carrying multiple devices, saying, “One person had to carry seven pagers because they were on a trauma team.” BYOD policies have also been shown to accelerate productivity, aid hospitals in delivering best-in-class patient care, and help hospitals transition to a paperless work environment<sup>5</sup>.

Additionally, there are other indications that hospitals are more ready than ever to embrace smartphones and secure messaging: 91% of healthcare employees admit they use text messaging at least a few times a week for work, and patient-related care is the number one reason physicians text on the job<sup>6</sup>. Clinicians appear to value text messaging as a way to communicate, balancing the benefits of smartphones with the risks of going against policy guidelines. A CIO at a New York hospital highlighted this point: “We find that a lot of people are texting and want to, so we need to have a secure way to do it.”

<sup>4</sup> Diana, Alison. 2015. Nurses Say Pagers Must Go; Hospitals Drag Feet. InformationWeek Healthcare. <http://www.informationweek.com/healthcare/mobile-and-wireless/nurses-say-pagers-must-go-hospitals-drag-feet-/d/d-id/1204255>.

<sup>5</sup> Marshall, S. 2014. IT Consumerization: A Case Study of BYOD in a Healthcare Setting. Technology Innovation Management Review, 4(3): 14-18. <http://timreview.ca/article/771>.

<sup>6</sup> Miliard, Mike. 2015. Courting HIPAA risk with messaging apps. Healthcare IT News. <http://www.healthcareitnews.com/news/courting-hipaa-risk-messaging-apps>

These situations present themselves as opportunities for healthcare executives to upgrade their communication channels to enable smartphone use, recognizing that smartphones are not only more efficient but the natural way for today's healthcare professionals to communicate. And for clinicians who prefer a more traditional experience, there are still options to migrate away from pagers. Some secure messaging apps can assign them a unique phone number so they can receive a page—all within the secure smartphone app, creating a seamless transition for existing pager users.

### BENEFITS COMPARISON: PAGERS VERSUS SMARTPHONES

|                                 | PAGERS | SMARTPHONES |
|---------------------------------|--------|-------------|
| Two-way messaging               |        | ✓           |
| HIPAA-compliant                 |        | ✓           |
| Reduces number of devices       |        | ✓           |
| Nationwide signal coverage      |        | ✓           |
| Operates on many networks       |        | ✓           |
| Access to contact directories   |        | ✓           |
| Access to on-call schedules     |        | ✓           |
| Ability to provide more context |        | ✓           |
| Ability to integrate with EMR   |        | ✓           |

## CONCLUSION

Our findings suggest that, although pagers are still used throughout the healthcare industry and generally viewed as reliable, executives and clinicians alike are aware of the ease-of-use of secure messaging. With the pressure to communicate quickly and provide superior patient care, it's no surprise pager use is declining 11% a year. However, what is surprising is the staggering costs hospitals incur each year to support pager use, particularly when 96% of physicians already carry smartphones. We anticipate pager use to continue its decline as hospitals realize its true cost and limited functionality, instead opting for secure text messaging solutions.