# The Second Wave of Clinical Mobility: Strategic Solution Investments for Mobile Point of Care in Western Europe

WHITE PAPER

Sponsored by: Intel Corporation

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## IDC HEALTH INSIGHTS OPINION

The highly collaborative and mobile nature of clinical teams makes the strategic investment in clinical mobility solutions essential to meet the intense demands being placed on healthcare providers today. Many of the same drivers — the need to improve access, quality of care, patient safety, and clinician efficiency to treat more patients cost-effectively — are setting in motion the second wave of clinical mobility. Sometimes referred to as mobile point of care (MPOC) computing, today's initiatives enable clinicians to use various mobile devices to access electronic health records (EHRs) and other clinical information systems at the bedside, in the examination room, or from wherever the clinician accesses the Internet.

The next 10 years represent the second wave of clinical mobility. With the consumerization of technology and greater uptake of mobile devices by clinicians who want to use them as they care for their patients, mobile applications will evolve from providing basic views only to bidirectional flows of information enabling better decision making at the point of care and more synchronous communication and collaboration between care team members.

In this respect, key findings from IDC Health Insights' research include:

- On average, according to the IDC Health Insights *Clinical Mobility Buyer Behavior Study*, clinicians in Western Europe typically use 10 different devices on a daily basis, more than their North American counterparts who typically use 2.7 different mobile devices each day.

- Pervasive computing and clinical mobility are placing new demands on the healthcare datacenter and IT organization, specifically in the areas of connectivity, performance, usability, manageability, and security.

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- Effective use of mobile point of care solutions will enable healthcare organizations to pursue Lean healthcare and clinical transformation initiatives by removing waste, delay, and rework from the system through improved, real-time communication between care team members.

- Ranked as the most important attribute for mobile devices used in healthcare settings by 54% of survey respondents across the globe, security was the most widely adopted technology currently in production and was the leading investment category in 2011.

- Application servers (62%), client/desktop virtualization (50%), and software distribution solutions to manage and support mobile applications (50%) were among the top 3 infrastructure technologies in production and were among the top 5 for future investment.

- Laptops are the dominant mobile device (84%), but healthcare provider organizations will be increasingly investing in smartphones and tablets in the next 12 to 24 months.

- Spending on mobile point of care solutions by Western European healthcare providers is expected to grow from $1.4 billion in 2010 to $2.5 billion in 2015, a compound annual growth rate (CAGR) of 11.4%.

- In North America and Western Europe combined, mobile point of care solution spending is expected to grow from $4.4 billion in 2010 to $7.2 billion in 2015, a CAGR of 10.5%.

## IN THIS WHITE PAPER

This white paper is presented by IDC Health Insights and sponsored by Intel Corp. The objectives of the white paper are to:

- Present a maturity model for clinical mobility and discuss which form factor is appropriate for different use cases

- Explore how healthcare organizations secure clinicians' personal mobile devices

- Examine healthcare provider clinical mobility current and future spending

- Forecast spending for hardware, software, and IT services related to clinical mobility

## METHODOLOGY

The research process to develop this white paper included both primary research conducted on behalf of Intel and secondary research, leveraging existing research and resources from IDC Health Insights. Specifically, the research for this paper includes:

- IDC Health Insights' standard Continuous Intelligence Service (CIS) research
- Briefing from Intel on its clinical mobility offering and vision
- Quantitative findings from the *Clinical Mobility Buyer Behavior Study* of 50 hospitals with more than 99 beds in North America and Western Europe (The *Clinical Mobility Buyer Behavior Study*, sponsored by Intel and conducted by IDC Health Insights, was fielded from October 2011 to November 2011. The Web-based study was directed at clinical mobility decision makers and included 50 respondents equally distributed between North America and Western Europe.)
- Industry data from academic sources as applicable
- Ongoing secondary research, including news articles, press releases, earnings announcements, and other relevant sources

### Clinical Mobility Defined

The terms clinical mobility, mobile point of care, and mobile health (mHealth) are often used interchangeably to describe the use of a variety of mobile devices by physicians, nurses, midlevel practitioners, and other allied health professionals as they deliver care to their patients. IDC Health Insights makes a distinction between mobile health and clinical mobility or mobile point of care. Mobile health is consumer focused, while clinical mobility and mobile point of care, as the terms imply, are clinician focused. For the purposes of this paper, the terms clinical mobility and mobile point of care are synonymous.

## SITUATION OVERVIEW

The mobility of clinicians presents inherent challenges to the effective and timely access to information and communication between them, yet access to timely, accurate information and communications can be literally a matter of life and death. According to the *BMJ* (formerly known as the *British Medical Journal*), physicians walk six miles per day, or more when they are on call, as they make their rounds through the hospital to see and treat patients. Nurses, although they typically treat patients only in their unit, still log an average of two to three miles per day, according to a study published by Kaiser-Permanente ("A 36-Hospital Time and Motion Study: How Do Medical-Surgical Nurses Spend Their Time?" *The Permanente Journal*, Summer 2008).

## Current Landscape for Clinical Mobility

The efficient flow of information is essential for effective communication among care team members, which impacts quality of care and patient safety along with staff productivity. Surveyed healthcare IT executives reported that their top 3 objectives for initially investing in clinical mobility were improving quality of care (58%), staff efficiency/productivity (50%), and patient safety (40%). When asked why their budgets for clinical mobility would increase in 2012, in addition to these same reasons, respondents also cited the ability to facilitate clinician collaboration (34.4%) in their top 3 responses (patient safety and quality of care were combined in one response for this question). In Western Europe, reducing operational and clinical costs was also reported as a primary reason for increasing spending on clinical mobility.

*Surveyed healthcare executives are optimistic that clinician adoption rates will increase in the next 12 to 24 months for physicians (86%) and nurses (74%).*

Clinical mobility adoption rates among physicians and nurses, respectively, are comparable; 42% and 40% of respondents reported high to very high adoption rates. Rates of adoption among both physician and nurses were lower in Western Europe compared with North America; 32% of Western European respondents reported physician and nurse adoption rates as high to very high compared with 52% and 48% for North American physicians and nurses, respectively. Low adoption rates among physicians were attributed to not being able to use their preferred device (40%). In contrast, for nurses, only 16.7% of respondents cited this reason. For nurses, the primary reasons for low adoption rates were lack of training (50%) and funding (41.7%). In Western Europe, limited WiFi connectivity was a frequently cited impediment to physician (40%) and nurse (50%) adoption. However, surveyed healthcare executives are optimistic that clinician adoption rates will increase in the next 12 to 24 months for physicians (86%) and nurses (74%).

Respondents were asked to name the top 3 challenges of deploying clinical mobility solutions. Despite relatively high adoption rates, 36% of the respondents reported adoption by physicians as their primary challenge, followed closely by data security (32%) and total cost of ownership (32%). Western European healthcare IT executives mentioned cost issues more frequently than their North American counterparts. Total cost of ownership and cost justification were tied for the top challenge along with physician adoption and data security.

## Compute Continuum for Clinical Mobility

Increasingly, clinicians are turning to a range of MPOC devices, such as purpose-built devices (e.g., the mobile clinical assistant), smartphones, and tablets, to access clinical information systems and document care at the patient bedside or in the examination room. Personal mobile devices also enable clinicians to provide coverage from home or on the go. Advanced media-rich tablets support videoconferencing, and high-definition screens allow clinicians to access diagnostic-quality medical images. On average, according to the IDC Health Insights *Clinical Mobility Buyer Behavior Study*, clinicians in Western Europe typically use 10 different mobile devices on a daily basis within the institution. In contrast, their North American counterparts typically use 2.7 different mobile devices each day. In complex use cases, clinicians may use multiple mobile devices. For example, they may receive a text message that stat lab results are available while using a purpose-built device on rounds at the hospital. The use case will help determine the appropriate compute model or device form factor.

*On average, according to the IDC Health Insights Clinical Mobility Buyer Behavior Study, clinicians in Western Europe typically use 10 different mobile devices on a daily basis within the institution. In contrast, their North American counterparts typically use 2.7 different mobile devices each day.*

Pervasive computing and clinical mobility are placing new demands on the datacenter and IT organization. These demands include:

- **Connectivity.** Clinicians are demanding instant-on, always-connected devices. However, in addition to relying on wireless networking and mobile broadband installed behind the firewall, MPOC devices must also work offline because connectivity, especially through cellular networks, cannot always be guaranteed.
- **Performance.** Clinicians are also demanding technology that works with them in think speed, whether that technology is the electronic medical record (EMR) or a mobile point of care solution. For example, stat results should be delivered with zero latency. However, mobile networks will be challenged by data traffic from streaming video for patient education, videoconferencing, and large medical image transfers.
- **Manageability.** The sheer number of mobile devices used across the enterprise will require the ability to automate the provision of devices, manage device inventory, and deploy, install, update, delete, and block applications on mobile devices.
- **Usability.** Different use cases require different form factors, and ease of use is a major consideration when selecting which type of mobile device to deploy to nurses, midlevel practitioners, physicians, and allied health clinicians.
- **Security.** The primary security concern for healthcare IT executives is the loss or theft of mobile devices given their portable and even "pocketable" size. Data security was the second most frequently mentioned challenge by survey respondents.

Mobile devices represent the tip of the proverbial clinical mobility iceberg. According to Intel and industry analysis, for approximately every 600 smartphones, 1 server is required to provide processing capacity for the delivery of content. For tablets, the ratio is 1 server to approximately 122 tablets. The top 3 infrastructure technologies currently deployed are security (66%), application servers (62%), client/desktop virtualization and software distribution solutions to manage and support mobile applications (50%). Figure 1 depicts the infrastructure technologies in production to meet the demands of clinical mobility.

*According to Intel and industry analysis, for approximately every 600 smartphones, 1 server is required to provide processing capacity for the delivery of content. For tablets, the ratio is 1 server to approximately 122 tablets.*

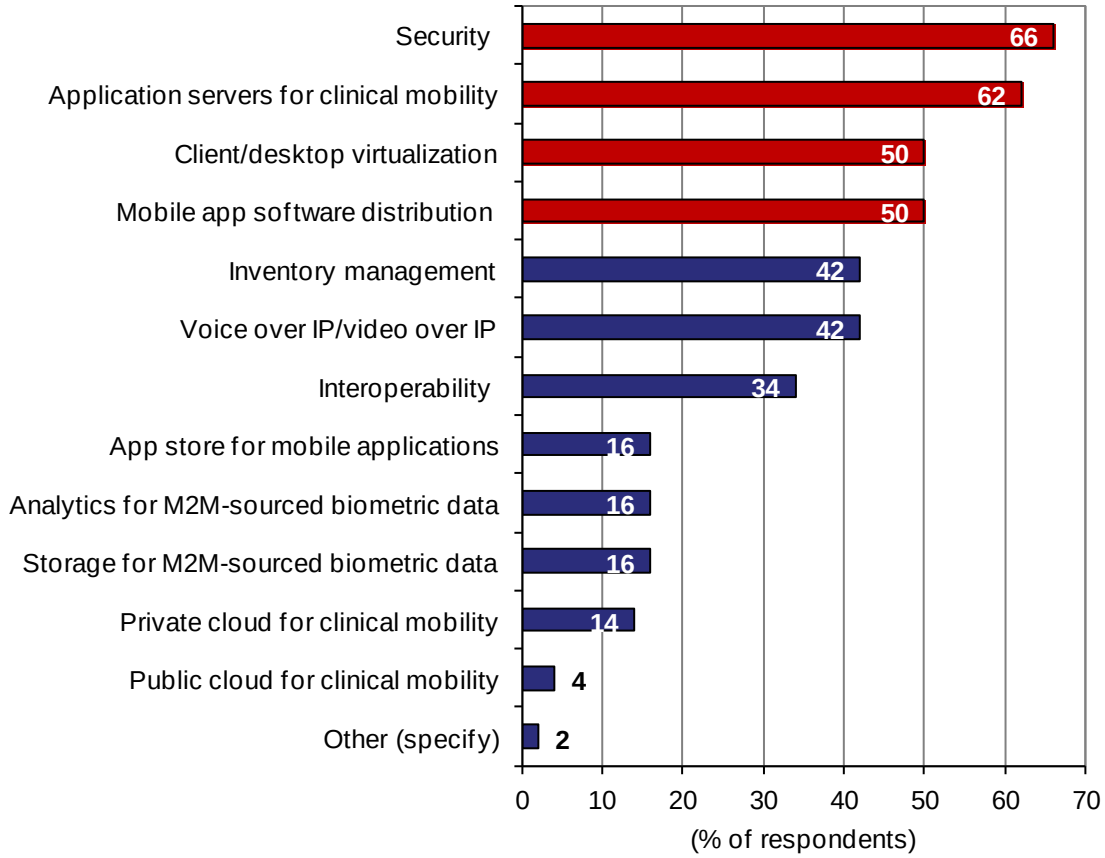
Healthcare provider organizations have made solid investments in the core infrastructure technologies to support mobile point of care solutions. Laptops are the dominant form factor (84%), followed by PC tablets (56%) and workstations on wheels (WoWs) (54%). Healthcare providers are just beginning to invest in analytics and storage for biometric data. Private cloud computing is preferred over public cloud options, but cloud computing to support clinical mobility is still in the early stages, according to the *Clinical Mobility Buyer Behavior Study*.

Investment plans for 2012–2015 are discussed in the Future Outlook section.

**FIGURE 1**

Clinical Mobility Infrastructure: In Production




n = 50

Note: Multiple responses were allowed.

Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

## The Four Cs of Clinical Mobility: Consume, Create, Circulate, Collaborate

The maturity model of clinical mobility capabilities can be described along the spectrum of:

- **Consume:** Inquire about information available in healthcare information technology systems, medical references, and other online clinical resources.
- **Create:** Document care and capture charges and notes.
- **Circulate:** Initiate transactions, send and receive messages and alerts.
- **Collaborate:** Request and share information with care team members to support the delivery of care.

Figure 2 presents examples of use cases and applications for each of the four Cs of clinical mobility.

**FIGURE 2**

The 4 Cs of Clinical Mobility


Source: IDC Health Insights, 2011

Another way to look at clinical mobility maturity is to use a good, better, best model.

- **Good:** The typical starting point, or baseline, for clinical mobility initiatives is data presentation on a range of mobile devices.
- **Better:** The next step along the maturity continuum is data sharing and education.
- **Best:** Ultimately, the best scenario combines data presentation and sharing with the ability to collaborate with care team members, leverage actionable analytics to enhance clinical decision making at the point of care, and engage patients in their own care.

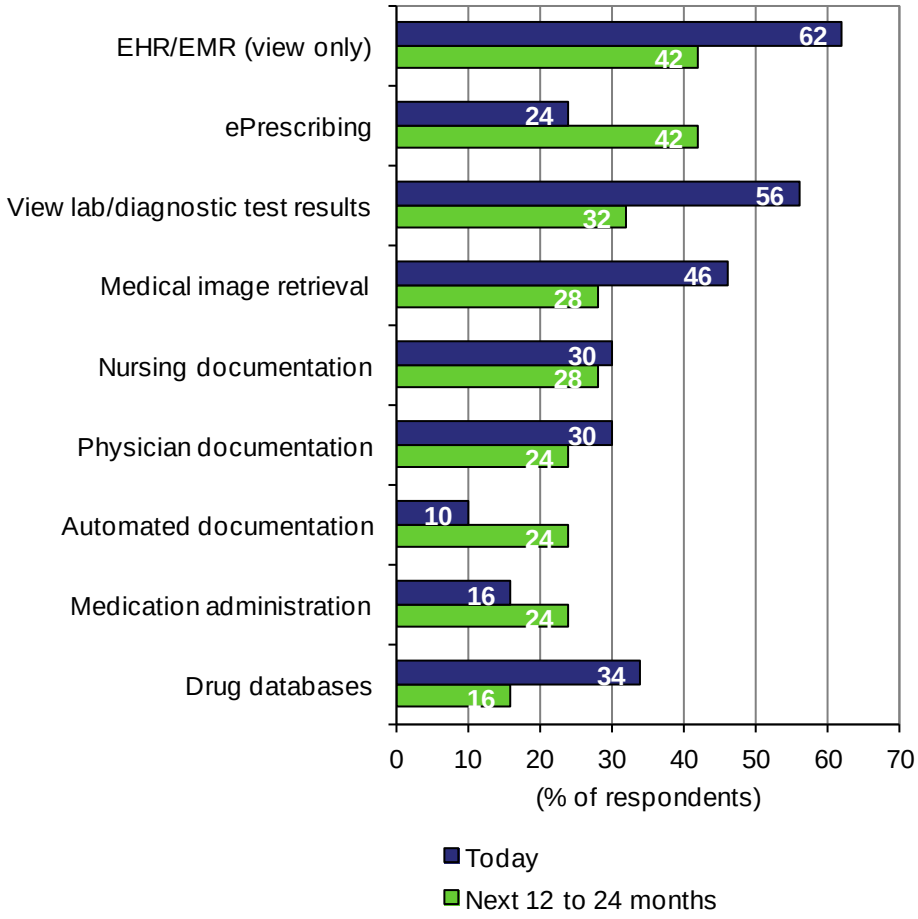
Most mobile communication in today's healthcare environment is still asynchronous. While texting and email is an improvement over slower forms of communications (e.g., mailed or faxed reports, paging) and a good starting point for clinical mobility strategies, real-time communication will drive continuous, patient-centric workflows. Healthcare organizations will begin to see incremental improvements as clinicians use mobile devices to consume and create data. But real systemic changes will require on-demand, real-time collaboration.

Consider the following scenario, which exemplifies "collaboration" or the "best" model. A surgical patient has been wheeled into the operating room and the surgical team is running through the presurgery checklist. The anesthesiologist notices that the patient, who has recently been diagnosed with heart disease, has an abnormal EKG reading. Using her media-rich tablet, the surgeon requests a consult and initiates a videoconference call with the cardiologist on call. The physicians are able to review the same telemetry, medications list, and the patient's electronic medical record. When a question arises about the patient's current medications, the hospital pharmacist can be joined in for a three-way videoconference. The ability to consult expeditiously with the cardiologist and pharmacist enables the surgeon to resolve the question in five to ten minutes rather than delay the surgery for several hours (best case) or, more likely, several days (worst case).

Today's clinical mobility initiatives are primarily focused on "consume" and "create" use cases. In the next 12 to 24 months, providers will begin to circulate patient data and collaborate with their colleagues using their mobile devices. Western European eHealth initiatives are driving the deployment of EHRs, the ability to view lab and diagnostic results, and eprescribing, which were all tied for the top mobile applications to be deployed in the next two years. See Figure 3 for the top 5 reported clinical mobility applications for today and in the next 12 to 24 months.

**FIGURE 3**

Top 5 Clinical Mobility Applications: Today and Next 12 to 24 Months




n = 50

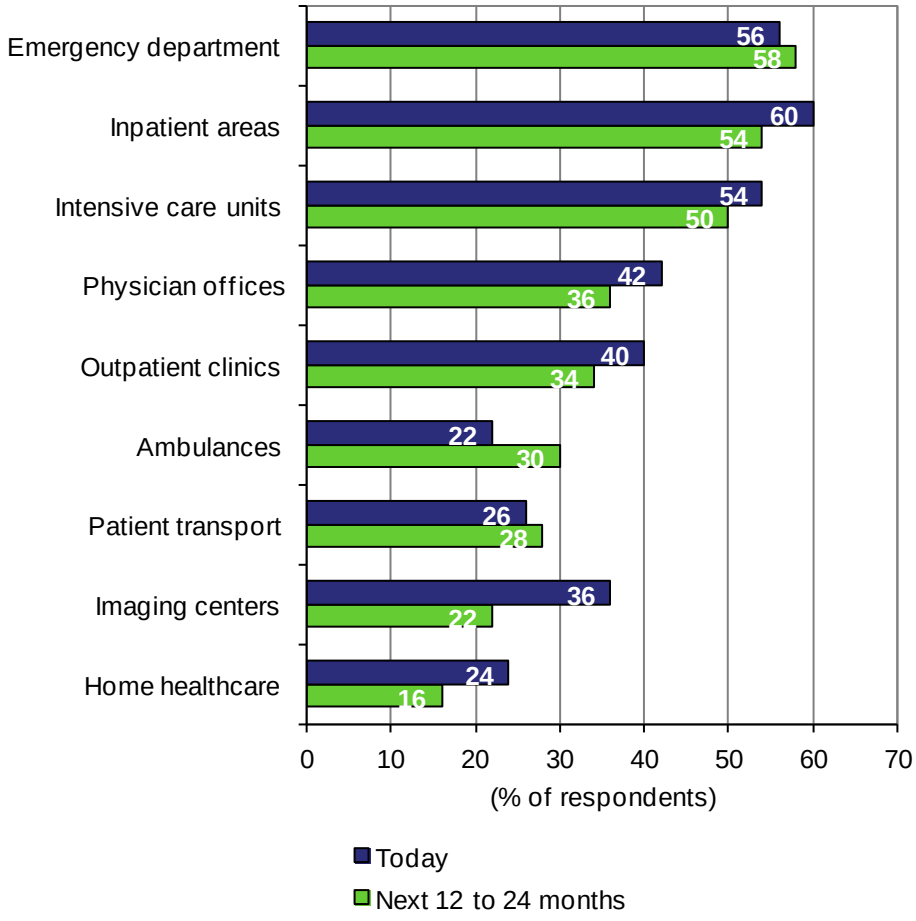
Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

While the top service areas for using mobile devices remained the same from 2011 to 2013 — inpatient, intensive care unit, and emergency room — efforts are being made to include clinicians outside the hospital or integrated delivery network in clinical mobility strategies (see Figure 4). The scenario was slightly different in Western Europe than these overall findings indicate; for example, patient transport, ambulances, physician offices, and home healthcare were ranked in the top 5 service areas for the next 12 to 24 months by respondents in Western Europe.

**FIGURE 4**

MPOC Solutions Utilization by Service Area: Today Versus Next 12 to 24 Months




n = 50

Note: Multiple responses were allowed.

Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

It should be noted that these maturity models are not meant to imply that one type of mobile device is better than another, as different use cases will require different form factors for the optimal clinical experience. One size does not fit all. A set of questions to determine which mobile devices to use under certain conditions is presented in the Essential Guidance section.

# FUTURE OUTLOOK

## Clinical Mobility Forecast

This document presents IDC Health Insights' best estimates and forecasts for the clinical mobility opportunity for the provider market in the United States, North America, and Western Europe.

The forecast and analysis contained in this white paper are based on both primary and secondary research sources. The information is then filtered through IDC Health Insights' forecasting analysis process. The forecast is conducted using a top-down methodology using the *Worldwide Healthcare IT Spending Guide, 2010–2015* as a baseline for the United States and Western Europe and the *Canadian IT 2011–2015 Forecast by Vertical Market* for Canada and then refined and verified using primary research conducted for the *Clinical Mobility Buyer Behavior Study*.

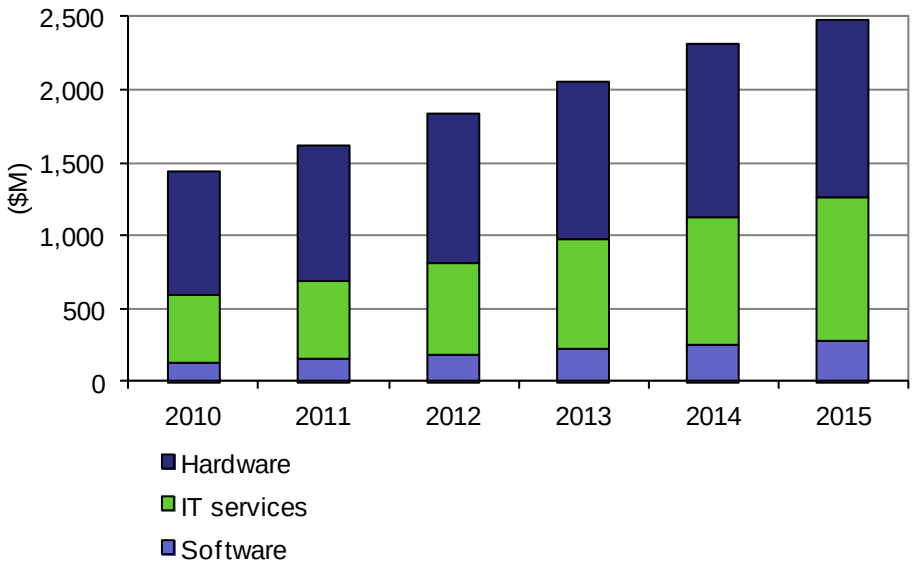
*In Western Europe, spending on mobile point of care solutions is expected to grow from $1.4 billion in 2010 to $2.5 billion in 2015, a CAGR of 11.4%.*

Figure 5 and Table 1 present IDC Health Insights' estimate of the current size and expected growth of the clinical mobility market from 2010 to 2015 in Western Europe. Spending on mobile point of care solutions by all types of providers was $1,446.38 million in 2010 and is expected to grow to $2,476.54 million in 2015. The CAGR for clinical mobility spending between 2010 and 2015 is expected to be 11.4%. In Western Europe, IDC Health Insights anticipates strong growth in IT services and software as clinical mobility is an emerging market in the region. Table 2 shows the spending ratios for hardware, IT services, and software.

## FIGURE 5

Western Europe Clinical Mobility Spending, 2010–2015




Source: IDC Health Insights

## TABLE 1

Western Europe Clinical Mobility Spending, 2010–2015 ($M)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2010–2015 CAGR |
|---|---|---|---|---|---|---|---|
| Hardware | 858.90 | 939.41 | 1,019.77 | 1,086.69 | 1,181.03 | 1,212.05 | 7.1 |
| IT services | 454.31 | 527.77 | 625.08 | 752.31 | 872.73 | 979.71 | 16.6 |
| Software | 133.17 | 156.00 | 185.98 | 223.15 | 257.97 | 284.78 | 16.4 |
| Total | 1,446.38 | 1,623.18 | 1,830.83 | 2,062.15 | 2,311.72 | 2,476.54 | 11.4 |

Source: IDC Health Insights

**TABLE 2**

Western Europe Clinical Mobility Spending Ratios, 2010–2015 (%)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Hardware | 59.4 | 57.9 | 55.7 | 52.7 | 51.1 | 48.9 |
| IT services | 31.4 | 32.5 | 34.1 | 36.5 | 37.8 | 39.6 |
| Software | 9.2 | 9.6 | 10.2 | 10.8 | 11.2 | 11.5 |

Source: IDC Health Insights

*In North America and Western Europe, combined mobile point of care solution spending is expected to grow from $4.4 billion in 2010 to $7.2 billion in 2015, a CAGR of 10.5%.*

Figure 6 and Table 3 present IDC Health Insights' estimate of the current size and expected growth of the clinical mobility market from 2010 to 2015 in North America and Western Europe combined. Spending on mobile point of care solutions by all types of providers was $4,366.37 million in 2010 and is expected to grow to $7,186.32 million in 2015. The CAGR for clinical mobility spending between 2010 and 2015 is expected to be 10.5%. Table 4 shows the spending ratios for hardware, IT services, and software.

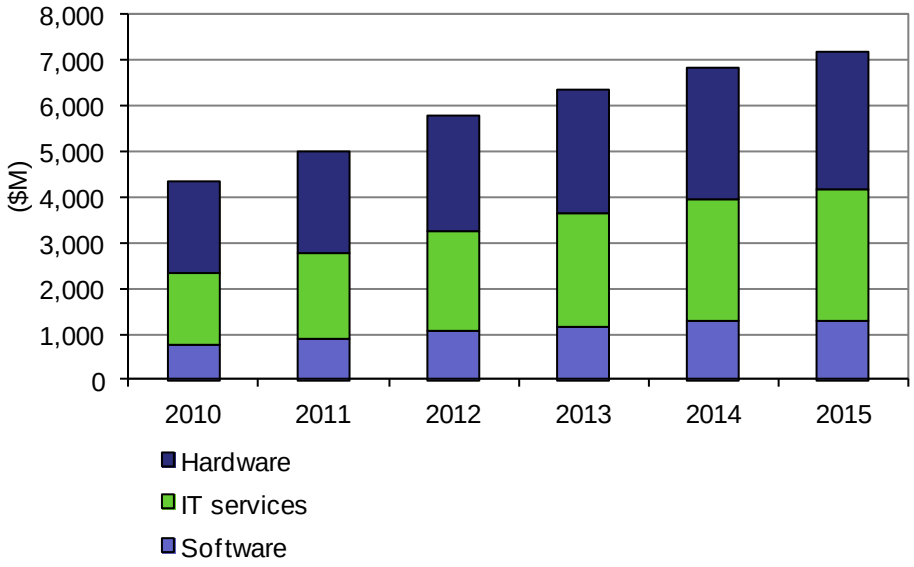
Growth in clinical mobility spending in the United States, while strong, is tempered by other demands on IT, namely achieving meaningful use objectives, complying with 5010 and ICD-10 mandates, and preparing for health reform initiatives. Deployment of the meaningful use technologies — EHRs, computerized provider order entry (CPOE), eprescribing (eRX), and health information exchange (HIE) — will accelerate the use of mobile point of care solutions to create more efficient clinician workflows. Canada will also experience higher-than-average growth in IT services compared with the same services in the total healthcare IT forecast for Canada.

Growth in clinical mobility spending in Western Europe is driven by the change in the healthcare service delivery model fostered by healthcare reforms across the region. The reforms are aimed at better integrating inpatient and outpatient care, and improving the efficiency of healthcare providers in delivering patient care through enhanced collaboration is one of the key pillars. This will drive investment in areas such as physician support, emergency response, health population surveillance, and back-end process automation. Western European eHealth strategies emphasize the deployment of EHR, eprescription, and telemedicine; therefore, the deployment of mobile point of care solutions will be accelerated.

## FIGURE 6

North America and Western Europe Clinical Mobility Spending, 2010–2015




Source: IDC Health Insights, 2011

## TABLE 3

North America and Western Europe Clinical Mobility Spending, 2010–2015 ($M)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2010–2015 CAGR (%) |
|---|---|---|---|---|---|---|---|
| Hardware | 2,007.23 | 2,246.38 | 2,527.31 | 2,684.67 | 2,881.11 | 3,013.66 | 1.0 |
| IT services | 1,617.03 | 1,860.60 | 2,220.25 | 2,492.97 | 2,679.58 | 2,870.41 | 12.2 |
| Software | 742.11 | 895.99 | 1,056.40 | 1,163.25 | 1,295.24 | 1,302.25 | 11.9 |
| Total | 4,366.37 | 5,002.97 | 5,803.95 | 6,340.89 | 6,855.94 | 7,186.32 | 10.5 |

Source: IDC Health Insights, 2011

**TABLE 4**

North America and Western Europe Clinical Mobility Spending Ratios, 2010–2015 (%)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Hardware | 46.0 | 44.9 | 43.5 | 42.3 | 42.0 | 41.9 |
| IT services | 37.0 | 37.2 | 38.3 | 39.3 | 39.1 | 39.9 |
| Software | 17.0 | 17.9 | 18.2 | 18.3 | 18.9 | 18.1 |

Source: IDC Health Insights, 2011

## Key MPOC Infrastructure Investments

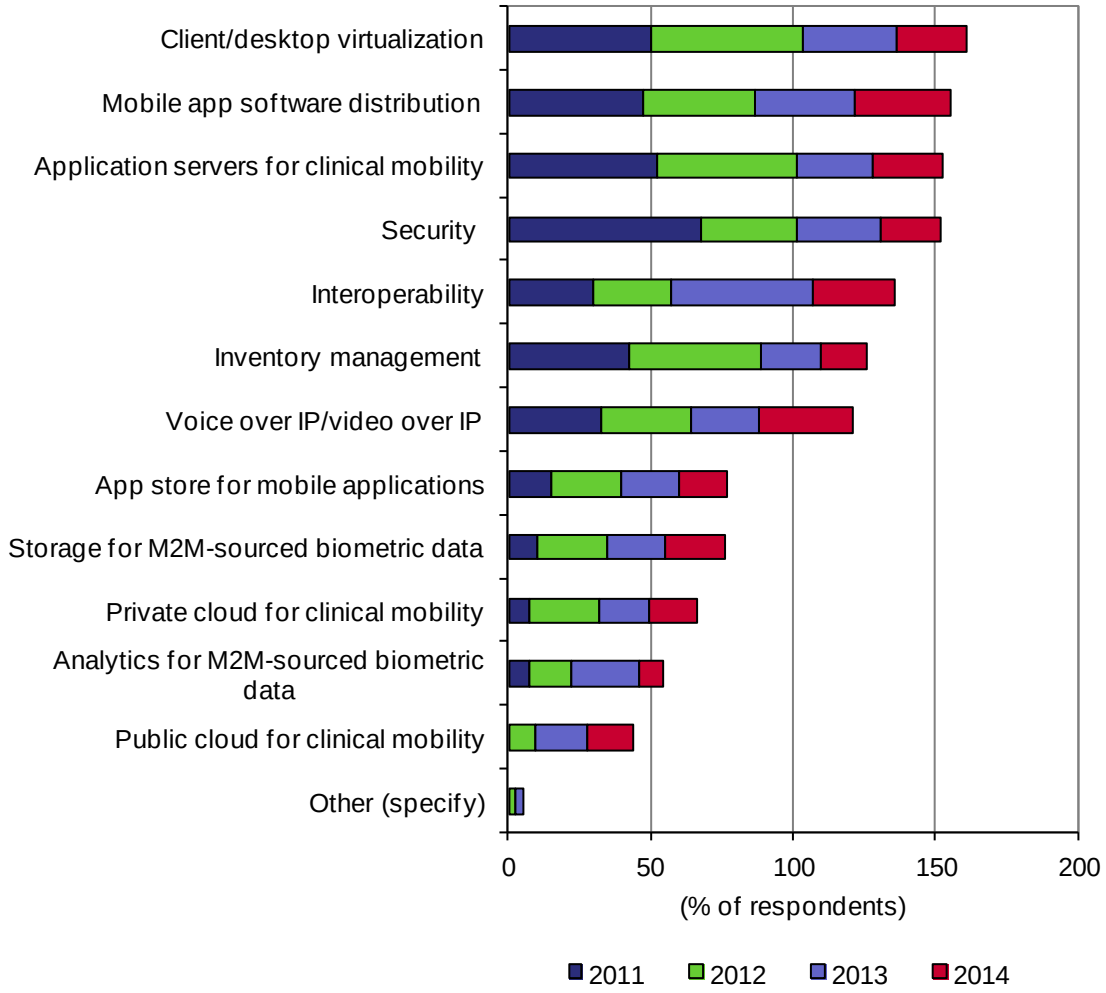
The top 3 investment technology infrastructure categories over the next three years, according to healthcare IT executives surveyed, are client/desktop virtualization, mobile application software distribution, and application servers for clinical mobility (see Figure 7). Client/desktop virtualization will play an integral role in clinical mobility strategies because it provides flexible access to clinical systems by mobile healthcare workers and reduces security risks by keeping sensitive health information off mobile endpoint devices. Security will remain an important investment area, but over the next 12 to 36 months, investments in interoperability will continue to increase. Voice over IP/video over IP was tied with mobile software distribution solutions for the most frequently mentioned technology investment category in 2014, implying that healthcare organizations are laying the infrastructure for collaboration. The real value from clinical mobility will occur when bidirectional information exchange can occur with clinical applications, including health information exchange technologies.

Healthcare providers will continue to invest in laptop and PC tablet devices and, to a certain extent, WoWs over the next three years. However, increasingly, they are investing in smartphones and media-rich tablets to round out their mobile device portfolio.

## FIGURE 7

Clinical Mobility Infrastructure Investment, 2011–2014




n = 50

Note: Multiple responses were allowed.

Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

## ESSENTIAL GUIDANCE

### The Right Device for the Right Task

Different use cases will dictate different types of devices and form factors. Before selecting and deploying mobile point of care devices, healthcare organizations should ask the following questions:

- **What will the device be used for?** Senior clinicians may use the device to look up information and monitor their patients when they are on call. Midlevel clinicians may use their mobile devices to help them make better decisions and to seek guidance from more senior members of the care team. Will sensors and other monitoring and telemetry devices requiring serial ports need to be connected to the mobile device?

- **How much data entry will be performed on the device?** Certain form factors lend themselves better to view only or capturing data in simple forms requiring minimal data entry (i.e., smartphones, media-rich tablets) versus more intensive data entry where a keyboard and mouse would be necessary (i.e., laptops, WoWs).

- **What information will be presented on the device?** Viewing medical images and videos requires a certain amount of screen real estate. High-definition screens improve the experience, especially when used for patient education and engagement.

- **Is a purpose-built device required?** Clinical research studies show that mobile devices harbor a range of pathogenic microorganisms, including those that are resistant to multiple drugs. Purpose-built devices, such as the mobile clinical assistant, are designed to be sterilized frequently and have minimal openings where microorganisms can fester. They are also designed to withstand being dropped on hard surfaces.

- **How long must the battery last per charge?** Typical shifts run from 8 to 12 hours. Unless multiple docking stations are readily available that charge the device or batteries can be hot swapped, then battery life should last the duration of the longest shift for the unit.

- **Does the device need to be portable or pocketable?** Devices that stay within the unit do not necessarily have to be pocketable. WoWs are wheeled from room to room to assist clinicians in documenting care. Smaller, multiuse form factors, such as smartphones, are desirable for staying connected to the facility when outside its four walls.

Figure 8 depicts how the different devices along the mobile compute continuum perform against the requirements identified in the preceding questions.

**FIGURE 8**

The Right Device for the Right Task

| What will the device be used for? | Smart-phones | Media-Rich Tablets | PC Tablets | Purpose-Built Devices | Laptops | WoWs |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| How much data entry will be performed on the device? | Low | Medium | High | Medium | High | High |
| Can telemetry devices be connected to it? | Low | Low | High | High | High | High |
| What information will be presented on the device? | Low | High | High | High | High | High |
| Can the device be easily disinfected? | Low | Low | Medium | High | Medium | Medium |
| How long must the battery last per charge? | Low | High | Medium | High | Medium | High |
| Does the device need to be portable or pocketable? | High | Medium | Medium | Medium | Medium | Low |

Legend: Low Medium High

Source: IDC Health Insights, 2011

## Security and Bring Your Own Device (BYOD)

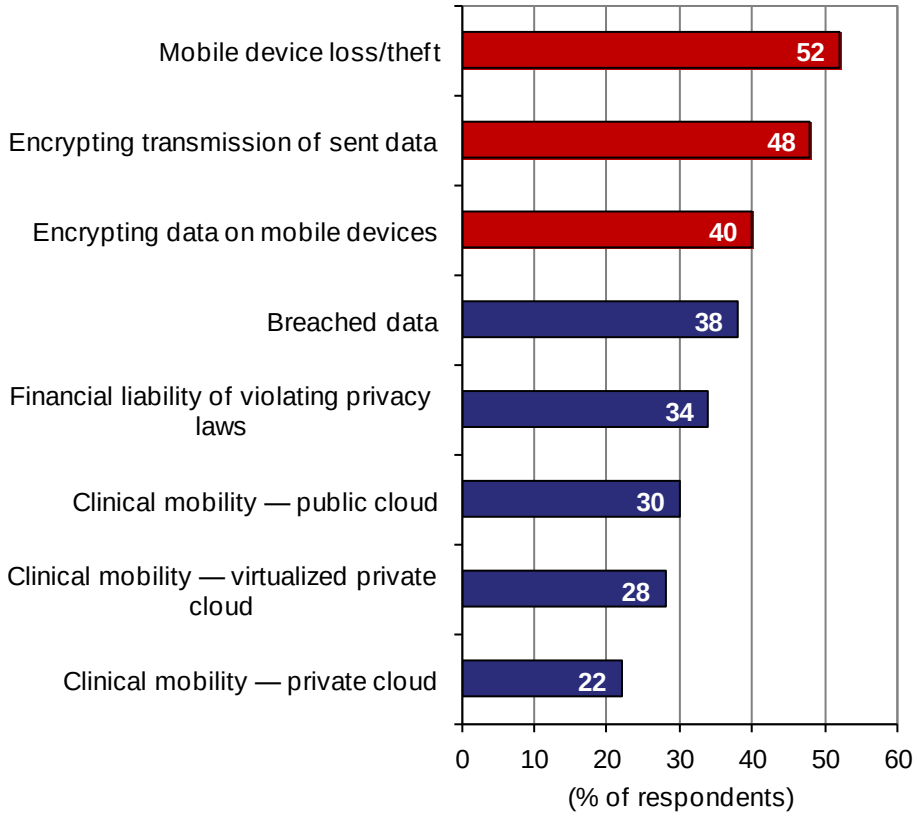
Security is a critical area of focus for healthcare IT organizations mobilizing point of care solutions. By their very nature, mobile devices present a security risk because they can be easily lost or stolen. More than half of the survey respondents (52%) reported that mobile device loss or theft was their primary concern (see Figure 9 for the top 3 security concerns). In addition, nearly one out of three respondents reported that data security was one of the top 3 challenges of deploying clinical mobility solution at their organization.

Ranked as the most important attribute for mobile devices used in healthcare settings by 54% of surveyed healthcare executives across the globe, security (e.g., standard device security, authentication, and encryption) was the most widely reported technology currently in production and was the leading investment category in 2011.

*Ranked as the most important attribute for mobile devices used in healthcare settings by 54% of surveyed healthcare executives across the globe, security was the most widely reported technology currently in production and was the leading investment category in 2011.*

**FIGURE 9**

Top 3 Security Concerns




n = 50

Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

Increasingly, clinicians want to use their own mobile devices to minimize the number of different devices they carry. This creates additional security concerns because personal devices are hard to manage and security controls are typically not as robust as those found on corporate-provided devices. Policy questions include the following: Should nurses, midlevel practitioners, and physicians even be allowed to use their own devices? Should these devices be allowed to connect to the guest or production network? It is clear from the *Clinical Mobility Buyer Behavior Study* that across the study geographies, healthcare provider organizations have adopted different policies for nurses and physicians (see Figure 10). Nearly twice as many healthcare organizations reported not allowing nurses to use their personal mobile devices (34%) compared with physicians (18%). Furthermore, physicians are more likely to have their personal mobile devices connected to the network (34%) or guest network (22%) than nurses (20% for the network and 12% for the guest network).

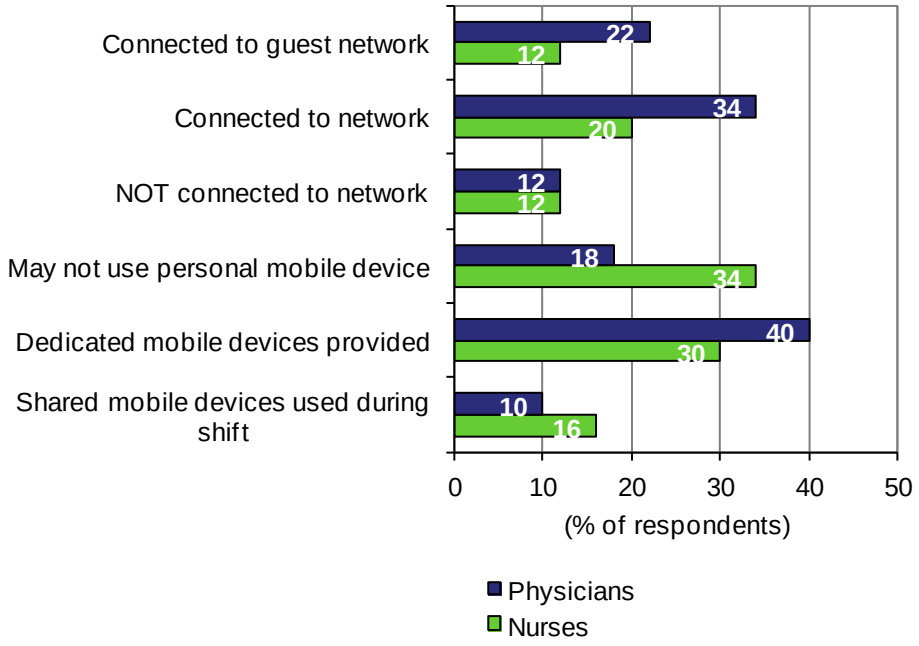
 

Healthcare organizations are also more inclined to provide dedicated mobile devices to salaried physicians to use inside and outside the institution (40%) than to nurses (30%).

The scenario in Western Europe is slightly different. Privacy laws prevent employers from tracking employees' whereabouts using the GPS capabilities often found on personal devices. This has some implications for the use of personal devices in the workplace. Thirty-two percent of physicians and nurses in Western Europe are not allowed to use their own device, which is fewer than in North America. However, physicians (48%) and nurses (38%) are more likely to be provided with a dedicated device.

**FIGURE 10**

Bring Your Own Device Policies




n = 50

Source: IDC Health Insights' *Clinical Mobility Buyer Behavior Study*, 2011

Designation of a standard and preferred mobile phone platform was one of the topic areas that yielded the greatest variation in responses between North America and Western Europe.

Overall, the two most commonly reported standard platforms are iPhone/iOS (48%) and BlackBerry (36%). While 31.8% of all respondents reported that the iPhone/iOS was the preferred mobile computing platform, 13.6% indicated that their organization had not designated a standard platform. Devices that are acceptable to

physicians may not work well for nurses, midlevel practitioners, or other mobile users. Nurses are more likely to use devices other than iPads and iPhones, for example.

In North America, Apple/iOS and BlackBerry are the two dominant platforms, respectively, in terms of both standard platform to support and preferred platform. However, in Western Europe, while Apple/iOS was most frequently mentioned as the preferred platform (23.8%), Android, Apple/iOS, BlackBerry, and Windows Phones all tied for second place (19%). Another major distinction is that 21.7% of North American respondents reported not having a designated standard platform compared with only 4.8% of Western European respondents. Western European clinicians were more likely to use a dedicated mobile device provided to them by their institution than their North American counterparts.

To mitigate security risks, healthcare IT organizations should heed the following security precautions:

- Require the mobile devices, including smartphones and tablets, to be password protected with strong passwords.

- Do not store protected health information (PHI) or other sensitive data on the device. Desktop virtualization moves data from endpoint mobile devices into the datacenter, thereby reducing the security risks of data theft while improving access to clinical information to highly mobile clinical workers whether they are in acute or ambulatory care settings or in a remote location.

- Encrypt data at rest and in transit if data is stored on the device.

- Install antispyware and antivirus software because encryption will not be enough to protect sensitive health data stored on mobile devices. Research by Juniper Networks reveals a "250% increase in malware from 2009 to 2010" and that "61% of all reported smartphone infections were spyware, capable of monitoring communication from the device."

- Lock down and wipe clean a device suspected of being lost or stolen. Advanced technology allows data to be partitioned. In the case of a lost or stolen personal mobile device, only the healthcare organization's sensitive information and PHI is erased from the device.

A BYOD strategy will require healthcare organizations to be device agnostic. The net impact of this will be a dramatic increase, and diversity, in the MPOC solution user base. Healthcare provider organizations deploying mobile devices in quantity are sensitive to the associated support and integration costs and should seek a balance between task-appropriate products and those that support multiple functions to minimize the proliferation of different devices.

## PARTING THOUGHTS

The next 10 years represent the second wave of clinical mobility with significant investment in the underlying infrastructure technologies to support the mainstream use of mobile point of care solutions. Increased adoption of EMRs/EHRs, HIE, and other clinical systems will improve access to electronic health information, thus accelerating the use of mobile devices to deliver care, collaborate with care team members, and engage patients. The effective use of mobile point of care solutions will enable healthcare organizations to pursue Lean healthcare and clinical transformation initiatives by removing waste, delay, and rework from the system through improved, real-time communication between care team members and, ultimately, consumers. Mobile point of care strategies will help to evolve workflows from being centered on the convenience of clinicians to being more patient centric and thus more focused on improving the patient experience, quality of care, and patient safety.

## ABOUT IDC HEALTH INSIGHTS

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- Maximize the business value of their technology investments
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