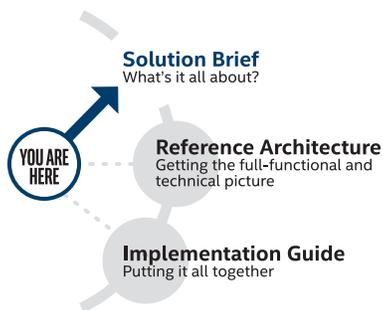




# Enhance Quality of Care and Efficiency with Mobile Technology

**2-in-1 devices, collaborative software, and wireless technologies can streamline clinical workflows, revolutionize patient engagement, and improve device security and manageability**



"The more engaged the patient is, the better the outcomes. When you use the tablet to show people, 'Here's your X-ray. Here's where I see the problem. Here's what we need to do,' they are much more engaged."

—**Bradley Dick**  
Chief Information Officer  
Resurgens Orthopaedics

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## Executive Summary

The healthcare industry is evolving dramatically. Demand for collaborative, patient-centered care, combined with the challenges of meeting the needs of an aging population, the accelerating rates of chronic disease, and an increasing shortage of physicians are motivating hospitals to look for innovative ways to cut costs while at the same time increase access to and improve the quality of healthcare services.

A growing number of hospitals are looking to mobile technology—small form factor devices such as tablets and 2-in-1 devices, collaborative software, and wireless capabilities—to help solve some of these challenges through streamlined workflows and better patient engagement. At the same time, health IT departments want to ensure these technologies support information security and device manageability.

An enterprise mobility strategy that incorporates Intel® architecture-based mobile devices can meet the needs of IT, mobile health workers, hospital administrators, and patients. 6th generation Intel® Core™ M vPro™ processors provide the hardware-assisted security and manageability IT needs and the performance and flexibility the mobile health worker expects. Options such as Intel® Unite™ software for collaboration, Intel® WiGig technology for wireless docking, and Intel® Solid State Drives for fast, secure data storage build a foundation for an enterprise mobility strategy that can lead to operational efficiency and better patient engagement.



**Mobile technology increases patient engagement.**

## Business Challenge: Use Mobile Technology to Cut Costs, Improve Care

Hospitals are dealing with the constant struggle of providing better healthcare services while controlling the rising cost of those services (see Figure 1). Several factors make these competing priorities even more challenging:

- The rapid growth in the number of senior patients (65 years and older) combined with extended life expectancy rates
- The rising number of chronic illnesses such as diabetes and obesity
- A mounting shortage of skilled clinicians<sup>1,2</sup>
- Changes in policy and reimbursement
- The increasingly distributed and complex care teams due to industry consolidation

These factors are fueling a demand for new healthcare technology that allows health workers to work more efficiently across a variety of care settings. Mobile technology is one solution that accomplishes this goal. Health workers are increasingly looking to mobile devices to streamline their workflows and enable new models of care delivery. These mobile technologies must meet stringent security requirements while providing a user experience that is similar to popular consumer platforms. Eighty percent of employees working on-premises also frequently work away from their desks.<sup>3</sup>

Mobility is quickly becoming the new standard as health workers try to respond faster to patient needs and decrease patient length of stay. Hospital administrators, too, need mobile technology that can follow them through an extended work day filled with meetings. To succeed in the healthcare environment, mobile devices must have enough computing performance to multitask between a variety of secure virtual and native applications including medical records, lab results, ultrasounds and X-rays, often in real time while a patient awaits a prognosis or diagnosis.

Healthcare IT departments must balance the increasing need for mobile technology against ever-present security concerns, as the number of healthcare breaches continues to increase. The IDC's Health Insights group predicts that one in three healthcare recipients will be the victim of a healthcare data

breach in 2016.<sup>4</sup> As mobile devices proliferate throughout the healthcare environment, the need for delivering a seamless user experience across device types and locations becomes increasingly important, as does the challenge associated with securing and managing these devices.

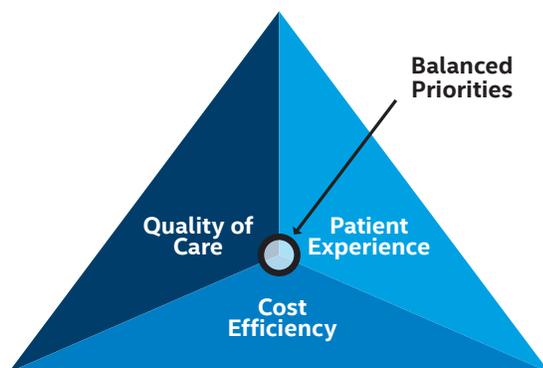


## Mobile Technology Transforms Patient Care

Health systems worldwide continue to increase their use of electronic health records (EHR). As a result, health workers can now use mobile technology, such as 2-in-1 devices and mobile apps, to access digital data on the go. This can streamline workflows and improve real-time clinical decision support. Here are some examples of how mobile technology can increase worker efficiency as well as patient care and satisfaction.

- **Inpatient acute care.** Hospitals are using mobile and collaboration technology to improve patient engagement. Using mobile devices, providers can share content, such as the patient's care plan, test results, and X-rays, in the exam or hospital room. In this face-to-face, personal conversation, patients become more engaged in the conversation about their health. Also, mobile technology can collect and view digital patient data. For example, a smartphone can be augmented to serve as a portable EKG device. Doctors at one hospital used such information to make changes to treatments remotely, helping many patients avoid trips to the hospital and reducing readmissions. Ninety-five percent of patients and families also found it easy and convenient to use.<sup>5</sup>
- **Collaborative care.** Coordinated patient care can reduce medical errors and improve healthcare quality while lowering costs by avoiding unnecessary duplication of services. In particular, mobile technology can facilitate real-time virtual consultations between distributed members of a patient's care team. This type of collaboration can lead to better use of limited specialist resources, improve care coordination, and provide a superior patient experience. A variety of health providers, regardless of distance, can share the same information and collectively decide on a treatment plan. For example, when caring for a stroke victim a hospital physician can use a high-performance tablet and a live-feed video solution to quickly and effectively communicate with a neurologist two cities away. In this way, patients can get quality care in real time, and doctors save valuable time by eliminating their commutes to the hospital.
- **Telemedicine.** Caregivers are using mobile technology to provide live care remotely by phone or through an Internet connection, through voice and videoconference calls. During

### Health Care Triple Aim



**Figure 1.** Hospitals must balance competing priorities while making their services more effective and more affordable.

these virtual visits mobile technology allows providers to quickly access patient health records and care plans in real time. Mobile devices that can multitask, capture and present multimedia, and handle video and audio are helping care providers and patients interact face-to-face even when the patient can't get to the clinic or hospital.

**Key Solution Benefits**

- Improve quality of care.
- Reduce patient's length of stay.
- Increase patient's satisfaction during inpatient stays.
- Strengthen care coordination.
- Consolidate technology platforms.
- Reduce the risk of a healthcare data breach.
- Support both virtual and local applications.
- Increase the efficiency of the health worker.
- Provide access at the point of care to critical patient data.

**Solution Value: Better Technology Leads to Better Outcomes**

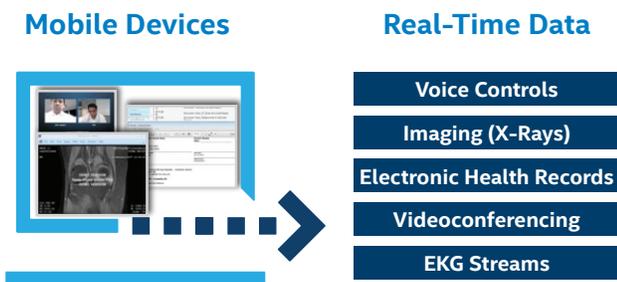
A single powerful mobile device can replace multiple devices, thereby lowering hospital operational and capital expenses. In addition, all-day battery life and anywhere-connectivity support critical usage model needs and improve user experience and patient care. Here are some specific advantages of using mobile technology in the hospital setting:

- **More face time with the patient.** Using mobile devices like 2-in-1s or tablets allows health workers to face the patient during consultations instead of having to turn their back to access a fixed workstation. The resulting workflow improvements result in more face time with the patient and a higher-quality and more consistent experience. Intel® Unite™ software can be used to securely and wirelessly share the screen from a mobile device to a wall-mounted monitor in a patient room which enables a more meaningful dialogue between the health worker and patient around the content being shared. For example, sharing an X-ray with a patient to explain where a problem lies is a powerful way to increase patient engagement (see Figure 2).

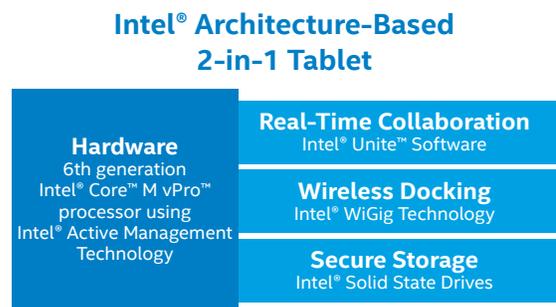
- **Clinic efficiency.** An enterprise mobility strategy can enable hospitals to modernize older paper processes using EHR systems. These new software tools provide clinical staff access to patient health data anytime, anywhere, and they enable real-time collaboration between clinicians and patients in support of critical decision support at the point of care. In one study, 84 percent of survey respondents believe they are better multitaskers as a result of using tablets.<sup>6</sup> 2-in-1 devices build upon this experience by providing the convenience of a tablet, with the performance of a full keyboard when more involved tasks need to be completed.
- **Enterprise-level data security and manageability.** 2-in-1 devices with Intel® Core™ M vPro™ processors combine an outstanding user experience (touch screen, lighter weight, long battery life) with the security and manageability that IT demands. Remote device management capabilities with Intel® Active Management Technology (Intel® AMT) maximize device uptime. Intel AMT enables IT to patch systems, deploy software updates, wipe hard drives (if the device is lost or stolen), and repair operating systems—even if the operating system is inoperable—from a remote central console. Integrated management tools can reduce company liability, streamline help desk support, and eliminate many of the issues that could cause device downtime, minimizing the need for in-person repairs. These 6th generation enterprise-class platforms are part of the Intel® Stable Image Platform Program and are compatible with existing security and manageability tools.

**Solution Architecture: Collaborative Care Using Mobile Technology**

A combination of high-performance Intel® architecture-based 2-in-1s,<sup>7</sup> Intel Unite software, Intel® WiGig technology, and Intel® Solid State Drives (Intel® SSDs), as shown in Figure 3, can help mobile workers cut costs, work more efficiently, and make healthcare more personalized. These same technologies can ease health IT department concerns about information security and device manageability.



**Figure 2.** A high-performance mobile device powered by an Intel® processor enables health workers to better engage patients and access medical data in real time through videoconferencing, electronic medical records, EKG stream, X-rays, documents, and more.



**Figure 3.** The Intel® architecture-based enterprise mobility strategy combines powerful and secure small form factor compute with additional workflow-enhancing options.

## Technology Innovation for Scalable, High-Quality Healthcare

- Real-time collaboration
- Wireless connectivity to monitors and peripherals
- Multitasking across native and virtual applications
- Enhanced end-to-end security and manageability
- Remote access to data for streamlined workflows

Tablets based on 6th generation Intel Core M vPro processors can leverage traditional EHR software or purpose-built software for clinical workflows. These tablets, available from several OEMs, provide the performance necessary to seamlessly stream virtual applications or to run native legacy applications as a desktop would. A wide selection of device options, screen sizes, features, and thin, light, fanless designs is available from Intel's broad ecosystem.

Using Intel Unite software, health workers can securely share the screen from their 2-in-1 device, tablet, or laptop to a larger monitor in a patient's room, with no-wires connectivity, to increase patient engagement. If the patient needs more information about the content being shared, the health worker can share the secure PIN used by Intel Unite software with a remote specialist and that specialist can share their screen in real time with the patient to provide additional information.

Care teams can use Intel Unite software to share and collaborate on content remotely in real time, allowing for better, faster decision making. Intel Unite software can also benefit hospital administrators and IT staff, who need scheduled or ad hoc collaboration and remote content sharing capabilities. Because Intel Unite software uses the local Wi-Fi\* network, no wires or connectors are required to join the session, which saves time and improves meeting efficiency.

Intel WiGig technology helps streamline workflows through wireless docking. Health workers no longer have to connect wires to their mobile device to access workstations and peripherals such as a keyboard, video, or mouse. Intel WiGig technology saves time, improves hardware usability, and

provides a quick way for health workers to dock a 2-in-1 with an EHR-approved, large-format screen for data entry.

Intel SSDs help accelerate business storage and lower the total cost of ownership with integrated drive encryption, remote management, and performance tuned to optimize battery life. Self-encrypting SSDs are ideal for mobile health workers that store data locally on their device. The Intel® SSD Pro 1500 Series is designed to meet an annualized failure rate of less than one percent.<sup>8</sup> For even higher performance and flexibility, the Intel® SSD Pro 2500 Series is available in capacities ranging from 120 GB to 480 GB in thin 2.5-inch and ultra-sleek M.2 form factors.

## Conclusion

The optimum combination of service delivery model, mobile device, device management model, end-user experience, and security practices can transform how health workers deliver patient care. Adopting an enterprise mobility strategy that incorporates Intel architecture-based devices can provide health IT departments with the hardware-assisted device security and manageability features they need, while positioning hospitals to thrive in an evolving marketplace.

Find the solution that's right for your organization. Contact your Intel representative or visit [intel.com/healthcare](http://intel.com/healthcare).

## Learn More

- Business Brief: "[Streamline Clinical Workflows and Improve Patient Engagement with Mobile Technology](#)"
- Find the right device with Intel's online Healthcare Device Selector Tool: [intel.com/content/www/xr/ar/healthcare-it/healthcare-device-selector.html](http://intel.com/content/www/xr/ar/healthcare-it/healthcare-device-selector.html)

## Solutions Proven By Your Peers

Intel Solution Architects are technology experts who work with the world's largest and most successful companies to design business solutions that solve pressing business challenges. These solutions are based on real-world experience gathered from customers who have successfully tested, piloted, and/or deployed these solutions in specific business use cases. Solution architects and technology experts for this solution brief are listed on the front cover.



<sup>1</sup> According to a World Health Organization 2014 report there will be an estimated deficit of 12.9 million health workers globally by 2035.

<sup>2</sup> A March 2015 report from industry analyst IHS (at the request of Association of American Medical Colleges) indicates the United States will experience an estimated shortfall of between 46,000 to 90,000 physicians by 2025.

<sup>3</sup> CEB IT Impact Report: Five Key Findings on Driving Employee Productivity Q1 2014.

<sup>4</sup> Forbes, [nationalcybersecurityinstitute.org/editorials/2015-healthcare-breaches-surpassed-112-million-records](http://nationalcybersecurityinstitute.org/editorials/2015-healthcare-breaches-surpassed-112-million-records)

<sup>5</sup> Patrick, John R., 2016. "New Technologies Help Providers Collect Patient Data," [childrenshospitals.org/Newsroom/Childrens-Hospitals-Today/Winter-2016/Articles/New-Technologies-Help-Providers-Collect-Patient-Data](http://childrenshospitals.org/Newsroom/Childrens-Hospitals-Today/Winter-2016/Articles/New-Technologies-Help-Providers-Collect-Patient-Data)

<sup>6</sup> CDW, Tablets @ Work. [webobjects.cdw.com/webobjects/media/pdf/CDW-Infographic-StrawPollTablets.pdf](http://webobjects.cdw.com/webobjects/media/pdf/CDW-Infographic-StrawPollTablets.pdf)

<sup>7</sup> Features described may not be available on all models. Check with manufacturer for details and available operating systems per model.

<sup>8</sup> Annualized Failure Rate (AFR) is based on Mean Time Between Failures (MTBF) of 1.2 million hours. AFR = 1/MTBF = 8760 hours/1.2M hours × 1 year = 0.73% per year.

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