

HealthSaaS Delivers Cognitive Patient Monitoring with the Intel® Health Application Platform

Simplifying data collection and analytics for outcome-based healthcare

“At HealthSaaS, we have a genuine curiosity that inspires us to think differently. We exist to challenge the status quo and are driven by a sense of purpose to empower every segment of the healthcare industry.”

—Frank Ille, CEO, HealthSaaS, Inc.

Executive summary

HealthSaaS is a thought leader in healthcare interoperability solutions that enable meaningful exchange of patient-driven data. The HealthSaaS Cognitive Patient Monitoring Platform* combines sophisticated technology with simplicity and ease of use for patient and provider populations. Its cloud-based IoT services, powered by Microsoft Azure* and based on the Intel® Health Application Platform and Flex* Edge Compute Engine, are designed to meet the specific requirements of health IT companies, clinicians, hospitals, pharmacies, and home health organizations. The result is a secure, vendor-neutral infrastructure that provides just-in-time data to facilitate interventions and reduce readmissions for the chronic condition patient.



51% reduction in hospitalizations (30 day)¹

37% reduction in hospitalizations (60 day)¹

36% reduction in hospitalizations (90 day)¹

Remote patient monitoring helps reduce heart failure readmissions by up to 50 percent¹

Challenges

US spending on healthcare accounts for nearly 18 percent of the GDP.² Chronic conditions—such as diabetes, hypertension, heart failure, COPD, and asthma—are rapidly accelerating. These chronic conditions are responsible for more than 86 percent of the annual spend on healthcare.³ Patients frequently suffer from multiple diseases resulting in complex treatment and medication profiles from multiple caregivers. In addition, a move toward value-based care provided by accountable care organizations (ACOs) is reshaping healthcare as providers seek to close gaps in care coordination and reach underserved populations. Success is directly linked to limiting lost revenue from unnecessary ER visits and avoidable hospital readmissions.

Many healthcare organizations lack the technology integration connected systems require. Often, they have siloed data and are unable to access and analyze a holistic multicaregiver patient profile in a timely manner. Healthcare organizations that reject the ACO model and fail to implement the necessary technology and practices to support better patient outcomes risk long-term clinical and financial failure.

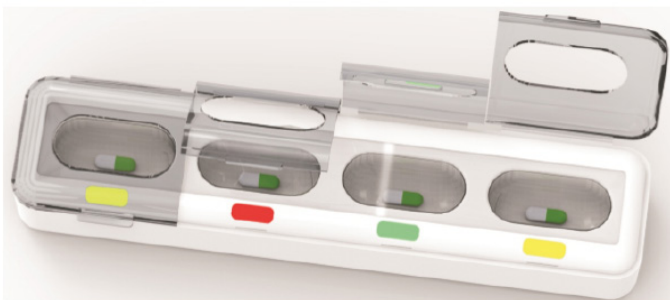
In addition, more hospitals are managing patients on an outpatient basis. As the volume of outpatients increases, organizations are under pressure to expand geographically. New outpatient clinics can cost millions of dollars to build and maintain.

Solution

The HealthSaaS Cognitive Patient Monitoring Platform technologies collect clinical data from patients' prescribed devices and then transmit the information to clinicians for clinical review, patient interventions, and education. Widespread deployment of the technology may result in considerable cost savings due to decreased readmissions to hospitals, avoidance of unnecessary visits to physicians, enhanced medication compliance, and improved communication between patients and clinicians.

Health organizations are leveraging telehealth for post discharge care including medication adherence, follow up visits, and late-night and weekend care. The HealthSaaS platform is an easy-to-use, home-based IoT monitoring solution for patients who have chronic or critical medical conditions, such as diabetes, hypertension, atrial fibrillation, heart failure, COPD, and asthma.

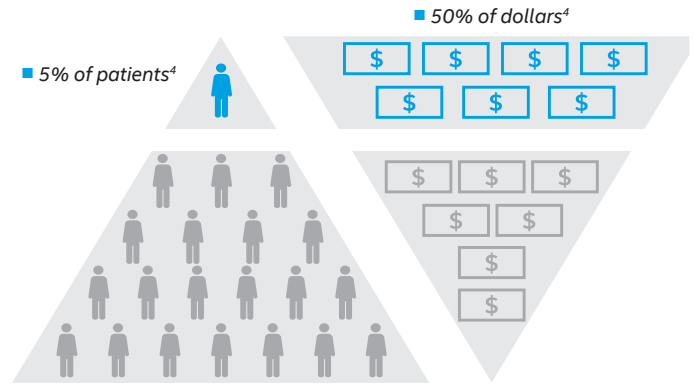
The platform easily integrates with connected devices used for home healthcare, including blood pressure monitors, activity trackers, pillboxes, pulse oximeters, and scales measuring both weight and body fat. A new Bluetooth Low Energy* (BLE*) medication adherence device manufactured by Zewa Medical Technology was recently added to the HealthSaaS platform.



Bluetooth Low Energy* (BLE*) medication adherence device

HealthSaaS integration of AkēLex* cognitive computing tools adds the ability to incorporate complex effects of past history, medications, labs, and more into the generation of alerts and secure messages. In place of simple threshold messaging, it offers nuanced, tailored messaging covering a broad range of clinical behaviors, and provides the clinician the relevant literature-based rationale.

When a potential problem pattern is detected, the AkēLex system can provide directed questions aimed at elimination of false positive responses or collect a more detailed data set to enhance clinician decision-making. This reduces



Total healthcare spending is severely disproportionate⁴

KEY FEATURES OF THE HEALTHSAAS PLATFORM FDA cleared. HITECH and HIPAA compliant. Hardware agnostic.

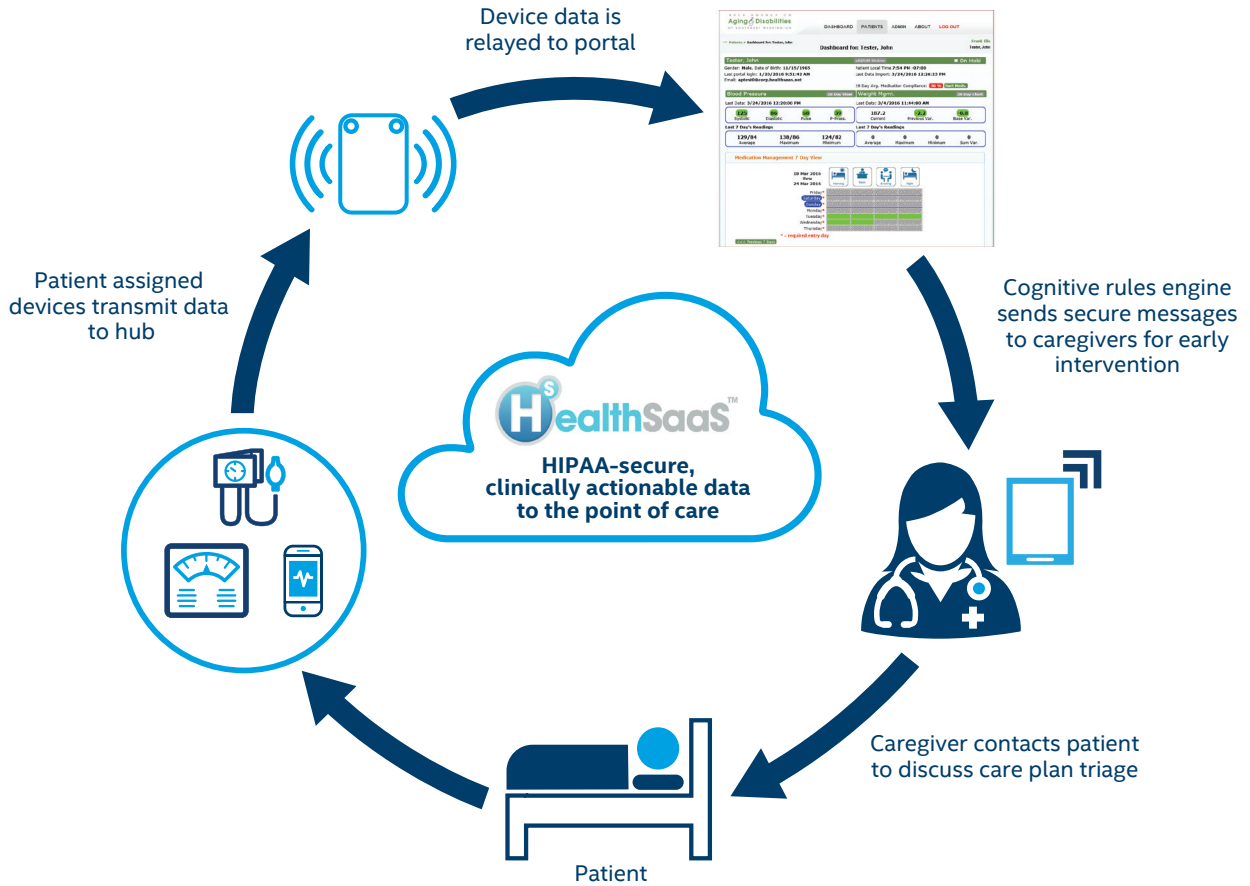
FOR PATIENTS	FOR PROVIDERS	FOR HEALTHCARE IT
<ul style="list-style-type: none"> Provisions, connects, and manages patient devices Medication management Patient portal with easy-to-understand visual data 	<ul style="list-style-type: none"> Physicians can prescribe patient devices HIPAA-compliant clinician/provider portal aligned with healthcare best practices Dashboard and reporting tools visualize actionable data for clinicians Cognitive triage notification services HIPAA-secure messaging 	<ul style="list-style-type: none"> Health IT data relay services Agnostic BLE* smart device hub (support for Android*, Windows*, iOS*) Hierarchical security to manage portal access Customized for unique requirements Optional white label solution

alert fatigue by lowering the dependence on simple scalar thresholds for messaging and providing complete transparency about the cause for the alert or message.

- Earlier detection of worrisome trends
- More useful messaging backed by literature
- Support for a greater number of clinical scenarios

Says Sandra Elliott, director of consumer technology and service development at Meridian Health, "The HealthSaaS platform enables Meridian Health to offer solution-based information to the clinicians in an actionable manner. The ability to provide a low-cost, end-to-end solution will ultimately create the most value for providers and patients."

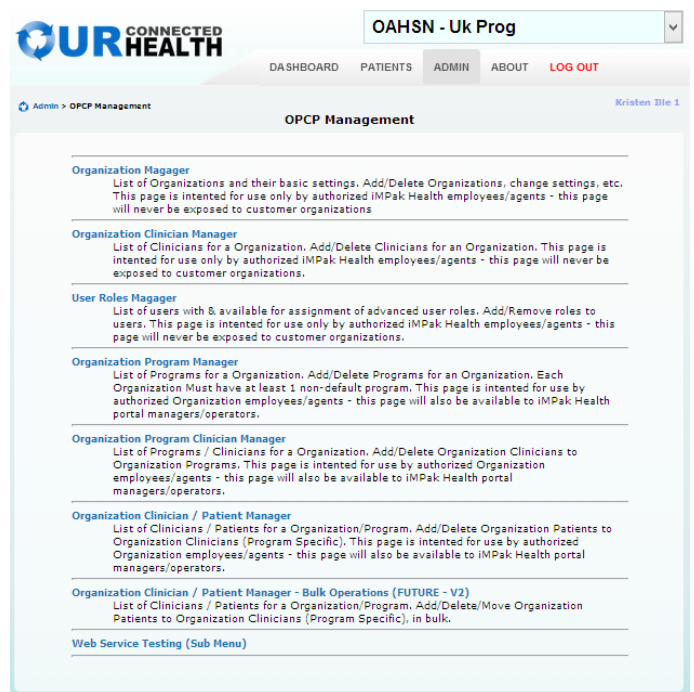
HealthSaaS connects previously siloed data from multiple devices and systems to provide unified, clinically relevant data to clinicians and payers. Data from home monitoring devices is secured and filtered using the Intel Health Application Platform software and transmitted to HealthSaaS portals or other cloud-based services. Device data is collected, stored, and forwarded in near real time, without requiring patients to do anything but use their physician-recommended devices. The data is parsed and displayed visually to simplify patient access and speed clinician decision-making.



The HealthSaaS platform allows for near-real time, two-way communication between clinicians and patients

HEALTHSAAS PLATFORM <i>An affordable platform for smart home healthcare. Benefits that impact the bottom line.</i>	
Reduce unnecessary hospital readmissions	One in five Medicare patients returns to the hospital within 30 days of discharge with costs totaling more than \$17 billion dollars annually. ⁵ Telehealth can reduce avoidable hospital readmissions by up to 70 percent. ⁶
Redirect inappropriate ER utilization	Between 14 and 27 percent of all ER visits are for non-urgent care. Alternative care services could save \$4.4 billion annually in healthcare costs. ⁷
Limit capital expenditure	Telehealth expands reach and projects care into the community at a substantially lower investment with no brick- and-mortar costs. ⁸

A robust set of management capabilities is available through the HealthSaaS platform. Developed in consultation with healthcare organizations, they reflect the realities and specific requirements of home-based patient care. Ongoing support from HealthSaaS provides not only technology support, but consultative expertise to continually improve the platform for a healthcare organization's evolving needs.



Practice-based management capabilities align HealthSaaS with provider requirements and processes

Addressing Patient Privacy and Data Security

Security is at the core of the HealthSaaS platform. From public-facing portals to private APIs, every access method is safeguarded with authentication and encryption. All data transmission occurs over SSL (HTTPS), which encrypts all transmitted data.

HealthSaaS meets or exceeds all Health Information Technology for Economic and Clinical Health (HITECH) Act and HIPAA guidelines and requirements.

This applies to data security, integrity, and protection, as well as to data that is shared or transmitted from the HealthSaaS platform to any other system. Security and data systems are partitioned, which means they are hosted by separate database servers for added protection. Screens showing pertinent data can “black out” or redact personal information for sharing with patients and other providers. The redactor feature helps curb the unintentional disclosure of personal identification information.



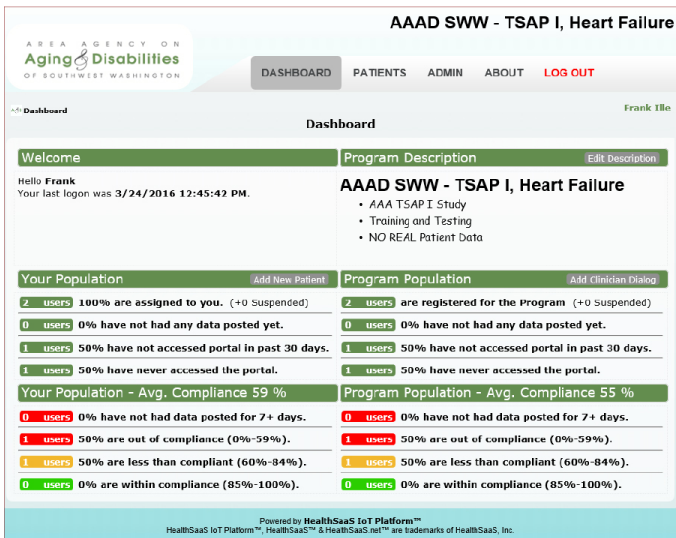
The redactor feature works on any page that has been tagged with PII tags

How It Works in Brief

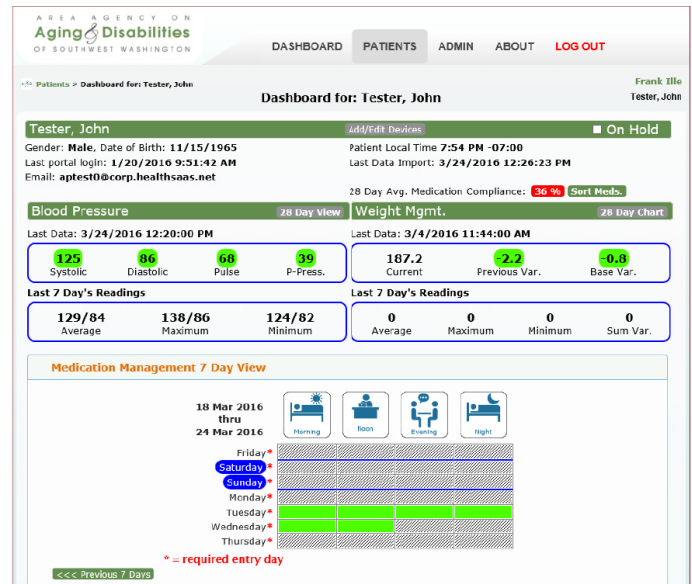
For the cloud, the HealthSaaS platform is developed and built using Microsoft .NET* tools and hosted on Microsoft Azure. This simplifies implementation for healthcare organizations while providing benefits, including:

- Control for healthcare organizations of their sensitive data at all times
- Physical, administrative, and technical safeguards to assist covered entities with HIPAA compliance requirements via Microsoft online services and data centers
- Data center certification for SAS 70 Type II, FISMA, and ISO 27001, with audits by independent, third-party security organizations

At the edge, the platform transmits Bluetooth* and BLE data from patient devices through phones, tablets, and the Intel IoT healthcare reference platform to HealthSaaS portals or other cloud-based services. The solution supports connectivity with multiple device manufacturers and is biometric device and manufacturer agnostic. It is also smart device agnostic, supporting Android, Apple*, and Microsoft phones and tablets.



Customizable physician dashboard



Patient dashboard

Conclusion

HealthSaaS is more than a connectivity platform for healthcare. With a passionate commitment to improve home healthcare, reduce patient suffering, and save lives, the company is continually developing new strategies and services to support the rapidly evolving healthcare industry. These include data relay services for health IT companies, device prescribing, asset tracking, predictive analytics, and award-winning medication management services.



Technology developed by HealthSaaS won the 2014 Microsoft Life Sciences Innovation Award for Mobile Health Solutions at HIMSS.

About HealthSaaS

The HealthSaaS vision is to inspire optimism and hope for chronic condition patients and the clinicians who serve them. From chronic disease management to health and wellness programs, this vision allows HealthSaaS to create solutions that enhance healthcare provider efficiencies, track outcomes, and improve the quality of life for patients throughout the continuum of care. In addition to its portfolio of services for healthcare organizations, researchers, and clinicians, HealthSaaS offers patent-pending technology for device prescribing, pairing, asset tracking, and full access-controlled integrated data presentation to any permutation of available clinicians.

healthsaas.net

The Foundation for IoT

The Intel Health Application Platform is just one example of how Intel works closely with the healthcare ecosystem to help enable smart Internet of Things (IoT) solutions based on standardized, scalable, reliable Intel® architecture and software. These solutions range from sensors and gateways to server and cloud technologies to data analytics algorithms and applications. Intel provides essential end-to-end capabilities—performance, manageability, connectivity, analytics, and advanced security—to help accelerate innovation and increase revenue for enterprises, service providers, and the healthcare industry. Intel can help organizations use data to monitor, control, optimize, and benchmark, as well as to share historical and near-real-time information to improve decision-making.

Learn More

For more information about HealthSaaS, please visit healthsaas.net or contact us at info@healthsaas.net.

For more information about Intel® IoT Technology and the Intel IoT Solutions Alliance, please visit intel.com/iot.



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2. cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html
3. AHRQ Publications, Rockville, MD: Agency for Healthcare Research and Quality, 2014.
4. slideshare.net/dchase/cc-future-ecosystem-v-09; U.S. Agency for Healthcare Research and Quality.
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6. ncbi.nlm.nih.gov/pmc/articles/PMC4703150/
7. ncbi.nlm.nih.gov/pmc/articles/PMC3412873/
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REMOTE PATIENT MONITORING DEVICES AND RELATED SERVICES ARE NOT INTENDED TO TAKE THE PLACE OF PHYSICIANS' MEDICAL ADVICE. Rather, remote monitoring is intended to provide information about medical conditions and steps that might be taken to improve patient self-care compliance and treatment regimens as defined by a patient's physician. Remote Patient Monitoring is not a substitute for professional medical advice, diagnosis, or treatment and it should never be relied on to make decisions about patient health without the opinion of a physician.

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