



Medical Device/EHR Connectivity Success Story

Connected Spot-Check Devices Help Large Physician Group Enhance Patient Care, Improve Efficiency, Reduce Costs

The George Washington University Medical Faculty Associates collects complete, consistent and virtually error-free vital signs for its patients using Welch Allyn digital spot-check devices. Then, with the click of a mouse, vitals data are entered into the patient electronic health record (EHR), enabling the delivery of higher quality, integrated diagnostic testing and enhanced clinical efficiency while decreasing costs and facilitating reimbursements.

The Challenge:

Improving Provider Access to Complete and Accurate Patient Vitals Data

Until 2004, the George Washington University Medical Faculty Associates (MFA)'s Department of Medicine relied on its medical assistants (MAs) to manually collect vital signs from patients. They wrote the results on paper and hand-delivered them to the patients' physician, who then entered the data into the patients' health records.

This time-tested method worked reasonably well, but it had several drawbacks. The medical assistants often wasted valuable time tracking down vitals equipment such as blood pressure gauges and thermometers while the patient waited, or would simply omit some of the readings if a piece of equipment couldn't be located. Physicians or MAs sometimes lost the paper with the readings. And many physicians habitually repeated the blood pressure test to double check its accuracy, leaving less time to interact with patients.

These shortcomings became especially apparent when, in January 2003, the Department of Medicine rolled out the Allscripts™ Enterprise electronic health record (EHR) system. The new system provided clinicians immediate access to patient health records from anywhere in the multistory clinic, and offered the possibility of improved clinical outcomes by giving physicians a quickly accessible view of how patients' vital signs changed over time. But the EHR's ability to facilitate better patient care would require one fundamental change.

Overview

Customer



Location

Washington, DC

EHR Partner



EHR Solution

Allscripts™ Enterprise EHR

Customer Profile

The George Washington University Medical Faculty Associates (MFA) is a nonprofit, academic multispecialty medical group comprised of 350 physicians providing medical care in 41 medical specialties. MFA's mission is to provide excellence and expertise in patient care, medical education, and scientific and clinical research. MFA is responsible for the medical education of nearly 700 medical students and more than 400 interns, residents and fellows, and serves an average of 2,800 patients per day.

Praveen Toteja, MFA's chief information officer, explained: "We knew that incomplete and sometimes inaccurate vitals data in our patient records were limiting our physicians' abilities to make the best possible clinical diagnoses and treatment recommendations, and that the time had come to replace the manual methods responsible for those data quality issues with digital technology. The challenge then became one of finding a medical device manufacturer who could provide both the best vital signs devices to meet the needs of our various practices and who would be willing to integrate those devices with our EHR system."

The Solution:

The Welch Allyn/Allscripts Partnership

MFA selected Welch Allyn as its medical device partner because of Welch Allyn's long history of success and willingness to build and install interfaces to seamlessly transfer device data into the Allscripts Enterprise EHR system.

Initially, MFA deployed 75 Welch Allyn Spot Vital Signs® devices—one for each of 75 exam rooms. The mobile, 4.5-pound Spot Vital Signs device captures every key vitals parameter—noninvasive blood pressure, pulse rate, mean arterial pressure (MAP), body temperature and pulse oximetry—in about 45 seconds. Each of the Spot Vital Signs devices transmits data to the EHR through a serial cable directly connected to an Enterprise workstation. With one mouse click, the data are uploaded directly into the EHR and automatically populate the appropriate vitals template within the patient's health record.

Since the initial installation of the Spot Vital Signs devices, MFA has added 89 Spot Vital Signs® LXi devices in both exam rooms and central triage stations. According to Roseanne Moore, director of clinical applications and operations for MFA's Department of Medicine, the Spot Vital Signs LXi devices have been a real benefit to the busier clinics at MFA. Said Moore, "Our specialists who are using the integrated Spot Vital Signs LXi's love them. The user interface is very easy to understand, and the new Welch Allyn SureBP™ technology can capture blood pressure in 15 seconds, making patient encounters during triage much more efficient."

The Benefits:

Speed and Reliability

The overwhelming speed and reliability of the Welch Allyn products—plus the convenience of having one in every exam room—quickly delivered two benefits to MFA: faster vitals collection and more comprehensive, consistent and reliable numbers for the EHR.



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—Roseanne Moore, Director of Clinical Applications and Operations, Department of Medicine

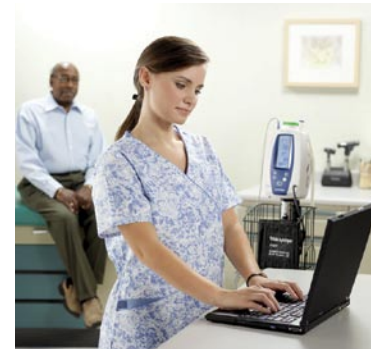
“It allowed us to make point-of-care decisions based on trending a comprehensive vitals data set that we could see right away,” said Ryan G. Bosch, MD, FACP, director of the Division of General Internal Medicine and associate professor of medicine. “That translates into more accurate, higher quality patient care.”

Time-motion studies using the Spot Vital Signs devices indicate the devices reduced the amount of time MAs spent collecting vitals by 11%. (Time-motion studies were not performed using the Spot Vital Signs LXi’s, which would have resulted in additional time savings.) Compared to cases in which the MA had to track down a missing piece of equipment, the Welch Allyn devices reduced encounter time by at least a minute.

That’s just the time saved by the MAs. Dr. Bosch estimates the physicians saved at least 20 seconds per patient because they no longer had to hand-enter vitals data into the health record. Considering the number of patients physicians see each week, that’s a significant amount of time.

Working in tandem with the Allscripts Enterprise EHR system, the Welch Allyn products also significantly reduced the possibility for human error. “Previously, physicians frequently complained about the accuracy of a medical assistant’s blood pressure readings, sometimes with cause,” said Arlene Bright, MFA’s Enterprise clinical trainer. “But now there’s absolutely no room for question because there’s no human interpretation. The Welch Allyn devices make vitals collection much more reliable and accurate.”

By automating the capture and recording of patient vitals, the Welch Allyn spot-check devices minimized the chance that an MA or physician would record the wrong result. And by ensuring that a complete set of vital signs data was collected for every patient, the devices enabled a comprehensive view of vitals across the patient population. Both factors are key to leveraging the EHR to deliver care improvements.



“The vital signs are simply vital . . . By having instant access to the patient’s past trends, you’re able to better discern what’s new and what’s not, and that knowledge will affect how you treat the patient that day.”

*—Ryan G. Bosch, MD, FACP,
Director of the Division of General
Internal Medicine and associate
professor of medicine*

Before and after Vitals Connectivity	
BEFORE	AFTER
<ul style="list-style-type: none"> • Equipment tracking issues <ul style="list-style-type: none"> - BP cuff, stethoscope, thermometer...misplaced 	<ul style="list-style-type: none"> • All-in-one electronic vitals device
<ul style="list-style-type: none"> • Vitals parameters incomplete <ul style="list-style-type: none"> - Temp capture ~50%/Pulse ~10% 	<ul style="list-style-type: none"> • Comprehensive vitals captured
<ul style="list-style-type: none"> • 2-step manual data capture <ul style="list-style-type: none"> - RN writes results on paper/MD inputs to EHR - Opportunities for data transfer errors 	<ul style="list-style-type: none"> • 1-step data transfer <ul style="list-style-type: none"> - Device → direct to patient record
<ul style="list-style-type: none"> • Workflow inefficiencies <ul style="list-style-type: none"> - Equipment tracking/2-step data entry - Vitals capture limited to exam rooms 	<ul style="list-style-type: none"> • Workflow streamlined <ul style="list-style-type: none"> - Eliminated equipment tracking - Enabled room or central triage capture options
<ul style="list-style-type: none"> • Clinical limitations <ul style="list-style-type: none"> - Incomplete vitals data/little trending - Inconsistent technique—human factors 	<ul style="list-style-type: none"> • Facilitates clinical studies <ul style="list-style-type: none"> - Vitals linked to test results and meds - Data trended/search-enabled via EHR
<ul style="list-style-type: none"> • Patient inconvenience <ul style="list-style-type: none"> - Waiting for equipment or results 	<ul style="list-style-type: none"> • Patient benefit <ul style="list-style-type: none"> - No waiting for equipment - More interaction with clinician

A “Big Picture” View of Patient Vitals

A critical capability of the Enterprise EHR system is the way it allows physicians to easily see how a patient’s current vital signs compare with past measurements. By making vitals data available in the EHR, the Welch Allyn devices help MFA’s physicians identify clinically significant problems and respond quickly.

“The vital signs are simply vital,” said Dr. Bosch. “If any one of them is abnormal, you’ve got to explain why right away. By having instant access to the patient’s past trends, you’re able to better discern what’s new and what’s not, and that knowledge will affect how you treat the patient that day.”

Before implementing the Welch Allyn–Allscripts solution, MFA’s physicians had to conduct lengthy searches of the health record to find vitals trend data. “I still would have looked that up in the old days, but it would have been a lot harder to find,” said Dr. Bosch. “And it might have meant that I was doing it at night, as homework, and calling the patient the next day rather than spotting it right away.”

Facilitating Successful Participation in Medicare’s PQRI

The integration of the Welch Allyn spot-check devices with MFA’s EHR system has also facilitated MFA’s participation in the Centers for Medicare & Medicaid Services’ Physician Quality Reporting Initiative (PQRI), specifically for the blood pressure management

quality measure for eligible patients. Immediate accessibility to complete and accurate vitals data speeds report preparation and successful report submission, and therefore, reimbursement—all while improving the quality of patient care.

On the Horizon

Now that the Welch Allyn–Allscripts vital signs integration has produced solid results for MFA, the clinic is actively looking to integrate several Welch Allyn cardiopulmonary products. Planned for connectivity at MFA in the next few months are: resting electrocardiogram (ECG), stress-testing ECG, ambulatory blood pressure monitoring for hypertension screening, spirometry and Holter monitoring (continuous ECG). Each new connected Welch Allyn cardiopulmonary product will capture patient test data and seamlessly transfer the results into the EHR, giving MFA’s physicians an ever-expanding view of the patient’s health. Plus, an upcoming release of Allscripts™ Enterprise will leverage the Spot Vital Signs LXi’s digital weight scale connectivity and enable the transfer of patient weight parameters from the Spot Vital Signs LXi directly to the EHR.

The Metrics

An analysis of the formal time-motion study conducted at MFA indicates the integration of the original 75 Spot Vital Signs devices with their Enterprise system is saving the practice nearly \$140,000 annually.

Financial Savings Using Welch Allyn Spot Vital Signs Devices Integrated with Allscripts™ Enterprise EHR System

Digital vitals capture and upload into EHR	Time Savings/Encoder (average)	Times Savings/Year (Dept. of Medicine—225,000 patients)	Compensation (avg. based on Washington DC median salaries)	Total Value of Time Savings
Medical Assistants	9 seconds	562.5 hours	\$14.25/hour	\$8,016
Physicians	20 seconds	1250 hours	\$105/hour	\$131,250
Total Annual Savings				\$139,266

While it’s impossible to attribute a one-to-one correspondence to time saved and salaries unspent, we feel these numbers are a fair estimate of the dollar value to MFA of freeing up clinical resources to focus on other revenue-generating patient services. When measured over the seven-year expected lifespan of the Spot Vital Signs devices, these savings amount to a direct financial benefit of \$974,862—far exceeding the cost of implementation.