

# Connecting a Diagnostic Medical Device with Your EMR

Healthcare providers across the country recognize the benefits of electronic medical records (EMRs) to improve the quality of care, reduce costs and improve efficiency. But as medical professionals, we know the challenge of keeping up with technology. Provided are some suggestions for you as you start to digitally capture information from diagnostic medical devices in your exam room into your practice's EMR.



## INTEGRATED VS. INTERFACED: WHICH IS BETTER?

The first medical devices to be connected to the EMR in 1996 were integrated. The term 'integrated' meant that the medical device manufacturers developed software for their devices that could be embedded directly into the EMR for test acquisition and post-test review. Although integration was an innovation at the time which eliminated the need for scanning test results, the solution had some limitations. In the last ten years technology and software have allowed many vendors to vastly improve device connectivity. The most important dynamic in connecting any medical device is workflow as it relates to the requesting of the test, acquisition of the test and saving the data created from the medical device into the EMR after on-line review and confirmation.

Seamless connectivity and workflow are the most important ingredients to your device connectivity solution, whether your medical device is PC-based or purpose-built. It does not make a difference if your device is integrated or interfaced, but what does matter is ease of use and clinical accuracy! Seamless connectivity means minimizing mouse clicks and having the ability to save test results with discrete data elements when, where and how you want them.

## HOW DO YOU CHOOSE THE CORRECT MEDICAL DEVICE?

First and most importantly you should make the decision. Some EMRs have developed solutions with medical device companies that give the EMR a financial interest in referring a certain manufacturer. Most EMR vendors do a great job with developing software but it is the physician's medical expertise that is required to select which device would best fit the clinical requirements of your practice. If you or your practice is purchasing a medical device such as an ECG, Holter Monitor, vital signs, weight scale, fetal monitor, lab product, spirometer, ophthalmology device, bone densitometer, PACS\*, etc., make sure you select the best, most clinically accurate product first. Once you have selected a product, then make sure it has a connectivity method that fits your practice's EMR requirements.

In addition to working with the device vendor, verify with your EMR vendor that the device can connect to the EMR. Request a connectivity demonstration to ensure that it supports the clinical

and patient workflows for your practice and patient needs. If the medical device does not have connectivity, call your EMR vendor and ask if they can assist with the connectivity analysis and solution identification.

## CONNECTING YOUR DEVICE TO THE EMR

Connecting to the EMR has many different possibilities. The most common solution today is the USB connection, which is a hard-wire connection to your PC. If the manufacturer offers only serial connections, beware; this will tell you that the manufacturer has not kept current with technology. A conversion product that becomes USB is not an acceptable solution. Wireless connections are becoming more and more available, and blue tooth technology today is also a possibility for consideration. Ask your device manufacturer if they offer a solution that will work with a thin client network. Will the solution landscape work on your tablet PC? Does the solution require a separate server? Are there advantages to a separate server? Does it work with a tablet pen? Would voice activation be important?

## HOW SHOULD YOUR DATA BE SAVED?

Keep in mind some important issues in relation to data capture and image quality. A PDF is a static image and cannot be used for data mining in the future, which means that you will be unable to query results. A PDF is a less than adequate file format for storing ECG wave forms that are 100% reproducible. Another suggested standard is HL7 or Health Level 7 which is normally used to store text such as lab results or test interpretations. Current HL7 standards lack clinical reproducibility of wave forms as it relates to ECG and spirometry. It is important for you to ask questions such as:

- How will you track, as an example, "all patients with COPD" from a spirometry test?
- Can you mine test results?
- Can you save, as an example, the discreet data from a resting 12-lead ECG into a cardiology template? Can you also save the interpretation and the critical measurements?

\*PACS: Picture archiving and communication system.

