Device Integration with EMR Systems

Successful implementation requires an understanding of the complexities and strong project leadership

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Today’s Environment
Healthcare providers everywhere are implementing electronic medical records (EMR) systems in an effort to improve patient care and receive incentives that are offered as part of the HITECH act of 2009. As it turns out, the act is not only incenting the use of EMRs – it is also motivating providers to advance their use of other technologies, one of which is the connection of biomedical devices to their EMR systems. Integrating devices enables providers to directly send point of care patient data, such as blood pressure or temperature, directly to a patient’s medical record, thereby reducing transcription errors and ensuring the timely transfer of important clinical data.

Although integration of biomedical devices with EMR systems is not specifically stipulated in the HITECH Act, many providers see the benefits and are shrewdly beginning to integrate devices to test the waters.

Much has been written about the benefits of integration, but less frequently discussed are strategies for ensuring a successful integration. The technology involved can be deceptively simple, and in the grand scheme of an ambitious EMR implementation, the medical device portion is often seen as relatively unimportant. However, the integration can touch more diverse stakeholders—each with different priorities—be just as visible, and involve more third parties than almost any other part of the EMR implementation.

If you are planning a medical device integration, how can you ensure success?

Our Perspective
Based on our work helping healthcare providers achieve meaningful use, we feel strongly that there is no substitute for strong project leadership and understanding the hidden complexities inherent in the integration exercise. Here, we offer best practices that we have gleaned from the frontlines.

Know the scope. Ensure there is a project charter or scope document which clearly defines the clinical areas and the types of devices in scope. As you meet stakeholders, make sure they have reviewed the scope and their basic questions have been answered. Determine the resolution path and process for scope issues; ensure that any concerns are resolved quickly. Certain parts of the integration will require significant lead time, resulting in a significant ripple effect when scope is changed.

Understand the technology, data flow and workflow. Take the time to understand the basic technologies which allow the data to flow from the device to the patient record in the EMR. Solutions vary, and they may involve custom hardware, wireless or wired networking, and middleware.

Consider which group (hospital IT, vendor, biomedical device team, doctors/nurses, other) will be responsible for the technical implementation and ongoing operation in each area. Understanding the data flow through the system, who is ultimately responsible for each part, and the minimum technical requirements for success will allow you to more effectively focus the efforts of each team.

Finally, ensure the clinical stakeholders understand and agree to the basic workflow changes associated with the device integration. Patient care is the ultimate priority. Doctors and nurses will definitely have opinions on what works and does not work when it comes to physical and logical device connectivity.
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Know vendor capabilities and set expectations. A device integration effort has the potential for a large amount of vendor involvement. Possible examples:

- EMR software vendor
- Some or all device maintenance, repair and expertise may be outsourced to vendors
- Specialty software vendor required to implement middleware
- Cabling contractors responsible for providing physical network access
- Technical contractors responsible for placing or mounting equipment
- Hardware vendor expertise required for troubleshooting or configuring new equipment

Understanding who the vendors are, their availability and capabilities, who within the hospital they are ultimately accountable to, and what level of service and participation they are able to provide will enable you to better set and communicate expectations.

Follow procurement processes. Any sizable medical facility will likely have hard and fast procurement processes. During the integration, unexpected requirements for small components, unusual cables and other miscellaneous parts and pieces will arise. Understand the procurement “gates,” the options for quick, low-dollar purchases, and the internal lead times. All of these have the potential to impact project timelines.

Don’t underestimate project resource requirements. Few, if any, full-time hands-on resources may be allocated to the device integration project. All resources will likely have day jobs and other priorities which compete with their integration project commitments. Understand these commitments and account for them into the project plan. Allow contingency time so that unexpected delays can be absorbed.

The device integration project may be the first opportunity that some groups have had to work together for any length of time. For example, the IT and Biomed teams may roll up to different leadership and seldom cross paths. Device integration now requires that biomedical equipment use IT resources 24x7x365 to return real-time data to the EMR system.

Defining how these groups work together during implementation and after go-live is critical to the success of the project.

Consistently apply project management expertise. Considering all of the above information will set the project up for success. To achieve success, be a disciplined and diligent project manager, remember the basic rules of project management and apply them consistently:

- Deliver regular project status reports. At least weekly, deliver a status report in a simple format that is not time consuming to produce. Make it clear which areas and tasks are behind schedule or at risk, who the responsible stakeholders are, and the impacts on the rest of the project. Holding all stakeholders equally accountable in front of their peers will encourage everyone to stay on track. Ensure the status reports can be easily read on a mobile device.
- Get your hands dirty (but not too dirty.) Periodically, quick and simple action may be required to keep the project moving; these may be things it is easier to just do, rather than waiting until the assigned resource is available. Pitching in can keep the project moving and build credibility with the teams; just be careful to not get pulled in too deep.
- Get into the field. Stakeholders, especially doctors and nurses, are not going to come to you; they have better things to do. Introduce yourself to these stakeholders, preferably in person. Regularly meet with them face-to-face. Listen to their input and secure their support. Review the scope with them and attempt to address any questions or gaps immediately. Understand who their “go to” individuals are; you may frequently find yourself communicating with their trusted shift or department managers.

The Bottom Line

Device integrations can appear deceptively simple. Avoid pitfalls by understanding the complexities early on and applying consistent, disciplined project management expertise.