Implementing an EMR for the Money

Driving Too Fast Without Clear Vision Can Cause a Crash

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# Table of Contents

Abstract .......................................................................................................................... 4  
A New World .................................................................................................................... 4  
The Risks of Going Fast Without a Clear Strategic Vision ........................................... 5  
  Loss of Organizational Goodwill .................................................................................. 5  
  Withdrawal of Support ................................................................................................. 5  
  Hijacking or Duplication .............................................................................................. 5  
  Burnout and Exit of IT Staff ......................................................................................... 5  
  A Growing Strategy Gap ............................................................................................... 6  
  Lack of Measureable Value ......................................................................................... 6  
How to Avoid or Mitigate the Risks ............................................................................. 6  
  1. Begin with the End in Mind ...................................................................................... 6  
  2. Governance, Governance, Governance .................................................................. 7  
  3. Reporting and Transparency .................................................................................... 9  
  4. Seek External Input on Project Staffing .................................................................. 10  
  5. Consider Slowing Down ........................................................................................... 10  
  6. Get the Sequencing Right ....................................................................................... 11  
  7. Manage Change ....................................................................................................... 12  
  8. Don’t Hijack, Integrate ............................................................................................ 12  
  9. Select or Hire the Right Project Director ................................................................. 13  
  10. Learn from Other Customers .................................................................................. 13  
  11. Standardize Intelligently ......................................................................................... 13  
  12. Consider Postponing Major Changes .................................................................... 14  
  13. Get Organized ......................................................................................................... 14  
  14. Hold the Line on Testing .......................................................................................... 14  
Conclusion .................................................................................................................... 15
Abstract

Implementing an enterprise EMR is a challenging task under the best of circumstances. Today, meaningful use (MU) deadlines have led many providers to attempt large-scale EMR implementations under very tight timeframes, possibly without a clear vision for how the EMR will benefit them strategically. Some are reporting negative consequences of this approach. We present advice from leading providers, consultants, and vendors to avoid or mitigate these risks.

A New World

For many provider organizations, implementing an enterprise EMR will be the largest, most difficult, and highest-risk project they will ever undertake. Experience has shown that a successful EMR implementation requires intense focus of human and financial resources and executive attention. This degree of focus typically cannot be sustained for a very long period of time. As a result, providers are increasingly attempting rapid, simultaneous implementation of many EMR applications across multiple care settings, also known as the “big bang” approach. We estimate that big bang implementations now represent 50% to 70% of well-integrated EMR vendor implementations, and a smaller, but significant percentage of implementations for other EMR vendors.¹

In recent years, the trend toward more rapid, larger-scale EMR implementations has been exacerbated by the financial incentives and penalties associated with the MU program, the increased reporting requirements of healthcare reform, and the need to support accountable care, all of which are driving many US healthcare providers to implement or upgrade their EMRs. As MU deadlines near, hospitals are scrambling to go live as rapidly as possible. As time pressures increase, the stress and risk associated with EMR implementation are growing.

Adding to the pressures of time and implementation approach, some of the organizations that are just now implementing or upgrading their EMRs do not have many experienced staff available for EMR implementation planning and program management, change management, benefits realization and measurement, process design, and other important activities. As a result, they may be forced to rely heavily on their vendors or outside consultants in these areas. Unfortunately, given the large number of EMR implementations now underway in the United States, there is a shortage of qualified staff in certain key areas, especially staff with experience with the more popular integrated EMR vendors.

In addition, organizations that are implementing their EMR primarily in response to government mandates may lack a vision of, and specific goals for how the EMR can help them achieve important strategic outcomes such as quality improvement, efficiency, and increased patient and staff satisfaction. This makes it more difficult to engage clinicians and other operational leaders and staff in the implementation effort and reduces the amount of benefit that can be expected from the EMR after it goes live.

¹) See IT Strategy Council (ITSC) Research Brief “Big Bang Theory: Combined Clinical, Revenue Cycle Implementations Are Attractive But Risky” (November 2011).
The Risks of Going Fast Without a Clear Strategic Vision

In detailed interviews with some of the most knowledgeable hospital EMR users and experienced EMR implementation consultants, we have identified six specific, interrelated risks of moving too fast with an EMR implementation, without a clear strategic vision or purpose. These include:

Loss of Organizational Goodwill

During design, build, and implementation, there is often general acceptance of the sacrifices that accompany an intense focus on EMR implementation because of the promise of future benefits; however, if those benefits are not clearly articulated and personalized to the daily experience of those using the EMR, they lack the power to motivate. Moving very fast without a common vision does not give an organization the time to develop a consensus around expectations. Without that consensus, different people develop their own ideas regarding what the goals and vision are. When staff members realize that the benefits they anticipated are not an organizational priority, they may become cynical and less willing to cooperate. At a departmental level, as non-EMR capital requests and routine IT requests are denied, and a backlog builds, department managers may become disgruntled and cynical.

Withdrawal of Support

Along with big bang implementations, the number of standardized ("factory build," "model system") implementations has grown in recent years, in order to reduce the duration and cost of EMR implementations. This practice has increased the need for extended enhancement and optimization periods after go-live to stabilize the system and achieve expected benefits. That extra time can lead to disenchantment; when some facilities or organizations “cross the go-live finish line” they heave a sigh of relief and begin turning their backs on the EMR to finally focus attention on other initiatives they have ignored. Resources for optimization are stripped out and change management and benefits realization efforts lose focus, leaving the EMR stuck at a low level of functionality and value. The EMR initiative is no longer a collective transformation effort; the EMR becomes an IT maintenance issue again after go-live.

Hijacking or Duplication

Intense focus on EMR implementation can lead to key support functions such as staff development, governance, training, clinical quality improvement, change management, and business process improvement being “hijacked” to the technical purposes of the EMR initiative. Everything is focused on the EMR, and other essential organizational priorities are ignored. In other cases, a duplicate organization, staff, and processes are created, increasing costs and leading to organizational and personal conflicts. Hijacking of support functions to the technical needs of the EMR implementation misses an opportunity to integrate the EMR into higher-order, transformative purposes such as population health and value-based reimbursement, leaving that important work for a later date.

Burnout and Exit of IT Staff

In some EMR implementations, the IT staff assigned to the EMR project are treated like stars; but they work long hours and find their careers disrupted after go-live. Meanwhile, the IT staff who support ongoing operations and legacy systems are ignored and feel like second-class citizens. In both cases morale suffers and staff may leave for “greener pastures” during or immediately after the implementation project, resulting in dangerous gaps in organizational knowledge and capabilities.
A Growing Strategy Gap

Strategic priorities beyond the EMR may be de-emphasized or ignored. In today's world that may include accountable care organizations (ACOs), payment reform issues, and local provider consolidation, in addition to a host of organization-specific issues. Ignoring these priorities for 18 months or more can result in a growing gap between the organization’s stated strategic plan and what is really needed, leading to real emergencies that could have been planned for or prevented.

Lack of Measureable Value

Without a clear vision of how the EMR supports strategic goals, the organization designs, builds, and implements an EMR that merely automates current processes. Clinicians and operational leaders and staff are not fully engaged because they do not see what is in it for them or their patients. New or advanced functionality is omitted or poorly designed, and short shrift is given to process analysis and design, results measurement, change management, and benefits realization activities. As a result, the organization may get “stuck” in one of three situations:

- Basic technical and process gaps—After an exhausting big bang implementation, the organization runs out of money and motivation, and experiences ongoing technical or process problems that affect daily operations. Innovation cannot happen and benefits will not be realized because the technology and processes are not stable.
- Physicians not adopting the EMR—A large number of physicians are not using computer practitioner order entry (CPOE), decision support, physician documentation, and/or information review capabilities of the EMR. In other cases those capabilities are watered down to avoid disrupting existing workflows and care practices.
- EMR not driving innovation—The organization has not realized substantial measureable benefits from their EMR because they have not experienced transformational change in how they work.

How to Avoid or Mitigate the Risks

So how does a provider organization avoid the risks described above? Here are some ideas that address most of the typical issues and needs.

1. Begin with the End in Mind

An EMR implementation is an opportunity to reinvent or redesign your organization. It is important to clearly understand your desired outcomes before you begin the technical work. How will care be safer and more effective? How will the clinician and patient experience be better? How will the EMR improve efficiency and reduce costs? How will the EMR help mitigate your current weaknesses and leverage your current strengths? How will the EMR support a sustainable competitive advantage in your market?

There are no generic answers to these questions, and your EMR vendor cannot answer them for you. We recommend using a “benefits-driven” implementation approach which ensures that executives understand what EMR benefits are realistic and have a clear plan to achieve these benefits as early as possible. That plan should be reviewed regularly after EMR go-live, as active daily use of the EMR will result in insights that may change the plan.

2) See ITSC Research Brief “If You Don’t Measure It, You Won’t Achieve It” (July 2011),

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Pre-implementation planning should include plans and a budget for system enhancement and optimization, as it will take several years of work with your new EMR before the most substantial benefits can be realized. It is common that post-go-live budgets do not fully account for the additional costs of operating a more functional and comprehensive EMR: getting outside help from experts can result in a more accurate budget that includes realistic operating expenses and funds for EMR optimization and benefit realization.

Clearly communicating the desired strategic outcomes and the required enhancement and optimization work to your technical staff gives them an understanding that there is life and work for them after go-live. Working toward an exciting and value-producing future can engage and help retain technical staff who may be in high demand from consulting firms and other organizations.

Once you have defined your desired outcomes, your EMR vendor may have resources that can help you achieve them. A number of leading vendors have detailed lists of potential EMR benefits, along with suggested metrics to measure those benefits. Some vendors will help set up automated reporting of these benefit metrics for many of your strategic outcomes, and connect you to other customer provider organizations like yours that have improved those metrics the most. Make achieving benefit metrics, not finishing the technical installation of the EMR, your focus (see Section 3 below, Reporting and Transparency).

If you are already in the midst of your EMR implementation project and have not clearly defined the key strategic outcomes for the project, it is not too late. Speak with your executives, functional leaders, and key clinicians to understand their goals and expectations for how the organization will be different after go-live. Work with them to prioritize those into a short list of six to ten strategic outcomes that are essential to project success, and ensure that the methods and resources to achieve those goals are built into your project plans prior to go-live.

2. Governance, Governance, Governance

Hospital executive managers generally understand that an EMR implementation is different than other IT-enabled initiatives. They have high expectations and are willing to devote a lot of resources to the implementation. What they may not clearly understand is how personally involved they need to be in project governance and exactly what their roles and responsibilities should be.

Most organizations form a tiered governance structure for their EMR implementation, varying in complexity by the size of the organization and the scope of the implementation. At the top level is a senior executive (C-suite) steering committee. Next, a director-level group includes functional and departmental leaders. Then, there is an EMR implementation project leadership team, and finally a number of technical or process-focused teams for specific applications or clinical areas.

A common mistake is not using the top two groups properly. Often these groups are merely informed about the project, and its status and outcomes, when they should be leading the project and driving its outcomes. If the EMR project director chairs your executive and/or director-level groups, if the agenda focuses on project status reviews, and if the lower-level project leadership team is solely accountable for project status and outcomes—you are not using your executive groups properly.

Members of the executive steering committee should be individually and collectively accountable for project progress and, especially, the strategic outcomes described in Section 1 above. The executive steering committee agenda should focus on understanding progress...
toward achieving EMR benefits and taking action to make them happen. When hard decisions need to be made, when someone needs to take the heat for compliance with standard processes or required EMR use—that is the job of senior management, not the job of the project team.

Getting senior executives more involved in the success of the implementation can be difficult because they may not understand the operational details of an implementation. As the CIO of one successful EMR user explained: "When we went live with our first hospital, we were also building a new facility. The executives liked to talk about the new carpet, the size of the rooms, the color of the paint, and many other details. But when it came to the implementation their only question was ‘Are you on time?’" Changing this requires education of the executive team about project operations, success factors, and metrics.

The director-level group includes “benefit owners” who are individually responsible for achieving defined EMR benefits in their area of responsibility. For example, the emergency department (ED) director is responsible for the improved throughput and reduced “left without being seen” performance related to the new EMR’s improved ordering, patient tracking, and communication capabilities. The directors are also responsible for major process changes in their areas, but always with a focus on the tangible benefits those changes will provide.

Resist the temptation to overload the director-level group with too many members. Some organizations find that more functional leaders, especially clinicians, may want to be involved than are needed and can work effectively together. Include only those leaders who represent major functions or departments in which the EMR will have a substantial impact. Depending on the size of your organization, 10 to 20 members are plenty for this group.

The example in Figure 1 below shows a typical “benefits-driven implementation” structure, in which a director-level group meets monthly to prioritize changes requested by clinical or functional teams and manage toward benefits realization, supported by a small “benefits team” that focuses on benefits realization methods and metrics.

**Figure 1: Benefits-Driven Implementation Structure Example**
Executive and director “sponsors” must not only “talk the talk” during the EMR implementation, but they must “walk the walk” in two important ways. First, they must formalize and follow through on incentives—rewards and punishments—related to EMR success for their direct reports. Second, they must model their commitment to EMR success in what they say and do outside project kickoff meetings. Which meetings they attend, whom they spend time with, what they say to other leaders when they are not “on stage,” are all part of this modeling. Research shows that what leaders do is twice as effective in promoting change as what they tell their staff, and formal reinforcement through rewards and punishments is four times as effective.3

Our governance research shows that it is not the structure that is most important to EMR project success—it is alignment and communication: alignment of goals for the EMR implementation among senior executives and functional leaders, and frequent communication up, down, and across the organization about progress toward those goals. The “benefits-focused implementation” approach mentioned above lists best practices for achieving this type of alignment and communications. Additional information can be found in the Reporting and Transparency section below.

If you are already in the midst of an EMR implementation and recognize a need to improve your governance, it is not too late. With proper executive support, reconfiguring your director-level committee and reformulating the mission and focus of your top level committees can be done quickly and can yield immediate benefits.

3. Reporting and Transparency

Along with an appropriate governance structure and processes, you need a way to give executive leadership a high-level understanding at any point about the status of the implementation (i.e., time, target, and budget) against established milestones. This requires careful thinking about appropriate, meaningful metrics, data sources to produce those metrics (report/dashboard design, etc.). A simple, one-page dashboard for executive leaders is best, supported by detail as requested.

In addition to the project status metrics mentioned above, an executive dashboard should also include benefit metrics for each of the key strategic goals described in section 1 above. This part of the dashboard can be used to manage toward benefits after go-live. Figure 2 below shows a section of a one-page dashboard for executives that includes system use, process, and outcome metrics for each of these goals.

![Figure 2: Sample EMR Benefits Dashboard](image)

A more detailed version of this dashboard is used by the director-level benefits committee and functional teams and those metrics roll up to the executive dashboard.

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3) McCarthy, Claire, “Creating an Environment for Sustainable Change.” Presented at the Health-e-Nation conference in Melbourne, Australia; March 2013.
Your EMR can most likely automate the production of some of the system use and process metrics that you will need for benefit management; however, you may need to go beyond what the EMR can offer to produce a truly useful dashboard. Examples of these additional metrics may include time studies, focused cost data, adverse event rates, and risk-adjusted clinical outcomes.

4. Seek External Input on Project Staffing

EMR vendors recommend basic staffing for a standardized design, build, and implementation; however, in many cases vendor estimates are far below what is needed to complete a successful EMR implementation project. There are many reasons for this, including inaccurate assumptions about how productive newly trained staff will be; a desire to minimize the expected cost of the implementation project in order to encourage a sale; and incomplete staffing estimates that do not include change management, benefit realization, process analysis and design, informatics expertise, integration testing, etc.

Most customers agree that one of the most useful things you can do before beginning an EMR implementation is get an objective, external estimate of what your true staffing needs will be. If you have begun your implementation with insufficient staffing, immediately get an outside readiness assessment done by the most experienced, vendor-specific consultant you can find—start with recommendations from your vendor’s other customers, and the KLAS implementation planning ratings to find the right firm.

5. Consider Slowing Down

Given MU requirements and the high ongoing cost of an EMR implementation project, there is a strong temptation for many hospitals to implement many applications in as short a time period as possible. While this big bang approach can save time and money, it can be the wrong approach for some providers.

Be honest about what you can accomplish in a given period of time, based on your unique characteristics, your existing IT infrastructure, your prior experience with EMR implementations, your relationship with your physicians and nurses, your available staff and other resources, etc. Do not try to push the EMR too rapidly, or move so slowly that you are stuck “in between” the new and the old for an extended period of time. You can buy only so much time with money and you can only drag out a project for so long before there are diminishing returns (but it is more problematic to try to go too fast).

The elephant in this room is MU deadlines. While it may be difficult to resist an executive mandate to go live in time to “get the money,” many organizations are at the point at which a risk assessment should be completed (and shared with senior executives) that balances the incentive money against the potential risks and consequences of going too fast, as described in this report. As one CIO says, “Our first go live was really tough because of the schedule. We pushed ahead and went live on time, and have done the same with each of our hospitals. But in a few cases I think it would have been better to allow a delay. There are costs to going too fast that need to be considered.”

Those organizations that do push ahead with a rapid implementation should conduct and attend to detailed readiness assessments that are designed to highlight emerging problems by application. Some vendors are better than others in helping with these assessments: if your vendor does not do a good job in this area, you or your consultant will need to develop

4) See ITSC Research Brief “Big Bang Theory: Combined Clinical, Revenue Cycle Implementations Are Attractive But Risky” (November 2011).
and conduct the assessments. Another issue, as described by a senior EMR vendor executive, is: “If there are five applications going live, typically one or two will be a solid green, two will be yellow, and one is red. As you get closer to go-live you can’t delay just one application because of its impact on the others, so you have to push ahead even though one area is not ready—and that causes pain. Often the person over the red area will be so afraid of holding up the whole process that he or she will argue that they are really ready.”

If you are already in the midst of an EMR implementation, we recommend taking the early readiness assessments more seriously so that resources can be adjusted and a lagging application can catch up. Part of this is cultural and part has to do with the experience and organization of the implementation staff—it has to be okay to admit you need help.

6. Get the Sequencing Right

Sometimes the issue is not speed but sequencing. Customize the timing and sequencing of your EMR roll out based on local needs and priorities. Considerations include:

- Your culture and tolerance for risk
- Benefits associated with specific functionality and when those will be realized
- Readiness of your staff, especially clinicians, for each functional element
- The capacity of your staff, especially clinicians, for changing behavior and workflows
- The impact of each functional element on the others: which elements are foundational and which add to the foundation?
- Other initiatives (e.g., ICD-10) that must be addressed
- When legacy applications will be phased out by their vendors

Because these considerations are different for each organization, there is no single right answer for the sequencing of an EMR implementation. For one leading health system, the primary focus of their EMR implementation was their desire for an integrated medication management capability to improve medication safety, patient outcomes, and efficiency. Their chief medical information officer (CMIO) explained that this was the primary driver of their initial sequencing, which included Pharmacy (which went live two weeks before everything else to ensure medications were in the system) and core clinicals, including ED, Inpatient, Clinical Documentation, Nursing Documentation, CPOE, and Physician Documentation. Other ancillaries such as Lab and Radiology, and surgery systems were implemented later.

Other organizations take a very different approach. Physician documentation, CPOE, and decision support require a lot of effort to make their installation successful and pain-free for physicians. Therefore, in organizations in which physician documentation and CPOE were not previously in use, many choose to roll these out together in a second stage after initial roll out of orders and ancillary department functionality, when there is a stronger, more experienced team to support the effort and a higher comfort level among physicians. For example, Premier Health Partners, a four-hospital system in Dayton, Ohio, initially went live with just the core clinical systems in their first hospital and then followed up with physician documentation and CPOE later. However, by the time they got to the last two hospital implementations, they included physician documentation and CPOE in a big bang rollout.

On the other hand, it is important not to wait too long to introduce physician documentation and CPOE—some organizations get “stuck” and never fully roll out these capabilities, which are the key to long-term strategic EMR benefits.
For organizations that already have working electronic physician documentation and/or CPOE, it is important to maintain this functionality in order to avoid angering doctors and potentially losing behavior changes that have already been gained. So for these organizations, advanced physician functionality would be part of the initial go-live.

7. Manage Change

Humans resist change, even when they know it is a good thing. Crucial to implementing an EMR is winning the hearts and minds of clinicians and other staff so they are both willing and able to use the technology. Take the time to understand the motivations of major stakeholders and from where the (inevitable) resistance will be coming. Select and employ a formal change management methodology, and include change management resources and activities in your project plan. Projects with highly effective change management efforts are nine times more likely to achieve their objectives, yet change management is sometimes still ignored in EMR implementations.

8. Don’t Hijack, Integrate

Integrate the requirements of the EMR implementation into support functions such as training, governance, change management, process analysis and improvement, project management, and staff development, rather than hijacking these functions to a sole focus on the EMR. Such conversion of these functions risks ignoring other important organizational priorities, with potentially serious consequences. You cannot afford to let key support functions become a component of a project; they need to be ongoing permanent functions of your organization.

Examples of integration include:

• Training—Newly created EMR training programs should not override, sideline, or reduce other training programs to bare minimum. Instead, existing training structures should be modified and intersection points should be considered to accommodate new training.

• Governance—Existing IT governance models are often hijacked to create technically-focused EMR steering committees instead of being reformulated to insert the EMR element. But this risks ignoring some of the very priorities the EMR is designed to support and losing precious time in integrating the EMR’s capabilities into the organization’s strategy (see section 2 above).

• Performance Improvement—One organization that did not take an integrated approach created an EMR group that went about designing, validating, and committing workflows to build, while the existing performance group was simultaneously changing those workflows for improvement. The end result of this disintegrated approach was an outdated build even before going live.

On the other hand, in some cases an organization does not have the capability in their existing departments or functions to handle the new requirements of the EMR. In these cases you either need to be willing to go slowly and build those capabilities before you implement, or deal with the consequences of hiring or building a separate function. In one large EMR implementation, the organization’s CEO felt the existing IT organization was not up to the task of implementing their selected EMR across their many hospitals. He built a new organization to support the implementation, forcing the existing organization to “up their game” or face becoming irrelevant.

If you are in the midst of an EMR implementation, and feel that you may have converted too many organization functions to focus solely on the EMR, introduce this topic to your governance team members. A frank discussion of the potential risks of “hijacking” may lead
to changes in policy or procedures. Although it will be difficult in the midst of a busy implementation to slow down and reformulate these functions fully, making a few high-priority changes can substantially reduce your risks.

9. Select or Hire the Right Project Director

EMR vendors, providers, and experienced consultants agree that the perfect EMR implementation project director has a long list of desirable characteristics, including:

- Senior level operational (ideally clinical) responsibility and experience
- Performance analysis and improvement experience
- Knowledge of and experience with high-level project management
- Technical familiarity with EMR functionality
- Prior vendor-specific implementation leadership experience
- A knowledge of the culture, operations, strengths, and weaknesses of the organization
- Positive internal reputation and credibility
- Good communications and interpersonal skills
- The ability to interact with confidence at the senior levels of the organization
- A strong will to stick to the schedule and hold oneself and others accountable for results

Realistically, there are very few individuals who embody all of the above characteristics. Most organizations should pick the strongest candidate from their existing resources, who has the operational experience, local organizational knowledge, internal credibility, and right temperament. If necessary, an outside resource who has the technical knowledge and familiarity with your vendor’s EMR implementation projects can be hired (a consultant or new hire) to work closely with the project director. However, hiring an outside consultant as the project director should be a last resort, only if there are no good options available inside the organization. Or you can team the project director with (an)other strong internal resource(s) (e.g., the CMIO) who has complementary strengths and experience.

If you have begun your EMR project and your project director is having trouble, consider teaming him or her with an experienced consultant who has been the director for multiple successful implementations of your vendor’s systems. There are quite a few individuals with this background who work for consulting firms or do individual implementation projects. The best place to find them is through references from other customers: ask your vendor executive for customer contacts, or meet them through your user group or in online forums.

Your EMR vendor’s customer base is a rich and growing resource for understanding the nuances of an implementation project, and what it is possible to accomplish with the system. Some vendors maintain a database of performance metrics from its customers—you can use this resource to understand what others have done in the areas you are targeting. Most EMR customers are generally quite willing to share their experiences with others. It helps to bring in CIOs/CMIOs from other organizations to offer advice (ideally in a retreat-type event). This is especially true for smaller organizations that are not used to cultural transformation.

11. Standardize Intelligently

It is substantially cheaper to implement your vendor’s standard or “model” or “factory built” system configurations if possible. This extends after the initial go-live—it is easier and cheaper to implement standard vendor upgrades. At the same time, your vendor does not
have the right solution for every problem and situation—you must recognize when you need to design and implement something different than what they recommend.

In the midst of an implementation, it will often feel to clinicians and others like the planned design will require too many changes to their workflows. You need an experienced perspective to either reassure the staff that it will be okay, or raise the alarm that customization is needed in this case. This perspective can be supplied by other EMR vendor customers, or by experienced consultants. As previously mentioned, you can get to know other customers at formal user group meetings, through "unofficial" regional or state user groups, and through online forums.

12. Consider Postponing Major Changes

Before beginning the implementation, you must identify and understand all other major organizational initiatives that are planned or being considered during the implementation and early optimization. An objective, external readiness assessment can help you understand your organization’s capacity for these initiatives. Often you will need to make hard choices and cancel or postpone some other large-scale projects during the implementation. However, if there are other large projects that must be completed for legal, regulatory, or essential strategic reasons, you need to be honest and plan a slower EMR implementation or determine how to add resources. One of the most common reasons for trouble during an implementation is a lack of awareness of the impact of other major projects, or an unwillingness to be honest and realistic about their impact, and to delay those projects or the EMR implementation.

On the other hand, consider how to combine the EMR implementation with other must-do efforts like MU compliance and ICD-10, or business intelligence—maybe you can kill two birds with one stone.

13. Get Organized

Take advantage of the time between contract signing and the start of implementation to:

• Establish a mechanism to collect input from clinicians and make decisions.
• Talk to existing clients about their pre-implementation experiences to ensure you effectively execute critical steps.
• Evaluate your informatics team; an effective informatics team is critical to success.
• Assess your technical infrastructure to ensure it is up to the demand (e.g., do you have the network bandwidth you need and all the jacks and PCs you need in all the right places; do you have a disaster recovery plan).
• Assess your integration test environment to ensure you have the means and a plan for testing the system.
• Build a training team for clinicians.
• To the extent that you can, map and standardize clinical processes and establish clear decision-making authority over the design of clinical work flow.

14. Hold the Line on Testing

Do not short cut integration testing. Some vendors discourage rigorous integration testing, arguing that you will never catch all your problems in testing and you just need to be prepared to address them quickly after go-live. But experience shows that integration testing can identify technical and operational problems that can cause havoc at go-live.
Conclusion

An EMR implementation is stressful enough without trying to move too fast, without a clear idea of where you will end up, and whether the journey is worth the cost. Careful planning can mitigate the risks, and may lead you to adjust your approach, timing, or sequencing. If you are now in the midst of an EMR implementation, there are still many things you can do to reduce risk, stress, and negative consequences.