



An EPIC Switch: Preparing for an Electronic Health Record Transition at Vanderbilt University Medical Center

Kevin B. Johnson¹ · Jesse M. Ehrenfeld¹

Published online: 21 November 2017
© Springer Science+Business Media, LLC, part of Springer Nature 2017

Introduction

The Vanderbilt University Medical Center (VUMC), in Nashville, Tennessee is among the nation's premier teaching hospitals serving a large geographic area that includes Middle Tennessee, southern Kentucky and northern Alabama. Anchored by a 1000-bed general medical and surgical facility, VUMC provides nearly 2000,000 patient visits each year at 120 clinic and outpatient sites with its staff of 19,600 individuals. In 2015, Vanderbilt made a decision to transition to the electronic health record (EHR) system developed by Epic Systems Corporation (Verona, Wisconsin) for all of its core clinical information system needs – including ambulatory, inpatient, billing, and provider order entry. Plans were made to implement all of Epic in a “big bang” model with a go-live date of November 2nd 2017. To make this transition a success, VUMC recognized a need to simultaneously move away from its home grown culture and internally developed systems to processes that were more in keeping with industry standards. This would in turn allow VUMC to enter into a more sustainable support model and ensure the medical center was able to continue to use certified electronic health record technology as required by U.S. federal incentive programs.

Scale of the migration

The graphic shown in Fig. 1 summarizes the overall scale of this migration. The transition involved accommodating more than 16,000 end users and leveraging more than 450 design sessions to ultimately develop 700 workflows comprising over 14,000 individual build tasks that needed to be done

during the 30 month transition period. There were more than 300 team members involved in the project planning, including approximately 100 consultants hired to assist with system implementation. Additionally, VUMC created a new model called “core design advisors.” These advisors were a group of physicians that had been trained to use Epic and were intimately familiar with a variety of specialty areas across VUMC. They functioned throughout the project as key advisors to the system build team. Finally, VUMC identified more than 1100 subject matter experts who each provided unique input into the project. More than 2000 people were made available for “at the elbow support” on the go-live date, as VUMC simultaneously brought the system up at 3 large acute care facilities, 125 different physical locations, involving more than 60,000 end user devices running 25 different Epic applications. The project began with an effort to build a brand new version of Epic, configured for VUMC that took into account many of the innovative informatics work that had previously been implemented.

Preloading data and the big bang

While a date of November 2, 2017 was the official date for go-live, the system actually went live in mid-September to enable data migration. This data migration was in fact the largest data migration in the history of recent Epic implementations, given the length of time that VUMC had operated using an EHR. In mid-October the system was turned on for future appointment scheduling, after all other appointments had been automatically loaded into the new Epic build. Finally on November 2nd, the system went live for clinical use in all of acute care and other care settings.

Anticipating problems

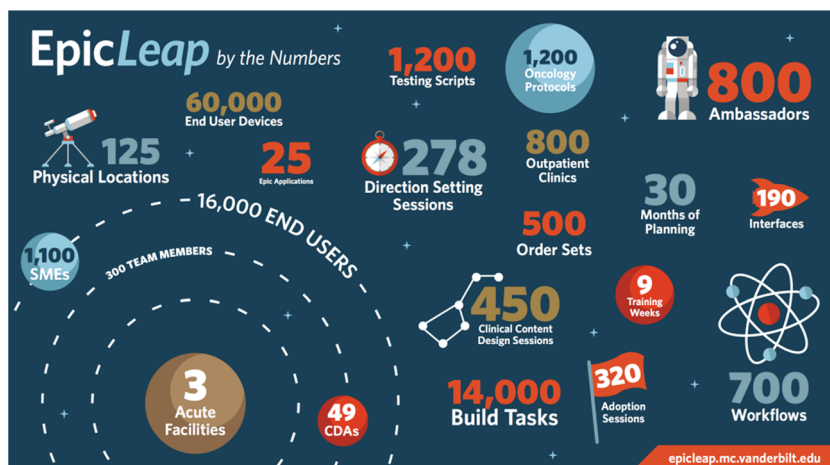
In preparation for the transition, VUMC evaluated a variety of technical challenges, integration and workflow

This article is part of the Topical Collection on *Education & Training*

✉ Jesse M. Ehrenfeld
Jesse.ehrenfeld@vanderbilt.edu

¹ Vanderbilt University Medical Center, Nashville, TN, USA

Fig. 1 The VUMC Epic Transition by the Numbers



considerations [1]. Many facilities that have gone through an install of this magnitude have reported system significant challenges leading up to and through go-live. Reviewing the literature, we identified six major areas where go lives typically fail [2–5] and put in place plans to mitigate potential risk. These mitigation strategies are summarized in Fig. 2. The first of these strategies was to invest in our information technology teams. We set out to minimize turnover and maximize training of the existing teams, so that our personnel felt they each had a purpose and a role where they could be appropriately involved in the project. Second, we took pains to ensure we budgeted realistically making sure that the total cost of ownership of the project accounted for every possible system that was being replaced. This including evaluating people who need to be trained and end-user devices that needed to be replaced. Third, we focused on implementation of core functionality, while avoiding scope creep. The temptation to add additional features or functionality or even sites during the transition process was often high, but beyond the scope of what we decided we could accommodate at go-live. Fourth, we made a significant effort to standardize

workflows across the institution to minimize the number of custom processes required in the new system. Fifth, we worked hard to engage leadership across the enterprise, including the senior executives, department chairs, and clinical leadership. This project was sufficiently large that we also involved our networking, space and facilities, and communications teams. Finally, and perhaps most importantly, we spent a great deal of time and effort talking about the anticipated changes. We made copious use of video and social media and created our own mobile app called Hubbl – designed specifically to be a one stop shopping environment for information about the transition. We use the notification feature in the app to remind people about their training schedule, provided quick access to tip sheets needed for go-live, and a user-friendly portal to all of our educational videos and e-learning activities that were put together for the project. With these six areas as a major source of focus, we went live on November 2nd 2017 and experienced a relatively uneventful transition.

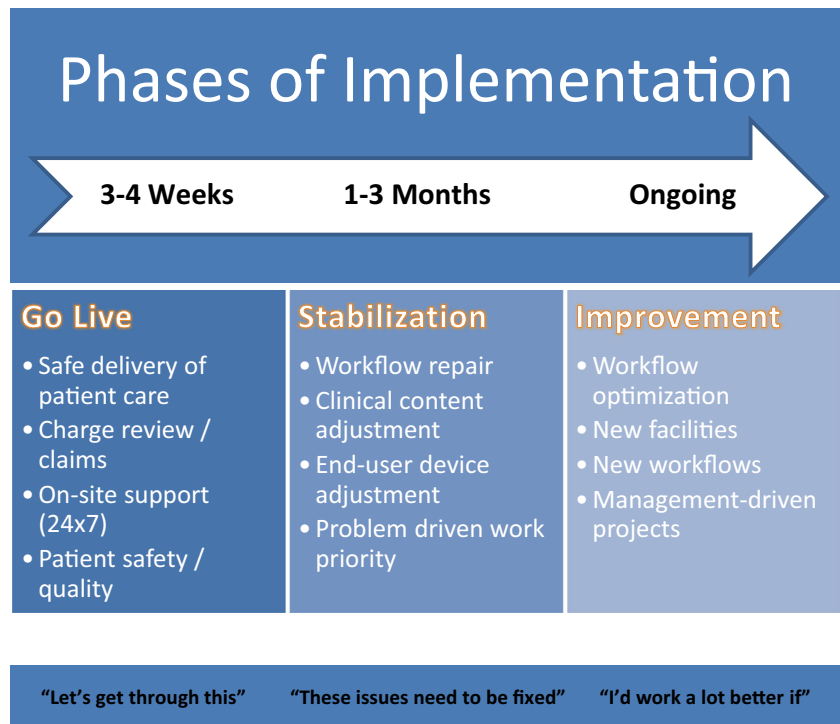
Beyond go-live: The transition to optimization

The phases of implementation from go-live to optimization are summarized in Fig. 3. The **go-live** phase is often called a “let’s get through this” period. This period, which lasts 3–4 weeks, is a time when efforts are focusing on safe delivery of patient care, ensuring billings processes are functional, and relies on significant 24/7 end-user support. The next phase, **stabilization**, is a 1–3 month time period when issues that need to be fixed are addressed. This includes repair of system workflows, clinical content and end-user device adjustment. The last phase is **optimization**, an ongoing process of addressing places where the system can enable people to work more effectively if functionality is adjusted. This includes further workflow optimization, addition of new facilities and workflows and a focus on management driven projects.



Fig. 2 Strategies for Mitigating Electronic Health Record Transition Challenges

Fig. 3 Phases of Implementation from go-live to optimization



Conclusions

Organized planning combined with clear and consistent communication were key drives of the success of the VUMC transition to Epic. While we have just entered into our optimization phase, we are already seeing the benefits of an enterprise system.

References

1. Bornstein, S., An integrated EHR at northern California Kaiser Permanente: Pitfalls, challenges, and benefits experienced in transitioning. *Appl. Clin. Inform.* 3(3):318–325, 2012. <https://doi.org/10.4338/ACI-2012-03-RA-0006>.
2. Kosiorek, D., Ensuring a smooth transition to your new EHR system. *Med. Econ.* 90(22):61, 2013.
3. Mullen, K., Easing the paper-to-EHR transition. Consolidating administrative functions while ensuring clinical data is shared amongst the group. *Health Manag. Technol.* 33(4):18–20, 2012.
4. Turner, F., Use HITECH as directed: Healthcare practitioners who want to take advantage of funds made available by ARRA must focus on the transition to EHR technology now. *Health Manag. Technol.* 32(10):24–25, 2011.
5. Krousel-Wood, M., McCoy, A.B., Ahia, C., Holt, E.W., Trapani, D.N., Luo, Q., Price-Haywood, E.G., Thomas, E.J., Sittig, D.F., and Milani, R.V., Implementing electronic health records (EHRs): Health care provider perceptions before and after transition from a local basic EHR to a commercial comprehensive EHR. *J. Am. Med. Inform. Assoc.*, 2017. <https://doi.org/10.1093/jamia/ocx094>.