

## PROPOSAL INFORMATION

**Submission ID#:** 492

**Topic Category:** Process & Operations - Addressing a set of interrelated or interacting activities which transform inputs into outputs.

**Sub-Topic:** Change & Project Management

**Format/Level:** 60-Minute Lecture (3 Speaker Limit) / Intermediate

**Target Audiences:** Clinical Informaticist , CMIO/CMIO , CNIO/CNO

## CONTENT DETAILS

**Session Title:** Lessons Learned From Development of an Enterprise EHR Clinical Standard

**Brief Description:** Large health systems need ways to monitor practice patterns through EHR data as well as ship EHR content in a cost-effective and efficient manner. HCA Healthcare struggles with both of these activities given the individualized nature of the EHR install at each of its ~180 acute hospitals. With a planned implementation of a more modern EHR system HCA embarked on the daunting task of standardizing clinical builds and workflows to improve the enterprise's ability to extract clinical insights from EHR data as well as alleviate maintenance burden, starting with a pilot at 3 sites. The project team encountered significant challenges in determining which builds/configurations should remain controlled at the Corporate level versus those that should be managed at a local level. Change management struggles played a large factor in outcomes and speed of progress. Members of the project team will share these lessons learned from the efforts to define, build, and educate on the initial standard EHR build at the pilot sites that should serve as a framework for other health systems looking to achieve the benefits that can come from a standardized EHR environment.

### Learning Objectives:

- Discuss the benefits of standardized foundational dictionaries within an electronic health record
- Identify the challenges in moving a large organization to a set of standard clinical tools
- Evaluate the approaches used by the team to develop and implement the first version of the clinical standard

**Background:** Provide an introduction/background of your topic.

The variation in data, builds, and practices employed in HCA's enterprise Electronic Health Record (EHR) make the extraction of insights into clinical practice patterns difficult to obtain on an enterprise level. Additionally, there is no way to ensure the complete and accurate implementation of EHR builds and content to support regulatory compliance and evidence-based care. Further, HCA incurs significant maintenance costs to distribute and build EHR dictionaries, order sets, documentation templates, and configurations at a local level with the current, non-standardized implementation. An opportunity exists to achieve significant gains in the areas of eliminating unnecessary variation in clinical practice/workflows, streamlining maintenance, and installing evidence-based practices with a modernized EHR platform using a standard build. The project team instantly met challenges trying to develop a single standard that a 180-hospital enterprise could utilize leveraging 3 sites in a single market as a pilot. Technical limitations, change management obstacles, and necessary variation in local clinical practice patterns forced difficult decisions about where to forego an enterprise standard and allow local control. This presentation will walk through the experiences, successes and failures, and lessons-learned in the development of a scalable clinical standard in an EHR in the areas of physician, nursing, and pharmacy informatics. These lessons-learned will serve as foundational knowledge for other large health systems attempting to standardize clinical content and configurations in an enterprise EMR.

**Organization:** Provide a brief description of the speakers' organization.

HCA Healthcare is one of the nation's leading providers of healthcare services with 182 hospitals and approximately 2,300 sites of care, including surgery centers, freestanding ERs, urgent care centers, home health and hospice agencies, and physician clinics, located in 20 states and the United Kingdom. As a system, HCA Healthcare provides approximately 6% of all inpatient hospital services in the U.S.

**Methods:** Describe the study/project/process implementation used and provide a timeline. A business case was approved in early 2022 to build a standardized EHR for ~180 hospitals across the US. The multi-pronged goals of the project included standardization of data elements for optimized analysis to provide insights into opportunities for improvement in patient care and clinician workflows, install the foundation to quickly implement across the remainder of the enterprise after the alpha and beta pilots, and establish a build allowing streamlined maintenance with an ability to quickly optimize the EHR for best clinical practice. Ultimately, senior clinical leaders aimed to gain the ability to leverage the EHR as a means to eliminate unnecessary variation in clinical practices across the enterprise. A multi-disciplinary group was identified from a wide variety of teams across the corporate offices to lead the standardization and build effort. SMEs in the group evaluated the new EHR to understand system function and project managers assigned dictionaries to various teams based on functional area (physician, nursing, pharmacy, surgical, imaging, lab, etc.) to lead the standardization of content and subsequent build. The effort required coordinated collaboration between corporate teams leading the build and division and facility clinicians and informaticists from across the enterprise to validate accepted, current standards and identify opportunities for new standards for the EHR build. The teams evaluated national clinical and informatics evidence-based best practices, regulatory requirements, current enterprise EHR builds, current workflows, best practices from the EHR vendor and best practices from other clients of the EHR vendor. Recommendations for standards were reviewed and approved by the Core Team from each functional group, then brought to a multi-disciplinary program team for review and approval. An enterprise standards executive steering committee was created to render and document decisions when teams recommended that certain dictionaries should be built and maintained at the local, facility level, thereby foregoing an enterprise standard.

**Challenges** – Describe any barriers or challenges. What considerations and best practices should an organization follow to mitigate these barriers?

Identifying the stakeholders, decision-makers, and change leaders for each dictionary and clinical workflow required more time and effort than expected. Some of these complex workflows (medication reconciliation) and new system functionality (clinical decision support) uncovered a need to define standards and identify champion and change leaders where one did not exist previously. As the project progressed, the teams constantly identified new stakeholders within the functional areas and had to incorporate their knowledge into the project efforts while attempting to keep the established timeline. Functional teams defined a process to archive final decisions on standards and the rationale for those decisions near the beginning of the project. This necessary step became unmanageable for the functional teams due to tight timelines and multiple conflicting priorities. Additionally, the program as a whole failed to achieve an over-arching, master index of documented decisions. Change management presented one of the largest challenges throughout the project. Evaluating and identifying the final best practices required thinking outside of each individual's current perspective and toward a new, enterprise level outlook. Change management also included moving local clinical and informatics teams to a standard set of orders and supporting dictionaries and away from custom content developed for individual facilities, practice groups, and users. Local informatics and clinical teams felt a significant loss of control which slowed their absorption of knowledge about how to operate the new EHR system. Reconciling valid feedback to change the proposed standard to support necessary variation in clinical care from normal pushback to change provided a huge, time-consuming challenge to the project team. Continued focus on change management practices and refreshing the teams on the final goals

helped to mitigate this barrier. Additionally, the functional groups developed an enterprise panel of multi-disciplinary clinical experts that actively practice evidenced-based care to serve as another voice to advise on system builds and clinical content. Clinical informaticists at both the local and corporate level raised concerns that innovation throughout the enterprise would be stifled. The project team needed to develop methods to support innovation without compromising the enterprise standards. A first example included the creation of a "sandbox" EHR environment that allows the pilot facility teams to learn the new functionality and trial different approaches to solving issues, creating new views of clinical data, and leveraging tools like indicators and alerts. Any best-practices learned from the pilot facilities can be incorporated into the evolving enterprise standard. The team realized that established change control processes and governance would not suffice in this new environment of creating and protecting an enterprise standard. Throughout the project, there were multiple requests from stakeholders for additions or optimization to the build and workflows. Each functional team made decisions as to when additional requests could not be incorporated into the pilot build, and therefore were added to a post-go-live optimization inventory. This practice will serve as the foundation for the development of an evolved change control and governance process with a tiered approach to triage and process requests for change.

**Results/Findings** - Identify any outcomes data (e.g. key performance indicators, pre-implementation performance, or current performance data).

Clinical teams previously unable to establish standard builds and configurations in the EHR are now in a position to pilot such a system and extract learnings about the impact to clinical care at 3 pilot sites. Other clinical teams who did have established standards were able to continue and improve upon those standards with the new EHR build. For example, medication management dictionaries went from zero enterprise standard dictionaries to ~80% standard at the corporate level. Standardized user access and user roles to streamline new employee onboarding, training, maintenance and alternate models of care represented another win. In other areas like order management, compromises were made to allow local variation. For example, local build teams can create new order sets and modify corporate standard sets but the individual orders themselves, including the mnemonics, remain under corporate control. This allows for enterprise reporting of the use of specific orders (e.g. medications) in clinical care, but allows for local adjustments to re-package those orders into sets to optimize workflow in high volume clinical areas like surgery. Finally, testing demonstrated gaps in the crosswalk between newly developed EHR orderables and charge capture routines. Given the emphasis on clinical content, important findings such as these arrived much later in the project than ideal.

**Conclusions** – Describe any conclusions/lessons learned.

The new standard builds and configurations in the EHR fosters an improved ability to evaluate data across the enterprise for identification of important trends and best practices, support research, and streamline maintenance. This foundation puts HCA in a position to transform care delivery through a combination of predictive analytics, rapid integration of evolving technologies, and installation of optimized processes. Further, HCA expects to realize significantly reduced implementation time and cost for new sites and a streamlined upgrade process for regulatory requirements, enhancements, and software updates. The increased collaboration with a wider number of stakeholders across the company's matrix produced a more vetted initial product and should help to provide a solid support system for initial EHR go-lives and beyond. Still, this new product needs to be piloted and HCA expects multiple revisions to the standard following implementation at the first 10-15 sites.

**Next Steps/Follow Up Research** – If applicable, provide any next steps/follow up that are important to this presentation.

The team is developing pre-work for the facilities who are next in line to receive this new EHR product which affords the opportunity to measure the expected gains in the implementation process via the streamlined build and standard screens. Following go-lives at alpha and beta sites, the team will optimize the EHR build and clinician workflows in preparation for a larger,

mass scale roll out to the remaining ~170 facilities throughout the enterprise over the next 5-7 years. The new change control process will also be tested during the beta phase with the aim to incorporate the learned benefits of utilizing enterprise subject matter experts (SMEs) who practice clinical medicine coupled with corporate governing bodies to achieve appropriate and timely review, approval and prioritization.

## **SPEAKER DETAILS**

**Name:** Connie Saltsman Pharm.D., MBA, CPHIMS, FHIMSS

**Title/Org/City/State/Country:** AVP, Clinical Pharmacy Informatics, HCA Healthcare, Tennessee, United States

**Worksite:** Healthcare Provider / Hospital, Multi-Hospital System, Integrated Delivery System

**Bio:** Connie Saltsman is the Assistant Vice President, Clinical Pharmacy Informatics at HCA Healthcare in Nashville, TN. She is responsible for leading HCA Healthcare's clinical pharmacy informatics alignment across interdisciplinary teams to provide care excellence throughout the enterprise. She provides strategic planning and coordination management for the clinical and technical aspects of medication management within multiple EHR systems and other medical software. Prior to HCA Healthcare, Connie had ten years of experience working at the Johns Hopkins Hospital as a Clinical Pharmacist, then as Division Director of Pharmacy, managing a team of 50 pharmacists and pharmacy technicians who provided care for over 400 patient beds. Connie received her Doctor of Pharmacy degree from Albany College of Pharmacy in NY and her Master of Business Administration from the University of Baltimore in Maryland. She is a Certified Professional in Healthcare Information and Management Systems (CPHIMS) and is a Fellow Member of the Healthcare Information and Management Systems Society (HIMSS). Connie serves as the Post-Graduate Year 2 (PGY2) Pharmacy Informatics Residency Program Director at HCA Healthcare. She serves as a Practitioner Surveyor for the PGY2 Pharmacy Informatics Residency Program accreditation surveys for ASHP and is a board member for the Nashville Diaper Connection.

**Past Speaking Experience:** Saltsman C, Cooper W. MAGICal Provider Facing Clinical Decision Support. MUSE Inspire Conference. Nashville, TN. May 2019. Saltsman C. Clinical Decision Support: Evaluation Structure and Governance. Nashville Health IT Summit. Nashville, TN. June 2018. Saltsman C, Rahm R. "I Just Need a Quick Change": How to Handle CPOE Governance in the EHR. ASHP Summer Meeting. Denver, CO. June 2018.

**Name:** Stefanie Fine

**Title/Org/City/State/Country:** Sr. Director, Standards and Terminology, HCA, Tennessee, United States

**Worksite:** Healthcare Provider / Hospital, Multi-Hospital System, Integrated Delivery System

**Bio:** Stefanie Fine serves as the Sr. Director of Standards and Terminology for Clinical Services Group (CSG) at HCA Healthcare, with a primary responsibility for the standardized Evidence Based Clinical Documentation (EBCD) for nursing and select therapies across the enterprise. EBCD focus areas include alignment of clinical data, reduction in nursing documentation burden, and adherence to evidence and regulatory requirements. Stefanie joined HCA Healthcare in 1997 as a graduate Registered Nurse in the Progressive Care Setting and has served in progressive clinical, quality and operational leadership roles. While serving at HCA Healthcare, Stefanie additionally managed an Internal Medicine Practice (2004-2017) and served as a Legal Nurse Consultant (2009-2017). She transitioned to the corporate team in 2017 as the Manager of Nursing Practice where she led key nursing clinical data initiatives such as the standardization EBCD documentation resulting in normalized data which has proven foundational for multiple HCA Healthcare initiatives. Stefanie was graduated from Georgia Baptist College of Nursing (Mercer University) with a BSN in 1997, and a Masters in Healthcare

Administration with a focus in healthcare informatics from Capella in 2022. She is a proud 2022 graduate of HCA's Emerging Leaders Program. Stefanie enjoys cooking and spending time with her husband and four children.

**Past Speaking Experience:** 2022 Annual Clinical Care Classification (CCC) Conference, February 17-18, 2022; Building CCC into an EHR to support an efficient workflow. 2022 Annual Clinical Care Classification (CCC) Conference, February 17-18, 2022; Detecting Changes in Nursing Practice: COVID 2020 Annual Clinical Care Classification (CCC) Conference, November, 2019; Evidence Based Clinical Documentation 2018 ANIA, May 24, 2018; Implementing EBCD Using CCC Framework

**Name:** Brad Kehler OD, MBA

**Title/Org/City/State/Country:** Vice President, Clinical Informatics, HCA Healthcare, Tennessee, United States

**Worksite:** Healthcare Provider / Hospital, Multi-Hospital System, Integrated Delivery System

**Bio:** Dr. Brad Kehler, an optometrist by clinical training, has been involved with Clinical Informatics since 2007. Currently, he is Vice President for Clinical Informatics at HCA Healthcare in the Clinical Services Group. His responsibility in CSG is leading the teams that optimize HCA's EHR platforms to support required changes for clinical quality initiatives, improved clinician workflow, regulatory matters, and compliance. Additionally, his teams support the development and implementation of HCA's clinical standard for its main EHR platform, Meditech Expanse. These efforts frequently involve collaboration with a broad group of clinical and business stakeholders, other clinical informatics groups, and IT teams. Dr. Kehler served as the clinical and business lead for HCA's Patient Keeper program, an initiative designed to overlay the EHR with a unique desktop and mobile interface for the purpose of improving the physician experience. Prior to joining HCA, Dr. Kehler was on faculty at Vanderbilt University Medical Center. In informatics, he led initiatives to develop personalized views of the EHR, outpatient CPOE, and result reporting. He participated heavily in projects aimed to improve referring provider communications and was an executive member of the health records committee. Before focusing exclusively on Clinical Informatics, Dr. Kehler practiced optometry for 12 years with an emphasis on post-trauma/post-disease vision rehabilitation.

**Past Speaking Experience:** Abstract Presentation: Inaccurate Clinical Documentation in an Electronic Health Record, 11/2009, American Medical Informatics Association annual meeting, San Francisco CA Lecture: Health States of Patients Seeking Outpatient Low Vision Rehabilitation Services within LOVRNET: The Measurement of Personality in Patients in the Low Vision Research Network (LOVRNET), 10/2011, Envision Conference, St. Louis MO Low Vision Research Network (LOVRNET): Self-Reported Driving Confidence and Driving Abilities Among Patients in the Low Vision Research Network (LOVRNET), 10/2010, Envision Conference, San Antonio TX