Case Study: Electronic Health Records

American Academy of SLEEP MEDICINE™

Using EHR to Optimize Care in Sleep Medicine

Models of care are slowly adjusting to a new perspective of accountability for lifetime health with more convenient and less costly structures. Sleep medicine has an opportunity to guide these changes in a responsible way using an array of tools and innovations to ensure sleep health. It is uncomfortable but necessary to question all aspects of our previous paradigms and to be prepared to step into unfamiliar structures and to use new tools to make this happen. Some questions are more general: How can we ensure sleep health instead of focusing on a reactive approach to deteriorating patients? Others are more specific and may feel provocative:

a. Why do we require face-to-face visits that are designed for our own convenience rather than that of the patient?

b. What is it that we must change in ourselves to adapt to what is required to provide the best care?

Some tools empower providers with structural changes that address the obvious answers to these questions.

One of the structures that centralizes many of the tools for achieving comprehensive and convenient sleep health lifelong is the electronic health record (EHR). EHRs that are widely distributed and provide patient access and communication can be designed to foster best practices, coordinate more efficient care long-term, and provide proof of effectiveness in achieving outcomes. After examining our own limitations in process and quality, we felt that optimization of the EHR was critical in achieving new paradigms in care the setting of a health care system.

This is a description of a successful and currently operational sleep medicine EPIC EHR optimization project at Fairview Health Systems, collaboration of the University of Minnesota, which was completed in April 2014 after 9 months of planning and building. The purpose of this description is to provide framework for other entities who wish to leverage integration of the EHR in a manner that will optimize performance, quality, and access in sleep medicine and the discussion will provide detail on novel components of the project.

DESIGN AND BUILD TEAM

20 members of the sleep medicine design and build team held live meetings over 9 months and included:

a. Sleep medicine personnel: medical director, administrative director, project manager,

b. IT personnel: project manager and EPIC build consultant as well as existing system engineers and analysts with expertise in inpatient and outpatient processes such as registration, scheduling, provisioning, billing, integration, firewall/secure transfer protocol, business intelligence data warehousing, and sleep diagnostic applications.

A preset timeline for design and build milestones was adhered to within one month of timeline, and weekly meetings and structured updates/assignments were typical in the initial months. For design and build of the PAP data transfer, manufacturer consultants were called in to participate together and separately during design and were consulted intermittently

PHYSICIAN PROFILE

Conrad Iber, MD

Medical Director, Fairview Sleep Program

Professor of Medicine, University of Minnesota

with queries during the build.

TECHNICAL REQUIREMENTS FOR DATA TRANSFER.

Basic technical requirements are currently available and include the HL7 interface, numerical calculation capability within EPIC release 2014 and the capability of a secure interface with the manufacturer. The process of developing an interface requires sharing of API rules with the manufacturer. In addition, for the purpose of data integrity, rules were developed including transfer at noon each day, the capability to automatically backfill when there is data transfer interruption, and automatic transfer of "0" into discrete fields when there in non-use of the device.

CHALLENGES

Challenges in this project may be largely attributed to the development process and may not be problematic for those moving forward with manufacturers who are now familiar with interface development. Auditing was necessary to tune interface transfers and verify data accuracy of final transfers. Surveillance auditing has been necessary because of recognized errors created by unannounced changes in data transfer from manufacturer or deviation from initial computation rules in EPIC processes. Additional challenges of data transfer that are infrequent such as interruptions of wireless transfer due to travel or transmission failures are familiar to those who currently use wireless systems.

This sleep medicine optimization project was funded and largely staffed by Fairview Health Systems. Human resources and project funding that are available in a large health system empowered a highly-organized team to accomplish the data integration over

a period of 9 months from design start and may be more difficult to replicate in smaller systems or practices. Standardization and streamlining this process may provide more accessible components in some settings. Any IT build is evolutionary and the Fairview build includes additional functionalities that are currently in progress, such as capability for patient-initiated questionnaire entry into discrete fields and implementation of data transfer from the third-party manufacturer.

HIGHLIGHTS AND SIGNIFICANT ACHIEVEMENTS OF INTEGRATION

The project achieved novel attributes including first successful structure for incorporating wireless transfer of data from home PAP device data into discrete fields of the electronic health record of a health system. The scope of this project was a broader sleep medicine optimization project that also achieved a customized portfolio including a home for sleep medicine within the medical record; customized methods for efficient scheduling and communication; and a series of templates for sleep medicine evaluations, orders, and patient information. A data warehouse was created for reporting accepted and novel outcome measures to assist in reporting and strategic planning.

SOME INGREDIENTS TO HAVE IN PLACE BEFORE MOVING FORWARD WITH A COHESIVE PROJECT

1. In your system of care, secure the funding mechanism, project leaders and IT resources for optimizing EHR across a specialty in order to determine scope of your project.

2. Using current evidence or consensus, identify sleep medicine toolkits, including standardized templates for diagnostic evaluations, orders

and communications, and determine what enhancements your EHR can leverage to ensure best practices or regulatory compliance.

3. Set structured timeline and communication methods with optimization team.

4. Prepare your teams for change including the need to weather unpredictable set-backs and modify strategies.

The recommendations and tactics described in the AASM Sleep case studies reflect the best practices of AASM members and are not the official position or policy of the AASM.