North Dakota Flex CAH-HIT Network Implementation Grant- HRSA Grant No. H54RH08680

Evaluation Plan and Metrics

The Beginning

- Evaluation begins with the planning process.
- A firm concept of what is to be accomplished is key.
- Is the problem to be solved, or the outcome to be achieved, amenable to an IT solution?
  - OR is the problem training, workflow, documentation-stuff that can't be fixed with a computer?!
Goals

- How will the new hardware/software make the performance of the task
  - Easier
  - Faster
  - More accurate
  - More thorough?

Consider:

- What needs to be done?
- How is it done now?
- What has to change to make converting the task to electronic format work in this milieu?
  - The application? OR
  - The Users? OR
  - BOTH
    - People, processes, and technology direct the problem.
      If you can't identify which of these, if not all is the problem, even evaluation will not help you here.
How [we] did it....

Mt. Ascutney Consortium

- Statement of Purpose- what’s the point?
- Goals- general
- Measurement of Impact- the effect on specific areas
- Chose metrics
  - Define what to measure.
  - Determine relative importance of each measure to the stakeholders
AHRQ National Resource Center - Knowledge Library

- www.ahrq.gov Knowledge library, search for “evaluation plans”
- http://healthit.ahrq.gov/portal/server.pt?/gateway/PTARGS_0_3882_81659_0_0_18/AHRQ%20NRC%20Evaluation%20Toolkit.pdf

Goals

II. GOALS OF THE PROJECT
- Anywhere, anytime provider access to medical records and information
- Portability to numerous common devices and interfaces
- Ultimate reduction in overall costs, by obviating the need for couriers, fax, and other methods of transfer of paper records
- Enhanced collaboration with healthcare organizations, government agencies, payers and other third parties
- Medication tracking and electronic ordering to address medication errors and attendant adverse drug reactions/errors (ADE)
- Reduce information-related errors in treatment and overall care
- Creation of a framework to allow for the installation of future technologies and addendums to the Electronic Health Record
- Creation of a system which can be scaled up and duplicated repeatedly in other places, so that other partners may be added
- HIPAA compliance and dependable security of patient records
- Creation of a stringent, dependable back-up, disaster-recovery system
- Improved rates of clinician adoption, because clinicians can go to a single place to get all relevant information on a patient, rather than having to open multiple applications
- Time savings to clinicians as the portal’s unified, “single-view” environment integrates and displays clinical data derived from multiple systems around the organization
- Clinicians will be able to view, update and add new data to multiple systems and applications from within a single user interface
- A comprehensive view of patient status and medical history can be gained from within one window, allowing for improved and timely clinical decisions
Goals of the evaluation

- Quantitative Measures
  - Technical impact
  - Human Impact
  - Business case
- Determine Qualitative measures

Technical Impact

- Data availability in all/potential systems to be accessed
- Data from all systems are accurately displayed.
- Data in all systems are accurately synchronized.
- Data in all systems are synchronized and displayed in a timely manner.
- Data synchronized and displayed in the portal are the correct data for the needs of the providers and patients in the formation of an Electronic Health Record (EHR).
- Data remains secure in legacy systems and is secure in portal solution.
- Single Sign On feature translates to legacy systems to reduce number of passwords to be managed by providers.
- Data is available from remote locations and remains secure from those locations.
Human Impact

- Provider adoption
- Provider Usability
- Quality of images (Radiology)
- Provider Satisfaction
- Patient Satisfaction
- Reduced time in waiting room
- More provider/patient interaction
- Reductions in adverse drug events by having accurate medication and allergy information available at the point of care.
- Visit cycle time.

Business Case

- Reduction in duplication of patient registration in multiple systems during a visit.
- Reduced provider time on task
- Reduction in travel by remotely located Radiologist group
- Elimination vendors to program/maintain interfaces.
- Reduction in time on task for manually scanning records from legacy systems into other existing systems.
- Reduced delays in billing because of notes remaining uncompleted awaiting additional documentation (scanned docs; rad reports, advanced directives, etc).
Evaluation Metrics Technological Impacts – Goals

1) Goal: Data that is available in other internal and external systems that stores patient data across the continuum of care can be accessed, synchronized and displayed in the EHR Portal as part of the patient record. Measure: Available data/accessible data, and makes sense to use.

2) Goal: Data from other systems being accessed are displayed accurately. Measure: Displayed data = Accessed data.

3) Goal: Data in all systems are accurately synchronized. Measure: Synchronized data = disparate system data and Synchronized data = displayed data.

4) Goal: Data in all systems are synchronized and displayed in a timely manner. Measure: Length of time to display data from back-end queries that provide data to the portal.

5) Goal: Data synchronized and displayed in the portal are the correct data for the needs of the providers and patients in the formation of an Electronic Health Record (EHR). Measure: Data provided = Data needs of the providers.

6) Goal: Data remains secure in legacy systems and is secure in portal solution. Measure: System is secure and HIPAA compliant internally and remotely.

7) Goal: Single Sign On feature translates to legacy systems to reduce number of passwords to be managed by providers. Measure: Number of systems that cannot be accessed using single-sign on and must be launched individually from the portal/Number of systems providers access to provide care.

8) Goal: Data is available from remote locations. Measure: Number of failed attempts to review patient records via the portal/Number of valid attempts.

Metrics - Human Impacts -

9) Goal: Provider adoption. Measure: Number of providers using the system/total number of providers treating patients.

10) Goal: Provider Usability. Measure: Data flow in portal/How providers want data flow configured to their specifications.

11) Goal: High quality of images (Radiology). Measure: Number of usable images/Number of images transmitted to portal.

12) Goal: Provider Satisfaction with tools. Measure: Likert scale of satisfaction with technology to assist with patient care decision making. (Balanced Scorecard survey and baseline measures in place outside of project).

13) Goal: Patient Satisfaction with provider encounters. Measure: Likert scale of satisfaction with visit experience. (Press-Ganey survey and baseline measures currently in place outside of project for inpatient visits. In-house survey and baseline measures currently in place outside of project for outpatient clinic visits as part of IHI Access and Efficiency project).

14) Goal: Reduced time in waiting room for patients. Measure: Cycle time from check-in to completion of patient visit.

15) Goal: Reductions in adverse drug events causing subsequent admissions by having accurate medication and allergy information available at the point of care. Measure: Medication interaction and allergy admissions from undocumented conditions/All medication interaction and allergy admissions.

16) Goal: Adequate provider training on the use of the portal tools. Measures:
- Total Staff
- Estimated Duration vs. Actual Duration
- Number of attendees - Estimated vs. Actual
- Percent of total attended
- Percent of estimated attended
Metrics - Business Case

17. Goal: Reduction in duplication of patient registration in multiple systems during a visit. Measure: Number of actual patient registrations in systems/number of department encounters.

18. Goal: Reduced provider time on task. Measure: Time spent looking up records/time available for appointments.

19. Goal: Reduction in travel by remotely located radiologist group. Measure: Pre-implementation miles traveled vs. post-implementation miles traveled. Currently, remote radiology group travels an average of 110 miles per day to complete studies at 4 served locations.

20. Goal: Elimination of duplicate costs for multiple interfaces (elimination of reliance on vendors to program/maintain interfaces). Measure: Cost reduction. Current interface programming from existing vendors for CPSI and Amicore average $16,000.00 for sending and receiving ends of interface. Potential is for billing interface to be programmed from Penchart to Clinical Billing system (Medical Manager). Emergency department has requested lab interface between CPSI and Codonix application. Codonix, Cost is $10,500.00 on CPSI end and $35,000.00 for Codonix programming. PACS Radiology Information System and Demographic interface programming cost is $25,000.00. Initial first year savings from committed-to interfaces is $86,500.00 by programming these interfaces with existing staff using the Orion vendor tools set.

21. Goal: Reduced delays in billing because of notes remaining uncompleted awaiting additional documentation (scanned docs, rad reports, advanced directives, etc). Measure: Delays in billing that have negative impact on cash flow result from uncompleted notes. Delay in note completion results from time awaiting additional results, scanned documents, or radiology reports to document within the visit. Average number of days to complete a note for billing pre-implementation vs. Average number of days to complete a note for billing post-implementation.

Qualitative Metrics

Past provider statements at Mt. Ascutney Hospital that could be potentially impacted by project:

Emergency Department Doctor: “We do not access the medication lists in Penchart because they are found to be inaccurate.”

Clinic Doctor. “Most clinic physicians do not access the patient’s electronic chart in Penchart because it is too time consuming. They do not access data in the inpatient CPSI system because it is too difficult to learn”.

Clinic Doctor: “The existing electronic communication systems are not efficient and available to all providers that need the documentation”.

Clinic Doctor: “I run behind on my visits because I am waiting for documentation to be gathered from other systems. These include order results and other reports.”

Clinic Doctor: “The system does not display information that is easily identified from past visits, I have to spend too much time searching”.

Clinic Manager: “The built-in canned reports are not comprehensive enough to assist with decision making and I need a programmer to get me the data.”

Important to consider. Thematic analysis will identify common themes.
GRADE METRICS IN ORDER OF IMPORTANCE TO STAKEHOLDERS

- Very Important: 1, 2, 3, 5, 6, 10, 12, 13, 14, 15, 20
- Moderately Important: 4, 9, 11, 16, 17, 18, 19, 21
- Not Important: 7, 8

DETERMINE WHICH MEASUREMENTS ARE FEASIBLE

- Feasible: 1, 2, 3, 5, 6, 7, 8, 9, 10, 16, 20, 21
- Moderate Effort: 4, 11, 12, 13, 14, 17, 18, 19
- Not feasible: 15
### Chose your battle

Green = do it; Yellow= do it after the green in # order  
Red= forget it

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<th>Moderate Effort</th>
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### Reasonableness

- **People who draft your plan should be knowledgeable about what is feasible and what is not.**
- **Goals and objectives, and the measurements used, must be realistic.**
**Probably not.....**

- **Proposed goal for the 1st quarter:**
  “Regular clinician information and training sessions will begin throughout the Consortium.”
- **Response from a team member:**
  “J,”
  Just at first blush, this is impossible and “C.” will know it...so will “Dr. M”. This is a whole project just by itself... I know this is a goal that needs to be pursued and I agree with it, but for practical and logistical reasons, I think this ought to be moved WAY down the list, and stretched over multiple quarters. Otherwise, anyone who reads this (who knows anything) is going to think we’ve been into the mushrooms- again...

**Draft Plan**

Around each metric
- Overview-general considerations
- Time Frame
- Study Design/ Comparison group
- Data Collection Plan
- Analysis plan
- Power/Sample size Calculations
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