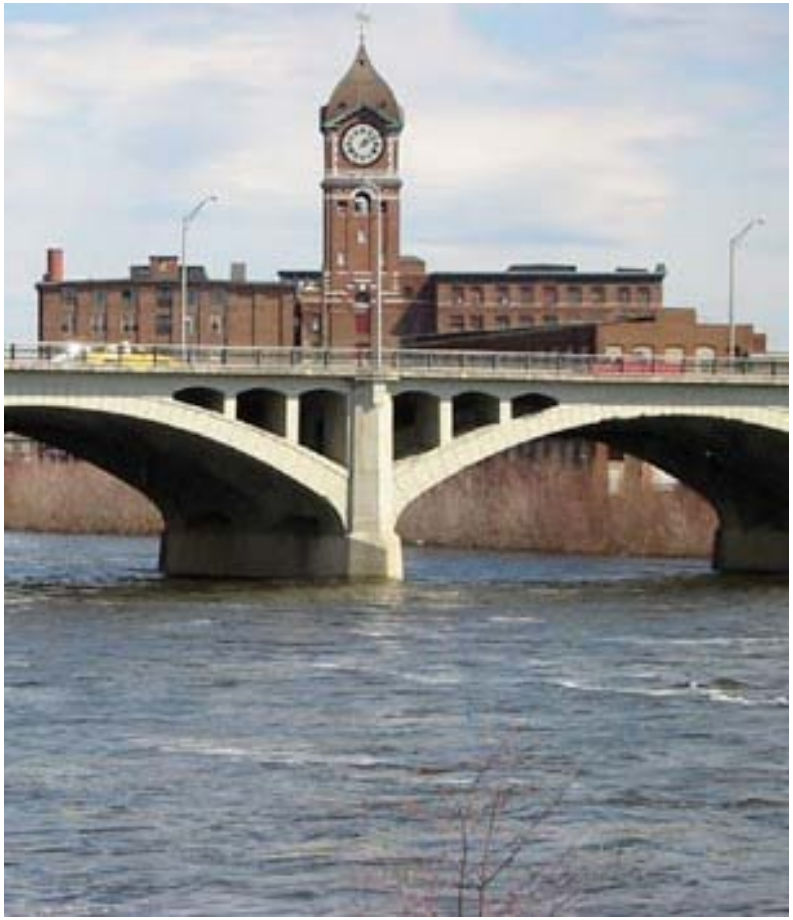
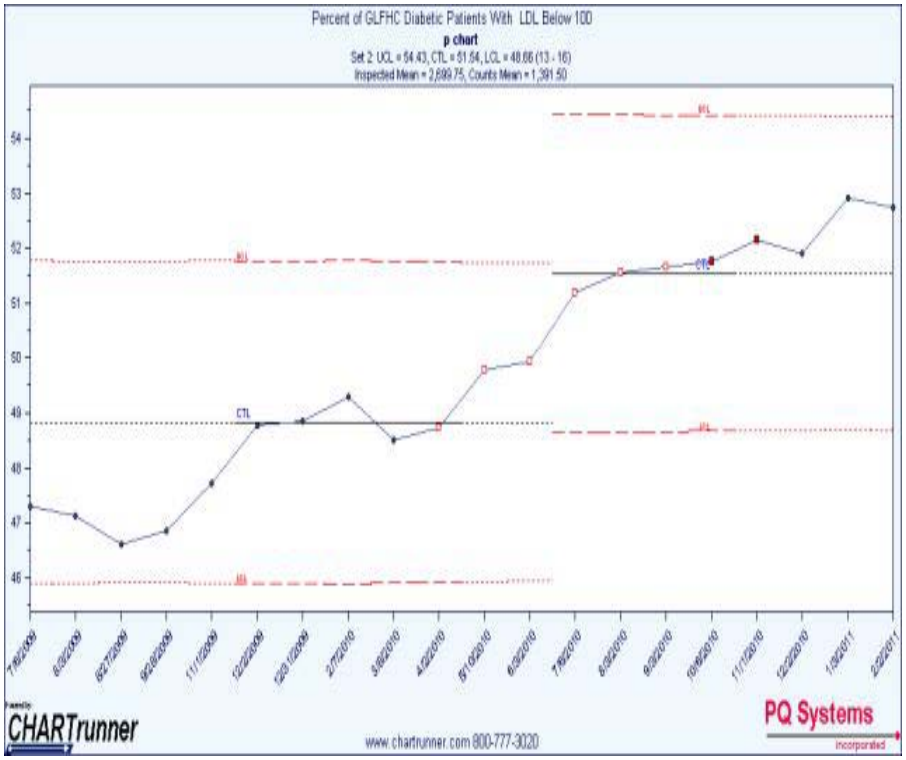
Teaching: Integrating Education Into a Learning Organization

Lessons Learned for Improving Diabetes Care and Outcomes, Lawrence Family Medicine Residency

G. Dean Cleghorn, EdD
Shirin Madjzoub-Celebi, MD
Greater Lawrence Family Health Center and Latino CEED: REACH New England





Learning Objectives

During this presentation the participants at the faculty retreat will:

1. Review the definition of a learning organization
2. Review how GLFHC has developed two of the five elements of a learning organization—systems thinking and team learning
3. Reflect on how the teaching-learning process may be embedded in the clinical organization by focused design of systems thinking and team learning

What is a learning organization?

A **learning organization** is the term given to a company that facilitates the learning of its members and continuously transforms itself[1].

Senge's Five Characteristics of a Learning Organization

- **Systems Thinking**
- Personal Mastery
- Mental Models
- Shared Vision
- **Team Learning**

Systems Thinking

The idea of the learning organization developed from a body of work called systems thinking[4]. This is a conceptual framework that allows people to study businesses as bounded objects[3]. Learning organizations use this method of thinking when assessing their company and have information systems that measure the performance of the organization as a whole and of its various components[4].

Team Learning

The accumulation of individual learning constitutes Team learning [2]. The benefit of team or shared learning is that staff grow more quickly[2] and the problem solving capacity of the organization is improved through better access to knowledge and expertise[5]. Learning organizations have structures that facilitate team learning with features such as boundary crossing and openness[4]. Team learning requires individuals to engage in dialogue and discussion[2]; therefore team members must develop open communication, shared meaning, and shared understanding[2]. Learning organizations typically have excellent knowledge management structures, allowing creation, acquisition, dissemination, and implementation of this knowledge in the organization[6].

Clinical Data Infrastructure Elements for Systems Thinking

Structure for Quality Improvement

GLFHC adapted its quality improvement structure with the Intermountain Health infrastructure as a model. It defines five essential elements for a quality improvement infrastructure: A Culture of Quality, Aligned Strategies (prioritization of improvement goals), Measurement Systems, Organizational Structure, and Creative payment mechanisms to cover costs of improvement.(1)

- Personnel from multiple units:
  - Chief of Quality Management and Research – G. Dean Cleghorn, EdD
    - Regulatory Compliance Data Manager – Regina Johnson
    - QMR Data Manager – Sarah Stanlick
  - Associate Medical Director and Medical Quality Officer – Kiame Mahaniah, MD
    - Training Manager for Clinical Quality Improvement, Shirin Madjzoub, MD
  - Director of Nursing Practice and Standards, Patricia Conway, RN
    - Infection Prevention Nurse, Anne Rundle, RN
  - Director of Research for residency program, Anthony Valdini, MD
    - Research Coordinator, Michelle Olivieri
  - HIM Director and Compliance Officer, Michelle LaMothe
- Committees:
  - Board of Directors Committee on Patient Care
  - Quality Council
    - Patient Safety Committee
    - Pharmacy and Therapeutics Committee
    - HIV CQI Committee
    - Asthma Care Team
- Ad Hoc Committees as needed (e.g. Labs and Abnormal Studies Process Re-engineering Group--LASPerg)
- Enterprise architecture that integrates all domains of the Health Center as a basis for quality data using Systems Architect software for defining the architecture (See attached diagram) and process modeling (See attached flow chart example for Asthma care) (2, 3)

Electronic Health Record

An Electronic Medical Record (EMR) – Since 1999 Misys product in use, which will be replaced in July 2011 with GE Centricity in order to meet “meaningful use” criteria (5).

- Project management tools and process for migrating to a new EMR
- Consultation from Massachusetts Regional Extension Center

Data Organization

- Data repository and registries for data based on accepted practice guidelines
  - Non-PHI identifier – "Patkey" which is a multi-digit number associated with each patient in the GLFHC data repository
  - SQL Server database updated nightly by automatically downloading new data from the EMR

- Data warehousing has been developed to a certain extent so that historical mining and tracking is possible.

Reporting and Management Tools

Midas Touch Reporting Services provides on line reports that are generated on demand by users at GLFHC. The clinical use is programmed to extract data from the Data Repository. The GLFHC Diabetes Overview is attached as an example of these reports. In addition, clinicians can access reports of the same data for their own patients who have diabetes.

Greater Lawrence Family Health Center

Diabetes Overview

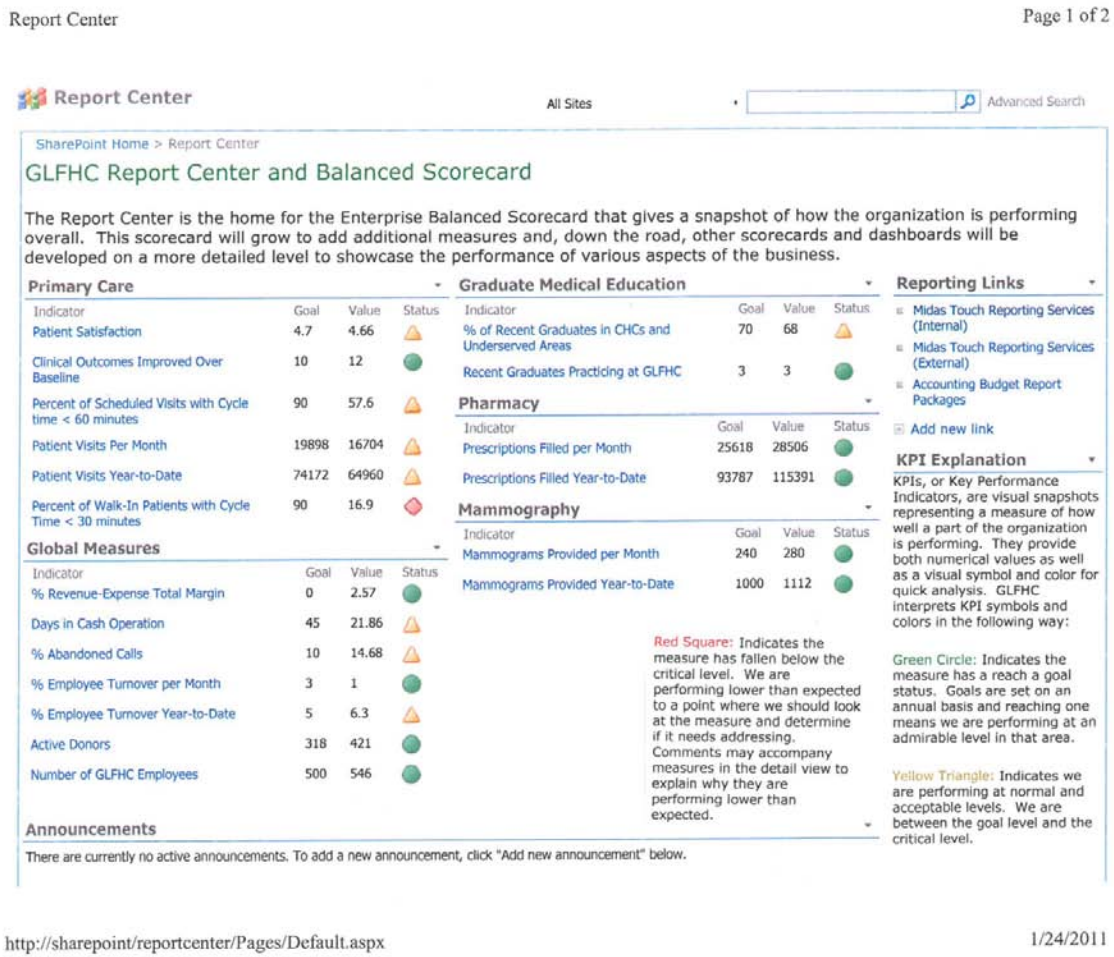
Diabetic Patients				
	Past 2 Years	%	Past Year	%
Diabetic Patients	3957	9.0%	3676	92.9%

	Past Year	%	Past 6 Months	%
BMI	2216	60.3%	1620	44.1%
< 25	226	10.2%	164	10.1%
HbA1c	3248	88.4%	2450	66.6%
< 7	1414	43.5%	1019	41.6%
Blood Pressure	3642	99.1%	3265	88.8%
Systolic < 130	1716	47.1%	1536	47.0%
Diastolic < 80	1755	48.2%	1598	48.9%
LDL	2754	74.9%		
< 100	1455	52.8%		
< 70	511	18.6%		
HDL	2791	75.9%		
> 59	250	9.0%		
Triglycerides	2777	75.5%		
< 150	1788	64.4%		
Total Cholesterol	2813	76.5%		
< 200	2135	75.9%		
Foot Exam	1194	32.5%		
Eye Exam	987	26.8%		

Based on Diabetic Patients Seen in Past Year		
Immunizations		
Flu Shot (since 09/01)	2091	56.9%
H1N1 (since 09/01)	0	0.0%
Pneumovax (ever)	2628	71.5%

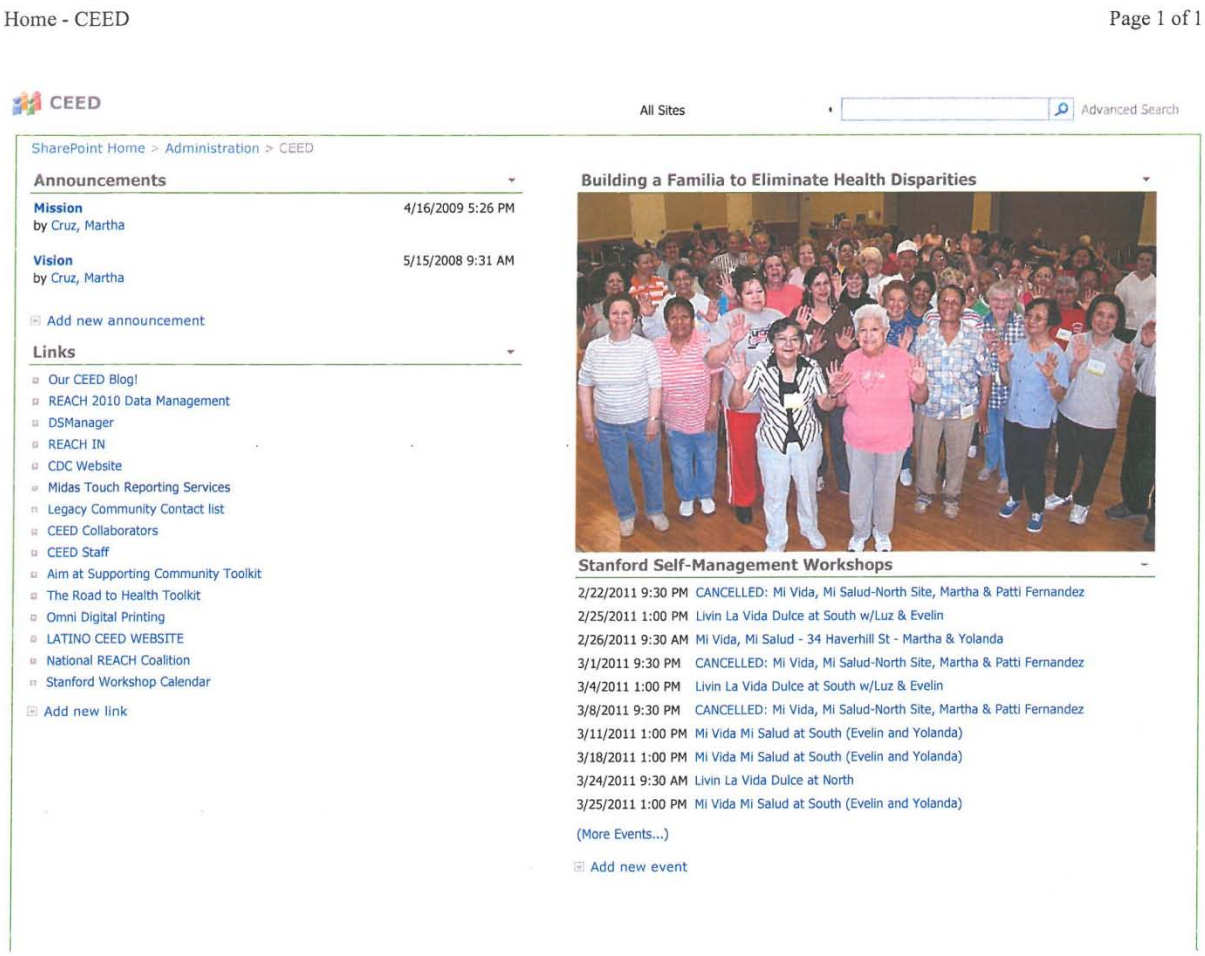
Reporting and Management Tools

SharePoint provides a single, integrated location where employee can efficiently collaborate with team members, share knowledge and find organizational resources and information. There is a SharePoint Report Center available to all GLFHC employees where monthly outcomes are posted for all lines of business. It includes summary outcomes and tabs to obtain more detailed data, including control charts.



Latino CEED SharePoint Site

As another example, the Latino CEED has SharePoint site only accessible by team members to manage their collective work from multiple places.

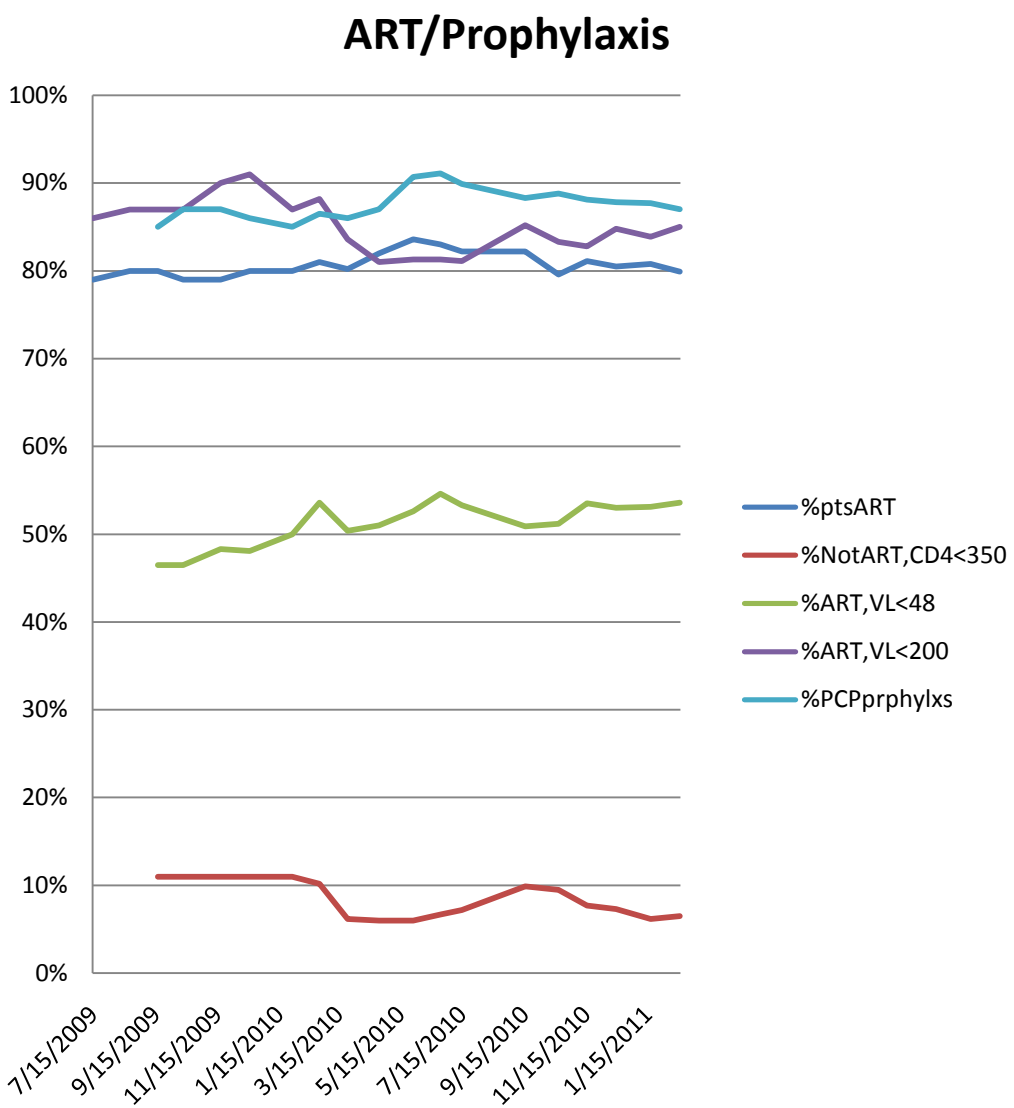


Data Tracking

Measure	Goal	Critical Value	Base line	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
Percent Patient Ratings: Quality of Care Very Good or Excellent	**4.70**	**4.30**	**4.50**	4.70	4.70	4.70	4.66	4.66	4.66
Clinical Outcomes At or Over Goal	**10**	**2**	**7**	1	4	8	8	12	11
Percent of Scheduled Visits with Cycle time < 60 minutes	**60.0%**	**55.0%**	**58.0%**	55.7%	60.0%	58.1%	57.6%	59.3%	62.0%
Percent of Walk-In Patients with Cycle Time < 30 minutes	**25.0%**	**14.0%**	**16.0%**	21.7%	20.4%	18.7%	16.9%	20.4%	19.0%
Number of Patient Visits Per Month	**varies**	**varies**	**16855**	14745	16308	17183	16704	16954	16751
Number of Patient Visits Year-to-date	**varies**	**varies**	**varies**	14745	31053	48236	64960	81914	98665
Revenue-Expense Margin Year-to-date	**0%**	**-2%**	**8.00%**	-4.44%	-1.63%	4.99%	2.57%	2.79%	3.58%
Days in Cash Operation	**45**	**20**	**50**	34.65	29.92	25.75	21.86	26.87	24.89
Percent of Abandoned Calls	**13.00%**	**25.00%**	**20.00%**	12.37%	12.63%	14.60%	14.68%	15.95%	14.17%

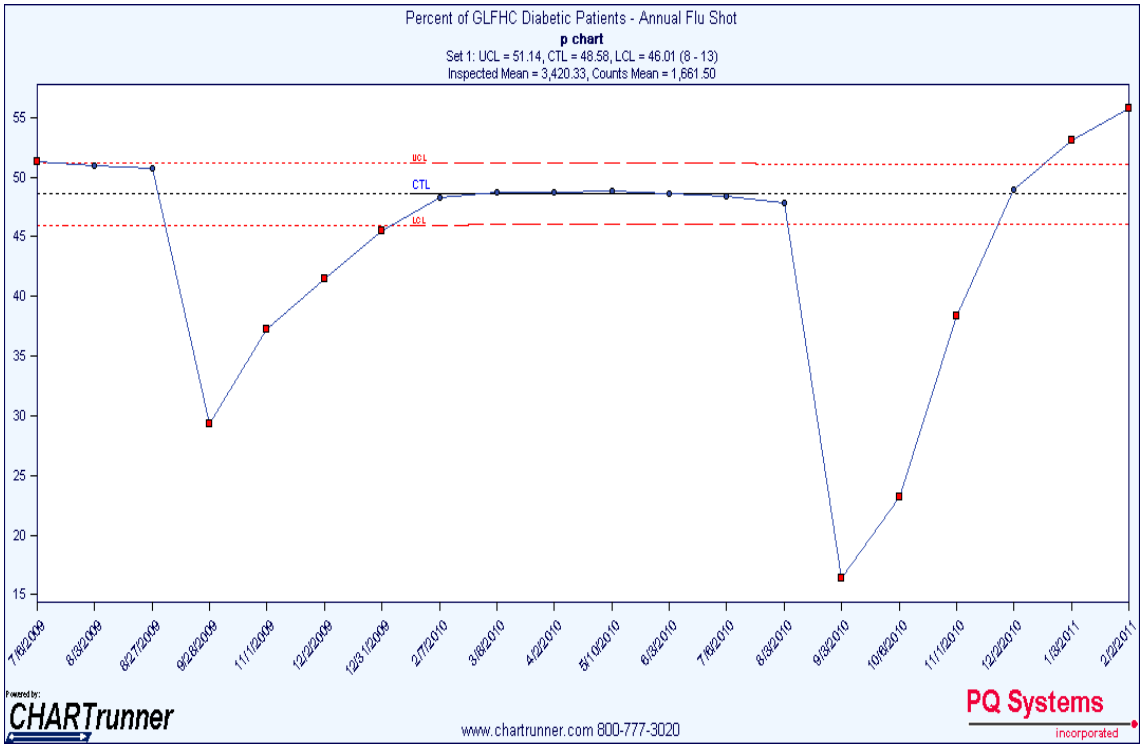
Data Tracking

Microsoft Excel is used for tracking clinical data; “snapshots” of data from reports are entered into spreadsheets for long term-tracking. Often Excel graphs are used to display trends over time. This example is for HIV CQI data.



Data Tracking

Control charts are used for many data elements; GLFHC uses ChartRunner to generate control charts from the spreadsheets. A sample is attached.



Team Learning 1

1 **Establishing vision & creating team cohesiveness**

Activities

Workshop-based collective learning on the following topics:

- **Team Vision**
- **Communication**
- **Roles & internal functioning**

Lessons Learned

- Process takes time

- Traditional role hierarchies can be changed through eg:

- Leveling open ended questions & Motivational Interviewing techniques
- Rotating facilitators
- Striving towards consensus

Team Learning 2

2 **Using EMR data to enable learning and change**

Activities

- **Assigning a team member for mining clinical data**
- **Refining data to make it accessible to the team**

Lessons Learned

-Data is a powerful motivator for QI & team cohesion

-Make data easy to access and use

Greater Lawrence Family Health Center

Diabetes Overview for smc

Diabetic Patients				
	Past 2 Years	%	Past Year	%
DM Patients - All	3972	9.0%	3686	92.8%
DM Patients - SMC	54	1.4%	49	90.7%

	Past Year	%	Past 6 Months	%
BMI	45	91.8%	39	79.6%
< 25	4	8.9%	3	7.7%
HbA1c	44	89.8%	37	75.5%
< 7	17	38.6%	14	37.8%
Blood Pressure	48	98.0%	42	85.7%
Systolic < 130	26	54.2%	21	50.0%
Diastolic < 80	32	66.7%	28	66.7%
LDL	45	91.8%		
< 100	23	51.1%		
< 70	6	13.3%		
HDL	45	91.8%		
> 59	8	17.8%		
Triglycerides	45	91.8%		
< 150	32	71.1%		
Total Cholesterol	45	91.8%		
< 200	32	71.1%		
Foot Exam	44	89.8%		
Eye Exam	11	22.4%		

Based on Diabetic Patients Seen in Past Year		
Immunizations		
Flu Shot (since 09/01)	32	65.3%
H1N1 Shot (since 09/01)	0	0.0%
Pneumovax (ever)	34	69.4%

1.

Team Learning 3

3

Engaging in QI via PDSA Cycles

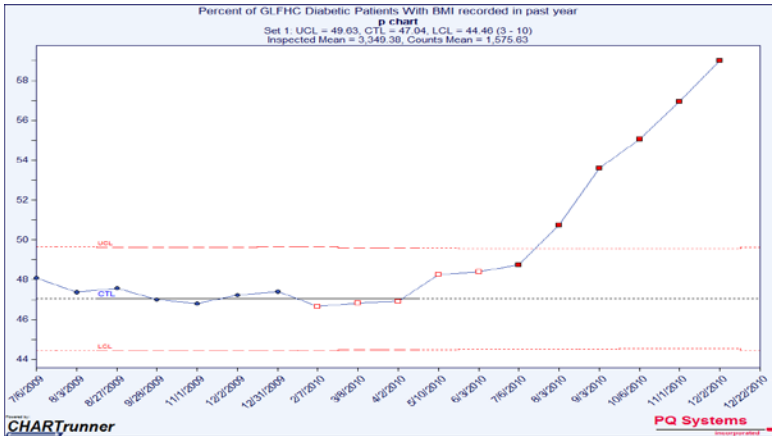
Activities

Engaging in time-bound improvement efforts via monthly PDSA cycles related to improving diabetes/asthma care

- **Performing & Documenting diabetic foot exams**
- **Measuring & Documenting BMI**
- **Checking HbA1Cs and & Reducing these**

Lessons Learned

- Collectively decided-upon numerical goals are easily developed when data is readily available
- Measurable improvements are possible in short periods of time if Steps 1 and 2 are in place



Improvement Summary – Purple Team

- In Diabetes care over the past 6 months:
  - **Foot exams** rates increased from **43% to 66%,**
  - **BMI documentation** increased from **27% to 75%**
  - **HaA1c documentation** increased from **71% to 75%**

- Improved team function:
  - Team function improved from a “Level 1” to “Level 4” of 8 over a year (“Team Development Measure”)
  - Staff satisfaction with team work increased to 100%
  - Subjective sense of collective ownership for a common patient panel

Challenges of “Team” in the Residency

- **Scheduling** – residents have irregular clinic times & don’t always work with the same MA
- **Continuity** – difficult to build on lessons learned when one misses team sessions
- **Consistency in teaching** – large faculty who are mostly not part of teams & not familiar with accessing data/implementing PDSAs
- **Clinic set up** – we have no geographic home for teams

The way forward for

- MA state pilot – Green Team ‘merger’ will help with formalization & acceptance & spread
- We will be exploring how to:
  - Integrate teams/QI teaching into daily work rather than as an “add on”
  - Have the data/tools more available as part of clinic day so QI can happen as a matter of course
  - How to integrate preceptors into work of the teams
  - How to create systems for expanded team structure – in theory & on the ground
  - How to empower residents to take on leadership roles in team development

In Conclusion

- Data infrastructure and team learning are necessary but not sufficient elements for a learning organization
- These elements are hard to develop
- Ideally all members in a learning organization learn naturally as part of everyday work. So, students or residents participating in the daily work of a health care learning organization automatically learn how to provide high quality care
- We are humbled daily in our efforts to become a learning organization where we teach residents