Best Practices for eMeasure Implementation

***Breakout Session #4*:**
Clinical Data Analytic Issues for eMeasure Implementation

Track Leaders:
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Chris Snyder, DO

April 26, 2012

NATIONAL QUALITY FORUM

eMeasure Learning Collaborative: What Are We All About?

- Public initiative convened by the NQF to bring together diverse stakeholders from across the quality enterprise.
- Promote shared learning across key eMeasure stakeholders including understanding of major drivers and barriers.
- Advance knowledge and best practices related to the development and implementation of eMeasures.
- Project consisting of interactive webinars and in-person meetings – spearheaded by Collaborative members and focused on array of relevant topics, tools, and resources.

eMeasure Collaborative Deliverables

1. Identification of current best practices (repeatable models)
2. Identification of gap areas
3. Development of recommendations for the future (to expand use of best practices and to address gap areas)

April 26th In-Person Collaborative Meeting
Best Practices for eMeasure Implementation

Four Questions for the Collaborative to Answer

1. ***What are best practices examples*** related to the development and implementation of eMeasures?

2. ***What are the mechanisms to enhance data and workflow capability?***

3. ***What are the recommendations*** for future use of health IT and standards to enable performance measurement?

4. ***How can we "rethink"*** **what we are looking for?**

Breakout Session Objectives

- Share case examples and experience of workflow enhancements, vendor system modifications and data scrubbing / mapping to enable eMeasure implementation.
- Identify common themes to generate standardization that EHR vendors might provide to streamline data analysis.
- Identify benefits and challenges of recommended code systems (vocabularies) used in eMeasures.
- Identify commonalities and differences among various reporting requirements for data analysis in ambulatory and hospital environments; recommending commonalities to allow harmonization of standards
- Identify a data workflow to clarify the process steps and functions to enable clearer understanding of expectations for EHRs and surrounding applications.
- Develop recommendations to drive eMeasure implementation forward

Breakout Session Agenda
10:45am – 2:00pm with working lunch

- 10:45 – 11:15am
- 11:15 – 11:35am
- 11:35 – 11:55am
- 11:55am – 12:15pm
- 12:15 to 2:00pm
- 2:00pm
- 2:00 – 2:30pm
- 2:30pm

- Presentation of use example(s) or vignette(s)
- Group discussion of presentation(s)
- Begin response to vignette questions
- **Break: Pick up box lunch, restrooms, phone calls**
- Working lunch, continue group discussion, vignette questions
- Summarize key points for report out
- Breakout session ends
- **Break**
- Large group re-convenes

Use Examples for eMeasure Clinical Data Analytics

- Colorado Permanente Medical Group
  Denver, Colorado

- Peninsula Regional Medical Center
  Salisbury, Maryland

Colorado Permanente Medical Group
Denver, CO

Use of eMeasures to support:

- Registry Development
- Clinical Practices
- Transitions of Care
- Patient Outcomes

Ted Palen, PhD, MD
Kaiser Permanente Institute for Health Research
Colorado Permanente Medical Group

Colorado Permanente Medical Group
Denver, CO

- Kaiser Permanente was founded by industrialist Henry J. Kaiser and Sidney Garfield, MD. Kaiser Permanent Colorado (KPCO) is Colorado's oldest and largest group practice health care organization and is one of 8 regions making up a national program serving a total of more than 9 million members in California, the District of Columbia, Georgia, Hawaii, Maryland, Ohio, Oregon, Virginia, and Washington—and Colorado.
- The over 900 physicians of Colorado Permanente Medical Group (CPMG) contracts with the Kaiser Foundation Health Plan of Colorado to provide care to over 531,000 members in Colorado.
- The Kaiser Permanente Colorado Institute for Health Research (IHR) publishes and disseminates epidemiologic, behavioral, and health services research to improve the health and medical care of Kaiser Permanente members and the communities it serves. The organization has a specific focus on conducting research that can be translated into clinical practice, health promotion, and policies to influence the health of individuals and populations.
- Currently, the IHR's staff of over 120 is working on more than 160 epidemiological, clinical, behavioral, community, and health services research projects.

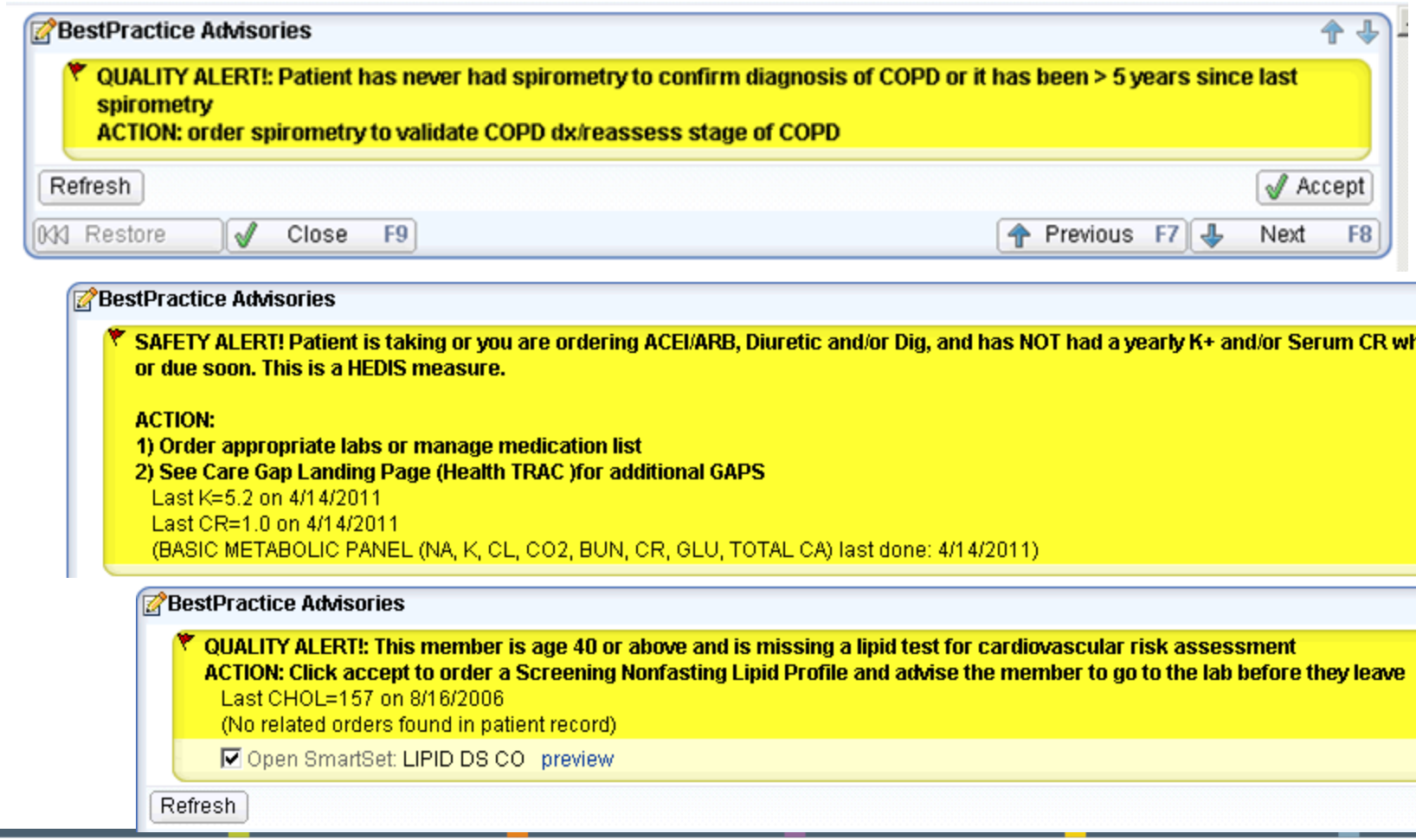
Framework – eMetrics

- Overview
- Individual patient care
  - Inpatient
  - Outpatient
- Population Management
  - Disease Standard
  - General
- Transition of Care
  - Needs to be standardized

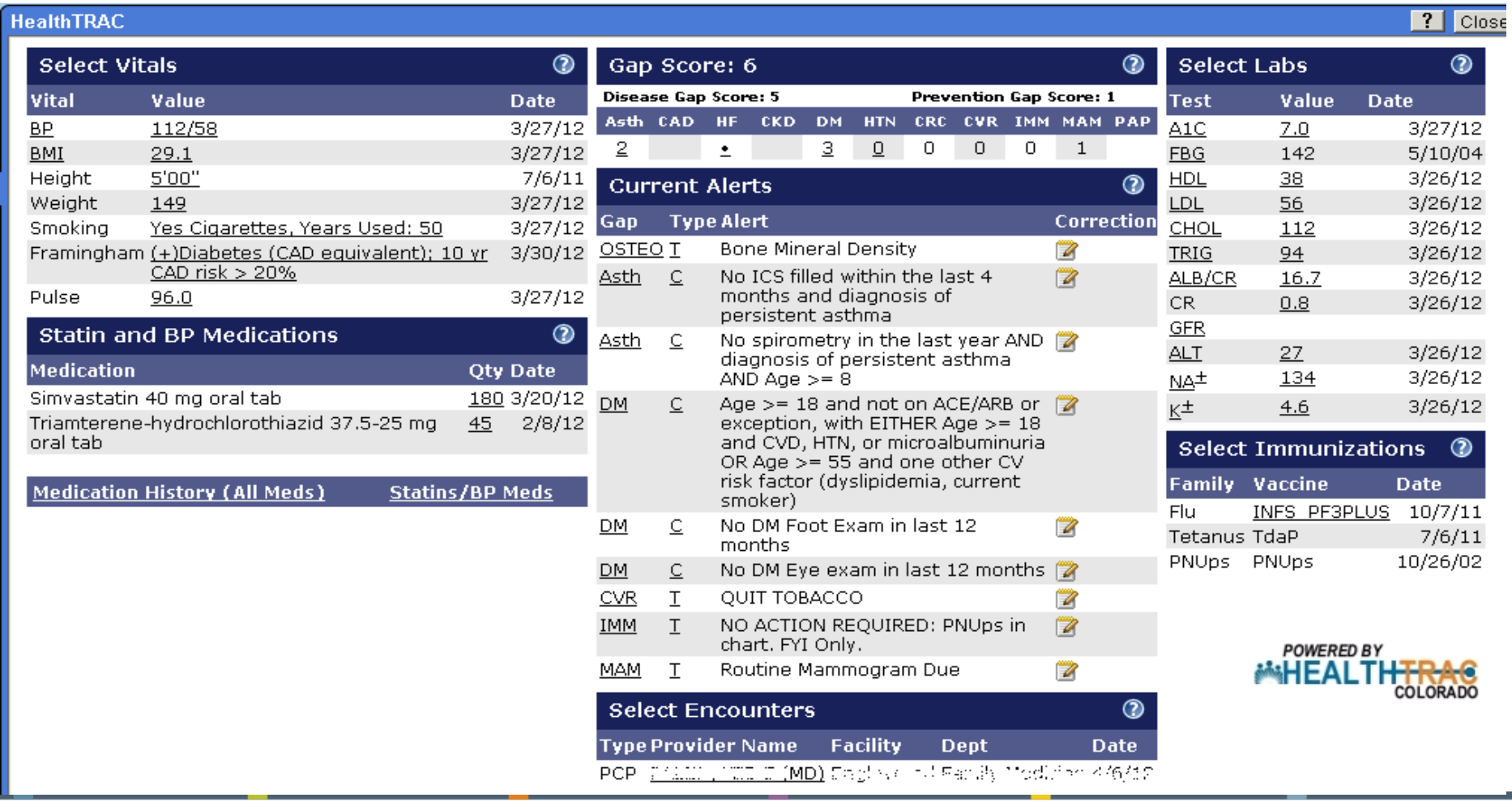
WHY AND WHERE eMeasure ARE NEEDED AND USED

- Transitions of Care
- Care Coordination
- Complex Chronic Care
- Medication Reconciliation
- Support of the Patient-Centered Medical Home
- Virtual Data Warehouse
- Health Information Exchange
  - e.g. EPIC's "Care Everywhere"
  - Colorado Regional Health Information Organization (CORHIO)
  - Vaccine safety data link (VSD)
  - State Immunization registry
- Patient Monitoring
  - From patient homes
  - Skilled nursing, rehab facilities
  - Patient portals
  - Patient reported outcomes
- Data standards

Care of the Individual Patient: Outpatient Clinical Quality and Safety eMeasures



Care of the Individual Patient: Outpatient Clinical eMeasures



HealthTRAC

? Close

Select Vitals

Vital	Value	Date
BP	112/58	3/27/12
BMI	29.1	3/27/12
Height	5'00"	7/6/11
Weight	149	3/27/12
Smoking	Yes Cigarettes, Years Used: 50	3/27/12
Framingham	(+)Diabetes (CAD equivalent); 10 yr CAD risk > 20%	3/30/12
Pulse	96.0	3/27/12

Statin and BP Medications

Medication	Qty	Date
Simvastatin 40 mg oral tab	180	3/20/12
Triamterene-hydrochlorothiazid 37.5-25 mg oral tab	45	2/8/12

Medication History (All Meds) Statins/BP Meds

Gap Score: 6

Disease Gap Score: 5 Prevention Gap Score: 1

Asth	CAD	HF	CKD	DM	HTN	CRC	CVR	IMM	MAM	PAP
2		•		3	0	0	0	0	1	

Current Alerts

Gap	Type	Alert	Correction
OSTEO	T	Bone Mineral Density	
Asth	C	No ICS filled within the last 4 months and diagnosis of persistent asthma	
Asth	C	No spirometry in the last year AND diagnosis of persistent asthma AND Age >= 8	
DM	C	Age >= 18 and not on ACE/ARB or exception, with EITHER Age >= 18 and CVD, HTN, or microalbuminuria OR Age >= 55 and one other CV risk factor (dyslipidemia, current smoker)	
DM	C	No DM Foot Exam in last 12 months	
DM	C	No DM Eye exam in last 12 months	
CVR	T	QUIT TOBACCO	
IMM	T	NO ACTION REQUIRED: PNUps in chart. FYI Only.	
MAM	T	Routine Mammogram Due	

Select Encounters

Type	Provider Name	Facility	Dept	Date
PCP	[redacted] (MD)	[redacted]	[redacted]	4/6/12

Select Labs

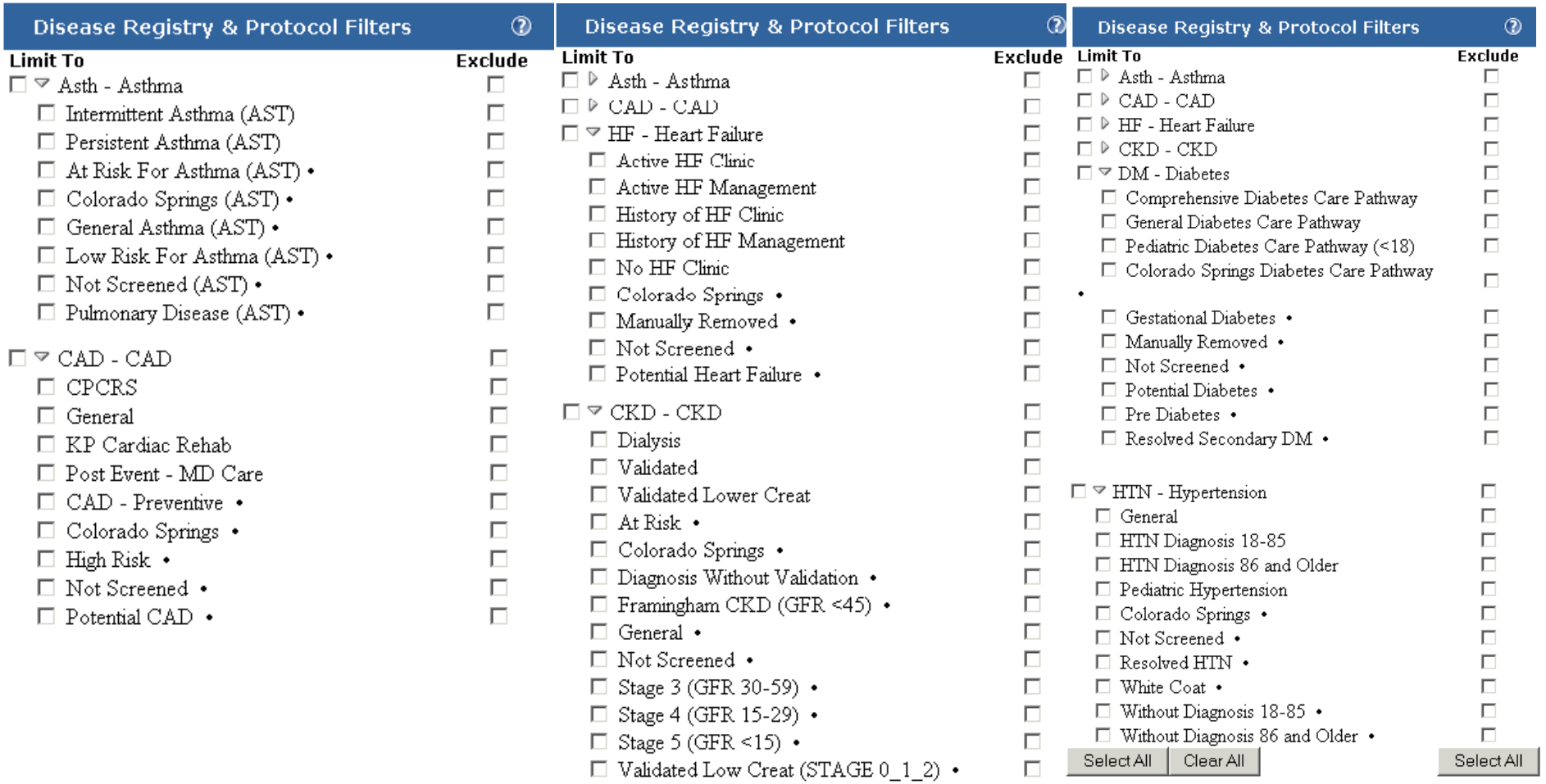
Test	Value	Date
A1C	7.0	3/27/12
FBG	142	5/10/04
HDL	38	3/26/12
LDL	56	3/26/12
CHOL	112	3/26/12
TRIG	94	3/26/12
ALB/CR	16.7	3/26/12
CR	0.8	3/26/12
GFR		
ALT	27	3/26/12
NA±	134	3/26/12
K±	4.6	3/26/12

Select Immunizations

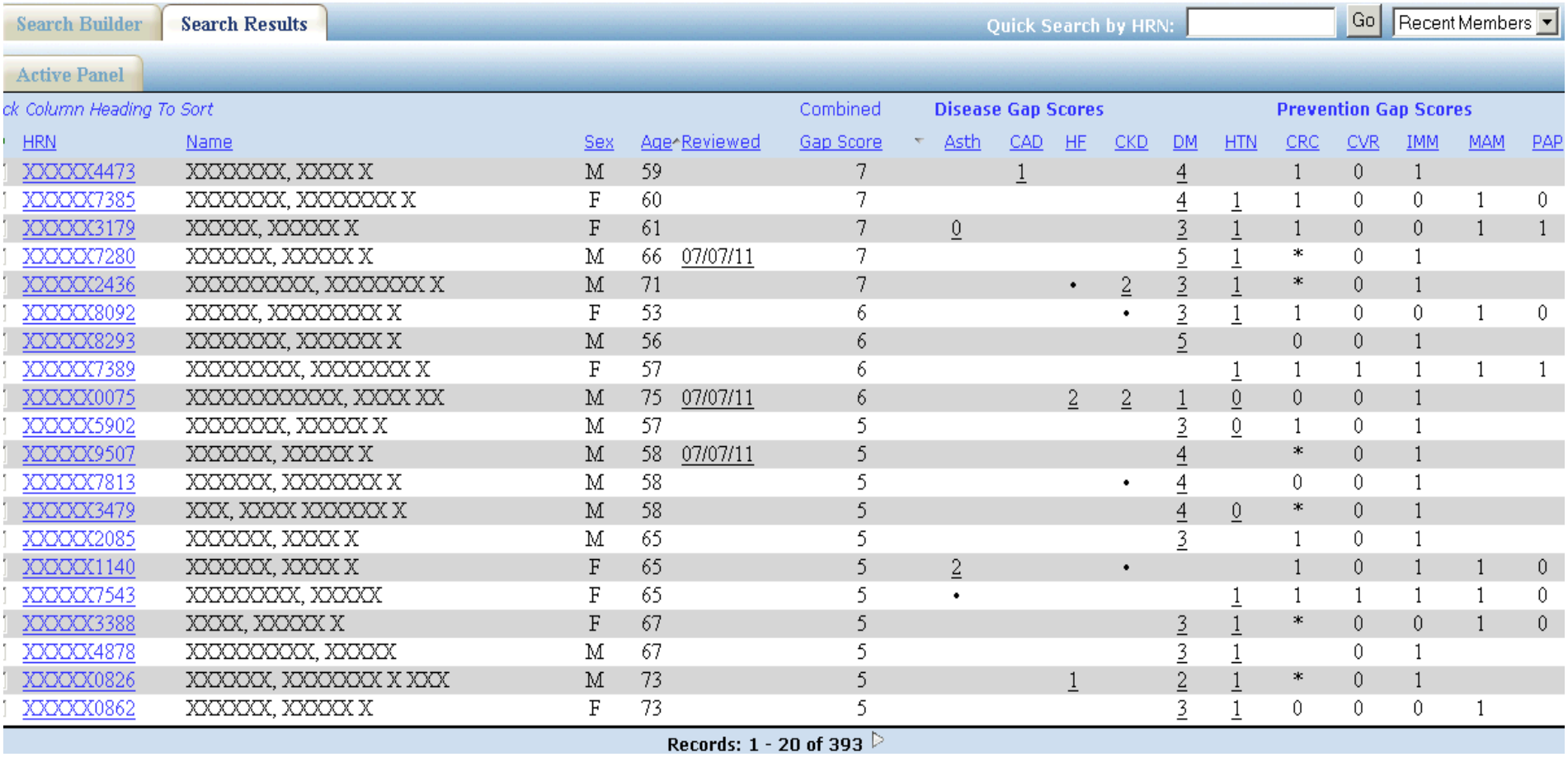
Family	Vaccine	Date
Flu	INFS_PF3PLUS	10/7/11
Tetanus	TdaP	7/6/11
PNUps	PNUps	10/26/02

POWERED BY HEALTHTRAC COLORADO

Population Management
Disease Registries and eMeasures



Population Management leads to Individual Patient
Clinical eMeasures for Disease Management and Prevention



Search Builder | Search Results | Quick Search by HRN: Go | Recent Members

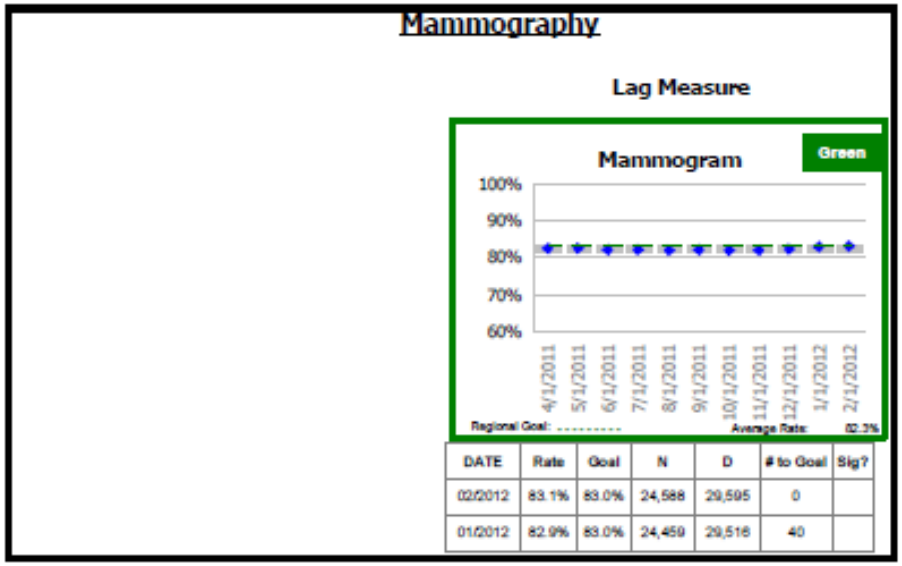
Active Panel

ck Column Heading To Sort

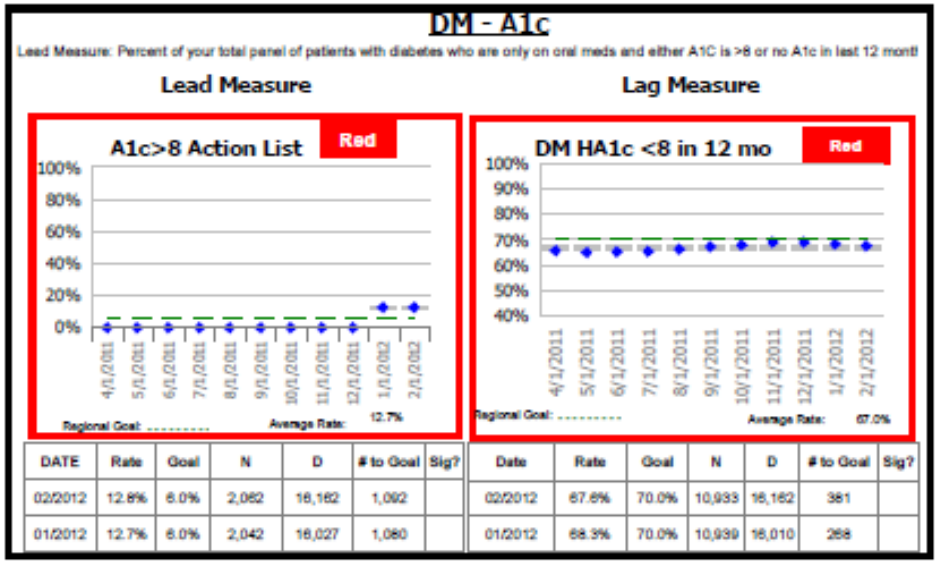
					Combined	Disease Gap Scores						Prevention Gap Scores				
HRN	Name	Sex	Age	Reviewed	Gap Score	Asth	CAD	HF	CKD	DM	HTN	CRC	CVR	IMM	MAM	PAP
XXXXX4473	XXXXXXX, XXXX X	M	59		7		1			4		1	0	1		
XXXXX7385	XXXXXXX, XXXXXXX X	F	60		7					4	1	1	0	0	1	0
XXXXX3179	XXXXX, XXXXX X	F	61		7	0				3	1	1	0	0	1	1
XXXXX7280	XXXXXX, XXXXX X	M	66	07/07/11	7					5	1	*	0	1		
XXXXX2436	XXXXXXXXX, XXXXXXX X	M	71		7			•	2	3	1	*	0	1		
XXXXX8092	XXXXX, XXXXXXXX X	F	53		6				•	3	1	1	0	0	1	0
XXXXX8293	XXXXXXX, XXXXXX X	M	56		6					5		0	0	1		
XXXXX7389	XXXXXXXX, XXXXXXX X	F	57		6						1	1	1	1	1	1
XXXXX0075	XXXXXXXXXXX, XXXX XX	M	75	07/07/11	6			2	2	1	0	0	0	1		
XXXXX5902	XXXXXXX, XXXXX X	M	57		5					3	0	1	0	1		
XXXXX9507	XXXXXX, XXXXX X	M	58	07/07/11	5					4		*	0	1		
XXXXX7813	XXXXXX, XXXXXXX X	M	58		5				•	4		0	0	1		
XXXXX3479	XXX, XXXX XXXXXX X	M	58		5					4	0	*	0	1		
XXXXX2085	XXXXXX, XXXX X	M	65		5					3		1	0	1		
XXXXX1140	XXXXXX, XXXX X	F	65		5	2			•			1	0	1	1	0
XXXXX7543	XXXXXXXX, XXXXX	F	65		5	•					1	1	1	1	1	0
XXXXX3388	XXXX, XXXXX X	F	67		5					3	1	*	0	0	1	0
XXXXX4878	XXXXXXXXX, XXXXX	M	67		5					3	1		0	1		
XXXXX0826	XXXXXX, XXXXXXX X XXX	M	73		5			1		2	1	*	0	1		
XXXXX0862	XXXXXX, XXXXX X	F	73		5					3	1	0	0	0	1	

Records: 1 - 20 of 393

Population Management
Clinical eMeasures

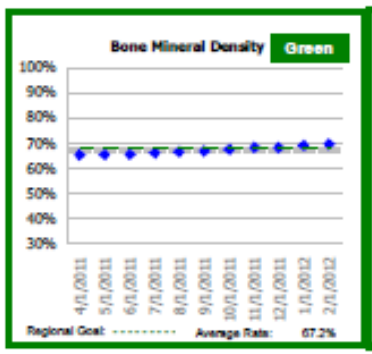


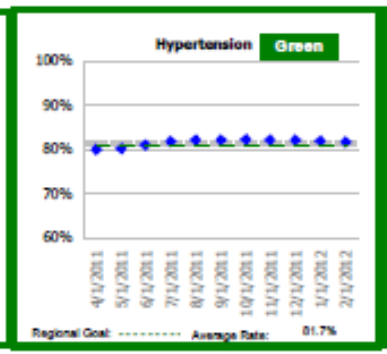
DATE	Rate	Goal	N	D	# to Goal	Sig?
02/2012	83.1%	83.0%	24,588	29,595	0	
01/2012	82.9%	83.0%	24,459	29,516	40	

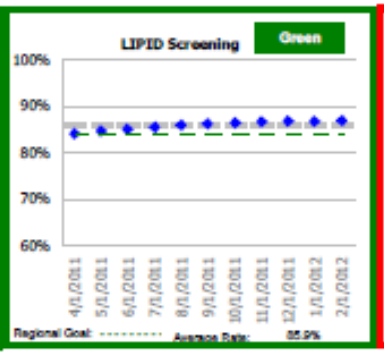


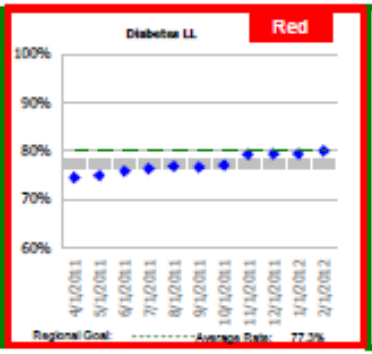
DATE	Rate	Goal	N	D	# to Goal	Sig?
02/2012	12.8%	6.0%	2,082	16,162	1,092	
01/2012	12.7%	6.0%	2,042	16,027	1,080	

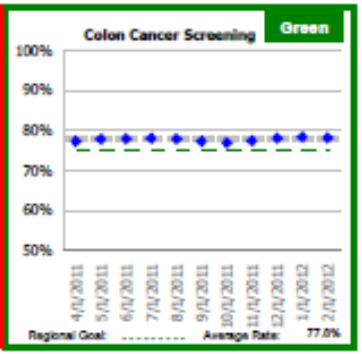
Date	Rate	Goal	N	D	# to Goal	Sig?
02/2012	67.6%	70.0%	10,933	16,162	381	
01/2012	68.3%	70.0%	10,939	16,010	268	



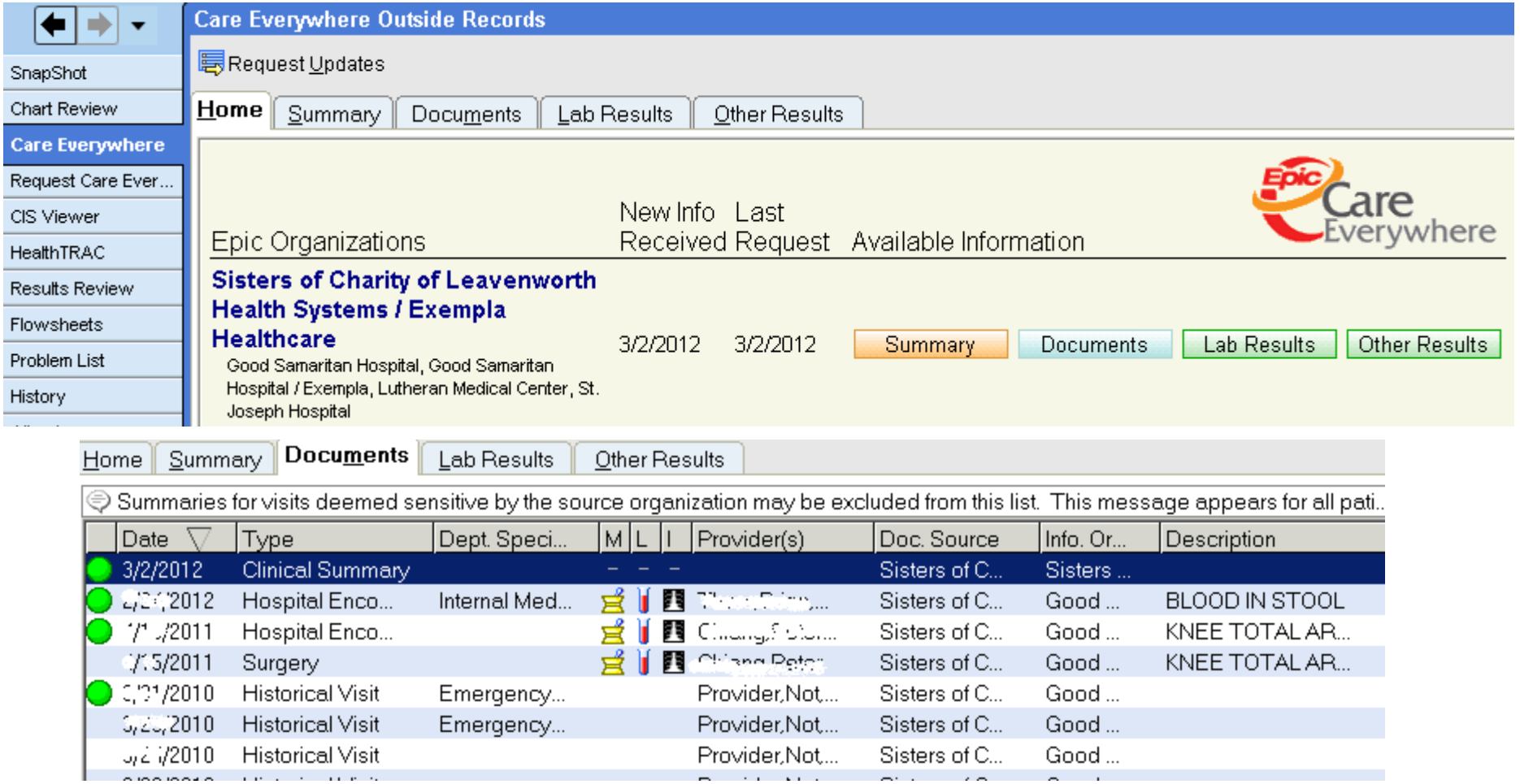








Transitions in Care
Clinical eMeasures



Transitions in Care
Clinical eMeasures

CT Abdomen and Pelvis W Contrast
Sisters of Charity of Leavenworth Health Systems / Exempla Healthcare

Result Narrative

```
11q PAIN, H/O TICS, GIB ON WARFARIN

EXAM: CT Abdomen and pelvis

DATE:  2/24/2012 3:59:00 PM

HISTORY: 11q PAIN, H/O TICS, GIB ON WARFARIN

COMPARISON: None

CONTRAST: 150 ml Isovue 370 was administered intravenously without
adverse reaction.

PROCEDURE: After intravenous contrast administration, helical axial
CT sections were made through the abdomen and pelvis and
reconstructed in coronal and sagittal projections.

FINDINGS:

ABDOMEN:

Lung bases are clear.  No pleural effusion.
Liver has diffuse decreased density.  No radiopaque densities in the
gallbladder.  Spleen, adrenal glands, kidneys and the pancreas are
normal.  No free fluid in the abdomen.

PELVIS:

No free fluid in the pelvis.  There are multiple diverticula in the
sigmoid colon.  Within the proximal aspect of the sigmoid colon,
there is a diverticula with surrounding inflammatory changes in the
fat.  No abscess collection or free air.  Multiple other diverticula
within the colon.  No dilation of large or small bowel.
No enlarged lymph nodes in the pelvis.  No enlarged abdominal lymph
nodes.
Osseous structures do not demonstrate any destructive lytic or
blastic lesions.

IMPRESSION:

FINDINGS CONSIST WITH SIGMOID DIVERTICULITIS.  NO ABSCESS COLLECTION
OR FREE AIR.
HEPATIC STEATOSIS.
```

12 Lead EKG
Sisters of Charity of Leavenworth Health Systems / Exempla Healthcare

Component Name	Value	Range
Ventricular Rate	92	BPM
Atrial Rate	92	BPM
P-R Interval	158	ms
QRS Duration	104	ms
Q-T Interval	354	ms
QTC Calculation(Bezet)	437	ms
P Axis	68	degrees
R Axis	1	degrees
T Axis	69	degrees

Result Narrative

```
Normal sinus rhythm
Normal ECG
No previous ECGs available
Confirmed by [illegible] (507) on [illegible]
```

Organizations

Sisters of Charity of Leavenworth Health Systems / Exempla Healthcare

Category Index

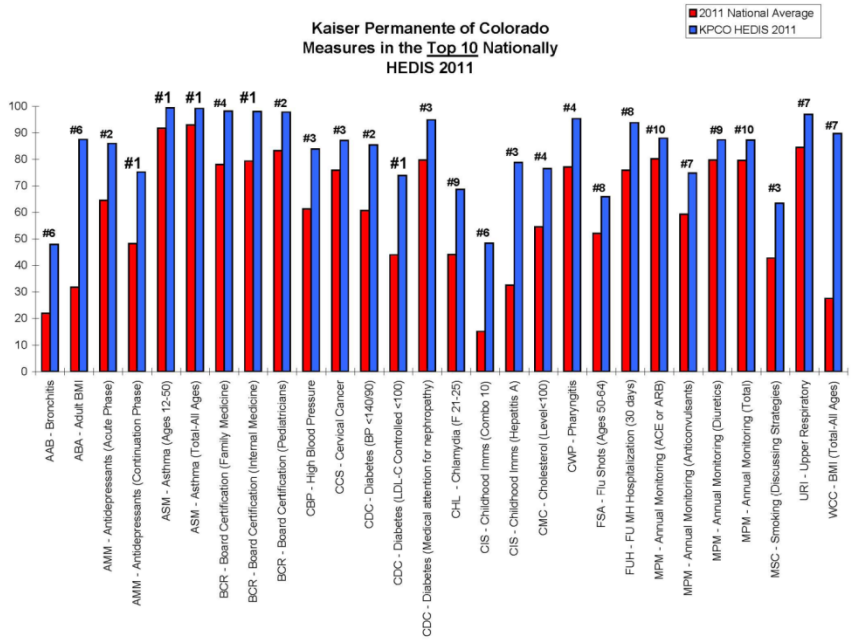
- ARTERIAL BLOOD GASES
- AUTOLOGOUS DONATION
- BLOOD BANK
- BLOOD BANK PRODUCT 1
- BLOOD BANK PRODUCT 2
- BLOOD GASES,NA,K,GLU,CA-I,HEMATOCRIT,POCT
- CAPILLARY BLOOD GASES
- CBC WITH DIFF PROTOCOL
- CHEMISTRY
- COAGULATION
- COOXIMETRY PANEL POCT
- GLUCOSE POCT
- HEMATOLOGY
- SURGICAL PATHOLOGY PROCEDURE (SPECIMEN
- VENOUS BLOOD GAS POCT (GLUC,NA,K,CA-I,HCT,HGB,CALC O2 SAT)

Lab Results from **Sisters of Charity of Leavenworth Health Systems / Exempla Healthcare** Collapse

CHEMISTRY

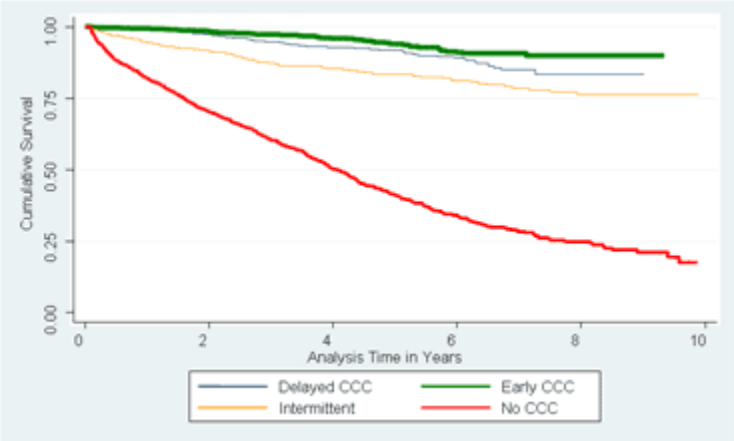
Component Name	[illegible]2	[illegible]012	[illegible]011	[illegible]	[illegible]	2/[illegible]2010	[illegible]/2010
Glucose, Whole Blood							
Ionized Calcium							
Potassium, Whole Blood							
Potassium	4.0	3.5	3.4 (L)	3.3 (L)	3.9	3.5	4.0
Glucose	136 (H)	177 (H)	121 (H)	127 (H)	138 (H)	86	111 (H)
Sodium	142	139	129 (L)	131 (L)	137	134 (L)	133 (L)
Chloride	109	106	95 (L)	97 (L)	103	98	99
CO2	20 (L)	21	26	25	27	27	27
Anion Gap	13	12	8	9	7	9	7
BUN	13	13	10	8	12	21 (H)	23 (H)
Creatinine	1.1	1.1	0.7 (L)	0.7 (L)	0.8	0.9	0.9
Calcium	8.2 (L)	9.0	8.5	8.5	8.6	8.3 (L)	8.3 (L)
GFR Estimated Not Afr/Am						95	95
GFR Estimated If Afr/Am						114 GFR uni...	114 GFR uni...
Sodium POCT							
Potassium POCT							
Ionized Calcium POCT							
Total Protein	6.6						
Albumin	3.3 (L)						
Total Bilirubin	1.2 (H)						
Alkaline Phosphatase	106						
ALT-SGPT	69 (H)						
AST-SGOT	30						

Patient Outcomes
Clinical Quality eMeasures



Cardiovascular Risk Service

- Current outcomes
  - Average LDL 78
  - Beta-blocker post MI: 95%
  - Anti-platelet medication: 99%
  - Smoking 11%
  - Average BP 126/72

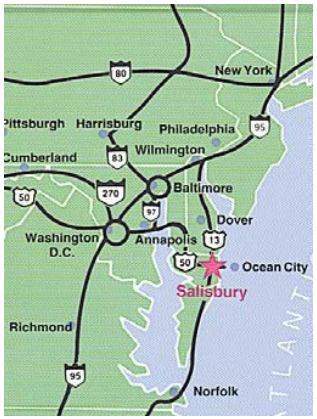


- 76% reduction in overall mortality
- 73% reduction in cardiac mortality
- 135 deaths avoided annually
- 260 emergency interventions avoided each year

Peninsula Regional Medical Center
Salisbury, MD

Process Mapping: Data Collection & Analytics Process of the Heart Center Service Line

Chris Snyder, DO
Chief Medical Information Officer
Peninsula Regional Medical Center



EXCEPTIONAL HEALTHCARE. EXCEPTIONAL PEOPLE.

PENINSULA REGIONAL MEDICAL CENTER

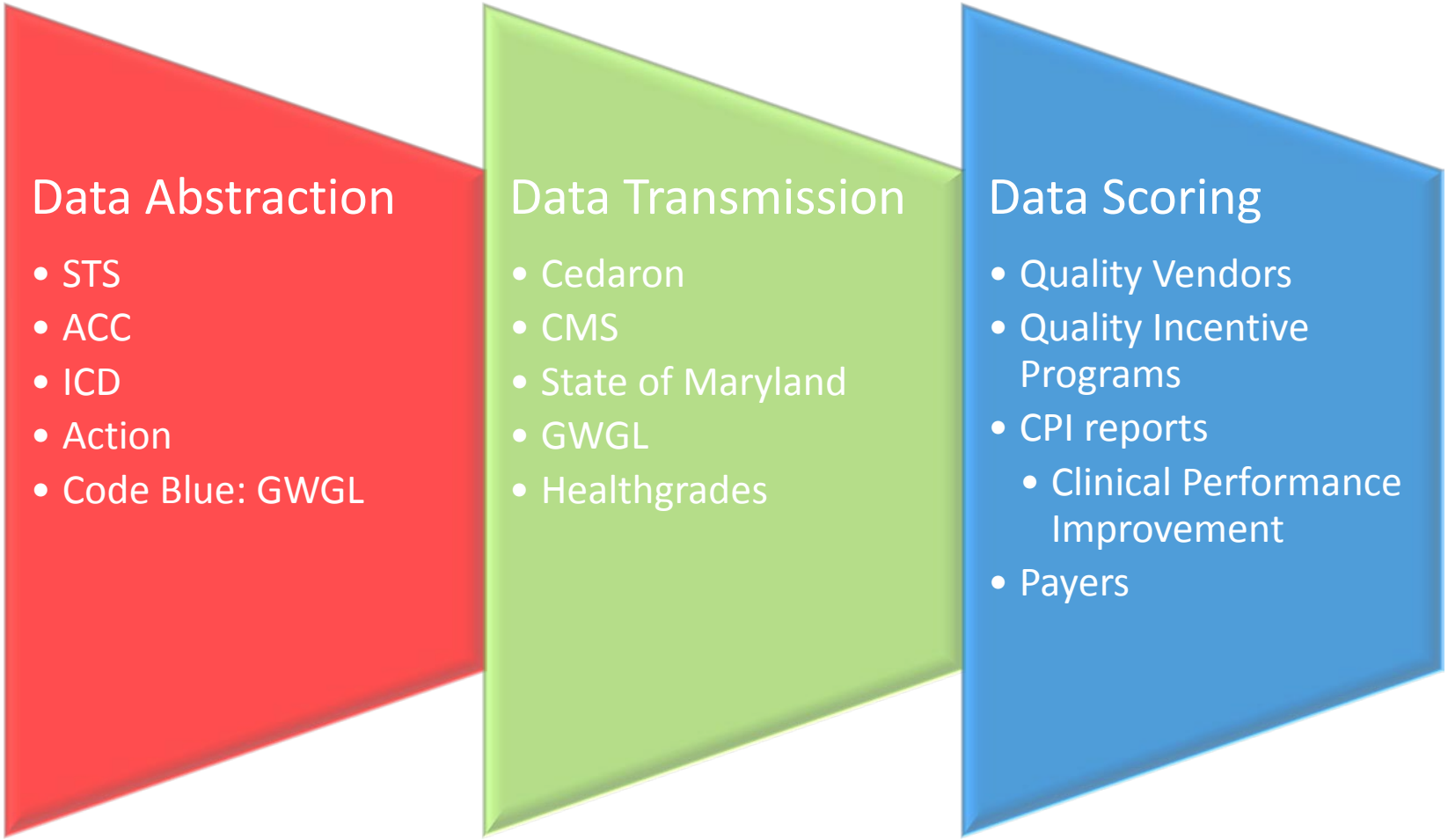
HEALTHGRADES AMERICA'S 100 BEST HOSPITALS 2012

- Peninsula Regional Medical Center is the 6th largest Medical Center in the state of Maryland providing a full scope of services that rival those offered in much larger metropolitan areas.
- At 363 acute care beds, 30 transitional care beds, 28 newborn beds, 22,000 acute admissions, and 90,000 ED visits, Peninsula Regional is the region's largest, most advanced tertiary care facility, and has been meeting the healthcare needs of Delmarva Peninsula residents since 1897.
- PRMC informatics awards
  - Level 6 HIMMS rating in January of 2010
  - 2010 and 2011 Most Wired Hospital
  - US NEWS and WORLD REPORTS Most Wired 2010 and 2011

CDAT: Cardiology Data Analysis Team

- Apply Lean principals to current practices of data management within the cardiology service line at PRMC.
- Upon review of data from STS and ACC executive reports, found both omissions of data and inconsistencies with both the collection and accuracy of the data.
- GOAL: Transformation of poorly managed data in our major service line to usable clinical analytics supporting both clinical practice and optimizing regulatory compliance.

Current state at PRMC



Goals

- Streamline abstraction
- Embed Validation into the process
- Automate using informatics platform for CONCURRENT data analysis
- Develop process to make variances in data apparent to bedside caregiver or provider
- Measure: improvement in scoring reflecting quality

Future State Needed for Validation

Definition of Clinical Analytics

The definition of clinical analytics encompasses the capture and use of discrete clinical data to identify and measure quality, patient safety, or service line efficiencies and improvements.

- The Joint Commission

April 26th In-Person Collaborative Meeting
Best Practices for eMeasure Implementation

Questions for the Collaborative to Answer

1. ***What are best practices examples*** related to the development and implementation of eMeasures?
   - Processes / Workflow with Existing Products
   - Code Systems (structured data)
   - Culture

Questions for the Collaborative to Answer

2. ***What are the mechanisms to enhance data and workflow capability?***

Workflow

- How can understanding the data workflow enhance standards and define expectations for EHRs and other clinical applications?
- What clinical workflow challenges exist with existing products (hospital and/or ambulatory)? What are the recommendations ?
- Are there workflow or staffing issues that constrain implementation?

Questions for the Collaborative to Answer

2. ***What are the mechanisms to enhance data and workflow capability?***

Data

- What are the challenges in using current code systems to express information required by eMeasures? What are the recommendations?
- What techniques are used to address unstructured data?

Questions for the Collaborative to Answer

3. ***What are the recommendations*** for future use of health IT and standards to enable performance measurement?

- What concepts are needed to address requirements for future measurement and how do they align with other secondary use data analysis needs?
- What innovative techniques are needed to capture structured data (or map unstructured data) and manage clinical workflow to enable performance reporting as a byproduct of care delivery?

Discussion of Data Analysis Requirements

- Identify common requirements for secondary use-related queries to EHRs; define expectations for vendors and local implementers.
- Identify stakeholders (requesters, receivers) for secondary use by type of use.
- Identify common requirements for queries to EHRs for quality measurement and other secondary uses.
- Identify end-to-end data flow steps to enable clear expectations for EHRs and other related applications.
- Identify benefits and challenges for use of recommended code systems (vocabularies), and any gaps.

What challenges to eMeasure implementation exist from the data analysis perspective?

- What clinical workflow challenges exist with existing products (hospital and/or ambulatory) and why?
- What are the challenges in using current code systems to express information required by eMeasures?
- What techniques are used to address unstructured data?
- Are there workflow or staffing issues that constrain implementation?
- What role does organizational culture play in successful implementations?

Best Practices (Clinical Data Analytics)

- Drive improvements with clinical staff, using IT awareness
- Use success of program to garner support throughout a system, use benchmarks
- Create a community of successes and share internally and across all stakeholder groups
- Rely on outcome measures to improve clinical practice; don't simply measure → learn and revise
- Develop logic for linking patient conditions in EHR to verified clinical diagnoses – standardize process; group patients based on diagnosis (not source of procedure)
- F. Mostashari's principles from keynote address
- Start with discrete data, then turn to uncontrolled patients

Gaps (Clinical Data Analytics)

- Standardize process – may become worse as we move from code system – I9 to I10
- Defining measures, educating members/providers and collecting data – lack of knowing what is needed by vendors
- Overwhelm of data → translate into knowledge; data may be coming from multiple systems and at varying levels of granularity within one setting/system
- Systems are not ready to make comparisons at a performance level
- "Death by one thousand clicks"
- How to get everyone to agree on how to set standards
- Data capture is often generated form a claims environment versus clinical = misalignment
- Payers do not recognize and pay for specialty guidelines

Opportunities and Recommendations (Clinical Data Analytics)

- Use logic to help care providers make right choice with care; use data that encourages buy-in and improvement on the part of providers
- Use low hanging fruit – make it simple to collect, simple to report, leverage existing data
- Consider educational needs (e.g., training of measure developers on codes)
- Identify key stakeholders (NQF can take a lead)
- Focus on one specific measure/area in need of improvement, and take the necessary time to learn from processes to improve outcomes, then roll-out improvement across all settings
- Engage the patient and discuss patient needs/preferences, patient-reported data; the system MUST capture the decision
- Consider public reporting of measure results when deciding how to use clinical data; raise the value of an analytic approach to providers and patients alike
- Bring expertise in from other fields to balance patient/provider interaction with data input
- Evidence-*generating* medicine (using eMeasures to produce evidence)
- Set challenge to devise principles for usability to stimulate creativity
- Consider the care delivery value chain

Recommendations

What recommendations would you make for future use of health IT and standards to enable performance measurement?

- How can understanding the data workflow enhance standards and define expectations for EHRs and other clinical applications?
- What concepts are needed to address requirements for future measurement and how do they align with other secondary use data analysis needs?
- What innovative techniques are needed to capture structured data (or map unstructured data) and manage clinical workflow to enable performance reporting as a byproduct of care delivery?
- What are the methods for MU Stage 2?

How can we rethink what we are looking for?

- What are some innovative ideas for the future?

Summary of key discussion points