



HPOE *Live!*

2015 Webinar Series

The presentation will begin shortly.

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Duke University Hospital

AHA Quest for Quality: Quality Improvement Lessons

Presented by:

Kevin Sowers, RN, MSN, FAAN

President, Duke University Hospital



Duke University Hospital



Journey to Excellence



Duke University Hospital



After 25 Years

'Dissatisfaction' Is Goal Of Duke Medical Center

"If dissatisfaction with medical education is any criterion, we have no peers."

This is the way Duke University's Medical School Dean W. C. Davison sums up the ambitions and point of view of the Duke medical center which next week will celebrate 25 years of service to the people of North Carolina, the South and the nation.

On next Thursday, July 21, the medical school and Duke Hospital will hold a one-day "Appreciation Ceremony" 25 years to the day after the school and hospital were opened in 1900.

Instead of pointing with pride to the work of the last quarter-century the University will take occasion to say public appreciation to its veteran staff members for their long services to the various professional groups whose cooperation has made the medical service possible; to the many donors whose gifts have aided expansion; and to the public at large—those in the last analysis who make all public service possible.

The appreciation ceremony will reflect the abiding aim of Duke Hospital and the Medical School for the last 25 years: to remain an consistently dissatisfied with the progress of medical care that what President Holla Edessa has called a "healthy restlessness" is imparted to all members of the staff and to medical people everywhere.

Duke's record of medical leadership is extensive. Pioneer work in fighting polio, high blood pressure, cancer, virus disease, polio and dozens of other ailments has come from literally thousands of research projects. Not long ago someone with a passion for malaria figured out that Duke doctors have produced one medical research project every day since the hospital and medical school were opened.

But this is a proper function for any medical school. Duke's aim has been broader: to assume the leadership in bringing to the people of the South in particular the highest standards in medical care and medical education. In 1900 the South was in no way well-endowed in this regard. There were not many medical schools and almost no large regional centers to which "problem" cases might be brought. Duke supplied that need.

Because the role of leadership requires restlessness and dissatisfaction, for 25 years the center has felt that it could best improve the South by incessantly improving itself. Many of the newest proved methods of care and treatment were developed and put to use here.

Since 1900 Duke Hospital has admitted some 65,000 different patients from 45 over the United States and the world, and the institution has treated almost 3,000,000 out-patients. But in years hence Duke's most abiding contribution is likely to be seen in the role in the training of doctors and nurses and allied workers in medicine.

There have been a lot of changes in medical education since 1900. In a special sense Duke has been fulfilling its role in the way it has been trying with vigor and enthusiasm "to teach itself out of business."

This is clear if one looks at present-day medical practice. Years ago if a difficult obstetrical case, a complex operation, or sometimes a bad case of pneumonia occurred down on the eastern coast of North Carolina or in the rural areas of the South, a frequent solution was to send the patient to Duke. Today, the patients still come, but not for the same reasons.

Today you'll find a Duke-trained doctor in just about any part of North Carolina or the entire South for that matter. There are more than 2,500 of them in all. He's well-versed in a number of procedures that were deemed difficult years ago. He has the equipment to do the job. And, most important, there just isn't so much pneumonia today. New drugs make this disease and best of other relatively simple matters for a good physician to



SINCE ITS OPENING IN 1930, the Duke School of Medicine has achieved national renown as an outstanding medical teaching and research center. An anniversary "Appreciation Ceremony" on July 21 will celebrate 25 years of service to the South and the nation.

handle. Today such a doctor will send his toughest diagnostic problems to Duke, and will send others who require the use of the hospital's equipment. There still is plenty to do, but the pattern has changed.

On Thursday visitors to Duke's 25th medical anniversary celebration will be aware of some of these things, but President Edessa, Dean Davison, and F. Ross Porter, Duke Hospital superintendent, will be busy telling them how much the medical center appreciates their help.

Meanwhile the Duke doctors will be busy with their restlessness. Dean Davison, the school's first and only dean will be thinking of future needs. Here are a few he has in mind.

More facilities for better teaching, especially space for clinical, laboratory, offices and classrooms, particularly for the basic teaching, medical science departments.

Additional housing for "nurses, women medical students, technical students, married medical students and interns."

Expansion of the Medical Social Service Department which today "is just as essential as physicians and nurses in the care of patients."

The establishment of a Rehabilitation Clinic. "We have all the facilities at the present time, but they are not coordinated into one area."

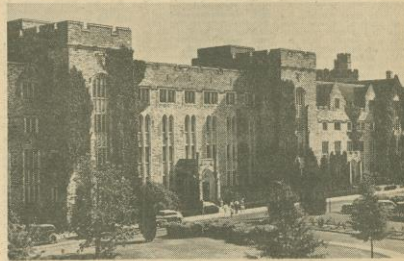
Consideration of the need for increasing enrollment to as many as 100 students for each of the four classes.

These are only a few of the needs as Dean Davison sees them. As usual, they all require money, and there is no certainty that they will all be realized soon. They are simply the immediate crystallization of the restlessness.



DR. WILBURT C. DAVISON, dean of the Duke University School of Medicine since its founding, believes that a spirit of healthy dissatisfaction is one of the ingredients for progress in medical care and teaching.

ASSOCIATED WITH Duke Hospital throughout its 25 years of service, F. Ross Porter has held the post of superintendent since 1949.



SOME 310,000 PATIENTS from the United States and many foreign countries have been admitted to Duke Hospital during its quarter-century of existence, and almost 3,000,000 out-patients have been treated. The 25th medical anniversary celebration on July 21 will be a gesture of appreciation toward all who have made the hospital's services possible.

Dr. W.C. Davison, Founding Dean of DUSOM

"Culture of Continuous Improvement"



Duke University Hospital

Journey to Excellence





Duke University Hospital...

- 957 licensed beds
- Main campus (3 million square feet):
 - Duke North inpatient bed tower
 - Duke Cancer Center
 - Duke Medicine Pavilion
 - Duke South Clinics
 - Eye Center
 - Children's Health Center
- Off Campus
 - Ambulatory Surgery Center
 - Adult Bone Marrow Transplant
 - ~25 primary and specialty care clinics
- Largest employer in Durham Co.
 - Second largest employer in NC





CSU Structure: Since 1997

- Patient care services are grouped according to **Clinical Service Units (CSUs)**, which is an operational structure that aligns physicians, staff and administration to DUH priorities.
- Co-lead by Vice-President, Medical Director, & Associate Chief Nursing Officer, as deployed
 - Emergency Services
 - Med/Surg/Critical Care
 - Heart
 - Perioperative Services
 - Neurosciences and Psychiatry
 - Musculoskeletal
 - Women's and Children's
 - Ambulatory Practice
 - Oncology
 - Transplant





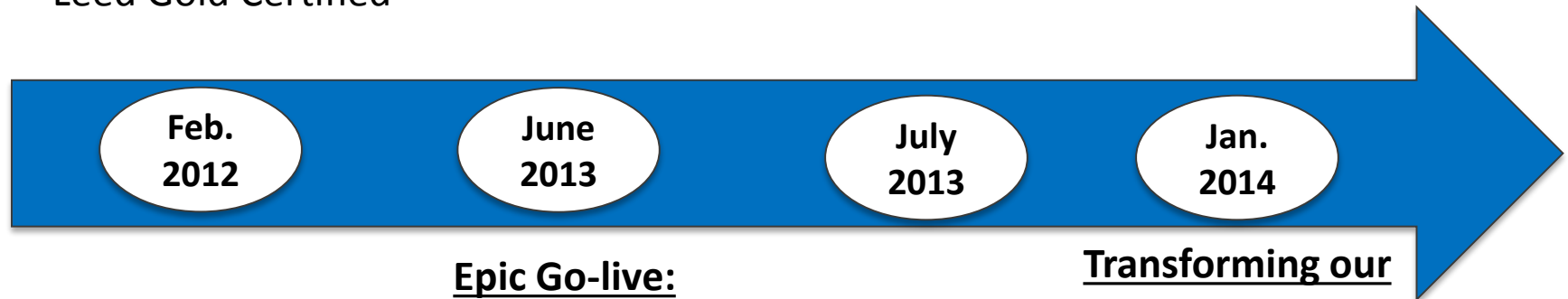
Period of Significant Change

Cancer Center Opens:

- 122 new exam rooms
- 73 Infusion stations
- 17 imaging rooms
- Leed Gold Certified

Duke Med. Pavilion Opens

- 160 crit. Care beds
- 16 new surgical suites
- Leed Gold Certified



Epic Go-live:

- Largest go-live to date

Transforming our

Future:

- Operational
- Care Redesign
- Fixed Costs
- Revenue Cycle
- Supply chain



Fig. P.2-2 Strategic Advantages & Challenges

STRATEGIC ADVANTAGES (SA)	FOCUS AREAS			
	HC	OP	SR	WF
1. Culture of continuous innovation, aided by interdisciplinary care teams (ICT) including physician partner engagement	•	•	•	•
2. Expertise/differentiation of clinical services and outcomes through innovation, technology, and facilities	•	•	•	•
3. Well-respected brand and brand loyalty	•	•	•	•
4. Workforce committed to providing care for their patients, loved ones, and each other	•	•	•	•
5. Long-term commitment to improve the health of Durham County through financial investments, partnerships and programs	•		•	
STRATEGIC CHALLENGES (SC)	FOCUS AREAS			
	HC	OP	SR	WF
1. Transition to a value and population-based healthcare delivery system while ensuring financial viability	•	•	•	•
2. Increasing complexity of the needs of the patient population and community	•	•	•	•
3. Capacity to meet increased demands	•	•	•	•
4. Increasing expectations and competition related to the patient experience	•	•		•
5. Recruiting, retaining and engaging talent to deliver a healthier tomorrow	•	•		•
HC=Health Care Services, OP=Operations, SR=Societal Responsibility, WF=Workforce				

Key Organizational Efforts:

- Transforming our Future and Driving Organizational Excellence
- Capacity Management and staff recruitment to accommodate growth
- Workforce engagement
- Community support and engagement



Duke University Hospital Today





2015 – A year of Unprecedented Growth

Volume Statistics	Current Year	Prior Year	% Growth
Average Daily Census	783	743	5.4%
Discharges, Obs., and OP in Bed	52,421	49,607	5.7%
Surgical Cases	40,055	38,220	4.8%
Emergency Department Visits	70,701	66,860	5.7%
Specialty Visits (PDC) – Total Visits	1,363,429	1,266,357	7.1%
Specialty Visits (PDC) – New Patient Visits	242,027	223,081	7.8%
Primary Care Visits (DPC total visits)	614,480	560,944	9.5%
OP Imaging (MRIs and CTs)	88,240	80,712	9.3%
Unique patients (DUHS)	665,911	620,301	7.4%
Cath Cases (including EP and Peds)	7,646	7,334	4.3%

DUH Blueprint for Success



Cycles of Improvement:

- Redesign of Mission and Vision including
- Input from:
 - Faculty
 - Staff
 - Patients
 - Community
 - Volunteers



Journey to Excellence

Continuous Improvement & Innovation



Duke University Hospital

Supported by our Core Competencies of:

- Culture of Continuous Improvement
- Collaborative Teamwork





Formalized the DUH Leadership System

Figure 1.1-1 Leadership System



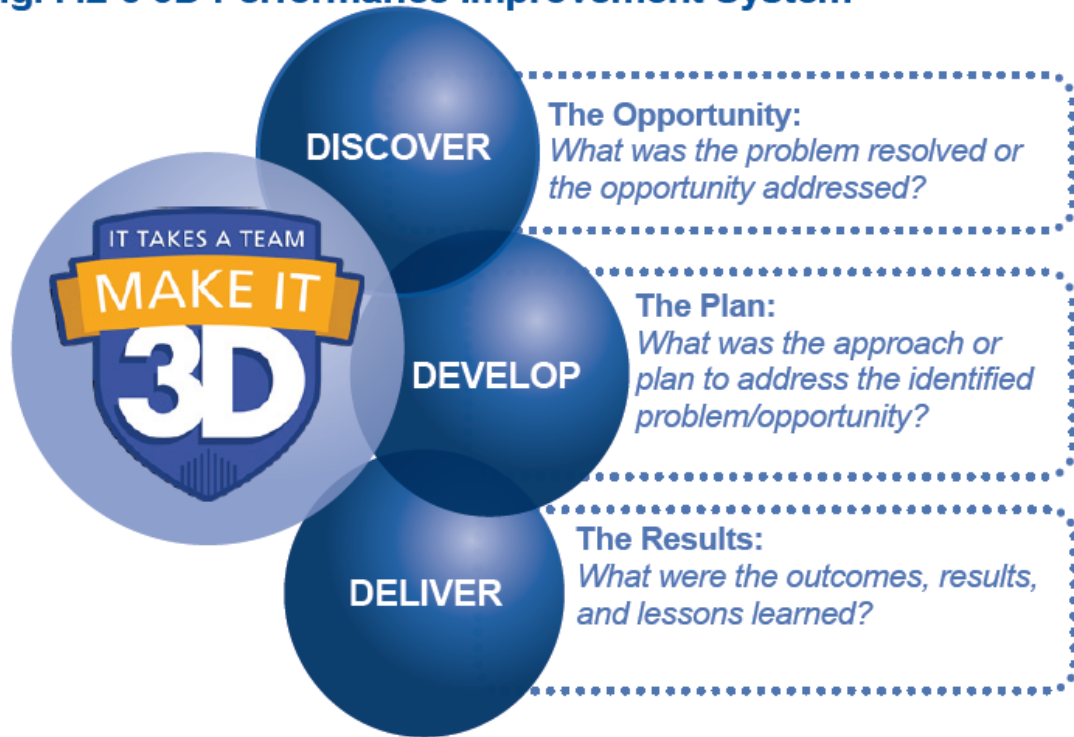
Key Cycles of Improvements:

- Formalized the informal
- Full integration of key organizational processes (BSC, SPP, PR, 3D and integrated into our performance management processes)
- Cycles of improvements within each process.



Continuous Improvement & Innovation in 3D...

Fig. P.2-3 3D Performance Improvement System



Key Cycles of Improvement:

- Long history of Performance Improvement with lean, six sigma and other PI skills deployed throughout the organization
- Trained over 100 BBs and over 200 GBs
- Implemented 3D to create a simpler framework that was inclusive of all PI and patient safety tools
- Framework for Knowledge Management (close to 300 3D stories submitted)



Mission:

We put the person who needs our care at the center of everything we do.

Vision:

To discover, develop, and deliver a healthier tomorrow.

Our Core Value:

Caring for Our Patients, Their Loved Ones & Each Other.

Additional Information: Pediatric Asthma Care Redesign Committee

Teamwork - Integrity - Diversity - Excellence - Safety

Improving the Value of Care for Pediatric Patients Hospitalized with Asthma

DISCOVER

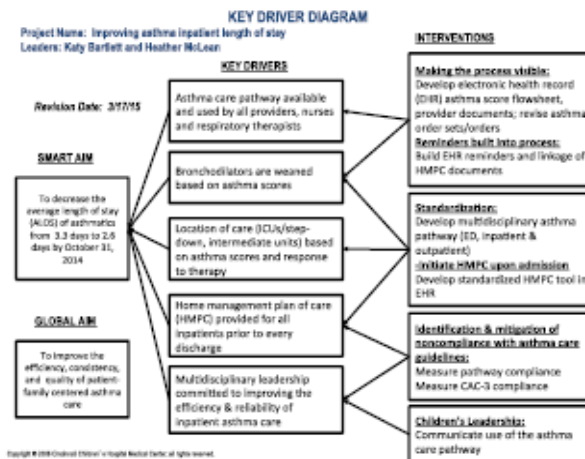
The Opportunity:

- In the era of accountable care, health systems are developing care bundles with the intent of providing consistent, high quality, cost-effective care to patients with common conditions.
- During the fall of 2013, we identified an opportunity for improvement based on University HealthSystem Consortium (UHC) benchmarking data showing that our average length of stay (ALOS) for pediatric asthma admissions was 3.29 days with a LOS index of 1.29 compared to our peer group ALOS of 2.32 days with a LOS index of 0.89.
- We established a multidisciplinary care redesign committee charged with reducing variability in practice, ALOS, and cost of pediatric asthma admissions, while ensuring high quality care consistent with national guidelines.
- Our specific aim was to reduce the ALOS of pediatric patients admitted with asthma from 3.29 to 2.6 days within 12 months in an academic children's hospital by implementing a guideline that included use of a respiratory therapy-driven albuterol treatment protocol.

DEVELOP

The Plan:

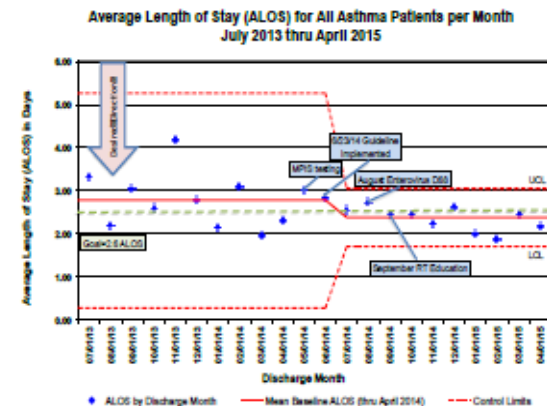
- Interventions were tested through multiple 'plan-do-study-act' cycles.
- We implemented a validated Modified Pulmonary Index Score (MPIS) for assessing severity, use of a respiratory therapy-driven albuterol treatment protocol, revision of asthma order sets, provision of targeted education, and promotion of the guideline in the Duke Children's Emergency Department and inpatient units.
- Readmission rates were monitored as balancing measures.



DELIVER

The Results:

- We successfully reduced the ALOS for pediatric asthma admissions by 0.7 days from a baseline of 3.29 to 2.59 days, and decreased length of stay index from 1.29 to 1.00 in FY13 compared to periods 1-6 of FY15.
- We observed a decrease in direct cost and variability of cost compared to our peer group.
- Thirty-day readmission rates remain stable
- We continue to monitor our results monthly and respond to special cause variation.





Innovation

- GME Innovation dollars since 2007
- Duke Innovation Health Institute
 - Two RFP cycles since 2013
- Held first Innovation Summit
- Conducted first Innovation Jam
- Integration with the Vendor summit

Duke Health Innovation Jam

September 15, 2015

8:30AM - 12:00PM

Duke North 2002

Meet The Investors



Alman



Aronson



Kirk



Klotman



Mathew



Newman



Pappas



Patel



Sampson



Sowers

**Pitch your innovative clinical products
and business ideas for investment!**



Duke University Hospital

Collaborative Teamwork



Duke University Hospital



Patient and Family Centered Care

Figure 3.2-1
Living Our
Mission



Key Cycles of Improvement:

- Development of first Patient Advisory Council.
- Expansion to 11 through FY 15.
- Integration into operational and facility planning efforts
- Patient navigators



Driving Organizational Excellence

Cycle of Improvement

- Launched as a result of our SPP
 - Identified key improvement opportunities
- Targeted performance improvement efforts
 - Designated Physician leaders with central support from Performance Services
 - Aligned with FY 15 BSC goals and measures
- Structured oversight process aligned with organizational processes



Driving Organizational Excellence Business Owners

Measure	Business Owner
CMS Evidence-Based Care Scores IMM, VTE, PC	Dr. Lisa Pickett Dr. Phil Heine
Mortality – Observed Mortality - Expected	Dr. Lisa Pickett Dr. Momen Wahidi
Readmission Rate; Length of Stay	Dr. David Gallagher
ED LWBS; ED LOS (TAR and Admitted)	Dr. Charles Gerardo Jessica Thompson
Patient Safety Indicators	Dr. Lisa Pickett Dr. Momen Wahidi
Hospital Acquired Infections (CLABSI; CAUTI; C. Diff; MRSA)	Dr. Luke Chen Pamela Isaacs
HCAHPS Responsiveness; Hospital Cleanliness and Quietness	Carolyn Carpenter Tracy Gosselin



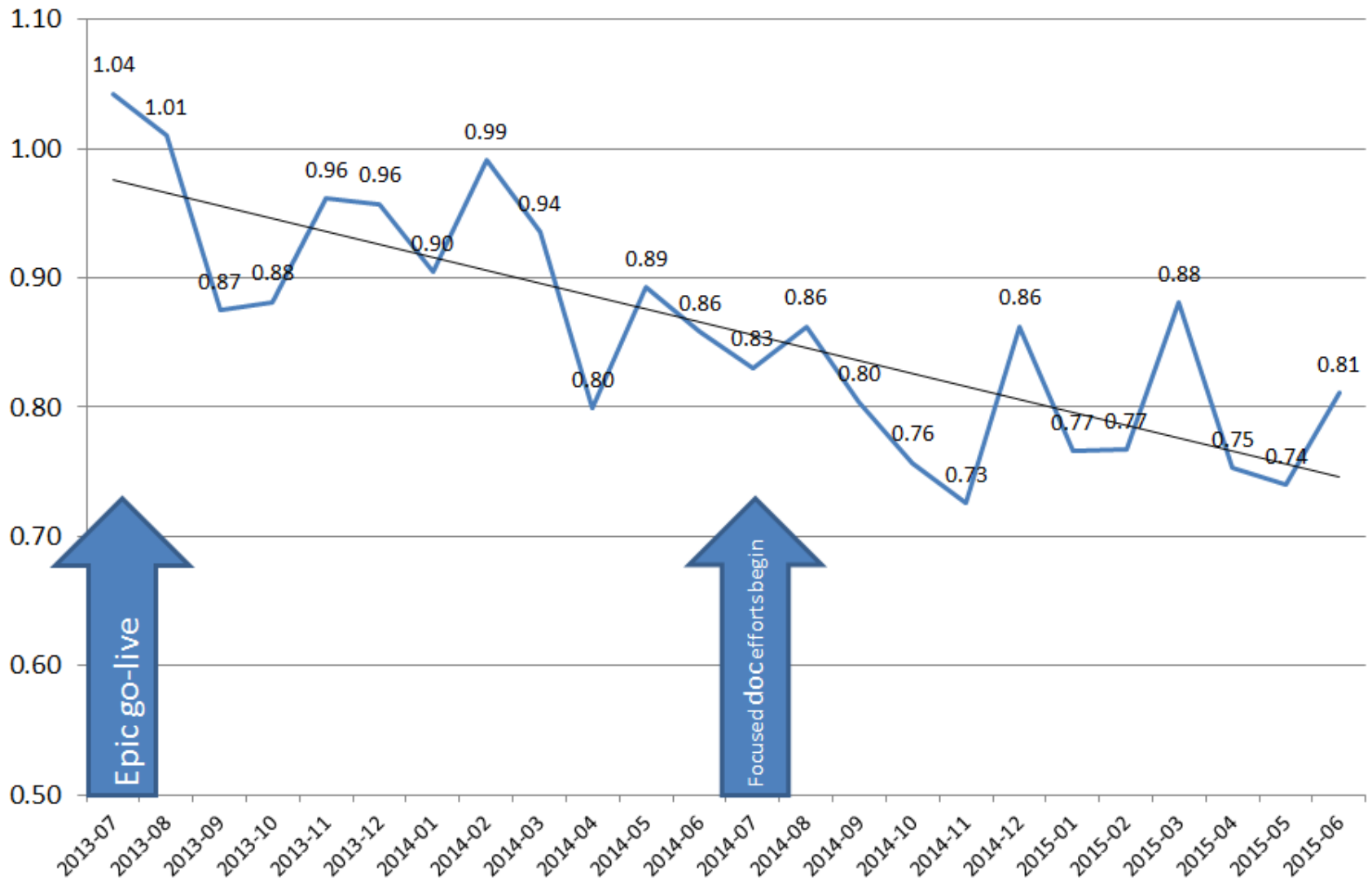
Driving Organizational Excellence

Key Successes

Metric	Baseline FY 14	Current Performance	% Improvement
Mortality Index	0.85	0.79	7%
VTE	84.0%	95.0%	13%
Immunizations	59.1%	92.1%	56%
PSIs	0.83	0.79	7%
CLABSI	1.1	.88	20%
CAUTI	3.4	1.7	50%
ED LOS (TAR)	294	265	10%
ED LOS (Admitted)	428	423	1%



Duke University Hospital Mortality Index by Calendar Month





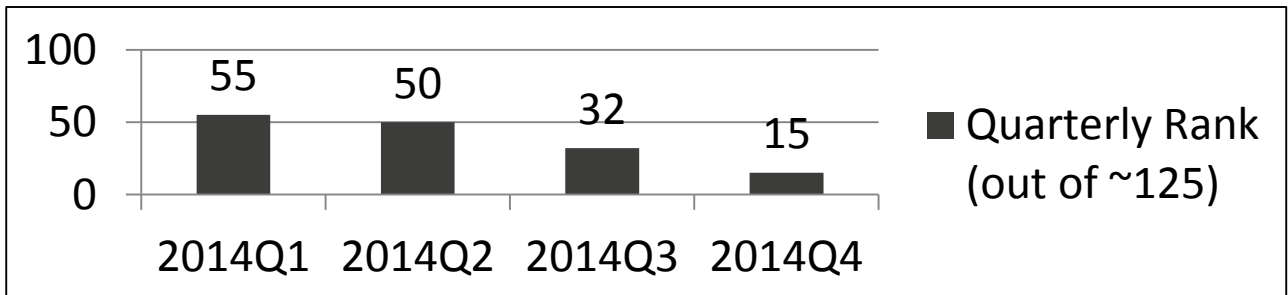
Duke University Hospital
Oct - Dec 2014 (Q4)
 Agency View

Patient Safety Indicator

Oct - Dec 2014 (Q4)

Jan 2014 - Dec 2014 (recent year)

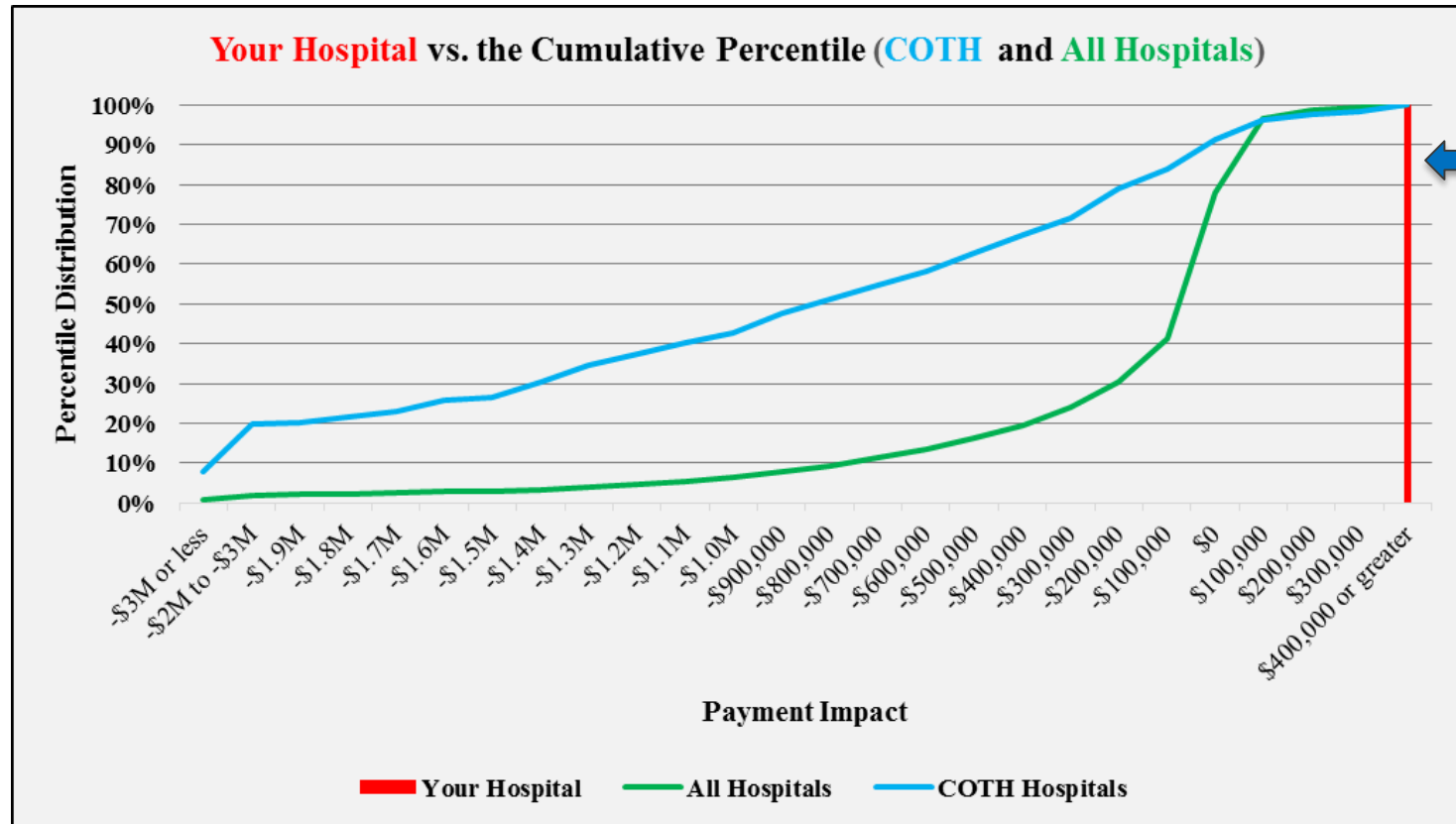
AHRQ Patient Safety Indicators	Relative Performance	Denom	Observed	Target	UHC Median	Rank	Relative Performance	Denom	Observed	Target	UHC Median	Rank
AHRQ Patient Safety Composite Indicators												
PSI90 AHRQ Patient Safety Quality Indicator Composite	⊙		0.64	0.99	0.84	15/123	⊙		0.72	1.03	0.82	42/125
		N	Rate/1000			x/n		N	Rate/1000			x/n
Surgical (Rate per 1000)												
PSI08 Post-operative hip fracture	⊙⊙	2,061	0.0	0.0	0.0	15/123	●	7,969	0.1	0.0	0.0	113/125
PSI09 Perioperative hemorrhage or hematoma	⊙	3,072	8.1	8.5	7.1	64/123	⊙	12,062	8.0	8.6	7.3	50/125
PSI10 Post-operative physiologic / metabolic	●	1,947	1.5	0.8	0.8	81/123	●	7,648	1.0	0.8	1.0	52/125
PSI11 Post-operative respiratory failure	⊙	1,471	10.9	13.8	10.2	59/123	⊙	5,667	8.5	13.7	9.4	37/125
PSI12 Perioperative PE/DVT	⊙	3,225	5.0	6.6	7.7	23/123	⊙	12,657	6.2	6.7	8.0	30/125
PSI13 Post-operative sepsis	⊙	376	8.0	13.1	11.3	47/123	⊙⊙	1,627	7.4	12.7	10.8	32/125
PSI14 Post-operative wound dehiscence	●	413	7.3	2.2	0.0	115/123	●	1,607	3.1	2.2	1.3	95/125
Obstetric (Rate per 1000)												
PSI18 OB trauma - vaginal with instrument	⊙	42	142.9	188.7	130.4	61/105	⊙	171	134.5	175.0	134.3	55/107
PSI19 OB trauma - vaginal w/o instrument	⊙	471	12.7	24.7	16.2	38/107	⊙	1,855	5.9	20.6	15.9	12/112
Other (Rate per 1000)												
PSI03 Pressure ulcer (Decubitus ulcer prior to 2007 Q4)	⊙	2,525	0.4	0.5	0.4	61/123	●	10,030	1.8	0.5	0.5	115/125
PSI06 Iatrogenic pneumothorax	⊙	6,497	0.3	0.5	0.3	50/123	⊙	26,108	0.4	0.5	0.4	55/125
PSI07 Central venous catheter-related bloodstream infections	⊙⊙	4,564	0.4	0.8	0.4	65/123	⊙⊙	18,453	0.3	0.8	0.4	52/125
PSI15 Accidental puncture / laceration	⊙⊙	7,300	1.6	4.1	1.6	48/123	⊙⊙	29,000	1.8	3.9	1.9	48/125



Approaching Top Decile



Pay for Performance Results



DUH

- DUH Performance has been in the top 15% nationally for past three years
- Key organizational priority managed through our Leadership system
- 85% of COTH hospitals lose money in the CMS pay for performance programs

Source: AAMC



Community Engagement

- Community Needs Assessment
- Community Programs
 - Project Access, LATCH, Northern Piedmont Community Care, School clinics
- Population specific improvements through care redesign efforts (Heart Failure, Sickle Cell)
- Service line specific improvements:
 - Duke Outpatient Clinic readmission improvement
 - Readmission rates
 - Emergency Department familiar faces program
- Engaged our community partners:
 - EMS
 - Lincoln Community Center



Community Involvement & Impact

- **\$222 Million** = DUH's total community investment
- **58%** of all visits to DUH's ED reflected some level of charity care.
- **68,000** = number of enrollees in Northern Piedmont Community Care Program
- **\$37,000** = Total cost of medical equipment that was secured for patients in the LATCH program
- **316** = Number of Duke Learners with specialty training in community-based health care delivery
- **3,758** = number of encounters at school-based clinics.
 - 35% = percentage of parents who would have taken their child to the ER
 - 8% = percentage of parents who would have not received/delayed care for their child



Concluding Comments



Duke University Hospital



Quality Improvements Through Community Partnerships

Schneck Medical Center
Seymour, IN

© Eric DiBlasi, Jr.

Presented by: Tammy Dye, Chief Quality Officer/VP Clinical Services

Topics

- **Partnering with Community Stakeholders**
 - Providing resources and education to long term care facilities to improve readmissions
 - Teaming up with a competitor hospital to improve population health of both of their communities
- **Improving Quality of Care and Patient Experience in the Emergency Department**

Schneck Medical Center

Not-for-profit,
county owned
hospital

Facilities include:

- Main Campus, 93 all private suites
- Several specialty physician practices
- Three Convenient Care Clinics
- Cancer Center
- 3,900 admissions
- Over 107,000 outpatient visits
- 30,000 ER Visits
- 4,000 surgeries
- 136 Active Physicians
- Approximately 900 employees



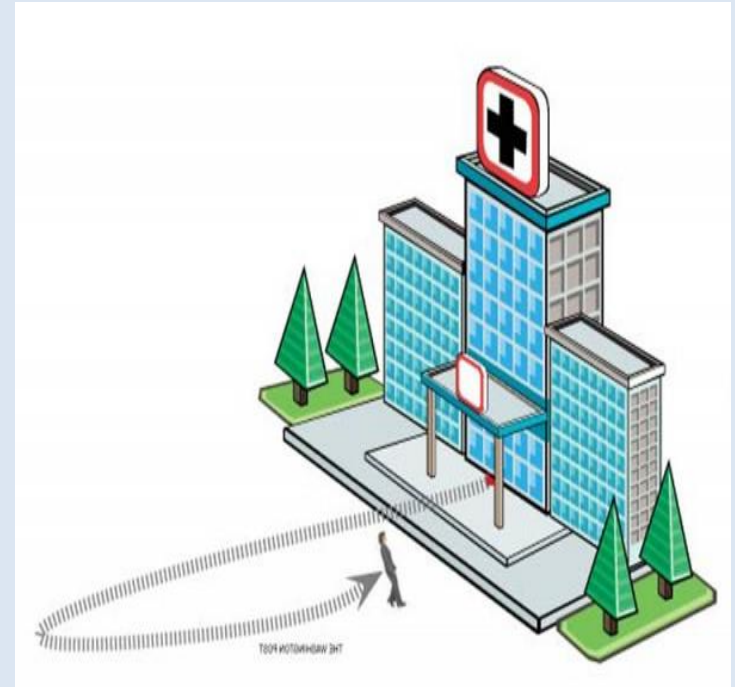
2011 National Baldrige Award Recipient

Schneck Medical Center is in constant pursuit of ways to provide excellent care. In the last 100 years, we have evolved from a 17-bed hospital to one of the most respected health institutions in the region.



Reducing Readmissions

- Multi-disciplinary rounding
- Patients identified as high risk will have medicine reconciliation completed by pharmacist before discharge
- Free home visit
- 30 day supply of medications sent home with qualified patients
- Follow-up discharge phone call



Partnering with Long Term Care

- Transitional Care Team
 - Monthly meetings with representatives from area long care term facilities to drill down on readmissions
- INTERACT program (Interventions to Reduce Acute Care Transfers)
- Provided Medical Director, physicians and NPs for coverage at long term care facilities
- Sponsoring 10 RNs to become Nurse Practitioners as additional resources

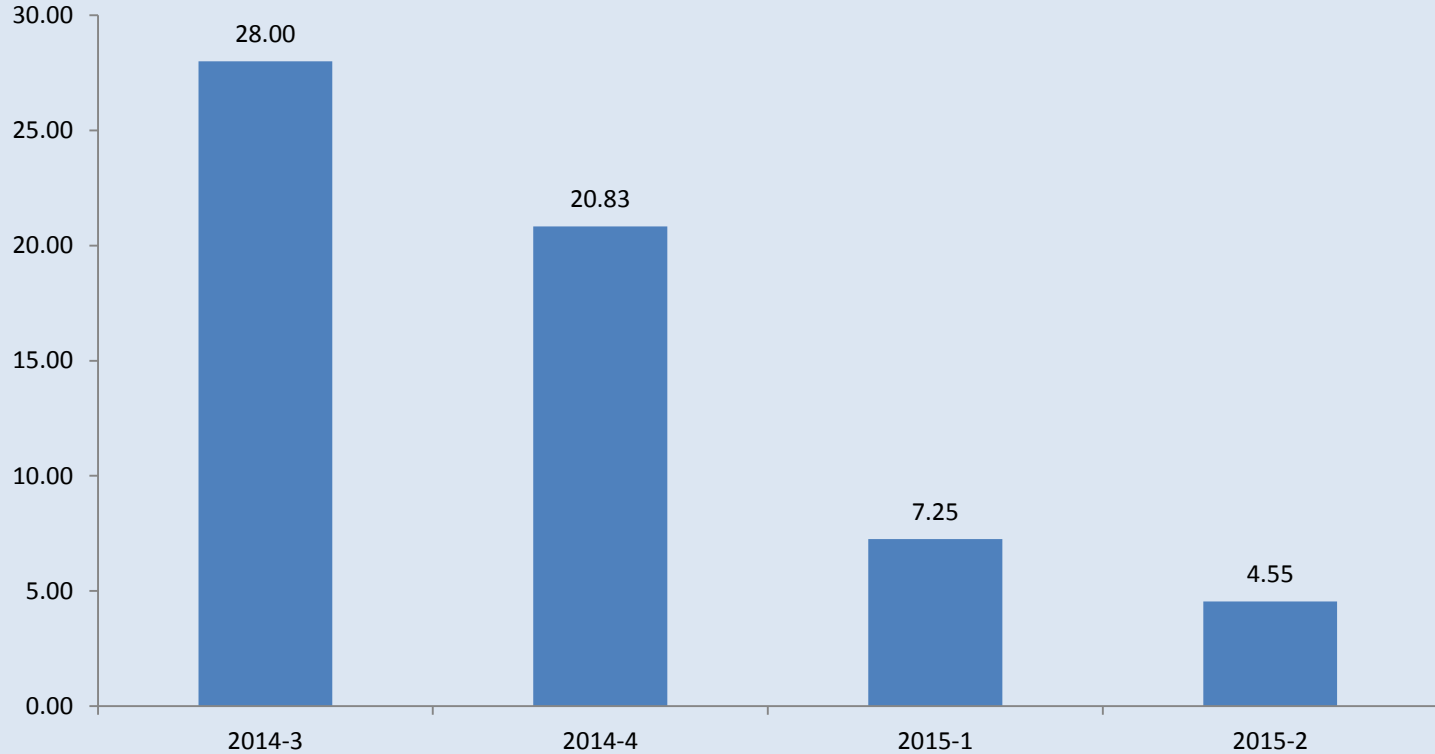
Long Term Care – COPD Management

- RT department shifted hours and hired Disease Management Coordinator
- Provided end tidal CO2 monitor for each nursing home
- Respiratory reaching out to Home Health to help design a process so RT can go to the home for a visit.
- RT going to four nursing homes weekly and PRN
- RT department assisting with discharges to home and nursing homes.



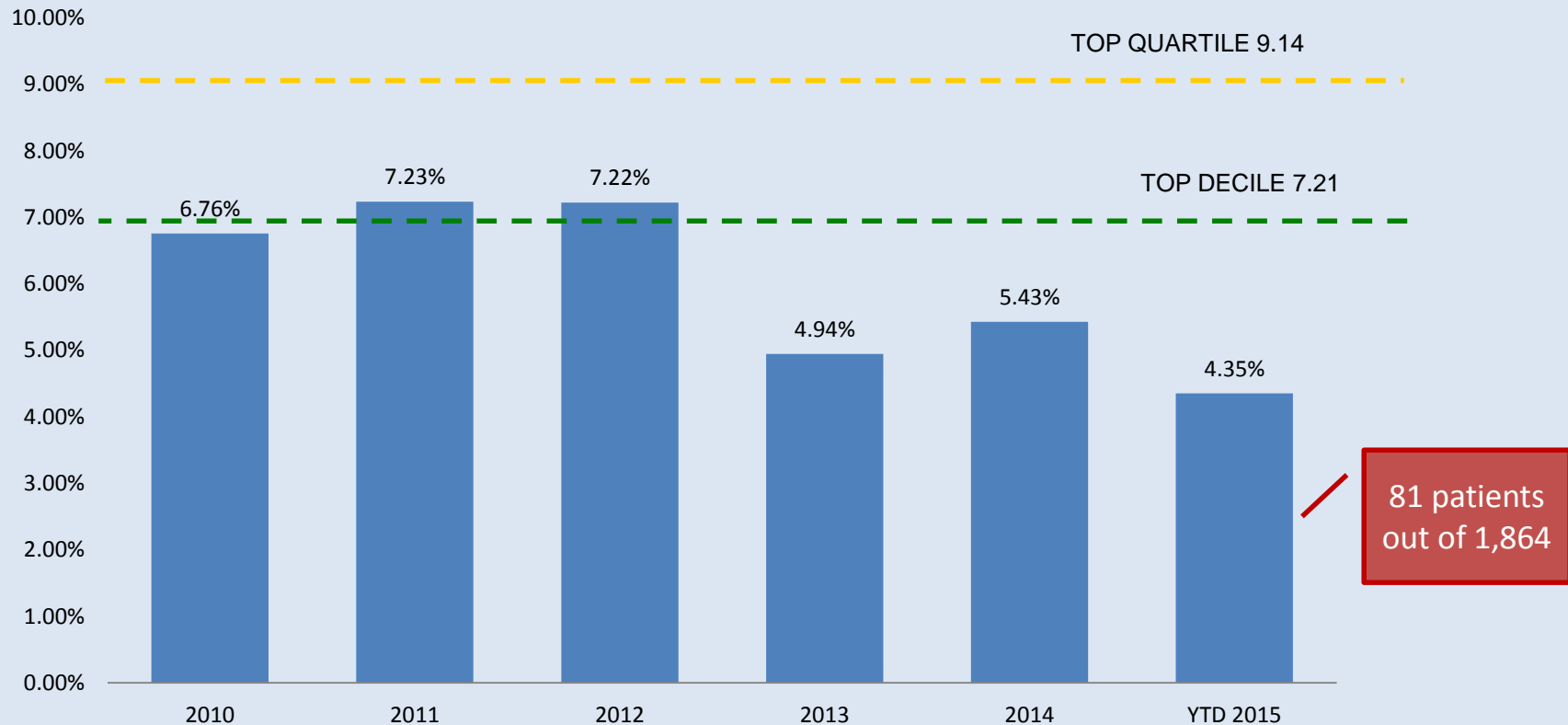
COPD Readmissions

COPD 30-Day Readmission Rates (All Payers)
Source UHC

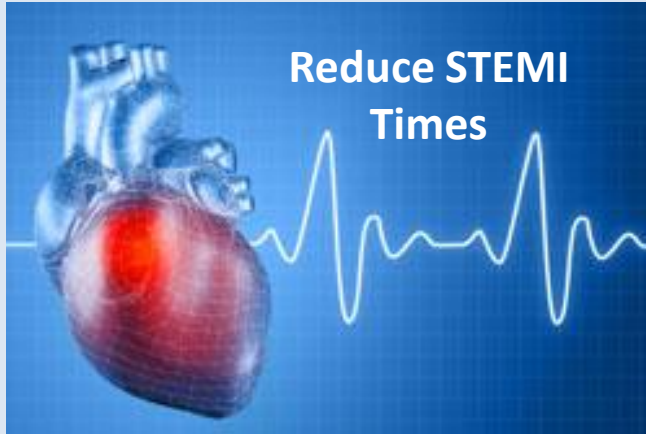


Overall 30-Day Readmissions

Schneck Medical Center
Overall 30-Day Readmission Rate by Year

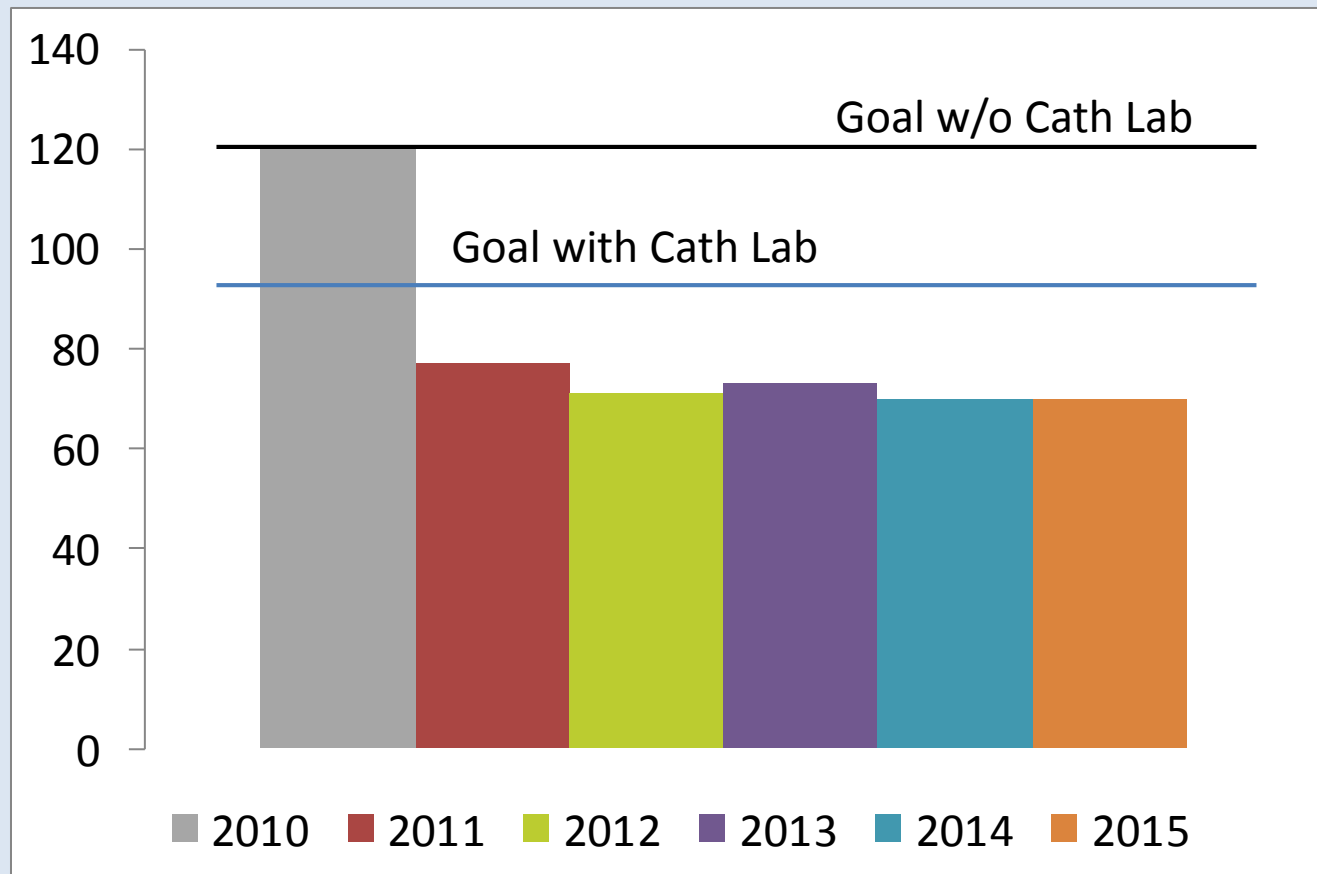


Collaborating with Competitor



Partnering with Competitor

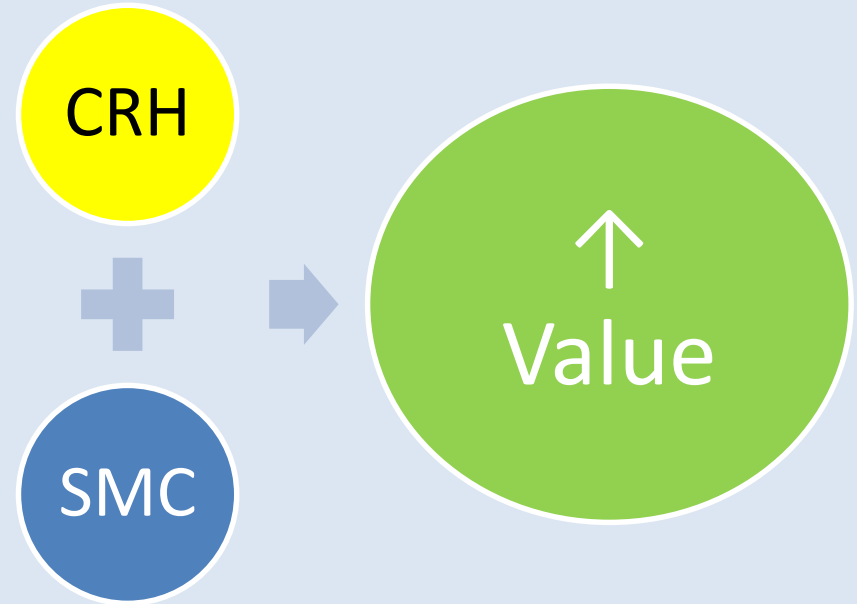
- History of successful collaboration for STEMI patients



Next Collaboration - CIN

Benefits:

- Coordinated care
- Ability to recruit and retain providers
- Alignment of provider and hospital and quality and safety efforts
- Access to a more holistic view of individual patients across practices and sites of care
- Increased value for healthcare dollars spent



Produce a value added product to create a larger market so each entity can benefit from increase market share

“State of Emergency” in the ED

- Door to provider time for 2012 - 52 minutes
- Length of stay for low acuity patients (ESI 4/5) 2011, is 118 minutes (42.3% of SMC’s ED population)
- Left Without Being Seen (LWBS) for 2012 is 2.23%.
- Customer service scores have averaged at the 25th percentile in the last 6 quarters.

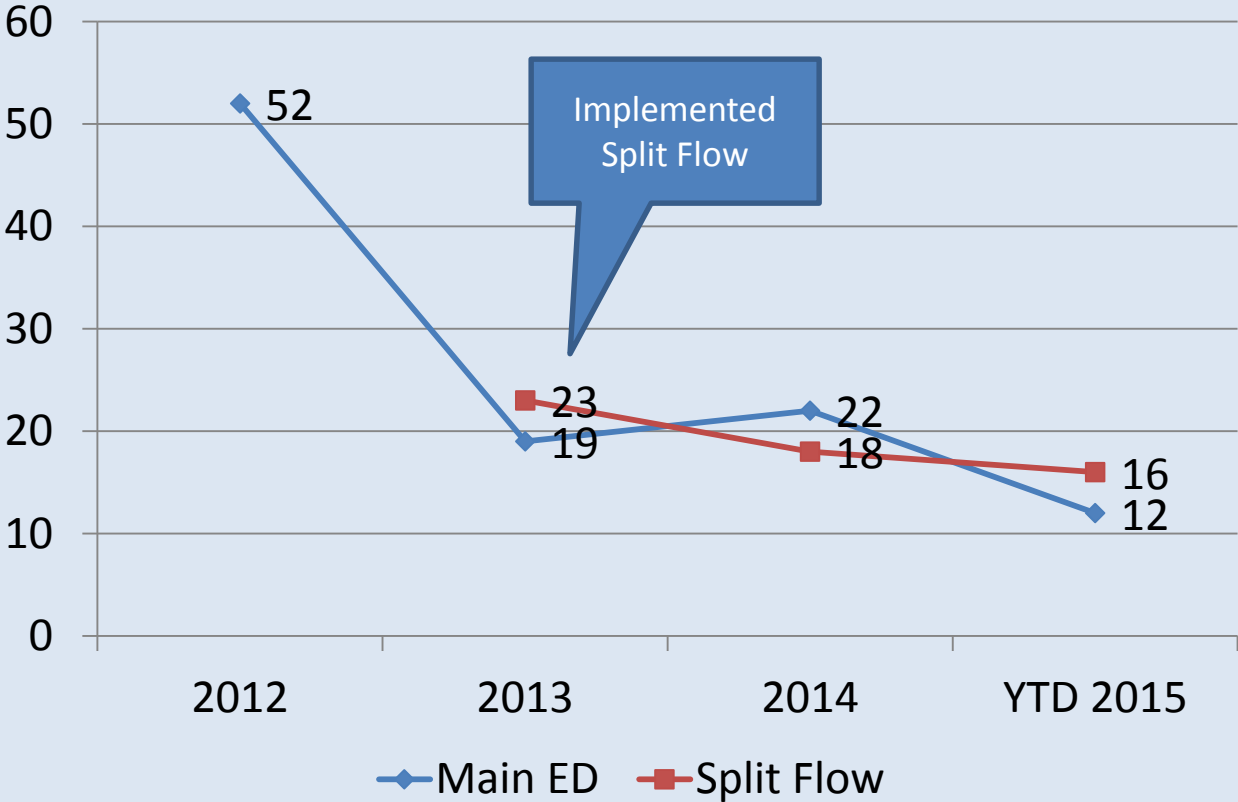


Where We Are Today

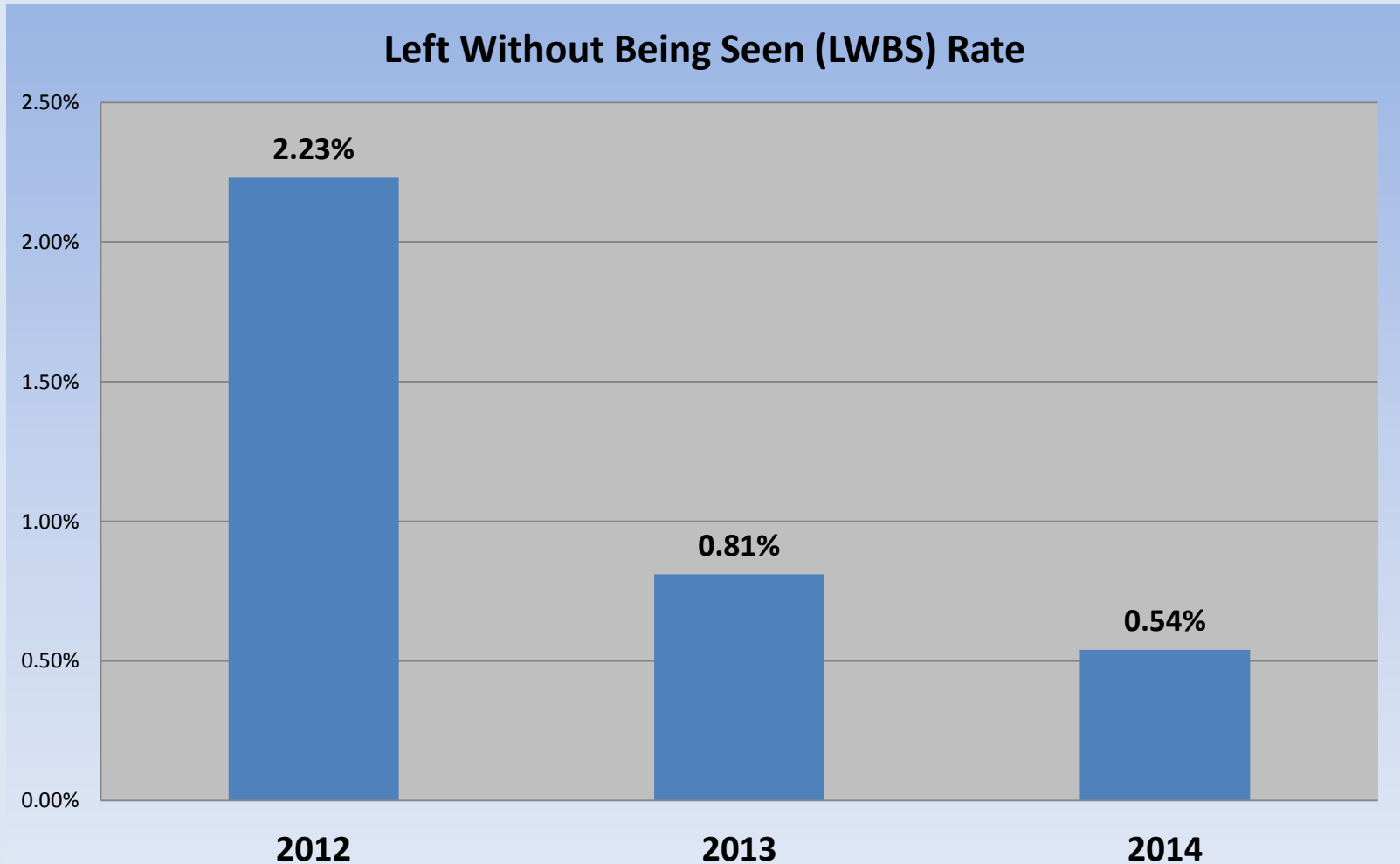


- Average door to provider time has decreased to 23 minutes.
- Length of stay for low acuity patients has decreased on average to as low as 66 minutes for Split Flow patients.
- LWBS has decreased to 0.54% in 2014
- Customer service scores have increased to 87th percentile as of the 4th quarter of 2014

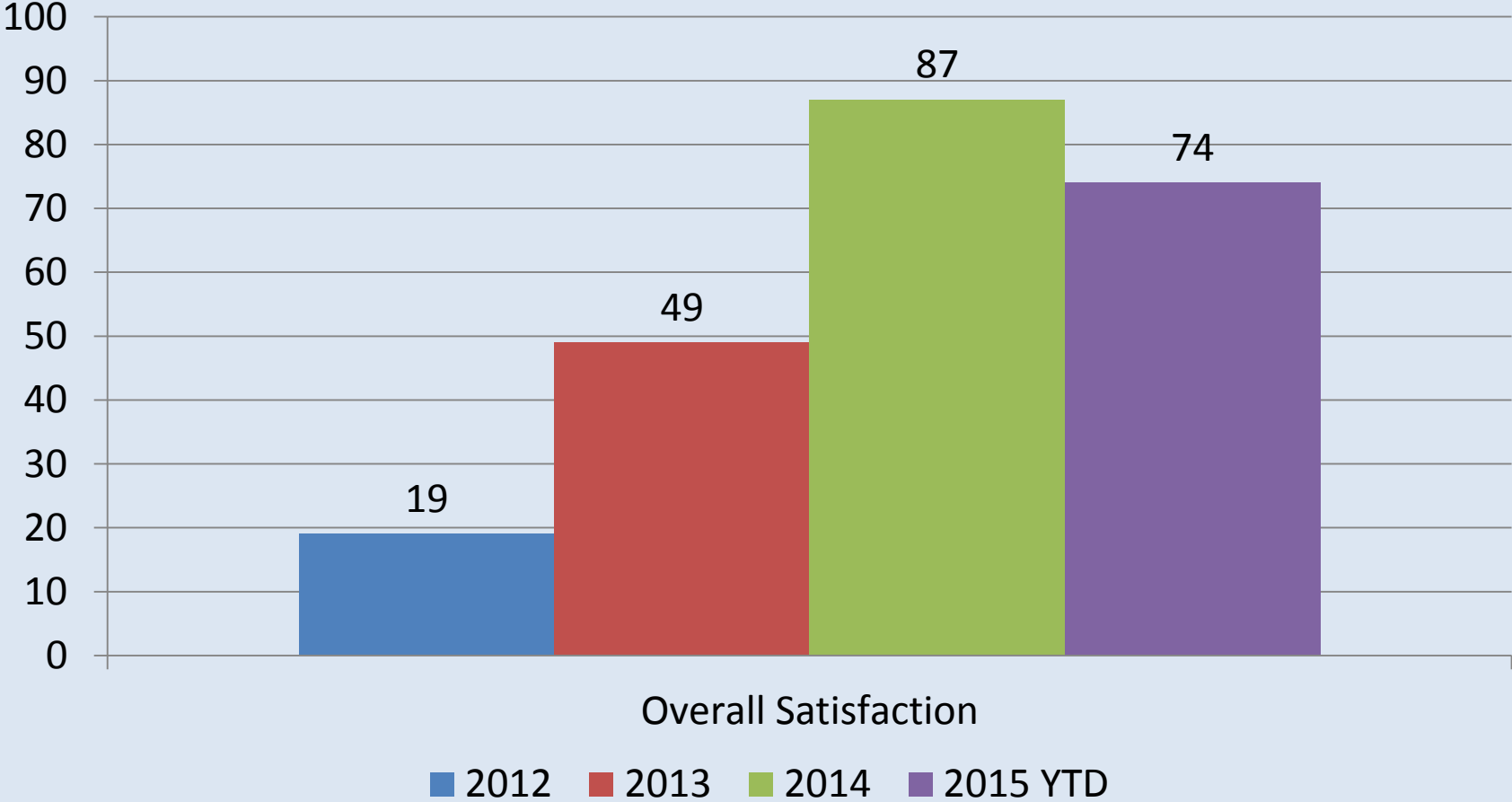
ED – Door to Provider Time



Left Without Being Seen



Measure/Analyze





Quality Improvements Through Community Partnerships

© Eric DiBlasi, Jr.

Schneck Medical Center

Seymour, IN



HPOE *Live!*

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- Reducing avoidable readmissions
- Managing variation in care
- Implementing electronic health records
- Improving quality and efficiency
- Bundled payment and ACOs
- Others

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