

PNEUMONIA



KNOCKOUT

NC Quality Leaders North Carolina Hospital Association



Thursday, July 13, 2017
10:00 AM – 3:00 PM

History of Pneumonia or “Winter Fever”

- Symptoms first described by Hippocrates 460 BC.
- 19th century identified as Pneumonia
- 1875 German pathologist, Edwin Klebs- first identified under microscope
- Development of PCN improves survival

Which President held the shortest term in office and died of Pneumonia?



Objectives for Today's Meeting

- Introduce the 2017 NCHA Board of Trustees Quality Goal
- Share important facts about Community Acquired Pneumonia
- Advise on the design of the 2 year quality improvement program
- Learn some successful strategies in improving CMS PNE 30-day Mortality and Readmission Rates
- Understand care from a patient's perspective

Identifying Opportunities for Improvement: Pneumonia

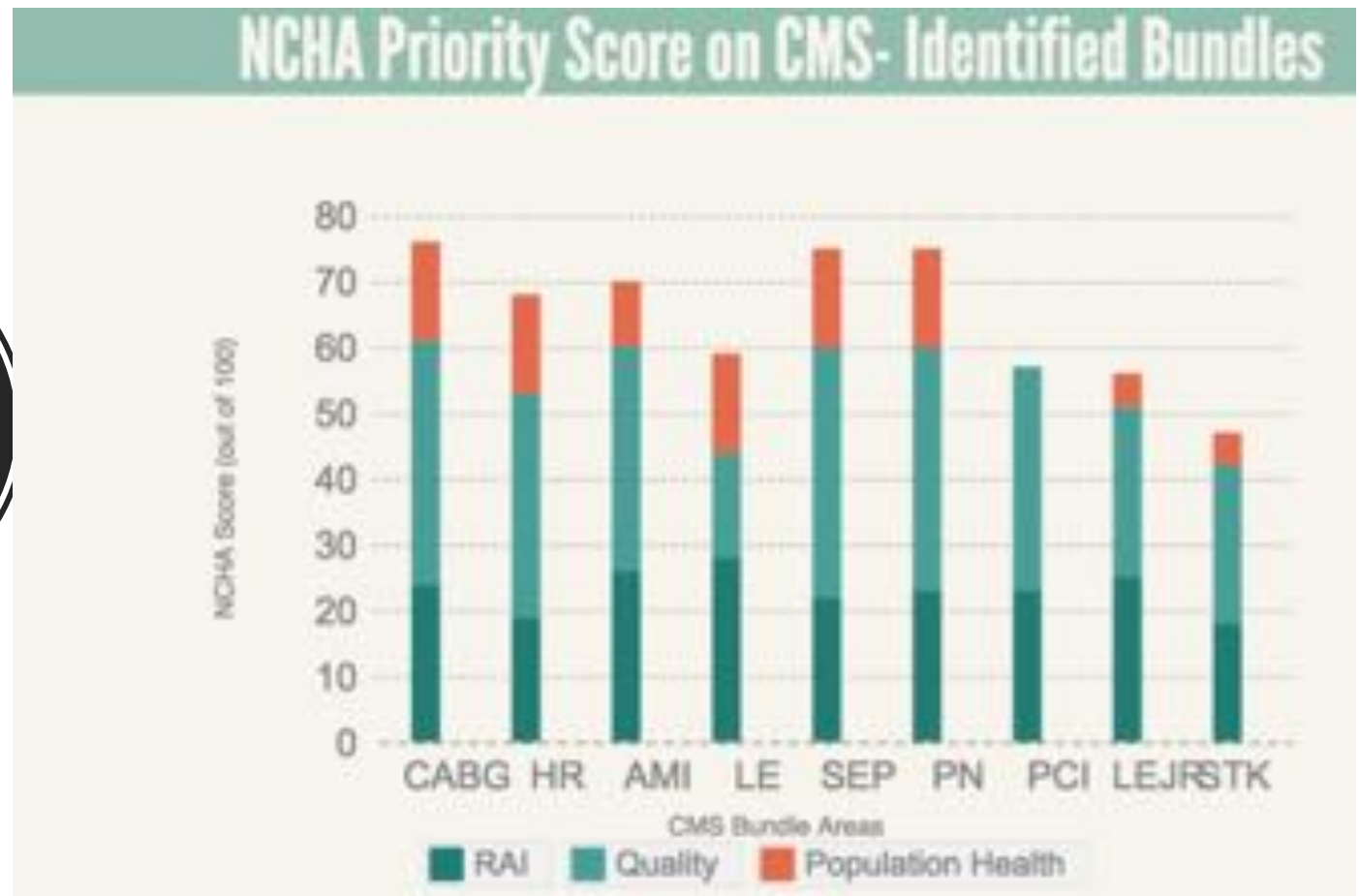
- **Step 1:** Review CMS data via Datagen Reports (NCHA provides Datagen reports to each hospital)

Quality Program Measure Trends Analysis						
State Rates and Ranks						
North Carolina						
		4Q 2014	1Q 2015	2Q 2015	2Q 2016	3Q 2016 4Q 2016
(VBP/CIR)	MORT_30_PN: Pneumonia (PN) 30-Day Mortality Rate (Lower is Better)	12.2% 36 of 51		11.8% 35 of 51	17.6% 49 of 50	
	MORT_30_COPD: Chronic Obstructive Pulmonary Disease (COPD) 30-Day Mortality Rate (Lower is Better)	8.0% 28 of 51		7.9% 27 of 51	8.2% 28 of 50	

Step 2: Evaluate opportunity according to criteria for transformation:

- ✓ Aligned with CMS priorities? Publically reported?
- ✓ Among top 10 causes of death in NC?
- ✓ Identified variation in RAI performance statewide?
- ✓ NC performing worse than hospitals nationwide?
- ✓ Hospitals interested in improving in this area?

Why
Pneumonia?

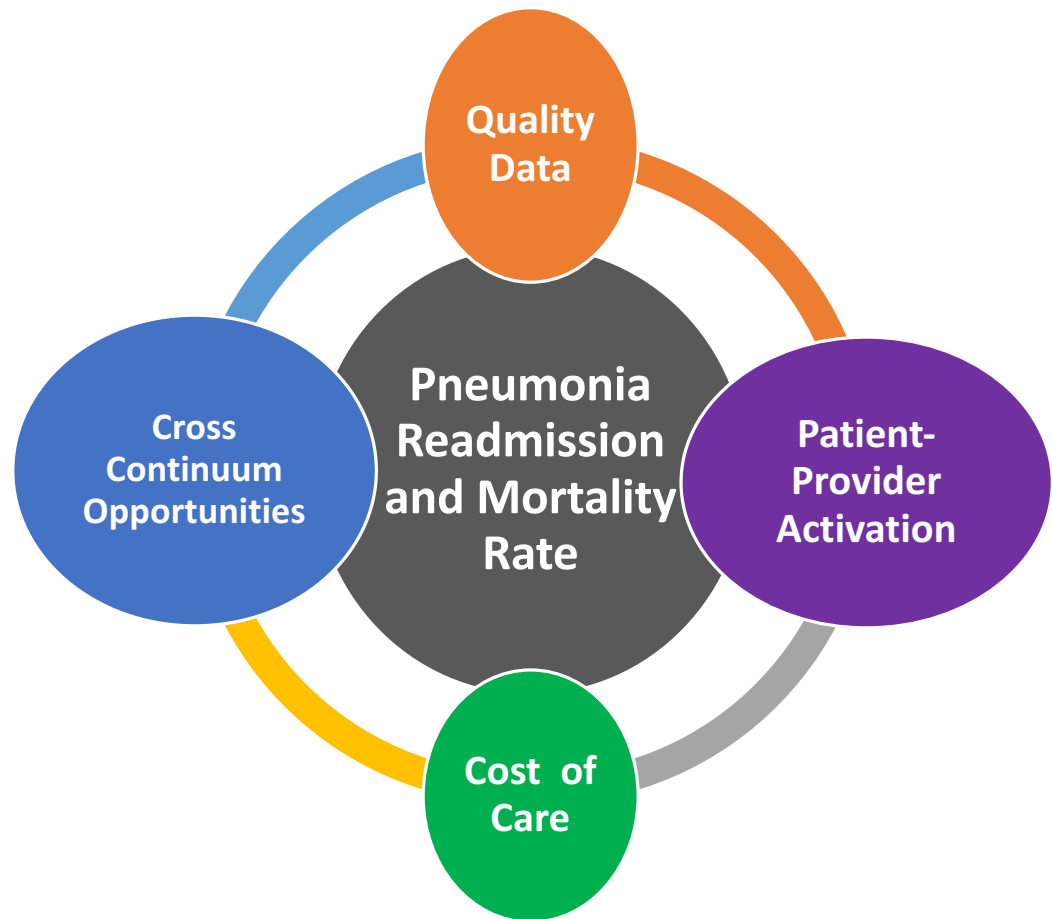


Pneumonia Facts

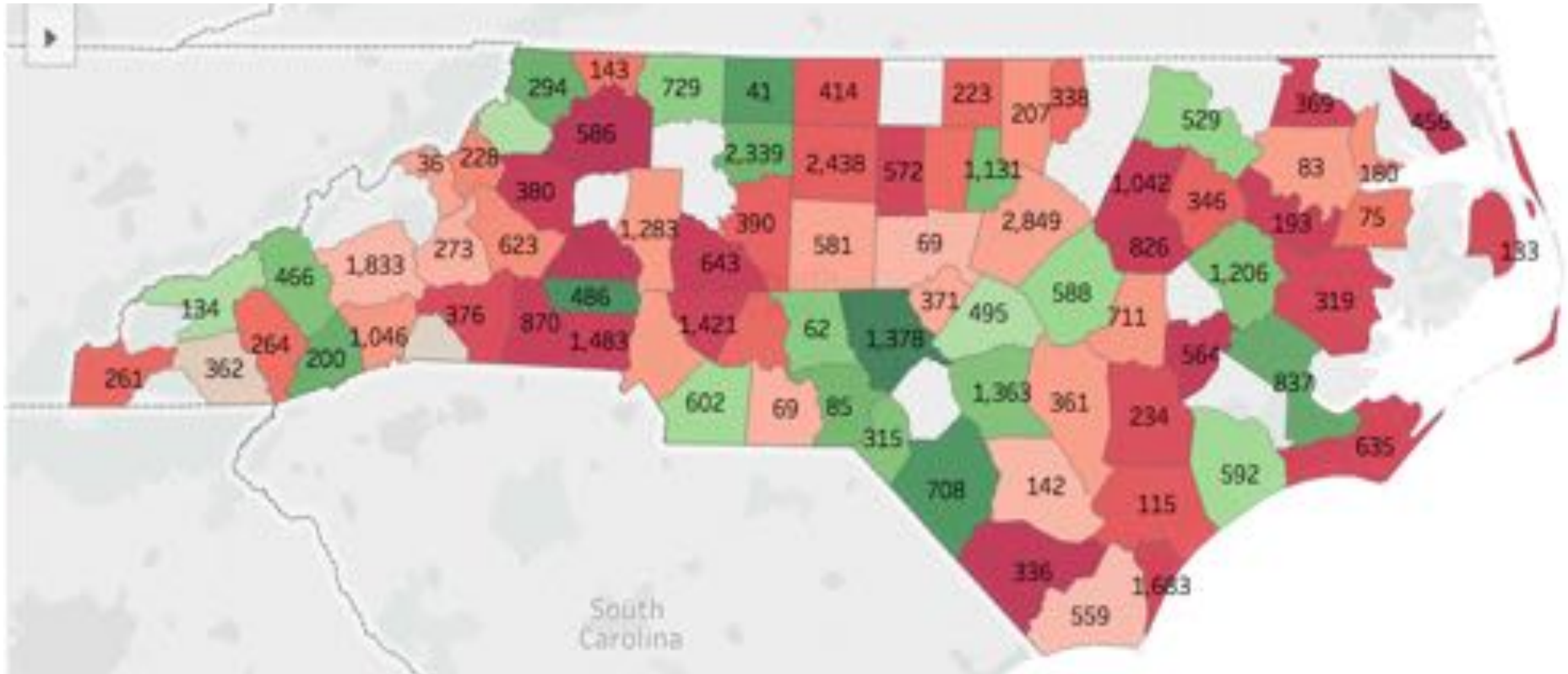
- Still serious global problem
- \$17 billion spent globally on CAP annually
- 2012 US cost for treatment- \$20 billion
- Viral or bacterial- Streptococcus Pneumoniae
- Most dangerous for compromised immune or weakened systems, elderly chronically ill
- Pneumonia vaccinations reduce the incidence of the disease
<https://www.cdc.gov/vaccines/vpd/pneumo/index.html>

Quality Innovation Challenge-Improving The Health of Communities

- ❖ 80% Health care merit-based programs
- ❖ Private payers pay for efficiency and outcomes
- ❖ Population health payment models are on the increase
- ❖ Market share landscape changing
- ❖ More public reported measures



Pneumonia Mortality by County



Number label indicates total cases by county in 2016. Color indicates performance compared to national benchmark on mortality – red is worse, green is better.

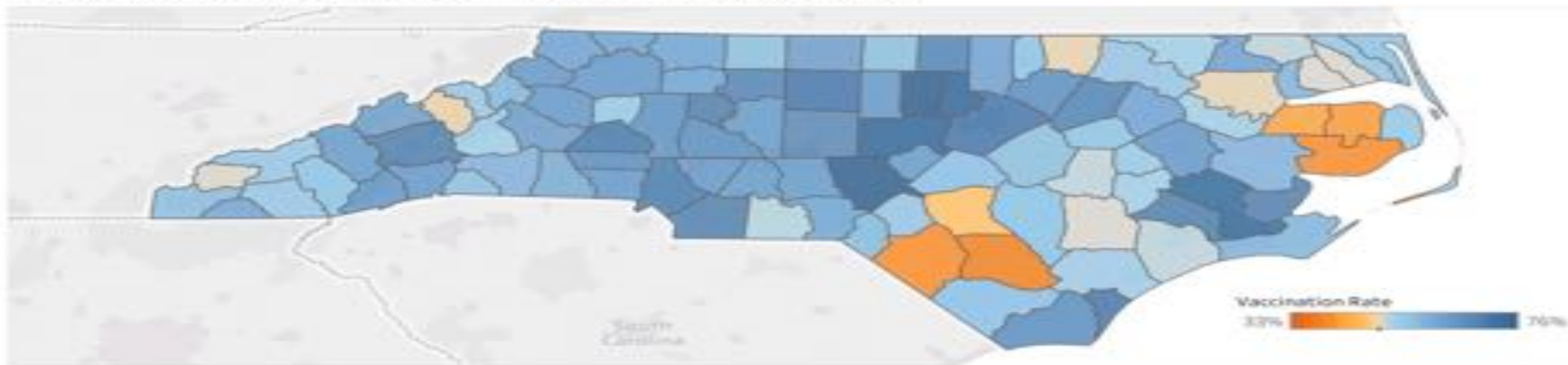
Pneumonia Cases in NC, 2015. Darker color indicates more severe



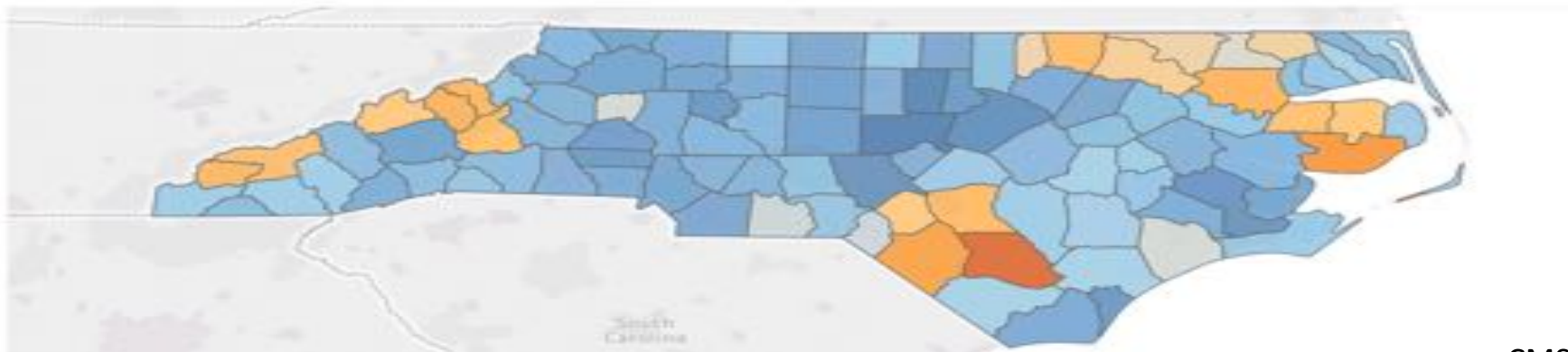
March 2017

Immunization Rates for Flu and Pneumonia

Pneumonia Vaccination Rates in NC, July 2015 - June 2016

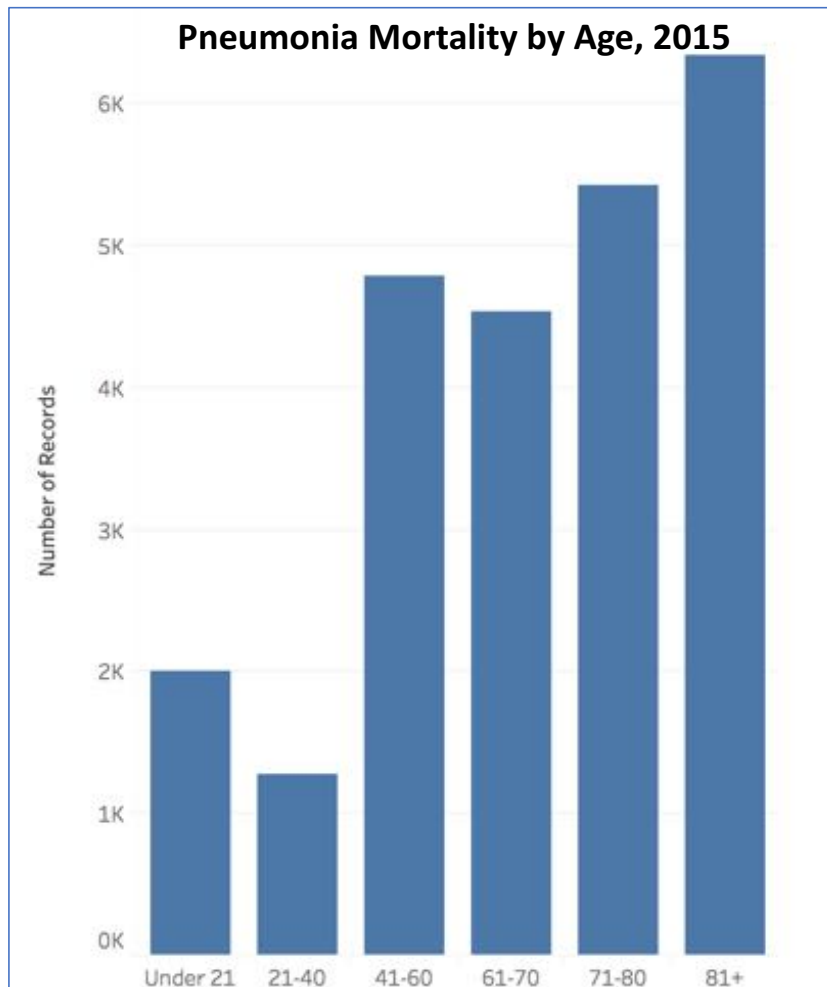


Flu Vaccination Rates NC, August 2015 - March 2016

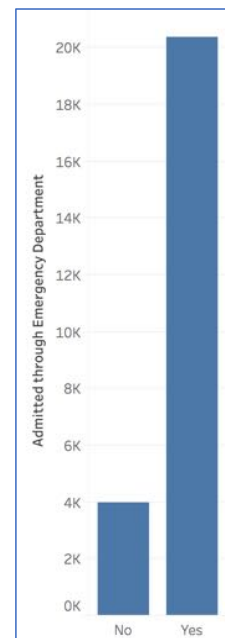


CMS Claims Data

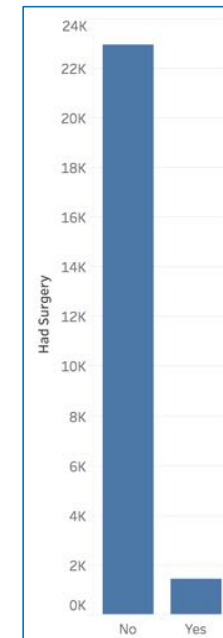
Pneumonia Patient Characteristics



Admitted through
Emergency
Department



Post
Surgery



PDS+ data source, drill-down
possible to patient encounter-level

Opportunities as Cited in the Literature

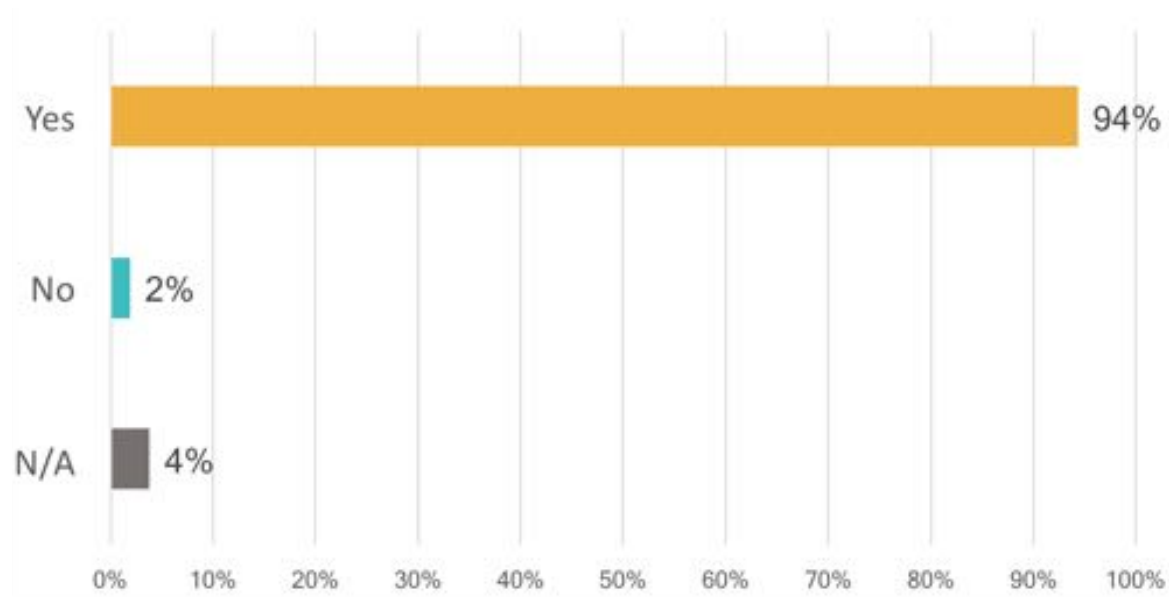
- Lack of systematic Approach to capture DNR first 24 hours of admission- 30-day Mortality (*Jama*, 1/2016)
- Mapping workflow for coordination of care between ER, Respiratory and Critical Care first 24hrs of severe CAP (*Critical Care*, 2016)
- Treatment of Elderly Hospitalized Patients with CAP- Adherence to IDSA/ATS Guidelines in non-ICU vs. ICU over treatment outcomes study (*BMC Medical Informatics and Decision Making*, 2016)
- Study -Prognostic Indicators in conjunction with patient characteristics, labs, and antibiotic therapy for predicting prognosis (*Pulmonary Medicine*, 2017)
- Using Pneumonia Severity Scoring in LTC to consider resident prognosis (*American Family Physicians*, Oct. 2004)

The Assessment of Sepsis Protocols in North Carolina Survey

Survey Snapshot

- Sepsis survey was sent out to member hospitals in October of 2016.
- Major goal of the survey was to determine if hospitals have a process for screening and early recognition of patients with sepsis.
- Survey allowed hospitals to include comments with their responses which provided further insight into their individual protocols

Please indicate the status of the following components within the current protocols: A process for screening and early recognition of patients with sepsis, severe sepsis or septic shock



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“Currently in ED only, will be implementing house wide within the next 12-18 months”

- Carolinas East Health System

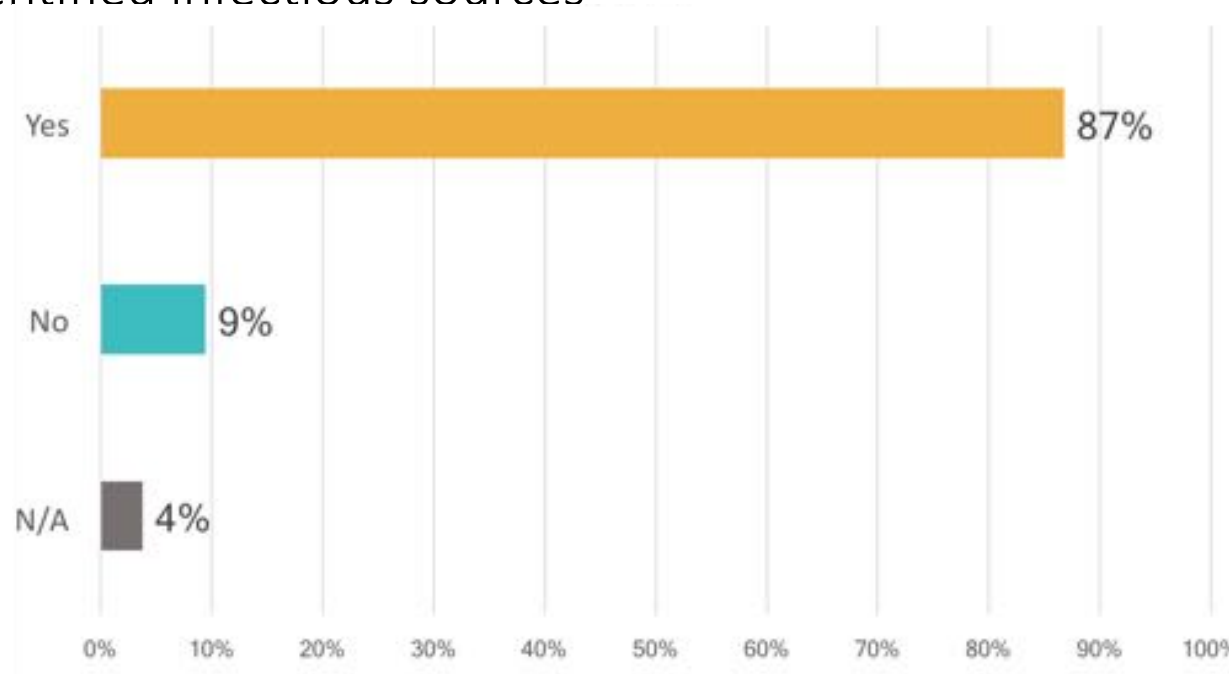
“We currently use the National Early Warning System (NEWS) that is generated through our EPIC electronic health record.”

- Duke Raleigh

“There is a Best Practice Advisory (BPA) that displays for nurses and providers on inpatient units when a patient meets a modified 2 out of 4 SIRS criteria.”

- Vidant Health

Please indicate the status of the following components within the current protocols: A process for delivery of early broad spectrum antibiotics with timely re-evaluation to adjust to narrow spectrum antibiotics targeted to the identified infectious sources



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“Order set with antibiotic selection based on infectious source, i.e. pulmonary, soft tissue, urinary, etc.”

- Vidant Health

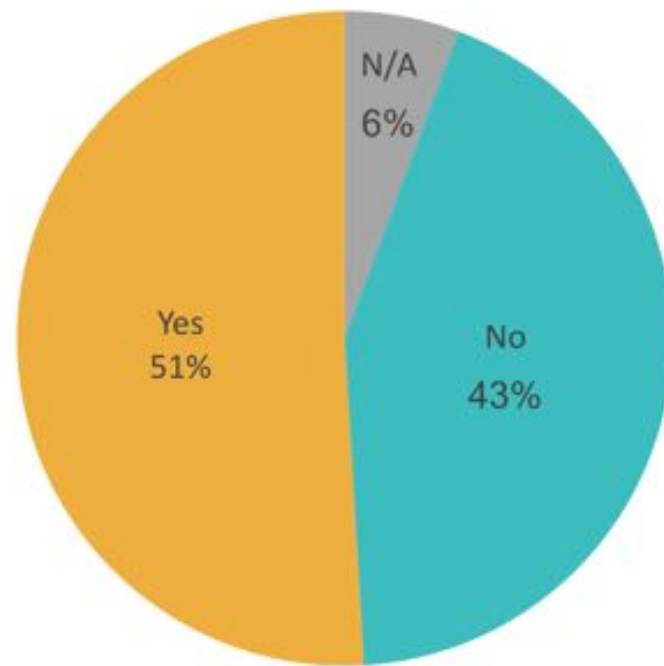
“This process is still being developed to narrow the antibiotics at 48 hours. Early broad spectrum is in place”

- FirstHealth Regional Hospital

“Our protocol has early broad spectrum antibiotics. we do have a process for reviewing culture reports to ensure correct antibiotic.”

- Charles A. Cannon Jr. Memorial Hospital

Please indicate the status of the following components within the current protocols: Explicit criteria defining individuals who should be excluded from the sepsis protocols, such as patients with certain clinical conditions or who have elected palliative care



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“Only those with palliative care ordered within 3 hours of time of severe sepsis criteria being met.”

- Central Harnett Hospital

“Patients excluded from the SIRS BPA (inpatient and ED) are < 18 yoa, patients receiving palliative care, and patients with a any diagnosis of sepsis on the problem list”

- Vidant Health

“We have criteria in place that excludes patients from the sepsis protocol for a certain length of time. Such as new trauma patient is excluded for first 24 hours, post-op surgical patient for the first 24 hours, comfort care, chronic respiratory failure is excluded indefinitely, known sepsis tx is excluded for 96 hours, RRT called within last 4 hours.

- Duke Raleigh

Area of Opportunity

- Many hospitals indicated that they use the SIRS (Systemic Inflammatory Response Syndrome) criteria to identify sepsis.
- The Third International Consensus Definitions for Sepsis and Septic Shock Task Force introduced a new clinical score called the quick Sequential Organ Failure Assessment (qSOFA). Hospitals may need education on the benefits/limitations of using qSOFA vs. SIRS criteria.
- Development of guidelines for hemodynamic support and fluid resuscitation.



Pneumonia Knockout Campaign

In March 2017, the NCHA Board of Trustees approved a **two-year Quality Goal** to reduce pneumonia (PNE) mortality and readmission rates to put North Carolina at and below the national average. Specifically, the goal is to:

- **Reduce** PNE state mortality rate by 7.5% to the national average of 16.3% over 2 years
- **Reduce** PNE state readmissions by 5.4% over 2 years to target top 25% quartile of the nation

The Board's approval of this goal signifies an organizational commitment to guide this work and a call to NCHA's 130 member hospitals and health systems statewide to actively participate.

Annual IMPACT

Reducing Pneumonia Mortality by 7.5%

- 1000 NC Lives Impacted

**Reducing Pneumonia Readmissions
by 5.4%**

- 950 Readmissions Prevented
- \$8,835,000 Saved

Community Acquired Pneumonia a Relevant Quality Improvement Initiative for NCHA to Focus on?

Yes

No

Undecided

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Take a Break

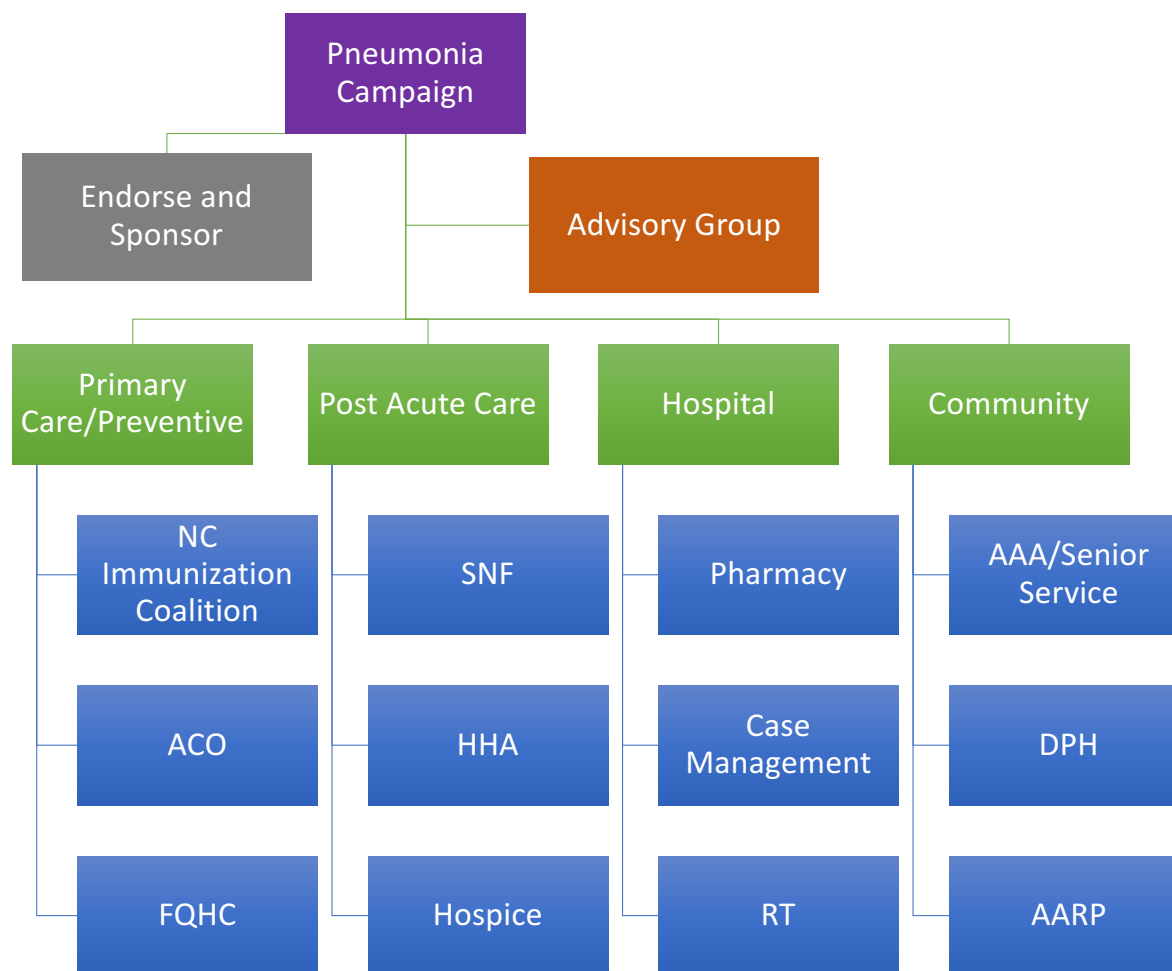




**Moving toward
Collective Action**

Pneumonia Advisory Group

**Help Wanted:
Need some
more Quality
Advisers and
Physicians**



Advisory Group Members as of 7/2017

- Alliant Quality/QIO
- Blaze Advisors
- Case Management Association/Duke Raleigh Hospital
- Collaborative Health Solutions
- Cone Health System
- Consulate Health Care
- DHHS Public Health, Communicable Disease Branch
- Division of Aging and Adult Services
- Liberty Healthcare & Rehabilitation Services
- Margaret R Pardee Memorial Hospital
- NC Association of Pharmacists
- NC BAM (Baptist Aging Ministry)
- NC Immunization Coalition
- NC Independent Reparatory Care Practitioners
- The Carolinas Center (Hospice and Palliative Care)
- Well Care Home Health

PNE Advisory Group Recommendations



A photograph of a long, light-colored wooden table in a workshop or construction setting. The table is supported by dark metal legs. In the background, there are wooden planks and other construction materials. The image is slightly blurred.

Topics on the Table for Public Campaign

- Provider education on Pneumonia Vaccinations administration-
- Targeting health promotion for literacy
- Educating early warning signs of Pneumonia
- Improving coordination of care- provider/patient activation for better health outcomes



Pneumonia Knockout Campaign

Hospital CAMPAIGN PARTICIPATION

Participating hospitals and health systems will be asked to identify one to two opportunities to improve based on their internal performance on the identified measures. Community partners and post-acute care providers will be invited to participate with hospitals and health systems.

Each organization will commit to lead its improvement efforts.

NCHA Quality Center staff, with guidance from an Advisory Council, will provide participating teams with technical support, education and best practice learning/sharing.

NCHA will provide data to member organizations to support this work and will coordinate a public education campaign, including media and collateral materials.

PNEUMONIA FACTS

- North Carolina is ranked 49 of 50 states for its pneumonia mortality rate, with 73% of hospitals below the CMS national benchmark.
- More than half of all N.C. hospitals are above the national benchmark for 30-day pneumonia readmission rates.

What Does the Pledge Mean for Me?

Pneumonia Program Outline “Right Size Education”

- ***Convene Local and National Experts for Learning***
 - Peer to Peer Sharing
 - Cross Continuum Forum
- ***Coaching and Facilitation***
 - Focused goals and measurement
 - Coaching
 - Coalition focused with community partners
- ***RAI Focused Collaborative- optional for RAI hospitals***
 - Process Change
 - Operational Excellence

Hospital Role to Partner With PAC and Community Partners

Every Hospital Invites Post Acute Care, Providers and Community Agencies

Every Partner Pledges to Work on Improving Pneumonia Care

- ***Major Stakeholder Support***

- ***QIO/Professional Membership Organizations/State and Local Health Departments/ Area Agency on Aging***



Pneumonia Knockout Campaign

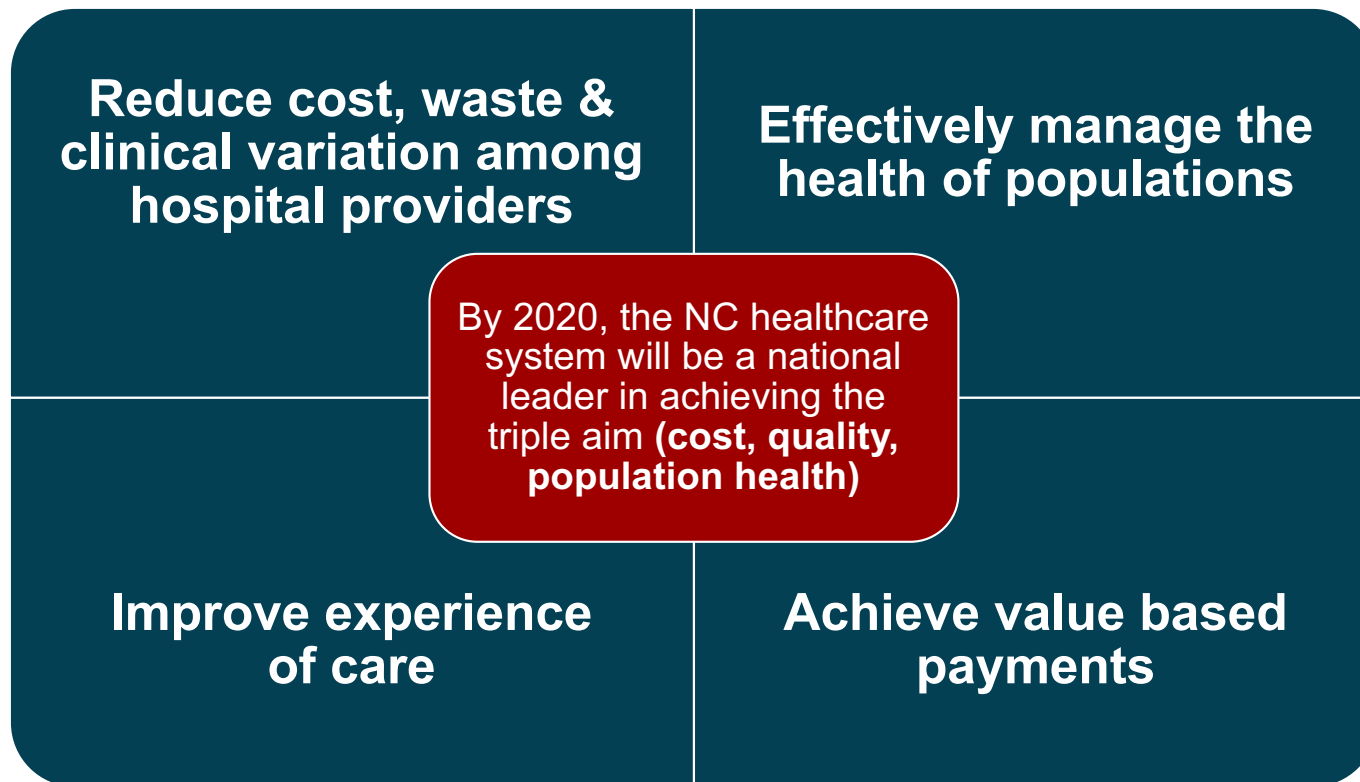
TIMELINE

- May/June:** NCHA Quality Center staff introduces goal to member hospitals health systems and prospective partner organizations:
- ✓ **Quality Leaders discuss with Executive Leadership**
 - ✓ **Review Pneumonia Performance**
- July:** Kickoff at NCHA Summer Membership Meeting (July 19-21)
- Aug-Sept:** Hospital Enrollment
- ✓ **Make sure CEO signs Pledge**
 - ✓ **Submit at least 2 areas to focus on improving Pneumonia performance**
 - ✓ **Talk with community partners about engaging in campaign**
- Oct:** Learning and Action Network/Public campaign begins
- Nov:** World Pneumonia Day is November 12

Performance Improvement Strategy

- [Pneumonia Advisory Group & Workgroups](#)
 - **Develop programming and content for pneumonia work Statewide Collaboration and Partnerships**
 - **Guide Statewide Strategy around reducing pneumonia mortality and Readmission Rates**
- [Knockout Pneumonia Campaign](#)
 - **Pledge from all NC hospitals and healthcare systems**
 - **Identify one to two opportunities to improve based on their internal performance on the identified measures**
 - **Community partners and post-acute care providers will be invited to participate**
 - **Convene Local and National Experts for Learning**
 - **Peer to Peer Sharing**
 - **Cross Continuum Forum**
 - **Coalition focused with community partners**
- [Focused Collaborative](#)
 - **Coaching and Facilitation**
 - **Focused Goals and measurement**

Affordable Health Care Driving Principles



Addressing Affordability= Efficiency of Care

How do we reduce the cost of health care while maintaining or improving the quality of care?

Focus on Performance Improvement and Quality Improvement

- Identify areas of waste or inefficiency
- Identify best practice standards
- Reduce clinical variation

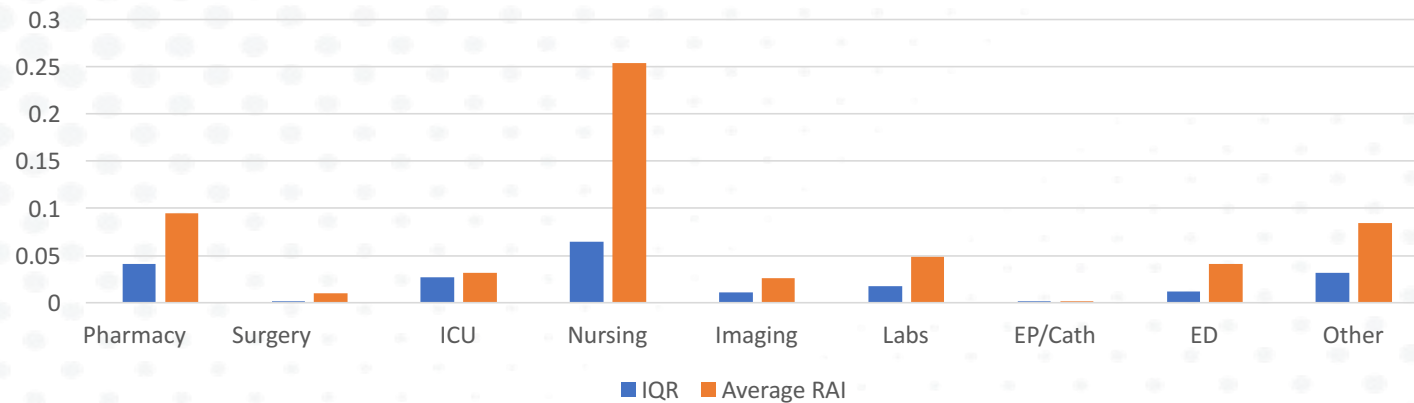
Measurement Problem

What gets measured gets managed- Peter Drucker

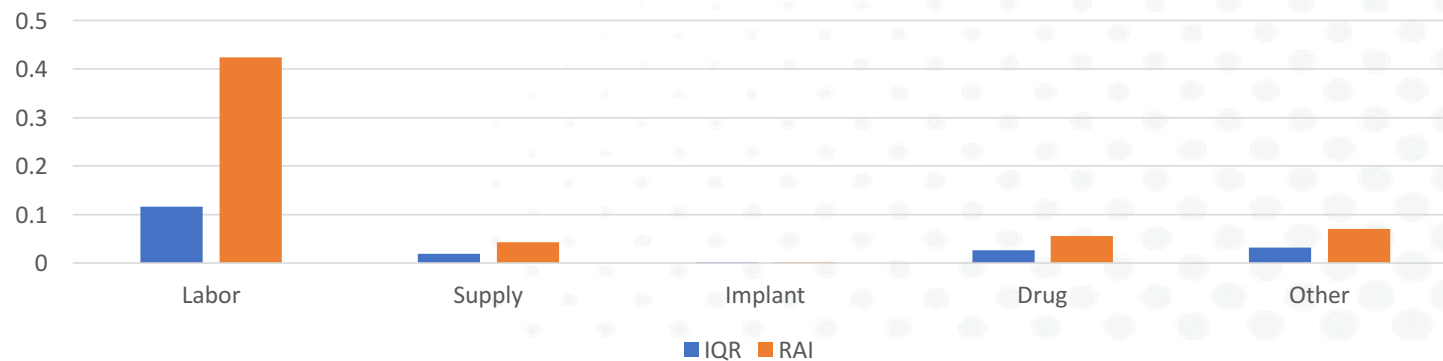
- ✓ How do we measure clinical variation across hospitals without undertaking a huge and costly data collection effort?
- ✓ How do we repeat the measurement on an annual, or more frequent, basis to show improvement?

RAI- Breaking Down Utilization and Mapping to Quality Outcomes

Pneumonia Relative Affordability Index (RAI) by Department, 2014-2016



Pneumonia RAI by Expense Type, 2014-2016






I Like the Idea of Tackling Improvement on a State Wide Scale?




Yes, collective
impact is the
way to go!

No, target
only areas
that are low
performers



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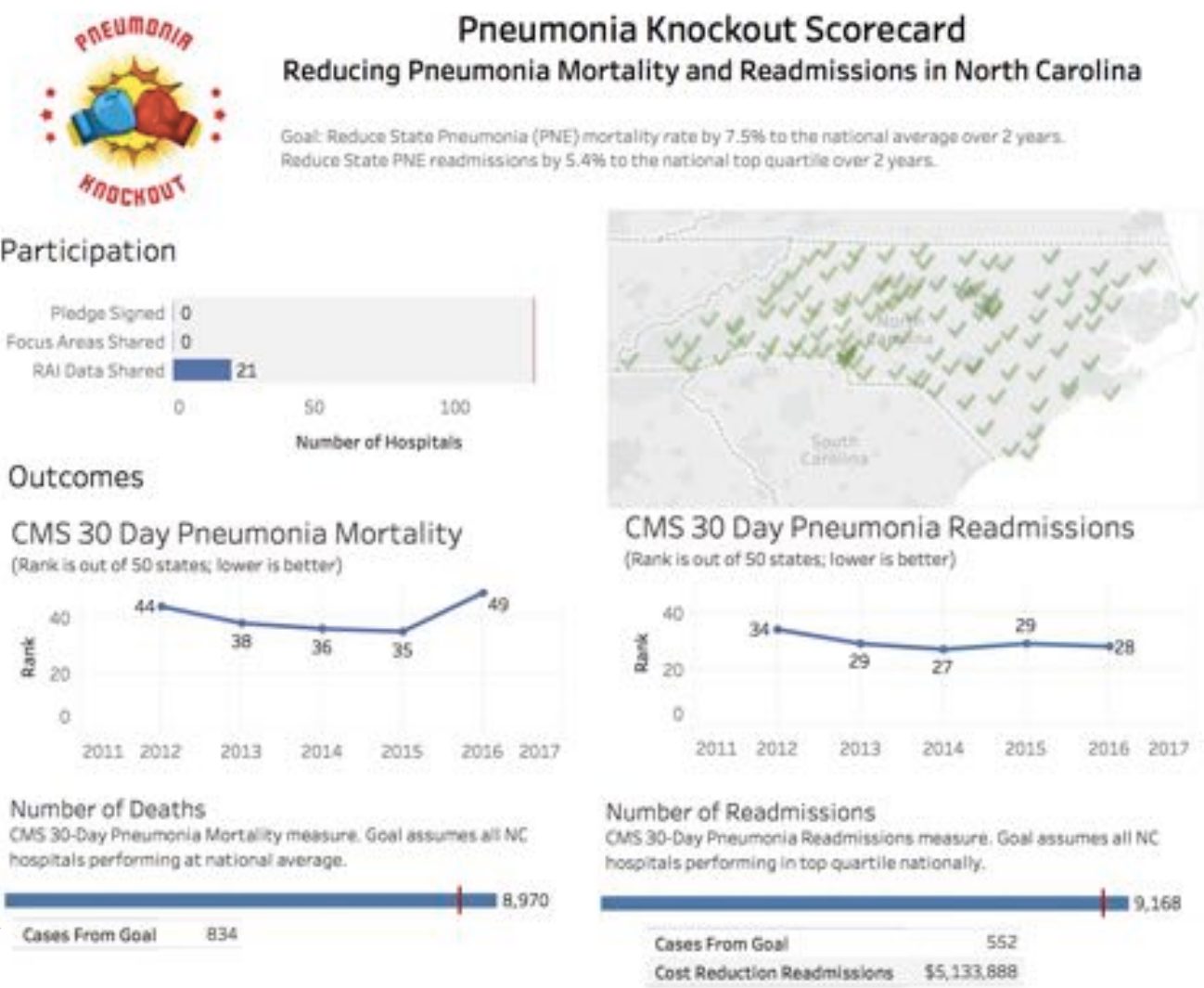
A close-up photograph of a squirrel with greyish-brown fur and a dark eye, perched on a dark, textured tree trunk. The squirrel is holding a large, irregular piece of light-colored bread in its mouth. The background is a soft-focus, white snowy landscape with some dark, thin branches visible. In the bottom left corner, there is a black rectangular box containing the word "LUNCH" in white capital letters.

LUNCH

NCHA Board Report

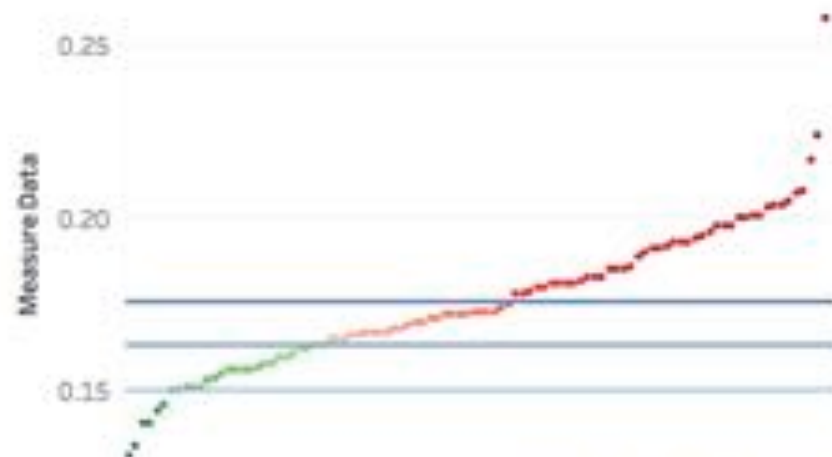
Tracking State Participation

Note actual cases from goal

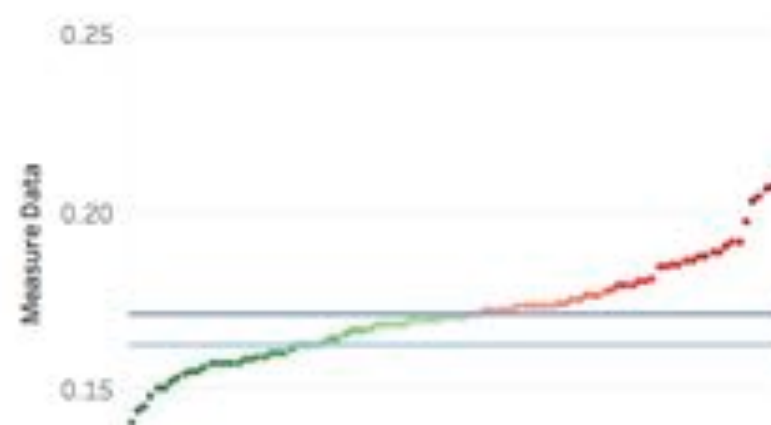


Distribution of Current Hospital Performance

NC Hospitals, CMS 30 Day Pneumonia Mortality



NC Hospitals, CMS 30 Day Pneumonia Readmissions



Legend: NC Average / US Average / US Top 25th Percentile

Source: CMS Measures, reported at data.medicare.gov 4/28/2017 on performance period 7/1/2012 - 6/30/2015.



What Each Hospital Will Receive

Quarterly updates
Enhanced data elements on
population characteristics



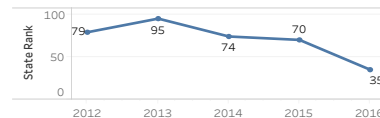
Participation

Focus Areas RAI Data
Pledge Signed Shared Shared

Outcomes

CMS 30 Day Pneumonia Mortality

(Rank is out of ~107 NC hospitals; lower is better)



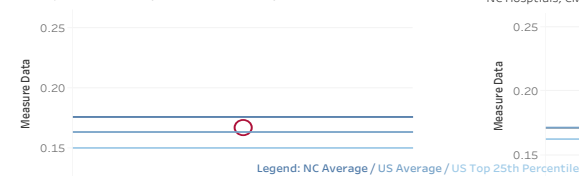
Number of Deaths

Goal assumes hospital performing at national average.

CMS Measure Data	0.17
Number of Cases	73
Cases if Performing at Goal	72
Cases From Goal	2
National Rank	2,337
Out of Hospitals (Nationally)	4,063

Distribution of Current Hospital Performance

NC Hospitals, CMS 30 Day Pneumonia Mortality



Source: CMS Measures, reported at data.medicare.gov 4/28/2017 on performance period 7/1/2012 - 6/30/2015.



Pneumonia Knockout Scorecard

Reducing Pneumonia Mortality and Readmissions in North Carolina

Goal: Reduce State Pneumonia (PNE) mortality rate by 7.5% to the national average over 2 years. Reduce State PNE readmissions by 5.4% to the national top quartile over 2 years.

Sample Hospital



CMS 30 Day Pneumonia Readmissions

(Rank is out of ~107 NC hospitals; lower is better)



Number of Readmissions

Goal assumes hospital performing in national top quartile.

CMS Measure Data	0.21
Number of Cases	98
Cases if Performing at Goal	77
Cases From Goal	21
National Rank	3,992
Out of Hospitals (Nationally)	4,065
Cost Reduction Readmissions	\$194,370

AHRQ stats brief, 2013, <https://www.hcup-us.ahrq.gov/reports/stat-briefs/sb146.pdf> identifies the average cost for a pneumonia stay as \$9,300.

NC Hospitals, CMS 30 Day Pneumonia Readmissions





Sample Hospital

While Pneumonia Knockout will measure success based on the CMS measures of mortality and readmissions for Medicare patients, for the purpose of performance improvement, it is important to understand pneumonia among all patients in hospitals and communities across the state. Data on this page is from the NCHA PD5+ System, a statewide all-payer claims database, and is from 10/1/2015 - 9/30/2026 unless otherwise noted.

Volume

Self Pay

Private Comm.

Other

Medicare

Medicaid

Total Inpatient Discharges, NC



Total Emergency Department Visits, NC



Total Inpatient Discharges, Hospital



Total Emergency Department Visits, Hospital



Total Inpatient Discharges for Pneumonia, NC



Total Emergency Department Visits for Pneumonia, NC



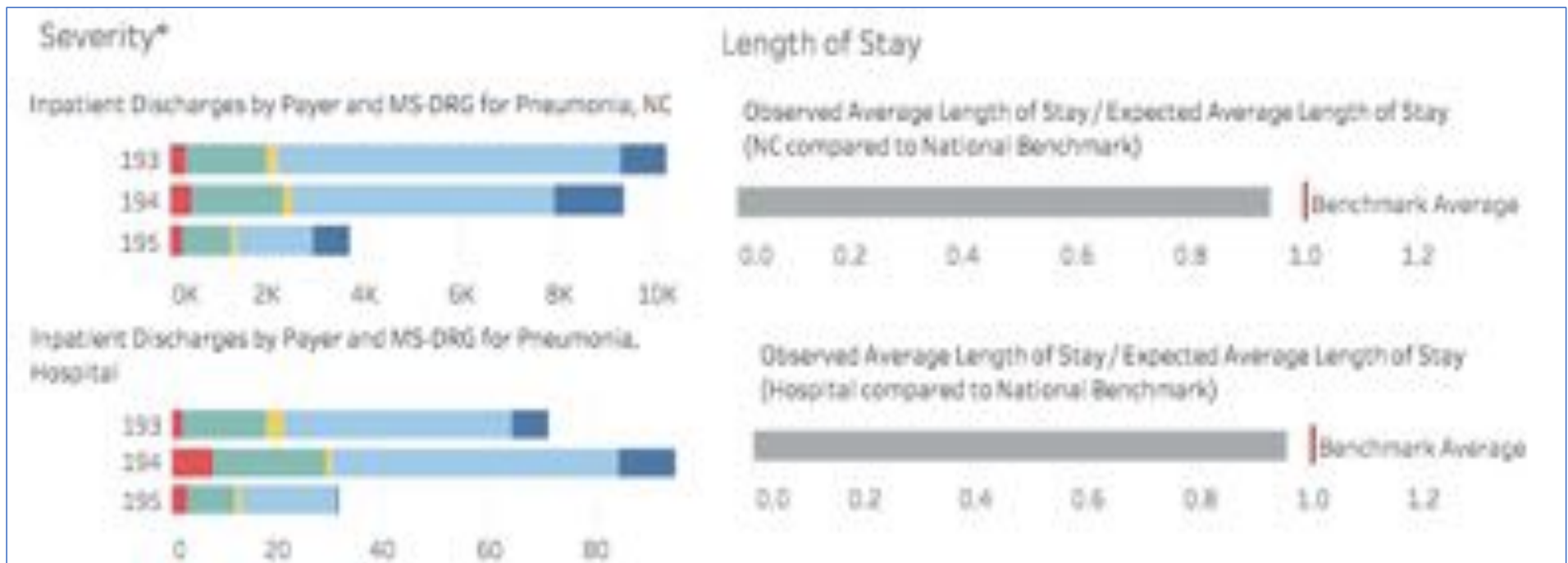
Total Inpatient Discharges for Pneumonia, Hospital



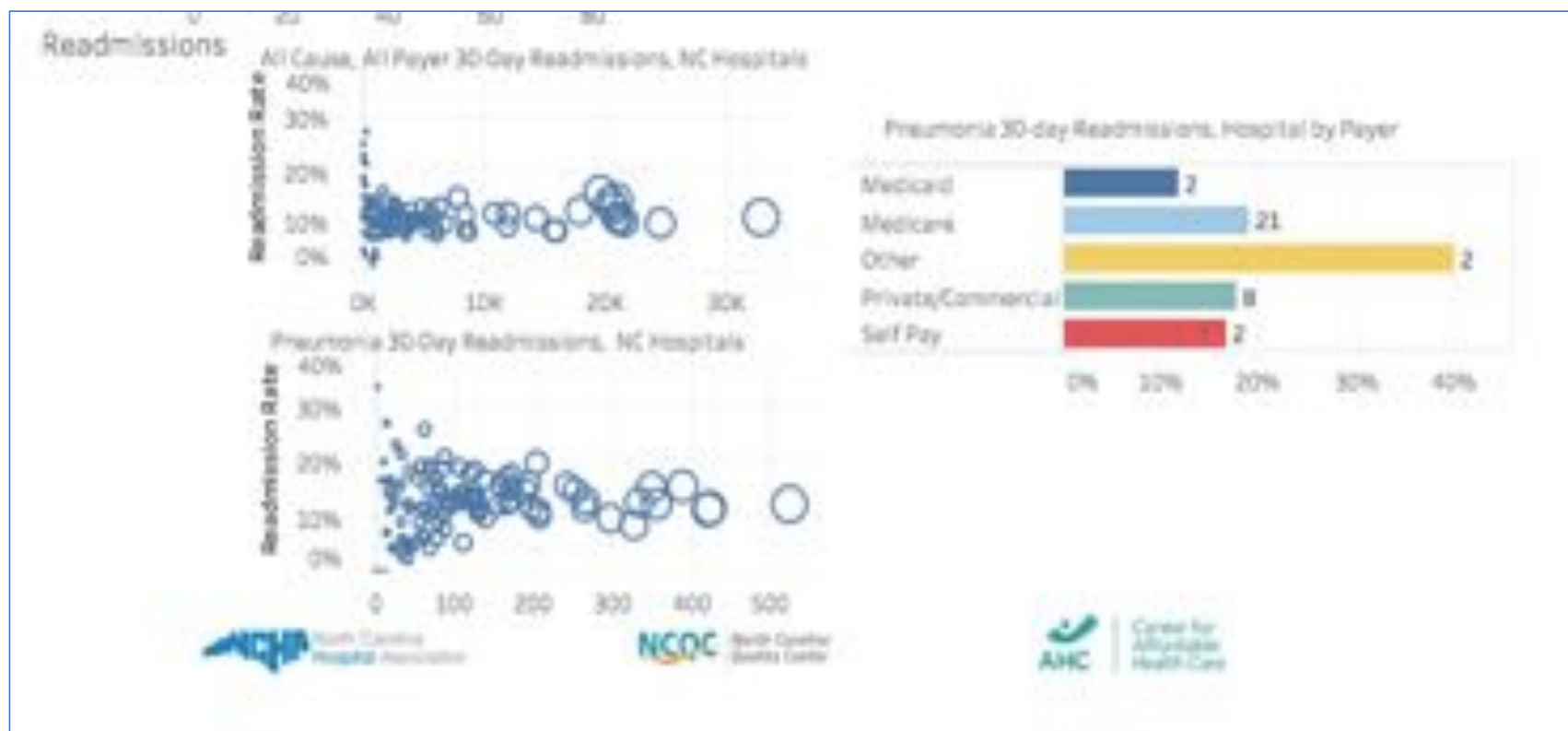
Total Emergency Department Visits for Pneumonia, Hospital



Looking at Data by Payer- Impact Opportunity



Drill Down on Readmission by Payer



Digging Deeper into the Data

- Patient characteristics and demographics
- Comorbid conditions (Sepsis, for example)
- Social Determinants of Health and mapping
- Nursing protocols for pneumonia care
- *Care for pneumonia patients at the end of life
- *Care across the continuum of healthcare and community providers

Using RAI Tool:

- Resource utilization (pharmacy, imaging)
- Cost comparisons between hospitals using the Relative Affordability Index
- Variation in hospital performance on cost and quality

* Currently under development

Measuring Success- Outcomes

- *Each organization will receive updates periodically*

All NC Hospitals

- Current Mortality Rate and PNE Readmission Rates (CMS updates annually)
- Length of Stay E/O Ratios (from PDS+ claims data, 6-9 month lag)
- Community Prevalence and Vaccinations by County
- Social Determinants of Health (primarily census and other data sources)

RAI Participants (34 hospitals) - others also encouraged to join

- DRG level cost variation by department and expense type
- Cost Variation and Return On Investment
- System Improvement

Round Table Discussion

15 min Discussion/Team Report Out

1. In the community you serve- what are some of the relevant issues where CAP is still prevalent?
2. Strategies you are aware of that are working to decrease CAP?
3. How would you like this program designed to fit into your current work?
4. Who in your organization needs the most information on CAP?




I will Encourage my Executive Leadership to Take the Pledge?




Yes, I want to work on CAP as
state wide effort and will
share the information with
my leadership

No, I do not feel this is an
issue for us



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“It Always Seems Impossible Until It is Done”

Nelson Mandela

Wrap Up & Next Steps

- No Cost to Participate
- Each Health System/Hospital commits to actively support Pneumonia Knockout Campaign- CEO will sign pledge
- Identify at least 2 factors that maybe holding you back from achieving your Pneumonia goals and share with NCQC- Hospital Quality Team
- Advisory Group to Co-design Learning and Action Program
- Learning will be “right sized” for members needs and time commitment
- Trish Vandersea tvandersea@ncha.org /Karen Southard ksouthard@ncha.org

NCHA Pneumonia Team

