Population Health -
Turning Theoretical Concepts into Reality

The

CHOC Children's Primary Care Network Experience

GOALS AND OBJECTIVES

➤ To obtain better understanding of the foundational components of population health at the point of care

➤ To cultivate ideas related to the use of information technology tools to help inform the work of providers

➤ To review specific examples of how these methods have been put into practice and how to extrapolate them to other practice models

➤ Provide a forum to discuss challenges to implementation

Who are we?

CHOC CHILDREN'S PRIMARY CARE NETWORK

CHOC Medical Group	Sea View Pediatrics	Southern Orange County Pediatric Associates	Pediatric and Adult Medicine Inc.
Orange	Laguna Hills	Lake Forest	Tustin
Centrum	Aliso Viejo	Rancho Santa Margarita	
Clinica Para Los Ninos	Irvine	Ladera Ranch	
Garden Grove	San Clemente	San Clemente	
Boys and Girls			
Breathmobile			
~27,000 patients	**~18,000 patients**	**~15,000 patients**	**~13,000 patients**
28 pediatricians	13 pediatricians	13 pediatricians	9 pediatricians
5 nurse practitioners	2 nurse practitioners	4 nurse practitioners	

~73,000 patients
74 providers
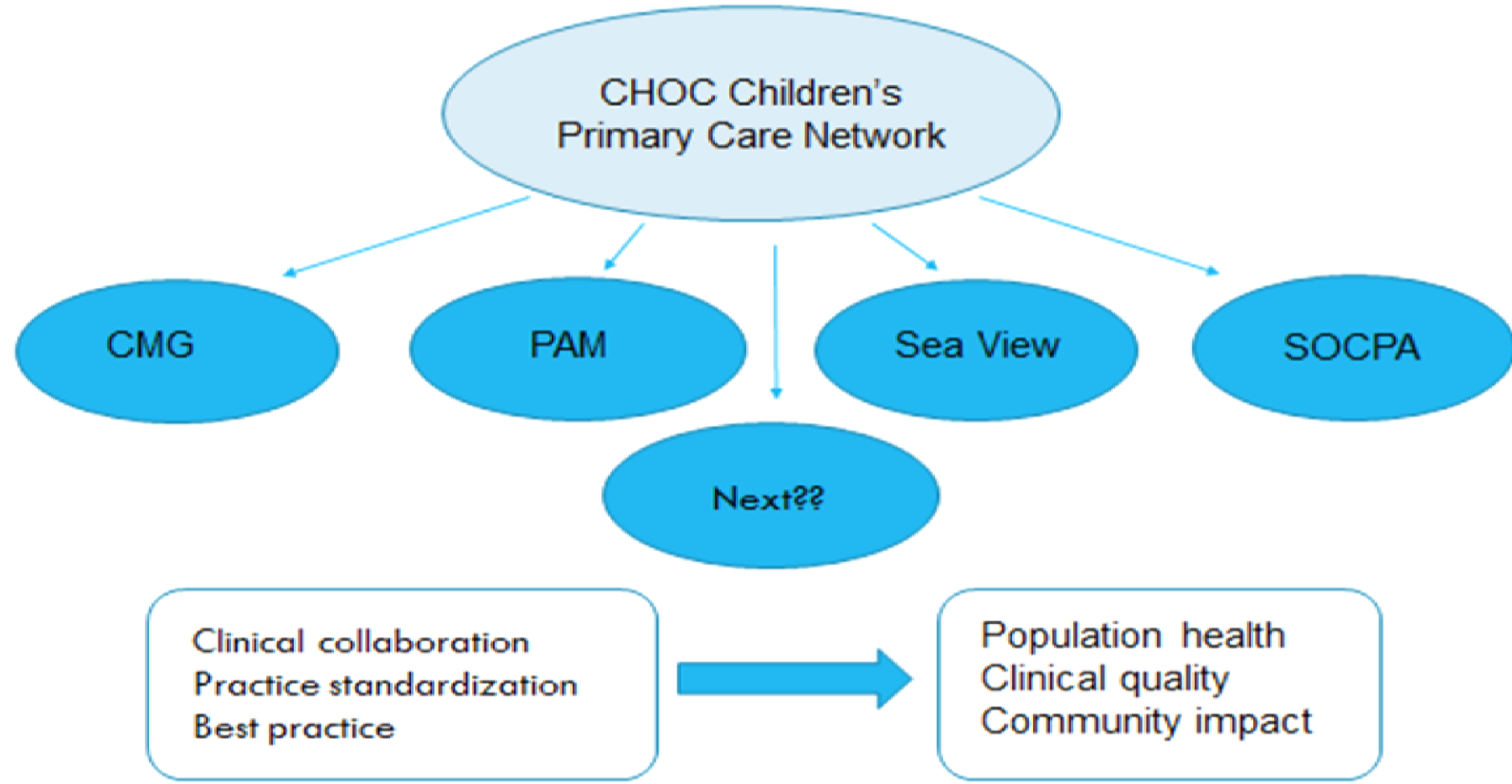
10 BUILDING BLOCKS OF HIGH-PERFORMING PRIMARY CARE

10 Template of the Future

8 Prompt Access to Care

9 Comprehensiveness and Care Coordination

5 Patient-team Partnership

6 Population Management

7 Continuity of Care

1 Engaged Leadership

2 Data-driven Improvement

3 Empanelment

4 Team-based Care

Empanelment

Missed Vaccine Opportunities Project

Electronic Health Records

Evidence Based Care Guidelines

EMPANELMENT

➢What is it?

➢How does it work?

➢Why?

- Continuity of care
- Reduced medical errors
- Population health

EMPANELMENT – KEYS TO SUCCESS

➢Engaged leadership

➢Patient centered focus

➢Provider "buy-in"

➢Provider flexibility

➢Messaging by the practice

CHOC MEDICAL GROUP

➢ The "Four Cut Method" (12-24 month lookback)

- Patient has seen only one provider – that provider is PCP
- Patient has seen many providers, but one predominantly – the predominant provider is PCP
- Patient has seen many providers, and there is no predominance – the provider who did the last PE becomes the PCP
- Patient has seen many providers, there is no predominance, and no PE over the time period examined – the last provider is the PCP
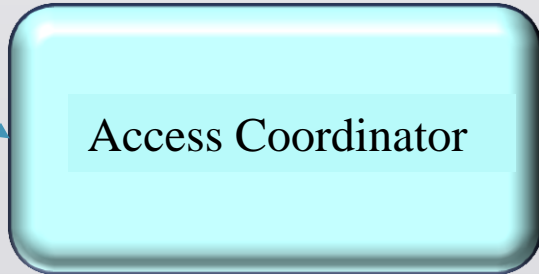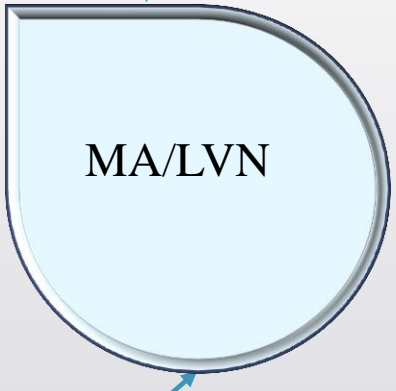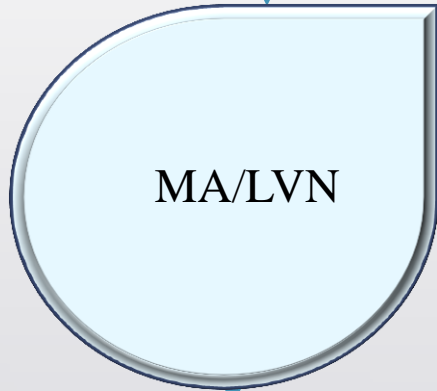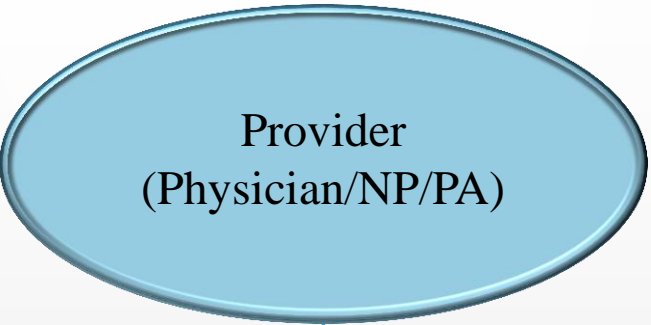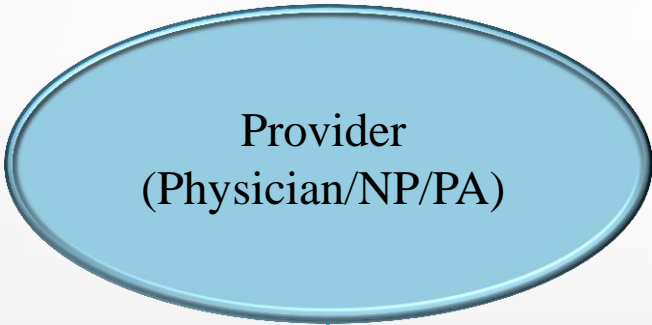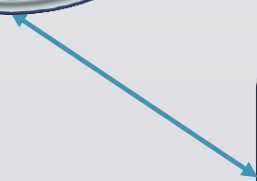
EHR INTEGRATION

Lessons from The CHOC Children's Primary Care Network

Eric Ball, MD, FAAP

Southern Orange County Pediatric Associates, a Member of the CHOC Children's Primary Care Network

OUR GOALS

➢ Allow interoperability between clinics, specialists, and ancillary services

➢ Improve communication between providers

➢ Enhance accessibility of data for analysis and population health

➢ Improve patient experience

➢ Utilize our care guidelines to provide better care

➢ Minimize extra work for providers and simplify charting

OUR CHALLENGES

➤ Incorporating 4 primary care practices (on 3 EHR systems), a specialty group, and a hospital (on a different EHR platform)

➤ Each practice is an early adopter of their EHR

- 20 years of ingrained protocols, procedures, and templates

➤ No effective patient portal

➤ No unified email/texting system between the groups

➤ Tech savvy population with high tech expectations

➤ Physicians resistance to change

OUR STRATEGIES

➢Assemble committee of stakeholders

➢Choose an EHR platform--Cerner

➢Weekly stakeholder brainstorming meetings

➢Integration of care guidelines

➢Parallel work on back end integration, patient management systems, patient portal

➢Site champions and super users to ease transitions

How Are We Doing? "Go Live" Scheduled for March 2018

INTEROPERABILITY

➢ Universal, unified EHR rather than cumbersome HIE system

➢ All practices will be migrated to Cerner system to unify with hospital and specialists

➢ Unified single patient charts--same chart no matter which level of care

IMPROVED PHYSICIAN COMMUNICATION

➢Unified electronic medical records allow for seamless communications between providers, including sharing/reviewing charts

➢Increased usage of PING MD, secure, HIPAA-compliant messaging application

➢Unified charts reduce faxes, medical record requests, etc.

DATA ANALYSIS

➢ Utilization of Cerner's HealtheIntent, cloud-based, population health management platform

- Aggregated data

- Longitudinal health record

➢ Unified records allow for easy data retrieval for coordination of patients with chronic conditions and for recall efforts (for immunizations, well child care, etc).

IMPROVED PATIENT EXPERIENCE

➢Planning an enhanced patient portal with secure messaging, bill pay, and scheduling functionality

➢Decreased patient "busy work"—fewer forms

➢Increased targeted accessibility to care coordination for higher acuity patients

➢Goal is to work towards electronic virtual visits, especially for routine follow ups (diabetes, asthma, etc)

USE OF CARE GUIDELINES

➤ Goal is that every patient receives the same, evidence-based care, at each site every time

➤ EHR being built with a large number of order sets, care guidelines, "auto-texts", and clinical decision support

➤ Working on a growing list of diagnoses—croup, bronchiolitis, gastroenteritis, asthma, acne, pneumonia

IMPROVING WORKFLOW AND REDUCING PHYSICIAN BURNOUT

➢ Allows physicians to limit "non-physician" work—faxing, scheduling appointments, waiting on hold

- Use of care coordinators for higher acuity patients

➢ Liberal use of order sets and dot-phrases allows for quicker, more efficient charting

➢ Interoperability between clinics/levels of care reduces duplicate work and unnecessary tests

➢ Increased use of modern communication systems (email, texting) versus phone calls

CONCLUSIONS AND LESSONS LEARNED

➢ A unified EHR is a key component to a successful community of pediatricians

➢ All stakeholders (physicians, IT, nursing, front office, ancillaries) MUST be part of the EHR build

➢ It is vital to have physician champions and super users in each clinic site during any EHR transition

➢ You must have a system for data analysis and data retrieval

- To identify high acuity patients or patients who are not receiving appropriate care coordination
- To allow for analysis during quality improvement projects

➢ It is imperative that any system improves the quality of care without adversely affecting work flow or physician efficiency

➢ Our patients expect us to be using 21st Century technology—if we do not, they will look for an alternative provider who does

Implementation of
Evidence Based Care Guidelines

Dan Mackey, MD, FAAP

Pediatric & Adult Medicine, a member of the CHOC Children's Primary Care Network

WHY CARE GUIDELINES?

➢Medical conditions that are common, costly, and characterized by substantial variation in care are ideal targets for quality improvement via standardization of care.

WHAT DOES THE LITERATURE SAY ABOUT CARE GUIDELINES?

➢ Have demonstrated lower cost of care

➢ Some studies have shown a shorter length of stay

➢ Guidelines usually allow for clinical modification as the need arises.

- Guidelines should be used in combination with our best clinical judgement

6 CARE GUIDELINES

➢Acne

➢Acute Gastroenteritis

➢Asthma

➢Bronchiolitis

➢Headache

➢Pneumonia (community acquired)

GUIDELINES
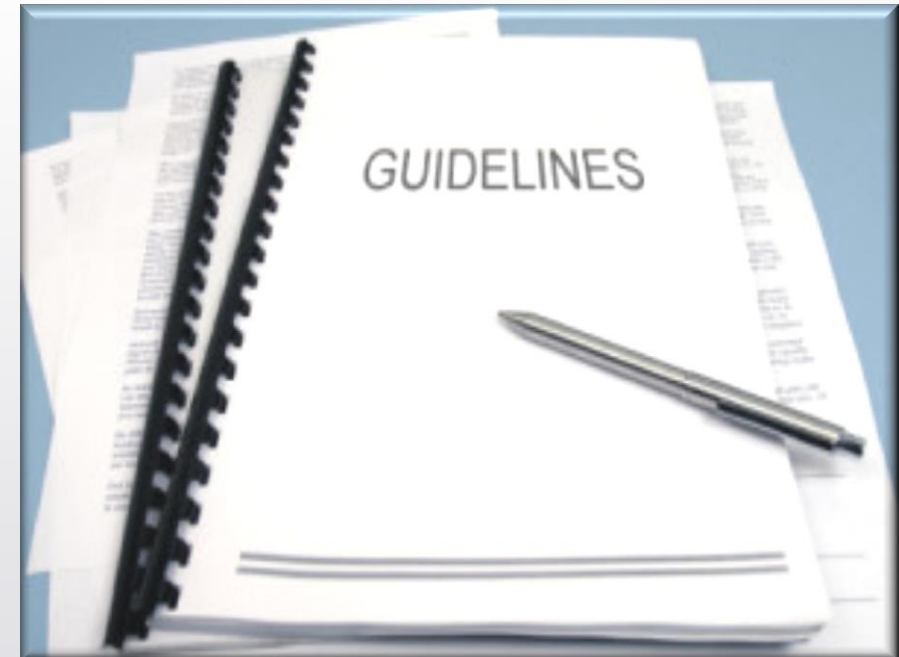
Outpatient Management of Pediatric Community-Acquired Pneumonia

CHOC Children's

Inclusion Criteria: Previously healthy children > 6 months with presumed bacterial pneumonia
Exclusion Criteria: < 6 months of age (requires hospitalization), respiratory distress or oxygen requirement (requires hospitalization), chronic conditions (i.e. cystic fibrosis, immunodeficiency, living in chronic care facility), concern for aspiration pneumonia, persistence of neonatal cardiac or pulmonary disorder, inpatient status.

Clinical Findings Suggestive of Pneumonia
- Tachypnea: RR > 50 - 2-12 mos, > 40 - 1-5 yrs, > 20, 6 yrs and above
- Retractions/increased work of breathing
- Localized abnormal breath sounds (i.e. crackles/rales/tubular breath sounds). Diffuse findings (including wheezing) more suggestive of atypical or viral etiology.
- Fever

Diagnostic Testing

For patients not responding to previous therapy, concern for empyema, or when contemplating hospital admission:
- CXR – 2 view
- Blood culture
- CBC, CRP, ESR
- RSV, rapid Influenza A/B, if viral etiology expected

Recommendations/Considerations

- Nov-Mar, < 2 yrs old, with diffuse crackles or wheezing on lung exam, consider viral etiology. If high fever, consider influenza testing and treatment.
- Routine CXRs are not necessary to confirm the diagnosis of suspected community-acquired pneumonia in healthy children with mild disease. CXR findings do not consistently alter patient management and they do not differentiate viral from bacterial etiology. Typical findings may be absent in early disease or in patients with significant dehydration.
- Viral etiologies of CAP have been documented in up to 80% of children younger than 2 years of age

Pulse oximetry spot check, notify MD of sats < 93%

Antibiotics

- Amoxicillin 45 mg/kg po BID, wt. < 45 kg (90 mg/kg/day)
- Amoxicillin 2 grams po BID x 10 days po BID, wt. > 45 kg
- If temperature < 39 and atypical organism suspected: Azithromycin 10 mg/kg po day 1, then 5mg/kg po day 2-5
- If using azithromycin for penicillin allergic patient, increase duration of therapy to 7 days
- If labs/blood culture/CXR being ordered and patient being considered for admission, give ceftriaxone 50 mg/kg IM x 1, MAX 2 grams wt. > 40 kg

Criteria for hospitalization:
- Respiratory distress
- Sustained O2 sat < 90%
- < 6 months of age with suspected bacterial pneumonia
- Children with suspected or documented CAP caused by a pathogen with increased virulence such as MRSA
- Children and infants for whom there is a concern about careful observation at home, who are unable to comply with therapy, or are unable to be followed up should be hospitalized

Approved by Evidence Based Medicine Committee 5/18/16, revised 4/4/17

Reassess the appropriateness of Care Guidelines as condition changes. This guideline is a tool to aid clinical decision making. It is not a standard of care. The provider should deviate from the guideline when clinical judgment so indicates.

HOW WERE THE GUIDELINES CREATED?

➢CHOC & Rady Evidence-based Medicine Committees

➢Input from

- Primary care

- Specialty

- Ancillary care

➢The output was a joint CHOC/Rady's effort

WHICH SPECIALTIES WERE INVOLVED WITH THE CREATION OF THE GUIDELINES?

- Pulmonary

- Allergy

- Dermatology

- Gastroenterology (GI)

- Hospitalist

- Infectious Disease (ID)

- Neurology

- Nursing

- PCP's

- Respiratory Therapy

HOW WERE THE GUIDELINES CREATED?

➤ Some were modified from existing inpatient guidelines

➤ Some were shared from across the country

➤ Some were developed specifically for this project

Once "approved" they were vetted by PCP's and further modified

HOW OFTEN WILL THE GUIDELINES BE REVIEWED AND UPDATED?

➤ Most likely Bi-annually

➤ Modified as new clinical evidence dictates
 - i.e. Bronchiolitis

➢ Headache guidelines (Rady)

- Has reduced unnecessary neuro-imaging
- Saving of nearly $2 million

➢ Asthma Guidelines (CHOC)

- Improved performance with HEDIS metrics
- Decreased ED visits
- Cost savings— $1.08 million
- Improvement was multifactorial

APPROPRIATE CT AND MRI IMAGING UTILIZATION FOR HEADACHE

% Imaging Utilization

1.90%

0.40%

Imaging Use %

2015 Q1   2016 Q1
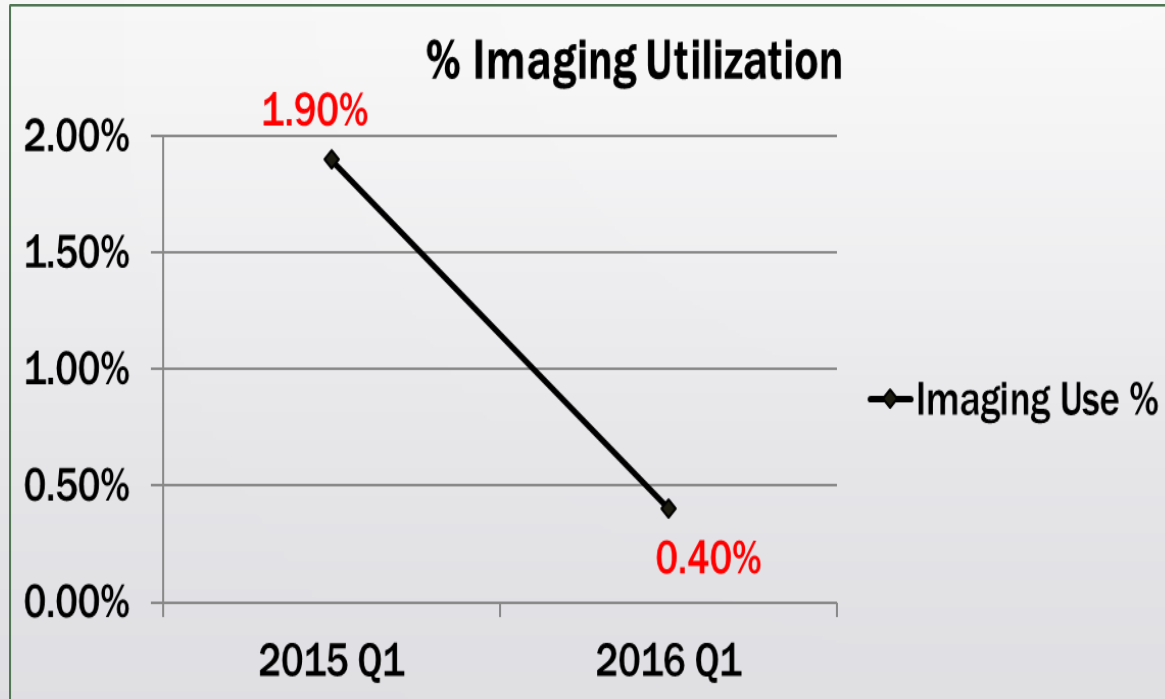
- Claims data source
- All 234 practices
- Total PTN capitated population of 230,000 children
- 8313 children with headache
- 79.5% year over year reduction in neuroimaging use

- Full population projection:
  - 60,000 children impacted
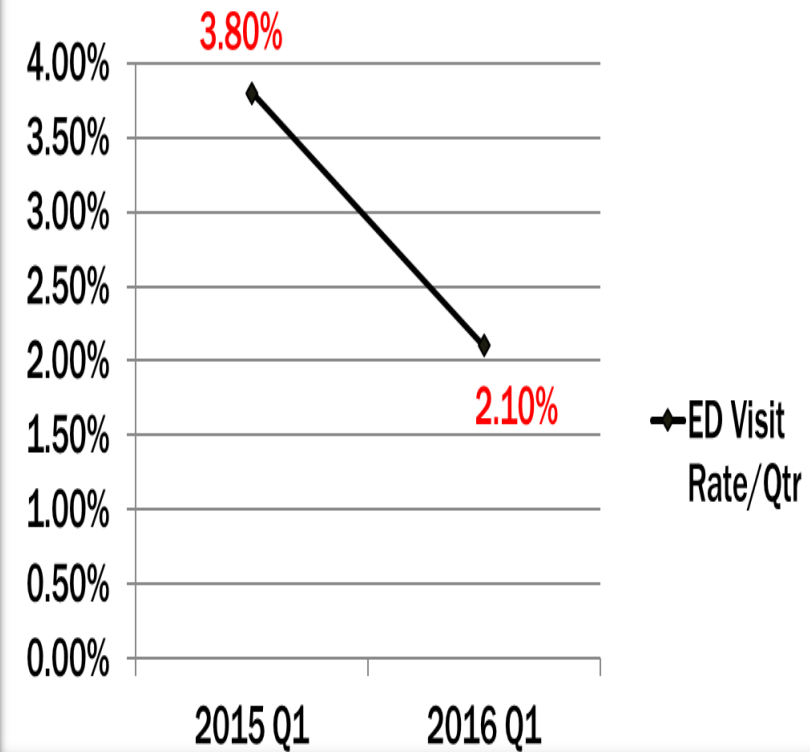 - $2.0 million potential savings

Appropriate ED Utilization for Asthma

- Claims data source
- All 234 practices
- Total PTN capitated population of 230,000 children
- 18,613 children with asthma
- 46% year over year reduction in ED use

- Full population projection:
  - 120,000 children impacted
  - $1.0 million potential savings

ARE THERE OTHER GUIDELINES IN THE WORKS?

➢CMS Grant resulted in 6 guidelines

➢We will be creating more ambulatory primary care guidelines.

➢If you have suggestions please see me later

DISTRIBUTION OF THE GUIDELINES

➢The guidelines were presented to the physicians of CHOC and Rady aligned and affiliated practices.

- Many during lunch time meetings
- There were very well received

➢Physicians were encouraged, but not forced, to use the guidelines.

HOW WILL THE GUIDELINES WORK WITH THE EMR'S?

➤ The guidelines have been embedded in Cerner and Epic EMR's

- High volume EMR's
- Others in process

➤ The goal is to get order sets embedded to help with the EMR work flow

➤ Most likely with the adoption of clinical decision making technology

HAS THERE BEEN RESISTANCE TO ADOPTION?

➢Yes, because no one wants more work

➢The intent is not to create more work

➢The guidelines have been distilled down to emphasize the most

important tactics known to improve outcomes

- i.e. asthma action plan completion

OTHER BENEFITS

➢ Benefit of shared best practices

  • Able to get consistent care across PCP's in different practices

➢ Opportunity to allow families to physically see a treatment pathway

  • "We will try these items first".

  • Gives support to medical decision making

    ✓ NO MRI because….

    ✓ Choosing Wisely approach

  • Backing of CHOC and Rady sub-specialists

➢ Handouts to share with families have been created

  • Clear "roadmap" for patients/families

Quality Improvement
Plan-Do-Study-Act

Dan Kouwabunpat, MD, FAAP

Sea View Pediatric Medical Associates, Inc.
A Member of the CHOC Children's Primary Care Network

September 9, 2017

adapted from

AAP (American Academy of Pediatrics)

CQN (Chapter Quality Network) Immunization Project, April 2, 2017

ACP (American College of Physicians) Quality Improvement Champion Training, March 29, 2017

GOALS

➢ Quality Improvement (QI) Strategy

➢ Proper Mindset and Preparation

➢ Concrete Example

➢ Encourage Collaboration

➢ AAP CQN (Chapter Quality Network)

➢ MOC 4 Practice Improvement Credit

REALITY

- QI in the real world?

- QI in a busy practice?

- QI and Flying ???

Roadmap to a Culture of Quality Improvement

Quality Improvement

"It's like building an airplane while you are still flying it."
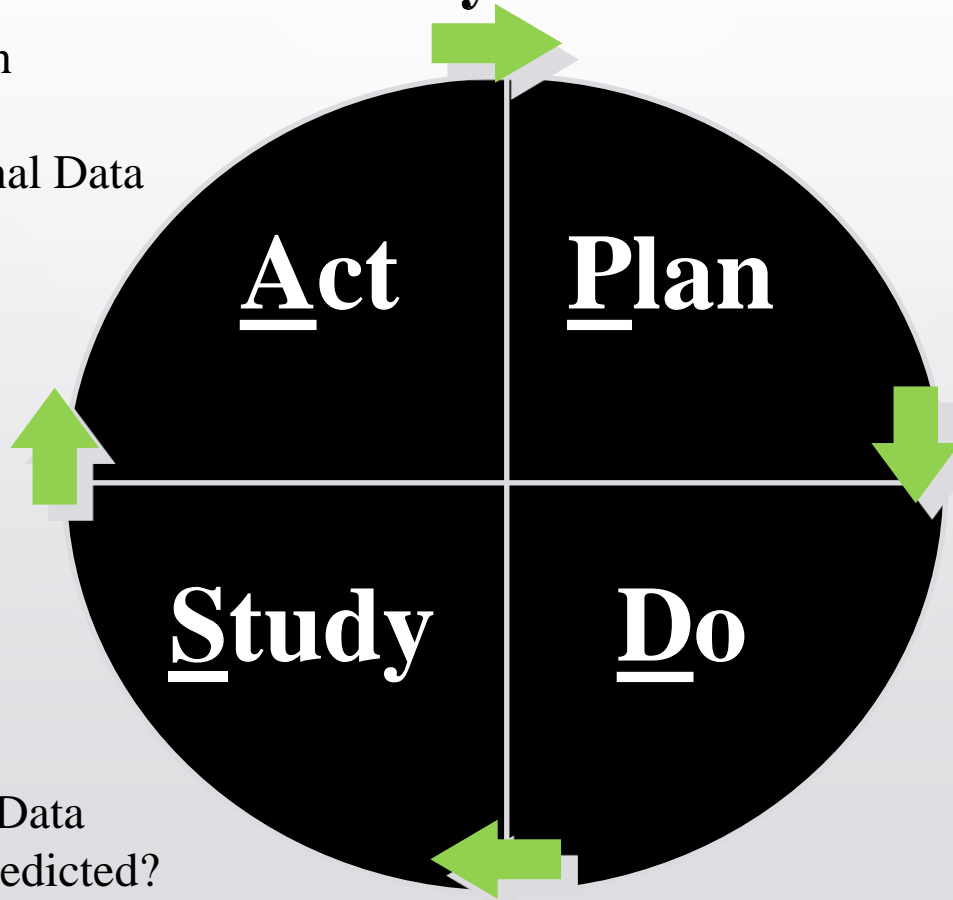
Doron Schneider, MD, FACP

PDSA

Plan – Do – Study – Act

The PDSA Cycle

- Abandon
- Adapt
- Additional Data
- Adopt

- Pick Area for Improvement
- Prepare
- Controlled Variables
- Measurable Outcome
- Propose Length of Cycle

Act	Plan
Study	Do

- Analyze the Data
- Results as Predicted?
  What did you Learn?

- Do the Plan
- Data Collection

REAL EXAMPLE

➤ American Academy of Pediatrics (AAP)

➤ Chapter Quality Network (CQN)

➤ U.S. Immunizations Project

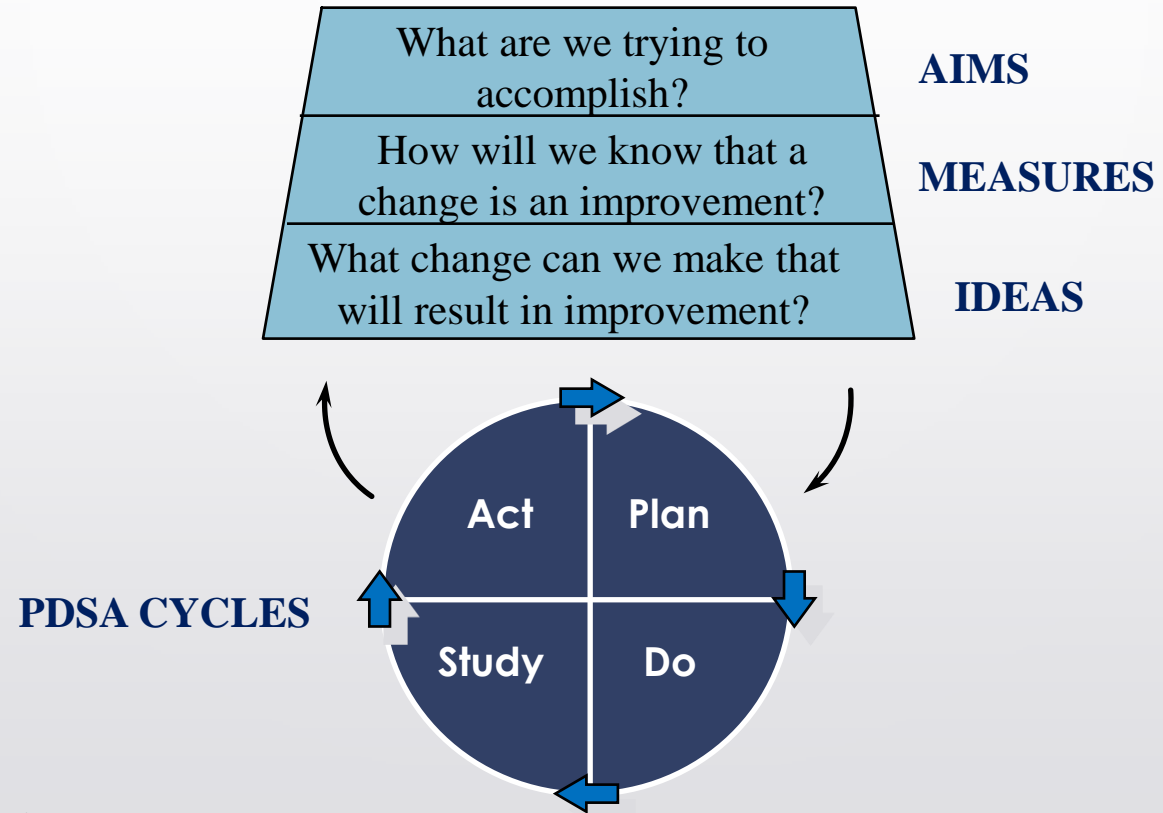➤ Improve Immunization Rates by Reducing Miss Opportunities

AAP CQN QI
U.S. IMMUNIZATIONS PROJECT

➢Six AAP National Chapters
  - CA Chapter 2, CA Chapter 4

➢Georgia, New Jersey, New York, Oklahoma

  - Almost 60 Pediatric Practice Sites across the U.S.

➢PDSA Quality Improvement Strategy

➢MOC 4 – Practice Improvement Credits

➢Fosters Collaboration

MODEL FOR IMPROVEMENT

What are we trying to accomplish?

AIMS

How will we know that a change is an improvement?

MEASURES

What change can we make that will result in improvement?

IDEAS

Act | Plan

Study | Do

PDSA CYCLES
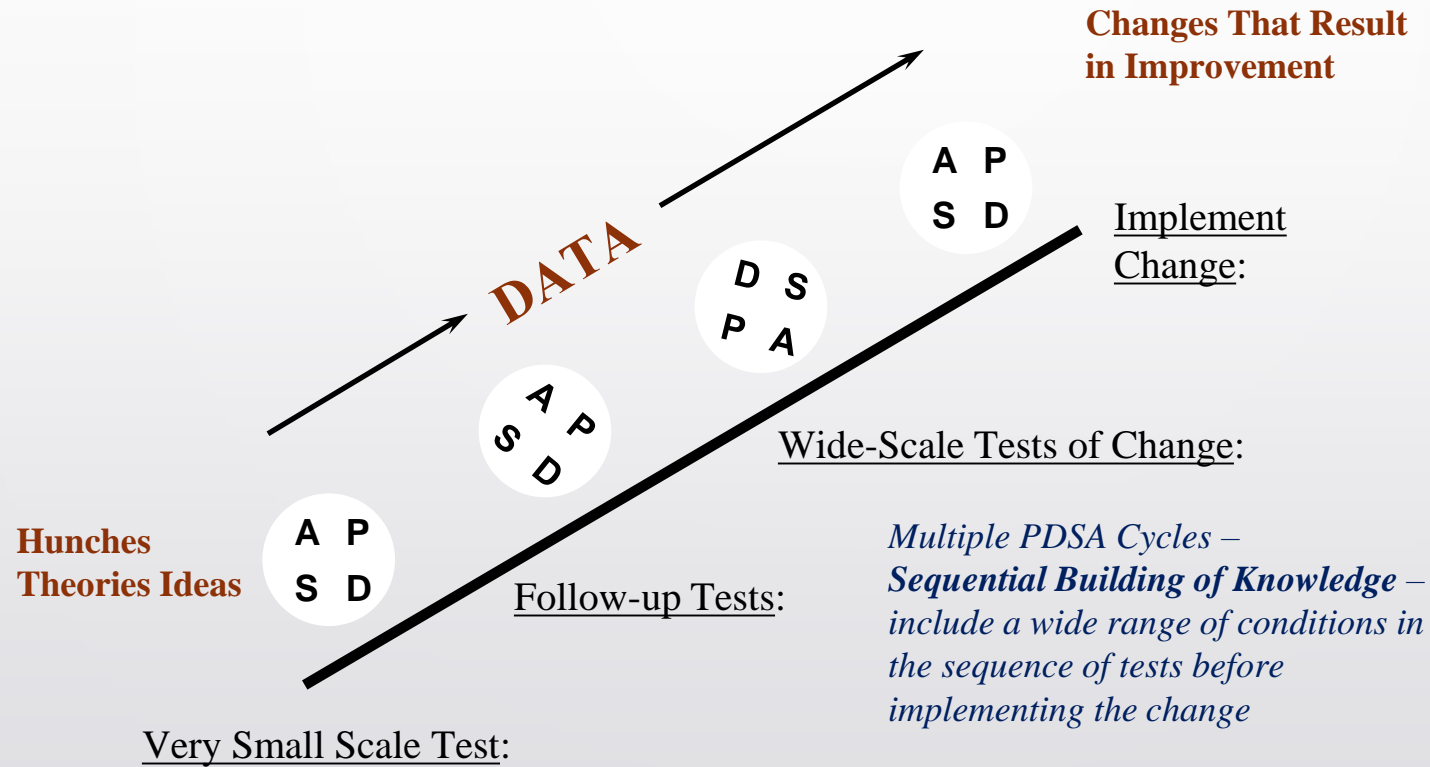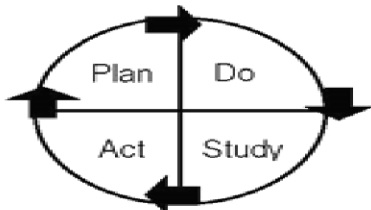
From: Associates in Process Improvement

PDSA: REFINE OVER TIME

PDSA WORKSHEET

Team Name:	Date of test:	Test Completion Date:
Overall team/project aim:		
What is the objective of the test?		

PLAN:
Briefly describe the test:

How will you know that the change is an improvement?

What driver does the change impact?

What do you predict will happen?

PLAN

List the tasks necessary to complete this test (what)	Person responsible (who)	When	Where
1.			
2.			
3.			
4.			
5.			
6.			

Plan for collection of data:

DO: Test the changes.

Was the cycle carried out as planned?   Yes   No

Record data and observations.

What did you observe that was not part of our plan?

STUDY:
Did the results match your predictions?   Yes   No

Compare the result of your test to your previous performance:

What did you learn?

ACT: Decide to Adopt, Adapt, or Abandon.

☐   Adapt: Improve the change and continue testing plan. Plans/changes for next test:

☐   Adopt: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability

☐   Abandon: Discard this change idea and try a different one
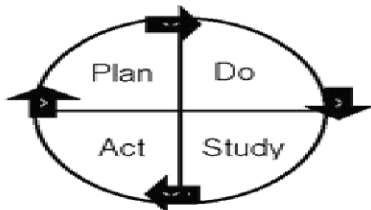
PDSA WORKSHEET

Team Name: Sea View Pediatrics – Aliso Viejo Dan Kouwabunpat, M.D.	Date of test: 4/10/17 – 4/14/17	Test Completion Date: 4/14/17 = #01
Overall team/project aim: To increase immunization coverage for our patients.		
What is the objective of the test? To update vaccine status on all non-well visits.		

PLAN:

Briefly describe the test:
Target all Non-Well encounters (e.g. Sick appts) for all ages.
If vaccine status is not UTD, attempt to immunize if clinically appropriate.

How will you know that the change is an improvement?
Any child who receives a vaccine in this study is considered a successful move forward towards our goal.

What driver does the change impact?
Improved Immunization rates.

What do you predict will happen?
We will capture prior missed opportunities.

PLAN

List the tasks necessary to complete this test (what)	Person responsible (who)	When	Where
1. Check immunization status upon rooming patients	Back Office (Brittany)	Rooming Pt	Aliso Viejo
2. Notify provider verbally and via chart	Back Office (Brittany)	After rooming	Aliso Viejo
3. Check immunization status. If clinically stable, offer vaccines	Provider (Dr. K)	Seeing Pt	Aliso Viejo
4.			
5.			
6.			

Plan for collection of data:
NUMERATOR   = All UTD + Able to IZ fully
DENOMINATOR = All Non-WCC's (e.g. sick appts)

DO: Test the changes.

Was the cycle carried out as planned?   ☐ Yes ☐ No

Record data and observations.
N = 20 → majority already UTD
D = 30

What did you observe that was not part of our plan?
New pts to the practice did not always have records or know the IZ status

STUDY:

Did the results match your predictions?   ☐ Yes ☐ No

Compare the result of your test to your previous performance:
Any vaccine given would have been considered a missed opportunity prior to this study

What did you learn?
IZ records are not always available especially for new patients.
Although the majority of pts are UTD, we still have room to improve.
Methodical double checks on ALL encounters will improve IZ rates.
We may want to break out TRUE opportunities from Pts already UTD.

ACT: Decide to Adopt, Adapt, or Abandon.

☑ Adapt: Improve the change and continue testing plan.
Plans/changes for next test:
Tally UTD + True Opportunities separately.
Difference between Fully vs. Partially Met Opportunities.
Reschedule or place on a List to Complete.
Keep Simple & Low Resource Intense for easier office-wide implementation.

☐ Adopt: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability

☐ Abandon: Discard this change idea and try a different one

RESULTS

➢ Reduced MO's (Missed Opportunities)

➢ Office-Wide Implementation

➢ VUP (Vaccine Updating Plan)

➢ Collaboration:

- All Practices can demonstrate objective QI
- Learning from each other's Best Practices

➢ Received Part 4 MOC Credits

TIPS FOR SUCCESS: SMALL & NIMBLE

➤ Start Small: Scale, Scope, Team Size

➤ Pick Easy, Feasible Targets for Change

- Break up larger studies into several smaller PDSA cycles

➤ Balanced Redundancy

➤ Quantifiable and Measurable Outcomes

➤ Pick Shorter Time Frames

- Weeks and Days vs. Years and Months

➤ Stay Nimble with a Small Team = Less to Coordinate

- Avoid need for consensus, buy-in, political solutions

TIPS FOR OFFICE-WIDE IMPLEMENTATION

➢ Keep it Simple with Low Resource Intensity

➢ Do your homework with Small Scale Preparation

➢ Gradually Scale Up

➢ Set the Example: Be the Practice QI Lead

➢ Be Enthusiastic

➢ Communication is Key, Balanced Repetition

- Reminders or Contacts or "Touches"
- # required will depend on degree of preparation

OVERALL SUMMARY

➤ Better QOL (Quality of Life): Patients, Staff, Providers

➤ Better Clinical Medicine with Greater Efficiency / Consistency

➤ Population Health Tools

- Evidence-Based Best Practice Guidelines

- Collaboration (Patient, Staff, other Practices)

- Communication: Single EHR

- QI Strategies: PDSA Cycles

- Comprehensive Care Coordination / Empanelment

- Engaged Leadership