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

<table>
<thead>
<tr>
<th>CHOC Medical Group</th>
<th>Sea View Pediatrics</th>
<th>Southern Orange County Pediatric Associates</th>
<th>Pediatric and Adult Medicine Inc.</th>
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<tbody>
<tr>
<td>Orange Centrum</td>
<td>Laguna Hills</td>
<td>Lake Forest</td>
<td>Tustin</td>
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<td>Clinica Para Los Ninos</td>
<td>Aliso Viejo</td>
<td>Rancho Santa Margarita</td>
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<td>Garden Grove</td>
<td>Irvine</td>
<td>Ladera Ranch</td>
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<td>Boys and Girls</td>
<td>San Clemente</td>
<td>San Clemente</td>
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</tbody>
</table>

- ~27,000 patients
  - 28 pediatricians
  - 5 nurse practitioners
- ~18,000 patients
  - 13 pediatricians
  - 2 nurse practitioners
- ~15,000 patients
  - 13 pediatricians
  - 4 nurse practitioners
- ~13,000 patients
  - 9 pediatricians

~73,000 patients
74 providers
CHOC Children’s Primary Care Network

- CMG
- PAM
- Sea View
- SOCPA

Next??

Clinical collaboration
Practice standardization
Best practice

Population health
Clinical quality
Community impact
10 BUILDING BLOCKS OF HIGH-PERFORMING PRIMARY CARE

1. Engaged Leadership
2. Data-driven Improvement
3. Empanelment
4. Team-based Care
5. Patient-team Partnership
6. Population Management
7. Continuity of Care
8. Prompt Access to Care
9. Comprehensiveness and Care Coordination
10. Template of the Future

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
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 workflow 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)
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
HAS USE OF THE GUIDELINES DEMONSTRATED ANY QUALITY OR COST OUTCOMES?

➢ 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

- 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
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
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 ???
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

- Act
  - Abandon
  - Adapt
  - Additional Data
  - Adopt

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

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

- Do
  - Do the Plan
  - Data Collection

- Abandon
- Adapt
- Additional Data
- Adopt

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

- 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
What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

AIMS

MEASURES

IDEAS

From: Associates in Process Improvement
PDSA: REFINE OVER TIME

Changes That Result in Improvement

Implement Change:

Wide-Scale Tests of Change:
Multiple PDSA Cycles – Sequential Building of Knowledge – include a wide range of conditions in the sequence of tests before implementing the change

Follow-up Tests:

Very Small Scale Test:

Hunches Theories Ideas

DATA

APSD

APSD

APSD

APSD

APSD

APSD
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?

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.

[ ] Adopt: Improve the change and continue testing plan.
[ ] Adopt: 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

Plan for collection of data:

<table>
<thead>
<tr>
<th>List the tasks necessary to complete this test (what)</th>
<th>Person responsible (who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>6.</td>
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</table>
**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.

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**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.

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**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

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**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.

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**ACT:** Decide to **Adopt**, **Adapt**, or **Abandon**.

- **Adapt:** Improve the change and continue testing plan for new 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

---

**PLAN: List the tasks necessary to complete this test (what) and the Person responsible (who) when and where:**

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Person Responsible (Who)</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check immunization status upon rooming patients</td>
<td>Back Office (Brittany)</td>
<td>Rooming Pt</td>
<td>Aliso Viejo</td>
</tr>
<tr>
<td>2. Notify provider verbally and via chart</td>
<td>Back Office (Brittany)</td>
<td>After rooming</td>
<td>Aliso Viejo</td>
</tr>
<tr>
<td>3. Check immunization status. If clinically stable, offer vaccines</td>
<td>Provider (Dr. K)</td>
<td>Seeing Pt</td>
<td>Aliso Viejo</td>
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<td>4.</td>
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**NUMERATOR** = All UTD + Able to IZ fully  
**DENOMINATOR** = All Non-WCC’s (e.g. sick appts)
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