Acknowledgements

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Introductions

- Chat Box – Technical difficulties
- Q&A Box – Ask a question
- Exercises – COHTAC Website: https://oralhealthsupport.ucsf.edu
Learning Objectives (1/2)

Following completion of this program, you will be able to:

- Develop SMARTIE goals and objectives
- Create Process Maps using Lean methodology
- Identify QI opportunities
- Test small process changes

Learning Objectives (2/2)

Following completion of this program, you will be able to:

- Identify, develop, and interpret data metrics
- Explain a case-study example—applying a QI approach to achieve measurable improvements
- Identify QI tools and resources to share with your dental teams

What are we trying to accomplish?

Model for Improvement
PDSA Tool

QUALITY IMPROVEMENT PROJECT: Overview and administrative information.

Goal: To increase the number of pregnant women enrolled in the program. Aim: To increase the number of pregnant women enrolled by Comprehensive Care Services Program towards their appointments increased by 10 percentage points from the baseline by September 30, 2023, with at least 95% improvement among targeted counties, as measured by clinic staff.

Download the Plan-Do-Study-Act Worksheet to use throughout your quality improvement project.

Poll #1

Are you familiar with the “SMARTIE” approach to developing goal and objective statements?

A. Yes, I know what SMARTIE represents

B. No, I’ve never heard of SMARTIE

C. Kind-of, I’ve heard of SMART before...

S.M.A.R.T.I.E. Goals and Objectives

<table>
<thead>
<tr>
<th>Component</th>
<th>What it means</th>
</tr>
</thead>
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# S.M.A.R.T.I.E. Goals and Objectives

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<td>Time-Bound</td>
<td>Has a clear timeframe and deadline</td>
</tr>
<tr>
<td>Inclusive</td>
<td>Brings traditionally marginalized people into the process in a power-sharing way.</td>
</tr>
<tr>
<td>Equitable</td>
<td>Includes an element of fairness to address inequity and injustice.</td>
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**Not S.M.A.R.T.I.E. Example**

Decrease the number of dental appointment “no-shows” among pregnant women.

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**S.M.A.R.T.I.E. Example**

To increase the number of pregnant women receiving dental care, Mt. Rose Dental Clinic will reduce the number of dental appointment no-shows among pregnant women referred by its Comprehensive Perinatal Services Program by 10 percentage points from the baseline (67%) by September 30, 2020, with at least 2% reduction among homeless women, as measured by Mt. Rose Dental Clinic’s appointment scheduling program.

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**Section Check-In: Q&A**

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What changes can we make that may result in an improvement?

Model for Improvement

PDSA Tool: PLAN

Refer to the Plan-Do-Study-Act Worksheet.

The Purpose of Process Maps

• Flowcharts create a picture of the sequence of steps in a process

• Making the process visible helps to
  – simplify the steps
  – improve efficiency
  – decrease opportunity for error
### Process Mapping Benefits

- Engages all stakeholders
- Replaces pages of written word with a picture
- Spotlights wasted efforts, delays, missteps and duplication in the process
- Corrects misunderstandings about a process
- Helps build a common understanding and consensus

### Why Develop a Process Map?

1. What you think it is...  
   ![Diagram](image1)

2. What it actually is...  
   ![Diagram](image2)

3. What you would like it to be...  
   ![Diagram](image3)

### Process Map Symbols

- Process beginning or end
- Activity step
- Process flow direction
- Decision points
- Wait or delay
- Swim Lane
Tips for Useful Process Maps (1/2)

**DO**

**FIRST**
- Assemble a representative team
- Elicit input from all members of the practice, including patients

**SECOND**
- Identify the process to map
- Determine beginning and end points and level of detail

**THIRD**
- Brainstorm the current activities
- Draft the flowchart with post-it notes, involving all members with a role in the process
Tips for Useful Process Maps (2/2)

DON’T
• Have one person or discipline complete the chart
• Use a pre-determined template
• Map the process as you want it to be—plot how it actually is today

Process Mapping Exercise

Map the Process: Boiling Eggs
• Choose a start and end point
• Map how you did it yesterday, not how you plan to do tomorrow.
Poll #2

Was your process map for boiling an egg similar to the example we just walked through together?

A. Yes
B. No
C. Kind-of

Current State

Perinatal Appointment Scheduling Process

LEAN

- Employs a set of tools to identify and eliminate waste
Types of Waste: DOWNTIME (1/2)

D Defects/Rework
- Unclear directions, mistakes, errors, re-work

O Over Production
- Unneeded reports, duplication, leftover

W Waiting
- Waiting for others to complete work, test results

N Not Used Talent
- Unused creativity

Types of Waste: DOWNTIME (2/2)

T Transportation
- Moving things (rather than pre-position)

I Inventory
- Over/under-stock, expired supplies

M Motion
- Excess searching, gathering, walking

E Excess processing
- Over-using more supplies or information

Root Causes of Waste (1/2)

- No method to prevent/catch errors
- Ineffective design/layout of facilities
- Fragmented, poorly designed processes
- Equipment failures
- Unorganized workspace
- No standards, non-compliance with standards
- Unbalanced workloads
Root Causes of Waste (2/2)
- Lack of flexible workforce
- Inadequate or no training
- Poor communication
- No visibility to performance
- Lack of integrated systems & poor systems functionality

Current State

Future State
How do we know if a change leads to an improvement?

Model for Improvement
Data for Quality Improvement

Understand: How does the current system perform?
Evaluate: Did our intervention result in improvement?
Monitor: Is our improvement sustained over time?

Data Collection Plan

A data collection plan includes:

- Data elements and operational definitions
- Collection method and data source
- Due date

Types of Data

- Qualitative Data
  - Words
- Quantitative Data
  - #, %

CDPH Evaluation Resource Guide for Local Oral Health Programs
Measurement Example

Goal
Decrease by 10% the number of pregnant women referred by the Comprehensive Perinatal Services Program who miss their dental appointments.

Measurement
# of pregnant women seen by the CPSP at Mt. Rose Community Health Center who completed a dental appointment at Mt. Rose Dental Clinic from September 1-30, 2020 (measurement month)

# of pregnant women seen by the CPSP at Mt. Rose Community Health Center who schedule a dental appointment at Mt. Rose Dental Clinic from September 1-30, 2020 (measurement month)

Do

Prepare the Team to Conduct the Test
• Develop the new protocol and data collection system
• Conduct training
• Test new system

Collect Data
• Gather data during the test period
• Schedule time for team to review and analyze data

Poll #3
Data for quality improvement should be readily available, easy to obtain, and tracked over time.

A. True
B. False
C. I don’t know
Run Charts

Key Elements

• Graphic Display of Observed Data
• Data Plotted Chronologically
  – x-axis shows the time period
  – y-axis shows the value measured
• Annotations of Improvement-Impacting Conditions

Calculating Run Chart Elements

• Median = the most-middle number
  – All data points: 14, 19, 3, 8, 12, 60, 25
  – Ordered least to greatest: 3, 8, 12, 14, 19, 25, 60
  – Middle value: 14

• Mean = average
  – Easily skewed by outliers

Key Elements in a Run Chart

Oral Health Assessments At Site A

- Current System Performance
- EHR Upgrade
- Start Reminder Calls
Case Study Results

No-Show Rates for CPSP Patient Referrals

Variation in Data

- Variation in a process may be due to common and special causes

  Common Cause
  - Expected variation
  
  Special Cause
  - Unexpected, not previously observed patterns

Common Cause Variation

- Common causes are expected!
  - Examples
    - Normal wait times for an appointment
    - Amount of time to perform dental cleaning, exam, etc.
    - Electronic dental record response time
    - Normal wear and tear of equipment
Common Cause Variation: Example

Average Length of Time for Daily Dental Cleanings
at Green Meadows Dental Clinic

<table>
<thead>
<tr>
<th>Date</th>
<th>Cleaning Time</th>
<th>Goal</th>
<th>Median</th>
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<tbody>
<tr>
<td>Jan-01</td>
<td>55</td>
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<td>Jan-09</td>
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<td>Jan-11</td>
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<td></td>
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<tr>
<td>Jan-12</td>
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</tbody>
</table>

Special Cause Variation

- Special causes are new or unexpected!
- Examples
  - Computer crash
  - Launching a single EHR program enabling primary care, OB, or CPSP to book same-day dental appointments for patients
  - Number of appointments requiring rescheduling due to dentist out sick

Special Cause Variation: Example

Daily Child (<5 yrs. old) Oral Health Assessments
Completed at Green Meadows Dental Clinic

<table>
<thead>
<tr>
<th>Date</th>
<th># of Assessments</th>
<th>Goal</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Jun</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Jun</td>
<td>2</td>
<td></td>
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</tr>
<tr>
<td>3-Jun</td>
<td>4</td>
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<td>4-Jun</td>
<td>6</td>
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<tr>
<td>5-Jun</td>
<td>8</td>
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<tr>
<td>6-Jun</td>
<td>10</td>
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<tr>
<td>7-Jun</td>
<td>12</td>
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<tr>
<td>8-Jun</td>
<td>14</td>
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<td>9-Jun</td>
<td>16</td>
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<td>18</td>
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<tr>
<td>11-Jun</td>
<td>20</td>
<td></td>
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<tr>
<td>12-Jun</td>
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</tbody>
</table>
Poll #4

Common Cause Variation is...

A. Natural variation within a process
B. Cause for alarm
C. I don't know

Poll #5

Special Cause Variation is...

A. Something new or unanticipated
B. Variation outside of historical knowledge base
C. Present in order to determine if a change resulted in an improvement
D. All of the above

Section Check-In: Q&A
Run Chart Rules

RULE 1: SHIFT
- 6 POINTS IN A ROW ON SAME SIDE OF MEDIAN LINE
- Points on the centerline do not cancel, nor do they contribute to, the count towards a shift

RULE 2: TREND
- 5 POINTS IN A ROW HEADED IN THE SAME DIRECTION (up or down)
- Consecutive points with the same value do not stop the count towards trend, nor do they add to the count

RULE 3: EXTREME OUTLIER
- AN OBVIOUSLY DIFFERENT VALUE

Only ONE rule needs to be fulfilled to suggest special cause variation

Shift

% of Infant Patients Receiving Oral Health Assessments

Trend

Infant Oral Health Assessments At Site A
Extreme Outlier
Child (<5 yrs. Old) Oral Health Assessments At Site A

- Wrong data point
- 20 extra RDAs on site for Give Kids A Smile event

Section Check-In: Q&A

Using Data for QI Exercise
- Download and complete the exercise titled Interpreting Run Charts Exercise
- Exercise Overview:
  - Interpret first three run charts
  - Finish plotting the fourth run chart and interpret
Chart 4: Daily Rate of Pregnant Women Seen in Dental Office

QI Project: Case Study

Case Study Results
QI Project: Case Study

CALL TO ACTION

Share the Quality Improvement (QI) Quick-Start Guide with your Dental Teams

- Quality improvement overview
- Plan-Do-Study-Act (PDSA) worksheet
- How to develop a process map template
- How to interpret data template

Lessons Learned

- SMARTIE goals
- Process mapping
- Plan-do-study-act cycle
- Interpreting run charts to determine if a change resulted in an improvement
- Explain a case study example
- Share QI approaches, tools, and resources with your dental teams
Section Check-In: Q&A

Additional Resources (1/3)

**American Dental Association**
The American Dental Association hosts the Dental Quality Alliance (DQA), which was established to develop performance measures for oral health care. The DQA hosts a variety of resources related to dental quality measures, educational resources, and improvement resources.


**Association of State and Territorial Dental Directors**
The Association of State and Territorial Dental Directors links to a variety of evidence-based quality improvement resources.

http://www.astdd.org/evaluation-and-study-resources

**Centers for Medicare and Medicaid Services**
The Centers for Medicare and Medicaid Services issued a report for improving oral health care delivery in Medicaid and CHIP. The report is a toolkit to help states achieve the CMS Oral Health Initiative through QI.


**Health Resources and Services Administration**
The Health Resources and Services Administration published a report in 2011 explaining what QI is, why it's important, the role of organizational leadership, how to prepare for change, the Model for Improvement, and other topics critical to QI.


Additional Resources (2/3)

**Public Health Foundation**
The Public Health Foundation provides QI tools, training, and resources.

QI Quick Guide:

QI Tools:
http://www.phf.org/programs/QItools/Pages/Quality_Improvement_Tools_to_Advance_Public_Health_Performance.aspx

**Institute for Healthcare Improvement**
The Institute for Healthcare Improvement hosts a variety of resources, tools, and trainings. Free Resources are available:

http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx

Free Tools are available:

http://www.ihi.org/resources/Pages/Tools/default.aspx

The Dental QI Training, developed in collaboration with the Dental Quality Alliance, was the first QI course exclusively for dental professionals:

http://www.ihi.org/education/IHIOpenSchool/Courses/Pages/Dental-Quality-Alliance-DQA.aspx

The Certificate in Quality Improvement courses:

http://www.ihi.org/education/IHIOpenSchool/Courses/Pages/OpenSchool/Certificates.aspx
Additional Resources (3/3)

**National Network for Oral Health Access**

The National Network for Oral Health Access developed an operations manual for oral health programs; chapter six focuses on quality. Topics addressed in the toolkit include model for improvement's PDSA cycles, sample quality measures, case studies and more.  

**Population Health Improvement Partners**

The Population Health Improvement Partners has eLearning modules (videos), tools and templates to learn about and apply improvement concepts to your work.  
https://improvepartners.org/toolbox/toolbox-details/video Knots