

Applying Quality Improvement Methodologies in Dental Settings

Part 2



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Acknowledgements

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Introductions

- Chat Box – Technical difficulties
- Q&A Box – Ask a question
- Exercises – COHTAC Website:
<https://oralhealthsupport.ucsf.edu>



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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



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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



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What are we trying to accomplish?

Model for Improvement



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PDSA Tool

QUALITY IMPROVEMENT PROJECT-- Overview and administrative information.				
Goal	To increase the number of pregnant women receiving dental care, clinic A will decrease the number of pregnant women referred by Comprehensive Perinatal Services Program that miss their appointments (No-Shows) by 10 percentage points from the baseline (67%) by September 30, 2020, with at least 2% improvement among homeless women, as measured by clinic A's appointment scheduling program.			
Target Population	Pregnant Women			
Stakeholders	Dental Office <input checked="" type="checkbox"/> Front Office staff <input checked="" type="checkbox"/> RDH/RDA <input checked="" type="checkbox"/> Office Manager <input checked="" type="checkbox"/> Dentist <input checked="" type="checkbox"/> Dental Director <input checked="" type="checkbox"/> Other: Scheduling Coordinator	OB/GYN Office <input type="checkbox"/> Front Office staff <input type="checkbox"/> Medical Assistant <input type="checkbox"/> Office Manager <input type="checkbox"/> Nurse/RN <input type="checkbox"/> Doctor <input type="checkbox"/> Medical Director <input type="checkbox"/> Other:	Pediatric Office <input type="checkbox"/> Front Office staff <input type="checkbox"/> Medical Assistant <input type="checkbox"/> Office Manager <input type="checkbox"/> Nurse/RN <input type="checkbox"/> Doctor <input type="checkbox"/> Medical Director <input type="checkbox"/> Other:	Other Participants <input checked="" type="checkbox"/> CPSP Staff <input type="checkbox"/> WIC Staff <input type="checkbox"/> Client(s) <input type="checkbox"/> Other:

Download the [Plan-Do-Study-Act Worksheet](#) to use throughout your quality improvement project.

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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...

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

Component	What it means
Specific	Direct, meaningful, and detailed.

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

Component	What it means
S pecific	Direct, meaningful, and detailed.
M easurable	Quantifiable progress toward goal achievement.



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

Component	What it means
S pecific	Direct, meaningful, and detailed.
M easurable	Quantifiable progress toward goal achievement.
A chievable	Ambitious, but feasible given available resources (e.g., time, money, personnel, tools).



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R elevant	Aligned with team/organization mission.



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T ime-Bound	Has a clear timeframe and deadline.



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

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T ime-Bound	Has a clear timeframe and deadline.
I nclusive	Brings traditionally marginalized people into the process in a power-sharing way.



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R elevant	Aligned with team/organization mission
T ime-Bound	Has a clear timeframe and deadline.
I nclusive	Brings traditionally marginalized people into the process in a power-sharing way.
E quitable	Includes an element of fairness to address inequity and injustice.




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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.


Specific, Measurable, Attainable, Relevant,
Time-Bound, Inclusive, Equitable




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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



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PDSA Tool: PLAN

PLAN – Develop your action plan and data collection plan.

Objective	What do you hope to learn from this cycle? Why is it important?		Hypotheses	What do you think will happen when the test is complete? If... then...
Action Plan	Who	Who is implementing the test? Who and how many are you testing it on?	What	What change are you testing?
	Where/When	Where will the change take place? When are you going to test it (start/end date, frequency)?	How	How are you going to implement the test?
Required Resources	What resources will you need to dedicate to this test? Do you need to get approval for additional resources to implement the test? (Staff time, additional FTEs, budget, etc.)			
Data Collection Plan	What	What information/data is important to collect in the PDSA cycle? What will you measure to determine if your prediction/hypothesis succeeds?	How	How will the PDSA data be collected? How will you know if the change is an improvement?

Refer to the [Plan-Do-Study-Act Worksheet](#).

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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



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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

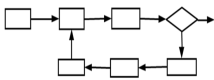


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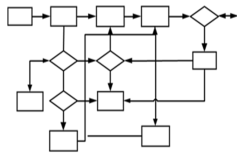
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Why Develop a Process Map?

1. What you think it is...



2. What it actually is...



3. What you would like it to be ...



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Process Map Symbols



- Process beginning or end



- Activity step



- Process flow direction



- Decision points



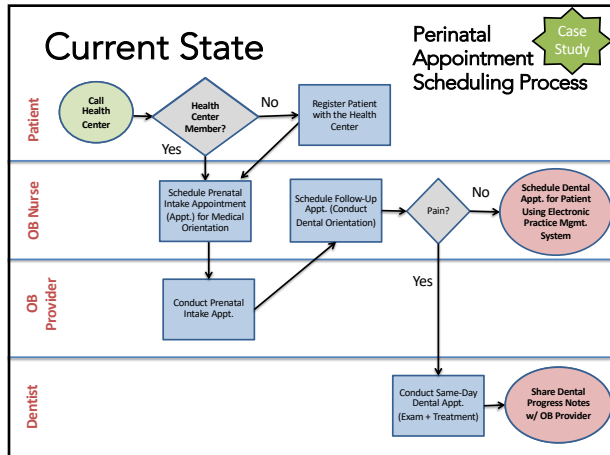
- Wait or delay



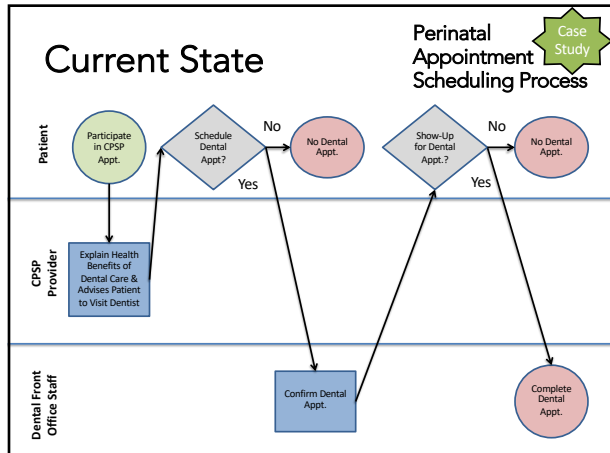
- Swim Lane



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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

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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



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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.

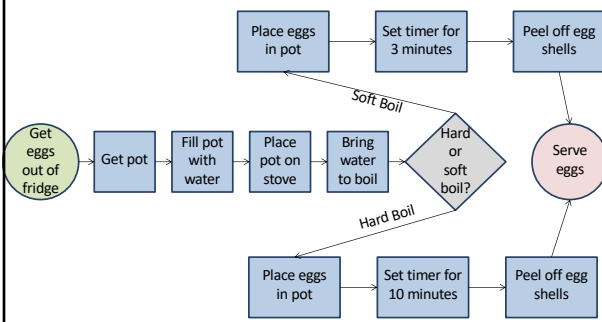


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Boiling Eggs



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Poll #2

- A. Yes
B. No
C. Kind-of

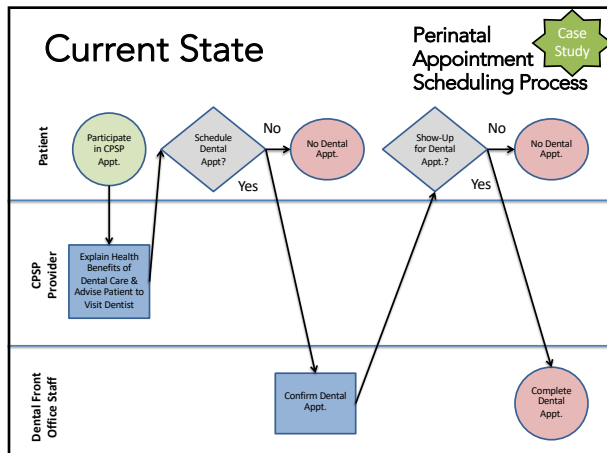


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Current State

Perinatal Appointment Scheduling Process



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LEAN

- Employs a set of tools to identify and eliminate waste



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[illegible]

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



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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



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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



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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

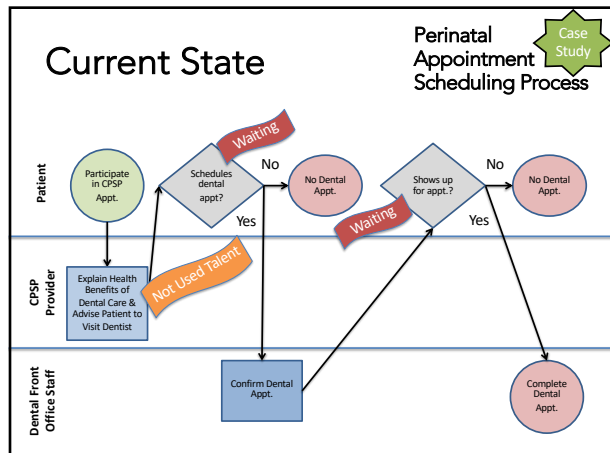


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Current State

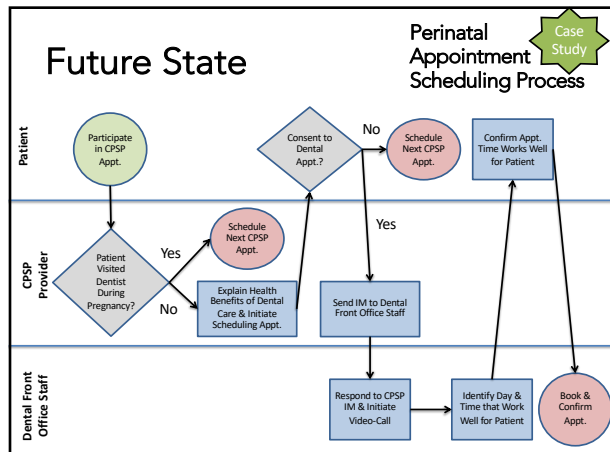
Perinatal Appointment Scheduling Process



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Future State

Perinatal Appointment Scheduling Process





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PLAN – Develop your action plan and data collection plan.				
Objective	CPSP will use Skype Instant Messenger (IM) with Dental Office staff to perform warm hand-offs via video-call to decrease CPSP patient no-show rates in dental office.		Hypotheses	If CPSP uses Skype IM to video-call with Dental Office staff then CPSP patients will be more likely to show-up to their dental appointments and therefore decrease no-show rates.
Action Plan	Who	The CPSP coordinator will identify the pregnant women eligible to participate. The CPSP front office staff and dental office front office staff will participate in the warm-hand-off IM-call. The Office manager will collect the data.	What	We will implement a process where the front office staff at the CPSP clinic will initiate an IM video-call when the patient completes their CPSP visit between the patient and the dental office. During this call, the office staff will identify a daytime to schedule the CPSP patient's dental appointment.
	Where/When	CPSP Clinic Z and Dental Clinic A will participate. The test will occur on a daily basis from September 1-30, 2020.	How	Using IM Skype videoconference call.
Required Resources	The CPSP Director and Dental Director will need to approve this collaboration. Two FTEs front office staff are required: one from CPSP and one from dental. Skype IM for business licenses will be required (currently in place). No additional budget required.			
Data Collection Plan	What	Numerator: Total number of pregnant women seen by CPSP Clinic Z that completed a dental appointment at Clinic A from September 1-30, 2020. Denominator: Total number of pregnant women seen by CPSP Clinic Z that schedule a dental appointment at Clinic A from September 1-30, 2020.	How	The dental front office staff will note in Clinic A's scheduling program source of referral as CPSP. The dental office manager will audit Clinic A's scheduling program at the end of the month. Will analyze data using a run chart to determine if special cause variation is present and, if present, determine if that change was an improvement.

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Section Check-In: Q&A






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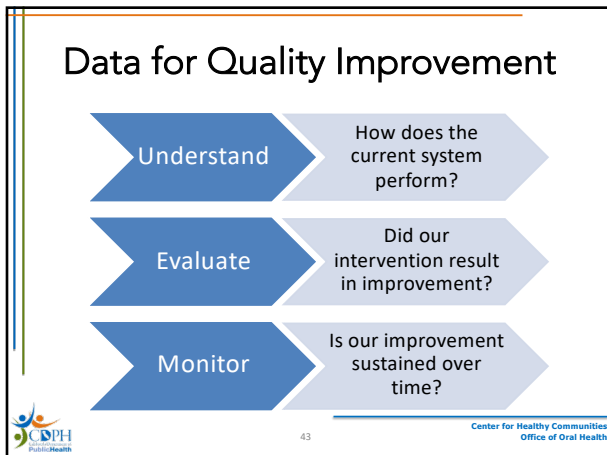
How do we know if a change leads to an improvement?

Model for Improvement



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Data Collection Plan

A data collection plan includes:

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

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Types of Data

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

[CDPH Evaluation Resource Guide for Local Oral Health Programs](#)

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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)



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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



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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




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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



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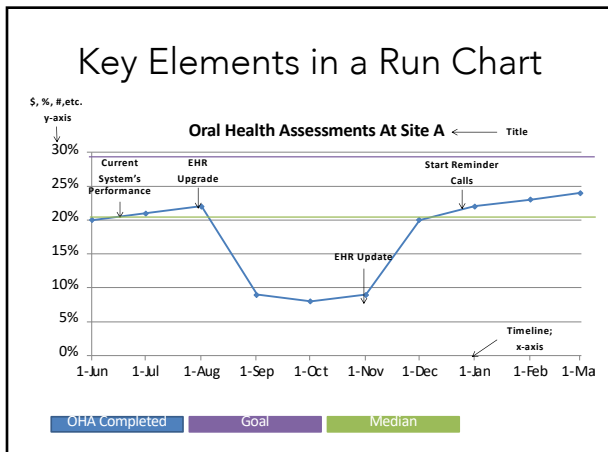
Calculating Run Chart Elements

- 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

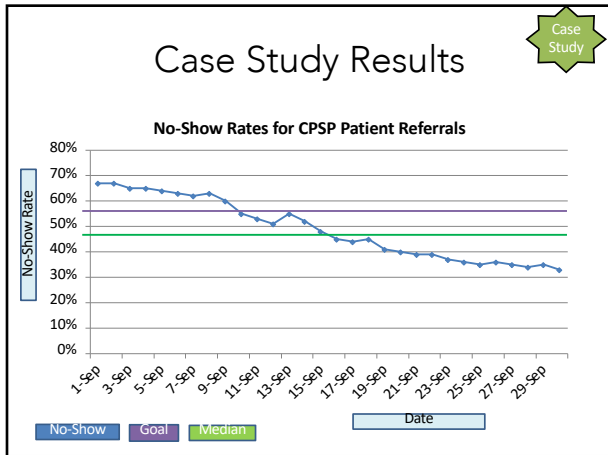


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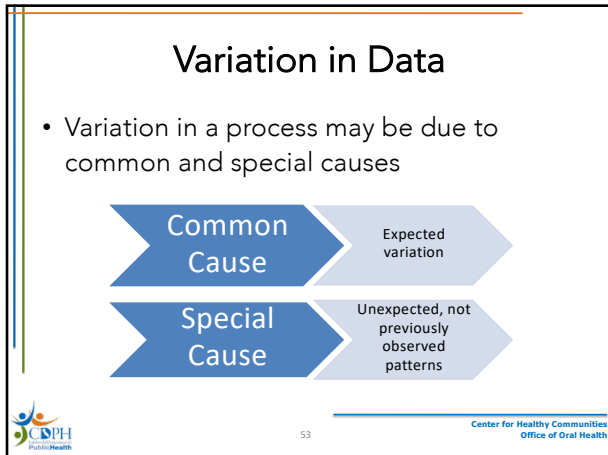
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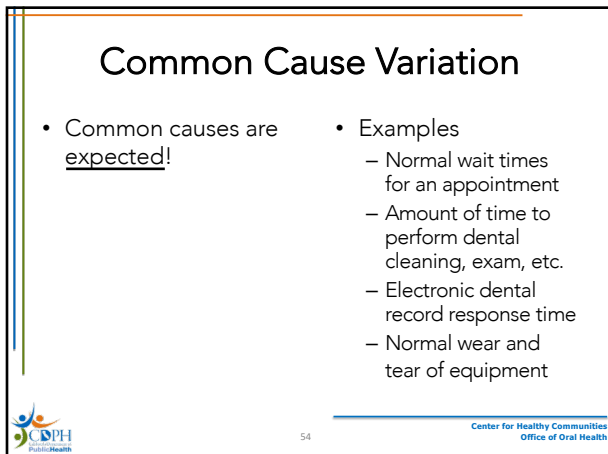
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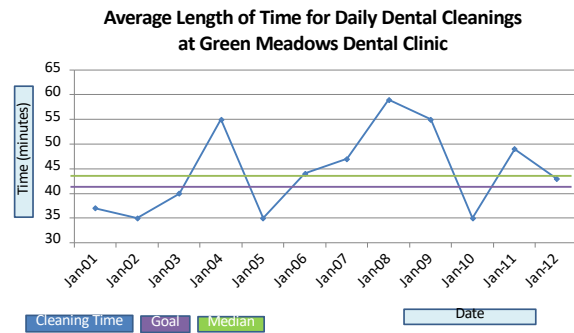


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Common Cause Variation: Example



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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

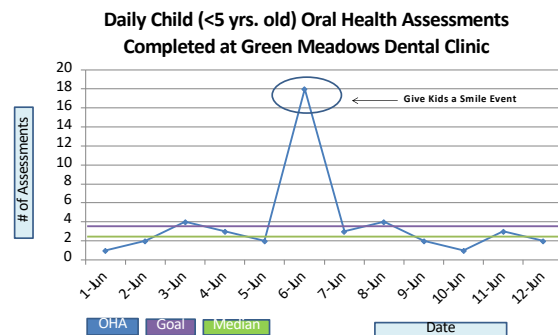


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Special Cause Variation: Example



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Poll #4

Common
Cause
Variation is...

A. Natural variation within a process

B. Cause for alarm

C. I don't know



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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




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Section Check-In: Q&A





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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

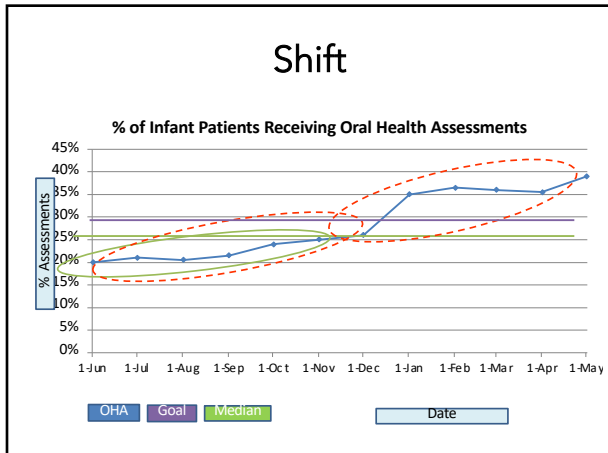
- AN OBVIOUSLY DIFFERENT VALUE

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

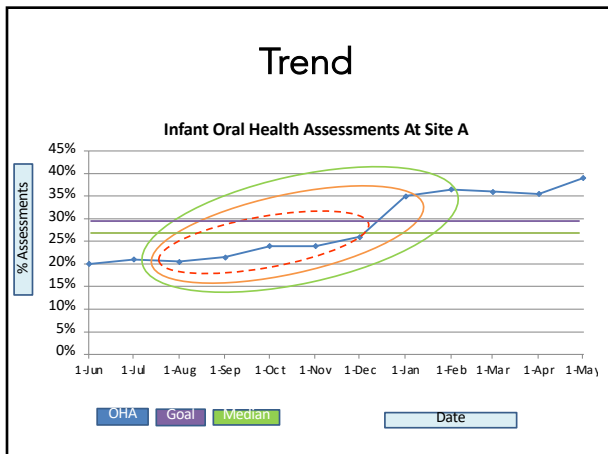


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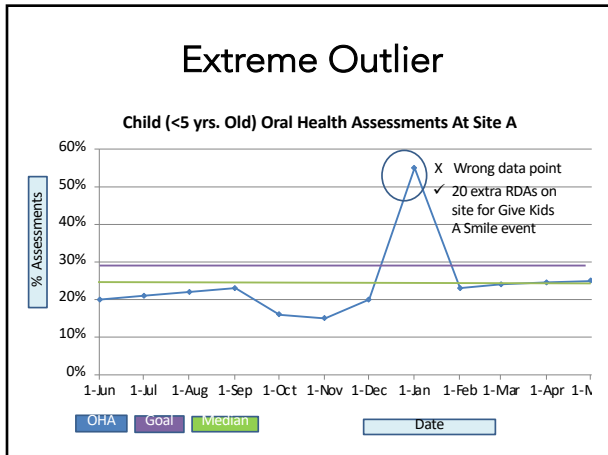
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Section Check-In: Q&A

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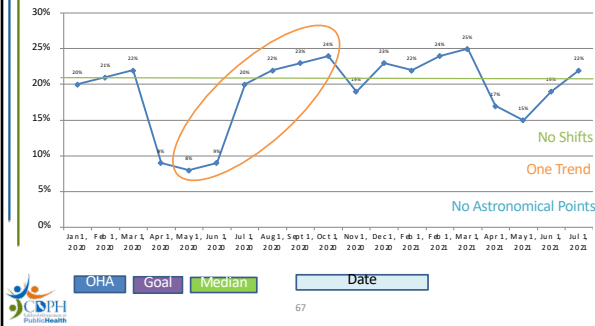
Using Data for QI Exercise

- 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

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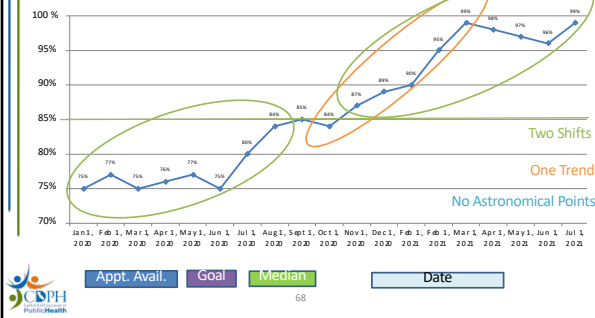
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Chart 1: Oral Health Assessments Conducted in Primary Care Setting



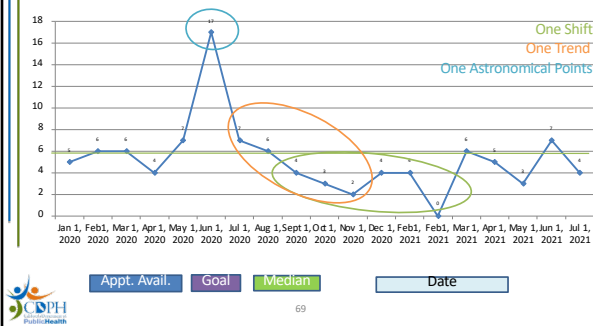
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Chart 2: Availability of Pregnancy-Only Dental Appointments in OB/GYN Appt. System



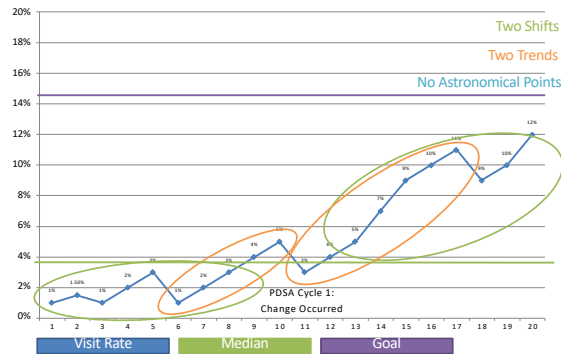
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Chart 3: Days Until Next Available Appointment



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Chart 4: Daily Rate of Pregnant Women Seen in Dental Office



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QI Project: Case Study

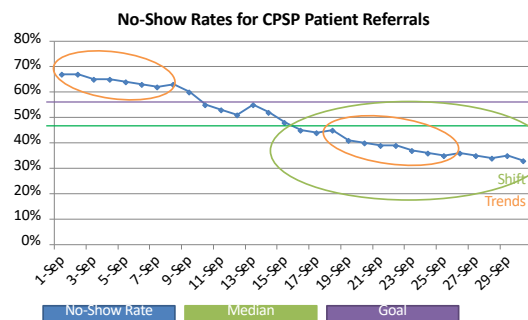
Case Study

DO – Carry out the change/test.	
Was the PDSA Cycle Carried Out as Planned?	<input checked="" type="checkbox"/> Yes. <input type="checkbox"/> No. It did not go according to plan because: N/A
Description	Occasionally the CPSP front office staff forgot to initiate the IM upon the completion of the CPSP appointment. We solved this by asking the CPSP front office staff to keep the IM chat open all day. The CPSP patients appreciated the opportunity to speak directly to someone at the dental office and find a time that worked well for them.
Data and Observations	The dental office manager audited Clinic A's scheduling program at the end of the month. The Office Manager used an Excel tracking log to summarize the findings. Data was collected on daily basis. She then interpreted a run chart of the data and saw special cause variation – a shift and a trend in the data was present.

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Case Study Results

Case Study



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QI Project: Case Study



STUDY – Analyze the results and compare them to your predictions.		
Summary of Results	We saw a 35% decrease in the number of pregnant women missing their dental appointments from September 1-30, 2020.	
Did The Results Match Your Predictions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No. The measured results varied from our predictions because: N/A	
What Could Be Improved?	During the next cycle, we will create a job-aid for the CPSP front office staff to remind them to initiate the warm-hand-off referral IM after each patient's CPSP appointment.	
ACT – Identify next steps.		
Next Steps: Identify whether you plan to adapt, adopt, or abandon the change you tested in this PDSA cycle. Select only 1.		
<input checked="" type="checkbox"/> Adapt: Improve the change and continue testing	<input type="checkbox"/> Adopt: Select changes to implement on a larger scale.	<input type="checkbox"/> Abandon: Discard this change and try something new.

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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](#)



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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



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Section Check-In: Q&A



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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.

<https://www.adap.org/en/science-research/dental-quality-alliance>

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.

<https://www.astdd.org/evaluation-and-quality-improvement/>

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 state's achieve the CMS Oral Health Initiative through QI.

<https://www.medicare.gov/sites/default/files/2019-12/oral-health-quality-improvement-toolkit-for-states.pdf>

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.

<https://www.hrsa.gov/sites/default/files/quality/toolbox/508.pdf>



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Additional Resources (2/3)

Public Health Foundation

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

QI Quick Guide:

http://www.pbf.org/focusareas/qualityimprovement/QIQuickGuide/Pages/Welcome_to_the_Guide_to_Quality_Improvement.aspx

QI Tools:

http://www.pbf.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.ihp.org/resources/Pages/Howtoimprove/default.aspx>

Free Tools are available: <http://www.ihp.org/resources/Pages/Tools/default.aspx>

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

<http://www.ihp.org/education/IHIOpenSchool/Courses/Pages/DentalQualityAlliance-DQA.aspx>

The Certificate in Quality Improvement courses:

<http://www.ihp.org/education/IHIOpenSchool/Courses/Pages/OpenSchoolCertificates.aspx>



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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, PDSA cycles, sample quality measures, case studies and more. <https://www.nnoba.org/nnoba-content/uploads/2013/08/OnManualChapter6.pdf>

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/ai-videos-tools/>