

Using Quality Improvement Techniques to Increase Immunization Rates in a Community Outpatient Setting

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Disclosures

- ▶ I have no financial interests or relationships to disclose
- ▶ I have two very cute Cavalier King Charles Spaniels at home



Goals and Objectives

- Learn the basics of quality improvement (QI) techniques and Plan-Do-Study-Act (PDSA) Cycles.
- Discuss ways to implement small process changes in a pediatric practice in an effort to increase immunization rates.
- Learn the value of collaboration in bringing about change on a community-wide level.
- Take home practical techniques that can be implemented to increase immunization rates in a pediatric practice.

U.S.

Vaccine Critics Turn Defensive Over Measles

By JACK HEALY and MICHAEL PAULSON JAN. 30, 2015



Recent Events Impacting Childhood Vaccinations

2011-----2012-----2013-----2014-----2015-----2016-----2017

- ▶ **2011** - backdrop of increasing PBEs in CA → AB 2109 introduced → signed in 2012 *with Governor's message
- ▶ **2012** - 8 measles cases in CA
- ▶ **2013** - 18 measles cases in CA (2 in OC)
- ▶ **1/1/14** - AB 2109 goes into effect, requires provider documentation of PBE/VPD risks
- ▶ **2014** - 75 measles cases in CA (24 in OC/13 in LA)
- ▶ **2015** - 125 measles cases in CA (33 in OC/28 in LA) Disneyland/OC Measles outbreak—winter 2014-15
- ▶ **2015** - SB 277 introduced/signed: elimination of PBEs—effective 1/1/16

California County Kindergarten Immunization Rates

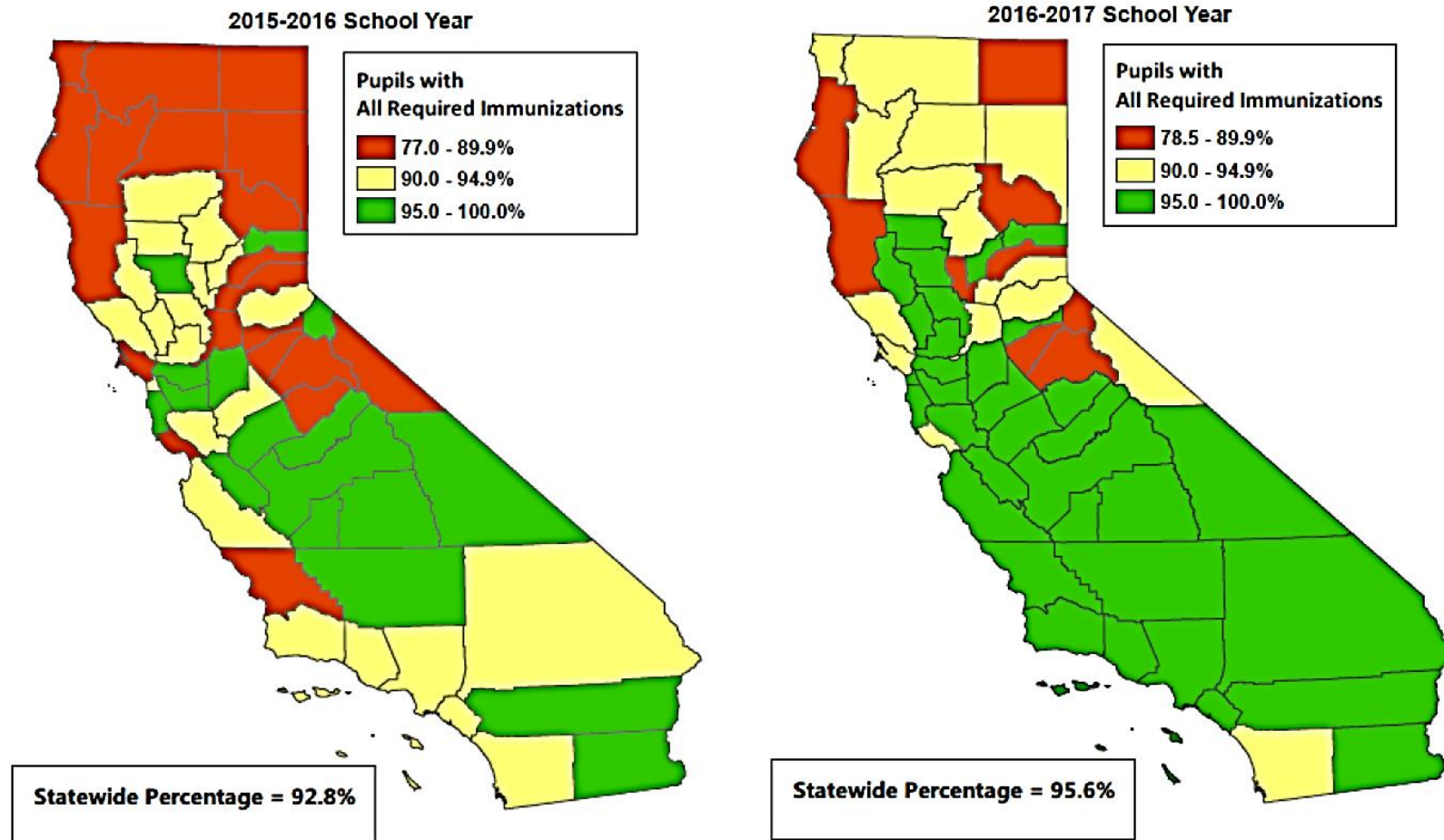
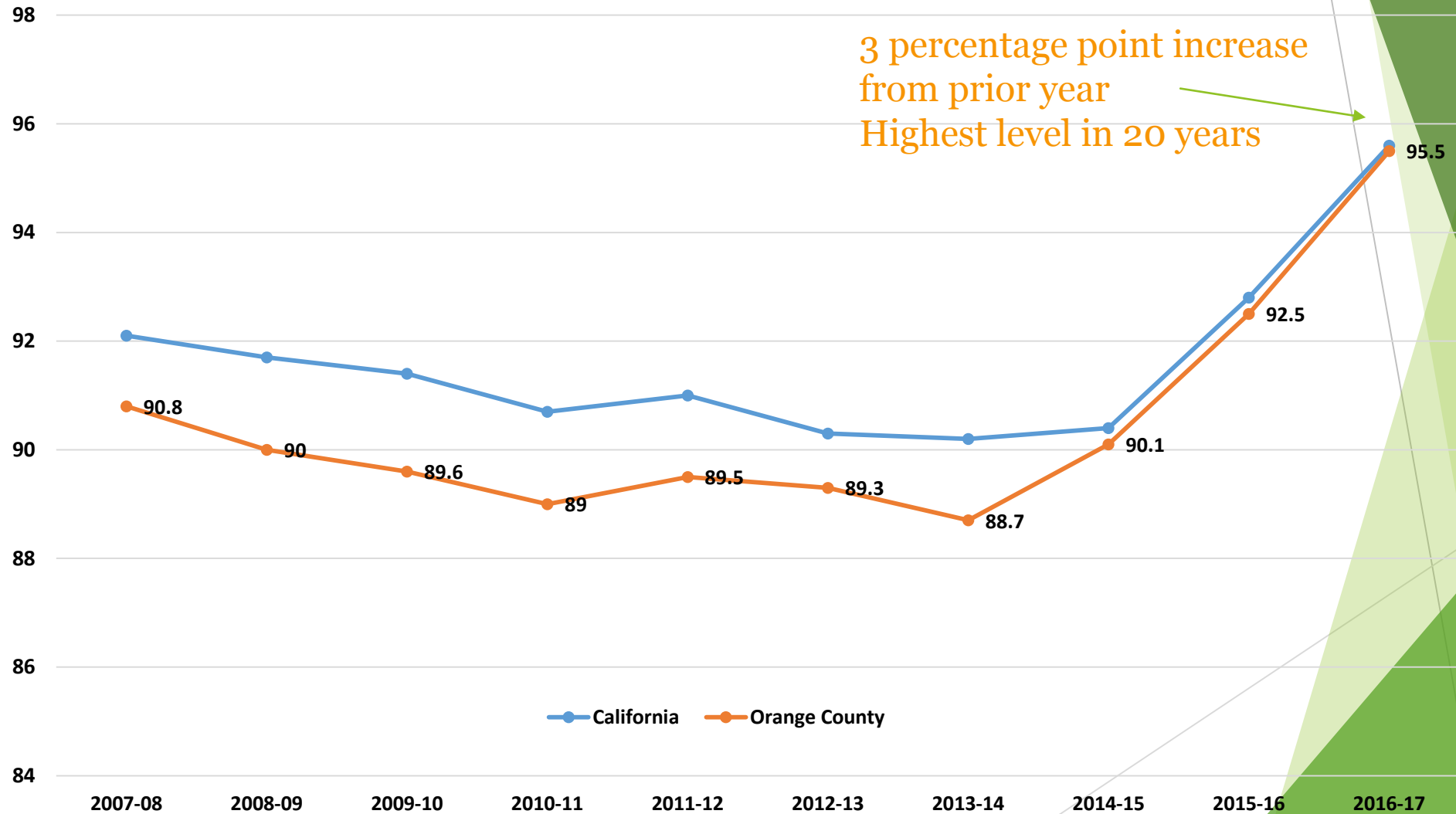
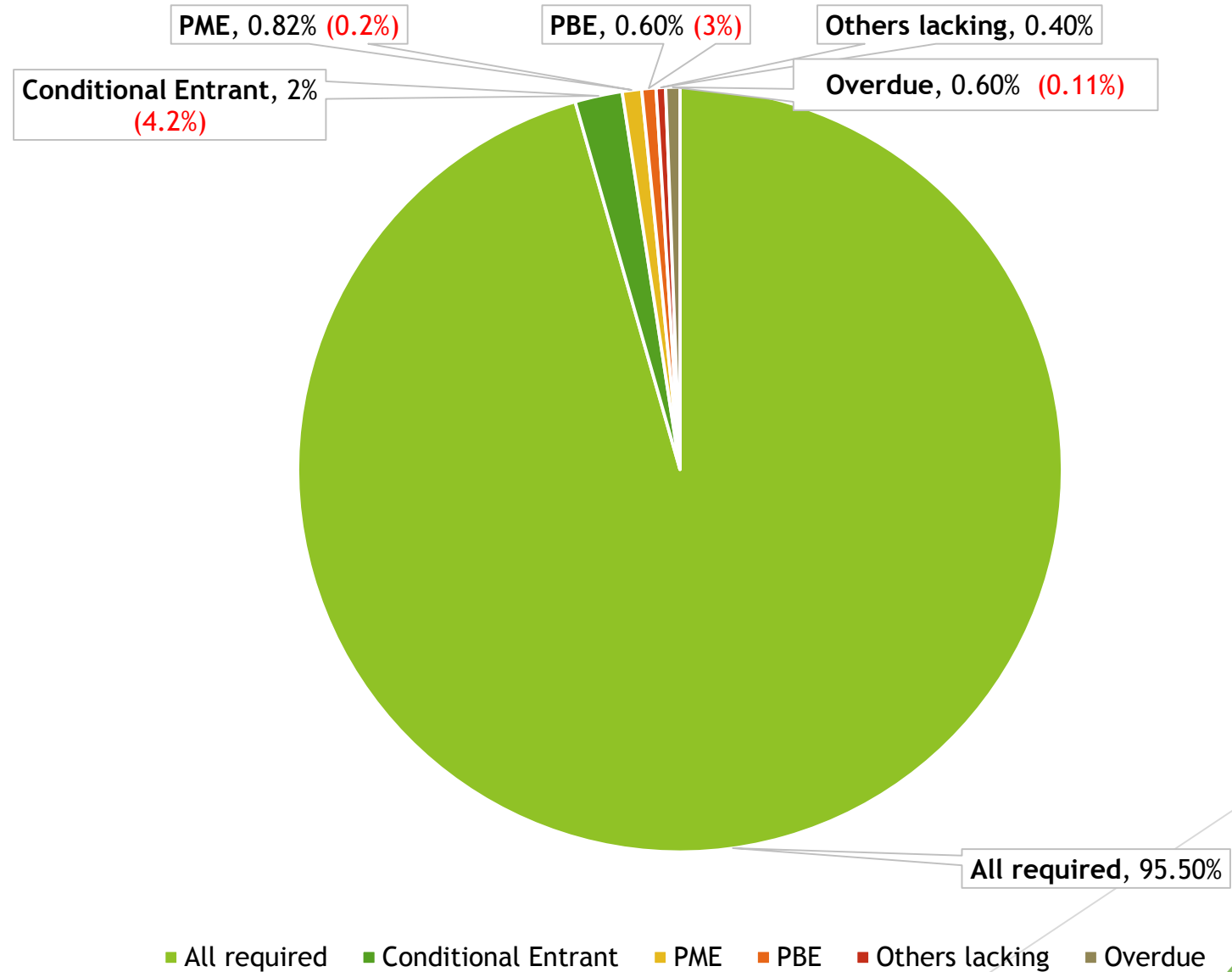


Figure 9. Kindergarten Students with All Required Immunizations, by County, 2015-2016 and 2016-2017 School Years

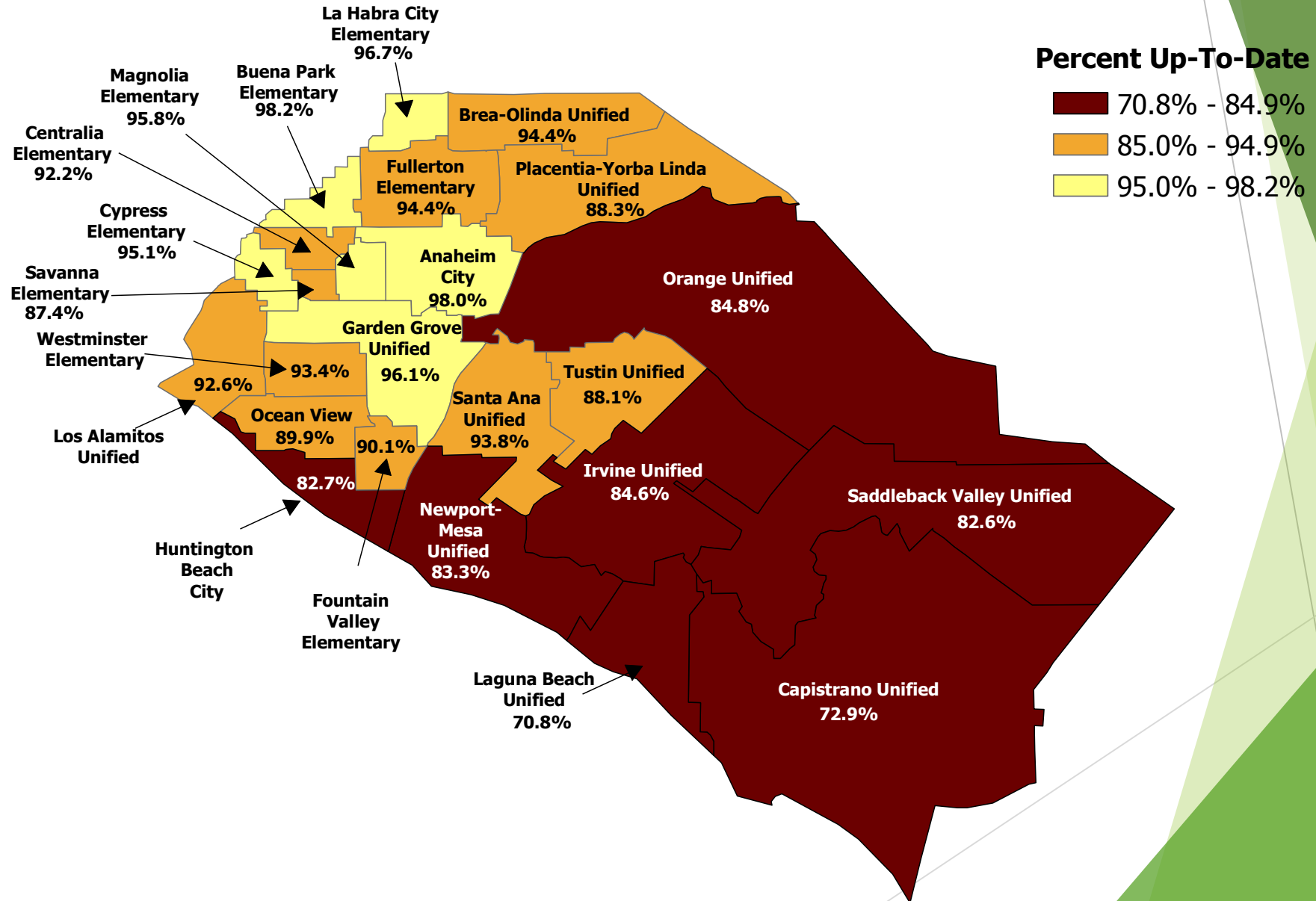
Up-to-Date Immunizations at Kindergarten Entry: Orange County and California, 2007 - 2017



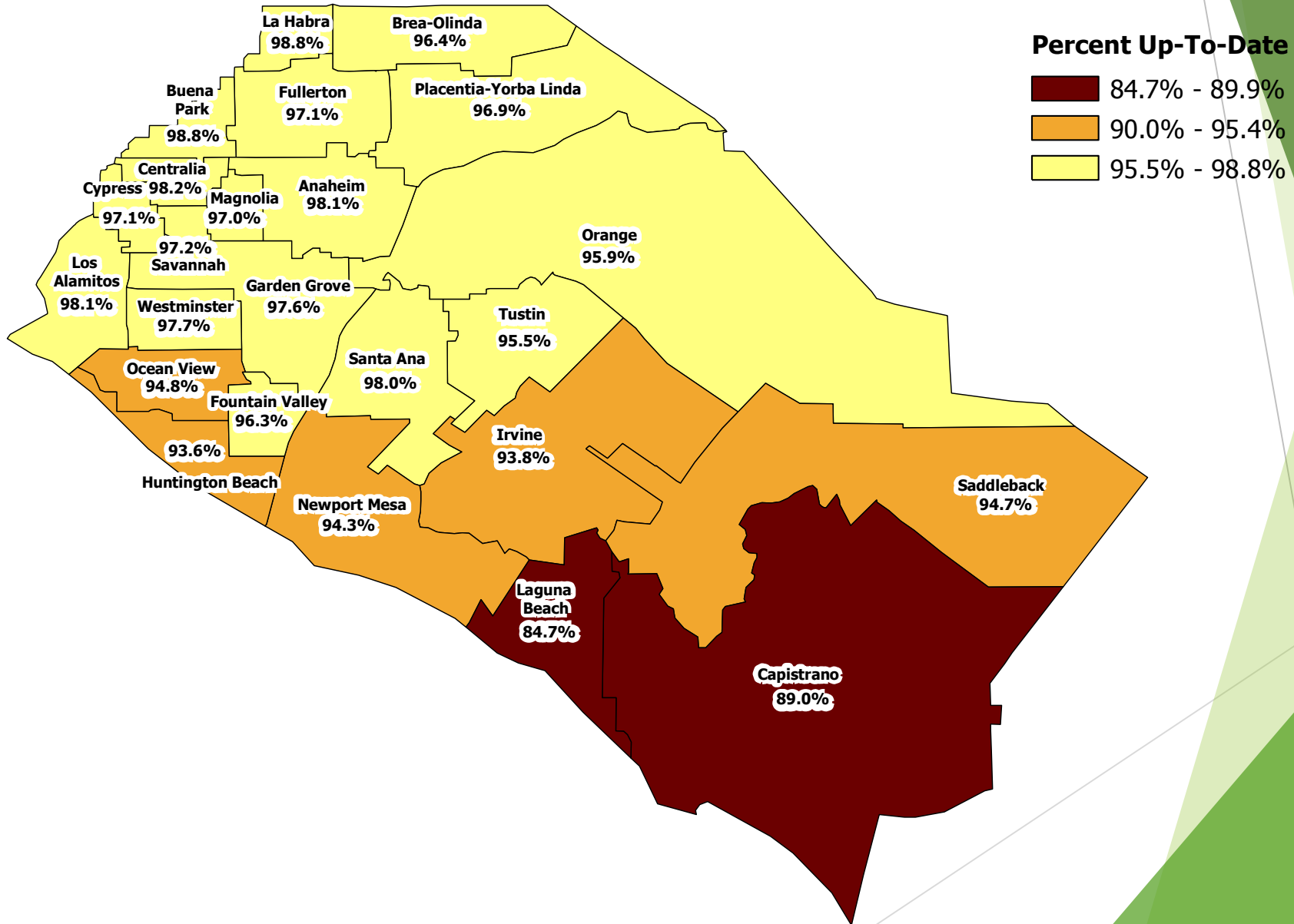
Orange County 2016-17 Admission Status Categories



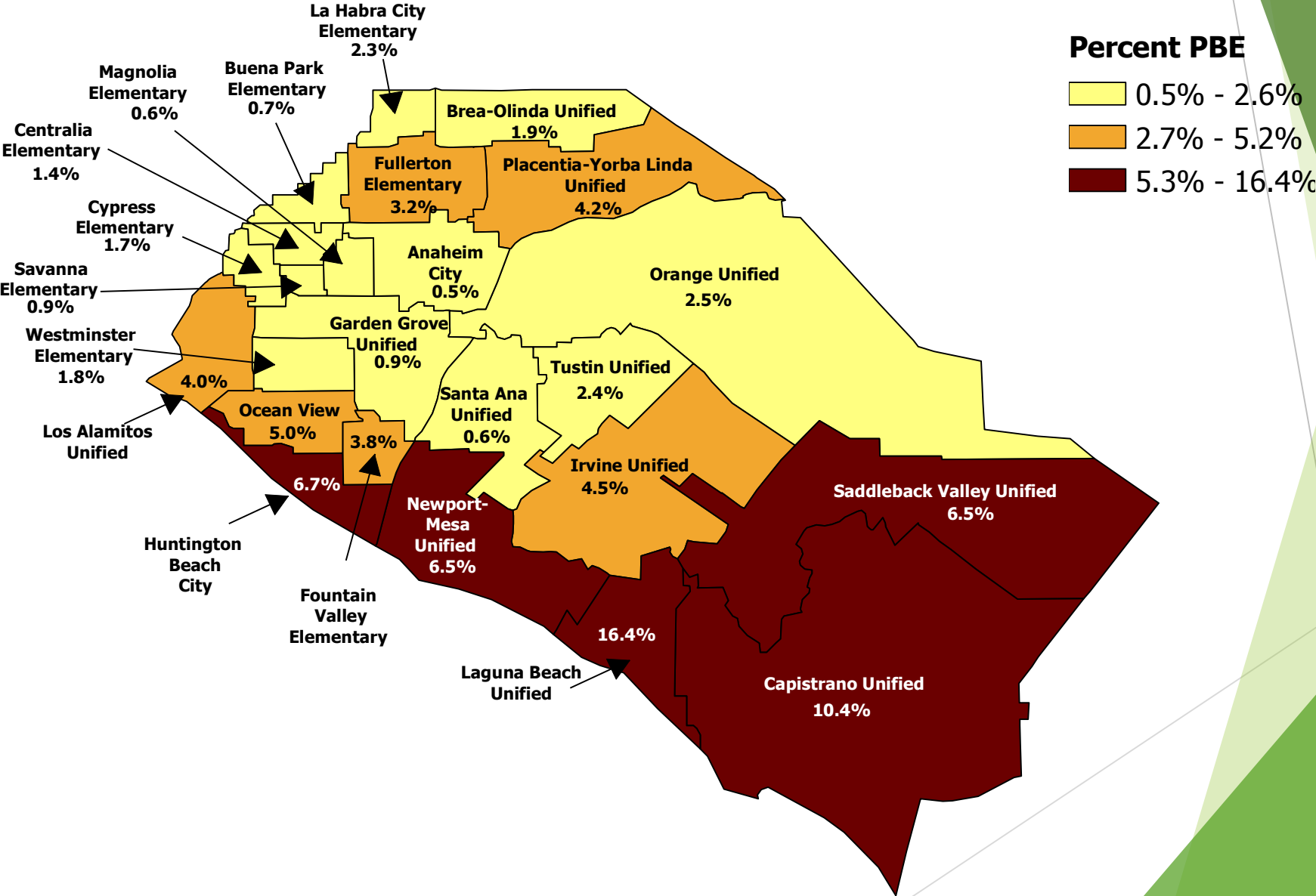
Up-to-Date Immunizations at Kindergarten Enrollment, Private and Public Schools Within Each School District, 2013-14



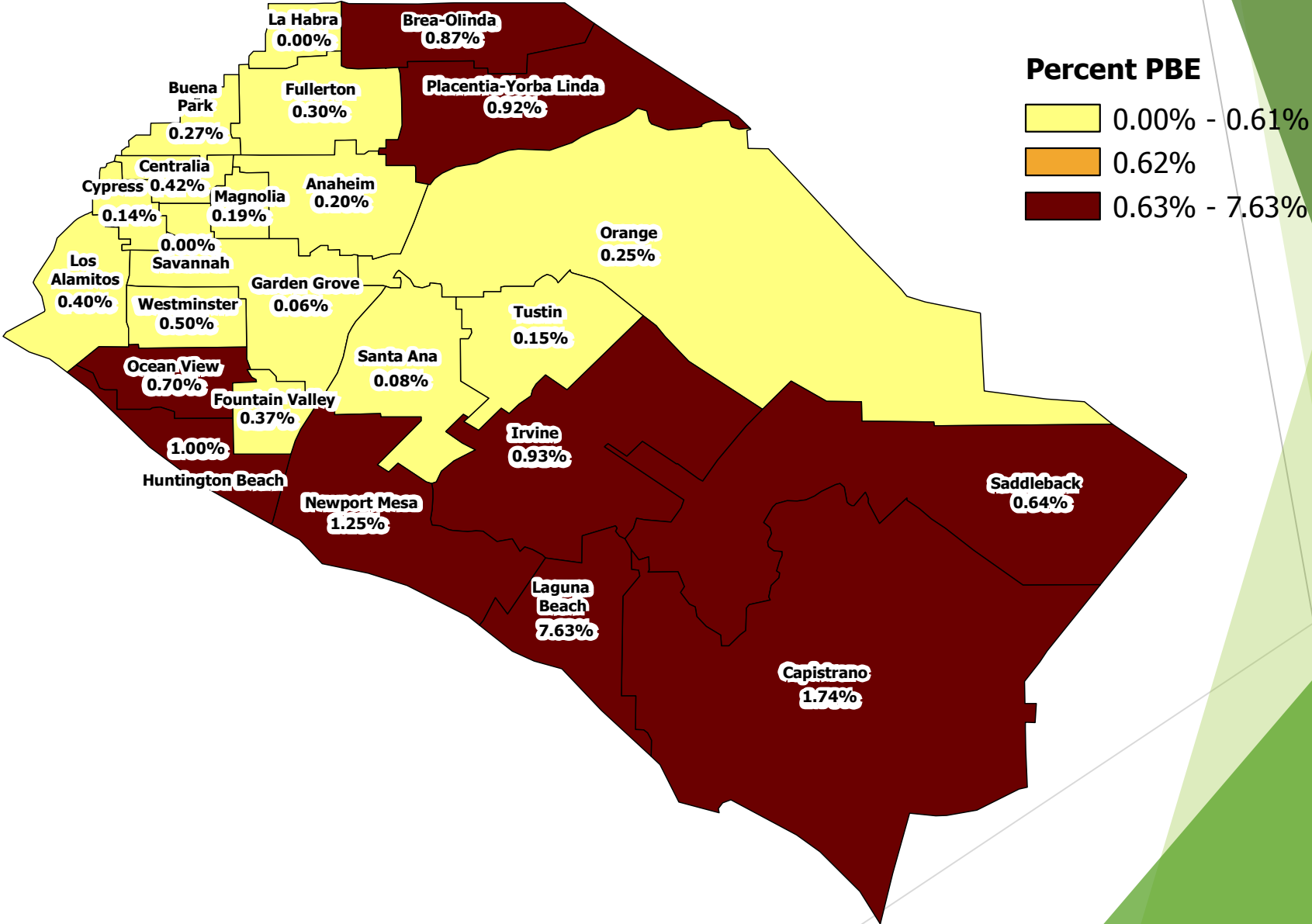
Up-to-Date Immunizations at Kindergarten Enrollment, Private and Public Schools Within Each School District, 2016-17.



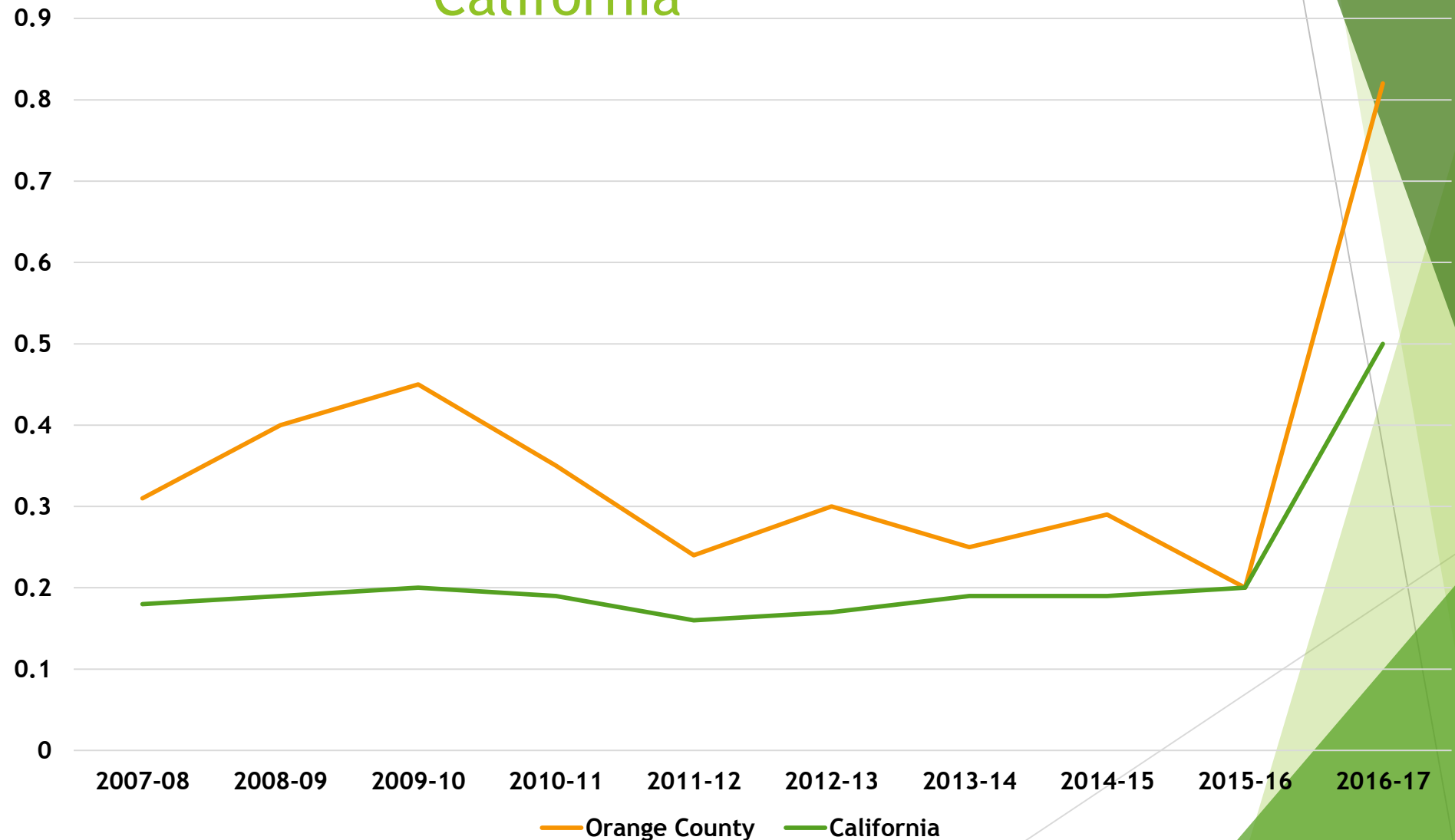
Personal Belief Exemption (PBE) at Kindergarten Enrollment, Private and Public Schools Within Each School District, 2013-14



Personal Belief Exemption (PBE) at Kindergarten Enrollment, Private and Public Schools Within Each School District, 2016-17



PME Percentage Trends: Orange County and California



Why Focus on Immunizations?

- Immunizations rates trending down in some states and/or regions
- Exemption Laws
- Outbreaks
- Economic disparities in immunizations continues to widen
- Falling below Healthy People 2020 Vaccination Goals

Healthy People 2020 Highlighted Vaccination Goals

- Maintain an effective vaccination coverage level to 90% of 4 doses of the diphtheria-tetanus-acellular pertussis (DTaP) vaccine among children by age 19 to 35 months (baseline 82.5% 2014)
- Achieve and maintain an effective coverage level to 90% of 4 doses of pneumococcal conjugate vaccine (PCV) among children by age 19 to 35 months (baseline 81.9% 2012)
- Increase the percentage to 50% of private providers who have had vaccination coverage levels among children in their practice population measured within the past year (baseline 33% (2009))

The CQN Process



The CQN Learning network

- ▶ A national learning network: 6 state chapters, 5 states, 60 pediatric practices
- ▶ Participation in two face to face sessions and monthly webinars to share and learn together
- ▶ Access to subject matter and QI experts
- ▶ Learn from other practices
 - ▶ Active collaboration
 - ▶ National → Chapter → Practice → Provider/Patient



CHAPTER QUALITY NETWORK
A program of the American Academy of Pediatrics

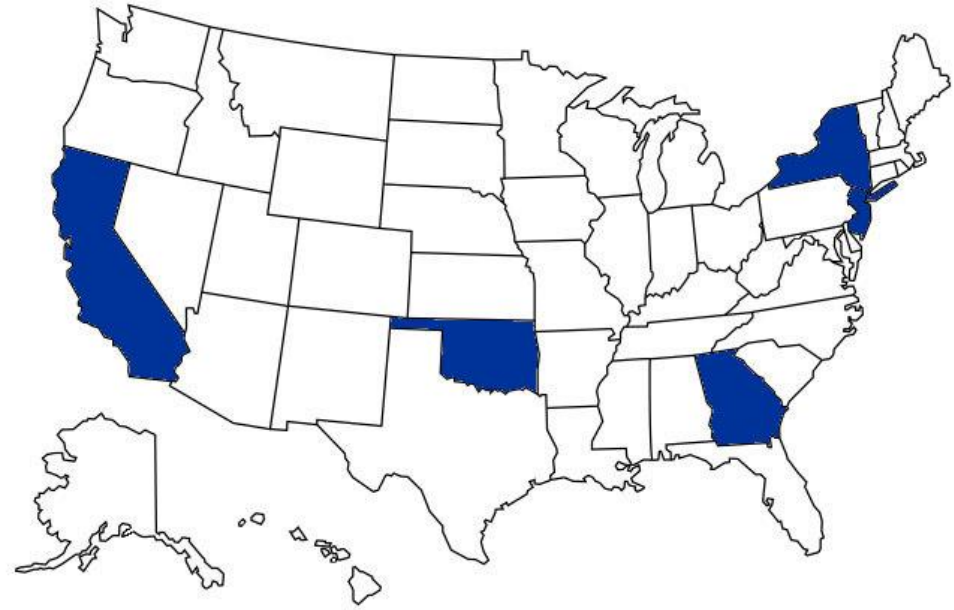
CHAPTER QUALITY NETWORK (CQN) US IMMUNIZATION PROJECT 2017-2018

60 practices

270 participants

6 AAP Chapters

- California Chapter 2
- California Chapter 4
- Georgia
- New Jersey
- New York Chapter 2
- Oklahoma



KEY DRIVERS TO IMPROVE IMMUNIZATION RATES

Practice Drivers

1: Accountable
Leadership

3. Decrease Missed
Opportunities

2: Team Based Care

4. Population Level
Approaches

5. Peer to Peer
Learning

A practice driver is a key action or 'lever' where there is belief that these action collectively will lead to improved outcomes

CQN Immunization Project Aim

To make sustainable and measureable office process improvements in participating practices to improve vaccination rates for children 19-35 months.

- ▶ Reducing Missed Opportunities (Process Measure)
- ▶ Increasing Childhood Immunization Composite Combination 4-3-1-3-3-1-4 (Outcome Measure)

CQN CHAPTER STATE COMPARISON 2014 IMMUNIZATION RATES

	DTaP4*	PCV4*	IPV3*	MMR1*	Hib3*	HepB3*	Varicella1*	7-series composite†
Oklahoma	80.4	83.4	93.6	92	91.6	94.7	92.2	73.3
New Jersey	85.4	84.4	94.2	93.3	95.5	92.4	92.1	67.2
California	87.3	84.1	94.1	90.5	93.8	92.2	90.3	77.9
Georgia	85.7	81.3	94.7	94.2	92.4	95.1	94.5	74.0
New York City	85.1	81.7	92.3	95	95	92.9	93.7	70.1
Rest of NY State	85.7	88.2	95.1	91.2	93.4	92.8	89.7	71.4

• Healthy People 2020 Goal is 90%

† Healthy People 2020 Goal is 80%

Source: National Immunization Survey 2014

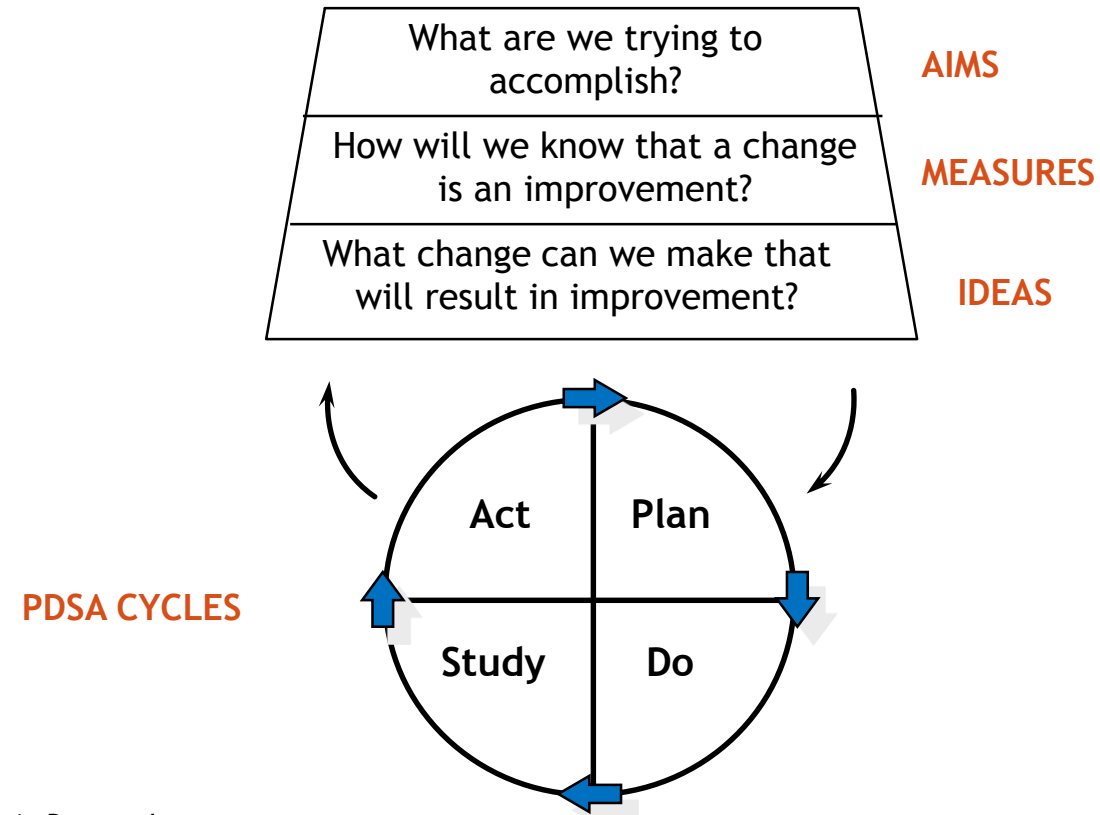
The Quality Improvement Process



Three Fundamental Questions for Improvement

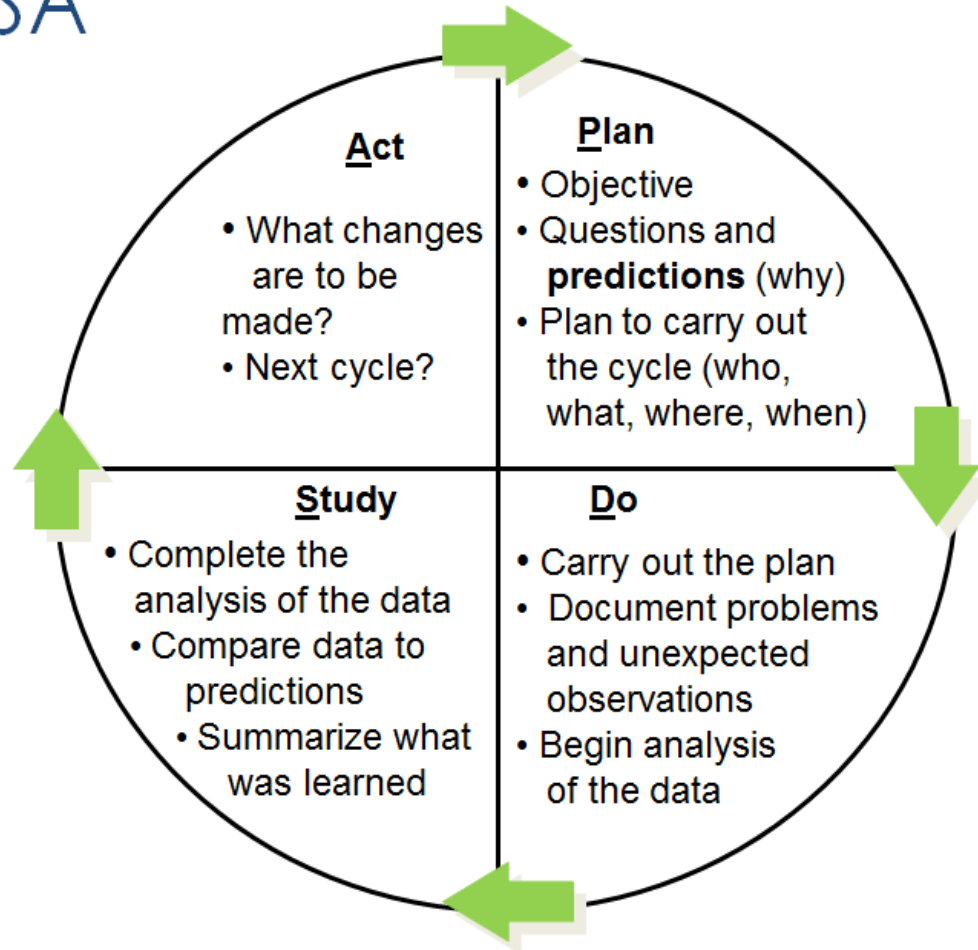
1. What are we trying to accomplish? **AIM**
2. How will we know that a change is an improvement? **MEASURES**
3. What changes can we make that will result in improvement? **IDEAS**

Model for Improvement



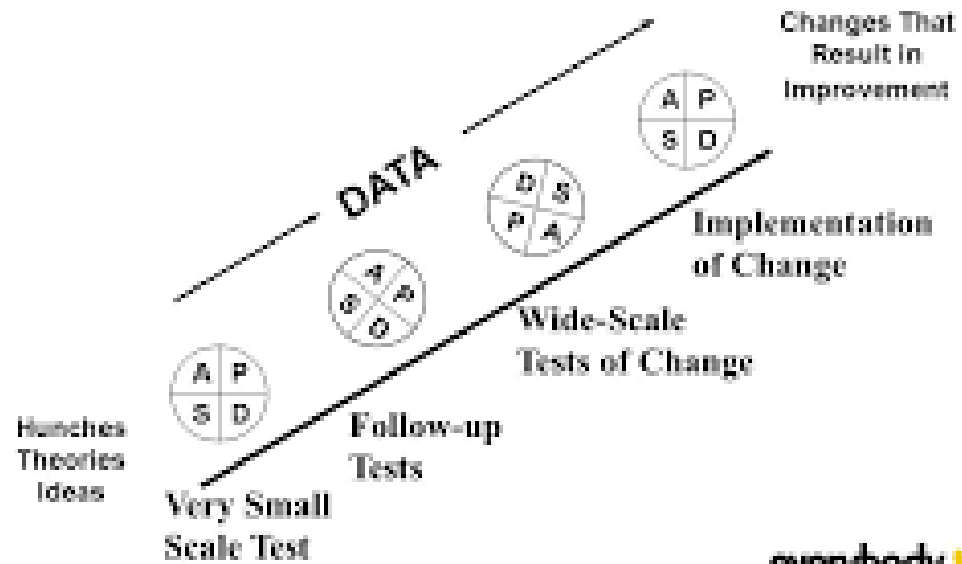
From: Associates in Process Improvement

The PDSA Cycle

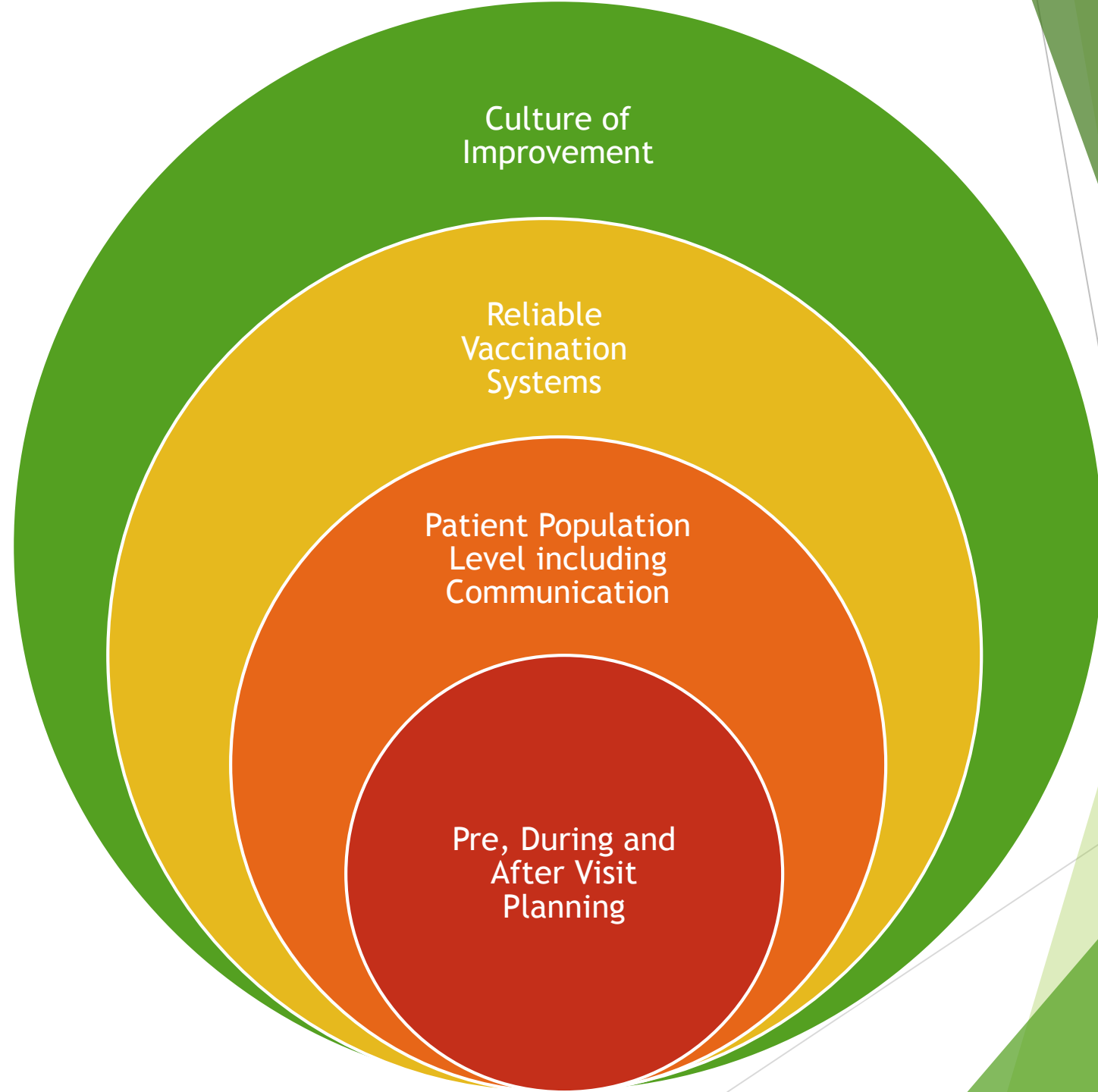


PDSA 'ramps'

Repeated Use of the PDSA Cycle

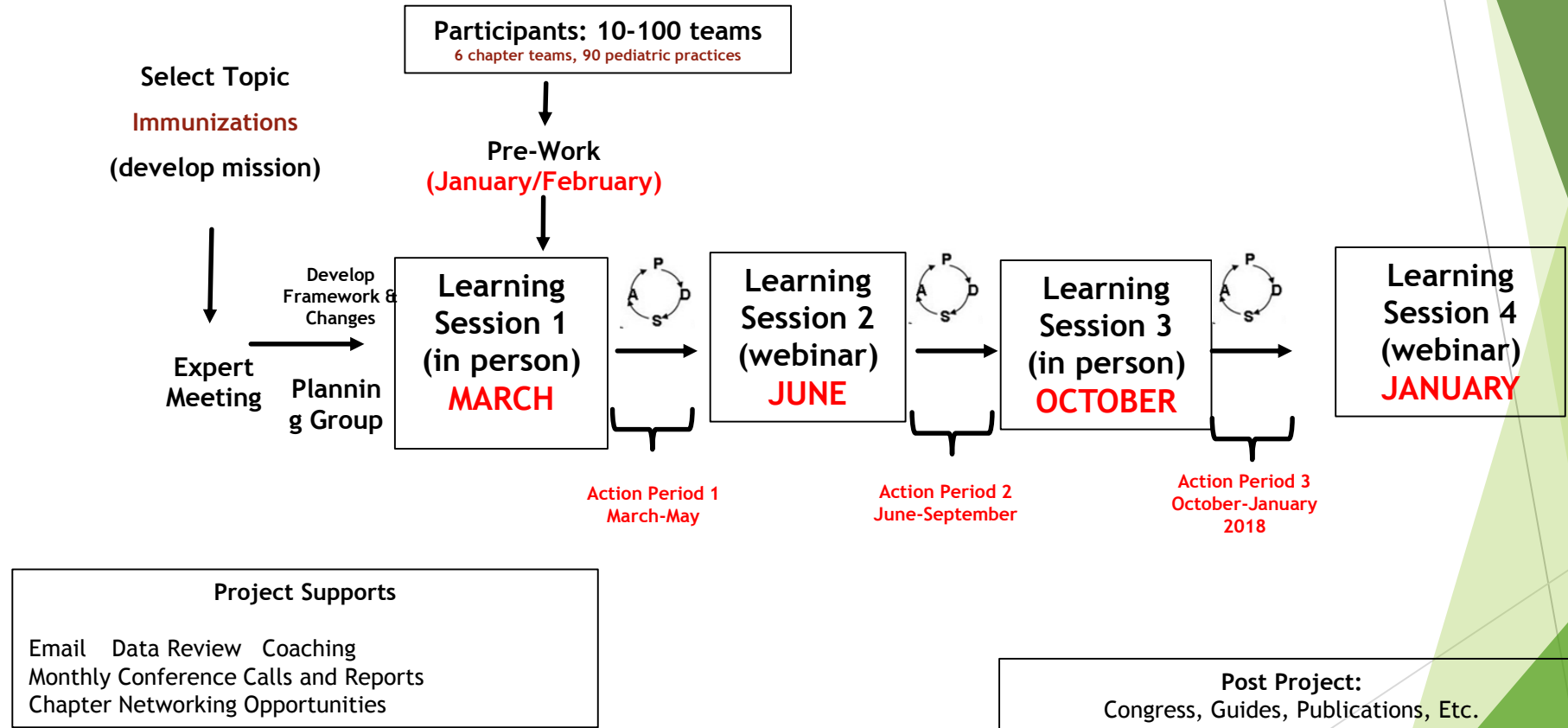


Improvement Guide, Chapter 7, p. 148



The CQN Model

Institute for Healthcare Improvement Breakthrough
Series Collaborative Model



Source: *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement*. IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2003. Available at: <http://www.ihio.org/resources/pages/ihiowhitepapers/thebreakthroughseriesihiscollaborativemodelforachievingbreakthroughimprovement.aspx>.

Collaboration



**PEDIATRIC
& ADULT
MEDICINE, INC.**
A Member of CHOC
Children's Network



**SOUTHERN ORANGE COUNTY
PEDIATRIC ASSOCIATES**

A member of CHOC Children's Network



UC Irvine Health

Collaboration

Home Pings Hey! Activity Find

AAP CA4 Immunizations Project

AB AS BB BL CTL CM CS DK DB ERH EB EP EC EC HL HS H ... Add/remove people...


Campfire

- Katherine Williamson** 12:53pm
We use Trumemba, and hav...
- Dan Kouwabunpat** 8:02pm
We have been using Trume...
- Mia Bella Pediatrics** 9:44am
Do you find the parents are ...
- Katherine Williamson** 9:46am
Both
- Dan Kouwabunpat** 9:25pm
Both for us as well, but mor...

Message Board


AAP Community of Immunizers Listserv

To-dos




Make lists of work that needs to get done, assign items, set due dates, and discuss.

Schedule



Set important dates on a shared schedule. Subscribe to events in Google Cal, iCal, or Outlook

Automatic Check-ins



Create recurring questions so you don't have to pester your team about what's going on

Docs & Files

- CAIR2**
 - CAIR2 CoC- Guide
 - State IIS One
- Data**
 - Data Reports
 - Prac Note Narrative
- ...and 3 more
- Learning Session 2**
- Learning Session 3**

Chapter Calls

1. **Roll call** - 10 mins (Dr. Ball)
2. **Immunization Content** - 8 mins (Dr. Singh)
3. **Data Dashboard** - 5 mins (Ed)
4. **Data Requirements** - 15 mins (Ed)
5. **PDSA Testing** - 20 mins (Dr. Ball/Jen)
6. **Reminders/Next Steps** - 2 mins (Bianca)

Data Collection



Missed Opportunities Process Measure

- ▶ Missed Opportunity Rate
 - ▶ Numerator: Patients ages 19-35 months that did not receive **all** appropriate vaccines when they presented in the office
 - ▶ Denominator (**AKA an opportunity**): Patients ages 19-35 months that were **due for vaccines** when they presented in the office (according to ACIP schedule)



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:

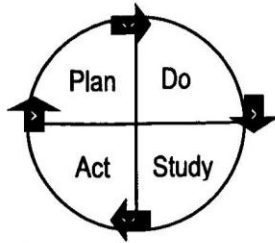
What did you learn?

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: <u>Pediatric & Adult Med.</u>	Date of test: <u>4/17-4/28/17</u>	Test Completion Date: <u>4/28/17</u>
Overall team/project aim: <u>Reduce missed opportunities for vaccination</u>		
What is the objective of the test? <u>Increase vaccination rates at sick visits</u>		

PLAN:

Briefly describe the test:

MA will pull CAIR/immunization record for all sick visits for 2 providers x 2 weeks, if any are missing, then leave a note on pt door to remind provider.
How will you know that the change is an improvement?

Will keep a log of patients that were missing vaccines & record if they received it or not.

What driver does the change impact?

Reduce missed opportunities at sick visits.

What do you predict will happen?

Increase vaccination rates.

PLAN

List the tasks necessary to complete this test (what)	Person responsible (who)	When	Where
1. pull vaccine record/CAIR prior to sick visits	MA	Prior to appt	Nurse station
2. MA alerts provider by putting note on door	MA	Before provider encounter	pt door
3. MD offers vaccine to pt	MD	during encounter	pt room
4. If pt refuses vaccine, asked to make future appt	MD	during encounter	pt room
5. Record on log whether pt received vaccine	MA	After appt	Nurse station
6.			

Plan for collection of data:

DO: Test the changes.

Was the cycle carried out as planned? Yes No

Record data and observations. 29 pts identified as needing vaccine (ALL vaccines), 13 received a vaccine → 45%.

BUT ONLY 2 pts identified as needing childhood vaccines, →

What did you observe that was not part of our plan? received → 100%

Adolescents have much higher rate of missed opportunities than 19-35 month olds

STUDY:

Did the results match your predictions? Yes No But not necessarily for 19-35 month olds

Compare the result of your test to your previous performance:

What did you learn? Our method was effective at reducing missed opportunities but more so for adolescents than for younger children who are more likely to be up to date. If a younger child is identified, though, there is higher probability they will get the vaccine.

ACT: Decide to Adopt, Adapt, or Abandon.



Adapt: Improve the change and continue testing plan.

Plans/changes for next test: If pt refuses vaccine at the sick visit, give them a piece of paper with a reminder to make appt.



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

CQN CHAPTER STATE COMPARISON 2014 IMMUNIZATION RATES

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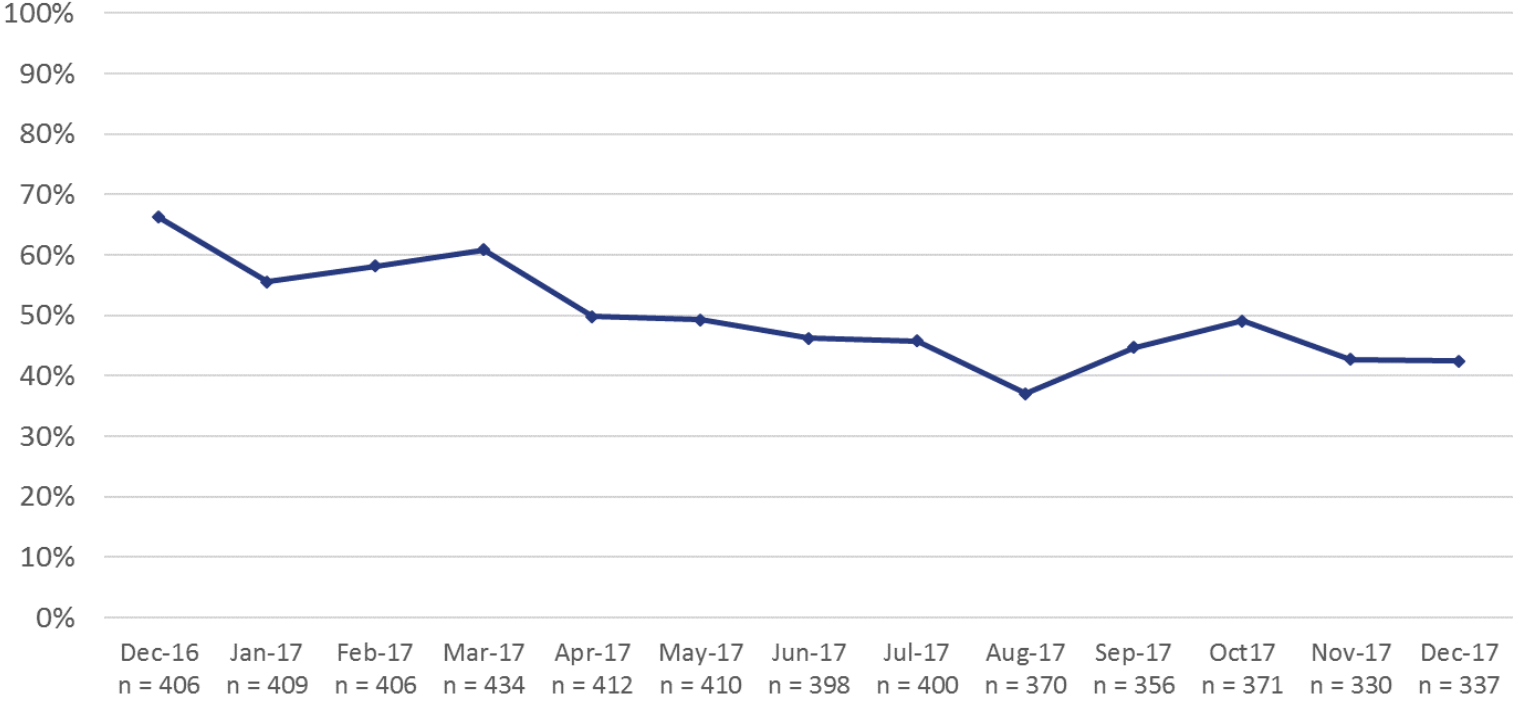
Source: National Immunization Survey 2014

Coverage Rates

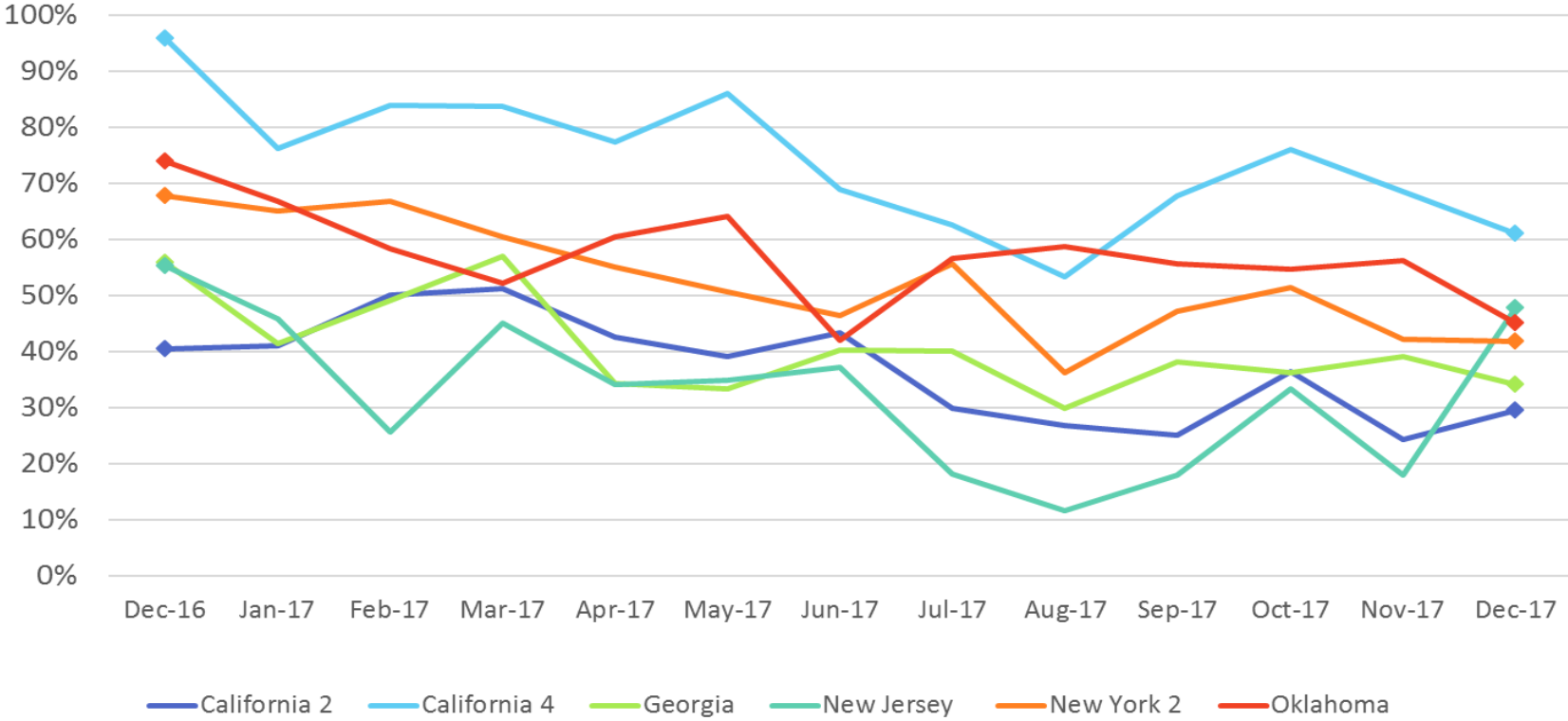
Project Measure Goals Reached								
	4:3:1:3:3:1:4 Composite 80%	DTaP 90%	IPV 90%	MMR 90%	Hib 90%	HepB 90%	VZV 90%	PCV 90%
CA2	74%	77%	89%	89%	89%	91%	88%	84%
CA4	68%	73%	85%	86%	90%	78%	86%	78%
GA	84%	86%	96%	93%	94%	96%	93%	92%
NJ	74%	79%	94%	88%	95%	92%	89%	83%
NY2	67%	75%	92%	94%	86%	89%	90%	85%
OK	81%	82%	94%	91%	88%	94%	90%	88%

Key
Met goal
≤10% of goal
>10% from goal

Missed Opportunities

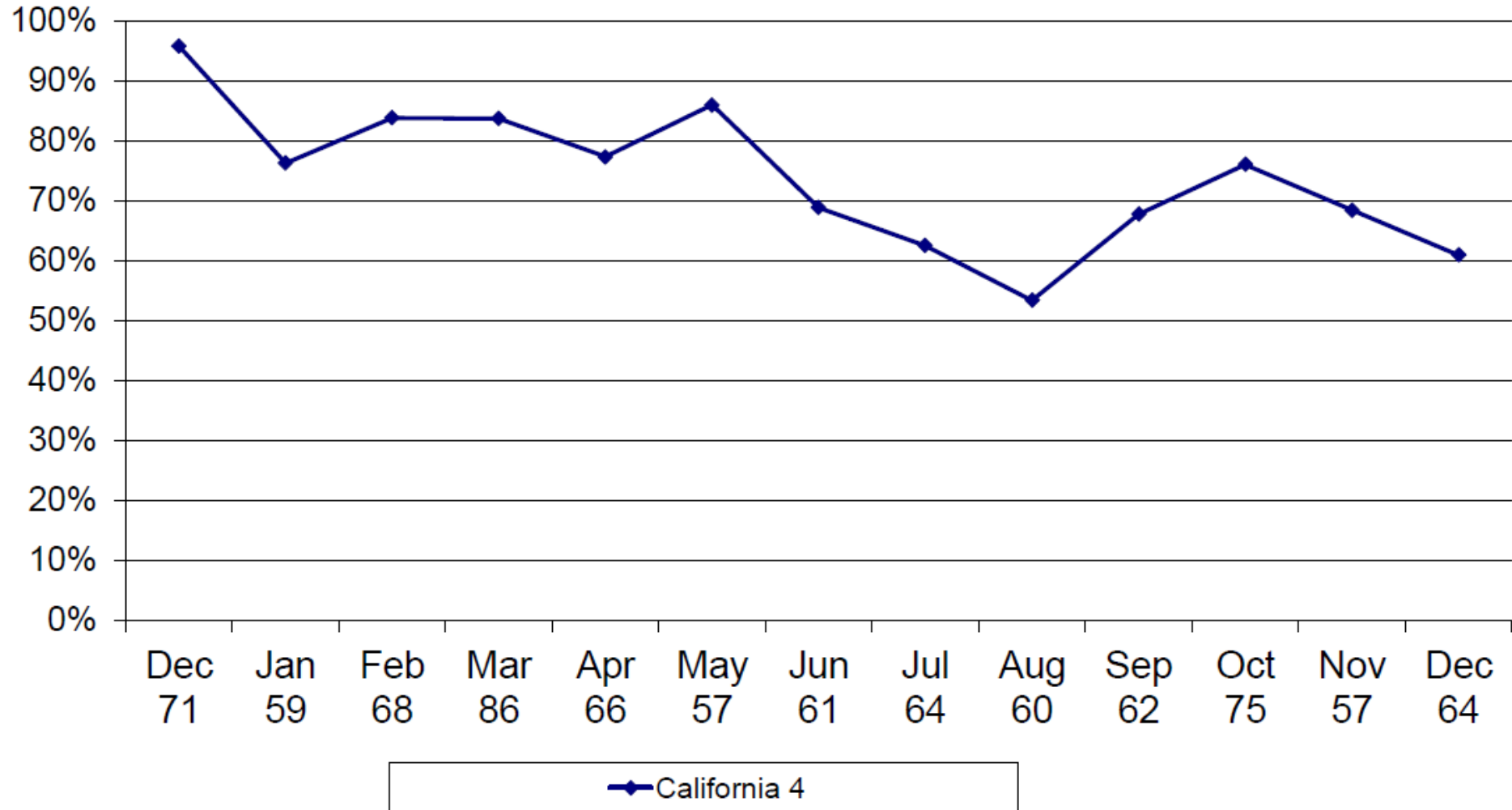


Missed Opportunities

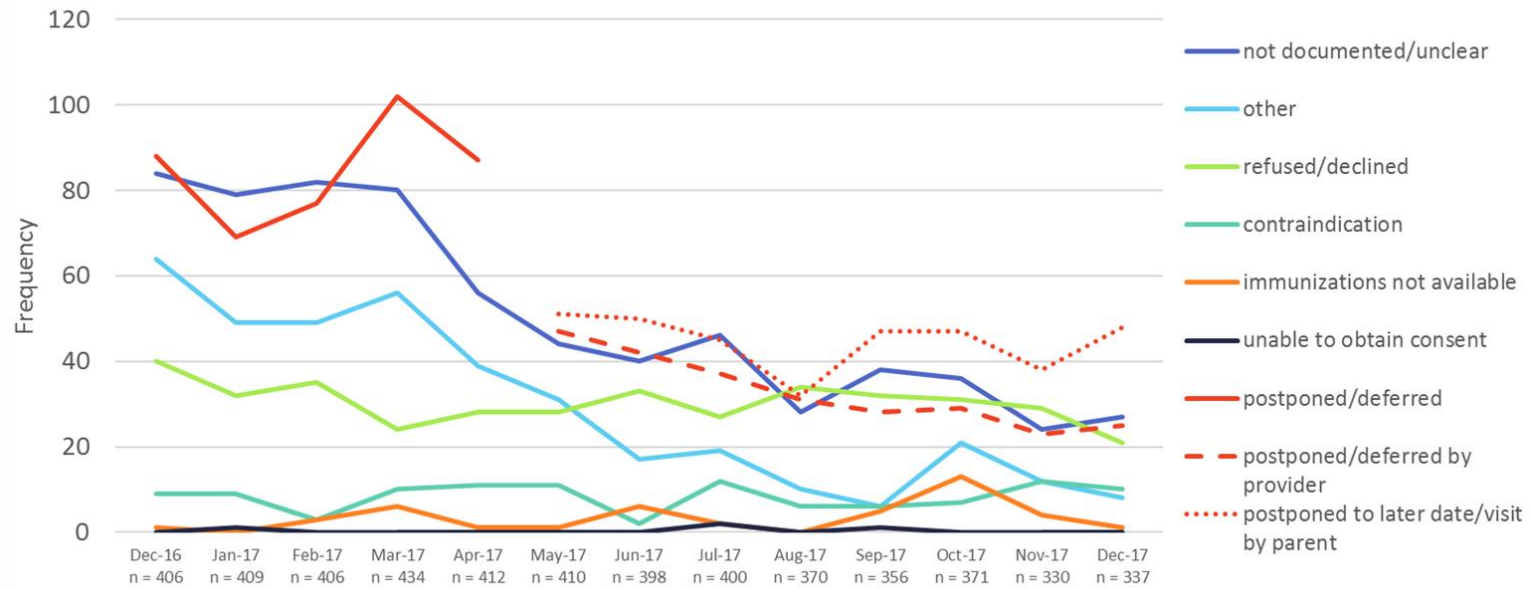


Chapter Missed Opportunities

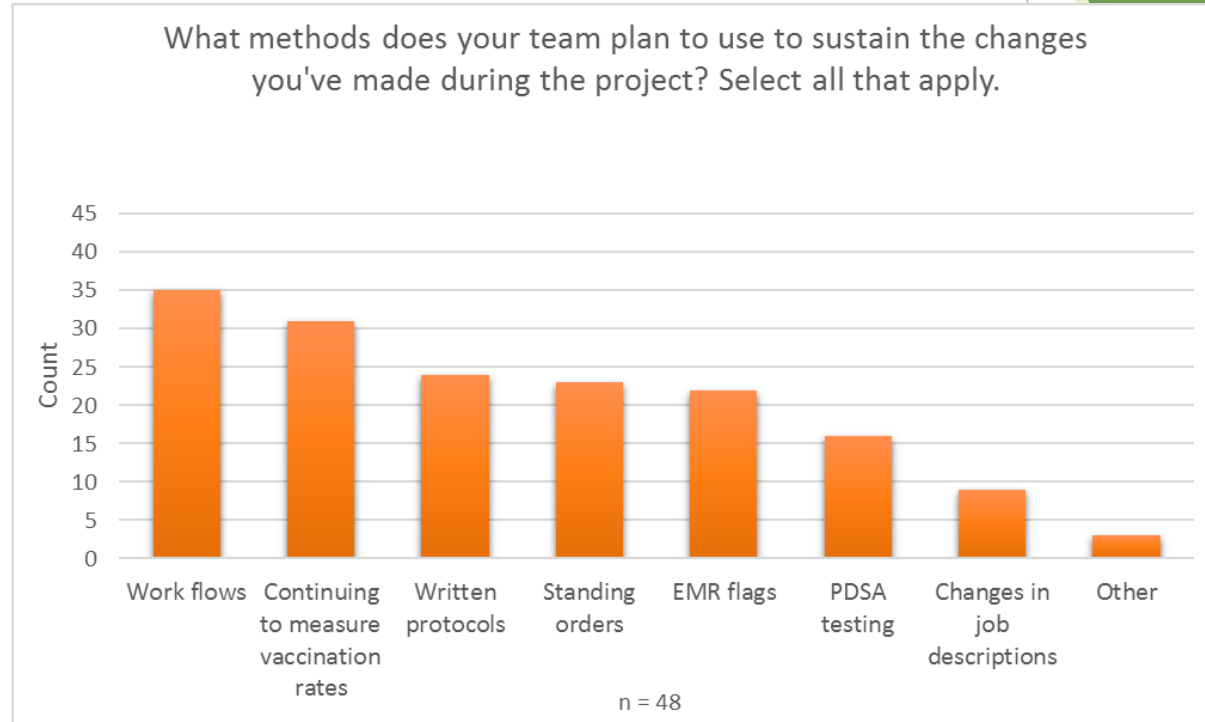
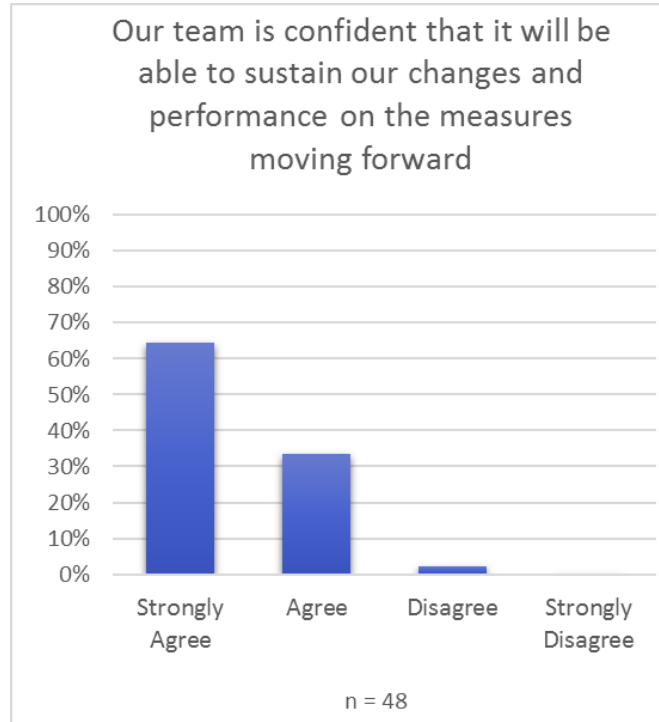
Missed Opportunities Rate



Reasons for Missed Opportunities



Sustainability



The top 10 interventions throughout the collaboration



TOP 10 INTERVENTIONS

- Chapter leaders each submitted 5 top interventions based on PDSAs, webinars, discussions
- Practice also submitted feedback on narrative surveys
- National team compiled the list!



INTERVENTION #1

Requiring vaccination records at initial appointment

OTHER IMMUNIZATIONS/PROPHYLAXIS RECEIVED
Actes: vacunaciones/profilaxis recibidas

This space is provided to record immunizations/prophylaxis that are not required for entrance into any country (all have been obtained by the traveler for additional health protection (influenza vaccine, malaria, measles, etc.))

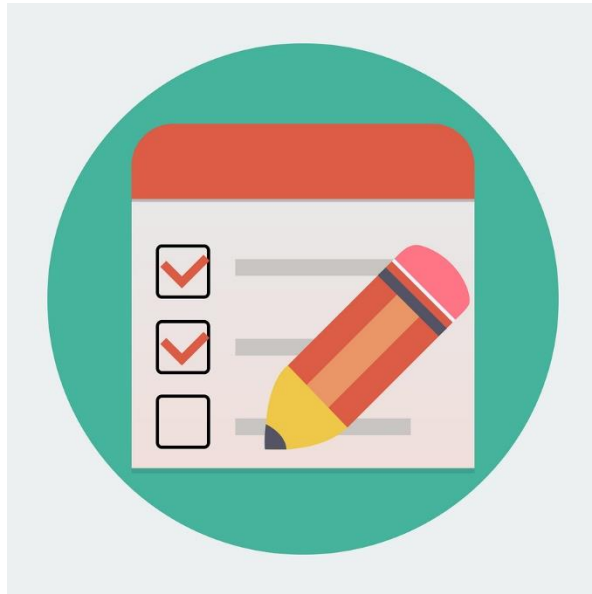
DATE	Vaccination/prophylaxis TI/VE vacunaciones/profilaxis recibidas	DOSE	Physician's signature Firma del médico
2/14/07	Tet/Diph	1.5ml	Wm. Daniel Hoffmann MD
2/14/07	Polio	0.5ml	Wm. Daniel Hoffmann MD
2/14/07	MMR	0.5ml	Wm. Daniel Hoffmann MD
2/14/07	Rabies #1	1ml	Wm. Daniel Hoffmann MD
2/14/07	Influenza	0.5ml	Wm. Daniel Hoffmann MD
2/14/07	Typhoid (oral)	oral	Wm. Daniel Hoffmann MD

Create **office policy** that any new patient is required to submit their previous immunization history prior to an appointment being made. By doing this, practices always had an **accurate record** of vaccinations due on that **first visit**.

Pre, During, Post Visit Planning

INTERVENTION #2

Review vaccine records at every visit



Having **Immunization record reviewed** and available for all patients **regardless of reason for visit.**

Pre, During, Post Visit Planning

INTERVENTION #3

Vaccinating at acute visits



Medical assistants reviewed immunization status at all visits and developed prompts that say “Immunizations needed” on charts to remind providers.

Pre, During, Post Visit Planning

INTERVENTION #4

Integrating registry into daily workflow



Direct Connection to registry by developing a relationship with a “real” individual.

Pre, During, Post Visit Planning

INTERVENTION #5

Utilizing non-confrontational communication with parents



Learn from a national expert regarding **non-confrontational** communication techniques

“Address parents concerning immunizations as if always expecting them to accept them”

Patient Population & Communication

INTERVENTION #6

Implementing a recall system



Utilize various methods of recall, including **text, phone, postcards**. Work with IIS when possible to implement a regular system.

Patient Population & Communication

INTERVENTION #7

Ensuring accurate patient lists

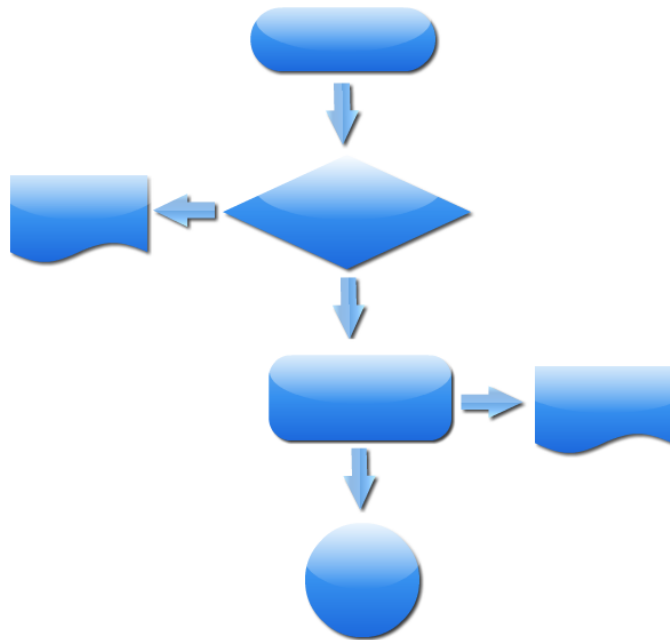
Abbreviated Patient List					
Shows a list of all patients with their address and their balance listed.					
Acct #	Name	Phone	Address	Insurance Balance	Patient Balance
44978982703	Testing Again	4194198746 - 4194517846	7848 Portal Dr. Apt 40	\$70.00	\$0.00
25961899031	Superbill Button	-	-	\$130.00	\$0.00
27147426890	Add Button	-	456987 Pink Dr.	\$72.00	\$0.00
00419191225	Tobacco Cessation	-	-	\$100.00	\$0.00
61786077184	Bier Desrosier	-	7894 Apple St Apt 60	\$74.00	\$0.00
2247166	Test Emailing	-	789 Orange St	\$126.00	(\$1.00)
5954827	Testing Emailing	-	-	\$82.00	\$0.00
34986925184	Open Encounter	-	-	\$90.00	\$0.00
40284200456	Opening Encounters	-	-	\$100.00	\$0.00
86465922283	Brent Everett	5192222222 -	-	\$3,049.00	\$48.00
87930920434	Brent Everett	-	-	\$400.00	\$80.00
45071511028	Rosa Farron	-	-	\$5,331.01	\$0.00
48817249928	NotBlank Fields	-	-	\$373.01	\$0.00
78290664408	Blank Fields	-	-	\$0.00	\$0.00
8033379	Barbara Gordon	8559442995 -	28819 Franklin Rd Apt 60	\$1,540.77	\$105.00
04214071907	Vincent Ha	-	789554 Black St. Apt 60	\$1,932.23	\$0.00
36802650611	Roy Harper	-	-	\$7.00	\$0.00
70365629611	Cecil Harvey	4194194199 - 7897897899	124 Baron Rd Apt 10	\$3,655.00	\$40.00
61911604633	John Haurchefont	419 7845641 - 789 4561234	4561 Foundation Dr. Apt 70	\$221.09	\$0.00
77144420736	Releasing Information	-	-	\$100.00	\$0.00
4812399726	Jonny Lang	9014665843 -	5044 Cherrytree Ave	\$76.00	\$0.00
4729706054	Joe Li	-	457894 Pink Ave.	\$3,985.00	\$0.00
63314053237	New Limited	-	-	\$660.00	\$0.00
48477564657	Ronan Lynch	4887847845 - 3214789451	154 Monmouth Rd	\$215.00	\$0.00

Remove inactive patients and clean up IIS. Running reports regularly to review patients that have “moved or gone elsewhere”

Patient Population & Communication

INTERVENTION #8

Implementing Standing Orders for Routine/Follow up “Vaccination Only” visits



Practices solidified their **standing orders** for vaccines and extended their appointment calendar so that shot-only visits could be made upwards of a year in advance. This allowed for **easier scheduling** of vaccines given in a series (i.e. HPV)

Reliable Vaccination Systems

INTERVENTION #9

Staff and Clinician training for entire practice

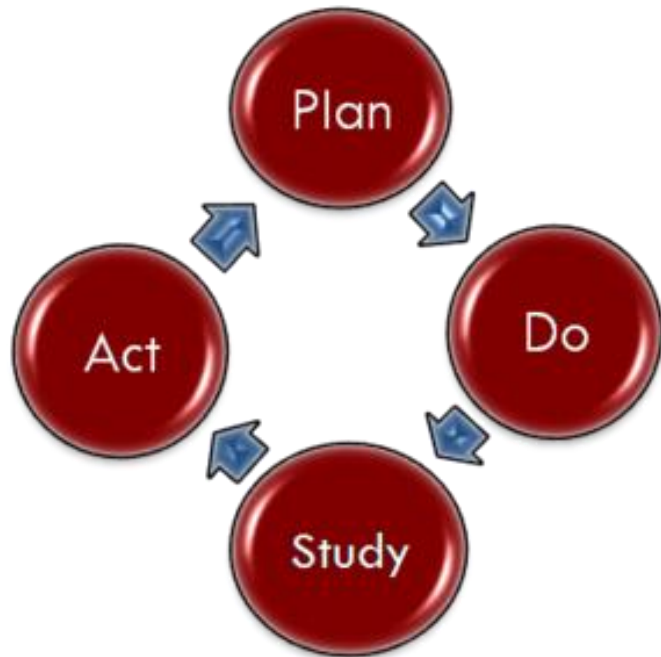


Some practices developed and implemented a **educational program** for the **entire staff** on reviewing shot records, intervals and processes.

Reliable Vaccination Systems

INTERVENTION #10

Using data and rapid cycle testing to continuously improve



“We will do PDSA testing so we can continue to improve protocols and orders that we already have in place”.

“We want to start flu vaccine PDSA cycles to increase rates”

“...we will continue PDSA testing as well as changes in workflow and EMR flags”

Culture of Improvement



4:23

+ Queue

Download

Embed

Transcript



PUBLIC HEALTH

Pediatricians Pressured To Drop Parents Who Won't Vaccinate

February 4, 2015 · 5:08 PM ET
Heard on [All Things Considered](#)



PATTI NEIGHMOND



Thank you for your attention!

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@ocaap

@SOCPA

