

Kindergarten immunization data. Statewide, over 88% of kindergarten students completed all school-required vaccines in 2022. From 92% to 95% of kindergartners completed each individual required vaccine. Use the year and county selection tools to change the displays of vaccination rates. *Note: county-specific immunization rates are missing for 1992 and 1996.*



Vivian Larson, PhD MPH  
Beth Vorderstrasse, PhD MPH  
Oregon Immunization Program  
Oregon Health Authority

Kindergarten vaccination rates for DTaP (Diphtheria, Tetanus and Pertussis), Hepatitis A, Hepatitis B, MMR (1st dose of Measles, Mumps and Rubella), 2nd dose of Measles, Polio, and Varicella are shown from 1983 to 2022. To look at one vaccine at a time click on the vaccine of interest. Dip in immunization rates in 1990, 2001, and 2009 occurred when new vaccine requirements were added for kindergartners, with increases seen

# Outline

(1) Background and context

(2) OIP's data modernization goals

(3) CDC DMI Overview

(4) Oregon's interpretation of DMI priorities with examples

# Background

A horizontal teal bar spans the width of the slide. Below it, two teal triangles point downwards towards the years 2019 and 2020, which are positioned on a light gray background.

**2019**

**2020**

- Annual process
- Siloed approach to processing population-based rates (PBR)
  - Child, adolescent, adults
  - Different packages/programs to process and output data
- Data products:
  - Static tables
  - Preliminary Tableau dashboards released
    - Anticipated versioning, no data viz plan

# Background



2019

2020

- Central COVID-19 SAS reporting database (daily data extracts)
- First viz released within days of vaccine in arms
  - Daily refresh
  - Data viz plan developed detailing phases/dashboards
- Bolus of personnel support
  - OIP staff pulled from regular duties to support COVID-specific work

# Background

A diagram illustrating the background of data sharing expectations. At the top, a teal horizontal bar spans the width of the slide. Below this bar, two teal triangles point downwards, marking the years '2019' and '2020+'. A large pink arrow points upwards from the bottom left towards the year '2020+'. To the right of the arrow, a list of factors is presented, which are expected to increase over time.

2019

2020+

- Heightened expectations of data sharing

Transparency

Quantity of products produced

Timeliness of data

Granularity of data released

# OIP's Data Modernization Goals



**Reduce time burden**



**Increase transparency & access to PBR data**



**Ensure consistency & reliability**



**Increase cadence of reporting\***



**Improve data products**



# CDC DMI Priorities

Build the right  
foundation

Manage change  
and governance

Accelerate data  
into action

Support and  
extend external  
partnerships

Develop state-  
of-the-art  
workforce

*“How our nation will move from siloed and brittle public health data systems to **connected, resilient, adaptable** and **sustainable ‘response-ready’** systems that can help us solve problems before they happen and reduce the harm caused by the problems that do happen”*

# Priority 1: Build the right foundation

## CDC

- Scalable foundation
- Appropriate automated data sources
- Enable timely and complete data sharing
- Break down silos that keep critical data disconnected

## OIP

- PBRs moved to modernization team
- Data processing via centralized SAS program
- Creation and maintenance of databases for populations of interest
- Protocols created for
  - County assignment and PO Box handling
  - CVX review and inclusion



- Time intensive process to validate code and output with previous methods
- Process changes require extensive approvals
- Breaking down silos within Surveillance & Quality Team



# CVX Code Database Development

- Ex: DTaP-Tdap-TD for 2-year-olds and teens
- Allows for:
  - Review of what is already included in current databases
    - CVX codes included in definitions of up-to-date
  - Review of new CVX codes with each new data pull

CVX	DTaP-Tdap 2YO	DTaP-Tdap TEEN	DTaP-Tdap-TD TEEN
1	1	1	1
9			1
20	1	1	1
22	1	1	1
50	1	1	1
102	1	1	1
106	1	1	1
107	1	1	1
110	1	1	1
113	1		1
115	1	1	1
120	1	1	1
130	1	1	1
132	1	1	1
138			1
139	1		1

# Priority 2: Accelerate data into action

## CDC

- Advance use of analytics for efficient and effective decision-making
- Identify health inequities and promote equitable health outcomes

## OIP

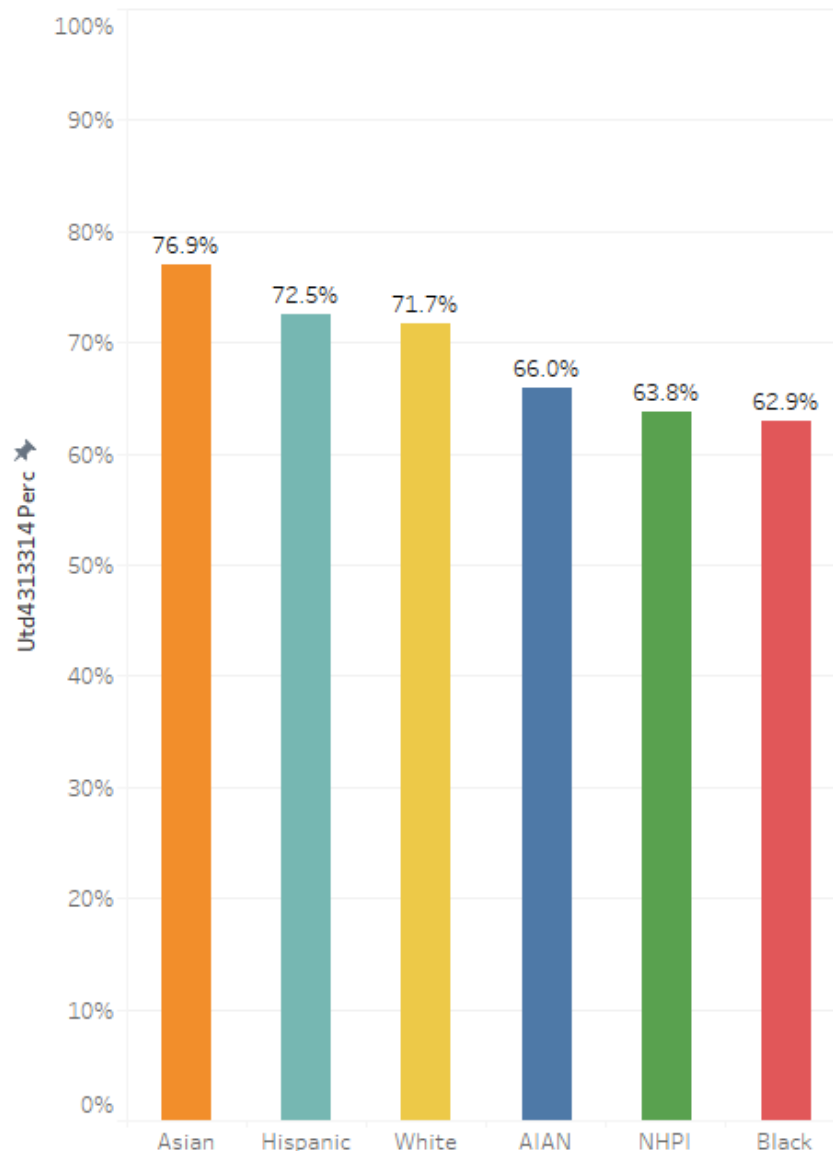
- More thoughtful data visualizations
  - Data viz plans with phased rollout
  - Elicit partner/public feedback
  - Exploration of new and modern chart/graphs/tables
- Update suppression threshold for population subgroups



- Process changes require extensive approvals
- Partner feedback- Who to ask? What to do with conflicting suggestions?
- Planning and creating data visualization requires learning and time

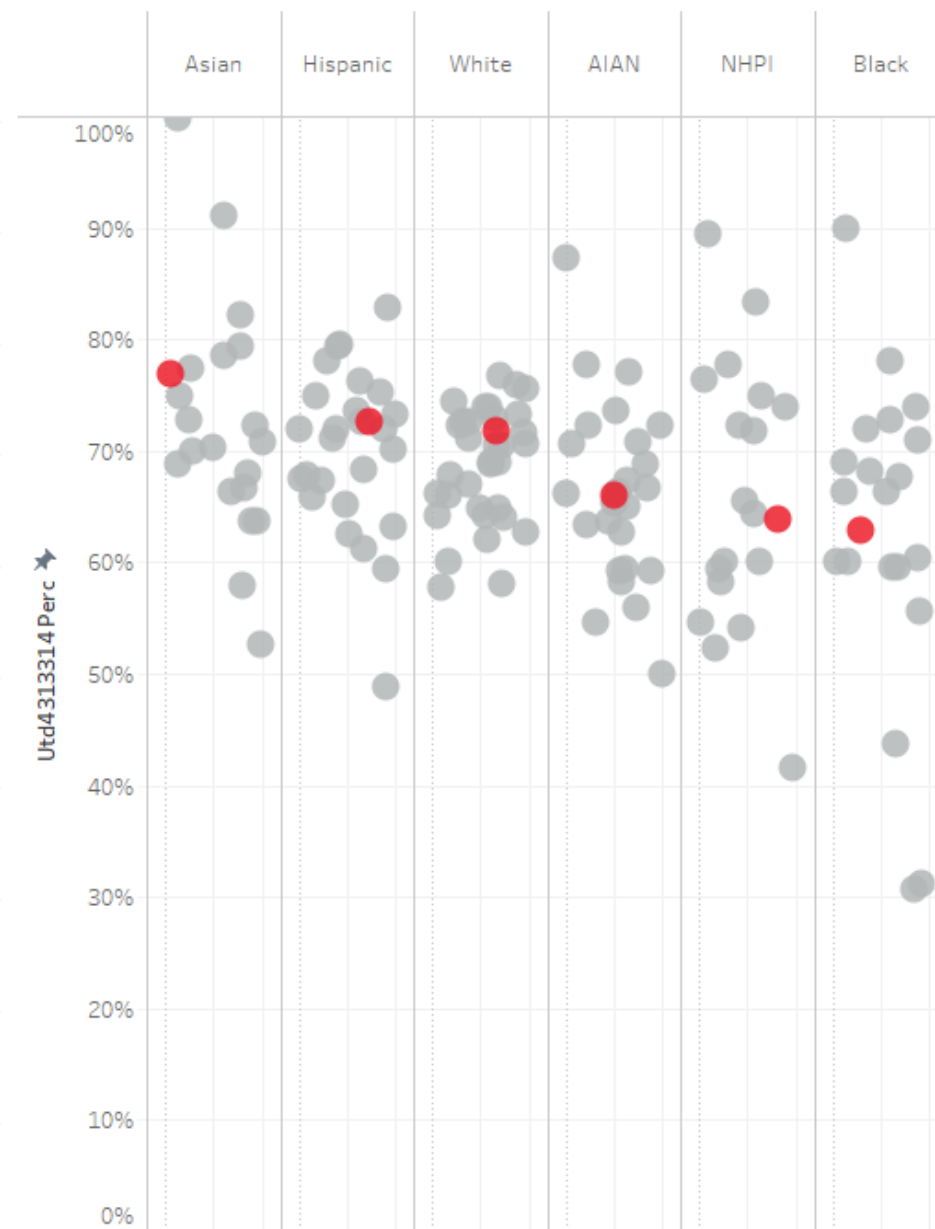
# Bar Graph

Geographic region: Statewide



# Jitter Plot

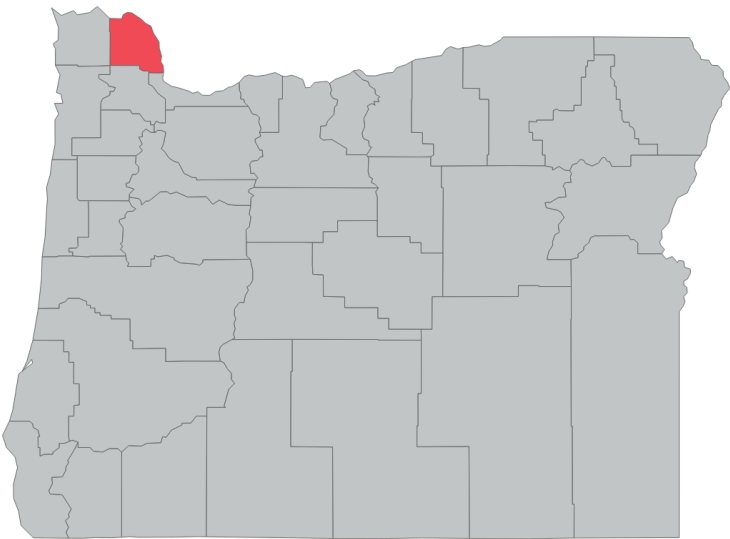
Statewide County



**Viz  
Revamp:  
Trial and  
error**

# Suppression threshold impact

## Columbia County



	2019	2020	2021	2022
Hispanic <sup>c,e</sup>	*	*	*	*
White <sup>c,e</sup>	63%	66%	64%	66%
African American <sup>c,e</sup>	*	*	*	*
Asian <sup>c,e</sup>	*	*	*	*
American Indian and Alaskan Native <sup>c,e</sup>	*	*	*	*
Hawaiian/Pacific Islander <sup>c,e</sup>	*	*	*	*

Hispanic <sup>c,e</sup>	79% <sup>#</sup>	77% <sup>#</sup>	58% <sup>#</sup>	63% <sup>#</sup>
White <sup>c,e</sup>	63%	66%	64%	66%
African American <sup>c,e</sup>	67% <sup>#</sup>	50% <sup>#</sup>	*	73% <sup>#</sup>
Asian <sup>c,e</sup>	71% <sup>#</sup>	54% <sup>#</sup>	60% <sup>#</sup>	72% <sup>#</sup>
American Indian and Alaskan Native <sup>c,e</sup>	57% <sup>#</sup>	61% <sup>#</sup>	48% <sup>#</sup>	61% <sup>#</sup>
Hawaiian/Pacific Islander <sup>c,e</sup>	*	*	*	45% <sup>#</sup>

# Priority 5: Manage change and governance to support new ways of thinking

## CDC

- Aid adoption of unified technology
- Become a culture of learning and collaboration
- Support new ideas, learn from failures, and encourage risk-taking

## OIP

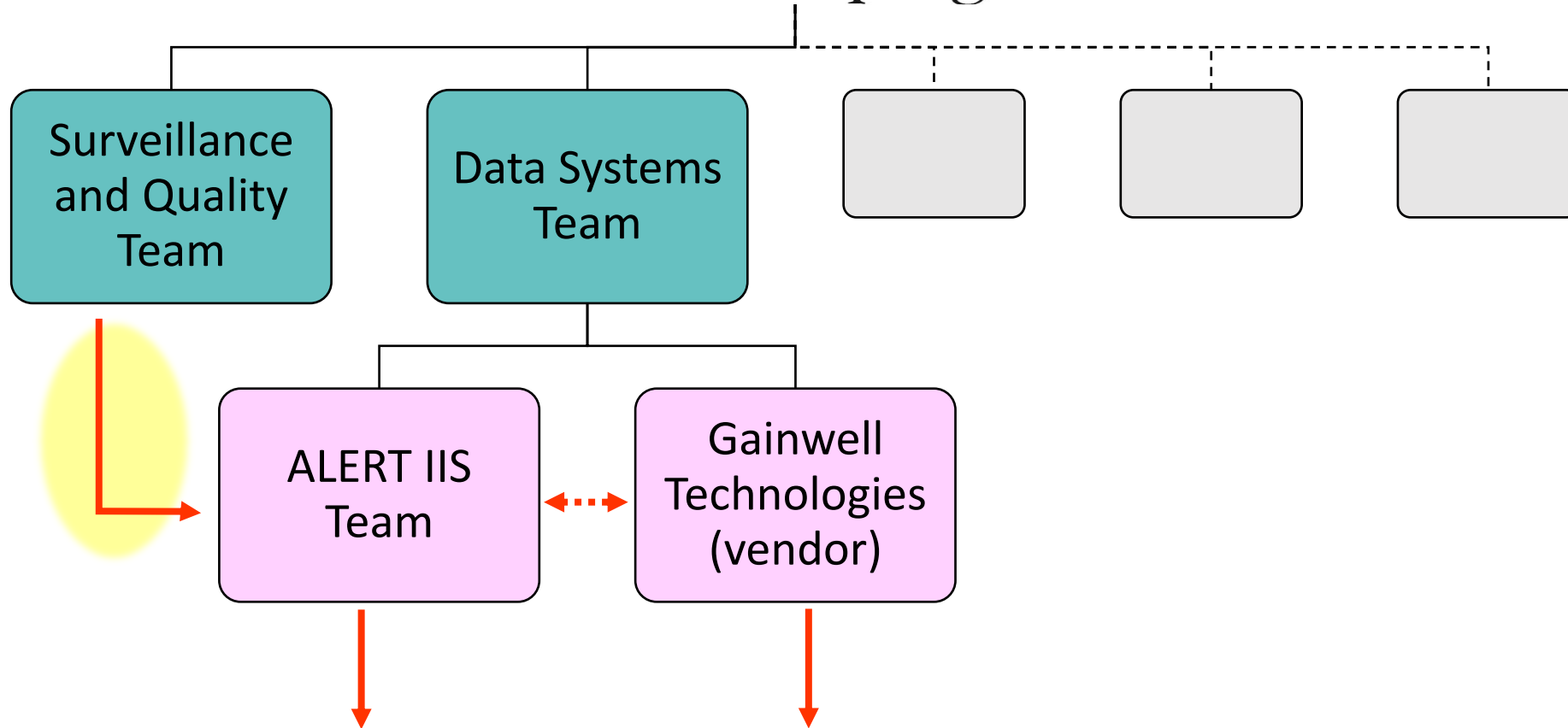
- Creation of a community of practice
- Buy-in and support from management
  - Coordination and collaboration Epi/Analyst and ALERT IIS teams



- Carving out time and the resources for learning
- Critical evaluation of current processes- difficulty embracing change
- Breaking down silos across OIP



# oregon immunization program



**ALERT** ALERT Immunization Information System

# OIP's Data Modernization Goals

Goals	Plan
<b>Reduce time burden</b>	<ul style="list-style-type: none"><li>• Transfer PBRs to modernization team</li><li>• Central processing programs in SAS</li></ul>
<b>Increase transparency &amp; access to PBR data</b>	<ul style="list-style-type: none"><li>• Maintain databases in central location for analysts/epis to access</li><li>• Lower denominator threshold for suppression</li></ul>
<b>Ensure consistency &amp; reliability</b>	<ul style="list-style-type: none"><li>• Uniform data pulls out of ALERT IIS</li><li>• Documentation and Read Me's for scripts</li><li>• Establish protocols for major processing steps common across PBRs</li></ul>
<b>Increase cadence of reporting*</b>	<ul style="list-style-type: none"><li>• Continue collaboration with ALERT IIS Team and future work with vendor for automated data extracts (move cadence to quarterly)</li></ul>
<b>Improve data products</b>	<ul style="list-style-type: none"><li>• Shift from static tables to interactive vizzes</li><li>• Create data viz plans and phased roll-out for all data vizzes</li><li>• More thoughtful visualizations that reflect feedback</li></ul>

*\*anticipated start date mid-late 2023*



# **Thank you! Questions?**

[vivian.larson@oha.oregon.gov](mailto:vivian.larson@oha.oregon.gov)