

Ohio's Health Data Portal for Universal Newborn Hearing Screenings, Diagnostic Testing, and Early Intervention

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Overview

- Learning Objectives
- Background
- Barriers and Challenges
- Initial Steps
- Data Validation and Visualizations
- Final Result

Learning Objectives

1. Understand the reasons and benefits of the initiative and how program staff can work within state directives.
2. Identify possible barriers and challenges, from the perspective of data stewards and analysts, to building similar projects and how to navigate them.
3. Walk away with a basic knowledge of Ohio's Universal Newborn Hearing Screening Health Data Portal and what similar projects could look like for your jurisdiction.

Background

- InnovateOhio Platform Executive Order signed by the governor in April 2019
- Includes the use of DataOhio Portal, an interactive website to access Ohio's data from all areas of government
- Includes three access levels, including public and secured
- Focus on Department of Health first

Barriers and Challenges



Barriers and Challenges

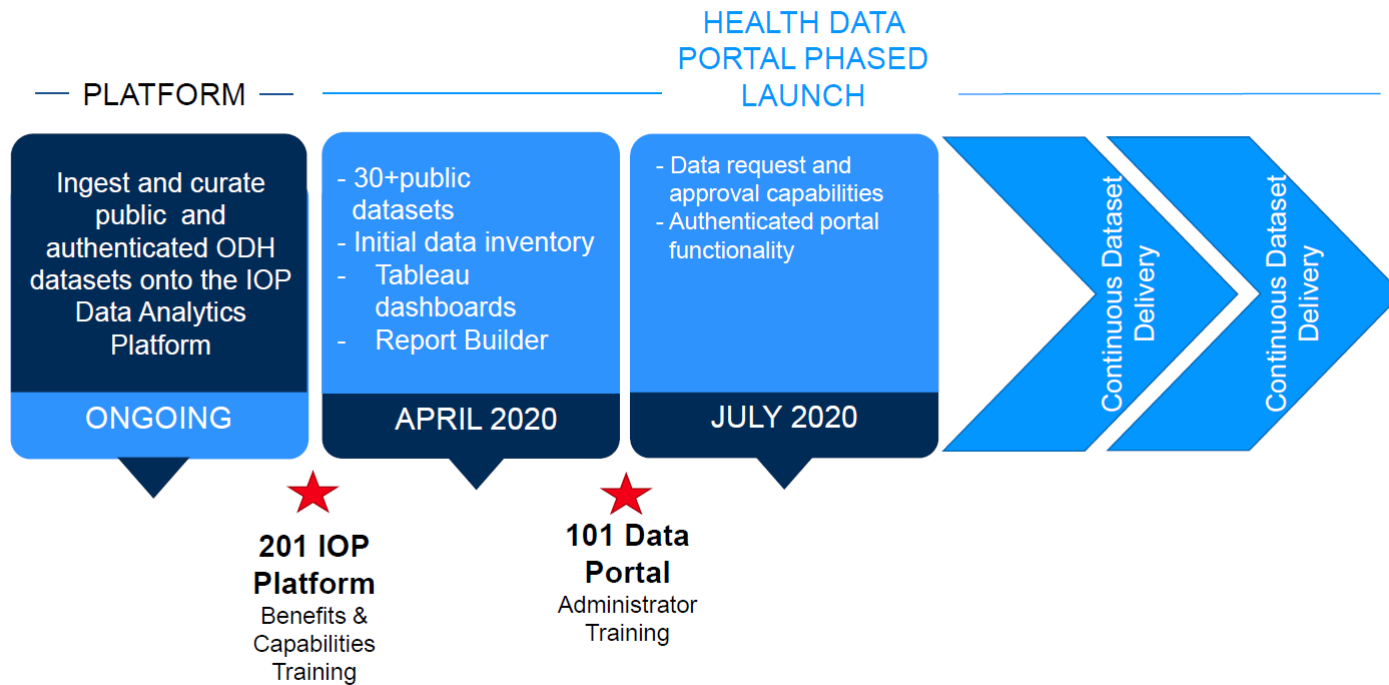


Initial Steps

- Met with developers to explain the program and goals of EHDI
- Discussed how data system is also a follow-up case management system, therefore cases changing daily
- Physically explored live data system and the “behind the scene” variables
- Prioritizing and deciding on data that would be available publicly or via secured login

Initial Timeline from Developers

Health Data Portal Project Timeline



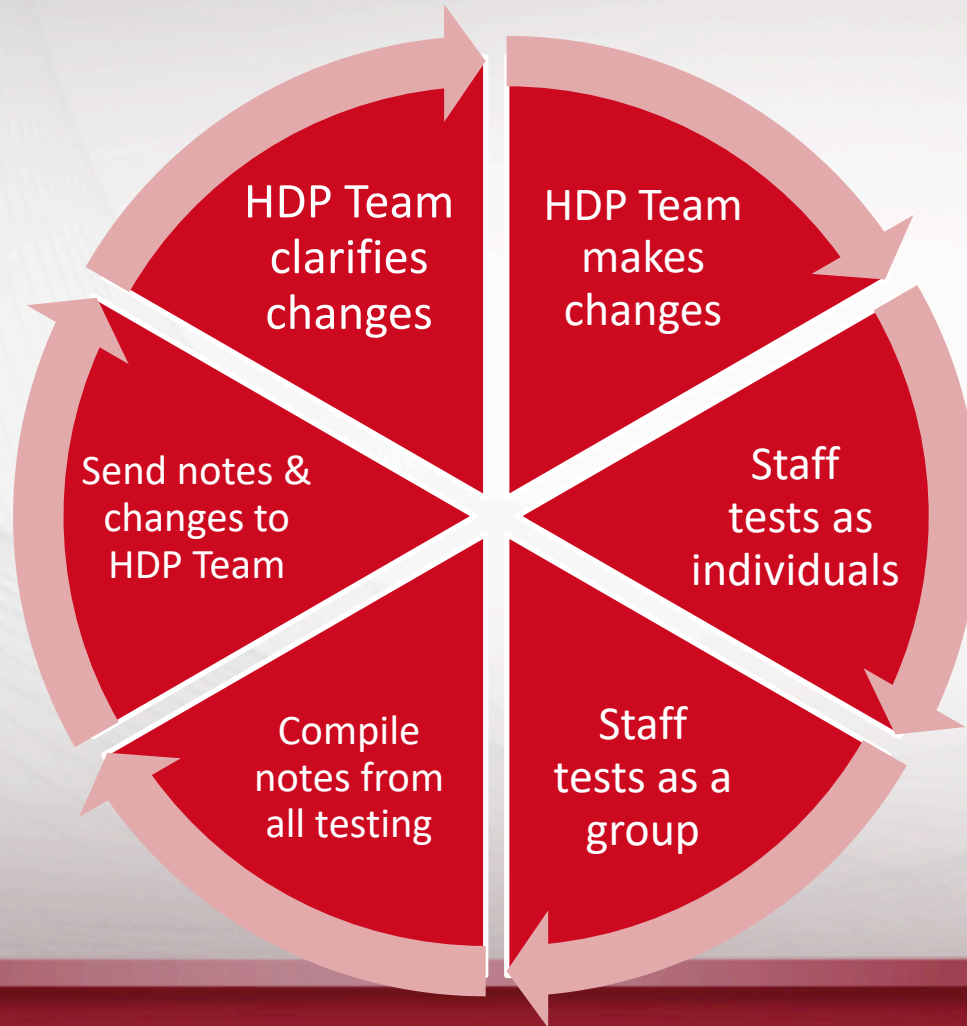
Initial Development Process

- Semi-regular meetings (weekly, monthly)
- Submitted initial datasets to include information from the Ohio 2017 and 2018 CDC Hearing Screening and Follow-Up Survey results
- Shared equations and coding for all *possible* data points to share
- Shared maps of previous reports to replicate and enhance

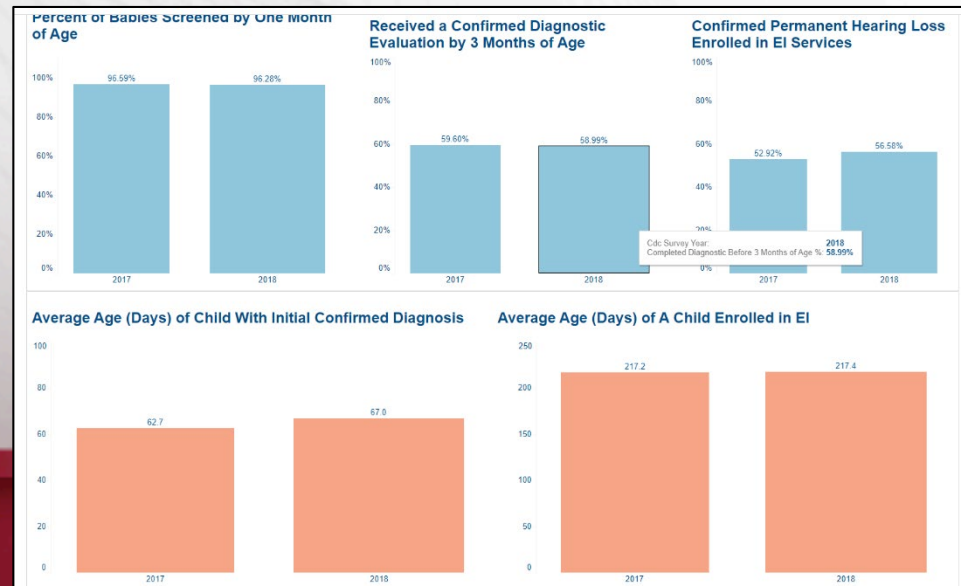
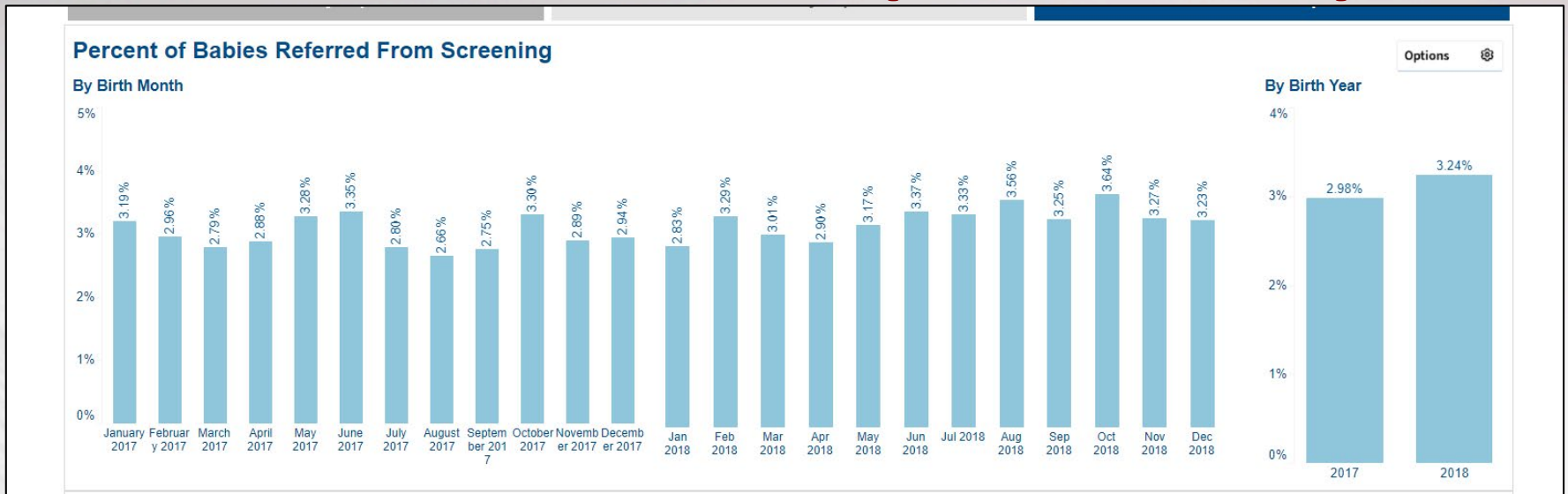
Development Decisions for EHDI Team

- Listing out every individual map we wanted to show
- Listing out every individual graph we wanted to show
- Designing a landing page with explanations of dataset
- Deciding how people will navigate around from landing page, to maps, to graph pages

On-going Validation Process

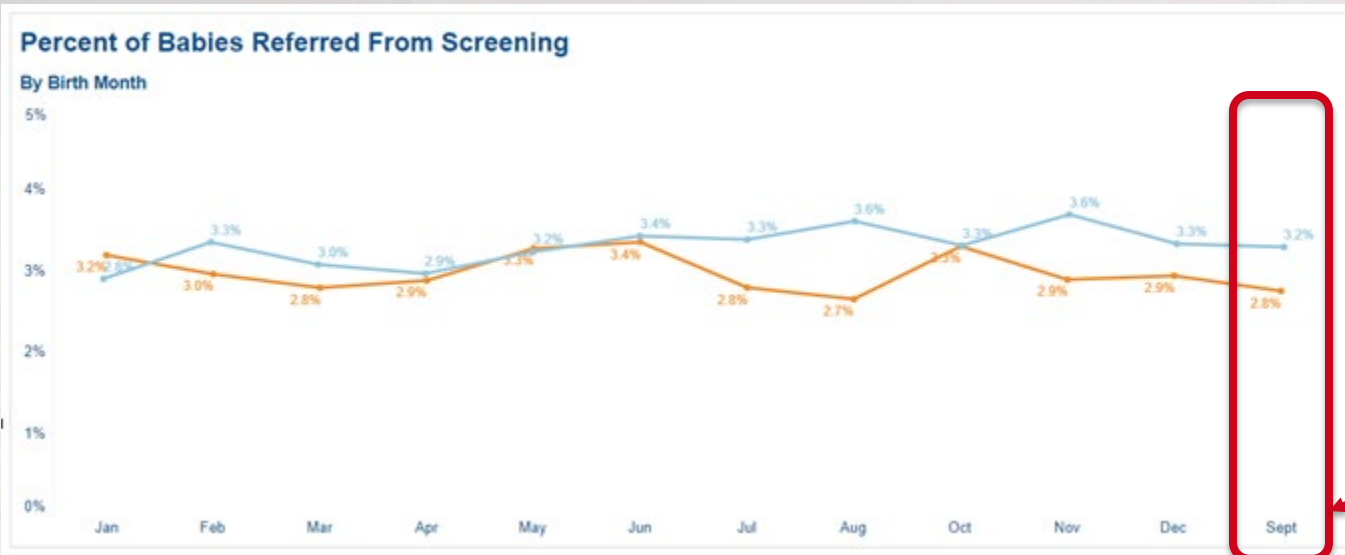


Visualizations (First Draft)



- Birth month & year have different scales
- Cannot read all months
- No visual difference between years on graphs
- Average age graphs look very similar to other graphs
- Generally unappealing and confusing

Visualizations Development Issues



September as last month in year

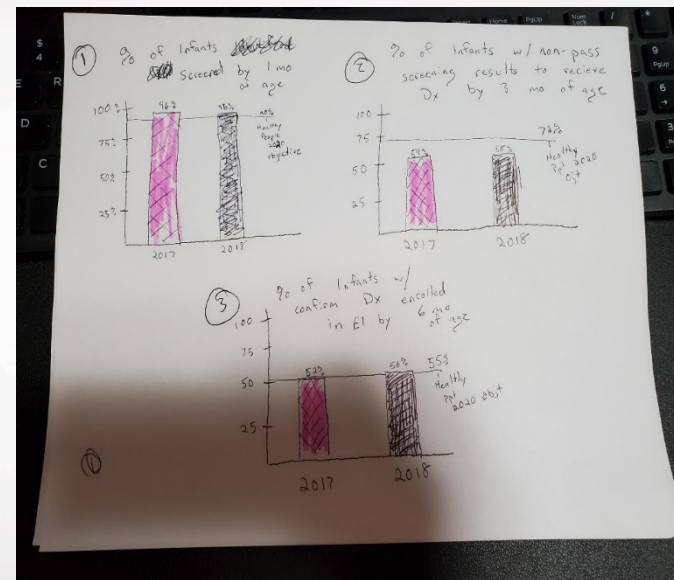
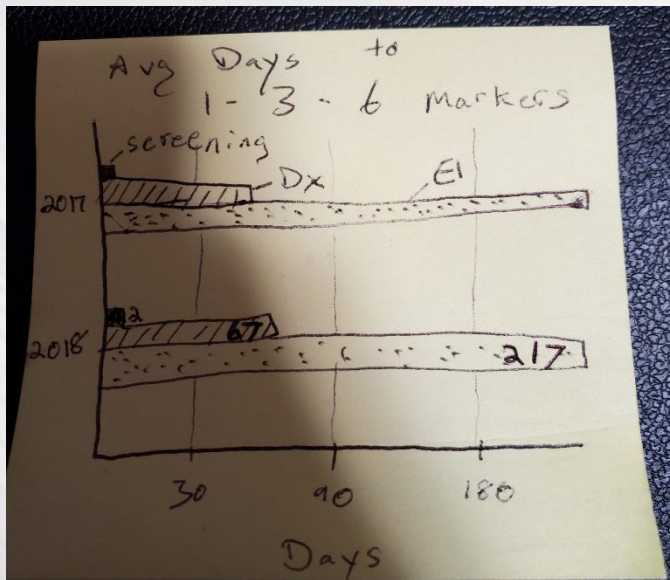
Random shapes/symbols that link to odd pages

Diagnostic Result regardless of screening

Additional Indicators

Early Intervention of Any Type, regardless of screening

Visualizations Development Solutions Examples

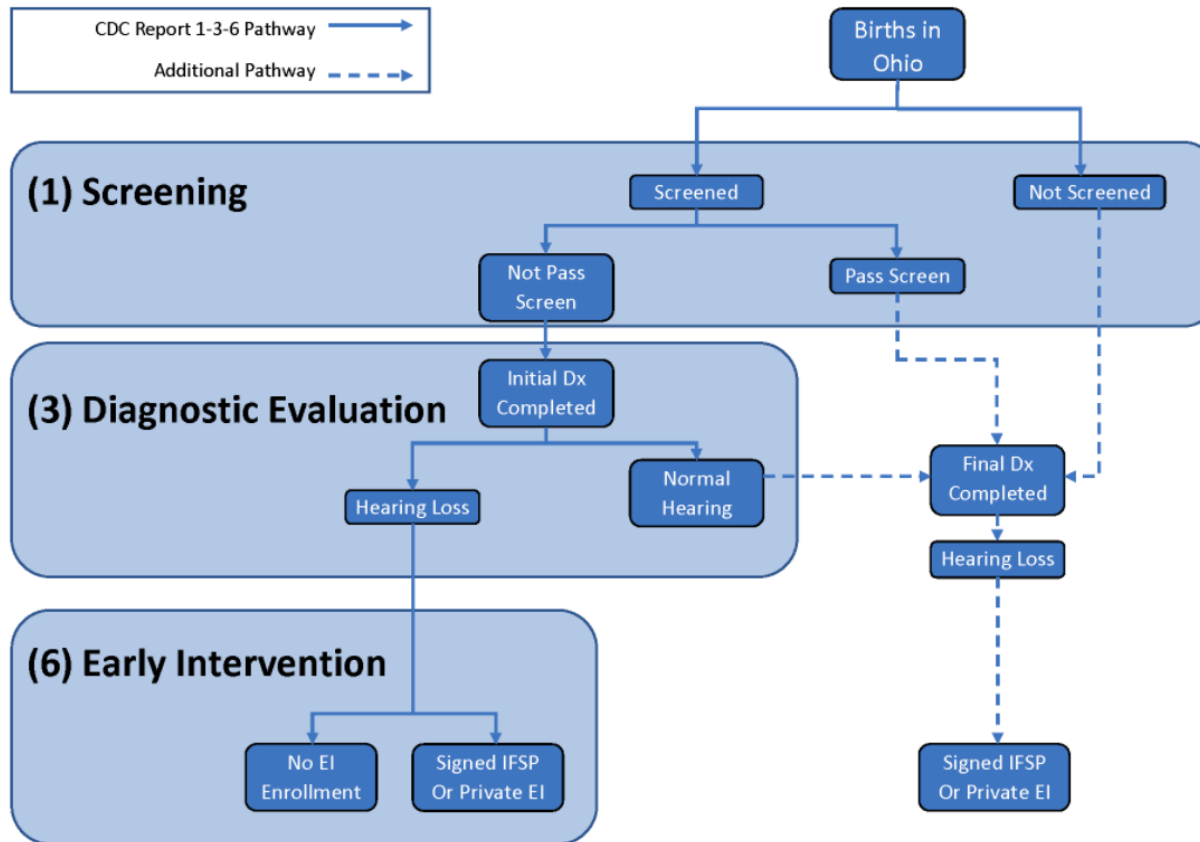


Sent HDP team hand drawn examples of how we wanted graphs to appear

Final Annual Maps to Visualize

- Passed Screening Rate
- Referred Screening Rate
- Refusal Screening Rate
- Completed Diagnostic by 3 Months of Age Range
- Confirmed Permanent Loss Rate
- Diagnostic Lost to Follow Up (LTFU) Rate
- Diagnostic Refusal Rate
- EI Enrollment Rate by 6 Months of Age
- EI Enrollment LTFU Rate
- Confirmed No Loss Rate
- Confirmed Permanent Loss by Any Age Range
- Confirmed Transient Loss Rate
- EI Enrollment Rate
- EI Refusal Rate

CDC Report 1-3-6 and Additional Pathways to Early Intervention Enrollment



EHDI Data Portal Landing Page

CDC Report 1-3-6 Pathway.

(1) Screening: All babies born in the state should have hearing screened by 1 month of age

(3) Diagnostic Evaluation: All babies who refer from their hearing screening by 1 month of age and receive a diagnostic evaluation by 3 months of age

(6) Early Intervention: All babies who refer from their hearing screening by 1 month of age, an initial confirmed permanent loss as a result of a diagnostic evaluation by 3 months of age and enroll in early intervention by 6 months of age

Additional Pathway

All babies born in the state may also follow alternate paths other than the CDC Report 1-3-6- Pathway.

Example 1: A baby born and transferred to NICU may receive a diagnostic evaluation due to increased risk of hearing loss instead of a hearing screening.

Example 2: A baby refers from the hospital hearing screening and received an initial diagnosis of a transient or fluctuating conductive loss thought to be due to fluid in the ear; however, the baby received an additional hearing evaluation and was diagnosed with permanent hearing loss.

Landing

2017 County Map

2018 County Map

Additional Graphs



Indicator Category

Indicator Subcategory

Choose Indicator Below

1-3-6 CDC Report Indicators

Diagnostic Results (Rates Presented Out of Screening Referrals)

- [Completed Diagnostic By 3 Months of Age Rate](#)
- [Confirmed Permanent Loss by Any Age Rate](#)
- [Diagnostic Lost to Follow Up \(LTFU\) Rate](#)
- [Diagnostic Refusal Rate](#)

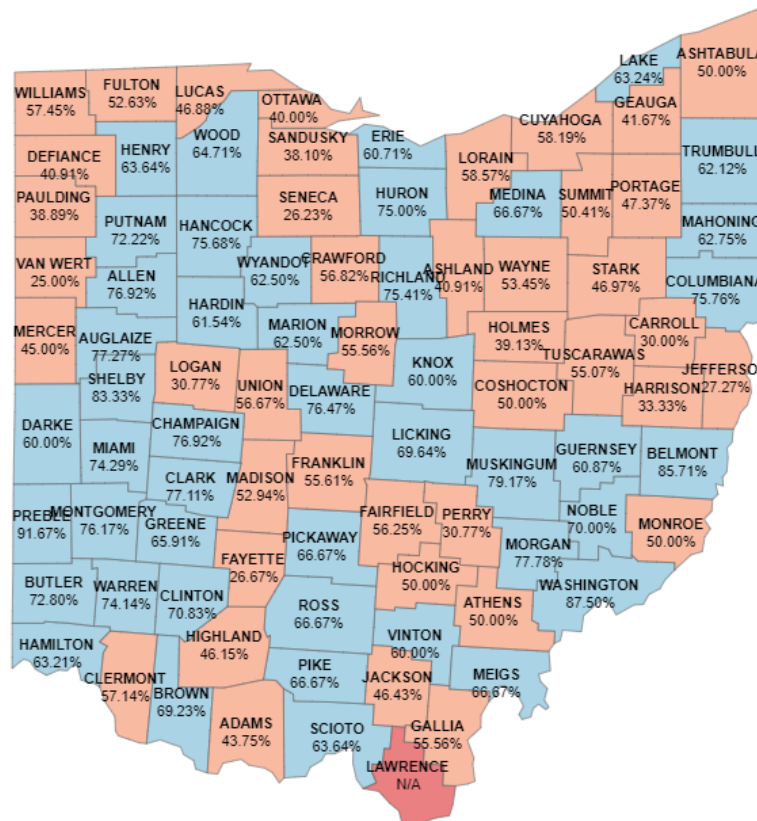
2017 Completed Diagnostic By 3 Months of Age Rate

Categories Based on Ohio Total Rate (59.60%)

County

Highlight County

- Above State Rate
- Below State Rate

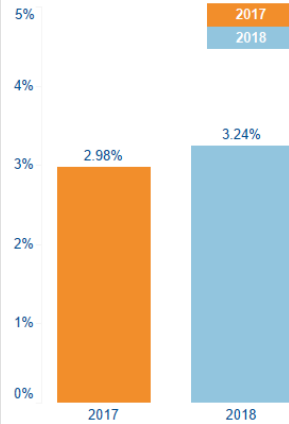


**NOTE: Numbers in map have not had final approval



Percent of Babies Referred From Screening

By Birth Year

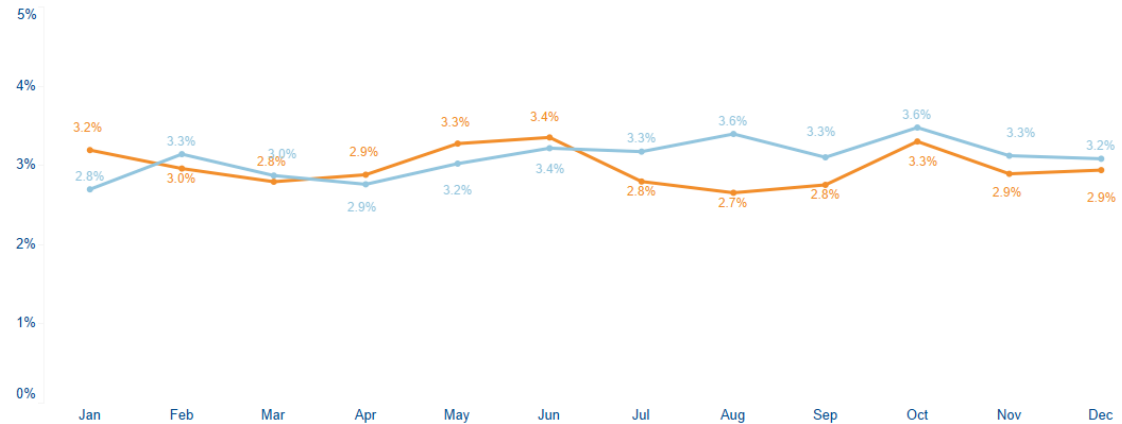


Key

2017

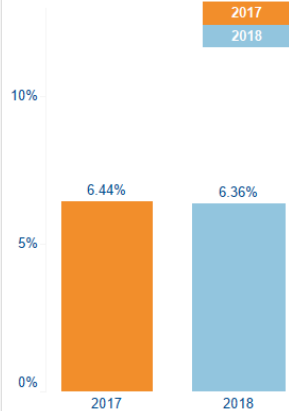
2018

By Birth Month



Percent of Permanent Hearing Loss Identified During Initial Diagnostic Evaluation

By Birth Year

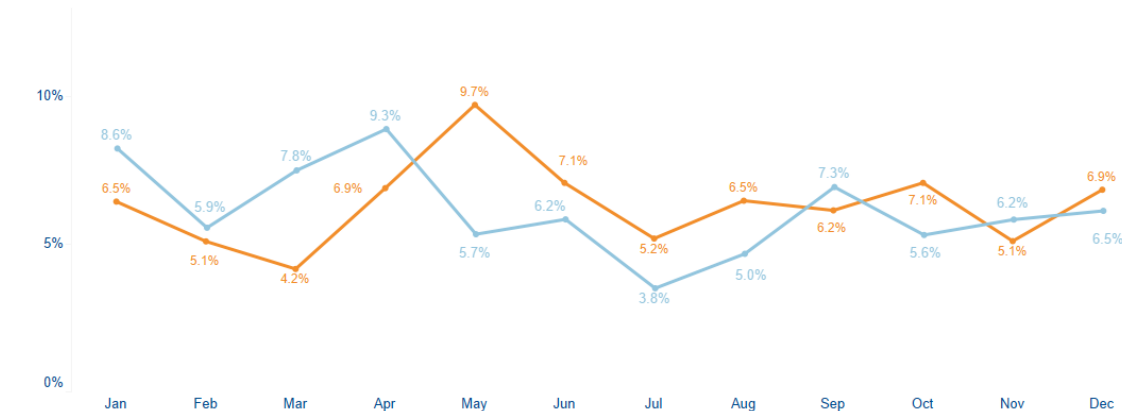


Key

2017

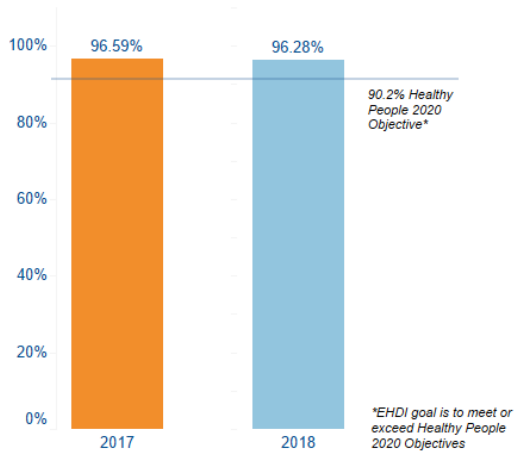
2018

By Birth Month

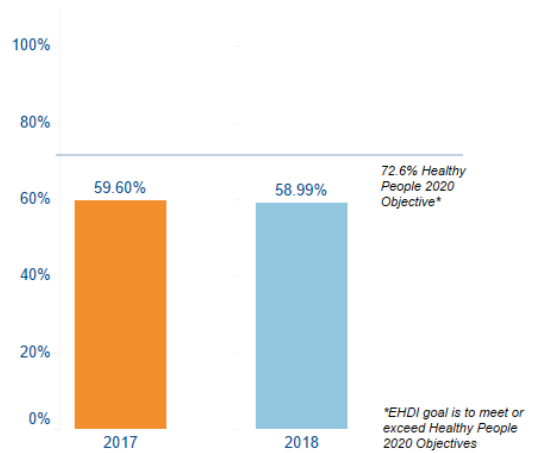


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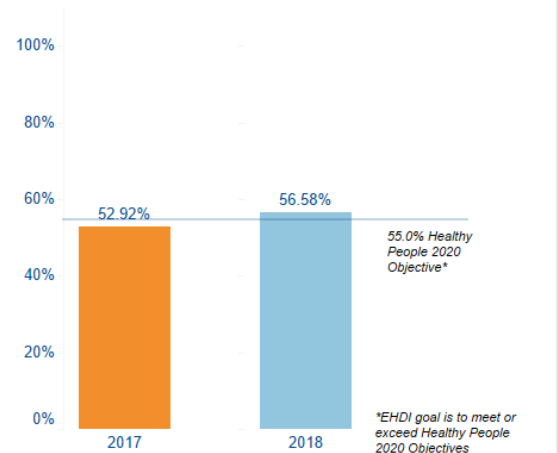
Percent of Infants Screened by 1 Month of Age



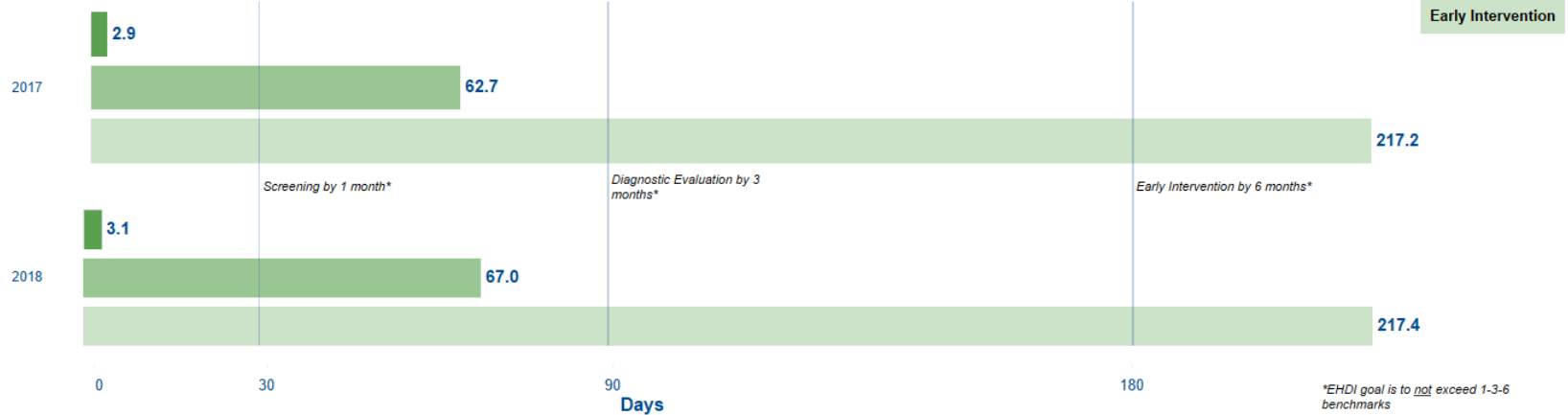
Percent of Infants with Non-Pass Screening Results to Receive Diagnostic Evaluation by 3 Months of Age



Percent of Infants with Confirmed Hearing Loss Enrolled in Early Intervention Services by 6 Months of Age



Average Number of Days to 1-3-6 Benchmarks



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