



A Systems Approach to EHDI

2024 EARLY HEARING DETECTION & INTERVENTION
GRANTEE MEETING

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Vision: Healthy Communities, Healthy People



What is a System?



Learn more at <https://mchb.hrsa.gov>

What is a System?

A set of interconnected components:

- ✓ with a definable boundary
- ✓ that interact
- ✓ and produce a set of outcomes
- ✓ by accepting inputs, collectively, and producing outputs
- ✓ through a transformation process



The EHDI System is . . .

	Characteristic	Examples
✓	A set of interconnected components:	<ul style="list-style-type: none"> • HRSA & CDC benchmarks • Providers & Hospitals • Partners (federal, state, local)
✓	with a definable boundary	<ul style="list-style-type: none"> • EHDI legislation • 0-3 expansion
✓	that interact	<ul style="list-style-type: none"> • Referral processes • Stakeholder relationships • Data sharing
✓	and produce a set of outcomes	<ul style="list-style-type: none"> • Timely screening, diagnosis, & intervention • Language acquisition outcomes
✓	by accepting inputs, collectively, and producing outputs	<ul style="list-style-type: none"> • Quality of Life & Well-Being • Health Equity
✓	through a transformation process	<ul style="list-style-type: none"> • Supporting DHH children and their families to ensure they get the services they need

Engaging Families in the System

- Families have unique perspectives about the complexities of systems of care because they are involved with so many aspects of these systems.
- As their children's primary caregivers, families are deeply affected by systems-level issues, such as care fragmentation, which are often a direct result of ineffective or outdated health care policies and practices.
- Families' lived experiences make them uniquely qualified to partner in shaping systems level policies that can improve systems of care.



Hoover, C. et al. (2018). Issue Brief: A Framework for Assessing Family Engagement in Systems Change

Learn more at <https://mchb.hrsa.gov>



Systems Thinking

Having a Systems Mindset

Systems Thinking

- Going UP to the 30-thousand-foot view
 - Looking at EHDI beyond the individual components
- Iterative process
 - The process is trying to get everyone to see the same thing
- Mental Models
 - What are the values and beliefs of different partners
 - Families, physicians, audiologists, EI providers
- Sharpening focus
 - How to prioritize the work
 - At what point in the screening to language acquisition outcomes can we make significant change
- Developing a map
 - Do we have all the right people at the table (all child serving entities)
 - Where are the leaks
 - Where are babies getting stuck
- Testing the thinking
 - Using the data (1-3-6, policy) to measure what matters



Centers for Disease Control and Prevention. (2024). An Introduction to Thinking in Systems: Why? What? How? <https://youtu.be/Tbz1JsCGwbQ?si=BuKA6Sv1IWetPWyf>.



System Mapping

A planning tool to represent the system structure.

System Mapping helps to . . .

- Walk through the system
 - Engage partners and stakeholders
 - Identify what's happening and WHY
 - Cultivate and strengthen community relationships
 - Prioritize needs
-
- Participants come together with a clearer understanding of the problem; how the underlying system works and where there is potential for policy leverage

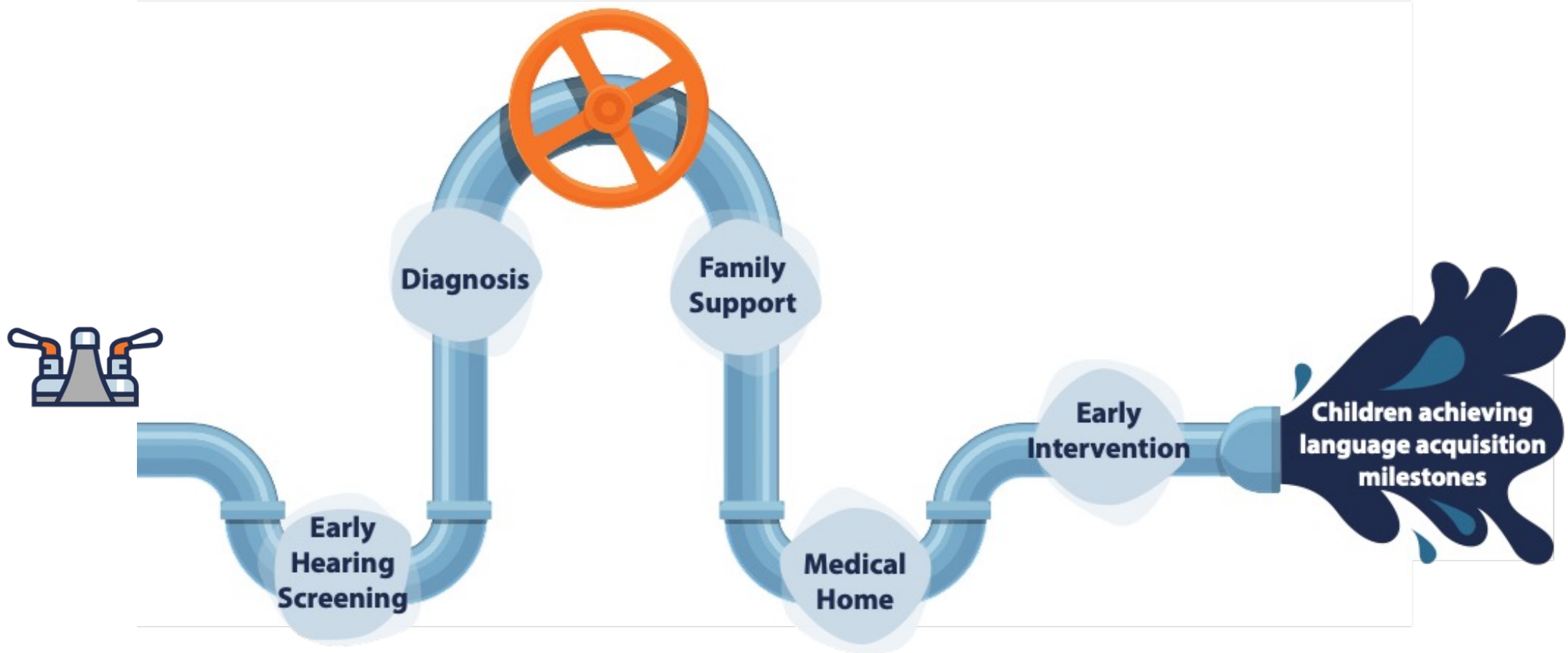


Logic Model vs Systems Mapping

- Logic Models
 - Contain assumed relationships between program elements
 - Activities can be pre-determined
 - A static representation of the system
 - Looks at outcomes and considers the steps that are needed to achieve the outcomes
- Systems Mapping
 - Considers the complex interactions of the system components
 - It is an iterative, design-focused process
 - Requires dynamic thinking, operational thinking, feedback, evidence-based action thinking

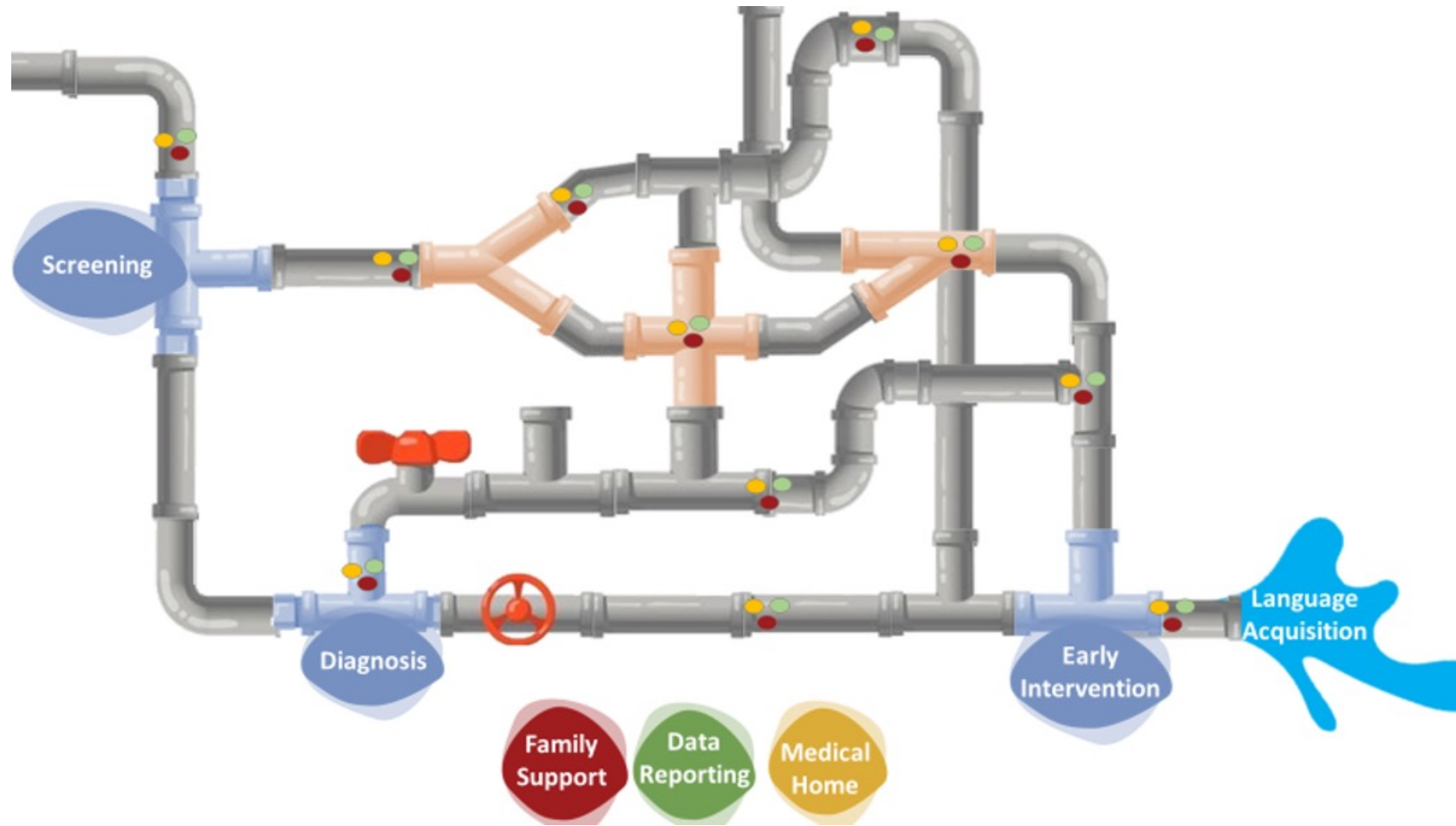
Centers for Disease Control and Prevention. (2024). An Introduction to Thinking in Systems: Why? What? How? <https://youtu.be/Tbz1JsCGwbQ?si=BuKA6Sv1IWetPWyf>.

The EHDI "Pipeline" or "Pathway"



Learn more at <https://mchb.hrsa.gov>

Mapping the EHDI System



Learn more at <https://mchb.hrsa.gov>

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PA EHDI

SYSTEM MAPPING ON A SMALL SCALE

Utilizing system mapping tools and
outcomes at a regional/local level

THE NORTHEAST PA SYSTEM MAP

- Well defined scope with specific and clear goals.
- Traces chosen system path from start to finish.
- Created with active participation from key stakeholders.
- Detailed, but easy to understand.



THE NORTHEAST PA SYSTEM MAP (CONT)

- Turns visualizations from system mapping process into actionable steps for real world use.
- Requires periodic review as system resources shift and change.



Early Intervention

Contact your local Early Intervention service provider:

Wayne:	570-253-9200
Carbon/Monroe/Pike:	570-992-0879
Lackawanna/Susquehanna:	570-346-5741
Luzerne/Wyoming:	570-831-7224
Snyder/Union:	570-275-5422

<http://dhs.pa.gov/citizens/childcareearlylearning/earlyinterventionservices>



Medical Services

Discuss the following medical evaluations with your child's primary care physician:

- Audiologic
- Cytomegalovirus (CMV)
- Heart
- Imaging
- Kidney
- Thyroid
- Vision



Family Support

Seek free Family Support Services from others who have been in the same situation:

- **Hands & Voices Guide by Your Side:** 717-580-0839
- **Parent to Parent of Pennsylvania:** 888-727-2706
- **Parent Education and Advocacy Leadership Center:** 866-950-1040
- **WIC:** 570-823-1516 (local) 800-WIC-WINS (Statewide)



Audiology

Contact an Audiologist:

Geisinger Danville:	570 271-6377
Children's Hospital of Philadelphia:	800-551-5480
Penn State Hershey:	717-531-6822
Family Hearing Center:	570-675-8114



Communication Options

Your baby can acquire language through vision, hearing technology, or a combination of both:

- Listening – Spoken Language
- American Sign Language (ASL)
- Cued Speech
- Tactile Signing



Medical Assistance

Apply for Medical Assistance

- **Medical Assistance:** <https://www.compass.state.pa.us>
- **Medical Transportation - after approval for Medical Assistance:**

Luzerne: 570-288-8420	Monroe/Lackawanna: 570-839-6282
Pike: 570-296-3408	Susquehanna/Wyoming: 570-278-6140
Carbon: 570-669-6380	Union/Snyder: 717-846-7433

IN EHDI





Indiana
Department
of
Health

INDIANA EHDI SYSTEM MAPPING

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WWW.HEARING.IN.GOV

Indiana EHDI Wins

8% Loss to follow and "1" screening rates

Parent to Parent Support: GBYS/ASTra programs

Staff members are parents

Band-aids 2019-2022

Careweb access

FAQ and developmental milestones

Education to over 40 events with providers

Faxing doctors instead of mailing

WIC data sharing (DCS just approved)

Revised EARS letters language and all materials

Indiana EHDI Strategic Plan

**“3-6” EHDI goals not improving
“20 years now, let’s review”**

Reviewed flow from prenatal to EI transition

Utilize different data sets: Hospitals, Providers, National

**Strategic Plan
2023-2025
“Work
smarter, not
harder”**

UNHS to Identification

1



Parent to Parent Support



Collect Data
Review
Program change



3



Early Intervention

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ASTra-educational advocacy

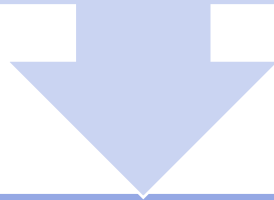


DATA SOURCES

- HOSPITAL
- PROVIDER
- REGIONAL
- NATIONAL

National Data

Lowest LTFU- 8%



Highest refer rate – 5%
3600 DNP/80,000 births

Regional Data

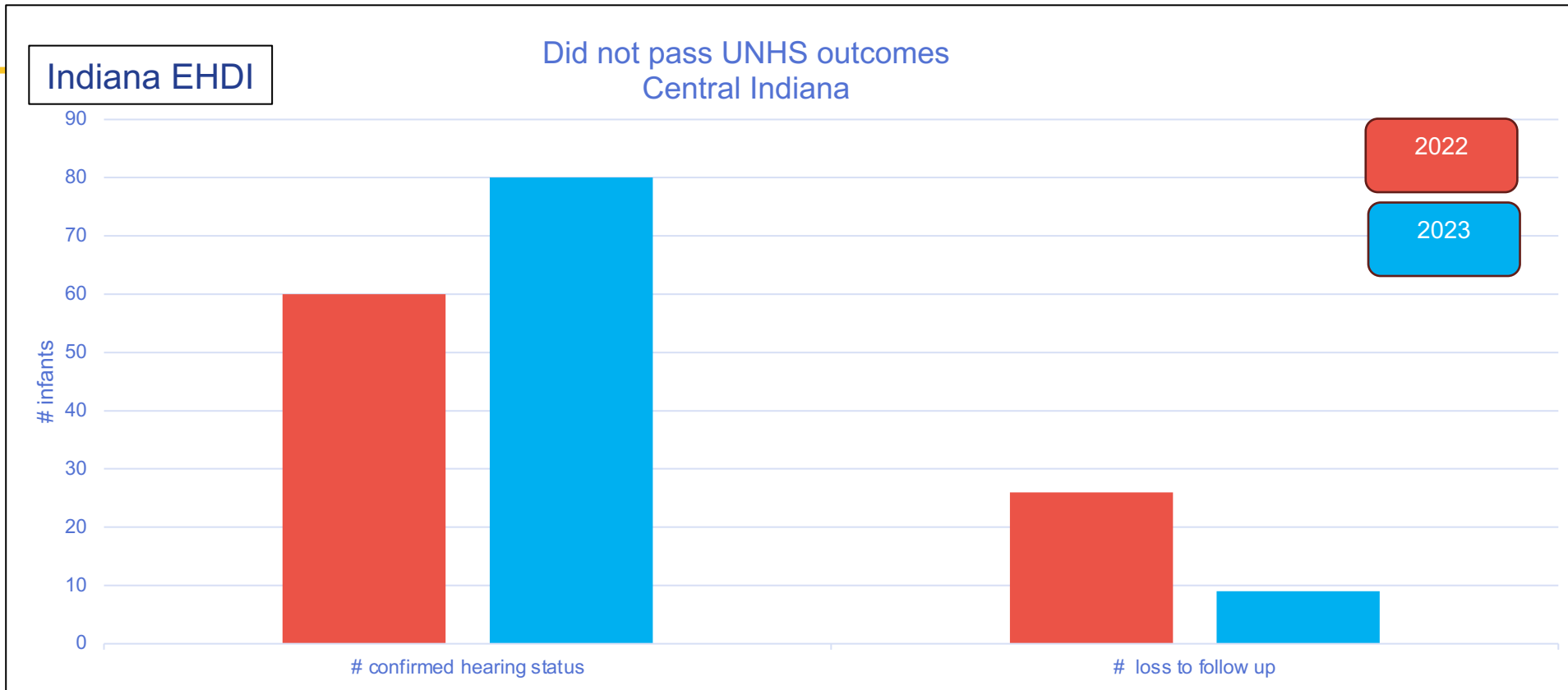
North Central Audiology Capacity



Implemented outpatient screenings in 5 hospitals

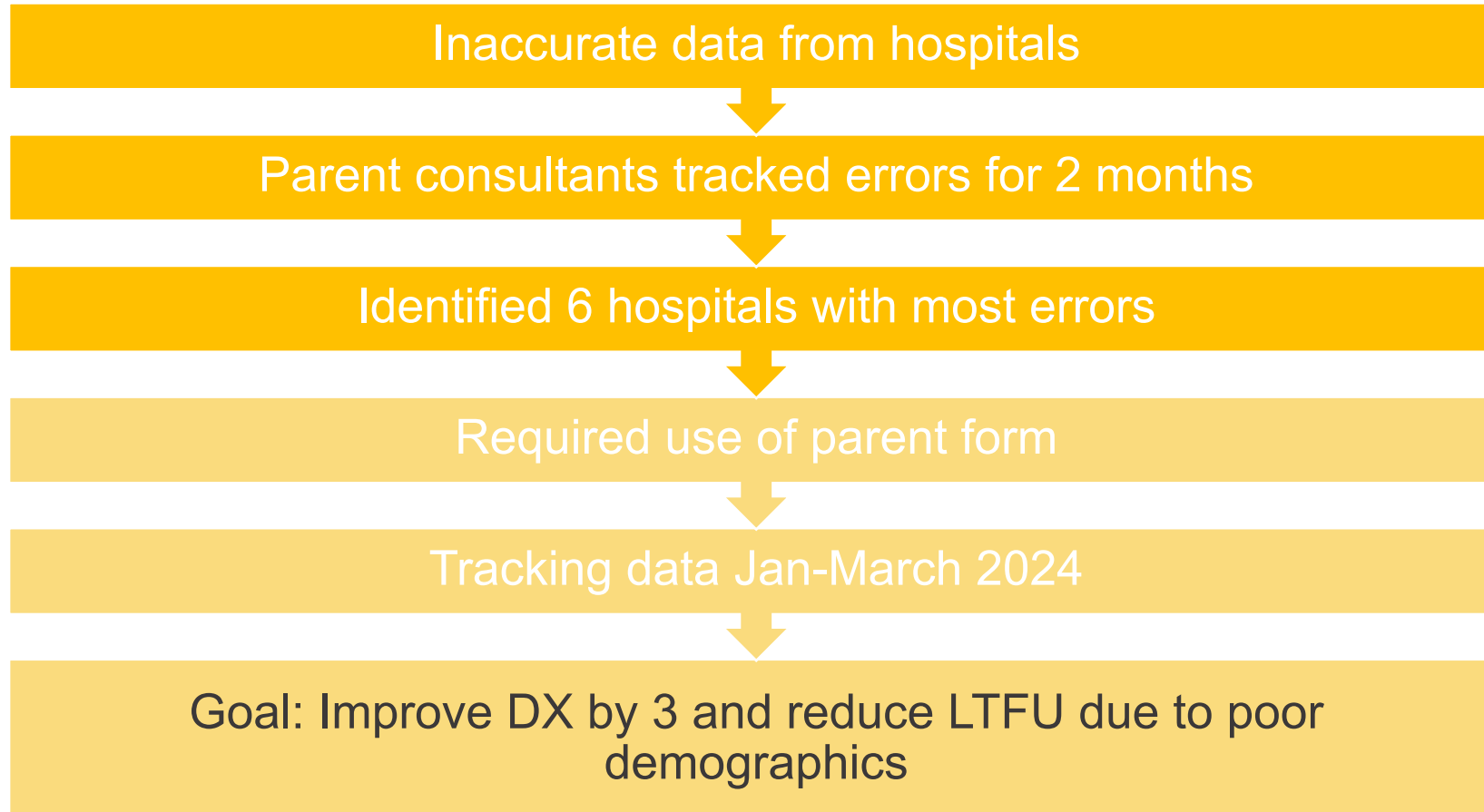


Positive outcomes



Improved # confirmed evaluations by 20%
 Decreased loss to follow up by 10%
 4 children Dx DHH before 3 months vs after

Hospital data



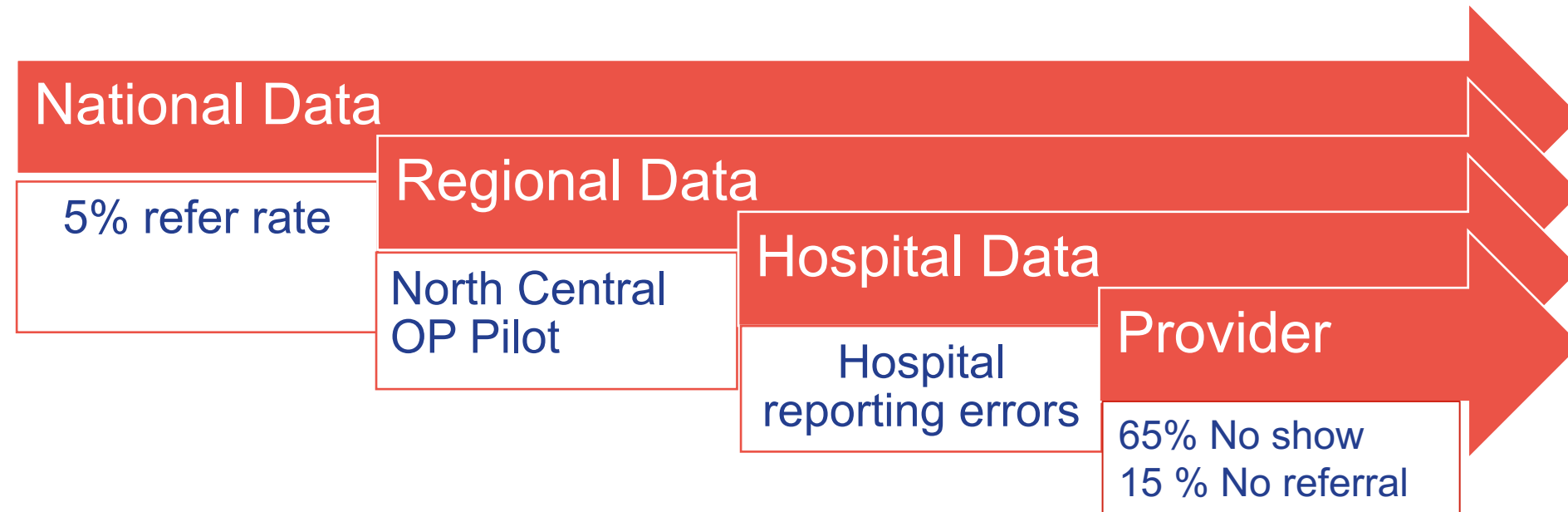
Provider data

Lists to audiologists for updates
Reduce file by file follow up



65% no show rate
10% no referrals-hospital education

Data driven change -UNHS



Policy Changes

National Data

Regional Data

Hospital Data

Provider

Outpatient screening
35/76 started January 2024
Already 12% decrease in DNP

Required use of
parent form for
improved
demographic
data and
referral location

Sending monthly no
show and cancel
reports

Added parent text
and PCP fax at 60
days

IMPROVE 3/6

Indiana EHDI

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The Iceberg

A Systems Thinking Model

Let's Practice

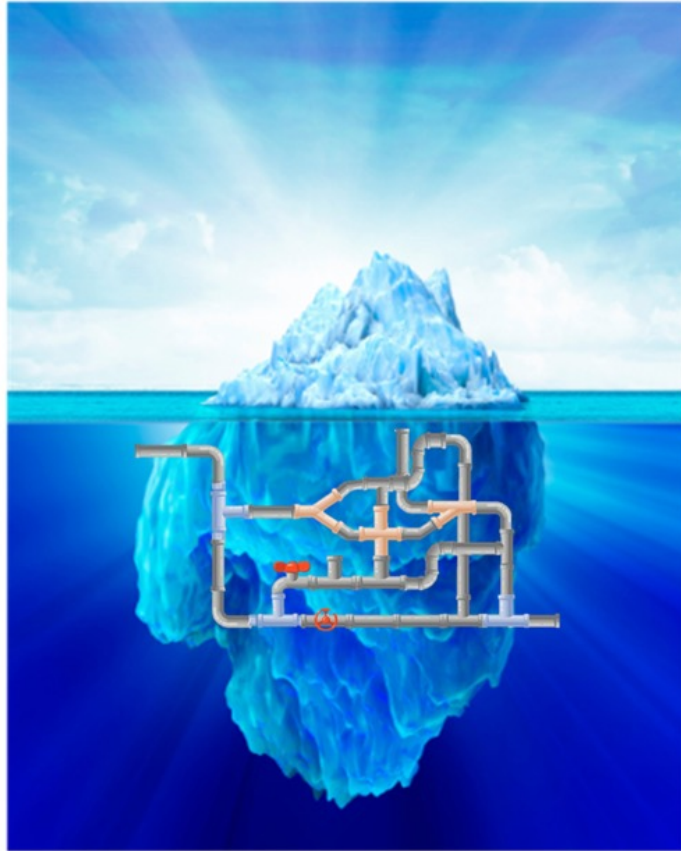


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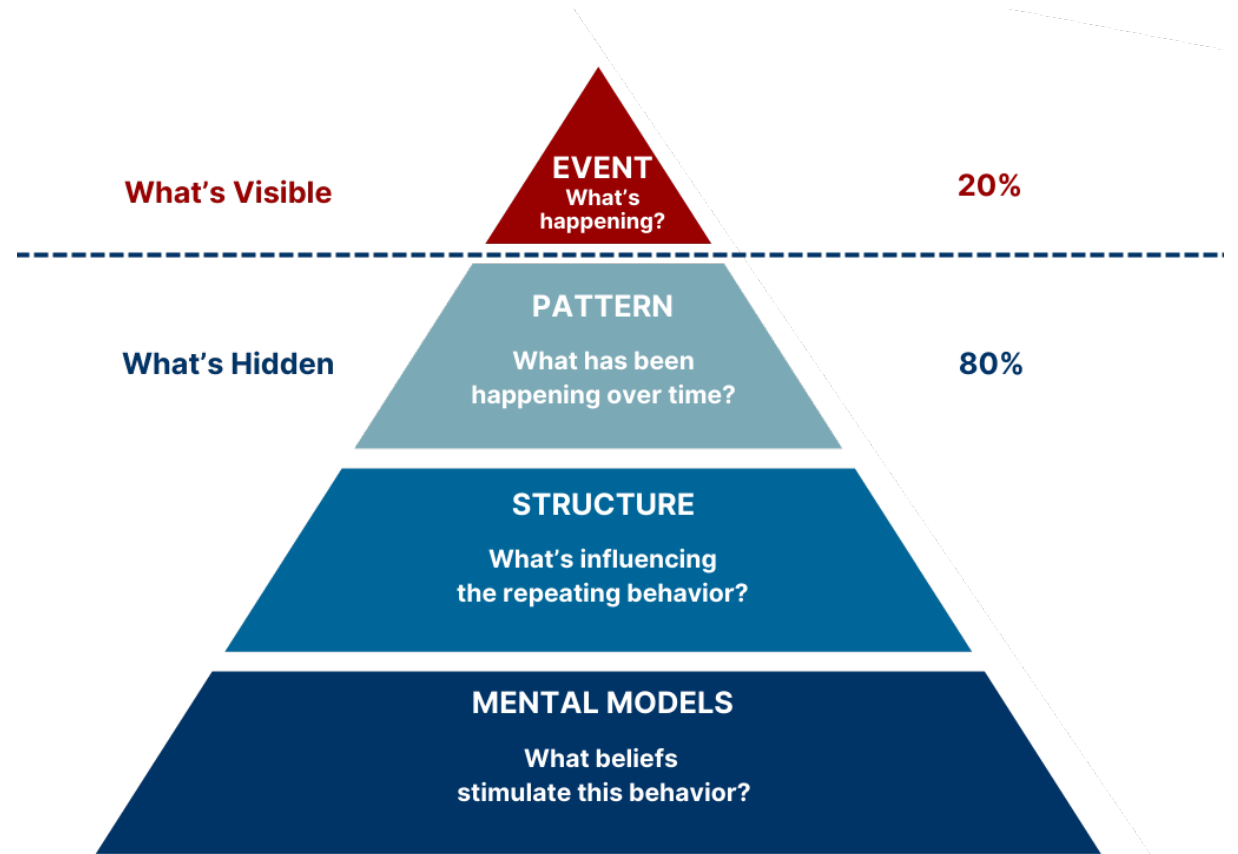
Below the Surface



It's bigger than
you think!

Levels of Thinking

- The Event Level
- The Pattern Level
- The Structure Level
- The Mental Model Level



Echochallenge (2024). A Systems Thinking Model: The Iceberg. [Iceberg Model - Ecochallenge.org](https://www.ecochallenge.org/iceberg-model)

20%
What's Visible

EVENT
What's
Happening?

Babies Miss Initial Screen

80%
What's Hidden

PATTERN
What has been
happening over time?

Larger percentage of babies are not being screened at birth in one area of the state

STRUCTURE
What's influencing the
repeating behavior?

Increased out of hospital births, midwives are not aware of hearing screening guidelines, lack of infrastructure for screening equipment

MENTAL MODELS
What beliefs stimulate this behavior?

Families' preferences for non-institutionalized medicine, lack of program understanding of cultural influences in decision-making

20%
What's Visible

EVENT
What's
Happening?

Low enrollment in early intervention services

80%
What's Hidden

PATTERN
What has been
happening over time?

Inability to receive data on EI
enrollment status for Part C services

STRUCTURE
What's influencing the
repeating behavior?

Lack of collaboration between programs
(EHDl and Part C), high staff turnover, no
data sharing agreement

MENTAL MODELS
What beliefs stimulate this behavior?

Divergent interpretation of Part C regulations
regarding data sharing, lack of buy-in from
providers to collect and report specific data on
language acquisition outcomes

Learn more at <https://mchb.hrsa.gov>

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Questions?

Facilitated Group Activity

Practice with Systems Thinking and Mapping



Learn more at <https://mchb.hrsa.gov>

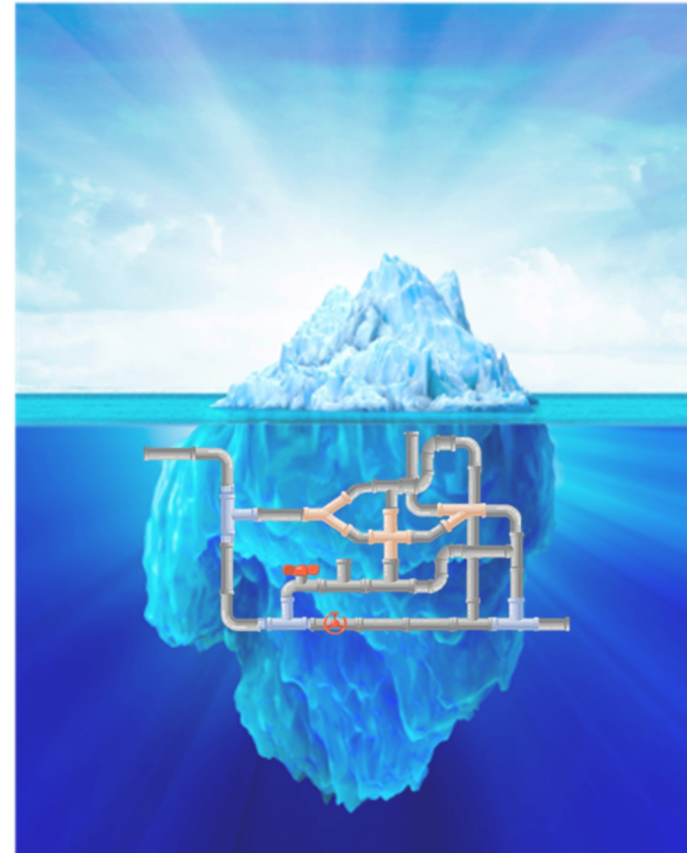
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FACILITATED GROUP ACTIVITY: ICEBERG

Instructions

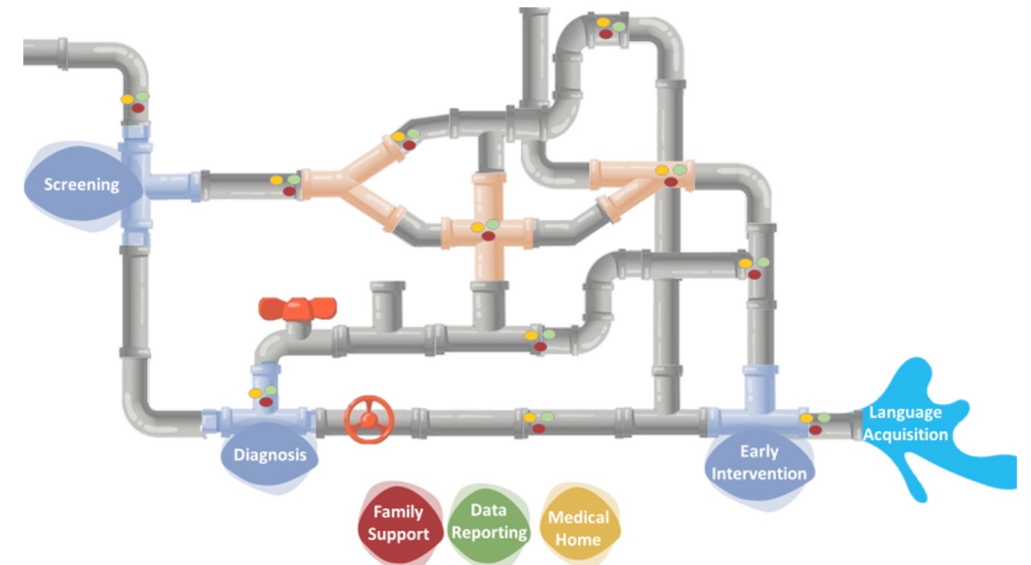
1. **CHOOSE AN EVENT:** Select a recent event that strikes you as urgent/important related to EHDI.
2. **BRAINSTORM:** Write down everything that comes to mind about the event.
3. **ICEBERG ANALYSIS:** Work your way down the iceberg and consider the patterns, underlying structures, and mentals about this event.
4. **REFLECT & DISCUSS:** Share your iceberg with the other people at your table.



FACILITATED GROUP ACTIVITY: SYSTEM MAP

Instructions

1. **BRAINSTORM:** Think about the programs within and outside your agency that also service children birth to 3 and their families. Think about their connection to DHH children and their families.
2. **VISUALIZE:** Write down examples of how they are connected to EHDI.
3. **REFLECT & DISUSS:** Share your thoughts with the other people at your table.



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