

“Data Management for EHDI: Helpful Friend, Not Dreaded Foe”

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Early Hearing Detection and Intervention (EHDI)

IFSC/Pediatric Audiology Symposium/SE Regional EHDI Conference
October, 2011
Raleigh, NC

Learning Objectives

- Differentiate the dimensions of data quality
- Propose data collection activities to track program effectiveness
- Develop actions to ensure effective data use

What is a friend?



A friend is someone who:

- you like and enjoy being with
- helps or supports someone or something
- has a strong liking for and trust in another
- is not an enemy (not a “foe”)
- aids or favors something

(www.merriam-webster.com)

Why is Data a Helpful Friend?

- When something gets measured, it gets done;
- When those doing it receive feedback about its measurement, it gets done better; and
- When those doing it well get rewarded, it gets repeated

Why do I need Quality Data?

- To improve services to families
- To find problems, recognize impact, take action
- To analyze and disseminate information to shape ongoing development
- To inform partners and stakeholders of the program's successes and challenges
- To reward top performers
- To fill out CDC national survey (last!)

Is this data?



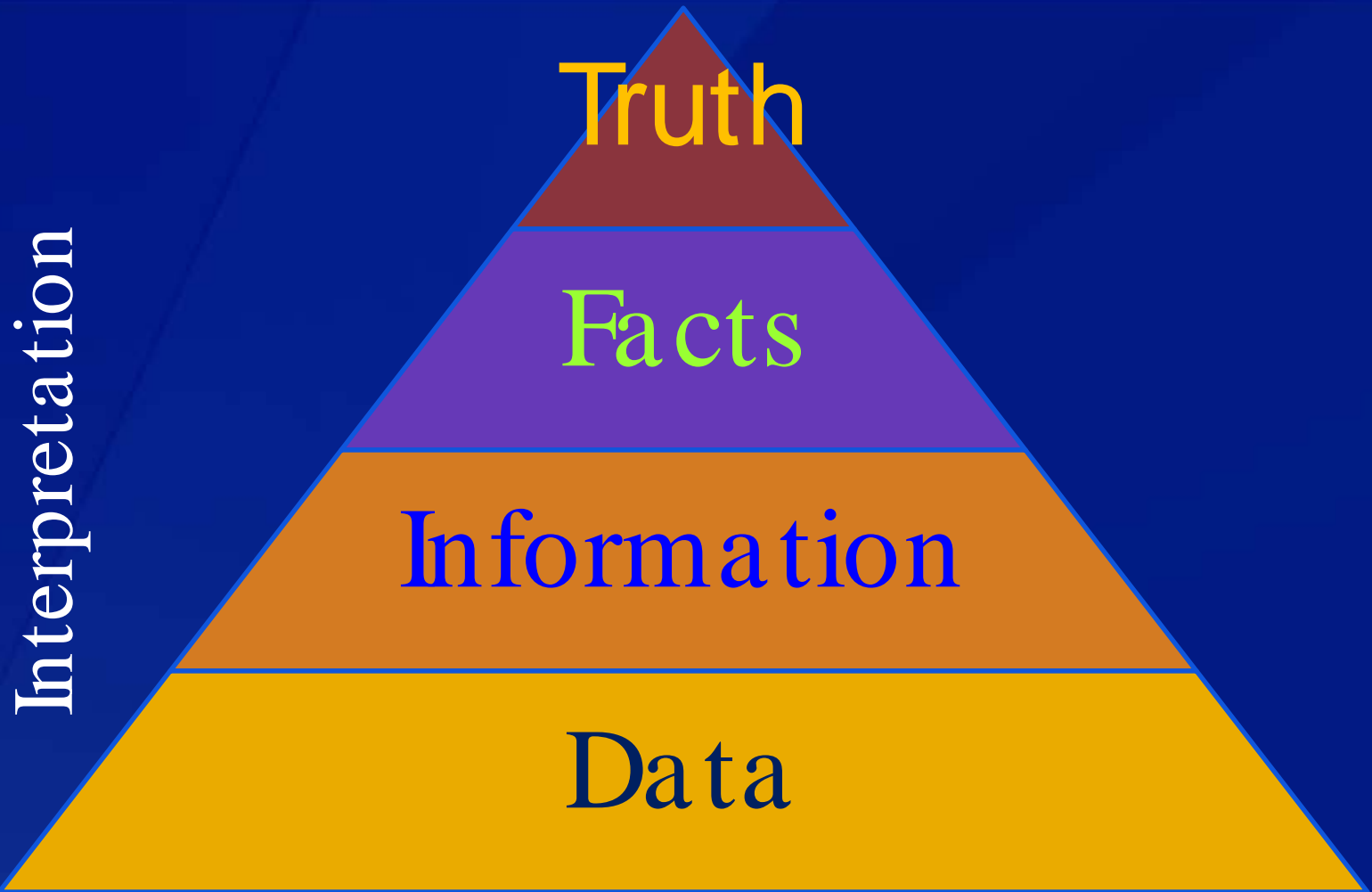
Is this data?

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|----|----|----|----|----|----|-----|----|----|----|----|----|-----|----|
| 1 | 99 | 16 | 94 | 88 | 76 | 25 | 86 | 5 | 9 | 63 | 35 | 89 | 30 |
| 2 | 79 | 11 | 69 | 60 | 89 | 92 | 6 | 14 | 98 | 56 | 20 | 36 | 69 |
| 3 | 93 | 97 | 17 | 56 | 39 | 74 | 22 | 91 | 26 | 83 | 32 | 24 | 33 |
| 4 | 68 | 10 | 51 | 25 | 62 | 89 | 22 | 92 | 79 | 79 | 88 | 100 | 42 |
| 5 | 5 | 68 | 79 | 36 | 46 | 73 | 12 | 45 | 95 | 49 | 98 | 2 | 26 |
| 6 | 67 | 86 | 61 | 8 | 82 | 8 | 14 | 81 | 14 | 2 | 60 | 9 | 58 |
| 7 | 73 | 98 | 64 | 70 | 25 | 89 | 62 | 66 | 46 | 28 | 46 | 90 | 15 |
| 8 | 72 | 52 | 99 | 30 | 82 | 91 | 87 | 23 | 48 | 11 | 27 | 72 | 92 |
| 9 | 86 | 7 | 89 | 62 | 61 | 31 | 33 | 23 | 16 | 26 | 2 | 41 | 26 |
| 10 | 73 | 51 | 3 | 34 | 35 | 16 | 9 | 97 | 62 | 0 | 7 | 13 | 25 |
| 11 | 92 | 25 | 78 | 94 | 63 | 13 | 84 | 14 | 78 | 99 | 32 | 19 | 91 |
| 12 | 37 | 34 | 18 | 96 | 34 | 54 | 65 | 96 | 66 | 21 | 59 | 82 | 80 |
| 13 | 97 | 53 | 70 | 99 | 27 | 77 | 4 | 50 | 56 | 10 | 28 | 6 | 75 |
| 14 | 14 | 34 | 43 | 67 | 16 | 85 | 42 | 61 | 20 | 48 | 93 | 75 | 69 |
| 15 | 75 | 36 | 34 | 11 | 18 | 7 | 29 | 61 | 5 | 22 | 13 | 56 | 25 |
| 16 | 23 | 40 | 37 | 93 | 74 | 99 | 20 | 11 | 49 | 95 | 18 | 79 | 96 |
| 17 | 18 | 4 | 23 | 54 | 89 | 59 | 34 | 1 | 31 | 33 | 47 | 40 | 12 |
| 18 | 13 | 39 | 81 | 73 | 6 | 59 | 67 | 83 | 6 | 54 | 5 | 90 | 59 |
| 19 | 40 | 55 | 61 | 71 | 5 | 100 | 35 | 15 | 69 | 60 | 47 | 48 | 59 |
| 20 | 94 | 9 | 3 | 7 | 74 | 80 | 18 | 79 | 33 | 94 | 36 | 87 | 69 |
| 21 | 9 | 86 | 84 | 68 | 75 | 97 | 41 | 89 | 43 | 18 | 31 | 83 | 23 |
| 22 | 19 | 16 | 95 | 45 | 29 | 72 | 67 | 86 | 67 | 21 | 16 | 30 | 37 |
| 23 | 58 | 76 | 61 | 20 | 60 | 1 | 25 | 35 | 58 | 16 | 27 | 38 | 3 |
| 24 | 78 | 95 | 57 | 47 | 91 | 17 | 11 | 10 | 93 | 66 | 27 | 17 | 71 |
| 25 | 9 | 5 | 83 | 23 | 85 | 5 | 29 | 13 | 10 | 11 | 76 | 87 | 42 |

Definition of DATA

1. factual information, as measurements or statistics, used as a basis for reasoning, discussion, or calculation
2. information output by a sensing device or organ that includes both useful and irrelevant or redundant information and must be processed to be meaningful
3. information in numerical form that can be digitally transmitted or processed

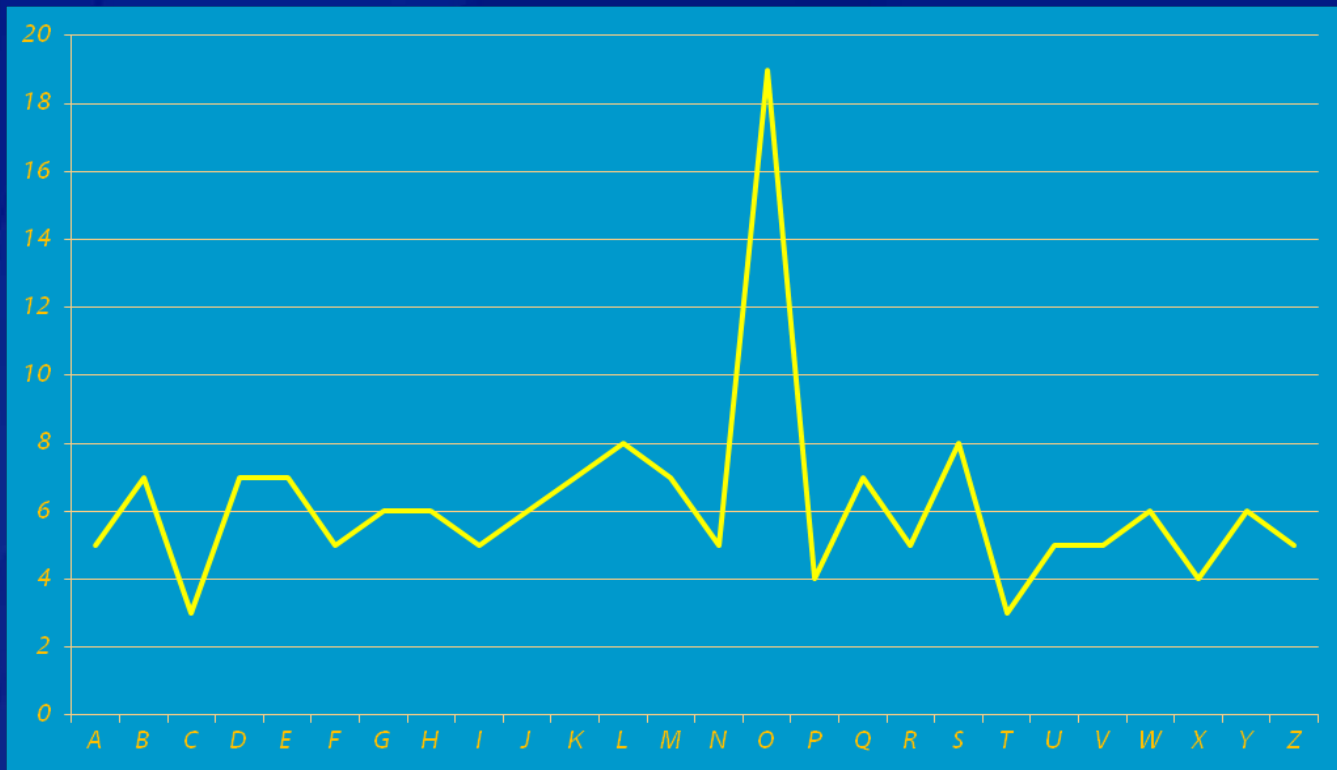
(www.merriam-webster.com)



Foundation is based upon valid and verifiable, individual and unduplicated data

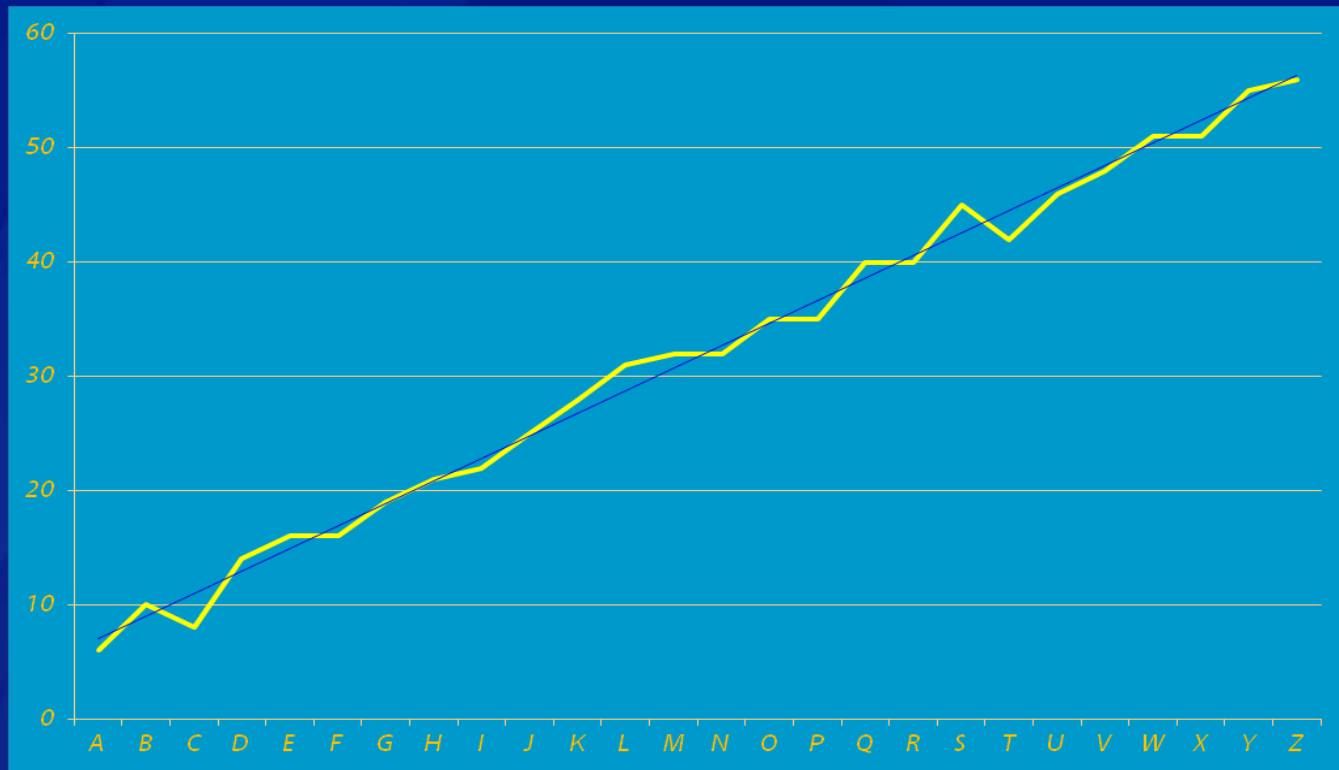
Data collection

- provides a snapshot of the overall success of your program activities at any given point in time



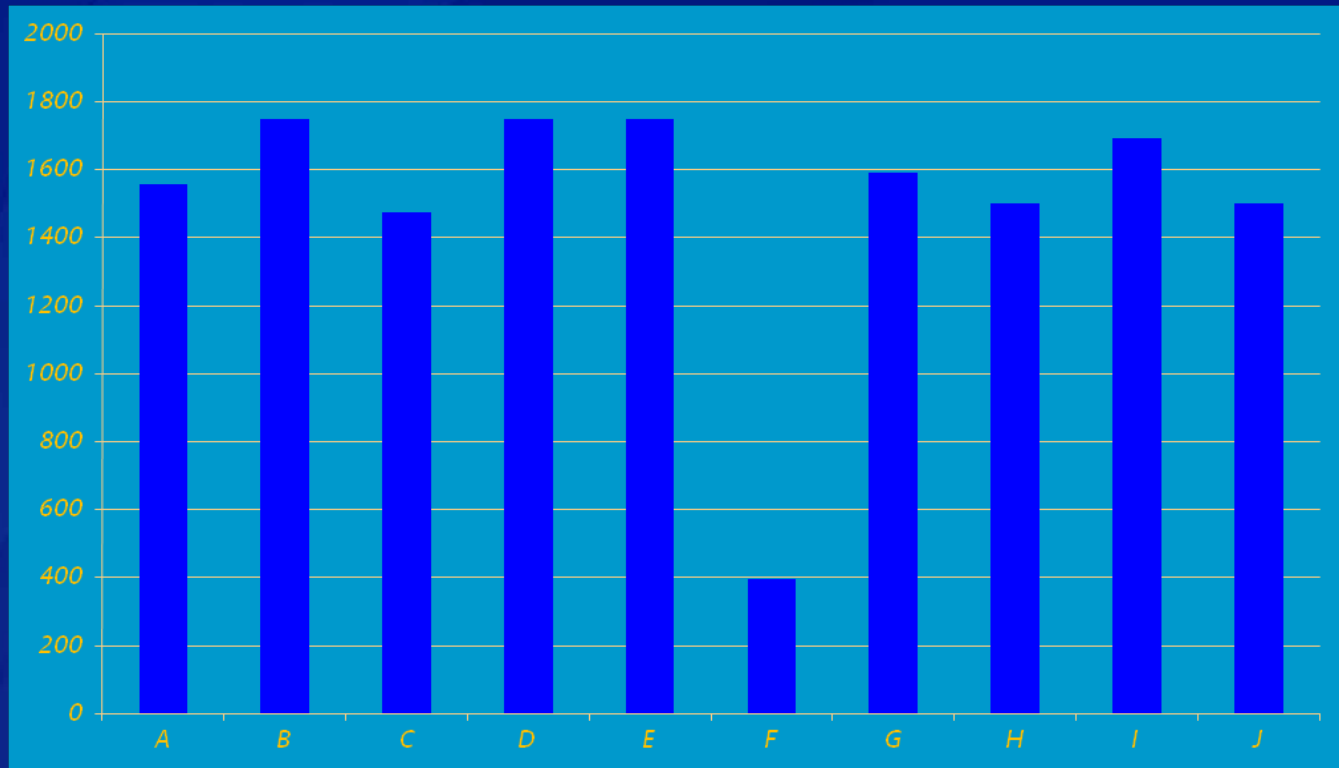
Data collection

- ensures that you have a track record how you are progressing



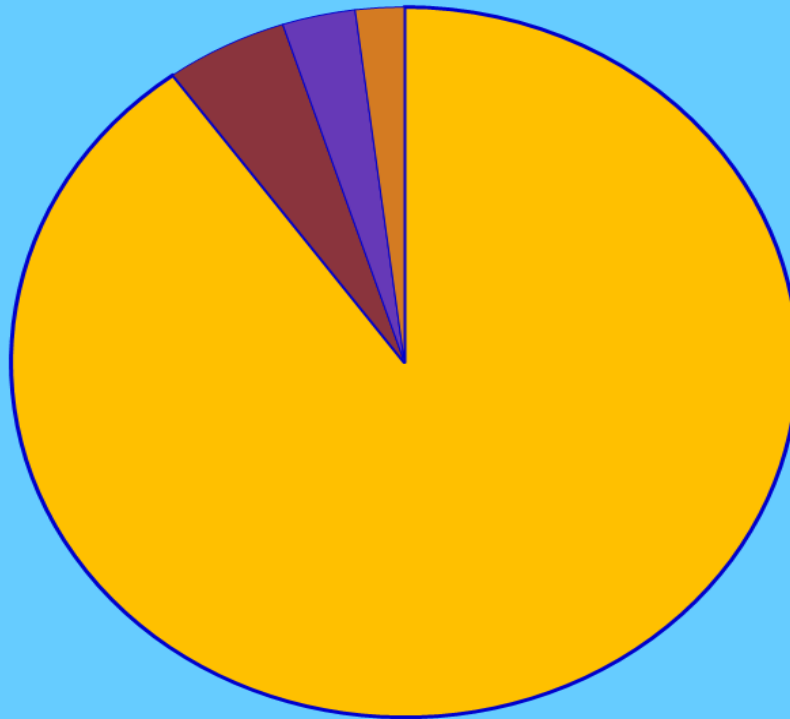
Data collection

- gives you an idea of where you need to concentrate your efforts



Data collection

- provides transparent accountability for stakeholders

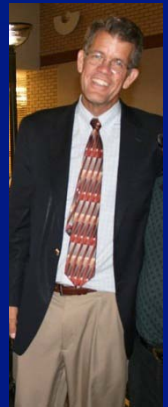
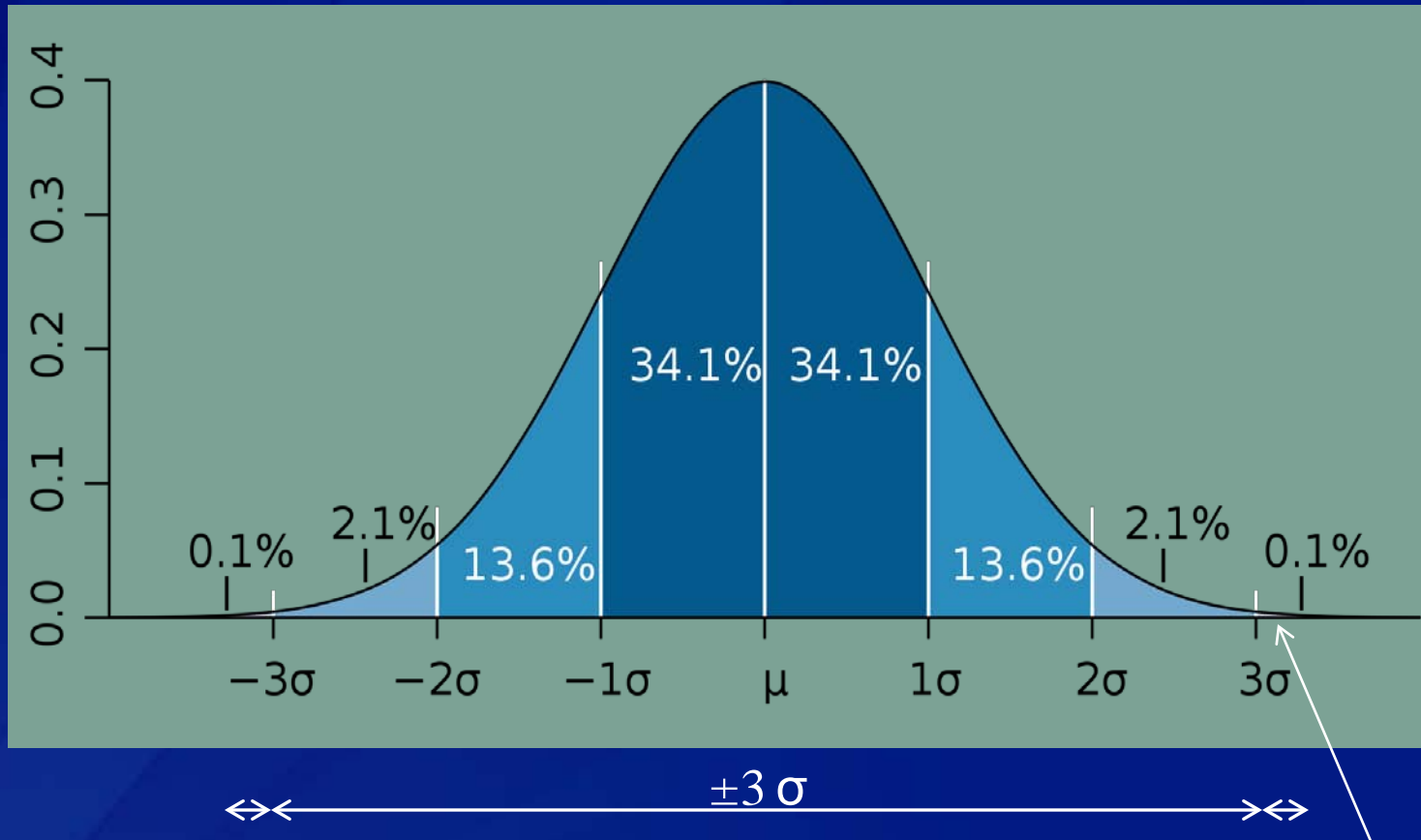


Turning Data into Information

Statistical Significance

Aggregation Bias

Statistical Significance



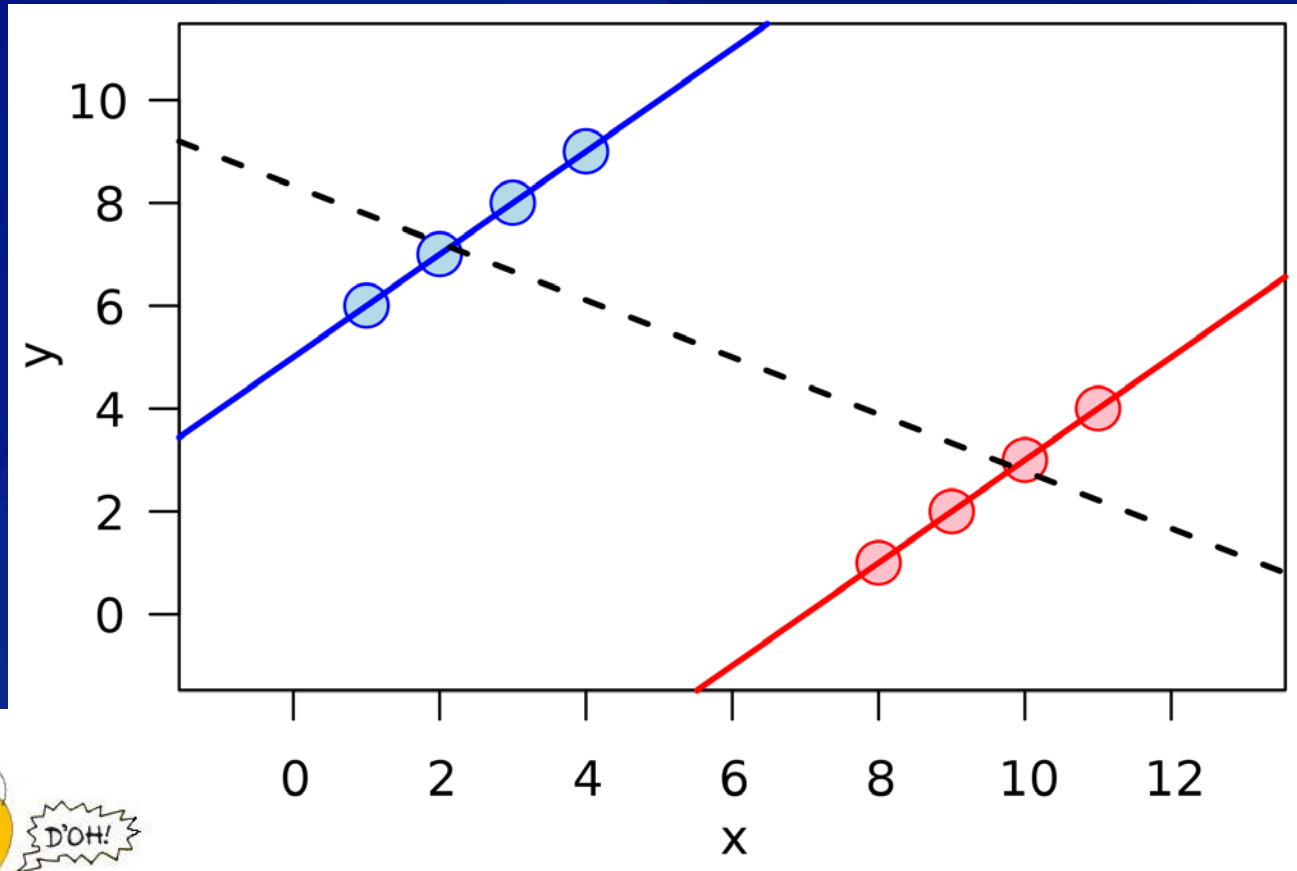
“Stuff” happens out here!

0.004 of 4,000,000 births = 16,000 babies!

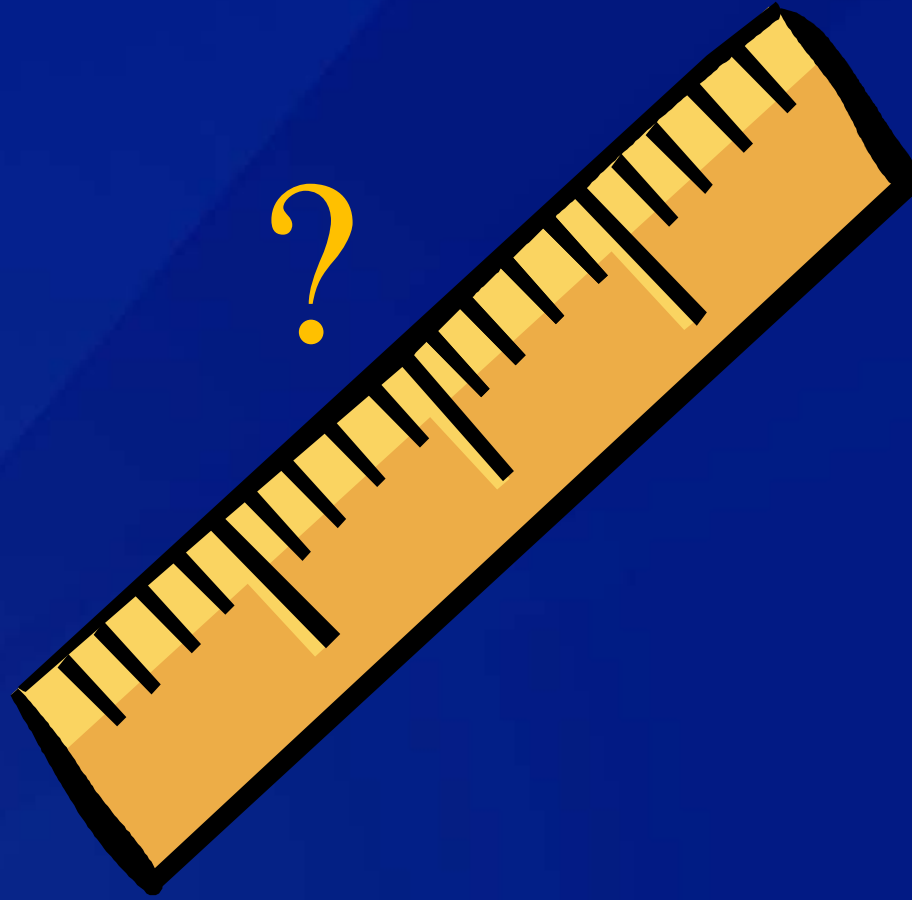
Why Individual Not Aggregate Data?

- When data from individuals are grouped, there is a loss of information (aggregation bias)
- With grouped data, inferences made about individuals can be wrong
- Conclusions about individuals are in general only weakly supported by group data

Simpson's Paradox



What Temperature is it?



National Data Standards

National Data Standards





Newborn Screening Coding and Terminology Guide

Data Standards for Electronic Reporting

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The goal of the Newborn Screening Coding and Terminology Guide is to promote and facilitate the use of electronic health data standards in recording and transmitting newborn screening test results. The Web site includes standard codes and terminology for newborn tests and the conditions for which they screen, and links to other related sites. The codes and vocabulary standards are provided in a series of tables that you can view on the Web and/or download for your own use. These tables cover conditions recommended for screening by the Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) or by a state within the U.S.

Use of these standards can speed the delivery of newborn screening reports, facilitate the care and follow-up of infants with positive test results, enable the use (and comparison) of data from different laboratories, and support the development of strategies for improving the newborn screening process.


This website also includes [draft guidance for creating an HL7 version 2.x message using these codes](#) with examples. If you would like us to notify you about updates to this guidance and other new content, please [subscribe to the NBS-Announcements](#) e-mail list from the U.S. National Library of Medicine.

You can reach these various resources by picking a choice below.

Views: Generate customized Web views from the tables of conditions and analytes/measurements maintained by the U.S. National Library of Medicine (NLM®).

- 
- **Conditions** — Conditions that are targeted by newborn screening
 - **Analytes/Measurements** — Tests that are used as markers for newborn screening conditions
 - **Tailored Views** — Specify subsets, or see relationships between conditions and analytes/measurements

Downloads: Download the tables of newborn screening conditions, of markers for these conditions and/or of mappings between conditions and their markers.

Resources: Find additional information about newborn screening and related codes and data standards, including the [Newborn Screening Draft Detailed Use Case](#)  that was developed by the Office of the National Coordinator for Health Information Technology (ONC).

Newborn Screening Coding and Terminology Guide

Data Standards for Electronic Reporting

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Conditions View

The Conditions View presents the conditions you selected on a previous screen, and for each condition, the related Enzyme Commission code, Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) Category, Online Mendelian Inheritance in Man (OMIM®) Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code.

| Condition <i>Choose condition to view related measurements</i> | Abbreviation | ACHDNC Category | Enzyme Name | Enzyme Commission Number | OMIM ID | SNOMED CT Code |
|---|--------------|-----------------|-------------|--------------------------|---------|----------------|
|---|--------------|-----------------|-------------|--------------------------|---------|----------------|

Hearing Loss

| | | | | | | |
|------------------------------|------|------|-----|-----|-----|----------|
| Hearing Loss | HEAR | Core | N/A | N/A | N/A | 15188001 |
|------------------------------|------|------|-----|-----|-----|----------|

MS/MS (Tandem Mass Spectrometry) Measured Conditions

Amino Acid Disorders

| | | | | | | |
|---|--------|-----------|--------------------------------------|----------|------------------|-----------|
| Argininemia | ARG | Secondary | Arginase | 3.5.3.1 | 207800 | 23501004 |
| Argininosuccinic aciduria | ASA | Core | Argininosuccinate lyase | 4.3.2.1 | 207900 | 41013004 |
| Carbamoyltransferase deficiency | CPS | Other | Carbamoyltransferase I | 6.3.4.16 | 237300 | 124380007 |
| Citrullinemia type I | CIT-I | Core | Argininosuccinate synthetase | 6.3.4.5 | 215700 | 398680004 |
| Citrullinemia type II | CIT-II | Secondary | Aspartate glutamate carrier (citrin) | None | 603471 605814 | 30529005 |
| Dihydrolipoamide | E3 | Core | Dihydrolipoamide | 1.8.1.4 | 238331 | 29914000 |



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Newborn hearing screen method - Analyte/Measurement Details

LOINC® Long Common Name: Newborn hearing screen method of Ear**Analyte Short Name:** Hear-Meth**LOINC Number:** 54106-0

Answer List

The results of the measurement are expressed using the following answer list.

| SNOMED Code | LOINC Answer ID | UMLS CUI | Answer Text |
|-------------|-----------------|----------|--|
| None | LA10387-1 | None | Automated auditory brainstem response |
| None | LA10388-9 | None | Auditory brain stem response |
| None | LA10389-7 | None | Otoacoustic emissions |
| None | LA10390-5 | None | Distortion product otoacoustic emissions |
| None | LA10391-3 | None | Transient otoacoustic emissions |
| None | LA12406-7 | None | Methodology unknown |

Conditions

The analyte/measurement serves as a marker for the following conditions.



Newborn Screening Coding and Terminology Guide

Data Standards for Electronic Reporting

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Newborn hearing screen - left - Analyte/Measurement Details

LOINC® Long Common Name: Newborn hearing screen - left

Analyte Short Name: Hear-L

LOINC Number: 54108-6

Answer List

The results of the measurement are expressed using the following answer list.

| SNOMED Code | LOINC Answer ID | UMLS CUI | Answer Text |
|-------------|-----------------|----------|--|
| None | LA10392-1 | C0437470 | Pass |
| None | LA10393-9 | C0580715 | Refer |
| None | LA6644-4 | C0580717 | Parental refusal |
| None | LA12408-3 | C0522770 | Attempted, but unsuccessful - technical fail |
| None | LA7304-4 | C0445106 | Not performed |
| None | LA12409-1 | C1444655 | Not performed, medical exclusion - not indicated |

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VADS Navigation Menu

View Information

View Name IHE EHDl: Screening, Short-Term Care, and Clinical Surveillance for Hearing Loss
View Description Value sets associated with IHE Early Hearing Detection and Intervention: Screening, Short-Term Care, and Clinical Surveillance for Hearing Loss (EHDI)
View Status Published
View Status Date 12/16/2010
View Version 1
View Version Status Published
View Version Status Date 12/16/2010
View Version Description Based upon IHE trial implementation- June 4th 2010
View Notes The Early Hearing Detection and Intervention Content Profile (IHE EHDI Content Profile) is aimed

[Download View](#)

Version History

Version 1
 (Current)

13 Value Sets found

| Select All | Clear All | | | Download Selected | Download All |
|--|--|-----------|-------------------------------------|-------------------|-------------------------|
| Value Set Code | Value Set Name | Version # | Value Set OID | | |
| <input type="checkbox"/> PHVS_HearingLossRiskFactors_JCIH_EHDI | JCIH-EHDI Hearing Loss Risk Factors | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.11 | | Details |
| <input type="checkbox"/> PHVS_HearingLossRiskFactorsProcedures_JCIH_EHDI | JCIH-EHDI Hearing Loss Risk Factors - Procedures | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.12 | | Details |
| <input type="checkbox"/> PHVS_HearingScreenLeft_JCIH_EHDI | JCIH-EHDI Hearing Screen Left | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.8 | | Details |
| <input type="checkbox"/> PHVS_HearingScreenRight_JCIH_EHDI | JCIH-EHDI Hearing Screen Right | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.9 | | Details |
| <input type="checkbox"/> PHVS_NewbornHearingLossDiagnosis_JCIH_EHDI | JCIH-EHDI Newborn Hearing Loss Diagnosis | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.14 | | Details |
| <input type="checkbox"/> PHVS_NewbornHearingLossReferrals_JCIH_EHDI | JCIH-EHDI Newborn Hearing Loss Referrals | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.16 | | Details |
| <input type="checkbox"/> PHVS_NewbornHearingProcedure_JCIH_EHDI | JCIH-EHDI Newborn Hearing Procedure | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.17 | | Details |
| <input type="checkbox"/> PHVS_NICUServiceDeliveryLocation_JCIH_EHDI | JCIH-EHDI NICU Service Delivery Location | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.13 | | Details |
| <input type="checkbox"/> PHVS_OutpatientEncounter_JCIH_EHDI | JCIH-EHDI Outpatient Encounter | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.2 | | Details |
| <input type="checkbox"/> PHVS_ProcedureDeclined_JCIH_EHDI | JCIH-EHDI Procedure Declined | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.20 | | Details |
| <input type="checkbox"/> PHVS_ReasonForNoFollowUpPatientReason_JCIH_EHDI | JCIH-EHDI Reason for no Follow-up - Patient Reason | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.7 | | Details |
| <input type="checkbox"/> PHVS_ReasonForNoHearingLossDiagnosis_JCIH_EHDI | JCIH-EHDI Reason for no Hearing Loss Diagnosis | 1 | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.15 | | Details |
| <input type="checkbox"/> PHVS_JointCommissionMedicalReason_JCIH_EHDI | Joint Commission Medical Reason | 1 | 1.3.6.1.4.1.33895.1.3.0.75 | | Details |

Value Set Information

Value Set Code PHVS_HearingLossRiskFactors_JCIH_EHDI
Value Set Name JCIH-EHDI Hearing Loss Risk Factors
Value Set OID 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.11
Value Set Description To Reflect the Risk Factors associated with hearing loss using SNOMED-CT Finding and Situation concepts



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Version History



Version 1



(Current)

[Value Set Concepts](#) | [Value Set Details](#)

13 Value Set Concepts found



1



Select All

Clear All





Download Selected

Download All

| Concept Code | Concept Name | Preferred Concept Name | Code System | Value Set | |
|------------------------------------|---|---|-------------|-------------------------------------|-------------------------|
| <input type="checkbox"/> 276687002 | Conjugated hyperbilirubinemia in infancy (disorder) | Conjugated hyperbilirubinemia in infancy (disorder) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 80690008 | Degenerative disease of the central nervous system (disorder) | Degenerative disease of the central nervous system (disorder) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 439750006 | Family history of hearing loss (situation) | Family history of hearing loss (situation) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 206005002 | Fetus or neonate affected by maternal infection (disorder) | Fetus or neonate affected by maternal infection (disorder) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 161653008 | History of - chemotherapy (situation) | History of - chemotherapy (situation) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 441899004 | History of therapy with ototoxic medication (situation) | History of therapy with ototoxic medication (situation) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |
| <input type="checkbox"/> 206331005 | Infections specific to perinatal period (disorder) | Infections specific to perinatal period (disorder) | SNOMED-CT | JCIH-EHDI Hearing Loss Risk Factors | Details |

Value Set Information

| | | |
|------------------------------|---|--|
| Value Set Code | PHVS_NewbornHearingLossDiagnosis_JCIH_EHDI |  Download Value Set |
| Value Set Name | JCIH-EHDI Newborn Hearing Loss Diagnosis | |
| Value Set OID | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.14 | |
| Value Set Description | To Reflect EHDI hearing loss diagnosis coded with SNOMED-CT on the problem list | |
| | |  Subscribe |









Version History

| | | |
|--|------------------|--|
|  | Version 1 |  |
| (Current) | | |



[Value Set Concepts](#) | [Value Set Details](#)

16 Value Set Concepts found



| Select All | | Clear All | |  Download Selected | | Download All |
|------------------------------------|--|--|-------------|---|---|------------------------------|
| Concept Code | Concept Name | Preferred Concept Name | Code System | Value Set | | |
| <input type="checkbox"/> 443805006 | Auditory neuropathy spectrum disorder (disorder) | Auditory neuropathy spectrum disorder (disorder) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 95820000 | Bilateral hearing loss (disorder) | Bilateral hearing loss (disorder) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 44057004 | Conductive hearing loss (disorder) | Conductive hearing loss (disorder) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 18647004 | Mild (severity modifier) (qualifier value) | Mild (severity modifier) (qualifier value) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 255605001 | Minimal (qualifier value) | Minimal (qualifier value) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 77507001 | Mixed conductive AND sensorineural hearing loss (disorder) | Mixed conductive AND sensorineural hearing loss (disorder) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |
| <input type="checkbox"/> 6736007 | Moderate (severity modifier) (qualifier value) | Moderate (severity modifier) (qualifier value) | SNOMED-CT | JCIH-EHDI Newborn Hearing Loss Diagnosis |  | Details |

Value Set Information

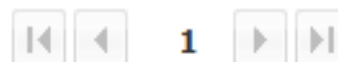
| | | |
|------------------------------|--|--|
| Value Set Code | PHVS_NICUServiceDeliveryLocation_JCIH_EHDI |  Download Value Set |
| Value Set Name | JCIH-EHDI NICU Service Delivery Location | |
| Value Set OID | 1.3.6.1.4.1.19376.1.7.3.1.1.15.2.13 | |
| Value Set Description | To Reflect that the newborn was treated in the NICU reflecting hearing loss risk |  Subscribe |

Version History

| | | |
|---|------------------|---|
|  | Version 1 |  |
| (Current) | | |





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4 Value Set Concepts found



Select All | Clear All

 Download Selected | Download All

| Concept Code | Concept Name | Preferred Concept Name | Code System | Value Set | |
|---------------------------------|--|--------------------------------------|-----------------------------------|--|---|
| <input type="checkbox"/> 1039-7 | Neonatal critical care unit [Level II/III] | Neonatal Critical Care(Level II/III) | Healthcare Service Location (HL7) | JCIH-EHDI NICU Service Delivery Location |  Details |
| <input type="checkbox"/> 1040-5 | Neonatal critical care unit [Level III] | Neonatal Critical Care (Level III) | Healthcare Service Location (HL7) | JCIH-EHDI NICU Service Delivery Location |  Details |
| <input type="checkbox"/> 1037-1 | Neonatal unit | Neonatal unit | Healthcare Service Location (HL7) | JCIH-EHDI NICU Service Delivery Location |  Details |
| <input type="checkbox"/> 1041-3 | Step down neonatal ICU [Level II] | Step down Neonatal ICU (Level II) | Healthcare Service Location (HL7) | JCIH-EHDI NICU Service Delivery Location |  Details |

[Data Elements](#)[Data Element Concepts](#)[Value Domains](#)[Constraints](#)[Functional Groups](#)[Conceptual Domains](#)[Contexts](#)[Vocabularies](#)[Representational
Classes](#)[Measures](#)[Forms](#)[Views](#)[Information Models](#)[Organizations](#)[Data Agreements](#)[Collections](#)

Value Domain Details

These metadata attributes include the Registration Authority's specification and may contain blanks for information which hasn't been provided to USHIK.

Newborn Screening Results – Observation and Findings Value Set

[\[Identifying and Definitional
Attributes\]](#)[\[Relational and Representational
Attributes\]](#)[\[Administrative
Attributes\]](#)

Identifying and Definitional Attributes:

Name:

Newborn Screening Results – Observation and Findings Value Set

Abbreviation:

Alternative Name:

Definition:

From the LOINC® database, Newborn Screening Results – Observation and Findings concepts. Developed in-conjunction with NLM

Context:

C154 HITSP Data Dictionary Component

Registration Authority:

Health Information Technology Standards Panel

USHIK Value Domain ID:

00000051.86787.v1

OID:

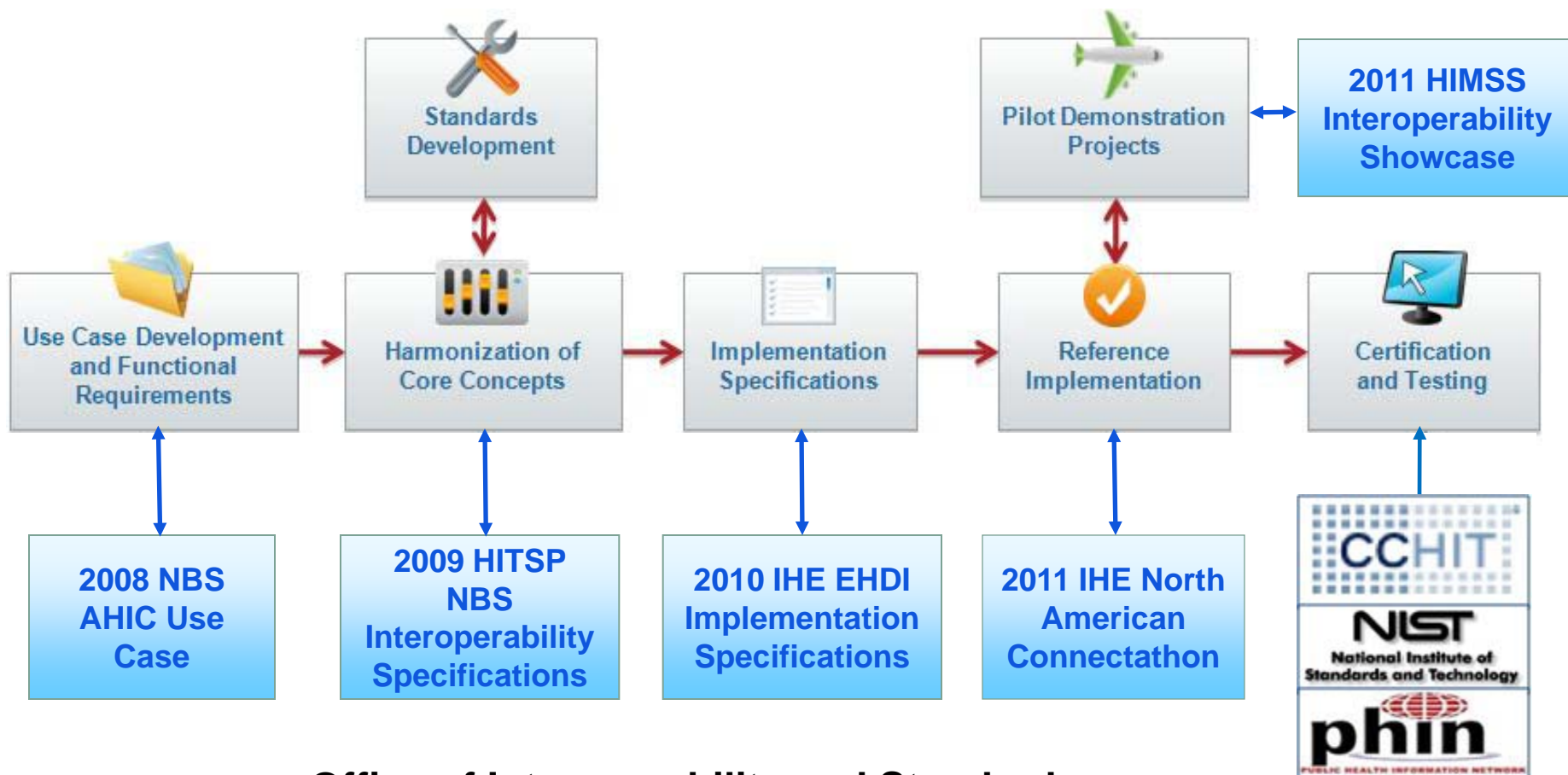
1.3.6.1.4.1.12009.10.2.1

URI:

<http://newbornscreeningcodes.nlm.nih.gov/nb/sc>

Exchanging Newborn Hearing Screening Data Through Electronic Health Record Interoperability

Standards & Interoperability Framework Functions



Office of Interoperability and Standards

Office National Coordinator for Health Information Technology

EHDI IHE® Integration Profile

Published by the IHE Quality, Research and Public Health (QRPH) Committee (September 2010)

5 Use Cases include:

- audiologic diagnosis
- referral to early intervention
- clinical surveillance for delayed onset hearing loss



Profile also includes:

- Early Hearing Care Plan (EHCP)
- identified LOINC® & SNOMED-CT® coding terminology
- quality measurement indicators

EARLY HEARING DETECTION & INTERVENTION

FROM THE SCREENING DEVICE AT THE HOSPITAL TO PUBLIC HEALTH TO THE COMMUNITY

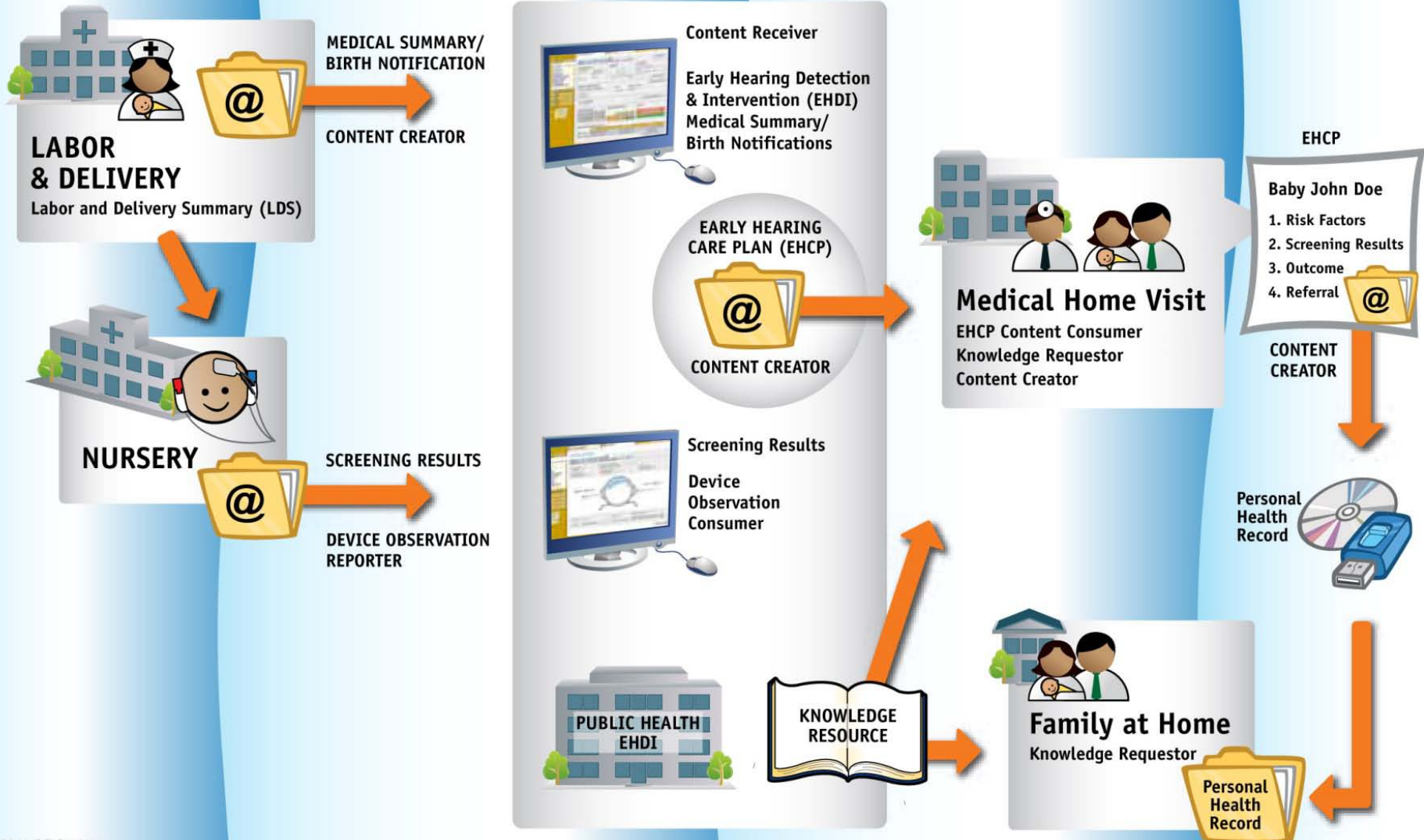
HOSPITAL



PUBLIC HEALTH



COMMUNITY



Patient Care Devices

Yellow

Clinical Event Notification

Device Support for Continuity of Care

ER

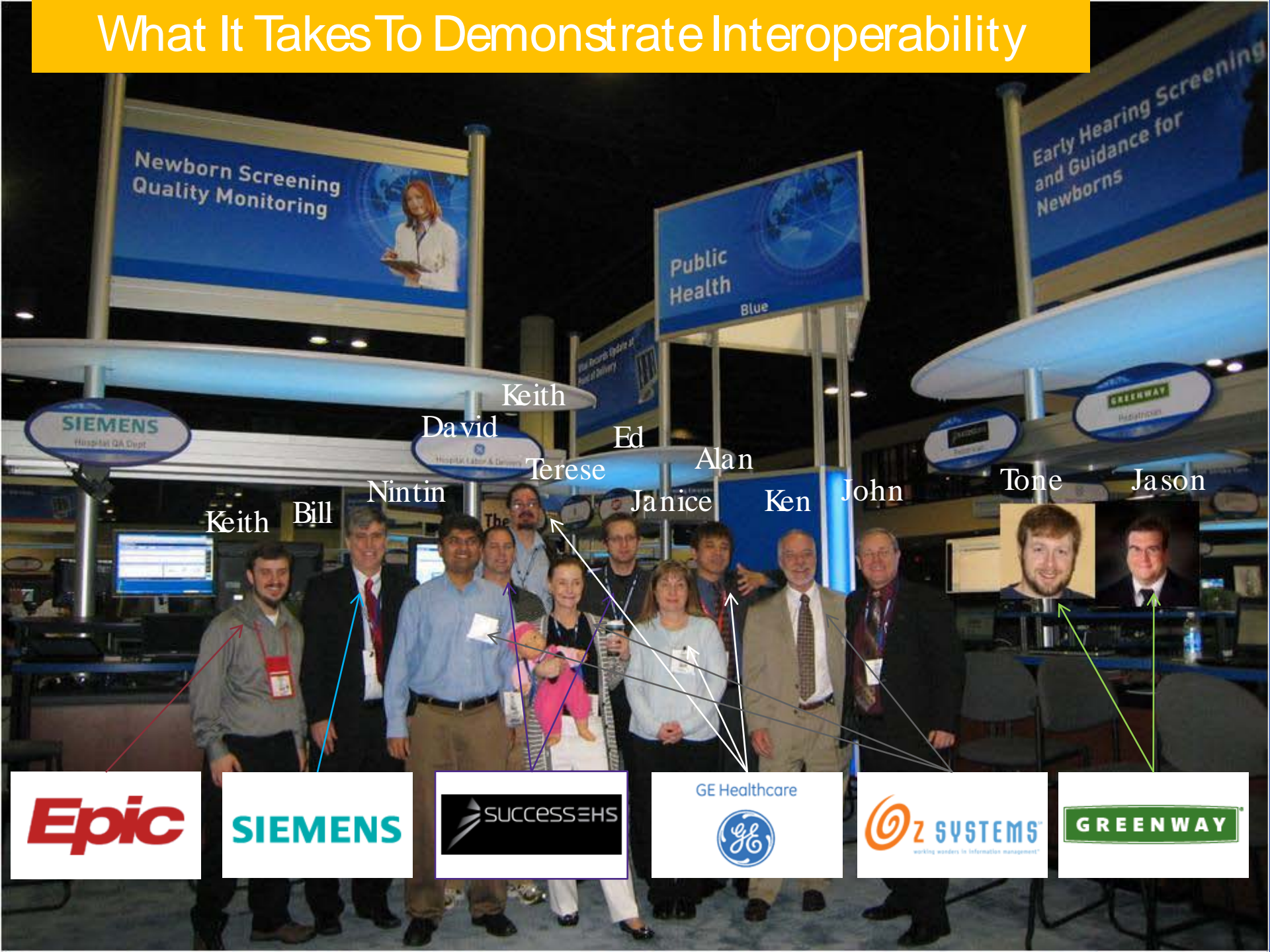
OR

ICU

ER



What It Takes To Demonstrate Interoperability



Epic

SIEMENS

SUCCESSEHS

GE Healthcare

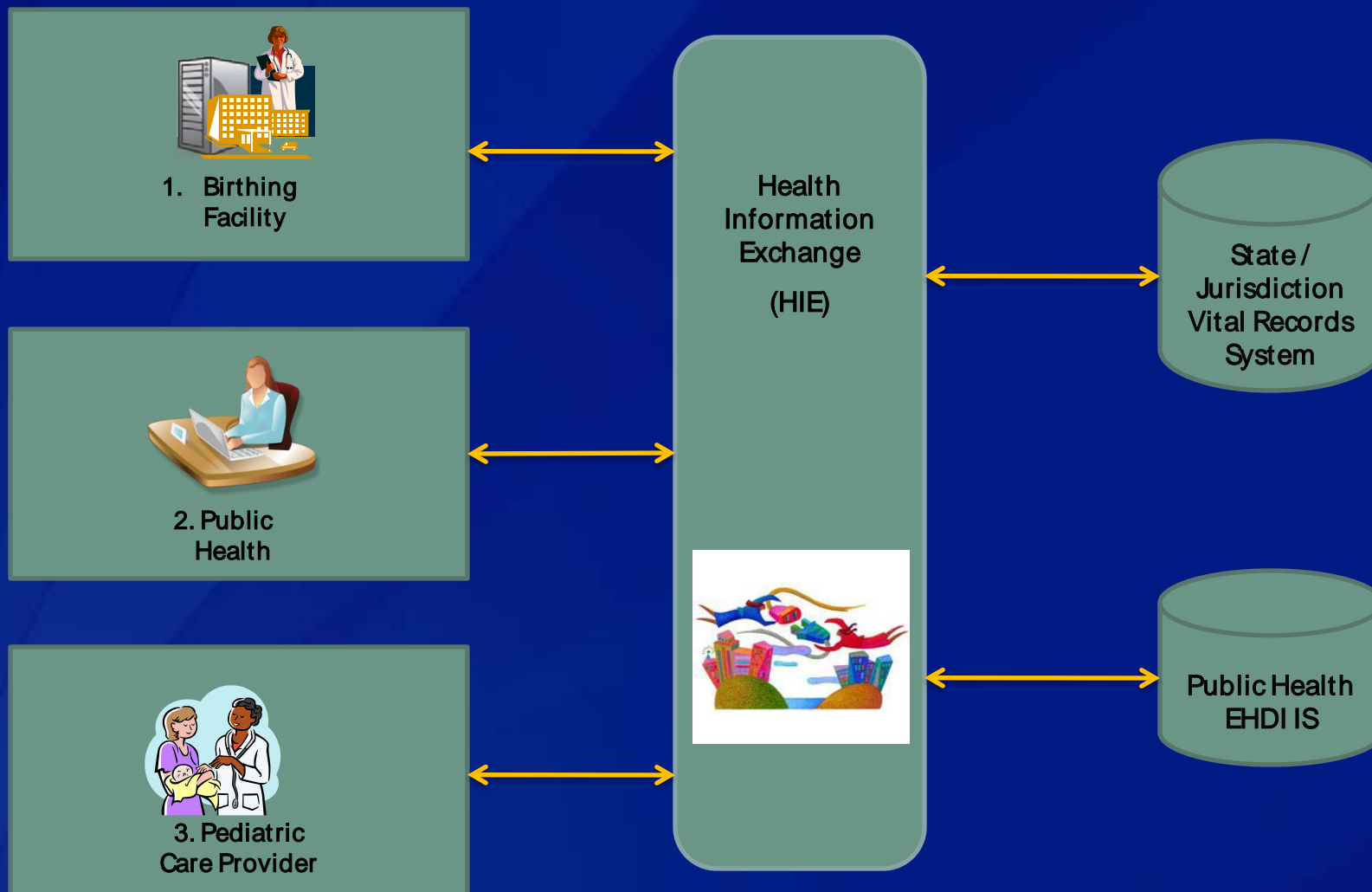


z SYSTEMS
working wonders in information management

GREENWAY

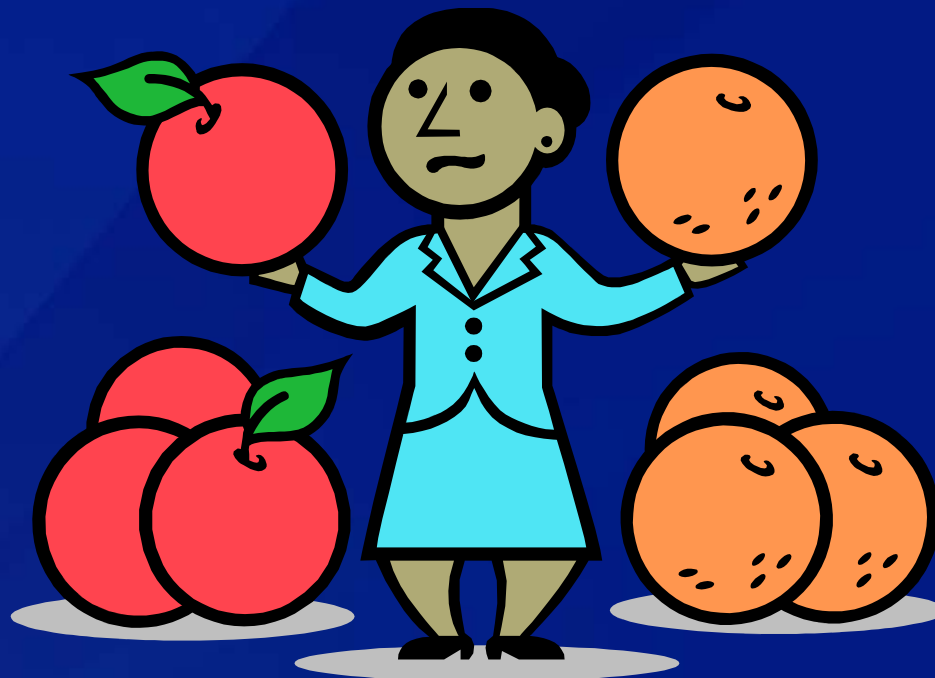
PHI 2011 Interoperability Showcase

Vital Registration and Care Coordination for Newborn Hearing Screening



Data Comparisons

- What are you comparing?



National Data Measures

It's as easy as "1 – 3 – 6"?

JCIH Quality Indicator for Screening

- Percentage of all newborn infants who complete screening by 1 month of age

Healthy People 2020 Objective:

- Screening for hearing loss no later than age 1 month

MCHB Performance Measure #12:

- Percentage of newborns who have been screened for hearing before hospital discharge.

CDC Hearing Screening and Follow-up Survey

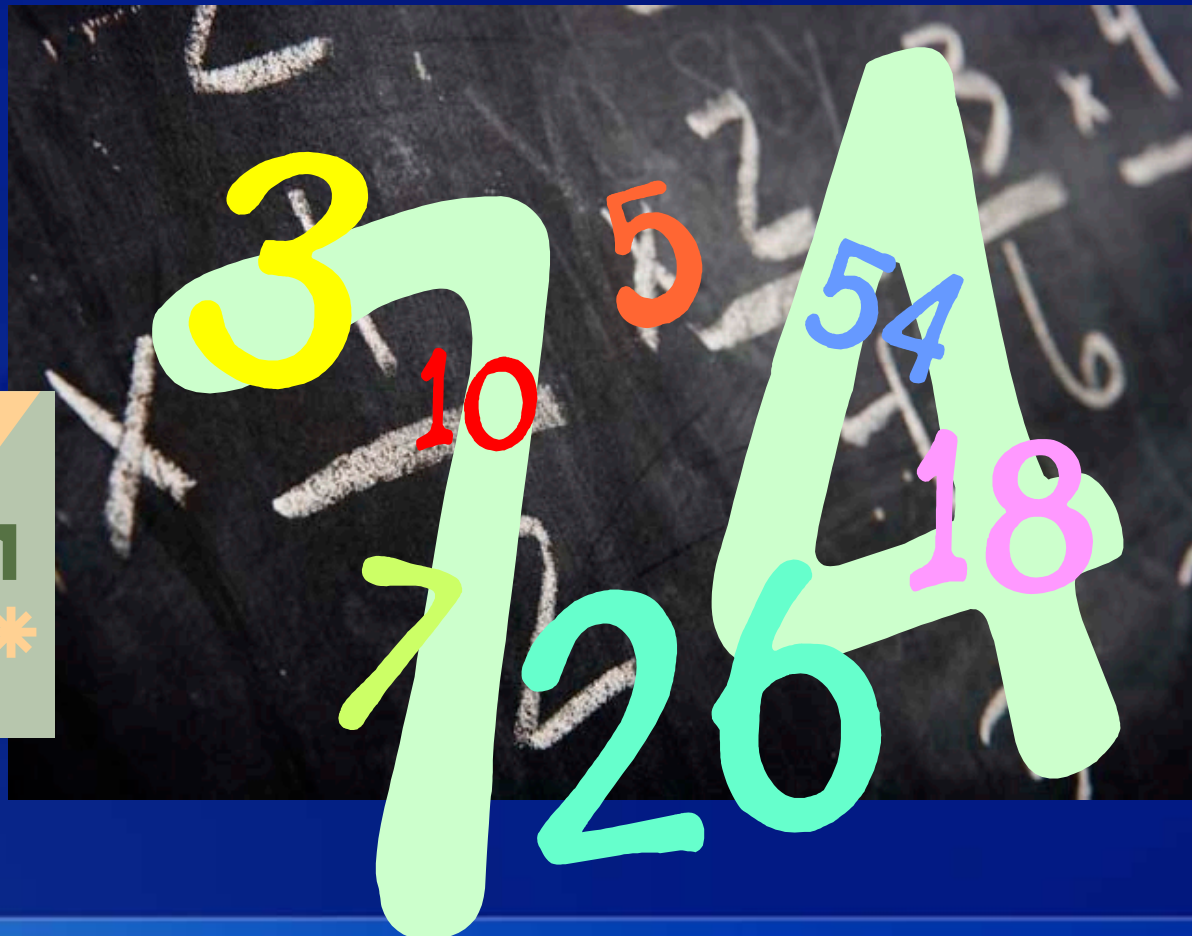
- Documented Passed and Not Passed the final (last or most recent) screen

It's as easy as "1 – 3 – 6"?

- Not screened at hospital
 - missed, equipment failures, home births
- Fail initial screen with no documented 2nd screen
 - protocol driven, 1 stage/2 stage, closed cases vs. lost
 - fail final (most recent) screen with no documented audiological diagnosis
- Diagnosis not completed due to multiple visits
 - OME complications, sedation issues
- Identified infant with hearing loss to intervention
 - referral or enrolled

Caveat!

- Know your numerators and denominators:



National Quality Forum (NQF)

NQF is a nonprofit organization whose mission includes the endorsement of national consensus standards for measurement and public performance reporting. Membership includes consumer organizations, public and private purchasers, physicians, nurses, hospitals, accrediting and certifying bodies, supporting industries, and healthcare research and quality improvement organizations (AAO-HNS, AAP, CDC, HRSA).



National Quality Forum (NQF)

Measure specifications include:

- numerator statement, time window and details*
 - to identify and calculate cases
- denominator statement, time window and details*
 - to identify and calculate the target
- denominator exclusion details
- calculation algorithm/measure logic

*definitions, codes with descriptors, and/or specific data collection items/responses

National Quality Forum

- #1402: Newborn hearing screening (NCQA)
- #1354: Hearing screening prior to hospital discharge (CDC)
- #1357: Outpatient hearing screening of infants who did not complete screening before hospital discharge* (CDC)
- #1360: Audiological evaluation no later than 3 months of age (CDC)
- #1361: Intervention no later than 6 months of age (CDC)

Full Endorsement August 10, 2011

*Time limited endorsement

NQF screening prior to hospital discharge

- “Numerator contains all live births during the measurement time period born at a facility and screened for hearing loss prior to discharge”
- “Denominator contains all live births during the measurement time period born at a facility and discharged without being screened OR screened prior to discharge”
- “The measurement time period varies upon needs of the particular user (e.g. calendar year, quarterly, monthly) but must be the same for both the numerator and denominator

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NQF screening prior to hospital discharge

Denominator Details

- Total number of newborns discharged:

Joint Commission National Quality Core Measures -
Discharge Status OR

with "Hearing Screening Performed": evidence of hearing screening performed. (LOINC# 54109-4: Newborn hearing screen – right = Pass LA10392-1 OR Refer LA10393-9 AND LOINC# 54108-6: Newborn hearing screen – left = Pass LA10392-1 OR Refer LA10393-9)

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NQF screening prior to hospital discharge

Denominator Exclusion Details

Joint Commission Discharge Disposition - Death Value Set
(86986.v1) 1.3.6.1.4.1.33895.1.3.0.12. "Patient Deceased":
Patient has expired

LOINC# 54109-4: Newborn hearing screen – right OR

LOINC# 54108-6: Newborn hearing screen – left includes
“Parental refusal” (LA6644-4) OR Not performed, medical
exclusion - not indicated (LA12409-1)

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NQF screening prior to hospital discharge

Calculation Algorithm

- (1) The time period for births included in the estimate is specified
- (2) All live births that occurred at a facility during the time period are selected
- (3) Result of step 2 is filtered to remove children who died prior to discharge and without being screened, whose parent(s) refused, or children who were not screened due to medical reasons
- (4) Result of step 3 is filtered to be limited to the subset that received a screen prior to discharge
- (5) Result of step 3 is filtered to be limited to the subset that (a) has been discharged, AND (b) did not receive a screen
- (6) Result of step 4 (i.e., the numerator) is added to the result of step 5
- (7) Measure is calculated by dividing the numerator (result of step 4) by the denominator (result of step 6)

Dimensions of Data Quality



Thank you!

Questions?

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

National Center on Birth Defects and Developmental Disabilities
Division of Human Development and Disability

