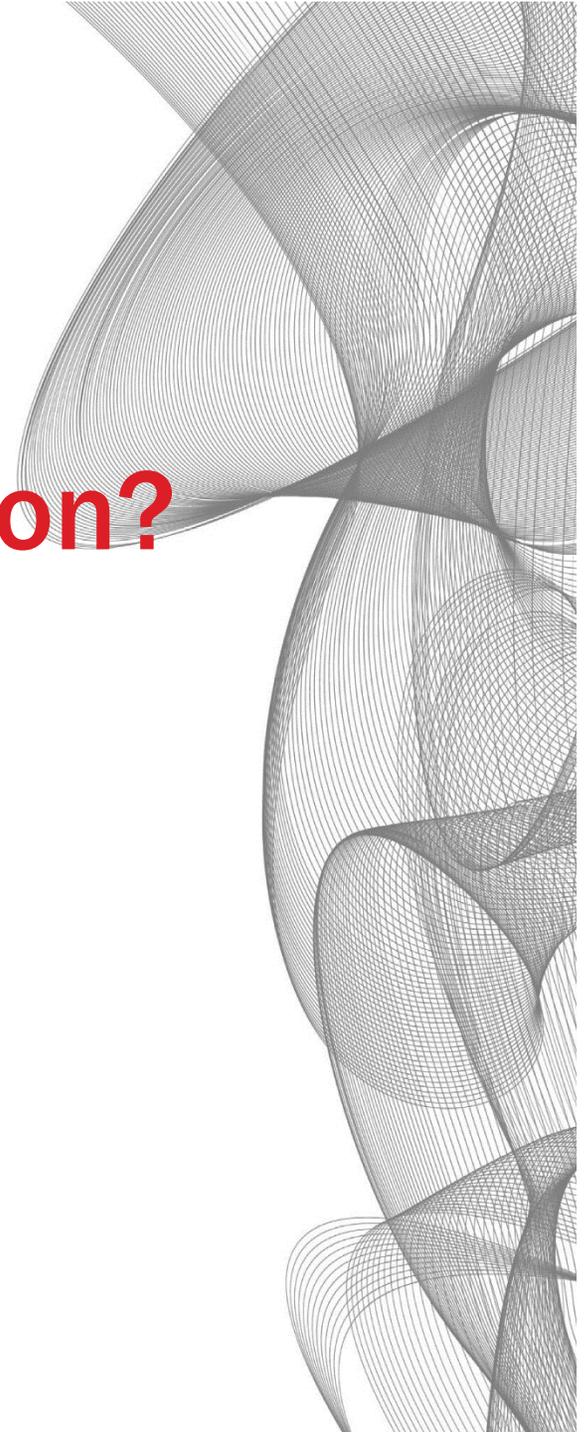


# What is the Connection? EHDI and HIT

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# Disclosure

- Lura Daussat is an employee of OZ Systems

# Goals of this Session

- Become familiar with HIT standards being used to exchange EHDI data
- Discuss transmission between EHRs and EHDI Information Systems
- Learn about exchanging data directly from devices

# How this started

- 2009 – American Recovery and Reinvestment Act
  - Included HITECH Act that set forth the plan for Meaningful Use (MU) of HIT
  - Improve quality of care
  - Establish foundation for health care reform



# And how it continues

- CMS incentivized health sector to implement EHRs
- Incorporate standards for information exchange



# Standards and Interoperability

- Health IT Standards
  - Defines how Interoperability should be conducted
  - Goal is to improve care
- Interoperability
  - How systems and devices can exchange data



# Standards for Everything!

Alliance for Telecommunications Industry Solutions (ATIS)  
Aluminum Association (AA)  
AMC Institute (AMCI)  
American Association of Motor Vehicle Administrators (AAMVA)  
American Association of Radon Scientists and Technologists (AARST)

Accredited Standards Committee (ASC) Z9 - Ventilation Systems  
Accredited Standards Committee (ASC) Z10 - Occupational Health and Safety Systems  
Accredited Standards Committee (ASC) Z88 - Respiratory Protection  
Acoustical Society of America (ASA)

Health Standards  
Organizations

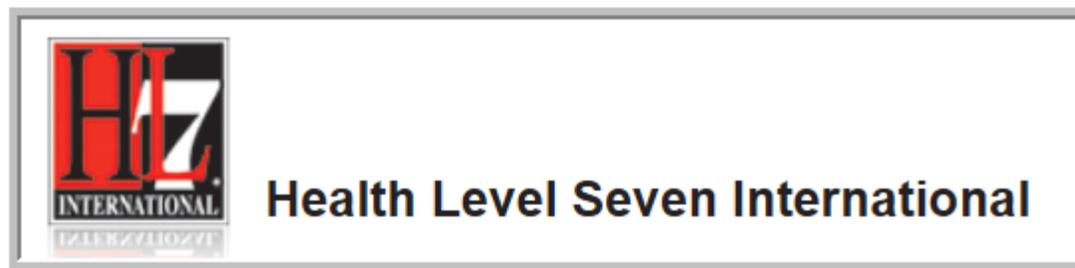
&

Interoperability!

American Bearing Manufacturers Association (ABMA)  
American Boat and Yacht Council (ABYC)  
American Brush Manufacturers Association (ABMA)  
American Chemistry Council (ACC)  
American Composites Manufacturers Association (ACMA)  
American Concrete Institute (ACI)

# Who defines standards?

- Standards Development Organizations for Health Care –
  - Health Level 7 (HL7) is ANSI approved
    - American National Standards Institute



# Who defines standards?

- Integrating the Health Care Enterprise
  - Effort to improve the way computer systems in healthcare share information
  - <http://ihe.net/>



# Other Initiatives

- Office of the National Coordinator for Health IT
  - S&I Framework
    - Public Health Reporting Initiative



# Why EHDI?

- One of the first newborn encounters between public health and providers
  - Reflects quality of care
  - Sets the stage for health growth
- Can demonstrate Meaningful Use of EHRs
  - Transmitting data to public health

# What Standards are being used in EHDI?

- Newborn Admission Notification Information (NANI)
- HL7 V 2.6 Implementation Guide for EHDI Results
- Early Hearing Care Plan
  - Hearing Plan of Care

# Review of Terms

- HL7 Message
  - Structured segments
  - Machine readable
- CDA – Clinical Document Architecture
  - XML
  - Human readable

# What is NANI?

- Newborn Admission Notification Information
- IHE Profile
  - Basic newborn demographic data sent electronically to public health
- Uses ADT Messages currently in use by hospitals
  - A01
  - A03
  - A08



# What does it transmit?

- Patient Details
  - Name, date of birth, time of birth
- Contact Information
  - Mom's information
- Discharge Dates
- Recent local use implementations to include GA, BW, PCP and Risk Factors

# What does it look like?

- MSH|^~\&|Test\_Facility^^|Test^^|PATIDENTITY\_MGR\_OZ^^|OZPIXMgr^^|20121022092914^||ADT^A01|13|P|2.3|||||||
- EVN|A01|201209230841
- PID|||MRN123^^^NIST2010&1.12.123.1.123456.3.1039&HL7||Smith^John^A^^^|Smith^Jane^S^^^|20121022100500^|M||1002-5^American Indian or Alaska Native^HL70005|123 Street^AptB^Dallas^TX^76013-4444^USA^^^|(675)823-1567^^^jsmith@gmail.com^^^^^^^|eng^English^ISO639|||||12343|N^Not Hispanic or Latino^HL70189||Y|1|||||
- NK1|1|Smith^Jane^^^^|MTH^Mother^HL7|123 Street^AptB^Dallas^TX^76013-4444^USA^^^|(555)567-1234^^^jj@gmail.com^^^^^^^|F|19800530000000|||eng^English^HL70296|||||N^Not Hispanic or Latino^HL7|||||1002-5^American Indian or Alaska Native^HL70005|
- PV1|||||3445666^Doctor^John^^^Dr^MD^^UMMS&2.1.4.32.2.4.4.&ISO|||||||||||||||||||||||||||||427695007|||20121022010200|20121023090000|||||||

# Why is it relevant for EHDI?

- Provides an accurate denominator of hospital births
- Timely Manner
- Helps provide better details for follow-up
  - Name updates
  - Multiple contacts
    - Father, Mother, any next of kin



# Transmitting EHDI Results

- HL7 Implementation Guide
- V2.6 Message
- Now out as Draft Standard for Trial Use
- Publicly available at [hl7.org](http://hl7.org) in middle of May
  - Currently available to HL7 members

# Use Cases for Transmission of EHDl Results

- From Device to Public Health Information System
- From a Screening Devices to Public Health IS
- From EHR to Public Health

# How is it transmitted

- Uses V 2.6 HL7 message
- Coded values for results, risk factors other details
- Hearing Screening Panel
  - Observation for each ear
    - Details for each result under each OBR

# What is transmitted?

- Patient demographics specifically
  - Patient Name, Patient ID
- Results of each ear
- Date and Time of Tests
- Screener ID
- Device Details
- Test Duration

# What is transmitted?

- Hearing Screening Comments/Discussion
- Risk Factors
- If not performed, the reason not performed

# What does it look like?

- MSH|^~\&|EHD| Screening  
Device^2.16.840.1.113883.4.3.48^OID|SendingFacility^2.16.840.1.113883.4.3.47^OID|Receiving  
Application^2.16.840.1.113883.19.3.22^OID|PublicHealth^2.16.840.1.113883.19.3.21^OID|20120701132554-  
0400||ORU^R01^ORU\_R01|20120701132554000005|T|2.6|||AL|AL|USA| |en^English^ISO639-1|
- PID|1||MRN123||Jones^BabyGirl|James|201201300005-0600|F||2106-3^White^HL70005~1002-5^American  
Indian or Alaska Native^HL70005|201 Street^^Arlington^TX^99999^USA| |^PRN^PH^^011^555^555-  
5555||eng^English^ISO6392|||98766|||1234555|N^Not Hispanic or Latino^HL70189|HospitalABC|N|1|
- PV1|||427695007|||1001001^Smith^Theodore^^^Dr^^^OPH^^^NPI|
- NK1|1|Jones^Mary^James|MTH^Mother^HL70063|201 Street^^Arlington^TX^99999^USA  
|^PRN^PH^^011^555^555-5555|
- OBR|1|123456^ HOSPITAL^999999999^NPI|999555^PublicHealth^77D77712547^HL7|54111 0^Newborn  
hearing loss panel^LN|||201201311234-0600|||^Screeener^Annie^S||||^Smith^John^S^Dr.|  
^PRN^PH^^011^555^555-1234^333|||201201311234-0600|||F|||^Parent^Mama|
- OBX|1|TX|57700-7^Hearing loss newborn screening comment/discussion^LN|1|baby  
crying|||F|||201201311234-0600|||Maico~EroScan|201201311234-0600|||Hospital|123 Street^Suite  
A^Dallas^TX^71211|1001001^Smith^Theodore^^^Dr^^^OPH^^^NPI|
- OBX|2|CWE|58232-0^Hearing loss risk indicators^LN|1|439750006^ Family Hx of Hearing  
Loss^SCT|||A|||F|||201201311234-0600||| Maico~EroScan|201201311234-0600|||Hospital|123  
Street^Suite A^Dallas^TX^71211|1001001^Smith^Theodore^^^Dr^^^OPH^^^NPI|
- OBR|2|123456^ HOSPITAL^999999999^NPI|999555^PublicHealth^77D77712547^HL7|73744-5^Newborn  
hearing screen panel of ear - right^LN|||201201311234-0600|||^Screeener^Annie^S||||^Smith^John^S^Dr.|  
^PRN^PH^^011^555^555-1234^333|||201201311234-0600|||F|||^Parent^Mama|
- OBX|1|CWE|73742-9^Newborn hearing screen reason not performed - right^LN|1|103709008^Attempted but  
unsuccessful - technical fail^SCT|||N|||F|||201201311235-0600|||LA10389-  
7^OAE^LN|Maico^EroScan|201201311235-0600|25577004^Right ear^SCT|||Hospital|123 Street^Suite  
A^Dallas^TX^71211|1001001^Smith^Theodore^^^Dr^^^OPH^^^NPI|

# Benefits for EHDI

- Results directly from the device
- No manual entry
- Get all results, not just the last one
- Complete picture of screening



# Early Hearing Care Plan

- IHE Profile
- Describes the content needed to communicate instructions to properly manage the detection and intervention of hearing loss in young children



# What does it do?

- Transmits information on the recommended next steps for a newborn after discharge
- Uses a CDA to transmit information
- From Public Health to Providers
  - PCPs
  - Anyone who can accept a CDA

# What does it contain

- Treatment Plan
- Hearing Screening Coded Results
- Risk Indicators for Hearing Loss
- Active Problems
  - Atretic Ear



Source: [http://wiki.ihe.net/index.php?title=Early\\_Hearing\\_Care\\_Plan](http://wiki.ihe.net/index.php?title=Early_Hearing_Care_Plan)

# What does it look like?

```
<title>Early Hearing Care Plan</title>
<effectiveTime value="20132012200030-0800"/>
<confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25"/>
<languageCode code="en-US"/>
<setId root="bdfae27c-0086-408b-b1f1-150ee84ac1f1"/>
<versionNumber value="1"/>
<recordTarget>
  <patientRole>
    <id root="1.2.840.114350.1.1" extension="123.123.123.123"/>
    <addr use="HP"> <!-- HP is "primary home" from codeSystem 2.16.840.1.113883.5.1119 -->
      <streetAddressLine>1979 Milky Way </streetAddressLine>
      <city>Verona</city>
      <state>WI</state>
      <postalCode>53593</postalCode>
      <country></country> <!-- US is "United States" from ISO 3166-1 Country Codes: 1.0.3166.1 -->
    </addr>
    <telecom value="tel:+1-123-456-7896" use="HP"/> <!-- HP is "primary home" from AddressUse 2.16.840.1.113883.5.1119 -->
    <patient>
      <name use="L"> <!-- L is "Legal" from EntityNameUse 2.16.840.1.113883.5.45 -->
        <given>John</given>
        <given qualifier="CL">Howard</given> <!-- CL is "Call me" from EntityNamePartQualifier 2.16.840.1.113883.5.43 -->
        <family>Doe</family>
      </name>
      <administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1" displayName="Male"
:codeSystemName="AdministrativeGenderCode"/>
      <birthTime value="201304032356-0800"/>
        <raceCode code="ASKU" displayName="ASKU" codeSystem="2.16.840.1.113883.6.238" codeSystemName="CDC Race and Ethnicity"/>
      <ethnicGroupCode code="U" displayName="Unknown" codeSystem="2.16.840.1.113883.6.238" codeSystemName="CDC Race and Ethnicity"/>
        <guardian>
          <code code="MTH" displayName="Mother" codeSystem="2.16.840.1.113883.5.111" codeSystemName="RoleCode"/>
          <addr use="HP">
            <streetAddressLine>1979 Milky Way </streetAddressLine>
            <city>Verona</city>
            <state>WI</state>
            <postalCode>53593</postalCode>
            <country></country>
          </addr>
          <telecom value="tel:+1-123-456-7896" use="HP"/>
        </guardian>
      </patient>
    </patientRole>
  </recordTarget>

```

# Benefits for EHDI

- Ensure results and other clinical details are consistently communicated to providers
- Standardizes care coordination for suspected hearing loss
- Provides interoperability between EHRs and EHDI
  - Increased efficiency
  - Better data quality



Source: [http://wiki.ihe.net/index.php?title=Early\\_Hearing\\_Care\\_Plan](http://wiki.ihe.net/index.php?title=Early_Hearing_Care_Plan)

# Hearing Plan of Care

- New and updated IHE Profile
  - CDA content
- Combines Message details plus next steps
- Includes the definition of the Hearing Screening Outcome Report
- Sent to providers
- Currently in progress
  - QRPH at IHE

# Resources

- NANI
  - [http://www.ihe.net/Technical\\_Framework/upload/IHE\\_QRPH\\_Suppl\\_NANI.pdf](http://www.ihe.net/Technical_Framework/upload/IHE_QRPH_Suppl_NANI.pdf)
- EHDI V2.6 Implementation Guide
  - [www.hl7.org](http://www.hl7.org)
- EHCP
  - [http://www.ihe.net/Technical\\_Framework/upload/IHE\\_QRPH\\_Suppl\\_EHCP\\_Rev1-1\\_TI\\_2011-09-02.pdf](http://www.ihe.net/Technical_Framework/upload/IHE_QRPH_Suppl_EHCP_Rev1-1_TI_2011-09-02.pdf)

# Other Resources

- Public Health Data Standards Consortium
  - <https://wiki.phdsc.org/index.php/EHDI>
- Public Health Informatics Institute
  - <http://www.phii.org/>

# Questions?



# Thank you!

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