# Indiana's EHDI Alert Response System (EARS): A Year Later: Successes and Challenges

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#### Overview

Background: Integrated Data System (IDS) and the EHDI Alert Response System (EARS)

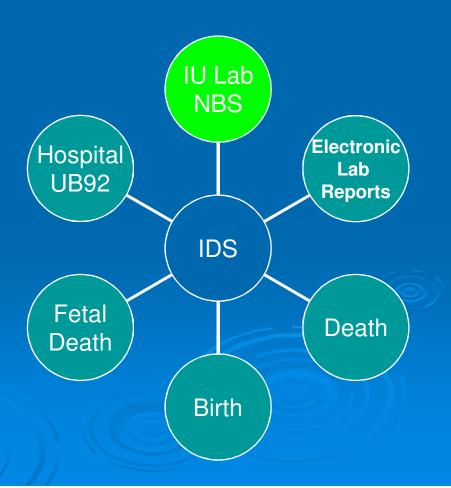
- > EARS Improved Communication
- Successes and Challenges

# Landmarks in Data Integration in Indiana

- 1974- Regenstrief Institute began working on data integration.
- Mid-1980s-ISDH started moving forward with data integration.
- 1993-Indiana Legislature mandated the creation of the State Health Data Center.
- 2001-Operational Data Store developed.

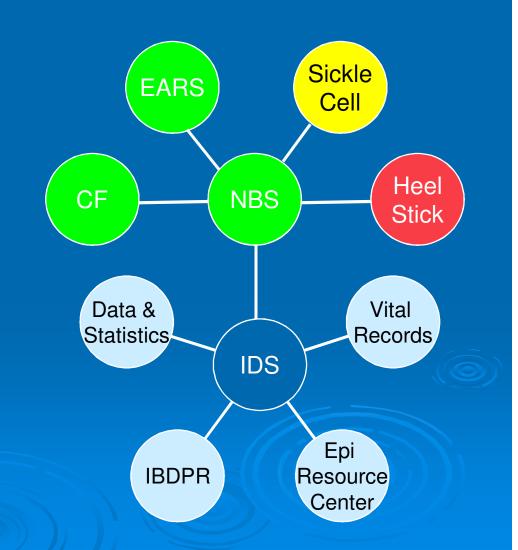
#### **IDS Data Sources**

- ➤ IU Lab Data Newborn Screening/Hearing
- Hospital (Reportable Birth Defects UB92)
- Vital Records Birth
- Vital Records Death
- Vital Records Fetal Death
- Electronic Lab Reports (Regenstrief)
- Cystic Fibrosis



#### **IDS** Users

- Newborn Screening
- Vital Records
- Data & Statistics
- > IBDPR
- > Epi Resource Center



# EHDI Program in Indiana

#### EHDI in Indiana

- In 1999, the State
  Legislature passed PL911999 which mandates
  screening of babies in
  Indiana for hearing loss
- 16-41-17-10 states that ISDH is responsible for
  - "A centralized program that provides tracking, follow-up, diagnosis, management, and family counseling and support."



#### EHDI in Indiana

- Approximately 88,000 live births per year
- > 103 Hospitals & 3 Birthing Facilities
- Approximately 800 Home Births Annually



#### Indiana EHDI Data 2007

98% received UNHS

>	1.95% did not pass	n=1743
	Normal hearing	65%
	Hearing loss	7.6%
	In process	2%
	Died/moved/refused	4.6%
	LTF/LTD (screen to eval	) 20.8%
	LTF/LTD (HL dx to EI)	20.9%

Prevalence of Hearing Loss 1.5 per 1000 screened

# EHDI Alert Response System (EARS)

#### What is EARS?



- EARS is a web-based application that:
  - allows hospitals and audiologists to quickly and accurately enter information directly into a data store;
  - allows Indiana EHDI staff to view these entries almost instantaneously; and
  - generates alerts and responses that improve communication among hospitals, EHDI, audiologists, physicians and others

# History of EARS



- 2005 received grant from the CDC to fund the development of EARS
- > 2006 began development of EARS
- 2007 began pilot testing EARS with the help of 4 central Indiana hospitals
- 2008 EARS moved to production and trained 80% of hospitals – began pilot testing of audiology reporting section – conversion from ODS to IDS began
- 2009 ODS/IDS conversion almost complete additional hospital training scheduled – begin development of webbased audiology training

# Working EARS

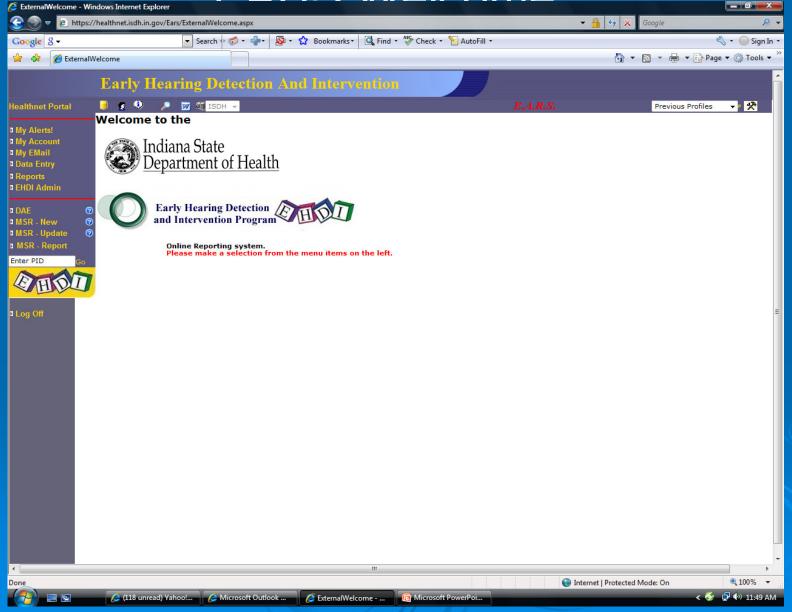


- Health Data Center Gateway
- > EARS Welcome
- EARS Exceptions
- EARS Hold-Overs
- Processing an EARS Alert
- Child Health Information Profile (CHIP)
- Communicating by secure E-mail
- Alert Response Center (ARC)
- Diagnostic Audiology Evaluation (DAE)
- Case Determination
- Backdoor Information

#### Health Data Center Portal



#### FARS Walcoma

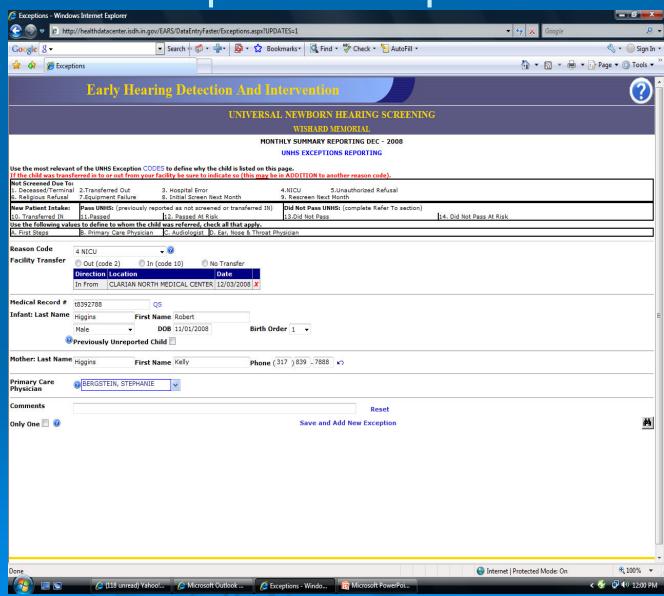


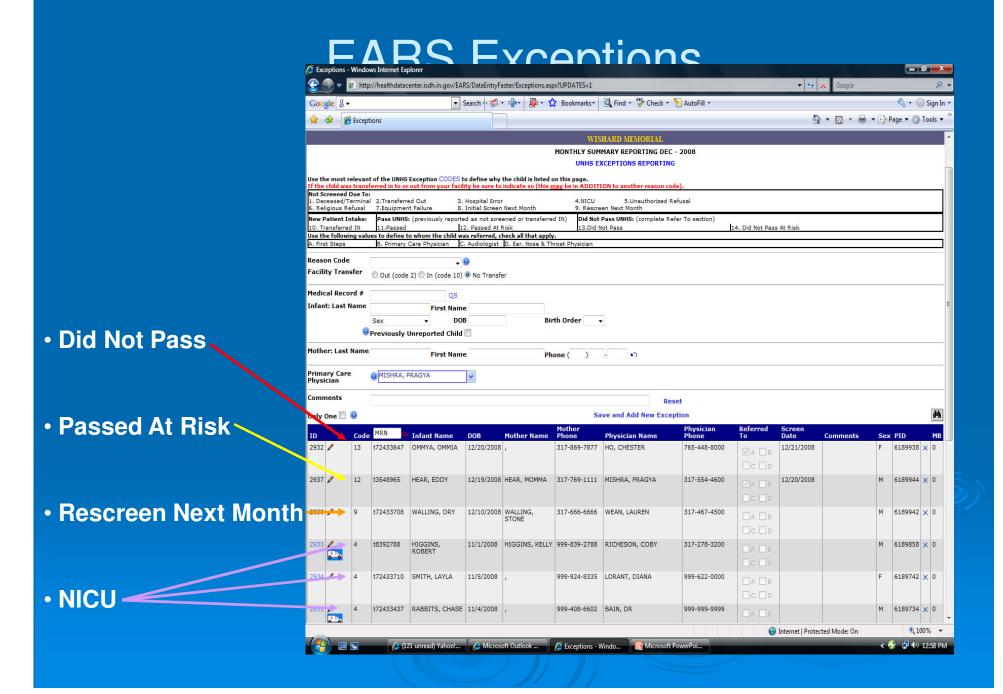
#### **EARS**

- Enables Improved Communication between EHDI Staff and ....
  - Hospital Staff
  - First Steps System Points of Entry
  - Audiologists
  - Physicians
- > And here's how....

#### Hospital Staff Report "Exceptions"

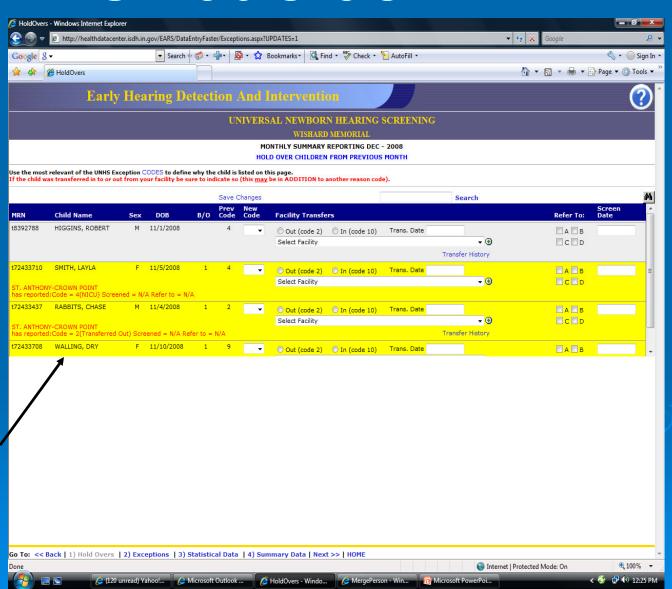
- Not Screened
  - Deceased
  - Transferred
  - Hospital Error
  - NICU
  - Unauthorized Refusal
  - •Religious Objection
  - •Equipment Problems
  - Screening Next
     Month
- Did Not Pass UNHS
- Passed but At Risk



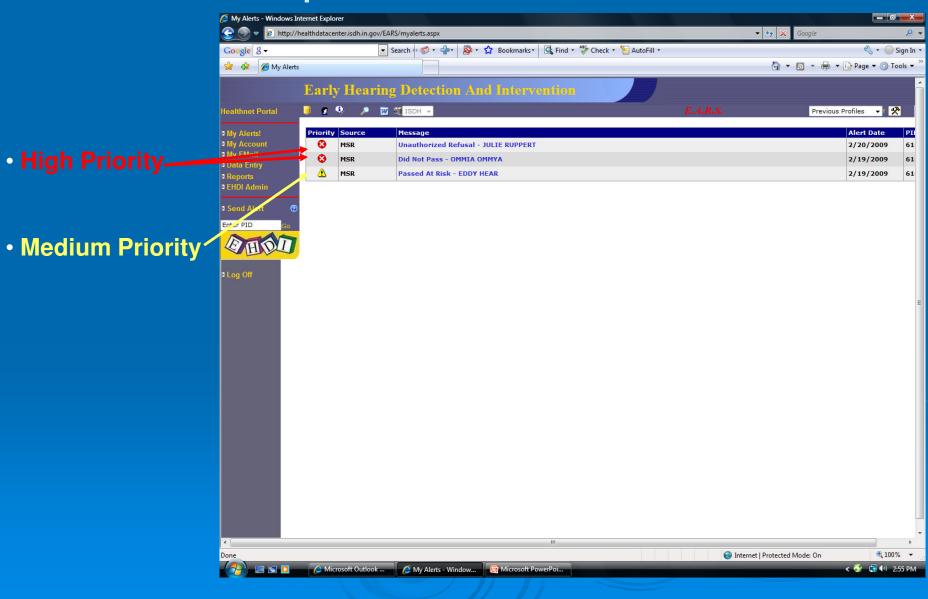


#### **EARS "Hold Overs"**

- Babies who have not been screened
- •"Hold overs"
  must have an
  updated code to
  complete final
  submission of report
- If screened, results will be displayed

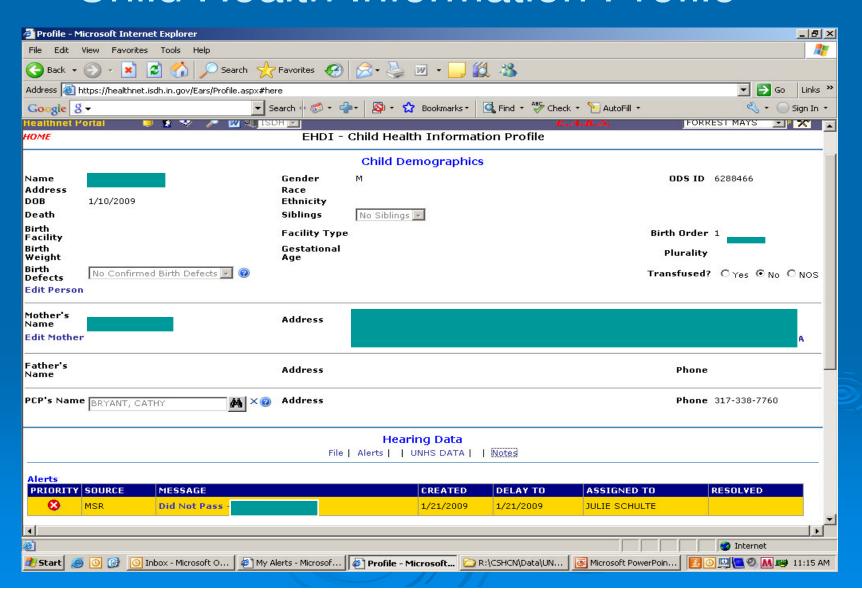


#### **Exceptions Create Alerts**



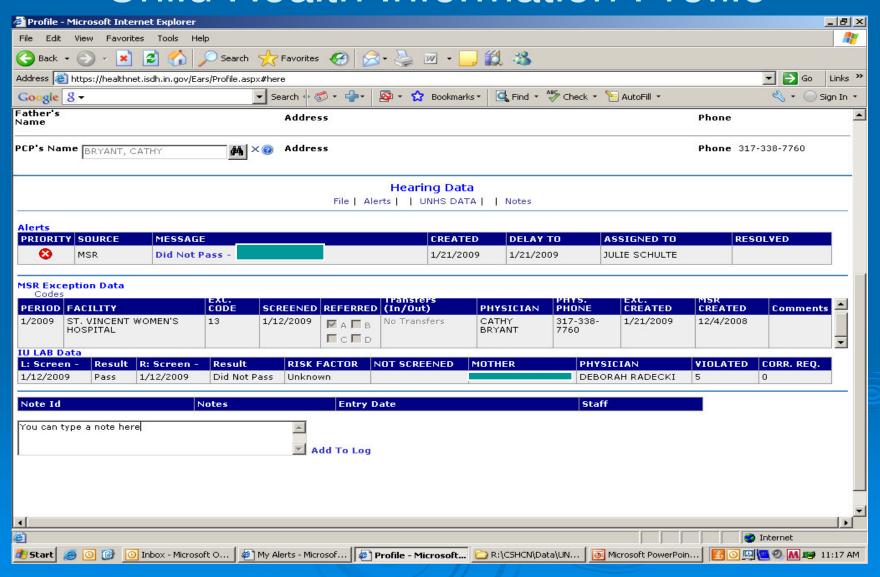
#### EARS

#### Child Health Information Profile

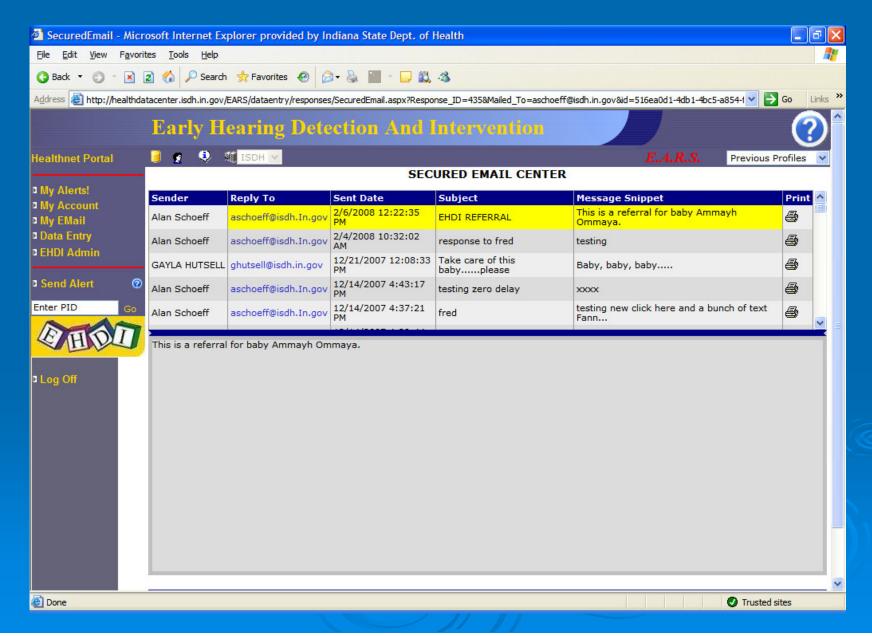


#### **EARS**

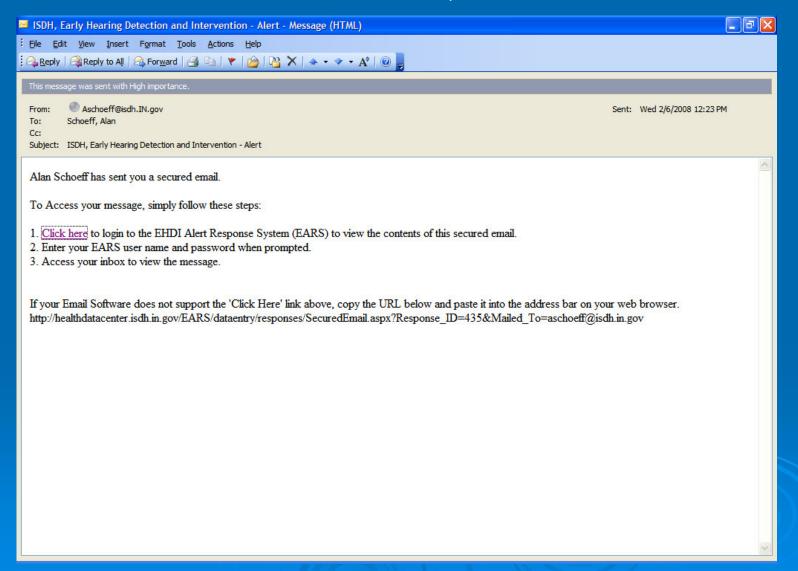
#### Child Health Information Profile

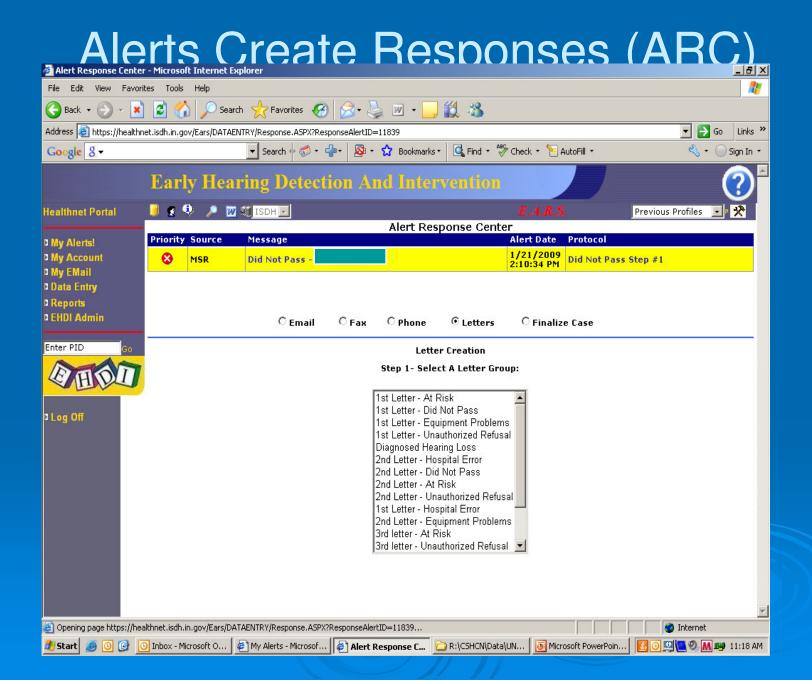


#### Alert or CHiP Questions....

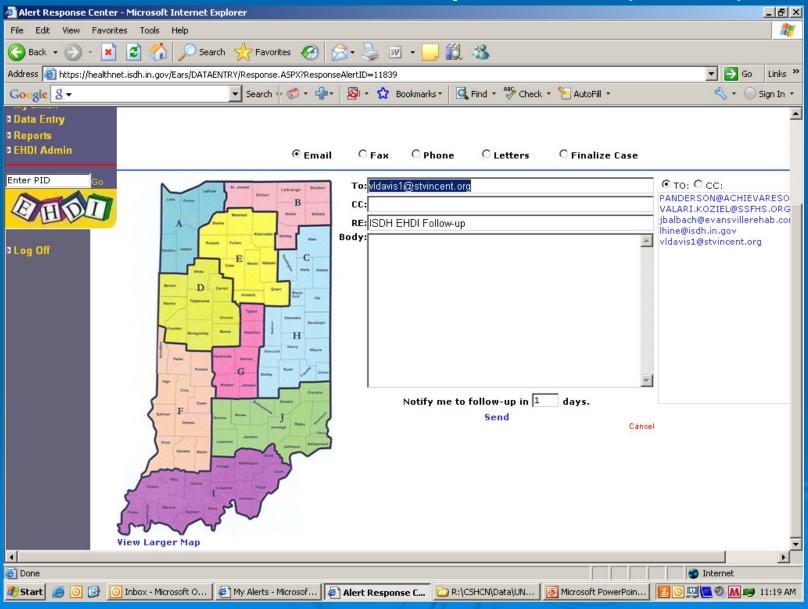


#### Alert or CHiP Questions....

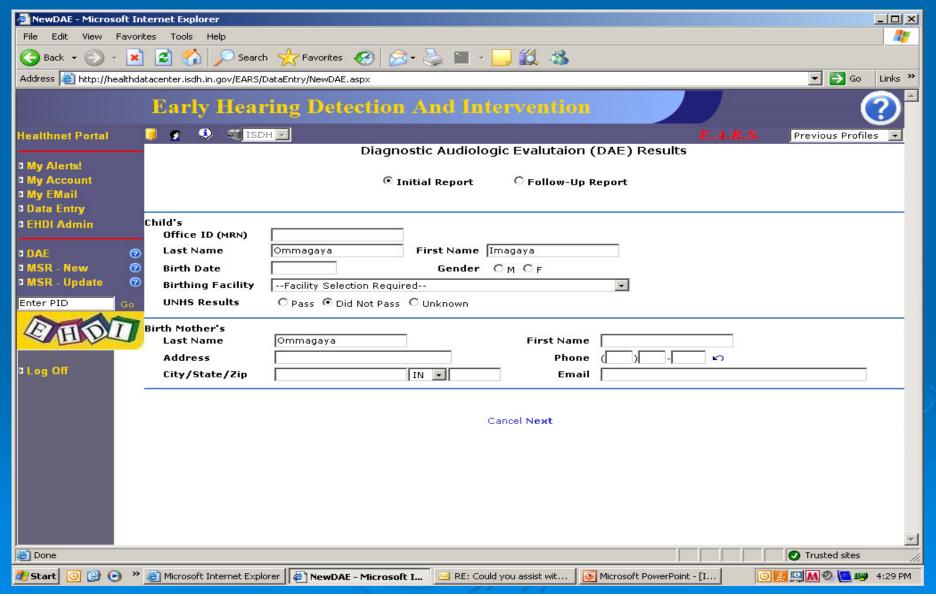




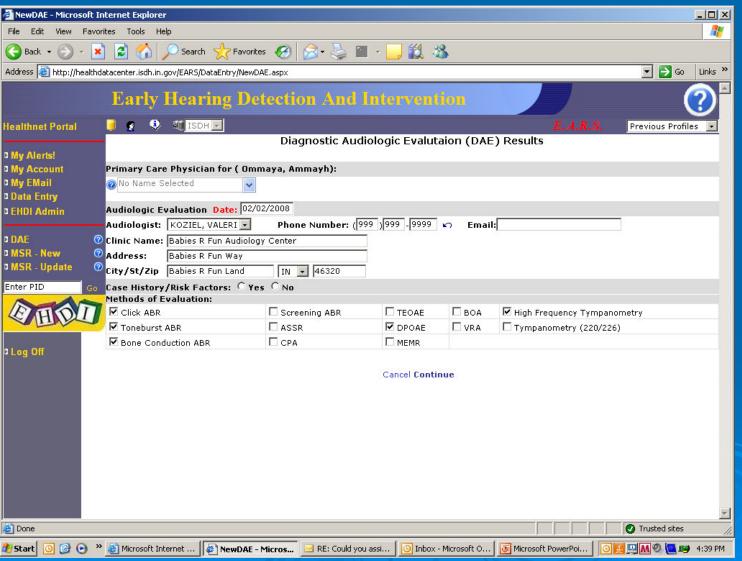
#### Alerts Create Responses (ARC)



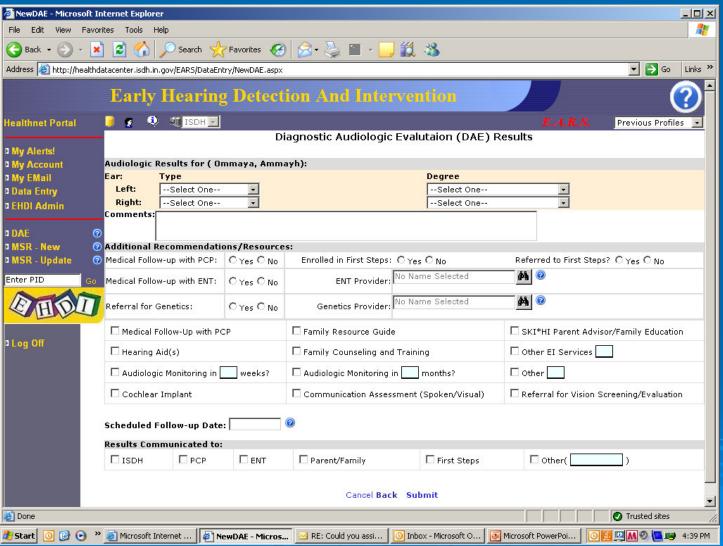
# Diagnostic Audiology Evaluation



# Diagnostic Audiology Evaluation



# Diagnostic Audiology Evaluation



#### Responses Enable Case Determination



# (H)EARS Challenges



- > Buy-in, training, and use of the system
- Increased technical support to end users
- > Increased internal workload
- Data Integration

Conversion

New HIPAA-covered entity

Communication with the data system

Evolution of the EARS application

### (H)EARS Successes



- Improved accuracy and reporting by hospitals (direct data entry)
- Increased timeliness of data sharing
- Improved relationships in EHDI system
- More accurate identification of children through larger database (IDS)
- Reduced loss to follow-up
- and documentation of children
- Easy to access, paperless, "active" system that "works" for the user
- Foundation for other Newborn Screening applications

## (H)EARS the Real Conclusion

