Using Program Evaluation to Improve the Iowa EHDI System

Early Hearing Detection and Intervention Conference

February 21, 2011

Learning Objectives

- Have a working knowledge of the steps needed to complete an evaluation
- Have the tools needed to create an EHDI logic model
- Know how to evaluate an EHDI surveillance system

Outline

- Iowa EHDI background
- Iowa's evaluation plan
- Evaluation methods and tools
- Preliminary findings
- Next steps

Iowa EHDI Background

Iowa EHDI Structure

- IA Department of Public Health (IDPH)
  - CDC Grant
  - Surveillance
  - Short term follow up
  - Program evaluation, data analysis
- Child Health Specialty Clinics (CHSC)
  - HRSA Grant
  - Long term follow up
  - Family support, EI referrals
  - Medical home education
- Audiology Technical Assistance

Legislative Mandate

- Legislature went into effect January 1, 2004
  - Universal newborn hearing screening
  - Results reported within 6 days for kids 0 – 3
  - Communicate with other states for follow-up purposes

Data System

- Web based eScreener Plus (eSP™)
  - Optimization Zorn Corporation (OZ)
  - Two level login
    - IDPH security token
    - eSP™
  - Used by hospitals, Area Education Agencies (AEAs), private audiologists, ENTs, CHSC

eSP™

- Demographics
- Risk factors
- Hearing screens
- Diagnostic assessments
- Amplification
- Healthcare provider contacts
- Data summary reports
- Development of case management module

Demographics

- Iowa has approximately 40,000 occurrent births each year
  - 1% home births
- 82 birthing hospitals
  - 60 level I hospitals
  - 19 level II hospitals
  - 3 level III hospitals

EHDI Process

- Birth screens
  - Most screens completed by nurses at the hospital
  - Most hospitals use OAE equipment
- Outpatient follow up screens
  - Hospitals, area education agencies, private audiologists, ENTs, CHSC regional centers
- Few diagnostic centers
  - 10 centers in Iowa
  - 4 centers along borders

Iowa EHDI Program Evaluation

Previous Evaluation Process

- No comprehensive evaluation plan
- Some data analysis
- EHDI program indicators
- Hospital survey
- Brief parent survey

Current Evaluation Process

- Develop a comprehensive evaluation plan
- Program evaluation
- Improve EHDI system
- Secure additional funding for sustainability

Evaluation Goals

- Develop a comprehensive evaluation plan
- Help with program planning and prioritization
  - Identify program strengths and areas for improvement
- Ensure children/families are being served
- Track progress towards “1-3-6” goals
- Improve Iowa EHDI system of care through quality improvement
- Secure additional funding for program sustainability
- CDC/HRSA grant requirements

Iowa EHDI's Evaluation Steps

- Form Steering Committee
- Assess current evaluation tools
  - Data analysis
  - Program Indicators
  - Logic model
- Identify evaluation questions of interest
- Prioritize evaluation focus areas
- Develop evaluation tools
  - Surveys
- Evaluate program components
- Provide results/feedback to stakeholders

Evaluation Steering Committee

- Representatives from:
  - Center for Congenital and Inherited Disorders Coordinator
  - EHDI lead audiologist
  - EHDI coordinator
  - CHSC EHDI program (Follow Up/GBYS grant)
  - EHDI program evaluator

Role of Steering Committee

- Advise/assist program evaluation
  - Review program indicators
  - Create logic model
  - Identify evaluation questions

EHDI Program Indicators

- Based on selected National EHDI Goals & Objectives
- Tracks program progress over time
- Prioritized indicators based on reporting requirements
  - Tier 1- required for CDC/HRSA grants, reporting
  - Tier 2- useful for program
  - Tier 3- unable to report at this time

Program Indicators Updated May 2010

Tier 1: NEED TO KNOW (high priority)

#	Performance Indicator	Related National/ State Program Objective*	Data Source (*Potential)	Calculation	2008 Data
Goal 1: All newborns will be screened for hearing loss before 1 month of age, preferably before hospital discharge.					
1	Number and percent of infants screened before hospital discharge.	State	eSP	All births with completed initial screen by hospital discharge/all births	39643/40528 98%
3	Number and percent of infants screened before 1 month of age.	1.1	eSP	All births with completed initial screen by 1 month of age/all births	39117/40528 97%
4	Number and percent of infants whose families refuse screening.	1.1	eSP	All births where family refuse initial screen/all births	233/40528 .6%

Logic Model Purpose

- Visual description of program's work
- Links program's activities to outcomes
- Guide program decisions
- Ensure all stakeholders on "same page"

Logic Model Components

- Problem
- **Inputs**
- **Activities**
- **Outputs**
- **Outcomes**
- Impact
- Values

Iowa EHDI Logic Model

- Draft created by EHDI staff
- Revised by Evaluation Steering Committee
- Revised/Approved by EHDI Advisory Committee

EHDI Logic Model

Revised June 2010

Problem

Identification of hearing loss after six months of age results in a child's language skills at age three to be about half those of a child with normal hearing[1,2].

Newborns and children identified with risk factors for delayed onset hearing loss are at risk for language delay.

[1] Yoshinaga-Itano C, Sedey AL, Coulter BA, Mehl AL. Language of early and later-identified children with hearing loss. *Pediatrics*. 1998;102 (5): 1168–1171.

2 Moeller, Early Intervention and Language Development in Children Who Are Deaf and Hard of Hearing. *Pediatrics*. 2000;106 (3): e43.

Inputs

What we invest

Statutory authority

Federal Funding- CDC, HRSA

Trained staff with experience in provision of services to children with hearing loss

Partnerships with healthcare providers, educators and audiologists

Partnerships with state leaders, families and other stakeholders

Relationships with national partners

In-kind staff

Surveillance database

Relationship with IDPH Bureau of Health Statistics

Activities

What we do

Screen/ Rescreen

Referral and follow-up

Diagnose

Family support

Report/ Evaluate

Train

Educate

Raise public awareness

Surveillance

Capacity development

Communication

Data Sharing

Outputs

Products of our activities

Children will be connected to a medical home by 1 month of age

Children receive initial screen by 1 month of age

Children who do not pass initial screen receive a rescreen by 1 month of age

Children who do not pass rescreen receive diagnosis by 3 months of age

Children diagnosed with hearing loss receive family support upon diagnosis

Children with hearing loss receive amplification (if appropriate) by 3 months of age

Children diagnosed with hearing loss are enrolled in Early ACCESS (early intervention) within 6 months of age

Audiologists and health care providers implement/ demonstrate evidence based practices

Engagement of healthcare providers, educators, families, policy makers in the statewide EHDI system

The general public has an increased awareness of newborn hearing screening, diagnosis and family support

Timely, complete and accurate data

Newsletter and website are used as a resource for newborn hearing screening, diagnosis, risk factors, and family support

Outcomes

Results

Comprehensive, coordinated statewide system for children who are deaf or hard of hearing

Families have awareness of newborn hearing screening, follow up and family support

Children and families receive support they need/ want

Improved resources for screening, detection, family support and intervention

Minimize the impact of disability associated with hearing loss including the economic implications

Improved academic performance

Improved quality of life

Effective surveillance system for early hearing detection and intervention

Data informs policy decisions and evidence based practice

Critical program activities are identified and sustained

Impact

Newborns and children who are deaf, hard-of-hearing or at risk for delayed onset hearing loss are identified early and provided with timely and appropriate intervention and family support.

Outcomes, including academic, health, social, and economic are improved through early identification of hearing loss and intervention

Values

- Relationships with hospitals, healthcare providers, audiologists and educators to provide screens, rescreens, diagnostic evaluation and referral for family support and intervention
- Capacity and/or experience to perform activities related to newborn hearing screening and follow up
- Political will
- Families participation in newborn hearing screening system
- Families have a right to choose a communication mode for their child
- Family centeredness
- The greatest good to the greatest number
- The family is a unit of service
- Cultural competence
- The primary care provider has a responsibility in the management of care
- Hospitals, audiologists, healthcare providers and educators are responsible for implementing evidenced based practice
- Early detection, every infant, every time

What to Evaluate?

- Screen/Rescreen
- Referral and follow up
- Diagnose
- Family Support
- Report/Evaluate
- Train
- Educate
- Raise public awareness
- Surveillance
- Communication
- Funding/Sustainability
- Other questions

Evaluation Questions

Screen/Rescreen

1. Are screening personnel communicating the importance of timely hearing screens (both initial and follow-up) to families and PCPs?
2. How effective is the communication between the hospital providing the screens and the child's medical home?
3. Is the hospital communicating the importance of birth screens and outpatient follow-up screens to families and PCPs?
4. Are personnel at birthing facilities being trained on the screening procedures?
5. Are personnel at birthing facilities communicating with the families regarding the hearing screen and the process?
6. Are personnel at birthing facilities communicating the results of the screens to the families?
7. Are the hospitals, midwifes, AEAs and audiologists helping families to make appointments for initial screens, follow-up screens, or medical referrals?
8. Are the hospitals, midwifes, AEAs and audiologists educating families regarding next steps?
9. Are their insurance, transportation, time, or financial barriers to inhibit families from getting to their outpatient screens or diagnostic assessments?

Prioritization

Focus Area	Process Status (0-5)	Predicted Impact (0-5)
Screen/Rescreen		
Referral and follow up		
Diagnose		
Family Support		
Report/Evaluate		
Train		
Educate		
Raise public awareness		
Surveillance		
Communication		
Funding/Sustainability		

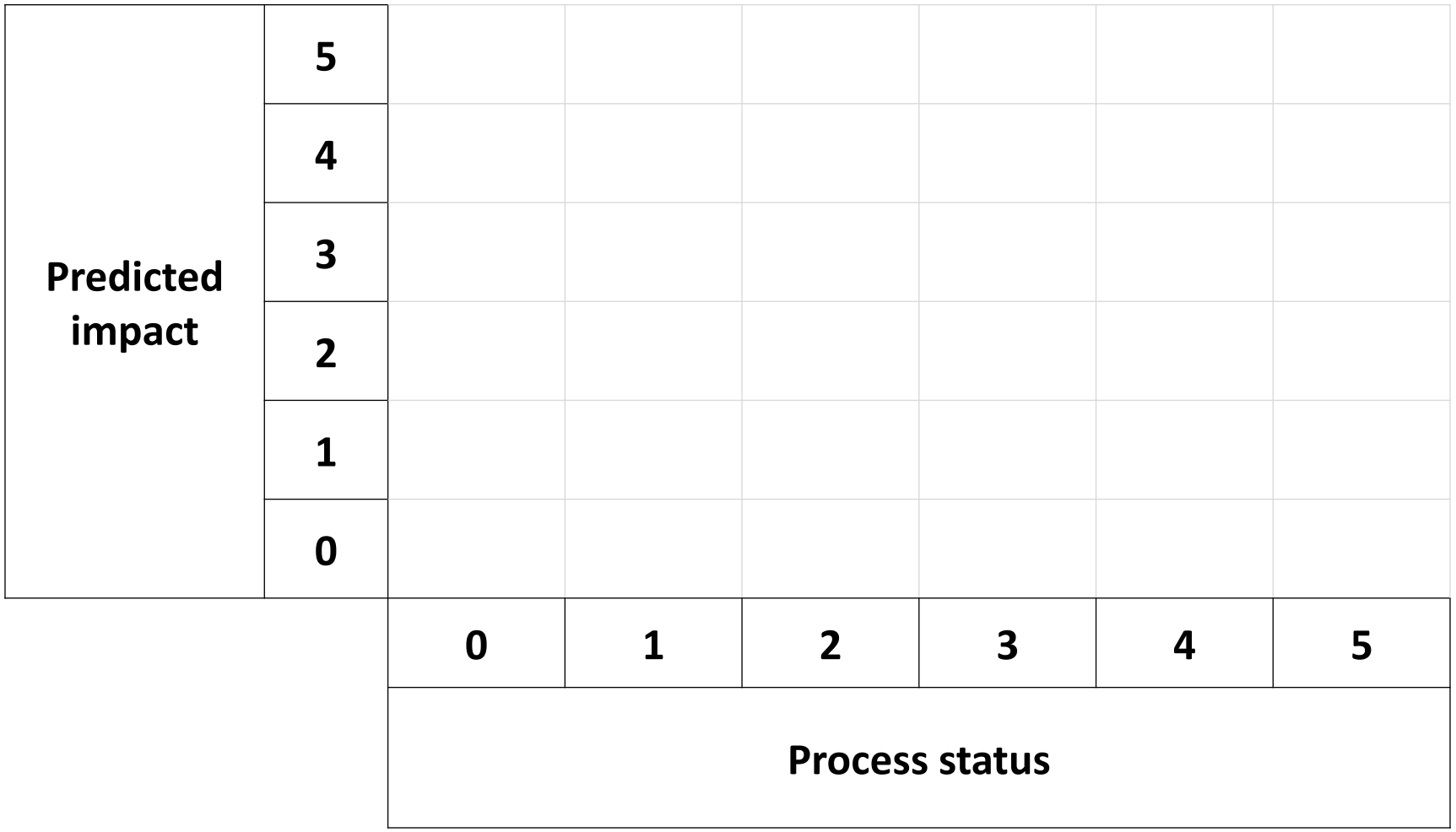
* Definitions taken from NICHQ Improving the System of Care Learning Collaborative, Learning Session 3, January 27-28, 2010

Process Status*	
Level	**Definition**
0	Process is not defined or status is unknown
1	There is an informal understanding about the process by some of the people who do the work. No widely recognized or formal written description of the process.
2	Process is documented. Process description includes all required participants (including families where appropriate). The process is understood by all.
3	The process is well-defined and enacted reliably. Quality measures are identified to monitor outcomes of the process and may be in use by few/some.
4	Ongoing measures of the process are monitored routinely by key stakeholders and used to improve the process. Documentation is revised as the process is improved.
5	Process outcomes are predictable. Processes are fully embedded in operational systems. The process consistently meets the needs and expectations of all families and/or providers.

* Definitions taken from NICHQ Improving the System of Care Learning Collaborative, Learning Session 3, January 27-28, 2010

Predicted Process Impact*	
Level	**Definition**
0	
1	This process has only minimal or indirect impact on patient services and outcomes
2	This process will improve services for our patients, but other processes are more important
3	This process has significant impact on outcomes for our patients
4	This process is necessary for delivering patient services it has a major, direct impact on the outcomes
5	This process is absolutely essential for achieving results. Improvement in this process alone will have a direct, immediate impact on outcomes

* Definitions taken from NICHQ Improving the System of Care Learning Collaborative, Learning Session 3, January 27-28, 2010



Topic areas in upper left made the list of focus areas

Evaluation: Phase 1

Focus Areas	Evaluation Method
Surveillance	Surveillance Survey
Referral Processes	Hospital Survey Parent Survey Processes Survey
Family Communication	Parent Survey

Surveillance Survey Design

- SurveyMonkey™
- 33 multiple choice and open-ended questions
- Distributed to eSP™ users by
  - Email
  - Posting on system login screen
  - Announcement at EHDI symposium

Surveillance Survey

6. How are demographics entered into the EHDI data system? (select all that apply)

- [ ] Demographics are manually entered into the EHDI data system
- [ ] Demographics are imported into the EHDI data system from another data source (electronic medical record, etc)
- [ ] Unknown
- [ ] Other (please specify)

*** 7. What results are entered into the EHDI data system?**

- ○ Birth/outpatient hearing screens
- ○ Diagnostic hearing assessments only
- ○ Both hearing screens and assessments

8. How are results entered into the EHDI data system? (select all that apply)

- [ ] Results are manually entered into the EHDI data system
- [ ] Results are automatically imported from hearing screening/audiologic equipment
- [ ] Results are imported into the EHDI data system from another data source
- [ ] Unknown

Hospital Survey Design

- Hard copy
- 18 multiple choice and open-ended questions
- Distributed to EHDI contacts at Iowa birthing hospitals by email

Hospital Survey

2) **What hearing screening technique do you currently use?** (select all that apply)
   - ☐ DPOAE
   - ☐ TEOAE
   - ☐ AABR

3) **What technology does your facility employ? Please list.** (AudX, ILO88 Echoport, Algo 3, etc)
   _____

4) **What was the date your hearing screening equipment was purchased?**
   _____

5) **Do you have policies and procedures to support your newborn hearing screening program?**
   - ☐ Yes
   - ☐ No

6) **Do you use an electronic medical record system?**
   - ☐ Yes, please list name of system used _____
   - ☐ No

7) **If you use the EMR (electronic medical record), please describe how a PCP (primary care provider) that does not belong to your health system receives the screening results.**
   - ☐ eSP letter, by fax or mail
   - ☐ Discharge summary, by fax or mail
   - ☐ Electronic medical record
   - ☐ Other, please list _____

Parent Survey Design

- SurveyMonkey™ and hard copy
- 2 versions
  - Hospital births
  - Home births
- Skip patterns
- 24 or 30 multiple choice and open-ended questions
- Distributed to 2116 parents by mail

Parent Survey Sampling Method

- DOB of January 1, 2010 to June 30, 2010
- Only patients with contact information
- Exclude patient outcome of deceased or moved out of state
- Hospital births stratified sample
  - Pass birth screen with/without diagnostics
  - Refer/miss birth screen with/without diagnostics
- Home births sample
  - Place of birth as home

Hospital Birth Survey

5. Before you went to the hospital to have your baby, did you know that the hospital screens all babies for hearing loss?

- ❑ Yes
- ❑ No

6. If you were given written information about the newborn hearing screening, when was it given to you? Select all that apply

- ❑ While I was in the hospital
- ❑ Before I left the hospital
- ❑ No written information was given
- ❑ Other, please explain _____

_____

Home Birth Survey

5. Before you had your baby, did you know there is a law that requires hearing screening of all newborns and infants in Iowa?

- ❑ Yes
- ❑ No

6. If you were given written information about the newborn hearing screening, when was it given to you? **Select all that apply**

- ❑ Information was included in my birth packet
- ❑ I received a letter from the Iowa Department of Public Health
- ❑ I received a letter from my medical provider (OB/GYN, midwife, primary care provider)
- ❑ No written information was given to me
- ❑ I don't remember
- ❑ Other, please explain _____

_____

Surveillance Survey Findings

- Most users enter demographics/results manually
- Timeliness of data entry is okay
- Data system is easy to use and appropriate
- QA activities can be improved
- Retraining is necessary
- Suggestions for data system improvements
  - Populating city, county when zip code is entered
  - Using birth certificate to populate state data systems

Hospital Survey Findings

- More hospitals have AABR equipment since 2009
- More hospitals provide OP screens since 2009
- Majority of hospitals use OAE equipment
- Many hospitals use old equipment
- ¼ of hospitals do not provide OP screens
- Many hospitals help schedule OP appointments

Next Steps

- Parent Survey
- Processes survey
- Hospital quarterly QA reports
- Summarize phase 1 findings
- Develop future evaluation plan

Acknowledgements

- CDC Team
  - Marcus Gaffney
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- EHDI Steering Committee
- EHDI Advisory Committee

Logic Model/Evaluation Resources

- CDC Framework for Program Evaluation in Public Health
- CDC Updating Guidelines for Evaluating Public Health Surveillance Systems
- W.K. Kellogg Foundation Logic Model Development Guide
- W.K. Kellogg Foundation Evaluation Handbook
- Posavac and Carey. Program Evaluation Methods and Case Studies, 5th edition. 1997.
- Rossi, Freeman, Lipsey. Evaluation. A Systematic Approach, 6th edition. 1999.
- Chapel. Logic Models and Organizational Strategy and Evaluation. Presented to National Association of Chronic Disease Directors General Member Call, February 25, 2010.

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