

Into the 21st Century and Beyond...hearing
results available online!

2010 National EHDI

Michelle Garcia

Michigan EHDI Follow-Up Consultant

517-335-8878 garciam@michigan.gov

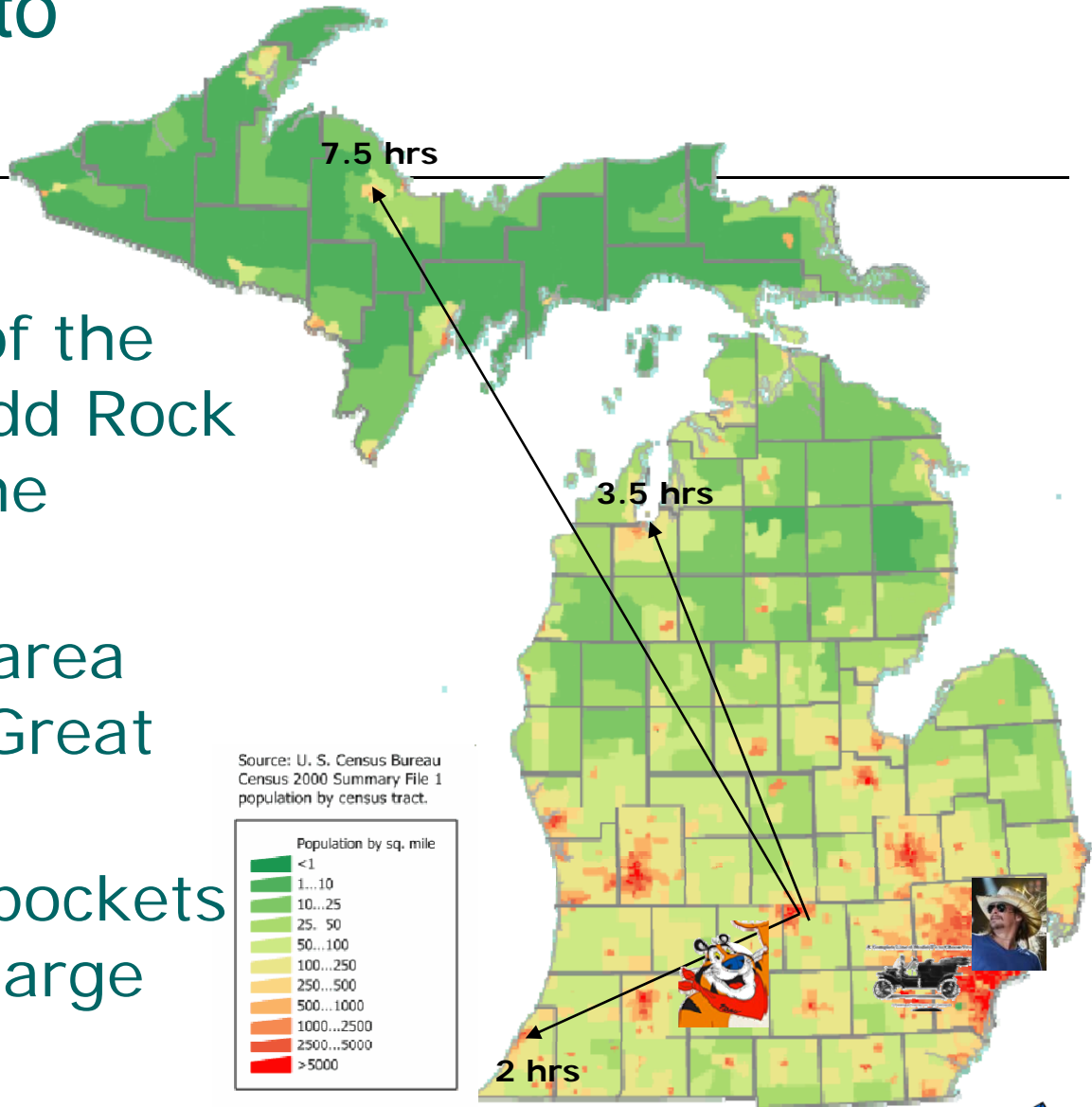


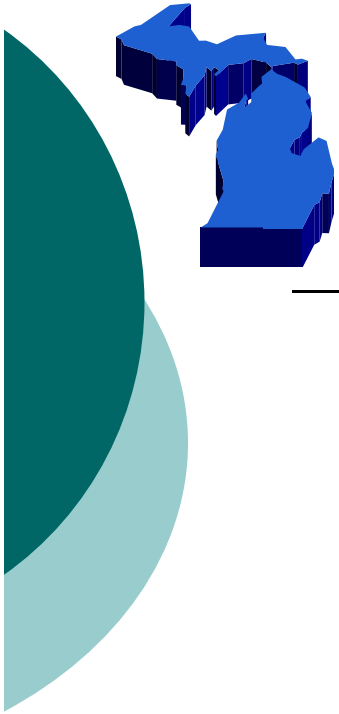
Acknowledgements

- Bea Salada, MCIR Coordinator.
- Kevin Garnett, MCIR System Developer.
- Mary Kleyn, NBS Epidemiologist.
- Erin Estrada, EHDI Data Analyst.

Welcome to Michigan

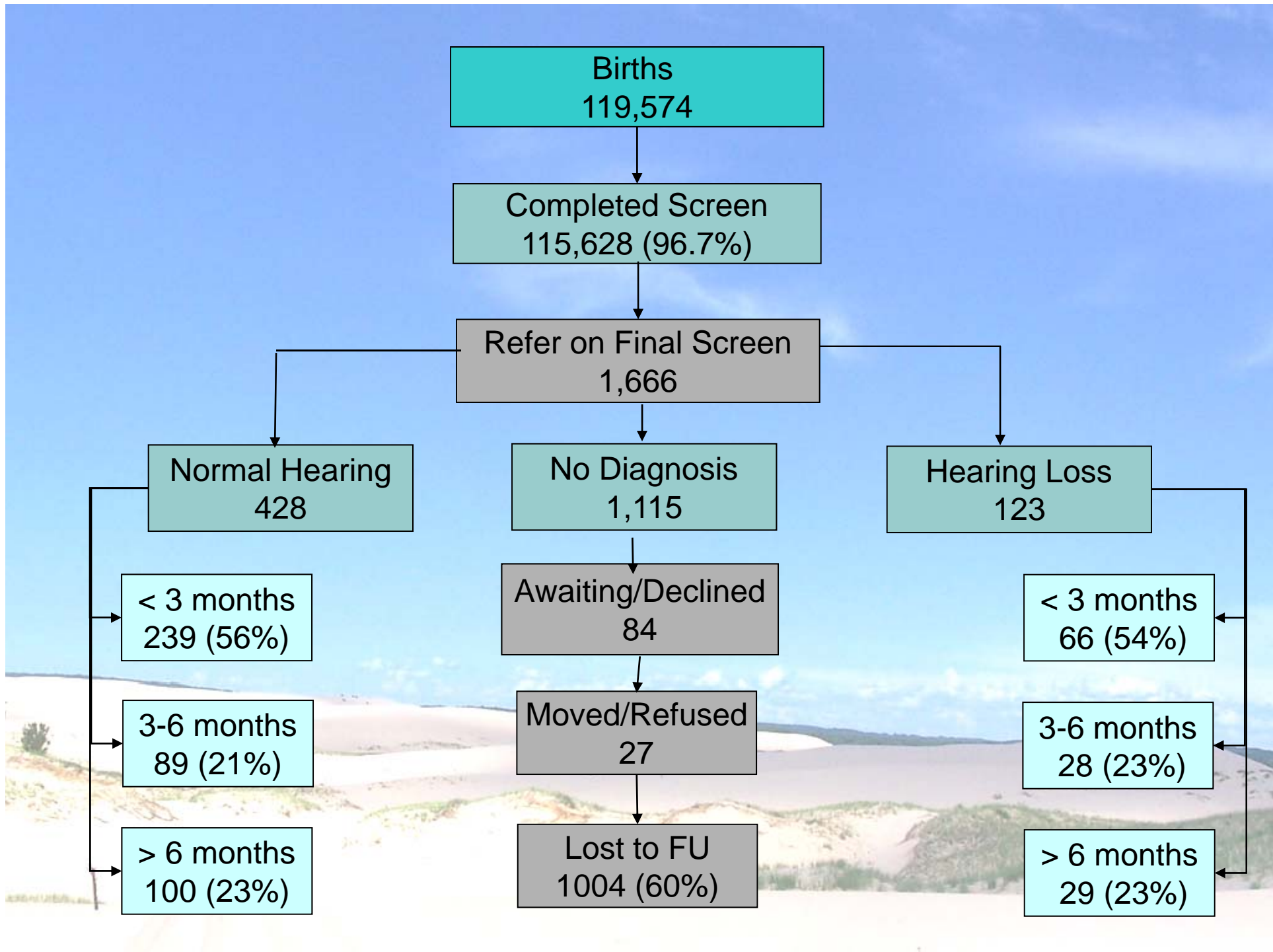
- Birthplace of the Model T, Kidd Rock and Tony the Tiger.
- Large land area divided by Great Lakes.
- Population pockets with many large rural areas.





How Are We Doing in Michigan?







Because it is the law.....

- Screening:
 - Began with a Medicaid policy in March, 2000.
Hospitals > 15 Medicaid births must provide hearing screening.
- Reporting:
 - Mandated reporting as of February 23, 2006.
- Approved newborn hearing screening on the panel of required newborn tests in April 2008.

Michigan Care Improvement Registry (MCIR)

- Web-based application.
- Populated with electronic birth records (within 2 weeks).
- Operational with a regional approach.
- Majority of the funding from the Healthy Michigan Fund (tobacco tax).





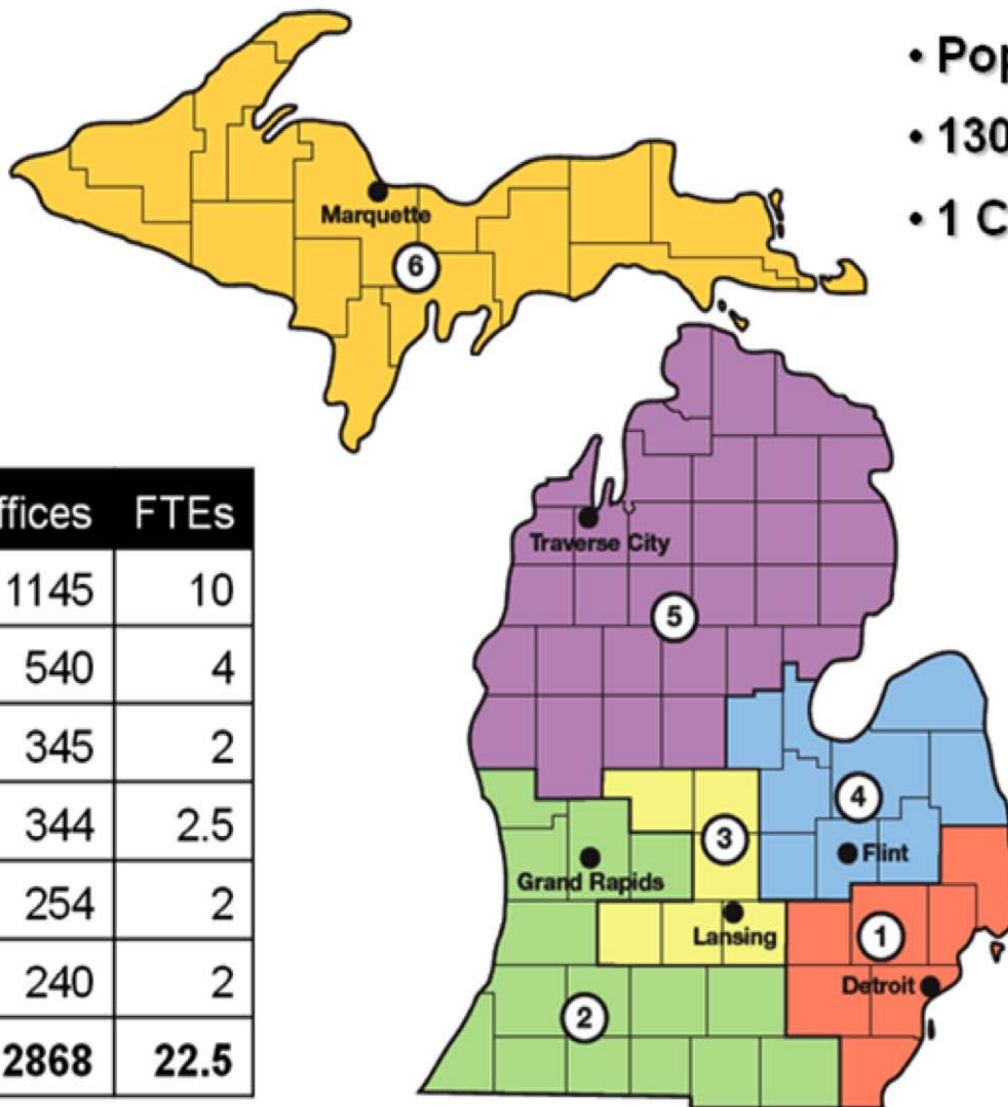
- ❖ 6.1 million records.
- ❖ Over 74 million shot records.
- ❖ 29,000 registered users.
- ❖ 5,415 active provider sites.

Scalability/Performance

User Activity

Avg Daily Logins	14,000-17,000
Avg/Peak concurrent users (hourly)	1,300-2,100
Avg Daily Imms reported	35-50,000
Avg Daily Reports	14-16,000

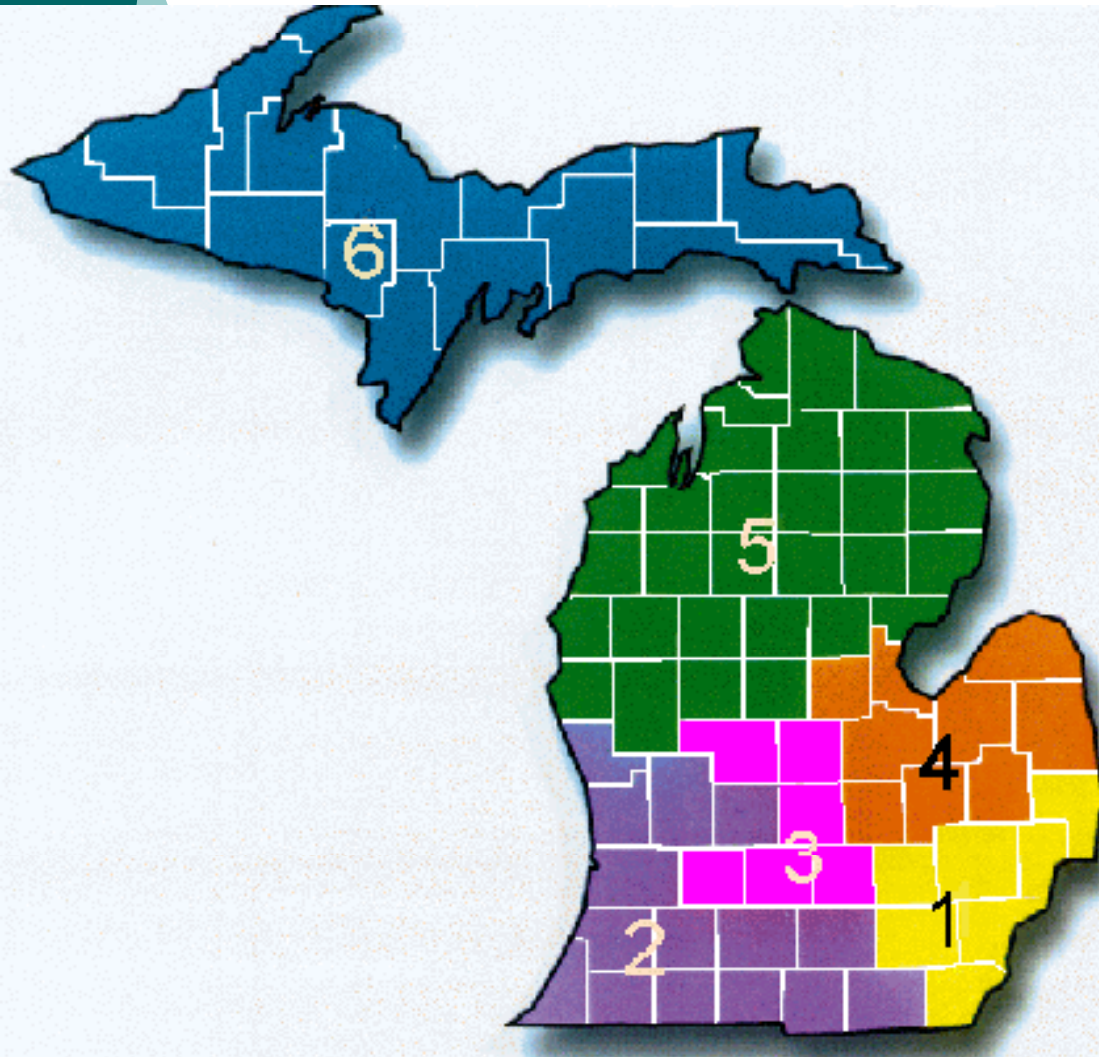
MCIR Regions



- Population: 10,000,000+
- 130,000+ births/yr
- 1 Coordinator / 250 sites

Region	Offices	FTEs
1	1145	10
2	540	4
3	345	2
4	344	2.5
5	254	2
6	240	2
Totals	2868	22.5

MCIR Regions



- o Provider recruitment.
- o Provider training.
- o Help desk.



MCIR Tools

- Assessment of patient immunization status at the time of the visit.
- Reminder/Recall Letters Coverage Level Reports.
- High Risk Influenza.
- Clinical Record.
- All Hazard Component.



Schools and Daycares Utilizing MCIR

4,422 Schools

95% enrolled

3,740 Daycares

89% enrolled





MCIR Electronic Interface Activity in Feb. 2008.
Represents 1 month worth of data.

- 270,000 immunizations reported from provider offices.
- 860,000 updates from Medicaid with beneficiary information.
- 200,000 WIC ID updates.
- 10,800 Electronic Birth Records.



MCIR Benefits

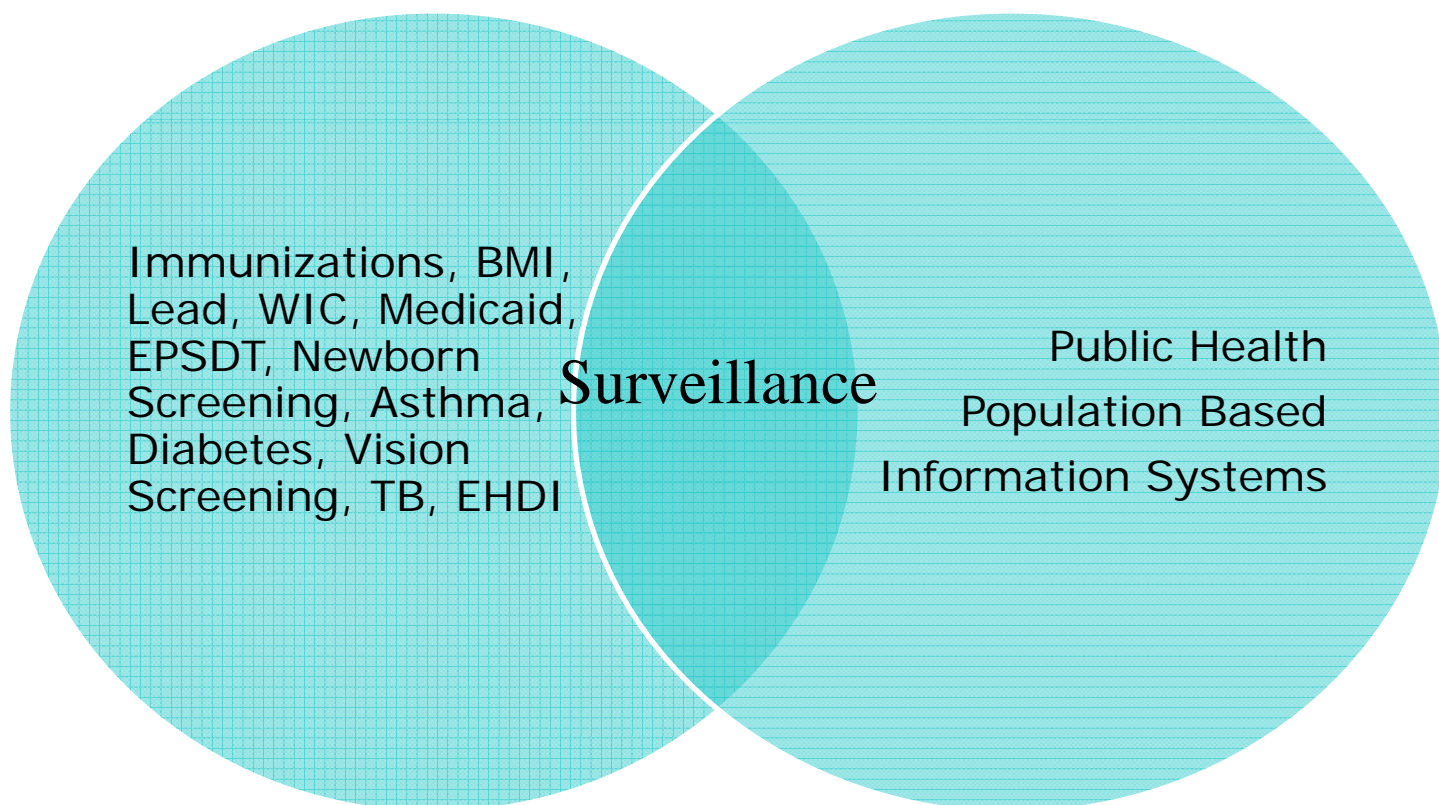
- High provider participation (>90%).
- Supports all programmatic functions of the Immunization program.
- All Hazard tracking capabilities.
- Population based system.
- Reports to demonstrate “pocket of need”.
- Flexibility to allow linkages with other public health systems.
- Infrastructure setup with regional staffing model.



Population Based Reporting

- Levels Include:
 - State.
 - County.
 - WIC.
 - Medicaid Health Plans.
 - Clinic Site.
 - School Districts.
 - School Buildings.
 - Migrant Schools.
 - Migrant Population.

Emerging Synergies





Why display hearing results on MCIR?

- Providers can access their infants' screens.
- Reduce number of calls to providers.
- Allow pediatricians and health care providers access to their patients results.
- Create opportunities for improving follow-up of patients.

API SE

Kalamazoo, MI 49009-1773

County: Kalamazoo

Phone: (517)555-1212

Resp. Party: Andy Warhol (P/G)

High Risk Conditions

Influenza Screening Notification

Immunizations		Lead	EPSDT	NBS Mailers	EHDI	Other
Series	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6
DTaP	04/16/1997 DTaP 8wks 3days	06/11/1997 DTaP 16wks 3days	08/27/1997 DTaP 27wks 3days	05/07/1998 DTaP 1yr 2mos	08/26/2002 DTaP 5yrs 6mos	Due 08/26/2009 Tdap Up-to-date
	04/16/1997 OPV 8wks 3days	06/11/1997 OPV 16wks 3days	08/27/1997 OPV 27wks 3days	08/26/2002 IPV 5yrs 6mos		Series Complete
	02/25/1998 MMR 1yr 16days	08/26/2002 MMR 5yrs 6mos				Series Complete
HIB	04/16/1997 Hib-PedvaxHIB 8wks 3days	06/11/1997 Hib-PedvaxHIB 16wks 3days	08/27/1997 Hib-PedvaxHIB 27wks 3days	02/25/1998 Hib-PedvaxHIB 1yr 16days		Series Complete
	02/12/1997 HepB (Ped) 3days	04/16/1997 HepB (Ped) 8wks 3days	08/27/1997 HepB (Ped) 27wks 3days			Series Complete
Varicella	10/22/1998 Varicella 1yr 8mos					DUE NOW Varicella
Influenza	10/20/2004 Influenza-split 7yrs 8mos	10/19/2006 Influenza (hist) 9yrs 8mos				Series Complete
PCV7	04/16/1997 PCV7 (Prevnar)	08/27/1997 PCV7 (Prevnar)				DUE NOW PCV7 (Prevnar)



Lead Data Results

- Added a lead pop-up window.
 - Medicaid enrolled.
 - Mapped to HR zip code.
- 23% increase March–May of 2004 in lead testing as compared to 2003 data.
- Increased provider participation.

General Information

Child: Lead, Baby
Birth Date: 07/11/2001
Provider: Eligible

[Print](#) [Print Help](#)
[View](#) [Home](#) [Exit](#)

Child	Reports	Vaccine Mgmt	Reminder/Recall	My Site	School/Childcare	Other
Add/Find	Roster	Add Immunizations	Information	Immunization Status	Immunization History	

Child Information : MCIR ID : 20249742687

Legal Last: Lead Legal First: Baby Middle: Suffix:

Alias Last:

Birthdate: 07/11/2001

Responsible Party : Ad

[Adult Lead 123 Screen \(269\)999-9966](#)

Birth Facility Information

Name:

Additional Information

Patient ID:

MCIR options :

- Child does not receive
- Child is migrant

[Update Child](#)

[Unlock Child](#)

[Take off Roster](#)

[Reassess Child](#)

Lead Notification

This child may be at **high risk** for lead poisoning.

A **blood lead test** should be completed today, unless it can be determined by asking a parent/guardian that the child has already been tested within the last 12 months.

Please check here if a test **has** been ordered or completed.

If you have questions regarding this message or how the lead risk for this child was determined, please read the [Explanation of Risk Factors](#) document. You may also contact the Michigan Department of Community Health at **(517) 335-8885**, if the above document does not address your concerns.

Done sso.state.mi.us

Done

Newborn Hearing and Screening

Requirements Gathering 2005.

System Upgrades to MCIR and NBS Database.

Rollout June, 2009.

General Information

[Print Help](#)

[Home](#) [Exit](#)

Person	Reports	Reminder/Recall	Import/Export	My Site	Administration	School/Childcare	Other
Add/Find	Roster	Deduplication	Vaccine Deduplication	Information	Status	History	

Person Information : [Edit](#) MCIR ID : 1234567890AB

Name:	John Jacob Jingleheimer-Schmidt	Birthdate:	02/09/1997	Gender:	Male
Address:	312 South First Street NW Apt 3E Kalamazoo, MI 49009-1773	Age:	10yrs 4mos	County:	Kalamazoo
Phone:	(517)555-1212	Resp. Party:	Andy Warhol (P/G)		

High Risk Conditions

Influenza Screening Notification

Immunizations <input type="checkbox"/>	Lead <input type="checkbox"/>	EPSDT <input type="checkbox"/>	NBS Mailers	EHDI <input type="checkbox"/>	Other
Kit Number	Accession Number				
0428286	071150386		Mailer		
0123456	099999999		Mailer		
0428286	071150386		No Mailer Available		

General Information

[Print Help](#)

[Home](#) [Exit](#)

Person	Reports	Reminder/Recall	Import/Export	My Site	Administration	School/Childcare	Other
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High Risk Conditions

Influenza Screening Notification

Immunizations ■	Lead ■	EPSDT ■	NBS Mailers	EHDI ■	Other
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Patient Status: Retest Needed

Initial and Rescreen Results

Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
02/02/2006	ABR	PASS	FAIL	
01/02/2006	ABR	PASS	FAIL	

Diagnostic Results

Date Diagnosed	Left Ear	Right Ear
03/02/2006	Within Normal Limits	Conductive-Permanent/Mild
02/02/2006	Within Normal Limits	Conductive-Permanent/Mild



How are NBS results linked to MCIR records?

Hospitals release electronic birth certificates (EBC) to state of MI.

Contact at Department of Information Technology (DIT) compiles all EBC received and sends file to NBS epidemiologist 3-4 times per week.

Every week, NBS epidemiologist links EBC with NBS records using 20 matching variables. EBC/NBS match rate is 99%+.

NBS epidemiologist uploads the linked EBC/NBS file into MCIR after removing non-resident infants and infants who were adopted.

EBC/NBS file is linked with MCIR records using a matching program developed by DIT programmers. Match rate is typically 80%+.

NBS epidemiologist receives a file with all EBC/NBS records that did not link to a MCIR record.



Challenges:

- Infant not linked due to:
 - The infant was never screened.
 - The electronic birth certificate has not been released by the hospital yet.
 - NBS Follow-up staff educating hospitals about timely release of certificates.



Challenges:

- The infant may have duplicate records in MCIR.
- The linkage algorithm was not able to match a NBS/EBC record to the appropriate MCIR record.
 - Hyphenated names.
 - Father listed as the responsible party in MCIR.

What hearing information is displayed on MCIR?

Immunizations		NBS Mailers		Other		EHDI	
Kit Number: <input type="text"/>				Follow-up Detailed Information			
Initial and Rescreen Results							
Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason			
09/18/2009	AABR	PASS	PASS				
Diagnostic Results							
Date Diagnosed	Left Ear		Right Ear				
10/27/2009	Sensorineural/Severe		Within Normal Limits		?		

We wanted more! Tabs for Follow-Up!

- Color tabs alert providers when an infant needs follow-up services.



Follow-Up Tab

Green means Go!

Flu Screening Notification

Immunizations <input type="checkbox"/>	NBS Mailers	Other <input checked="" type="checkbox"/>	EHDI <input type="checkbox"/>
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Number: 1204092 [Follow-up Detailed Information](#)

and Rescreen Results

Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	01/29/2010	DPOAE	PASS	PASS	?

Diagnostic Results

Diagnosed	Left Ear	Right Ear

Diagnostic Results Found

Green Means Go!

High Risk Conditions : Edit		Pass	<ul style="list-style-type: none"> • Monitor speech-language development. • Review risk factors for progressive hearing loss (www.jcih.org) and ensure at least one diagnostic evaluation is completed before 3rd birthday. 		
<input type="checkbox"/> Influenza Screening Notification					
Immunizations					
Kit Number: 1192103		Follow-up Detailed Information			
Initial and Rescreen Results					
Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	01/07/2010	AABR	PASS	PASS	?
Diagnostic Results					
Date Diagnosed	Left Ear		Right Ear		
<i>No Diagnostic Results Found</i>					

Follow-Up Tab-Yellow!

Influenza Screening Notification						
Immunizations <input type="checkbox"/>		NBS Mailers		Other		EHDI <input type="checkbox"/>
Number: 1131324				Follow-up Detailed Information		
Initial and Rescreen Results						
Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason	
		NOT SCREENED			NICU Hearing Pending <input type="checkbox"/>	
Diagnostic Results						
Date Diagnosed	Left Ear		Right Ear			
<i>Diagnostic Results Found</i>						

Yellow!

Address: [Redacted]
 [Redacted]
 [Redacted]

High Risk Conditions : [Edit](#)

Influenza Screening Notification

Immunizations

Kit Number: [Redacted] [Follow-up Detailed Information](#)

Initial and Rescreen Results

Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
		NOT SCREENED			Newborn Discharged ?

Diagnostic Results

Date Diagnosed	Left Ear	Right Ear
<i>No Diagnostic Results Found</i>		

Incomplete

- Hearing screen needs to be completed no later than one month of age.
- **For NICU graduates**, it is recommended to have an automated auditory brainstem response screen (A-ABR).
- If incomplete screen is due to parent refusal encourage family to have hearing tested.

Red Means Stop!

Conditions : Edit					
iza Screening Notification					
Immunizations <input type="checkbox"/>	NBS Mailers		Other		EHDI <input type="checkbox"/>
per: 1202617			Follow-up Detailed Information		
and Rescreen Results					
ndered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	01/20/2010	ABR	FAIL	PASS	<input type="text" value="?"/>
Diagnostic Results					
Diagnosed	Left Ear		Right Ear		
<i>Diagnostic Results Found</i>					

Red Alert!

Age: 5 MONTHS 1 Day County: JACKSON (36) COUNTY

Address: [Redacted]
[Redacted]
[Redacted]

High Risk Conditions : [Edit](#)

Influenza Screening Notification

Immunizations **NBS Mailers** **Other** **EHDI**

Kit Number: [Redacted] [Follow-up Detailed Information](#)

Initial and Rescreen Results

Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	02/05/2010	DPOAE	FAIL	FAIL	?
	11/20/2009	DPOAE	FAIL	PASS	

Diagnostic Results

Date Diagnosed	Left Ear	Right Ear
No Diagnostic Results Found		

FAIL

- If this is an initial failed screen then a hearing re-screen needs to be completed no later than one month of age.
- **If this is a failed re-screen then immediately send child for a diagnostic evaluation by a pediatric audiologist.** Refer to www.michigan.gov/ehdi for a list of pediatric audiologists in your area.

High Risk Conditions : [Edit](#)

Influenza Screening Notification

Immunizations <input type="checkbox"/>	NBS Mailers	Other	EHDI <input type="checkbox"/>
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Kit Number: 1148062

[Follow-up Detailed Information](#)

Initial and Rescreen Results

Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	02/03/2010	AABR	FAIL	FAIL	
	11/04/2009	ABR	FAIL	FAIL	

Diagnostic Results

Date Diagnosed	Left Ear	Right Ear	Incomplete Reason
02/17/2010	Sensorineural/Moderate	Sensorineural/Moderate	<input type="checkbox"/>



Name: [Redacted]

Address: [Redacted]

High Risk Conditions : [Edit](#)

Influenza Screening Notification

Immunizations

Kit Number: [Redacted] [Follow-up Detailed Information](#)

Initial and Rescreen Results

Date Entered	Date Screened	Test Method	Left Ear	Right Ear	Incomplete Reason
	02/03/2010	AABR	FAIL	FAIL	
	11/04/2009	ABR	FAIL	FAIL	

Diagnostic Results

Date Diagnosed	Left Ear	Right Ear	
02/17/2010	Sensorineural/Moderate	Sensorineural/Moderate	?

**Sensorineural/
Auditory
Neuropathy/
Mixed/
Conductive
(permanent)**

- Contact Early On (1-800-Early On) to initiate intervention.
- Refer to otolaryngologist to determine etiology of hearing loss and recommended treatment. Other referrals may include: ophthalmology, genetics, developmental pediatrics, neurology, cardiology, and nephrology if appropriate.
- Ensure ongoing pediatric audiology services.
- Offer parent support for families through referral to the Guide-By-Your-Side parent support program. Call 517-335-8273.

Follow-Up Document

PHYSICIAN and HEALTH DEPARTMENT FOLLOW-UP

Screen Results	ACTION
Pass	<ul style="list-style-type: none"> Monitor speech-language development. Review risk factors for progressive hearing loss (www.jcih.org) and ensure at least one diagnostic evaluation is completed before 3rd birthday.
Incomplete	<ul style="list-style-type: none"> Hearing screen needs to be completed no later than one month of age. <p>For NICU graduates, it is recommended to have an automated auditory brainstem response screen (A-ABR).</p> <ul style="list-style-type: none"> If incomplete screen is due to parent refusal encourage family to have hearing tested.
FAIL	<ul style="list-style-type: none"> If this is an initial failed screen then a hearing re-screen needs to be completed no later than one month of age. If this is a failed re-screen then immediately send child for a diagnostic evaluation by a pediatric audiologist. Refer to www.michigan.gov/ehdi for a list of pediatric audiologists in your area.
Diagnostic Results	ACTION
Within Normal Limits	<ul style="list-style-type: none"> Monitor speech and language development milestones. A child may be at risk for progressive hearing loss (www.jcih.org).
Undetermined and Conductive (Transient)	<ul style="list-style-type: none"> Further diagnostic testing needs to be completed immediately by a pediatric audiologist. Refer to www.michigan.gov/ehdi for a list of pediatric audiologists in your area. Do not assume it is only middle ear effusion.
Sensorineural/ Auditory Neuropathy/ Mixed/ Conductive (permanent)	<ul style="list-style-type: none"> Contact Early On (1-800-Early On) to initiate intervention. Refer to otolaryngologist to determine etiology of hearing loss and recommended treatment. Other referrals may include: ophthalmology, genetics, developmental pediatrics, neurology, cardiology, and nephrology if appropriate. Ensure ongoing pediatric audiology services. Offer parent support for families through referral to the Guide-By-Your-Side parent support program. Call 517-335-8273.

Provider Guidelines (May 2009)

FACTS AND RECOMMENDATIONS

1. AUDIOLOGICAL SERVICES (Don't wait to refer!)

- Critical screen protocol:** Do not continue to re-screen. If baby has two screens refer directly to a pediatric audiologist to perform diagnostic testing. It is difficult to rule out hearing loss without objective, frequency specific testing. A baby with a sloping hearing loss will respond to a door slam or hands clapping, but may not hear a single consonant sound.
- Do not wait 3-6 months to do a repeat hearing screen. Even if child has otitis media do not wait this long to re-screen.
- The easiest and most accurate hearing testing is done when babies are in natural sleep. Early evaluations reduce the need for sedated procedures later.
- Otitis media and middle ear effusion have a greater impact on screening measures than diagnostic evaluations. A full diagnostic battery will identify permanent hearing loss even in the presence of middle ear effusion.
- Only 50% of babies with congenital hearing loss have an identifiable risk indicator at the time of birth. All babies failing a hearing screen should be retested!
- Early identification and intervention of hearing loss has been proven to prevent delays in speech and language development.

2. ON GOING CARE OF ALL INFANTS

- Provide parents with information about hearing, speech, and language milestones.
- Identify and aggressively treat middle ear disease. Chronic middle ear effusion can lead to chronic mild hearing loss. Even mild hearing loss impacts speech and language development.
- Monitor infants with a risk indicator for progressive hearing loss. Don't forget, parental concern about hearing is a recognized risk indicator and reason for referral!

3. REPORTING HEARING RESULTS

The results displayed are the most current the EHDl program has received. Michigan law requires reporting for hearing screens on infants who are less than 12 months of age and on children who have been diagnosed with hearing loss and are less than 3 years of age. The report shall include the type, degree, and symmetry of the diagnosis, along with where and when the diagnosis was made. If you have hearing results not listed, complete the Audiological/Medical Follow-Up Services form and fax to the Early Hearing Detection and Intervention (EHDl) Program at 517-335-8036. This form can be found at (http://www.michigan.gov/documents/FORMAUDMED_53429_7.pdf). Please call 517-335-8878 if you have any questions.

Future Goals:

Red Alert on Batch/Roster.

List Includes:

Child's name.

MCIR id.

Birth date.

Imms status.

Need to add Hearing
Status!



Future Goals:

- Audiologist Report Hearing Results.
- Linkage with Electronic Birth Certificate System.



Questions?

