

# Entering the Super Highway: The BCH Experience with the Electronic Immunization Record



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**Boston Children's Hospital**

# Presentation Objectives:

- ✓ Explain the basic elements of the Massachusetts Immunization Information System (MIIS) and how the program impacts patients and communities throughout Massachusetts.
- ✓ Explain the role of the MIIS in meeting meaningful use requirements.
- ✓ Describe the steps involved in meeting the IT requirements for joining the MIIS.
- ✓ Describe how clinicians gain access to the MIIS and how its use is applied in a variety of settings.
- ✓ List the steps to on-board clinical and administrative staff in adopting the MIIS.

# What is the Massachusetts Immunization Information System (MIIS)?

The MIIS is a secure, confidential, and easy to use system designed to support a complete set of immunization-related functions.

- ✓ Provides quick access to patient immunization records at point of care.
- ✓ Makes immunization histories for children new to your practice readily available.
- ✓ Validates patient vaccine history and forecasts due dates for future vaccinations.
- ✓ Identifies unimmunized and underimmunized children.
- ✓ Prevents duplicate immunization.
- ✓ Enables to print forms for school and camp.
- ✓ Creates reminder and recall materials for your patients with due or overdue immunizations.

# It is the law...

**M.G.L. c. 111, s.24M legislation passed in June of 2010:**

- Mandatory reporting of all immunizations administered in the state
- Access given to:
  - Schools
  - Healthcare professionals/hospitals
  - Local Boards of Health
  - WIC
  - Other state agencies who administer immunizations.
- As hospitals we are mandated to report all vaccine information to the state and we are also mandated to inform all patients and their families that we are part of the system.



# Meaningful Use:

- Incentive program from the Federal Government encouraging providers to adopt and use EHR technology.
- In order to receive EHR-MU incentives, providers and facilities have to meet specific criteria, which has been divided into three stages over several years.
- Meeting immunization-specific requirements for Stage 1 establishes that providers must test and establish a connection between the EHR to the Immunization Information System in the provider's jurisdiction.



From: **Meaningful Use Fact Sheet: Immunization Information Systems. Submission of electronic data to Immunization Registries of Immunization Information Systems**

Accessed from [www.cdc.gov/EHRmeaningfuluse/Immunization.html](http://www.cdc.gov/EHRmeaningfuluse/Immunization.html)



# MIIS from the IT side:

- ✓ Background of our site and the history of immunizations documentation at Boston Children's Hospital
- ✓ Specific requirements for the MIIS and how they affected our work on this project
- ✓ The challenges presented by the different systems we use to enter immunizations
- ✓ Major issues we came across and how we approached them including additional considerations we looked into to solve these
- ✓ Ongoing items:
  - ✓ Support tasks
  - ✓ Troubleshooting
  - ✓ New build



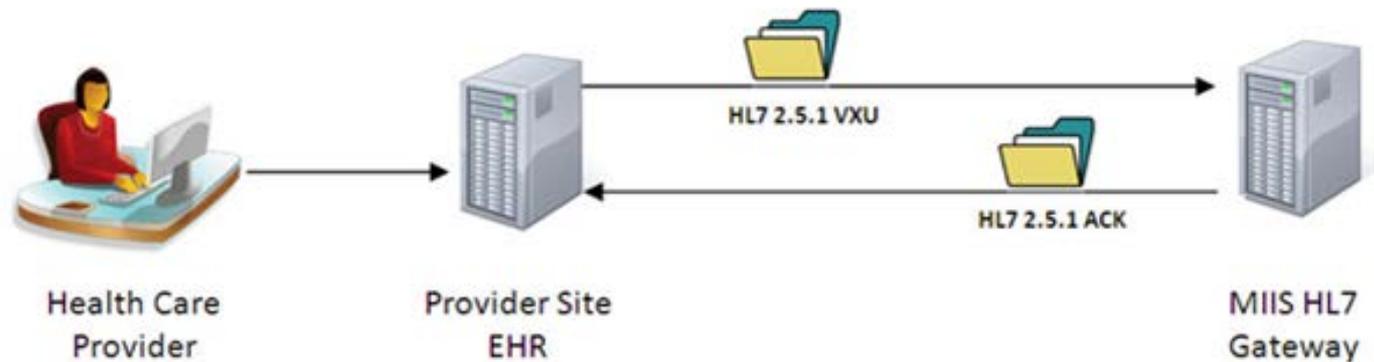
# Boston Children's Hospital Immunization Documentation

- Product live since 2006
- BCH home grown immunization documentation system was functional until beginning of March 2012
- On March 2012 we went LIVE with *new* Immunization Schedule
- Uploaded all immunization data from legacy system



# Defining the requirements for using MIIS

- ✓ Identify expectations of data process and how the exchange functions.
- ✓ Understanding how our users would be using the system and how it fit into their workflow.
- ✓ Outlined the elements for the historical data. This was not part of the real time interface.
- ✓ Setup 2 parallel projects to handle real time feed and the historical data flat file.



# Challenges:

Trying to put square pegs into rounds holes!!

- ✓ Mapping various code set and data elements.
- ✓ Conducting vaccine mapping.
- ✓ Identifying facility a vaccine was administered.
- ✓ Mapping data from different sources or legacy systems.



## Mapping/aliasing data elements and codes sets.

- Understanding the requirement.
- Know the rules for the data elements
- We used scripting to meet certain requirements.
- Mapping data which normally is an easy task took 5x longer to get it working with this exchange.

## Examples for data element and code sets:

### State

#### 9.4 Race: PID-10 (HL7 Table 0005)

PID-10 is a [CE data type](#); a triplet of values should be used, if available and description (PID-10.2) should be used.

VALUE (PID-10.1)	DESCRIPTION (PID-10.2)
1002-5	American Indian or Alaska Native
2028-9	Asian
2076-8	Native Hawaiian or Other Pacific Islander
2054-5	Black or African-American
2106-3	White
2131-1	Other Race
<empty field>	Unknown/undetermined

### Our code set -race:

Code	Display	Display Key
1002-5	Black	BLACK
2028-9	White	WHITE
2076-8	Asian or Pacific Islander	ASIANORPACIFICISLANDER
2054-5	American Indian or Alaska Native	AMERICANINDIANORALASKANATIVE
2106-3	Asian	ASIAN
2131-1	Black or African American	BLACKORAFRICANAMERICAN
	Declined to Answer	DECLINEDTOANSWER
	Hispanic or Latino	HISPANICORLATINO
	Other	OTHER
	Unable to Answer	UNABLETOANSWER
	Native Hawaiian or Other Pacific Isl	NATIVEHAWAIIANOROTHERPACIFICI
	Question Not Asked	QUESTIONNOTASKED
	Unknown	UNKNOWN
	Biracial	BIRACIAL
	Unusable to Answer	UNUSABLETOANSWER

# Vaccine Mapping: Our build vs. MIIS expectations

- This was the most challenging piece of the project and consumed a very large piece of project time.
- The state wanted more than an “HPV” or “Influenza vaccine” documentation when administered. They wanted to have more specific information about that vaccine, which we did not have. We had significant challenges defining this piece.
- We setup a work group to help with these problems. The group consisted of myself, pharmacy, IT rep (who was also a pharmacist), pharmacy manager, MIIS consultant and MIIS Pharmacy contact.
- Example of vaccine mapping document next slide.

	A	B	C	D	E
1	<b>Immunizations in CHB</b>		<b>Code From MIIS Sheet</b>	<b>Vaccine name in MIIS sheet</b>	
17	Fluzone PF SYR 0.25 mL		140	Flu-TIV 6-35 mos - preservative free	
18	Fluzone vaccine		141	Flu-TIV >= 3 yrs	
19	haemophilus b conjugate (HbOC) vaccine		47	Hib-HbOC	
20	haemophilus b conjugate (PRP-OMP) vaccin		49	Hib-OMP	
21	haemophilus b conjugate (PRP-T) vaccine		48	Hib-PRP-T	
22	haemophilus b conjugate vaccine		17	Hib-unspecified formulation	
23	haemophilus b-hepatitis B vaccine		51	HepB-Hib	
24	hepatitis A adult vaccine		52	HepA-Adult	
25	hepatitis A pediatric vaccine		83	HepA-Peds 2 Dose	
26	hepatitis A vaccine		85	HepA, unspecified formulation	
27	hepatitis A-hepatitis B vaccine		104	HepA-HepB Adult	
28	hepatitis B adult vaccine		43	HepB Adult	
29	hepatitis B immune globulin		not in MIIS		
30	hepatitis B pediatric vaccine		8	HepB-Peds	
31	hepatitis B vaccine		45	HepB, unspecified formulation	
32	human papillomavirus vaccine		62	HPV, quadrivalent	
33	human papillomavirus vaccine (PF)		not in MIIS		
34	influenza A H1N1 vaccine, inactivated		127	Flu-H1N1 >=3 yrs AND Flu-H1N1 6-35 mos	
35	influenza A H1N1 vaccine, live		125	Flu-H1N1-LAIV	
36	influenza vaccine md		cannot determine		
37	influenza virus vaccine		cannot determine		
38	influenza virus vaccine H1N1 inactivated		127	Flu-H1N1 >=3 yrs AND Flu-H1N1 6-35 mos	
39	influenza virus vaccine, H1N1, live		125	Flu-H1N1-LAIV	
40	influenza virus vaccine, inactivated		141 AND 140	u-TIV >= 3 yrs AND Flu-TIV 6-35 mos - preservative-free	
41	influenza virus vaccine, live, trivalent		111	Flu-LAIV	
42	Japanese encephalitis vaccine SA14-14-2		39	Japanese encephalitis - SC	
43	Japanese encephalitis virus vaccine		39	Japanese encephalitis - SC	
44	Japanese encephalitis, unspecified		129	Japanese encephalitis, unspecified formulation	
45	measle/mump/rubella/varicella vir vaccin		94	MMRV	
46	measles virus vaccine		not in MIIS		

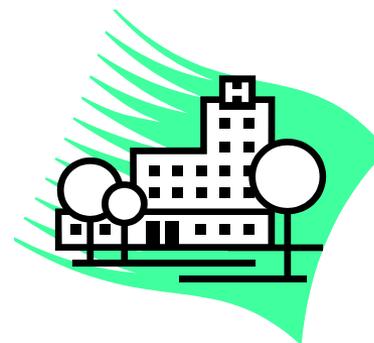
Example of an early attempt at us matching our vaccines to MIIS.

## Historical Flat File: Immunization Data from different sources

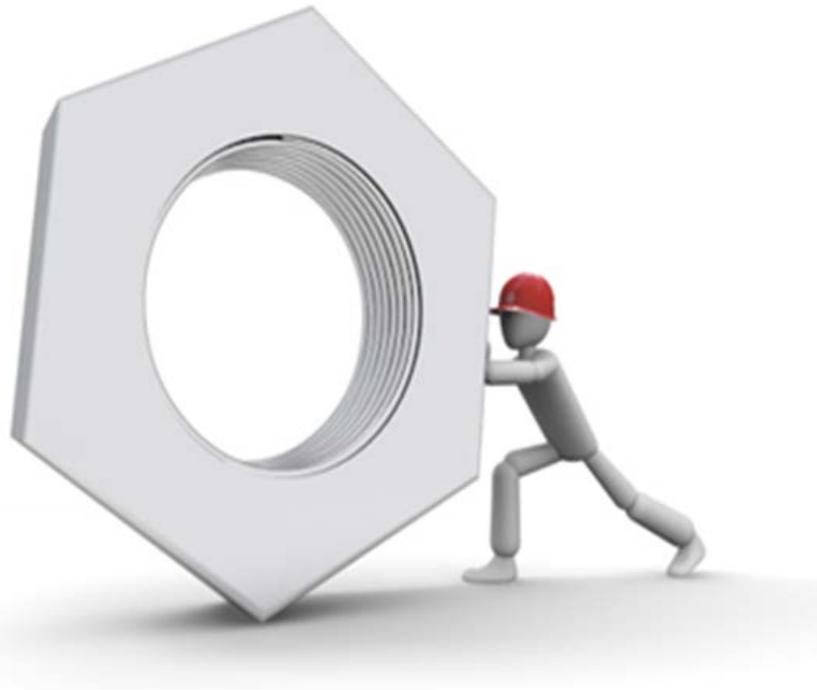
- Data from our old system was not entered with the requirements and standards.
- Data was missing elements (lot number, administration site).
- Formatting in fields was being used for other reasons.
- We set up a grid to track the different scenarios and worked with our MIIS contact and went through the different options for each scenario.
- We scripted in data to fill out the missing requirements.
- What worked well:
  - Pulled examples of the different data types.
  - Ran batch tests to ensure data processes.
  - Creating a grid and workgroup to help outline solutions
  - Got to know the data

# PIN assignments from MIIS:

- It is important to identify the facility where the patient was seen.
- We have patients that are seen at Boston Children's main campus, Dana Faber Cancer Institute and Martha Eliot Health Center.
- State requires a PIN (unique identifier) for each facility where a patient gets their immunization. This PIN needs to be part of the immunization message to MIIS.
- We created a tag for the different encounters to determine where the patient was treated. Based on that tag we would attach the PIN to the interface message.



# We're 'live' but the work doesn't stop!



- Downtime planning for your site and state registry.
- Error reporting: Who gets notified of errors?
- Managing changes to the registry
  - How does the registry notify your site of changes?
  - How do you get notified of downtimes to the registry?
  - What are the expectations for vaccine changes?
  - What is the expected turn-around time to implement changes?

# What are the logistical pieces for the clinical side?



# First things first...

- *We must* report to families:
  - We are part of the MIIS.
  - By law we have to report **ALL** vaccines to the state, regardless of where the patient lives.
  - Families have the right to object sharing information with providers outside of BCH and the MIIS.



# We need information sheets and posters in all languages



**Massachusetts Immunization Information System**

**IMMUNIZATION REGISTRY NOTICE**

You or your child's shot information is being entered into the Massachusetts Immunization Information System (MIIS), as required by law. The MIIS is a confidential, statewide immunization tracking system. You can choose to restrict who may see your or your child's shot information in the MIIS at any time. Please ask your healthcare provider for further information. Thank you.

Providers are required by law to report your immunizations to the MIIS (M.G.L. c. 111, Section 24M). For more information, please ask your healthcare provider, visit the MIIS website at [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis), or contact the Massachusetts Immunization Program directly at 617-983-6800 or 888-658-2850.

**Sistema de Información sobre Vacunación de Massachusetts**

**AVISO SOBRE EL REGISTRO DE VACUNACIÓN**

La información sobre sus vacunas o las de sus hijos está siendo almacenada, tal y como contempla la ley, en el Sistema de Información de Inmunización de Massachusetts (MIIS), por sus siglas en inglés. MIIS es un sistema confidencial que hace un seguimiento de los historiales de inmunización a nivel estatal. Usted tiene la opción de limitar quien tiene acceso a la información almacenada en MIIS sobre sus vacunas o las de sus hijos en cualquier momento. Consulte con su proveedor de salud si desea más información al respecto. Gracias.

La ley exige a los proveedores de salud que reporten todas las inmunizaciones al MIIS (M.G.L. c. 111, Sección 24M). Si desea más información, póngase en contacto con el proveedor de atención médica, visite nuestro sitio web MIIS, [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis), o comuníquese directamente con el Programa de Inmunización de Massachusetts al número 617-983-6800 o al 888-658-2850.

**Sistema de Informação de Vacinação de Massachusetts**

**AVISO DE INSCRIÇÃO PARA VACINAÇÃO**

De acordo com o exigido por lei, tanto a sua informação como a dos seus filhos, no que respeita a vacinas, está a ser registada no Sistema de Informação de Vacinação de Massachusetts (MIIS). O MIIS é um sistema de acompanhamento de vacinações, confidencial e a nível estatal. Pode optar por limitar, em qualquer altura, quem pode aceder às informações referentes às suas vacinações e às dos seus filhos no MIIS. Queira solicitar mais informações junto do seu profissional de cuidados de saúde. Obrigado.

É exigido por lei que os profissionais de saúde registem a validade das suas vacinações ao MIIS (Capítulo 111, Seção 24M) da Lei Geral de Massachusetts. Pode obter mais informações contactando o seu profissional de cuidados de saúde, visitando o MIIS em [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis), ou contactando diretamente o Serviço do Programa de Vacinação de Massachusetts através do número 617-983-6800 ou 888-658-2850.

**Информационная система вакцинации штата Массачусетс**

**ИЗВЕЩЕНИЕ О РЕГИСТРАЦИИ ПРИВАИВКИ**

В соответствии с требованиями законодательства, информация о прививках Вашего или Вашего ребенка будет введена в Информационную систему вакцинации штата Массачусетс (МИИС). МИИС – это система конфиденциального учета о вакцинации в масштабах всего Massachusetts. В любое время Вы можете выбрать ограничение доступа к информации, имеющейся в МИИС, о Ваших прививках и прививках Вашего ребенка. Вы можете сделать это в любое время. Если Вы хотите узнать больше о прививках, пожалуйста, обратитесь к своему лечащему врачу или медицинскому работнику. Спасибо.

Закон (M.G.L. c. 111, Section 24M) – Раздел 111-24M требует от всех врачей или Медицинских работников сообщать информацию о прививках пациентам в Информационную систему вакцинации штата Массачусетс. Если Вы хотите узнать больше о вакцинации, пожалуйста, обратитесь к своему лечащему врачу, посетите сайт [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis) или позвоните непосредственно в Программу вакцинации штата Массачусетс по телефону 617-983-6800 или 888-658-2850.

**麻省免疫接種資訊系統**

**免疫接種登記名冊通知**

根據規定，您或您子女的預防注射紀錄將輸入麻省免疫接種資訊系統。MIIS 是一個嚴格的、全州性的免疫接種追蹤系統。您可以選擇限制誰可以在任何時候看到您或您子女的免疫接種紀錄。請向您的醫療服務提供者查詢詳情。謝謝。

醫療服務提供者被法律要求將您的免疫接種紀錄 (M.G.L. c. 111 第 24M 條) 上傳到資訊系統。如果您需要更多資訊，請向您的醫療服務提供者查詢。如需更多資訊，請訪問我們的網站 [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis)，或直撥電話 617-983-6800 或 888-658-2850 與麻省免疫接種資訊系統聯繫。

Introducing the  
**Massachusetts Immunization Information System**

# MIIS

Fact Sheet for Parents and Patients



**T**he MIIS is a new statewide system to keep track of immunization records for you and your family. These records list the vaccinations (shots) you and your children get to protect against measles, chickenpox, tetanus, and other diseases. The goal is to make sure that everyone in Massachusetts is up-to-date with their shots and that your records are available when you need them – such as when your child enters school, when you need emergency medical help, or when you change healthcare providers.

**What is the MIIS?**

- A computerized system that collects and stores basic immunization information for people who live in Massachusetts.
- A secure and confidential system, as required by Massachusetts law.
- A system that is available for people of all ages, not just children.

**How will it help me?**

- The MIIS:
- Helps you and your family get the best care wherever you go for your healthcare.
  - Makes sure that you and your children don't miss any shots or get too many.
  - Can print a record for you or your children when you need it – if you move, if your doctor refers, or when your child starts school or camp.

**Why is this important?**

- As you know, the schedule of shots needed to keep healthy can be very complicated. The MIIS:
- Helps your healthcare provider keep track of which shots are due and when they should be given.
  - Keeps all your immunization records together for you, your family, and your healthcare provider.
  - Provides proof of vaccination for your children.
  - Helps prevent outbreaks of disease like measles and the flu in your community.
  - Keeps shot records safe during natural disasters such as flooding or hurricanes.



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PH 10-2

# The Objection Form

Massachusetts Immunization Information System

## MIIS

**SHARING YOUR IMMUNIZATION INFORMATION**  
**Objection (or Withdrawal of Objection) Form**

**Name of Patient:**

I OBJECT to the sharing of information in the MIIS about me or my child. I understand that this will keep my or my child's doctor or other health care provider from being able to check the MIIS for immunization information that comes from other health providers. I further understand that this objection will not prevent my child or me from receiving immunizations.

I WITHDRAW MY PREVIOUS OBJECTION to the sharing of immunization information in the MIIS about me or my child. I understand that by signing and submitting this form, the MIIS will be able to share immunization information with my or my child's doctor(s) or other health care providers and other persons allowed by law to view this information.

**Patient's Information** (this information is necessary to properly identify the patient):

Name: _____		Date of Birth: ____/____/____
Last	First	MI
		MM / DD / YYYY
Mother's Maiden Name: _____		Gender: _____

For child younger than 18 yrs of age		
Address: _____		Phone#: (____) _____
City: _____	State: _____	Zip Code: _____

**Parent/Guardian Information** (required if form is completed for a child younger than 18 years of age):

Name: _____		Date of Birth: ____/____/____
Last	First	MI
		MM / DD / YYYY
<input type="checkbox"/> CHECK IF ADDRESS & PHONE # ARE SAME AS PATIENT'S		
Relationship to Patient: _____		Phone#: (____) _____
Address: _____		
City: _____	State: _____	Zip Code: _____

**Signature of Patient, or Parent/Guardian** (if child is younger than 18 years of age):

Signature: _____
Date: _____

**Health Care Provider Use Only** – please enter your contact information, mail or fax a copy of the form to MDPH, and keep the original for the patient's record:

1. Fill out the form and obtain parental/guardian signature.
2. Fax to the state and get confirmation sheet.
3. Barcode label and scan into patient's chart with confirmation sheet.

# E-Library Management

Gomez, Eva ▾



eLibrary > Patient Services > Educational Resources > Family Education Information Sheets > Massachusetts Immunization Information System (MIIS)

## Massachusetts Immunization Information System (MIIS) ▸ Reader View ▾

The Massachusetts Department of Public Health Immunization Program is committed to promoting the health of Massachusetts' citizens by reducing the burden of vaccine preventable diseases that affect the residents of the Commonwealth. As part of this effort, the Immunization Program is preparing to launch a statewide web-based immunization registry in 2011. Once fully implemented, the registry, known as the Massachusetts Immunization Information System (MIIS), will be the official source of immunization information for Massachusetts.

Actions ▾

View: Reader View ▾

Type Title

### Sheet Name : Fact Sheet for Patients and Parents (9)

-  Fact Sheet for Parents and Patients
-  Fact Sheet for Parents and Patients (Arabic)
-  Fact Sheet for Parents and Patients (Chinese)
-  Fact Sheet for Parents and Patients (Haitian Creole)
-  Fact Sheet for Parents and Patients (Khmer)
-  Fact Sheet for Parents and Patients (Portuguese)
-  Fact Sheet for Parents and Patients (Russian)
-  Fact Sheet for Parents and Patients (Spanish)
-  Fact Sheet for Parents and Patients (Vietnamese)

### Sheet Name : MIIS Immunization Record Request Form (1)

-  MIIS Immunization Record Request Form

### Sheet Name : MIIS Poster (1)

### Sheet Name : Sharing Your Immunization Information Objection (or Withdrawal of Objection) Form (2)



# On-Boarding of Staff

- Announcements through all councils for medical and nursing staff.
  - Informatics
  - Nursing Education Council
  - Nursing Informatics Council
  - Prescriber Training
  - Executive Leadership
  - Nursing Leadership
- Announcements for the Practice Administrators for all settings.
- Frequent e-mail communication.



# Critical pieces for education of staff:

- Send e-mails notifying the staff we will implement soon and attend staff meetings to demonstrate.
- After e-mails and meetings, it is of the essence to meet the staff in person and help them go through the enrollment process.
- Follow-up with visits to ensure that after they register they can log-in to the MIIS to enter the system and search patients correctly.
- Be present to troubleshoot problems and contact the state with issues.
- Practice makes perfect.

# Clinician Access to the MIIS



## Immunization Registry



## Vaccine Management



## Resources

Welcome to the Massachusetts Immunization Information System.

Immunization registries are part of a national and statewide effort to increase childhood immunization rates. Immunization registries, which collect and consolidate records of vaccinations from multiple health care providers, are required by the Centers for Disease Control and Prevention(CDC) to:

- assist providers with ensuring that patients are up to date with their immunizations
- identify unimmunized and under immunized children
- provide the infrastructure needed for tracking essential information during natural disasters, influenza pandemics, bioterrorist events and other infectious disease emergencies

[Known Issues](#)



### Alerts

**Reminder/Recall Report:** As part of the system upgrade, the MIIS is running a comprehensive patient and immunization deduplication process. During this time, Reminder/Recall Reports may not reflect the most accurate forecast data for patients that were migrated from the previous system. MDPH recommends that MIIS Users refrain from running Reminder/Recall Reports until the process is complete. At that time, we will send an email notification to users and remove this Alert.

- Staff can enter the system to look up patient information and generate reports of vaccine history.
- We do not use it to enter any data at this point, only to look it up.
- We do not use it to order vaccinations.

# Going live Issues: Before and After

- Multiple data checks over a period of time to ensure data was transmitting correctly.
- We survived one upgrade before going live.
- One common issue was finding the e-mail address in the street address bar.
- Multiple vaccines combo shots were not transmitting correctly. We are still troubleshooting that problem.
- Staff needed reinforcement on how to complete and submit the objection form to the state and save in our records.

# Recommendations for your implementation:

- Have your IT team communicate frequently with clinical team to ensure everyone knows the same information at the same time.
- Establish leadership roles for both teams and their implementation plans. Team leaders should also communicate regularly.
- Clinical implementation team leader should communicate weekly with the state officials and reps to ensure meeting the deadlines and troubleshoot issues.
- Communicate in every forum, become an ambassador of your project by making yourself available to everyone involved.
- The project does not end at “go live”, it continues until it becomes second nature to the system.

# Any Questions?

