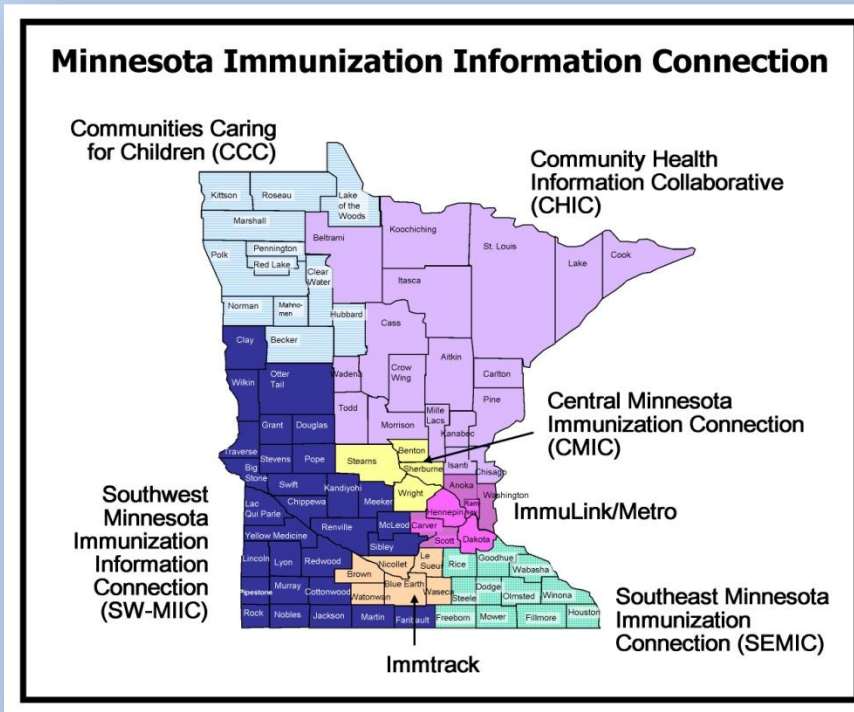# Development of a Patient Follow-Up Feature in an Immunization Registry

What is MIIC?

The Minnesota Immunization Information Connection (MIIC), is the statewide immunization registry of Minnesota. MIIC began operations in 2002.

How Are MIIC Services Provided in Minnesota?

MIIC is divided into 11 different regions throughout the state. Each region has a MIIC Regional Coordinator that is responsible for providing direct services to partners within their region.

Minnesota Immunization Information Connection

Communities Caring for Children (CCC)

Community Health Information Collaborative (CHIC)

Central Minnesota Immunization Connection (CMIC)

ImmuLink/Metro

Southwest Minnesota Immunization Information Connection (SW-MIIC)

Southeast Minnesota Immunization Connection (SEMIC)

Immtrack

Development of a Patient Follow-Up Feature

A workgroup of the MIIC Regional Coordinators collaborated to develop a new, more user friendly Patient Follow-Up feature that would replace an outdated reminder/recall feature in MIIC.

Goal of Patient Follow-Up Feature

Move an Immunization Information System (IIS) from a passive data repository to an active tool that supports immunization strategies and assists with achieving high immunization rates in the community.

Benefits of Active Use of an IIS With an Effective Reminder/Recall System
- Improves denominator for up-to-date (UTD) rates (identifies if patients are still in the community)
- Identifies gaps in reporting
- Identifies data quality issues
- Encourages IIS documentation of immunization refusals (can assist with identifying changing trends in immunization receptiveness)
- Allows for rapid response, at the community level, to disease threats
- Promotes more timely reporting (provider has a reason to report the data when the tools in the IIS directly support clinical practice)

Selecting an Age Range of Patients for Follow-up

Since reminder/recall is a periodic task (i.e., monthly/quarterly) the old feature was problematic because users did not remember how to run a request or how to complete it so the output was usable. The new Patient Follow-Up is easy to use and navigate. The outputs are more functional and usable than those in the old feature.

UPDATED

Enter the Date Criteria ...

Target Date Range	*From*		*To*
Birth Date Range	*From*		*To*

Create Patient Follow-Up

Age Range In:
- Months — Beginning Age — As of Date:
- Years — Ending Age — 03/06/2012

- Difficult to understand
- Need to calculate date ranges based on age wanted, which can be confusing
- Birth Date vs. Target Date - users confused between both and would get incorrect reports if entered wrong

- Uses age range instead of date range
- Ability to set age range in months or years
- As of Date allows for easy replication of reports

Selecting Vaccine Groups for Patient Follow-up

UPDATED

- Need to select individual vaccines from pick list and add to vaccine list

- Easy to select/deselect vaccines wanted for report
- Primary series is pre-selected

Reviewing What Vaccines are Needed

The new Patient Follow-Up Immunization Report is formatted to make it easy for the user to quickly identify patients needing vaccines.

MICKEY MOUSE - 05/25/2009

(000) 000-0000   MINNEAPOLIS, MN 55406-1918   No

Vaccine	Immunization Dates	Recmd Day
DTP/aP	1) 07/24/2009 2) 09/18/2009 3) 10/28/2010	04/28/2011
H1N1 Novel Flu	1) 01/18/2010 2) 02/26/2010	Complete
HepA	1) 10/28/2010 2) 08/16/2011	Complete
HepB	1) 05/26/2009 2) 07/24/2009 3) 09/18/2009 (NV)	11/25/2009
Hib	1) 07/24/2009 2) 09/18/2009 3) 10/28/2010	Complete
Influenza	1) 01/18/2010 2) 02/26/2010 3) 12/09/2010	12/09/2011
MMR	1) 07/21/2010	05/25/2013
Pneumo-conj	1) 07/24/2009 2) 09/18/2009 3) 07/21/2010	Complete
Polio	1) 07/24/2009 2) 09/18/2009	11/25/2009
Rotavirus	1) 07/24/2009 2) 09/18/2009	Max Age Exceeded
Varicella	1) 07/21/2010	05/25/2013

Before

- Difficult to determine what is needed
- Staff need to think through each patient and vaccines needed.

- Age at a glance allows user to easily determine vaccines needed based on clinic schedule
- Chart number and phone number will be displayed if submitted by provider
- Reminder Sent and Remove Patient are working tools for user

After

Overdue Immunization List

Organization: ImmuLink
Patient Age Range : 24 to 35 Months
As of Date : 01/01/2012

	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6

MOUSE, MICKEY   DOB: **05/25/2009**   Current Age: 2 years 9 months 10 days
MIIC ID: 0000000   Chart # :   Gender: M   Phone: ☐ Reminder Sent ☐ Remove Patient
MINNEAPOLIS MN 55406-1918

	Vaccine	Dose 1	Dose 2	Dose 3
NEEDS	DTP/aP	07/24/2009	09/18/2009	10/28/2010
	H1N1 Novel Flu	01/18/2010	02/26/2010	
	HepA	10/28/2010	08/16/2011	
NEEDS	HepB	05/26/2009	07/24/2009	09/18/2009 (NV)
	Hib	07/24/2009	09/18/2009	10/28/2010
	Influenza	01/18/2010	02/26/2010	12/09/2010
	MMR	07/21/2010		
	Pneumo-conj	07/24/2009	09/18/2009	07/21/2010
NEEDS	Polio	07/24/2009	09/18/2009	
	Rotavirus	07/24/2009	09/18/2009	
	Varicella	07/21/2010		

- Quick and easy view of what is needed (displays NEEDS by all vaccines due/overdue)

Management of an Active Patient Database

The former Reminder/Recall tool did not allow for management of patient lists. New features were developed in Patient Follow-Up to meet user needs by allowing easy access to their data and the ability to easily manage their cohort.

By clicking on the column header the information can be sorted chronologically or alphabetically

Allows user to easily see when last vaccine was given and where vaccine was received (possibly moved or gone elsewhere)

Yellow highlight quickly displays records with incomplete or undeliverable address information

Clicking on patient "Last Name" takes you directly to the immunization record

Checkboxes allow for mass removal of patients

No Reminder - removes patient from R/R list but association remains with organization
Not our Patient - removes patient from R/R list **and** removes association with organization (removed from patient denominator)

Patient Follow-Up:
Name: **NIC Online**
Age Range: **24 to 35 MONTH(S)**   Generated: **03/06/2012 06:33 AM**
As of Date: **01/01/2012**   # of Clients: **137**
Type: **OVERDUE CLIENTS**

Back to Manage Follow-Ups
View/Create Reports

	Last Name	First Name	DOB	Most Recent Shot	Provider	City State
46	MOUSE	MICKEY	07/23/2009	02/22/2011	All About Children	CHANHASSEN, MN 55317-7593
47	MOUSE	MICKEY	12/20/2009	06/21/2011	All About Children	EDEN PRAIRIE, MN 55347-4529
48	MOUSE	MICKEY	09/30/2009	03/16/2011	All About Children	EDEN PRAIRIE, MN 55347-3396
49	MOUSE	MICKEY	02/02/2009	10/27/2010	Park Nicollet Clinics	EDEN PRAIRIE, MN 55347-4534
50	MOUSE	MICKEY	12/31/2009	07/01/2010	All About Children	HOPKINS, MN 55343
51	MOUSE	MICKEY	11/05/2009	11/09/2011	Minnesota Visiting Nurses Agency (MVNA)	BLOOMINGTON, MN 55437-3704
52	MOUSE	MICKEY	06/09/2009	06/22/2011	All About Children	EDEN PRAIRIE, MN 55347-5336
53	MOUSE	MICKEY	01/01/2010	07/18/2011	All About Children	,
54	MOUSE	MICKEY	06/14/2009	06/30/2011	All About Children	EDEN PRAIRIE, MN 55346-3828
55	MOUSE	MICKEY	06/23/2009	07/05/2011	All About Children	VICTORIA, MN 55386-4603
56	MOUSE	MICKEY	07/14/2009	09/29/2011	Metropolitan Pediatrics - Shakopee	SHAKOPEE, MN 55379-5441
57	MOUSE	MICKEY	05/22/2009	06/14/2011	All About Children	LAKEVILLE, MN 55044-7412
58	MOUSE	MICKEY	04/07/2009	05/04/2011	All About Children	EDEN PRAIRIE, MN 55346-1049
59	MOUSE	MICKEY	04/07/2009	05/04/2011	All About Children	EDEN PRAIRIE, MN 55346-1049
60	MOUSE	MICKEY	12/01/2009	08/16/2010	Park Nicollet Clinics	MINNEAPOLIS, MN 55411-4214

No Reminder   Not our Patient

Records: 46 to 60 of 137

Additional Patient Follow-Up Information

Patient Follow-Up Features

- Variety of reports
  - Provider Reports - this report produces a cohort that have an association with the organization
  - List Based Reports - this report is developed from a specified cohort (based on roster/list in IIS)
- Types of reports
  - Overdue Reports - all clients with overdue vaccines
  - Recommended Reports - all clients with vaccines that are currently recommended
  - Overdue/Recommended Reports - all clients with vaccines that are overdue or recommended
  - All Reports - all clients associated with an organization, regardless of their immunization status
- Variety of outputs
  - Client Contact Report - this report includes name, date of birth, last shot date, last provider, city, and state information (working tool for user to manage their patient database)
  - Immunization Report - this report includes name, contact information, age, and immunization history (including if NEED vaccine and listing of Invalid doses) of each patient in cohort
  - Mailing Labels - produce standard mailing labels for cohort
  - XML Extract – allows the user to download client and immunization data from MIIC (i.e., used for building customized reports not otherwise available in MIIC or extracting data for updating other record systems)
  - Mail Merge -produce document used for Mail Merge

Additional Patient Follow-Up Information

Future Enhancement/"Wish List"

- Expansion of age cohorts and vaccine groups available
- Implement a modified schedule for recall in an outbreak situation
- Ability to select number of doses based on vaccine (i.e., list all kids with primary PCV7 series but no record of a PCV13 dose or list all kids with one dose of HepA but no second dose)
- Include additional outputs/reports
  - Letter/Postcard Output – this output would allow the user to develop their own letter/postcard format
  - List of patients based on comments entered into IIS (i.e., refusal, medical exemption lists)
  - List of patients with bad addresses in IIS
  - List of potential duplicate records in IIS

Contact Information

A workgroup of MIIC Regional Coordinators collaborated to develop the new, more user friendly Patient Follow-Up feature for the Minnesota statewide immunization registry presented in this poster presentation. Please feel free to contact us with questions and comments.

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