



BY THE NUMBERS: TRANSITIONING FROM A HOME-GROWN REGISTRY TO A COMMERCIAL SYSTEM

Colorado Immunization Information System

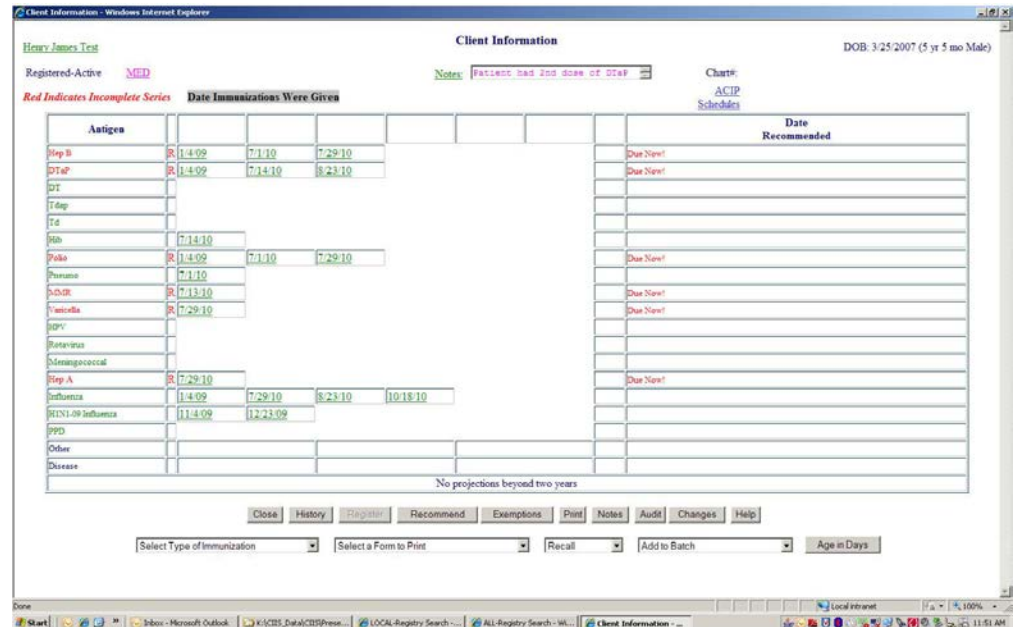
Outline



- ❑ Problem Definition
- ❑ Goals and Objectives
- ❑ Roadmap and Plans
- ❑ Workstreams
- ❑ Challenges to Overcome
- ❑ Factors Critical to Success
- ❑ Lessons Learned

Problem Definition

- Homegrown registry created/maintained by a single developer
- Lack of depth in technical support
- Limited functionality
- Limited reports
- Out-dated user interface



Client Information - Windows Internet Explorer

Client Information

Henry James Test

Registered-Active MID

DOB: 3/25/2007 (5 yr 5 mo Male)

Notes: PATIENT HAS 2ND DOSE OF DTaP

Chart: ACIP Schedules

Red Indicates Incomplete Series

Date Immunizations Were Given

Antigen						Date Recommended
Step B	R	1/4/09	7/1/10	7/29/10		Due Now!
DTaP	R	1/4/09	7/14/10	8/23/10		Due Now!
DT						
Tdap						
Td						
MM		7/14/10				
Polio	R	1/4/09	7/1/10	7/29/10		Due Now!
Perom		7/1/10				
MMR	R	7/13/10				Due Now!
Varicella	R	7/29/10				Due Now!
MMV						
Rotavirus						
Meningococcal						
Step A	R	7/29/10				Due Now!
Influenza		1/4/09	7/29/10	8/23/10	10/18/10	
REIN-09 Influenza		11/4/09	12/23/09			
PPD						
Other						
Disease						

No projections beyond two years

Close History Register Recommend Exemptions Print Notes Audit Changes Help

Select Type of Immunization Select a Form to Print Recall Add to Batch Age in Days



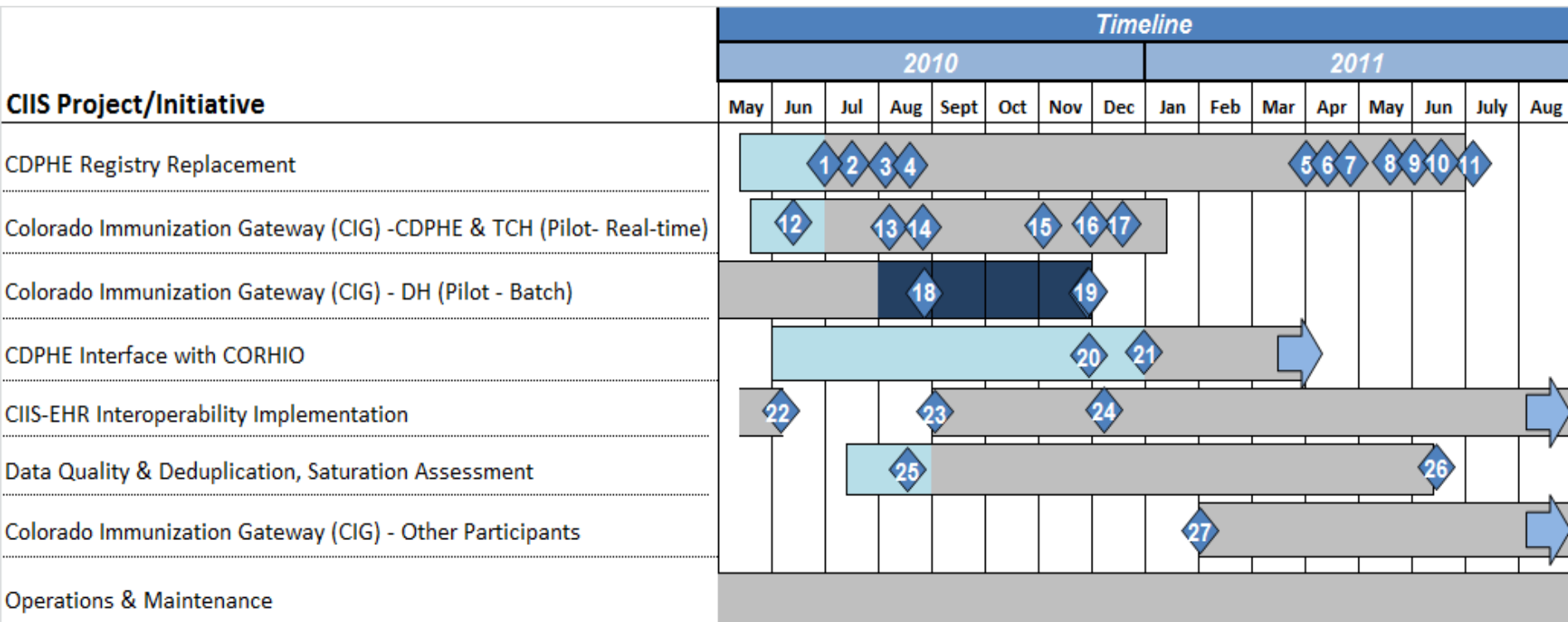
Goals and Objectives

- Select and implement a new immunization registry solution that includes:
 - ▣ *Improved functionality and performance*
 - ▣ *Integrates with overall CDPHE architecture and complies with OIT standards*
 - ▣ *Allows for a more sustainable operations and support model*
- 1. Sustain operations and maintenance for existing registry
- 2. Sustain and migrate existing interfaces
- 3. Convert all data from existing registry to new registry
- 4. Train all existing CIIS participants on new registry to facilitate readiness and system adoption
- 5. Sunset the existing registry upon completion of new registry implementation and data conversion
- Implement real-time HL7 messaging and automate flat file processing
- Implement a more robust patient matching and de-duplication solution

3 Goals
5 Objectives



Project Roadmap



Analysis & Planning



Execution



Timeline Extension



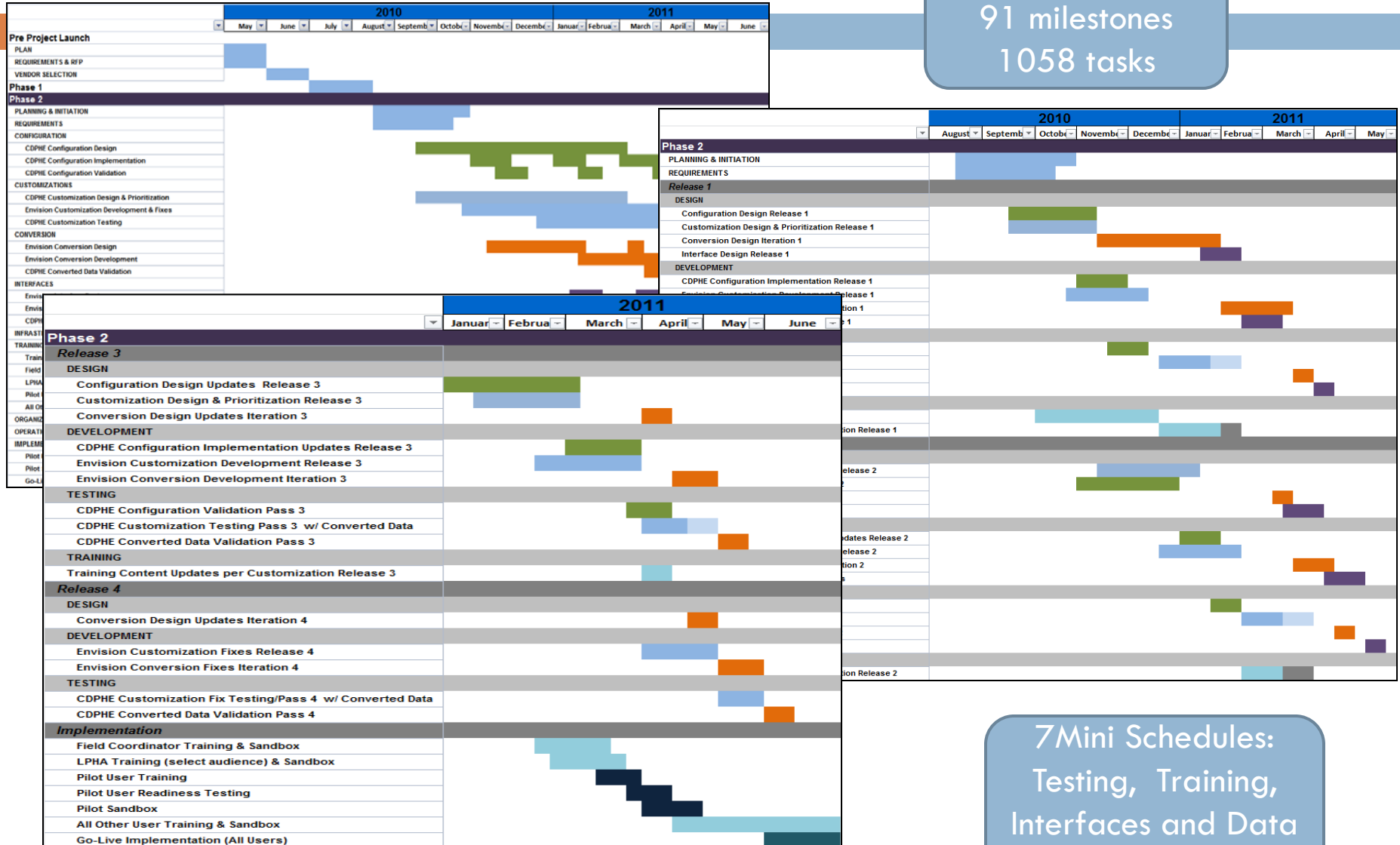
Milestone

8 projects to complete

Project Plans

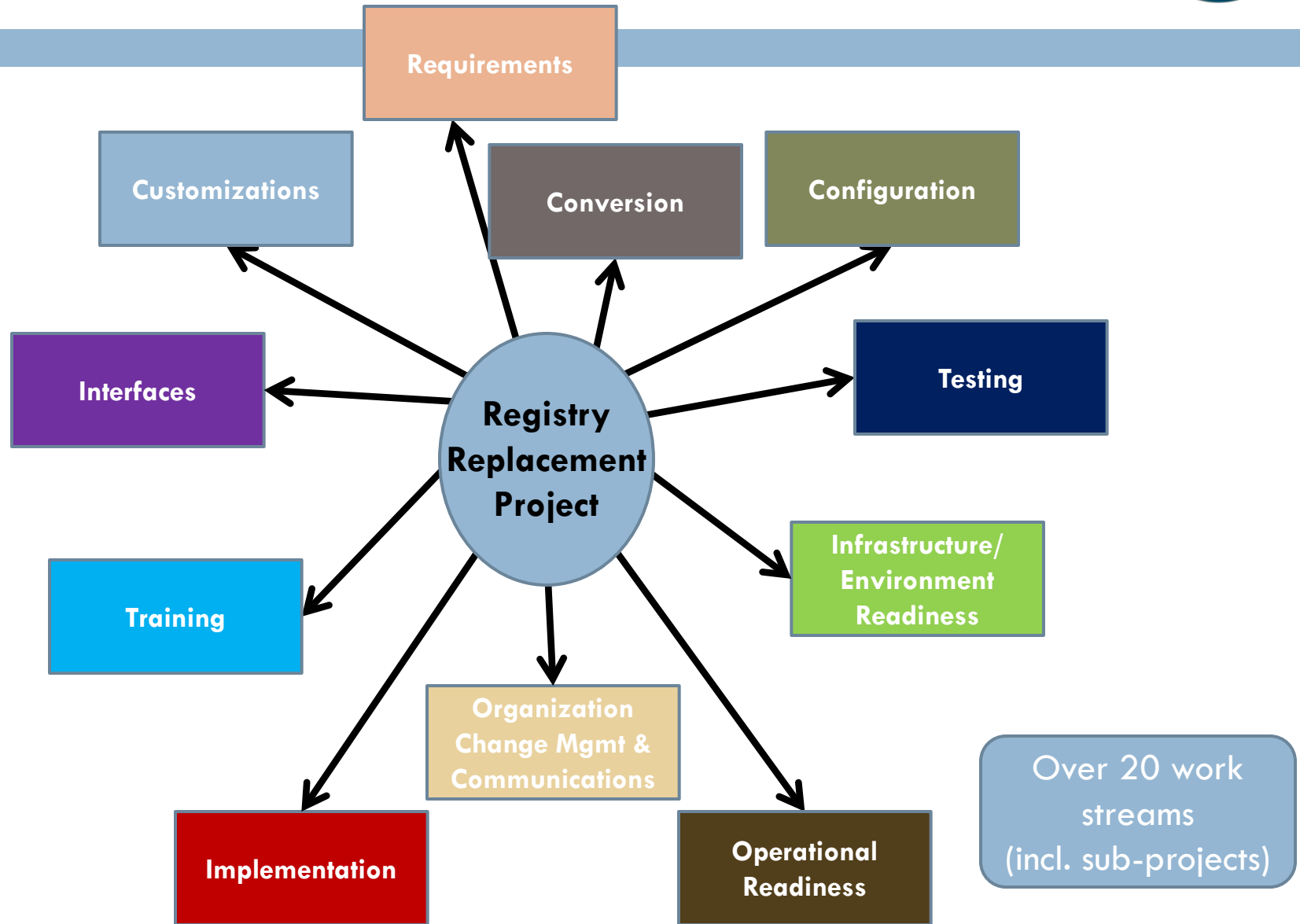


Master Schedule:
91 milestones
1058 tasks



7 Mini Schedules:
Testing, Training,
Interfaces and Data
Conversion

Project Workstreams





Challenges to Overcome

□ Lack of personnel resources

- ▣ *Typically, a project has SMEs and IT team.*
- ▣ *Only the SMEs (CIIS team), who also performed the IT team work and they had commitments to regular work as well.*
- ▣ *Recruited volunteers to fill out the team.*

10 Team
Members

□ System implementation activities new to CIIS

- ▣ *Project management, testing, data validation, configuration & customizations*

3 rounds of
data
validation

430
customizations

Challenges to Overcome (cont.)



□ Aggressive timeline

- ▣ *Typically, a project like this takes up to 2 years.*
- ▣ *Grant deadlines limited time to implement*

Completed
in 1 year

□ Implementation while maintaining existing system

- ▣ *Technical Assistance to Users*
- ▣ *Maintain current system/address issues*
- ▣ *Data files to import*

Over 3500
active users

58 existing
Interfaces

Challenges to Overcome (cont.)



□ Data Conversion

- *Massive amount of data to convert*
- *Data fields in old CIIS didn't correspond to new CIIS*
- *Data clean-up*

98,000
notes

37.8 million
immunization
services

3.5 million
patients

□ Process Improvement Needed

- *Retrain over 3500 active users*
- *Meaningful Use = increased demand for interfaces*

2 CBTs
8 trainers
60+
webinars



Factors Critical to Success

□ Dedicated Team, Partners and Vendors

- ▣ *Met due dates and delivered quality work*
- ▣ *Were collaborative, available and responsive*
- ▣ *Took constructive criticism well and happily fixed defects!*

120
Volunteers
from 25+
partners

□ Decisiveness and flexibility

- ▣ *Team made decisions quickly allowing us to move to new issues for resolution*
- ▣ *Adapted to unexpected challenges*

353
requirements

□ Set Business Requirements early

- ▣ *Consistent direction, ability to define customizations quicker, and greater chance for system stability and meeting deadlines*



Factors Critical to Success (cont.)

- Built off COTS registry already in production
 - ▣ *Expertise & lessons learned! Most bugs are worked out.*
 - ▣ *Time savings and quality are gained with an already built product.*
 - ▣ *Able to customize and configure the system to meet user needs*
- Used a combination of project management techniques
 - ▣ *Progressive Elaboration*
 - ▣ *Waterfall technique externally with Agile methodology internally*

75 – 80%
requirements
met

Factors Critical to Success (cont.)

- Repeatable Processes & Process Improvement
 - ▣ *Testing and data validation*
- Planning, planning and more planning
 - ▣ *Project plans, sub-plans, test runs, call-down lists*
- Org. Change Management & Communication
 - ▣ *Consistently communicated new processes and progress*
 - ▣ *Garnered feedback pre-deployment*

4 rounds of
testing
110 test
scripts

18 Monthly
newsletters





Lessons Learned

Project-Specific

- Fully test all functionality early in project
 - ▣ *Recommender issues would've been brought to light*
 - ▣ *Earlier prioritization of customizations*
 - ▣ *Identification of the true work and time commitment required of the team*
- Establish staff calendar to identify planned time away from project
- Dedicate larger team and IT staff

General

- Don't be afraid to maximize opportunities and utilize your connections
- Managers - Be ready to be the cheerleader, punching bag and advocate for your staff!

Problem Resolution

- Generates official immunization records and historical documentation
- Generates vaccination coverage, data quality, etc. reports
- Generates more-specific reminders/recalls
- Manages and tracks inventory (vaccine, treatments, etc.)
- Provides separate functionality for education users
- Supports emergency preparedness and outbreak activities
- Provides customizable displays
- Professional user interface

PROVIDER: TYPE 2 PROVIDER, CLINIC: TYPE 2 CLINIC Welcome IMA TEST, Log Out

Patient Demographics

Click "Update" to save the record or "Cancel" to return to the previous page.

Immunization Record (Yellow Card)
College Certificate of Immunization
School Certificate of Immunization (Page 1)
School Certificate of Immunization (Page 2)

Edit TEST, KARIN (444832) DOB: 06/08/2008 Update Cancel

Patient Info | Primary Contact | Immunization Program Status | Alias | Health Ins | Contact Information | Address
Race/Ethnicity | Employment Info | Medical Home Information | Birth Info

Addr History | Ins History | Default Clinic | Contacts | Set Defaults

Patient Information

Last Name: TEST First Name: KARIN Middle Name: Generation:
Gender: FEMALE DOB: 06/08/2008
VFC Eligibility: (1) VFC-MEDICAID
Legacy CUIS ID: SSN (Last 4): Refugee Status Card:
Language: English Speaking? ☐ Interpreter Needed? ☐
HIPAA Notice Status: ACKNOWLEDGED Date Given: 05/10/2011 Give HIPAA Notice Last Notice Given: No Notice Given
Primary Contact
Relationship Type: MOTHER Last Name: TEST First Name: LISA
Immunization Program Status
Inactive Reason: Inactive Date:

PROVIDER: IZ R US PROVIDER TYPE 3, CLINIC: IZ R US CLINIC Welcome IMA TEST, Log Out

Immunizations Home

Use this Screen to view a Patient's Immunization History and to add new Immunizations.

Immunization Record (Yellow Card)
Patient Administrative Record
College Certificate of Immunization
School Certificate of Immunization (Page 1)
School Certificate of Immunization (Page 2)

View TEST, KAREN (444716) DOB: 06/06/2007 Add Vaccines Administer Vaccines Add History

Precautions / Contraindications ARE specified
DOB: 06/06/2007 Age: 5Y 11M 5D History of Varicella? NO Date of Varicella: The patient has previously refused one or more vaccines.
Recommended Immunizations for today, 5/11/2011 (5Y 11M 5D) (1435 days)
Vaccine:
DTaP
Polio-IPV
Hep B, ped/adol
PCV-13 (premar)

Vaccine	Dose	Date	Age	Clinic		
Tetanus containing						
DTaP	1	03/04/2011	3Y 8M 26D	PR	1	Update
DTaP	2	03/08/2011	3Y 9M 2D	PR	1	Update
Polio						
Polio-IPV	1	03/08/2011	3Y 9M 2D	T2 CLIN	1	Update
Hib						
Hib Pfp-t (ActHIB)	1	03/08/2011	3Y 9M 2D	T2 CLIN	1	Update
HEPB						
Hep B, ped/adol	1	06/06/2007	0Y 0M 0D	PR	1	Update

Recommend ☒ Auto-Populate Add Vaccination Screen
ACIP Child Vaccination Schedule
ACIP Child and Adolescent Catch-up Immunization Schedule
Colorado Board of Health School Requirements
CDC Travel Vaccine Recommendations
Patient Default Clinic



Questions?

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