Life Behind the Doors of Public Health: Technology

Alberta Health and Wellness

Overview

1. Alberta Bar Coding Pilot Project

2. Current Alberta Immunization Registries

3. Future Alberta Immunization Registries

   – Communicable Disease and Outbreak Management Information System

1. Alberta Bar Coding Pilot Project

Background

- The National Advisory Committee on Immunization (NACI) passed a resolution in 1999, recommending that bar codes be placed on all vaccine products to improve record keeping and the safe use of vaccines

- In response to the NACI recommendations, the Public Health Agency of Canada (PHAC) initiated the Automated Identification of Vaccine Products (AIVP) project

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Bar Coding in Alberta

- In 2010, Alberta Health and Wellness Completed a Feasibility Study to Evaluate the Use of Bar Codes at the Provincial Vaccine Depot

- The Potential for Measurable Benefit was Identified and a Bar Coding Pilot Project was Initiated

- The Scope is Limited to Publicly Funded and Administered Vaccines

Key Benefits of Bar Coding in Alberta

- Time Savings

- Improved Accuracy

- Better Supply Chain Management
  - Reduced Waste
  - Reduced Inventory Holding Costs
  - Improved Forecasting

- Help to Reduce Supply Shortages

- Contribute to a Complete and Accurate Electronic Health Care Record

Vaccine Management and Distribution

The Alberta Provincial Vaccine Depot (PVD)

- Procures, Manages and Distributes Over 41 Different Biologics

- Distributed Over One Million Doses in the 2010/2011 Fiscal Year

- Supplied Vaccines to 16 Public Health Vaccine Depots throughout Alberta

Vaccine Management and Distribution

The Alberta Provincial Vaccine Depot (PVD)

- Located in a Secure Facility with:
    - Several Loading Docks
    - Two large Walk-in Coolers
    - Packing Areas
    - Office Space

- Lots of Parking for Refrigerator Trucks to Load and Unload

- Ability to Expand Storage Capacity if Required

Alberta Bar Coding Pilot Project Purpose

- To Evaluate and Demonstrate the Ease of Integration and the Benefits of Automated Technology in Vaccine Supply Chain Management

- To Test the Readability of Bar Codes on Secondary Packages (e.g. GTIN)

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Pilot Project Focus Areas

- Stock Counts

- Purchase Order Creation

- Receiving Product

- Picking, Packing and Shipping Stock

- Reconciliation of Product Return

Pilot Project Costs

- Business Process Analysis (Current and Future States)

- Hardware Analysis and Procurement

- Software Development and Vaccine Inventory Management Database (VIDS) Integration

- Re   design of Business Procedures

- Staff Training

- Data Collection and Maintenance

Hardware

- Bar Code Readers Can Communicate with the Inventory Application:
  - Over Wi-Fi (Wireless)
  - Through a USB Connection (Wired)

- Due to the Physical Location of the PVD, Wi-Fi is Not an Option
  - A Signal Cannot be Maintained between Rooms in the Building

Software

- In Early 2011, the PVD Implemented the PeopleSoft Inventory Module
    - PeopleSoft Replaced Spreadsheets

- This Application is Extensible to Support Bar Coding

Evaluation Research Objectives

- Objective #1: Data Exchange
  - Test the Load of Information from the Vaccine Inventory Database System (VIDS) to the PeopleSoft Inventory Module

- Objective #2: Data Entry
  - Test the Completeness and Accuracy of the Data Elements (e.g. Lot Numbers, Expiry Date, Date of Receipt/Ship, Product Name, etc.)

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Evaluation Research Objectives

- Objective #3: Time Trials
    - Pre and Post Bar Coding

- Objective #4: User Acceptance
    - What was the Staff Level of Satisfaction with the Bar Coding Process?

Next Steps

- Phase 1 - Underway
  - Bar Coding Pilot at the Provincial Vaccine Depot
- Phase 2
  - Bar Coding at One Rural and One Urban Public Health Vaccine Depots
- Phase 3
  - Bar Coding at all Sixteen Public Health Vaccine Depots
- Phase 4
  - Feasibility Analysis and Implementation Planning for Bar Coding on Primary Packaging

Overview

Alberta is Actively Investing in:

- Immunization Registries
  - End-user Applications
  - Data Repositories (Databases)

- Electronic Immunization Data
  - Immunization Events
  - Adverse Events Following Immunization (AEFI)

Key Benefits of Immunization Registries

- Improve Health Outcomes

- Inform and Monitor Policies And Programs

- Forecast Inventory Requirements

- Strengthen Surveillance and Assessment

2. Current Immunization Registries

IMM/ARI

- Stores Immunization and AEFI Information from ALL Public Health Zones in the Province

- Provides:
  - Data Submission Guidelines
  - Comprehensive Business and Data Rules

- Contains Data from 2002 for Rural Zones and 2006 for All Zones

- Has Been Used as a Starting Point for Custom Applications (First Nations)

Source Systems
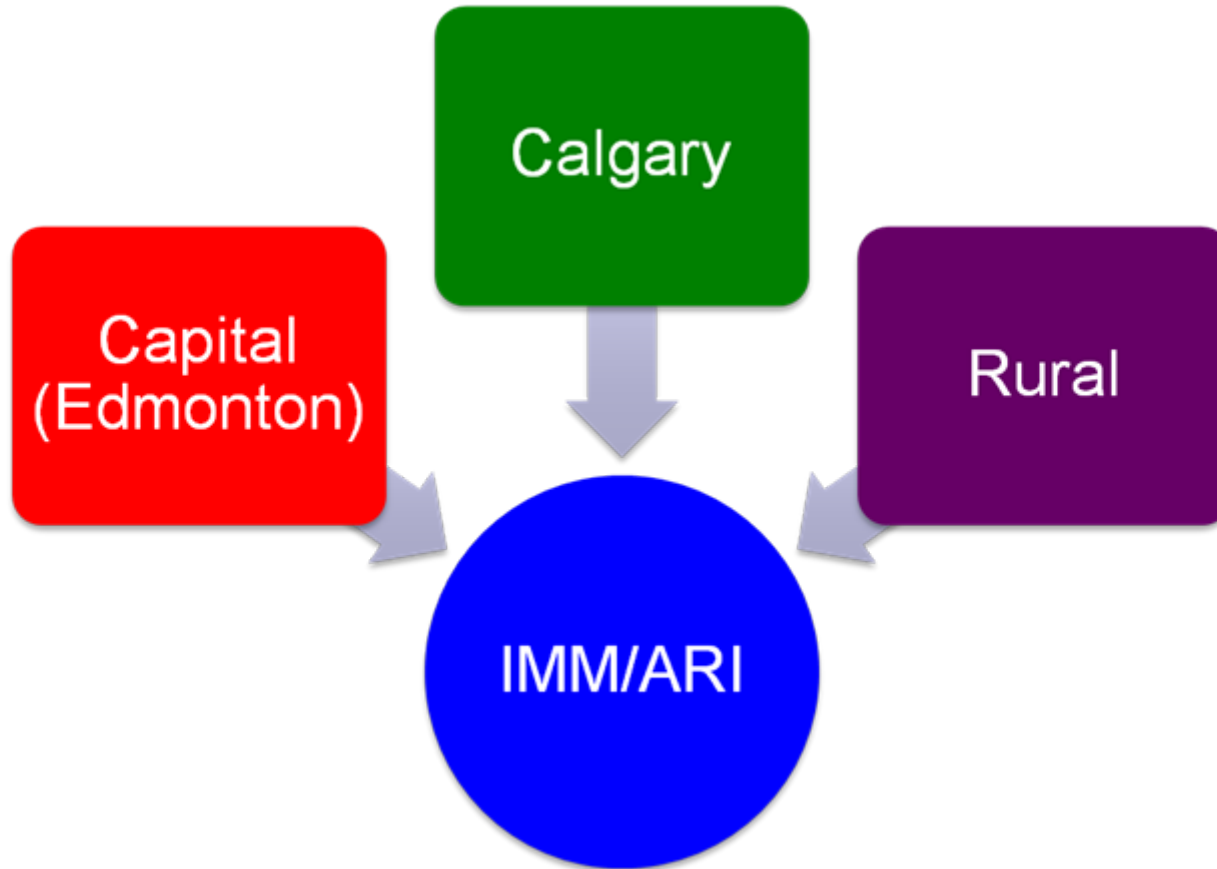
Key Data Elements

- Immunization Events
  - Demographics
  - Vaccine (Including Lot #)
  - Vaccine Administration Information

- AEFI Data Elements
  - Demographics
  - Immunization (Including Lot #)
  - Adverse Event Details

AEFI Records are Not Currently Linked to Immunization Records
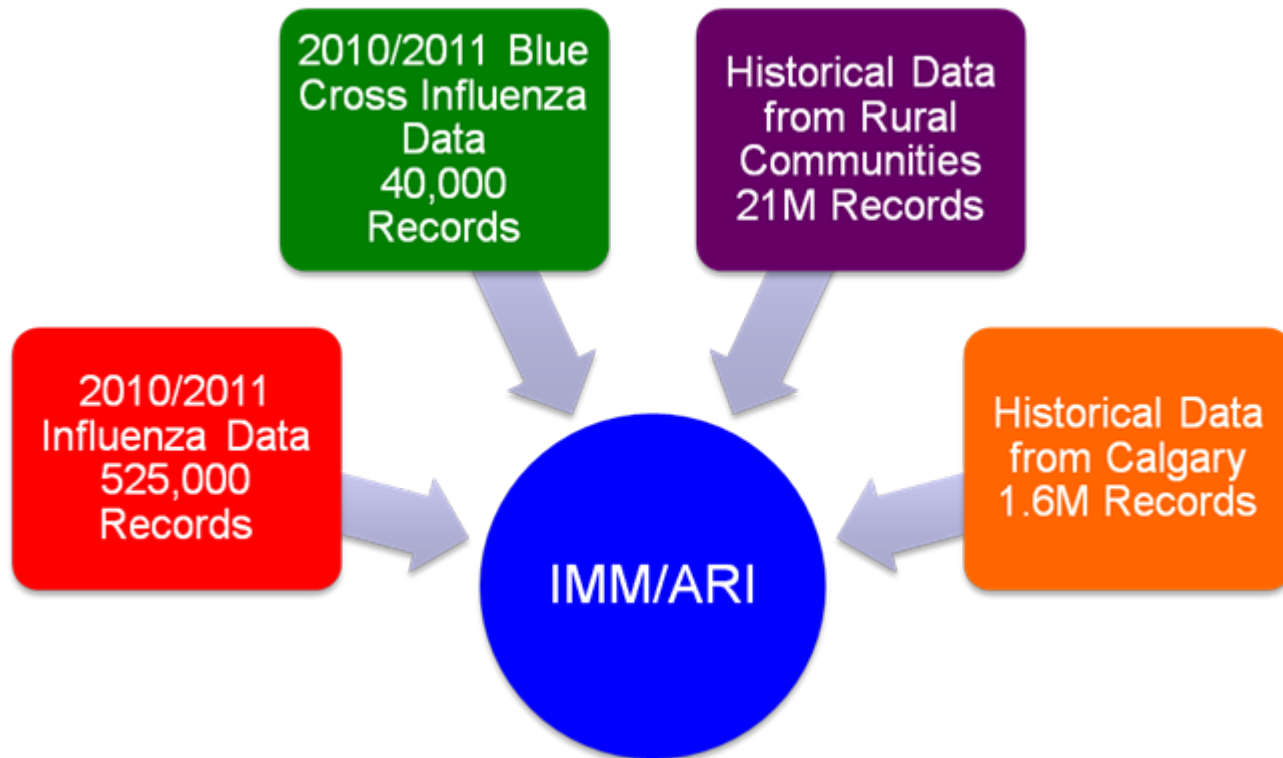
Data Submission Frequency

- Zones Electronically Submit Immunization Data Weekly
  - One Zone Submits Quarterly

Data Submission Challenges

- Source Unable to Submit

  - Immunizations Administered by or AEFIs Reported to:
    - Non-Public Health Workers
    - Physicians
    - Pharmacies
    - Private Companies

- Data Quality

Data is Key

On-going and Future Projects

- Real Time AEFI Monitoring
  - Link Immunizations with AEFI Data
  - Monitor at the Lot Level

- Analysis of Immunization Rates
  - Framework and Methodology to Monitor Program Effectiveness and Herd Immunity

- Enhanced Data Quality Assurance and Control

Alberta's Public Health Information System Solution (CDOM)

- Alberta Considers Itself to be Part of the Pan-Canadian Public Health Information System Solution

- Alberta is Committed to the Growth and Expansion of the Canadian Electronic Health Record

- Driven by findings in the Naylor Report (2003)

- Same Goals / Different Roads

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Alberta's Public Health Information System Solution (CDOM)

- Alberta-specific Solution
  - Aligned with Canadian Standards

- Bottom-up Solution Designed to Support Alberta Health Practices

- Developed in Consultation with Alberta Public Health Professionals

- Interoperability and Data Portability are Key Focus Areas

Alberta's Public Health Information System Solution (CDOM)

- Close to Real-time Surveillance Data and Reporting Mechanisms

- Comprehensive Case Management Tools and Workflows

- Is a Configured Commercial Off-the-shelf Solution (COTS)

- Is HL7 Enabled to Allow for Communications with Application in Other Jurisdictions

Alberta's Public Health Information System Solution (CDOM)

- Focused on Alberta-based Outcomes and Success Criterion

- Implementation of CDOM will Occur in Parallel with Organizational and Business Process Change
  - Alberta Health and Wellness
  - Alberta Health Services (Central)
  - Alberta Health Services (5-Zones)
  - Provincial Laboratories

Alberta's Public Health Information System Solution (CDOM)

- Developed Using a Phased Approach

- Full Implementation at the End of Each Phase

- Designed to be:
  - Time Neutral
  - Easy-to-use
  - Easy-to-deploy

Alberta's Public Health Information System Solution (CDOM)

- Will Leverage COTS and GOTS Solutions that are Already in Production

- Data will be Integrated with Alberta's Business Intelligence Environment (BIE) that:
  - Houses Data from 1919 to the Present
  - Offers Numerous Operational Reports
  - Provides the Tools for Ad-hoc Data Mining and Reporting

CDOM Scope

CDOM will Include Data and Surveillance Information at a Client-focused Level for:

- Communicable/Notifiable Diseases

- Outbreak Management

- Sexually Transmitted Infections

- Tuberculosis

- Immunization

- Adverse Events Following Immunization

CDOM Approach

CDOM will be Built by AHS in Three Phases over a Five-year Period

• Phase One: Communicable Diseases and Outbreak Management

• Phase Two: Sexually Transmitted Infections and Tuberculosis

• Phase Three: Immunization and Adverse Events Following Immunization
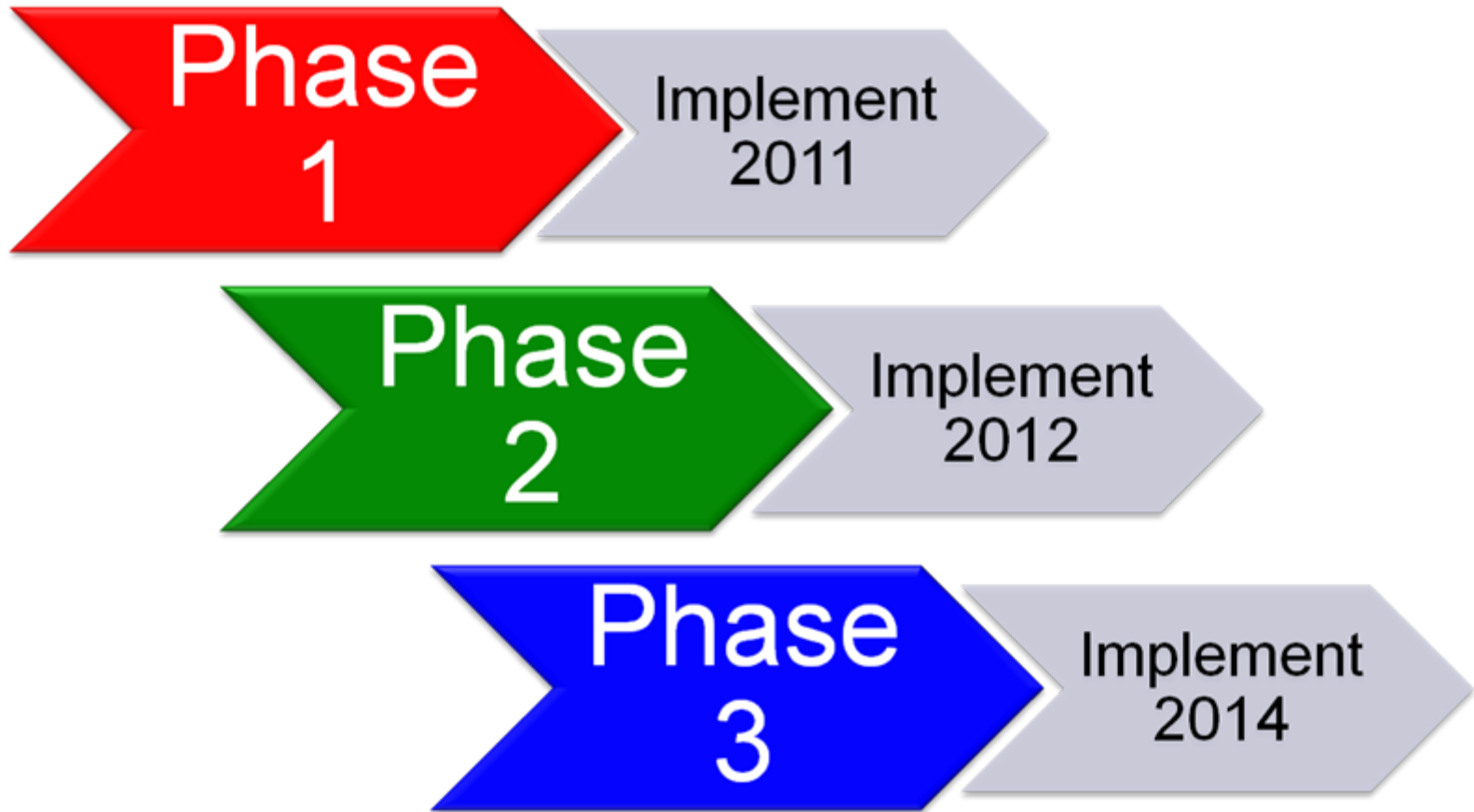
CDOM Approach

CDOM Project Status

- Proof-of-concept Phase Complete

- Functional Design and Product Configuration for the CD/Outbreak Management Module (Phase 1) is Underway
  - Delivered Concurrently Using an Agile Approach

- Reports and Data Extract Design is Underway
  - Key Component of Surveillance and Assessment

CDOM Project Status

- Phase One will be Implemented (Pilot) in Fall 2011

- Detailed Requirements for the STI/TB and Immunization Modules (Phases 2&3) will Begin in Early 2012

CDOM Related Projects

The Following Activities are Underway to Prepare for the Implementation of CDOM

- Lab Interfaces
- Business Process Analysis
- Definition of Roles and Responsibilities
- Retire Legacy Applications
- Legacy Data Plan

Provincial Immunization Repository

- Alberta Health and Wellness and Alberta Health Services are in Joint Discussions about the Feasibility of a Shared Provincial Immunization Repository

- All Related Systems Could be a Consumer and Contributor of Immunization and Related Data
  - This Would Include CDOM

Thank You