

Public Health Information Network Vocabulary Access Distribution System (PHIN VADS)

- Public Health Vocabulary Standards Development, Distribution and Implementation

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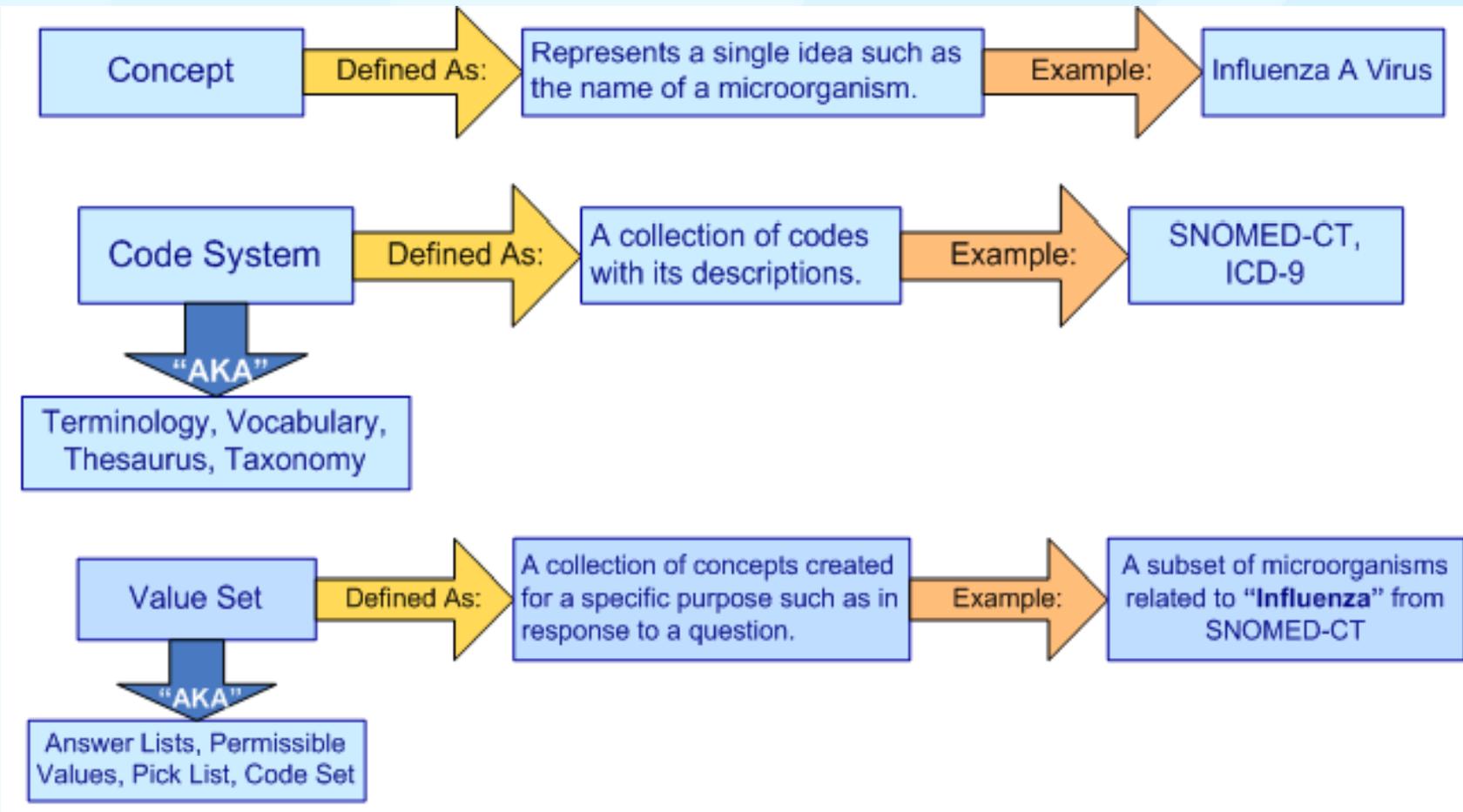
NCVHS Hearing on Public Health Data Standards

Nov 12th, 2013

Center for Surveillance, Epidemiology, and Laboratory Services (CSELS)
Division of Health Informatics and Surveillance (DHIS)



Vocabulary Basics



Vocabulary View - Collection of value sets associated with a messaging guide e.g., Tuberculosis Case Notification Messaging Guide Vocabulary

What is PHIN VADS?

- The first public health value set was published in 1995 using the Health Level 7 (HL7) Version 2.x implementation guide for Immunization by CDC National Immunization Program (NIP).
- In 2004, CDC developed a Web-based enterprise vocabulary system called the Public Health Information Network Vocabulary Access and Distribution System (PHIN VADS) for accessing, searching, and distributing public health value sets.
- CDC Vocabulary and Messaging team manages the PHIN VADS application and content. Several vocabulary and messaging experts from this team actively participates in various Standard Development Organization (SDO) vocabulary development activities.
- **PHIN VADS Website – <http://phinvads.cdc.gov>**

Purpose and Usage of PHIN VADS

- Distributes the value sets associated with the public health HL7 messaging (V2.x, V3) & CDA implementation guides. PHIN VADS value set hyperlinks are included in the HL7 message implementation guides.
- CDC as SDO maintains and distributes the code system such as Vaccine names (CVX), Vaccine manufacturers (MVX), Race & Ethnicity, Healthcare Service Locations and Nationally Notifiable Disease/Conditions (NND) using PHIN VADS.
- Provides all the vocabulary metadata (e.g. OID) needed for HL7 messaging.
- Promotes sharing and reusing of the value sets in HL7 messaging guides.
- Hosts multiple versions of value sets that allow implementers to have access to the current, past and the future versions of value sets and value set collections (Vocabulary View).
- Provides web services (API) that allows HL7 interface engines, medical and public health applications to obtain the value sets as well as validate the vocabulary present in HL7 messages.

Standards adopted by PHIN VADS

The Federal government will require all future health information technology system acquisitions to be based on **CHI** standards when applicable, whether system development occurs within the Agency or through the use of contractor services. [Federal Register: December 23, 2005 (Volume 70, Number 246)] [Notices] [Page 76287-76288]

White House E-Gov Consolidated Health Informatics (CHI):

- Domain recommendations provided guidance regarding the selection of code system.



Health Information Technology Standards Panel (HITSP):

C80: Clinical Document and Message Terminology Component defines the vocabulary (value sets) for all the HITSP interoperability Specifications (IS).

Meaningful Use (MU): The Office of National Coordinator (ONC) for Health Information Technology - Standards and Certification Criteria for Electronic Health Records



ISO 11179 Metadata and HL7 Common Terminology Services (CTS)



HL7 Vocabulary
Technical
Committee



Public Health Activities Supported by PHIN VADS

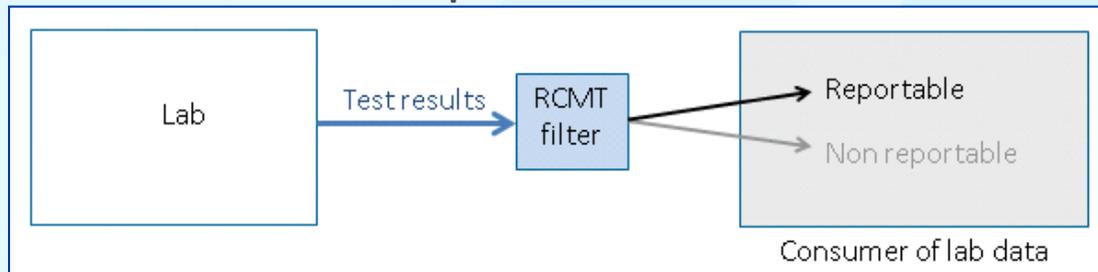
▲	A	B
1	Public Health Activity	CDC Vocabulary Server Content - PHIN VADS
2	Case Notification (Nationally Notifiable Disease - NND)	TB, Malaria, Measles, Mumps, Rubella, Streptococcus, Foodborne and Diarrheal Disease (FDD), Vaccine Preventable, Hepatitis, Flu, BMIRD, Lead Poisoning, etc..
3	Case Reporting	TB, Anthrax, Acute Hepatitis B, Tularemia, CSTE Common Core Data Elements and its answer list
4	BioSurveillance / Syndromic Surveillance	BioSense, Syndromic Surveillance (Meaningful Use), ICD-9 Syndromes
5	Electronic Lab Reporting / Data Exchange	RCMT, ELR 2.5.1 (Meaningful Use), PHLIP Flu, Lab Orders, Results, Few LRN-B value sets, CSTE Technical Implementation Guide Lab Tests, DHQP E-Lab Surveillance (MRSA), etc..
6	Healthcare Associated Infection (HAI)	NHSN HAI CDA IG - Blood Stream Infection, Surgical Stream Infection, Hemovigilance, Pneumonia, UTI, CDAD, MDRO, NHSN Antibiotic Usage & Resistance (AUR), Medical Devices, Blood Products, Healthcare Service Location
7	Immunization	Immunization 2.5.1 (Meaningful Use), VAERS, Clinical Vaccine Names (CVX), Manufacturers of Vaccines (MVX), etc..
8	Counter Response & Administration (CRA)	CRA Adverse Event, Substance Administration, Follow-up, Treatment, etc..
9	Environmental Public Health	Environmental Public Health Tracking Network (EPHTN) - ECOTOX, STORET and TRI
10	Cancer	NAACCR Vol 2, Volume 5 - Anatomic Pathology Report, IHE Cancer Profile - Physician reporting
11	Vital Statistics	Maternal Child Health - Birth Certificate and Fetal Death Reporting
12	Birth defects	Early Hearing Detect Intervention - IHE Profile, NCBDD vocabulary
13	Animal	USDA Animal Subject Description, Subject Function, Animals, Species and Sub-species
14	Occupation	NIOSH Occupation Standards - SOC, NAICS, CSTE data elements for Occupation and Industry
15	CDC Applications:	NEDSS Based System (NBS), EpiInfo™, PHIN MSS, NHSN, Health Education
16	CDC as Standard Development Organization (SDO)	Vaccine Names, Vaccine Manufacturers, CDC Race & Ethnicity, Method of Race and Ethnicity Data Collection, Healthcare Service Location, Nationally Notifiable Disease or Condition, ICD-9 CM, ICD-10 CM

Meaningful Use (MU)

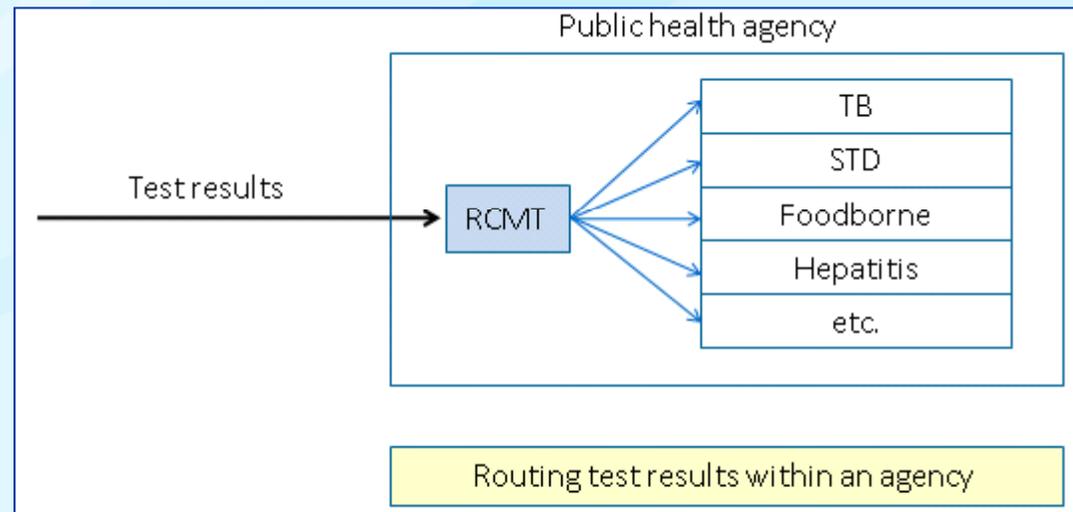
- Testimony about PHIN VADS was given to ONC Meaningful Use Vocabulary Task Force:
 - Best Practices and Lessons Learned: Vocabulary Infrastructure - March 23rd, 2010 ([Audio](#))
 - One Stop Shop for Meaningful Use Vocabulary -Sept 1st, 2010 ([Audio](#))
- Collaboration with National Library of Medicine (NLM): CDC PHIN VADS team shared the experience with NLM regarding the value sets management, PHIN VADS application architecture, VADS web services and content.
- National Institute of Standards and Technology (NIST) and several implementers of MU are using PHIN VADS web services and web site to obtain the value sets associated with Public Health Meaningful Use Implementation Guides such as Immunization, Electronic Lab Reporting, Syndromic Surveillance and Cancer reporting.

Reportable Condition Mapping Table (RCMT)

- RCMT provides mapping between reportable conditions and its associated lab test and results.
- RCMT's filter the output of clinical labs and identify the lab tests and results of public health interest.



- PHIN VADS maintains RCMT.



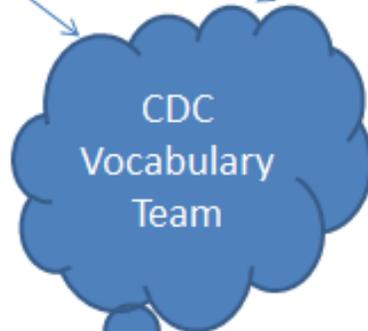
PHIN VADS – Users / Partners within CDC

CDC Applications using VADS Webservices

1. PHIN MQF
2. PHIN MSS
3. EpilInfo
4. National Healthcare Safety Network (NHSN)
5. Environmental Public Health Tracking Network (EPHTN)
6. CDC Cancer Registry – IHE Profile Vendors
7. CDC NCHS Vital Statistics – Maternal Child Health (IHE Profile – Vendors)
8. CDC Birth Defects (NCBDD) – Hearing Defect IHE Profile Vendors
9. CDC Health Education

CDC Advisory Groups

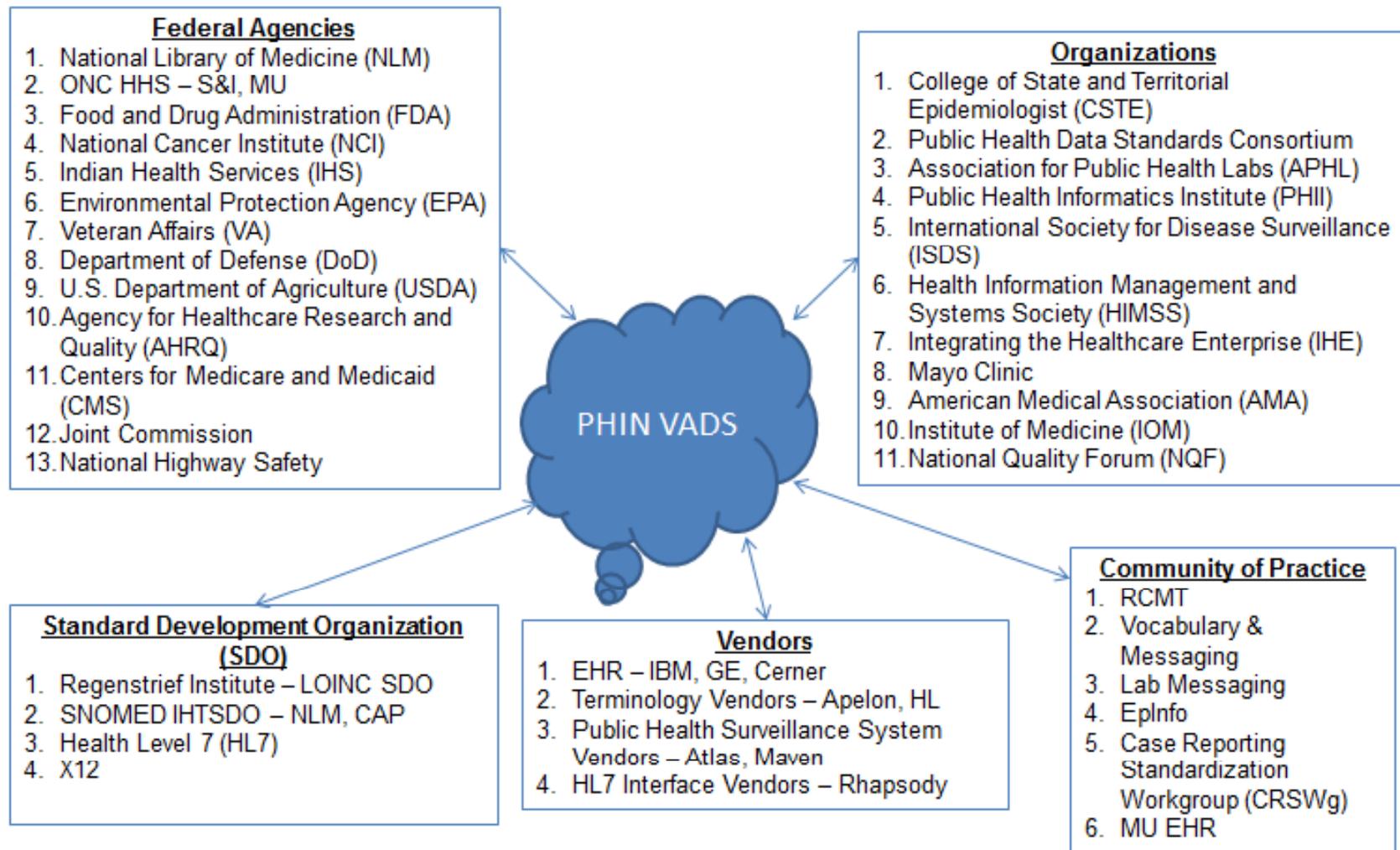
1. CDC Information Resource (IR) – ICD-10 CM Transition Workgroup
2. CDC Meaningful Use Advisory Group
3. CDC CSTE ELR Task Force
4. CDC Centers of Excellence (DIPPC)



CDC Divisions/ Programs

1. National Notifiable Disease Surveillance System
2. National Healthcare Safety Network (NHSN) / Division of Healthcare Quality Promotion (DHQP)
3. National Center for Health Statistics – Hyattsville (D.C.)
4. National Institute of Occupation and Safety Health (NIOSH)
5. National Program of Cancer Registry (NPCR)
6. National Center of Environmental Health (NCEH) / ATSDR
7. Office of Infectious Diseases – NCIRD, NCHHSTP, NCEZID
8. National Center on Birth Defects and Developmental Disabilities (NCBDDD)
9. National Center for Injury and Prevention
10. CDC Public Health Informatics Fellowship Program
11. BioSense
12. CDC Center for Global Health
13. Laboratory Service Practice Policy and Program Office (LSPPO)
14. DIPPC – PHIN, Meaningful Use
15. Office of State Local and Tribal Support

PHIN VADS – External Users / Partners



List of Current Vocabulary Registries and their scope

- **Centers for Disease Control & Prevention (PHIN VADS)**
 - Public health value sets, HL7 Messaging guide value sets distribution, web services
- **NLM Unified Medical Language System (UMLS)**
 - SDO vocabulary (RxNorm, SNOMED), mapping between standards, MU Quality Measures, ..
- **National Cancer Institute (NCI) – Enterprise Vocabulary Services (EVS)**
 - Cancer domain, NCI Metathesaurus, FDA vocabulary (SPL, UNII), Gene (HUGO, GO), etc..
- **Environment Protection Agency (EPA) – Substance Registry System (SRS)**
 - Substance (Chemical, Physical, Biological), Map to CAS #, vocabulary (Air, Water, Soil), etc...
- **Agency for Healthcare Research & Quality (AHRQ) – United States Health Information Knowledgebase (USHIK)**
 - Metadata registry of healthcare data elements and information models of SDOs, HITSP, ...
- **Mayo Clinic - LexGrid , LexBig, LexWiki**
 - Distributed network of terminologies and ontologies using standard tools, web services(HL7 CTS)
- **Washington Publishing Company (WPC) – Taxonomy browser & file server**
 - Code lists supporting administrative data – X12, NUCC, HIPAA, etc...
- **Standard Development Organization (SDO) Tools**
- **Commercial Terminology Distribution (Vendors)**

Standardization of Occupational Data in EHRs

- **NIOSH's Primary Objectives**
 - **Incorporate work information in a useful way in EHRs**
 - Occupational Data for Health (ODH) Information Model
 - Recommend/Define Codes & Value Sets
 - Census Industry and Occupation Codes, Employment Status, Work Schedule
 - LOINC, SNOMED CT
 - **Incorporate work information in public health reporting**
 - Interoperability Standards
 - **Support and improve care of workers**
 - Kick-off of Clinical Decision Support pilot project

Needs to advance the adoption of public health data standards

- Public Health Data Elements need to be mapped to LOINC and distribute the information between question and answer instead of typical “Yes No Unknown” answer model.
- Implementation of HL7 Generic and Condition specific Case Notification Message Mapping Guides by public health agencies.
- Public Health workforce needs to be trained on the messaging and vocabulary standards as well as tools (e.g. RELMA) that facilitate mapping.
- Public Health Case Reporting Implementation Guide adoption by vendors is critical for getting EHR data to public health. Identifying and mapping the public health data elements to EHR would help the implementers.
- Ambulatory Labs and Hospital Labs need to implement and maintain the mapping of reportable conditions associated laboratory tests and results to LOINC, SNOMED and Reportable Condition Mapping Table (RCMT).
- Terminology services related standards such as HL7 Common Terminology Services (CTS) and IHE Sharing Value Set (SVS) needs to be harmonized.
- Collaboration between Federal Agencies and other terminology distribution sources regarding the distribution of public health vocabulary.



For more information please contact Centers for Disease Control and Prevention

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Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

PHIN VADS Support E-mail: PHINVS@CDC.GOV

PHIN VADS forum - <http://www.phconnect.org/groups/phinvads>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Center for Surveillance, Epidemiology, and Laboratory Services (proposed)

Division of Health Informatics and Surveillance (DHIS)

