HL7 Version 3 Domain Analysis Model: Vital Records, Release 1
Section 1 – Project Overview

April, 2011

HL7 Informative Document

Sponsored by:
Public Health/Emergency Response Work Group

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Acknowledgement

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Guide to the Reader

The purpose of this document is to provide background and other information necessary to fully understand and review the proposed standard. As such, each artifact or component is present in part or by exemplar. The purpose, notation, and conventions specific to the artifacts are explained.

The complete standard being presented for public comment is provided as part of an electronic zip file. The standard documents consist of the following six core sections, one for each artifact. The core sections are:

- Section 1: Vital Records Domain Analysis Model (VR DAM) Project Overview
- Section 2: Vital Records Storyboards
- Section 3: Vital Records Domain Analysis Model
- Section 4: United States (U.S.) Standard Certificate of Live Birth and Supporting Reference Material
- Section 5: U.S. Standard Certificate of Death and Supporting Reference Material
- Section 6: U.S. Standard Report of Fetal Death and Supporting Reference Material
- Section 7: Description of Class Model

Sections 1 and 4 – 7 consist of supporting reference material only. No comments are needed on the supporting reference material. The reference material has been included to provide context for understanding the VR DAM.

Section 1: The VR DAM Project Overview describes the mission, goal and purpose of the VR DAM, and the stakeholder collaboration process that developed the models.
Supporting reference document: No comments needed.

Section 4: The U.S. Standard Certificate of Live Birth and Supporting Reference Material include links to the 2003 U.S. Standard Certificate of Live Birth, the Birth Edit Specifications for the 2003 Revision, the Facility and Mother's Worksheets for the Birth Certificate and the Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death.
Supporting reference document: No comments needed.

Section 5: The U.S. Standard Certificate of Death and Supporting Reference Material include links to the U.S. Standard Certificate of Death, the Death Edit Specifications for the 2003 Revision and the Handbooks for the Death Certificate.
Supporting reference document: No comments needed.

Section 6: The U.S. Standard Report of Fetal Death and Supporting Reference Material include links to the U.S. Standard Report of Fetal Death, the Fetal Death Edit Specifications for the 2003

Revision, the Facility and Patient's Worksheets for the Fetal Death Report and the Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death. ***Supporting reference document***: *No comments needed.*

Section 7: The *Description of Class Model* document provides information on how to interpret the symbols within the diagrams used as a key components of clinical domain analysis models. ***Supporting reference document***: *No comments needed.*

The documents included in Sections 2 – 3 have been provided for review and feedback through the American National Standards Institute (ANSI) accreditation process espoused by the standards development organization, Health Level Seven (HL7). The ANSI accreditation process provides an open forum for voting on any standard submitted to ANSI for approval.

Section 2: The Vital Records Storyboards provide narrative descriptions to illustrate typical scenarios in which vital records information is collected and recorded on the U.S. Standard Certificate of Live Birth, U.S. Standard Certificate of Death and a U.S. Standard Report of Fetal Death. These storyboards are not intended to represent all vital records processes or circumstances. ***Feedback needed***: *Indicate the need for additional scenarios or revisions to the current scenarios.*

Section 3: The VR DAM includes activity models of typical birth, death and fetal death processing in the U.S. utilizing flow diagrams to identify the work flow processes, stakeholders and data exchanges that support data collection, record registration, and certified copy issuance. The VR DAM also includes birth, death and fetal death class models that depict the vital records data captured and the data relationships. ***Feedback needed***: *Indicate any revisions that may be needed to the activity models or descriptive text within the models. Also, indicate if revisions are needed to the class models including, but not limited to the data relationships, cardinality or descriptive text for each data item.*

We welcome and will address comments on all artifacts in Sections 2 – 3 from all stakeholders. We recognize that individuals may prefer to review artifacts germane to their areas of interest. The following directs user communities to artifacts of particular interest to that community.

Birth Registrars, Birth Vital Records Departments and Birth Clinicians
- Section 1: Vital Records Domain Analysis Model Project Overview
- Section 2: Vital Records Storyboards
- Section 3: Vital Records Domain Analysis Models

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- Section 4: U.S. Standard Certificate of Live Birth and Supporting Reference Documentation
- Section 6: U.S. Standard Report of Fetal Death and Supporting Reference Documentation

Medical Examiners/Coroners, Medical Certifiers and Funeral Directors
- Section 1: Vital Records Domain Analysis Model Project Overview
- Section 2: Vital Records Storyboards
- Section 3: Vital Records Domain Analysis Models
- Section 5: U.S. Standard Certificate of Death and Supporting Reference Documentation
- Section 6: U.S. Standard Report of Fetal Death and Supporting Reference Documentation

Healthcare Informatics Specialists, Researchers, Vendors of Electronic Health Record and Vital Records Systems and Other Vital Records Data Users
- Section 1: Vital Records Domain Analysis Model Project Overview
- Section 2: Vital Records Storyboards
- Section 3: Vital Records Domain Analysis Models
- Section 4: U.S. Standard Certificate of Live Birth and Supporting Reference Documentation
- Section 5: U.S. Standard Certificate of Death and Supporting Reference Documentation
- Section 6: U.S. Standard Report of Fetal Death and Supporting Reference Documentation

Project Overview

Executive Summary

Mission and Goals

The Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS) is providing support for the development of vital records standards to enable interoperable electronic data exchanges among electronic health record systems, United States (U.S.) vital records systems and potentially other public information systems for birth, death and fetal death events. The CDC/NCHS/Division of Vital Statistics (DVS), the National Association for Public Health Statistics and Information Systems (NAPHSIS) and several state representatives have collaborated to develop a Vital Records Domain Analysis Model (VR DAM). A domain analysis model is generally constructed to model a special area of interest (the domain). The term "domain" indicates that the semantics of the model are restricted to those that collectively define a clearly bounded domain (area) of interest.

In this model, the focus is on the vital records domain, which is one component of the broader domain of public health. The domain model represents both the static and dynamic nature of vital records including a Unified Modeling Language (UML) class model and an activity model. In the case of the vital records models, the domain of interest is formally defined as indicated by the Birth Edit Specifications for the 2003 Revision of the U.S. Standard Certificate of Birth, Death Edit Specifications for the 2003 Revision of the U.S. Standard Certificate of Death, and Fetal Death Edit Specifications for the 2003 Revision of the U.S. Standard Report of Fetal Death. The semantics of the model are restricted to those required by vital records as defined by subject matter experts and are not specific to any particular use case or information system. The domain of interest for vital records includes the data collected to record U.S. births, deaths and fetal deaths. The domain models are implementation-independent.

The VR DAM describes how birth, death and fetal death records are processed in the U.S. The model shows vital records stakeholders who are involved in exchanging data within the context of each activity. The goal of the VR DAM is to serve as a framework to guide future standards development for vital records exchange.

The working goals of the VR DAM initiative for the U.S. realm were to:
- Identify and describe the flow and content of information needed to process birth, death and fetal death records in compliance with the U.S. Standard Certificates of Birth and Death, and the U.S. Standard Report of Fetal Death and their associated standard edit specifications.
- Develop consensus on a set of models to represent the vital records domain.
- Create static content models of the domain using the UML standard.
- Create dynamic models of the domain represented through activity diagrams, using the UML standard.

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- Make the resulting standards available to the public through an ANSI-accredited balloting process.

These working goals have largely been achieved through the development of the first version release of the VR DAM. The artifacts are presented here for review and feedback as described in the *Guide to the Reader*. The VR DAM is the first domain analysis model to be submitted for HL7 balloting within the Public Health Domain through the support of the HL7 Public Health and Emergency Response Work Group (PHER WG).

Within HL7, this material is balloted within the U.S. realm. That is to say, it is being presented as a standard for use within the United States, since all the underlying data and processing requirements are drawn from U.S. experience.

Purpose of Release 1.0

The Vital Records Domain Analysis Model (VR DAM) Release 1.0 provides an overview of the U.S. vital records domain; however, the group working on it has not achieved complete representation of all stakeholders and processes relative to vital records data. The development group sought to include a range of stakeholders within the vital records community. We have completed work within Release 1.0 to form a stakeholders group, identified the various activities that needed to be represented in the vital records (VR) activity models and core data models as identified by our stakeholders group and reached consensus on these models. We also have identified and depicted the vital records data captured and defined data relationships within the birth, death and fetal death VR domains. At this time, the work to date is being released to seek further review and comment from a broader set of vital records stakeholders. It is our ultimate goal to provide an accurate and complete representation of the vital records domain. We hope that the VR DAM is presented in a format that is both understandable to subject matter experts and robust enough to be utilized by information technologists building solutions to enhance vital records data collection and exchange.

Project Goal	Status
Create stakeholder group	Complete
Identify and describe the set of data elements used to process birth, death and fetal death records in the United States (U.S.) in compliance with the 2003 Revision of the U.S. Standard Certificates of Birth and Death, the U.S. Standard Report of Fetal Death, and associated standard edit specifications.	Complete
Develop consensus on a set of models to represent the vital Records domain.	Complete
Create static content models of the domain, using the Unified Modeling Language (UML) standard.	Complete
Create dynamic models of the domain represented through activity diagrams, using the UML standard.	Complete
Seek broader vital records stakeholder review on the set of models developed to represent the vital records domain.	In progress, 2010
Make the resulting standards available to the public through an American National Standards Institute (ANSI)-accredited balloting process.	In progress, 2010

Remaining Work

The primary focus of the remaining work on the VR DAM is to obtain broader stakeholder review and feedback. We hope to accomplish this through the Health Level Seven (HL7) balloting process. In addition, we have begun the process to solicit broader vital records stakeholder review through presentation of an overview of the VR DAM via a webinar hosted by

the National Association for Public Health Statistics and Information Systems (NAPHSIS) in March 2010. The webinar targeted a key vital records stakeholder group: the U.S. vital records jurisdictions and states. We encouraged these VR stakeholders to participate in the HL7 ballot process to comment on the VR DAM. We will also inform other stakeholders about the balloted VR DAM and encourage their participation.

We will refine and update the models based on the feedback we receive from the vital records stakeholders and others who provide comments on the HL7 ballot. Ultimately, we plan to utilize the final VR DAM to guide future design and implementation efforts to standardize electronic data exchange among electronic health record systems, vital records systems and potentially other public information systems. We also plan to map the VR DAM to the Electronic Health Record Systems (EHR-S) Vital Records Functional Profile currently under development through the support of the HL7 EHR Work Group. The profile will specify the functional requirements needed for vital registration data exchange among providers, states, federal agencies and other stakeholders.

Work Products Included in Release 1.0

The work products that are included in the VR DAM Release 1.0 are packaged in an electronic zip file that includes the project overview, storyboards, domain analysis models and supporting reference material. The VR DAM is based on the core set of vital records data elements that are on the United States (U.S.) Standard Certificates of Live Birth and Death and the U.S. Standard Report of Fetal Death. The supporting reference material includes the standard certificates, edit specifications and data collection worksheets and guide to completing the worksheets. One of the work products for the VR DAM is a set of vital records storyboards developed to provide a better understanding of the vital records process as reflected in the scope of the domain.

It is worthwhile here to note the activities of the former American Health Information Community (AHIC) in identifying 2009 priorities to serve as focus areas for harmonizing standards and other national health information technology agenda activities[1]. One of the areas of primary focus was on Maternal and Child Health and the need to determine eligibility for services or programs that may be available to the mother during the period of time from the determination of pregnancy through birth to age four of the child. The Maternal and Child Health use case also covered communication about the birth event and sending information to vital records[2].

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[1] Office of the National Coordinator for Health Information Technology (ONC). Health IT. Maternal and Child Health: American Health Information Community (AHIC) Use Cases and Requirements Documents.

[2] Healthcare Information Technology Standards Panel (HITSP) Maternal and Child Health Requirements and Design. 2009 Oct 12;(1.0)7.

Our goal is to lay the foundation for standardized transmission of selected vital events data as work towards electronic health records proceeds internationally. The overarching use case for the future of vital records may support capturing select VR data at the point of care or contact with the patient instead of retrospectively. Figure 1 depicts this scenario for the birth event and birth record utilizing the electronic health record (EHR) as a source of data exchange from clinical care to the jurisdictions and onward to the state and federal governments.
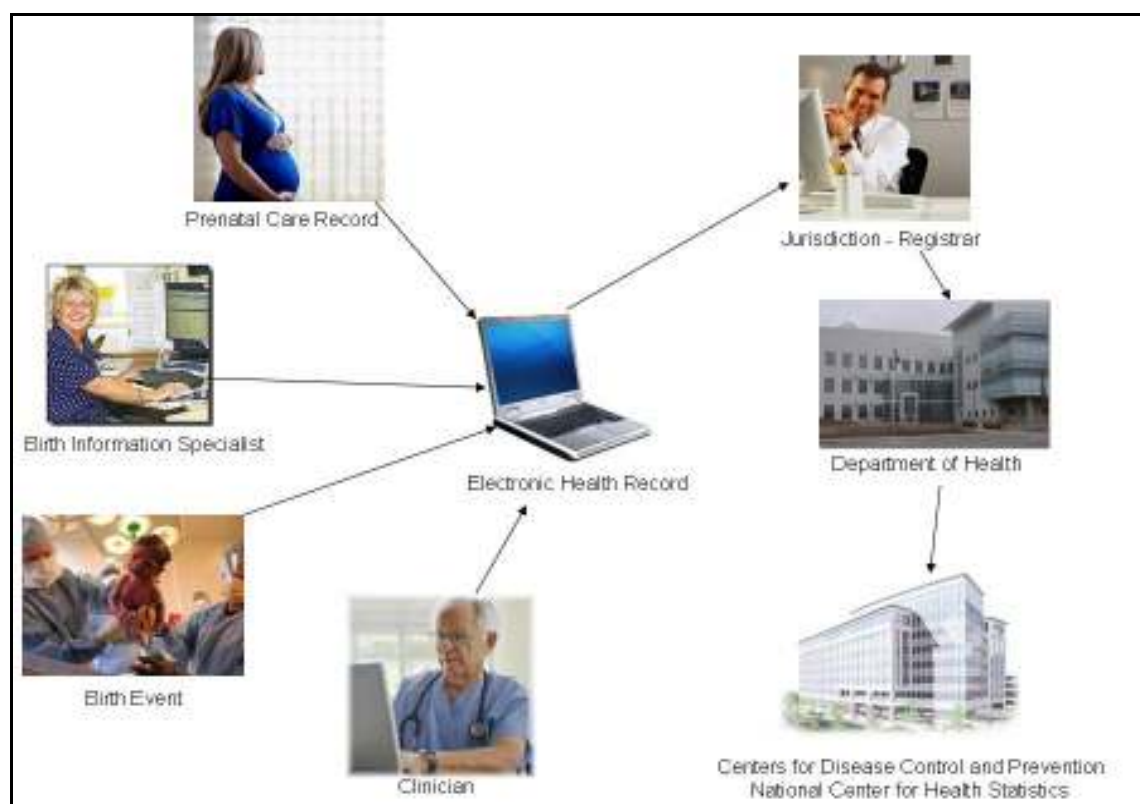

Figure 1: Capturing Select VR Birth Data at the Point of Care or Contact

Stakeholders

The Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS), the National Association for Public Health Statistics and Information Systems (NAPHSIS) and several state representatives have collaboratively contributed to the development of the Vital Records Domain Analysis Model (VR DAM). We are seeking broader vital records stakeholder review and feedback on the VR DAM. Additional stakeholder groups have been identified in the following list. We hope that these and other interested stakeholders will participant in the Health Level Seven (HL7) ballot process to review the VR DAM and provide input into the future of vital records.

Vital Records Departments Stakeholders
- National Association for Public Health Statistics and Information Systems
- U.S. Jurisdictions and Local Departments of Health

Clinicians, Medical Examiners, Certifiers and Coroners Stakeholders
- American Academy of Pediatrics
- American College of Nurse Midwives
- American College of Obstetricians and

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Funeral Directors Stakeholders
- National Funeral Directors Association
- State Funeral Directors Associations

Standards Development Organization
- Health Level Seven

Government Organizations
- Agency for Healthcare Research and Quality
- Centers for Disease Control and Prevention/National Center for Health Statistics
- Census Bureau
- Centers for Medicare and Medicaid Services
- Department of State
- Health Resources and Services Administration
- Social Security Administration
- U.S. Department of Veterans Affairs

Gynecologists
- American Hospital Association
- American Medical Association
- College of American Pathologists
- National Association of Medical Examiners

Healthcare Informatics Specialists
- American Health Information Management Association

Vendors of Vital Records Systems
Vendors of EHR-Systems

Researchers, VR Data Users
- Annie E. Casey Foundation
- Association of State and Territorial Health Officials
- Guttmacher Institute
- March of Dimes
- State Universities

Other Participants
- National Association of Health Data Organizations

Future Releases

The United States (U.S.) Birth, Death and Fetal Death Edit Specifications for the 2003 Revision and the Vital Records Domain Analysis Model (VR DAM) are inextricably linked. An update in one will necessitate an update in the other. Future releases of the VR DAM will depend on modifications to the Edit Specifications and funding support. We anticipate that major releases (2.0, 3.0, etc.) will consist of new or updated data elements and any structural changes in the domain models.

Target Audience

The target audience for this work is anyone wishing to learn more about the public health domain of vital records. We hope that the information and content in the Vital Records Domain Analysis Model (VR DAM) will be beneficial to:

Primary Electronic Health Record (EHR)-centric Vital Records stakeholders include:
- Hospitals that provide birthing services

- Prenatal care providers
- Free-standing birthing facilities
- Certifying Physicians
- Midwives (home and hospital births)
- Primary Care Offices
- Emergency Departments
- Long Term Care facilities / Nursing Homes
- Care Providers
- Clinics
- Doctor's offices

Primary downstream users of Vital Records/Vital Statistics systems and information include:
- U.S. local and State governments, the District of Columbia, and New York City and the US territories
- U.S. Federal government
- Realms that have formal Vital Records-related agreements with the U.S. (such as those countries that border the U.S.)

Other downstream users may include:
- Funeral Directors
- Coroners' Offices
- Medical Examiners' Offices
- Pediatric Care Facilities
- Funeral Director Offices
- Public Health Reporting Organizations
- Public Health Care Providing Organizations
- Financial and Administrative Organizations (including payers, employers, estate managers, financial managers, and benefits managers)

- Associated domains, such as:
  - Epidemiological Research
  - Surveillance Research
  - Clinical Research
  - Population Reporting, Planning, and Research
  - Disaster Reporting, Prevention, and Research
  - Fraud and Abuse Reporting and Research
  - Legal uses
  - Military uses
  - Genomics/Genetics/Cloning/Fertility
    - Veterinary Medicine
    - International user and exchange of Vital Records
    - Personal Health Records, Personal History, Family History, and Genealogical Researchers

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The domain model is represented using the most basic and easily understandable constructs of UML. It is our goal that the model and content of the documentation package be readily understandable by anyone with experience and expertise in this public health domain of interest. The motivation for this project is to present to the public health vital records community a valid representation of the shared meaning of various concepts, relationships, and processes that collectively define the vital records domain. We hope that the streamlined documentation approach and content-centered models facilitate comment by the large community of vital records stakeholders.

It is not the purpose of the documentation package to give instructions as to how a given application development team can work with this model. Although we envision domain models as inspiration and a reference for message specification development, it is not the goal of this document to provide direction on how to go about doing so. For that, we refer the interested reader to the Health Level Seven (HL7) Development Framework documentation available from www.hl7.org. Any individual can comment on or join the development effort.

The Vital Records Domain Analysis Model

Introduction

The National Vital Statistics System has a long and enduring history that serves to provide essential data on births and deaths within the United States and is the oldest and most successful example of inter-governmental data sharing in Public Health[3]. Over 6 million vital event records annually, including statistical information (demographic, medical/health, and geographic) are derived from over four million birth certificates and from about 2.4 million death certificates and fetal death reports. These events are registered annually by fifty-seven registration areas: 50 states, two cities (New York and Washington DC), and 5 United States (U.S.) territories (American Samoa, Guam, Confederation of Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands). Detailed data on all events are transmitted to the Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS) for processing and dissemination.

Similar to other areas within healthcare, vital registration systems have not kept pace with e-commerce or other industries in developing interoperable data systems to support quality and timely data capture and transmission. The current registration system has supported the proliferation of silo solutions that have fostered redundancy in data entry and standards not recognized widely. This may result in slow transmission of birth and death certificate data to the federal government which can significantly impact data timeliness and usefulness which is essential for driving key health and healthcare related policy decisions. It may also influence programmatic and policy decisions for state agencies. This document describes efforts to facilitate transmission of data between public and private systems via more widely recognized standards.

Existing Vital Record Standards

The individual U.S. states/jurisdictions, the National Association for Public Health Statistics and Information Systems (NAPHSIS), and CDC/NCHS have long collaborated to promote uniformity and consistency in vital records data collection. State and jurisdictional laws require reporting of all births, deaths, and reportable fetal deaths to the jurisdiction where the event took place. Federal law obligates CDC/NCHS to produce national multipurpose statistics based on the state vital records information. CDC/NCHS closely collaborates with the states to develop standard certificates and reports for data collection and administrative purposes, as well as standardized procedures for data preparation and processing to promote a uniform national

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[3] Centers for Disease Control and Prevention/National Center for Health Statistics/National Vital Statistics System. About the National Vital Statistics System. Retrieved March 11, 2010 from http://www.cdc.gov/nchs/nvss.htm.

database[4]. The Specifications for collecting and editing the U.S. Standard Certificates of Live Birth and Death and the Report of Fetal Death and other supporting reference documents developed through this collaboration have been included in the complete zip file for the Vital Records Domain Analysis Model (VR DAM).

In 2003-2004, the Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS), the National Association for Public Health Statistics and Information Systems (NAPHSIS) and the Social Security Administration (SSA) partnered to identify and develop standardized functional requirements for re-engineered electronic birth, death and fetal death registration systems, and to document these requirements as model use cases. The Model Vital Events Re-engineered System (MoVERS) use cases describe system behavior in terms of sequences of actions. MoVERS includes use cases for the Electronic Birth Registration System (EBRS) with fetal death functionality, Electronic Death Registration System (EDRS), Point of Service (POS, including certificate issuance), and generic system requirements. The goals of this collaboration known as the MoVERS project have served as an initial foundation for the design, development, and implementation of web-based vital records and statistics systems for states. These requirements incorporate standardized data-collection instruments, improved methods for capturing data, immediate query of suspect data, query and edit guidelines, and detailed item definitions[5].

The MoVERS is referenced where appropriate throughout the VR DAM, and the VR DAM reflects the use cases at a high level in terms of information flow. With respect to discussions about the potential use of electronic health records in the collection and storage of relevant medical information needed for birth, death and fetal death processing, it became clear among the participants that public and private systems would not be able to communicate effectively unless standards were established to support interoperability. These standards would have to address the communication language and the data content definitions for the exchange of relevant, medical/health information for vital registration and support certification of systems designed for this purpose.

Extending Standards to Support the Vital Records Community

The Centers for Disease Control and Prevention/National Center for Health Statistics/Division of Vital Statistics (CDC/NCHS/DVS), the National Association for Public Health Statistics and Information Systems (NAPHSIS) and several state representatives have been collaborating over the past few years to guide efforts towards developing national standards for the electronic exchange of birth and death information between public and private systems, define what the

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[4] Centers for Disease Control and Prevention/National Center for Health Statistics/National Vital Statistics System. HHS Secretary notice of approval. Retrieved March 11, 2010 from http://www.cdc.gov/nchs/nvss.htm.

[5] Martin, J., Kochanek, K., Strobino, D., Guyer, B., & MacDorman, M. (2005, March). Annual summary of vital statistics - 2003. *Pediatrics, 115,* 619-634.

appropriate data items are for electronic exchange, and define what the appropriate data content is for each of those variables as specified by the Federal government and the jurisdictions. They seek to determine if standards can help improve the collection of medical information from health information systems through the transference of that information to vital records systems where appropriate. As an initial activity, they agreed to lay the foundation for future vital records standards development work by creating a VR DAM. The VR DAM will serve as a reference to guide future design and implementation efforts for standardizing the electronic data exchanges between vital records systems and other healthcare information systems. State registrars, providers, vital records systems developers, and other interested stakeholders are also collaborating on the development of a Health Level Seven (HL7) Electronic Health Record System (EHR-S) Vital Records Functional Profile to identify the functional requirements needed for EHR systems to potentially support vital records.

The work presented here was funded by the CDC/NCHS to lay the foundation for standardized electronic transmission of birth, death and fetal death events. The goal of this effort was to identify the vital registration stakeholders, work flow processes, and data exchanges in a way that is understandable to both layman and technical representatives. These foundational standards will serve as a reference to guide future design and implementation efforts for standardizing electronic data exchanges between vital records systems and other healthcare information systems.

Creation of Stakeholder Working Groups

Representatives from the Centers for Disease Control and Prevention/National Center for Health Statistics/Division of Vital Statistics (CDC/NCHS/DVS) collaborated with the CDC/NCHS/Classifications and Public Health Data Standards Staff (CPHDSS) to obtain informatics support for the eVitals initiatives. A proposal for the eVitals project was presented to leadership within the Division of Vital Statistics. A contractor provided technical support to develop the domain analysis model and other artifacts. Subject matter experts were identified and solicited to participate in a new Committee to support the eVitals initiative. Several of the volunteers had been previously been involved in the MoVERS project. The committee members participated in an average of 1 – 3 conference calls per month over a two year period.

The new Committee was named the Vital Statistics Standards Committee (VSSC). Its members collaborated to describe the proposed role and responsibilities for the group. Below are the description, role and responsibilities as defined by the VSSC.

The VSSC will support development of an electronic standard for transmitting birth and death certificate registration information. The VSSC will consist of representatives from CDC/NCHS, the National Association for Public Health Statistics and Information Systems (NAPHSIS) and additional stakeholders and interested parties as identified. The representatives will include those who can contribute to the development and implementation of an electronic vital records standard including, but not limited to: Federal and state vital statistics representatives, systems analysts, project managers, subject matter experts, and informatics specialists.

The roles and responsibilities of the VSSC will be to:

- Select the type of standard to develop for electronic birth and death certificate data exchange [i.e., standard HL7 messaging versus Clinical Document Architecture (CDA)]
- Participate in the development and review of all documents essential to the development of the electronic standard such as models, implementation guides, birth/death implementation specifications and interoperability specifications/profiles
- Participate in the review of the HL7 EHR-S Functional Model and development of the HL7 Vital Records Functional Profile
- Discuss harmonization and review content of birth and death data elements
- Receive guidance on HL7 messaging, CDA, and other standards development issues to support and enable the Committee in reaching consensus throughout the development process
- Convene monthly conference calls and ad hoc calls as needed to support all VSSC initiatives and projects

Governance and Stewardship

The development of the VR DAM was funded by the Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS). It was accomplished through volunteer support from the members of the VSSC and the Health Level Seven (HL7) Public Health and Emergency Response Work Group (PHER WG). The HL7 PHER WG approved the project scope statement submitted by the CDC/NCHS to develop the Vital Records Domain Analysis Model (VR DAM) during the HL7 May 2008 Working Group Meeting. The PHER WG was designated as the project's sponsor within the HL7 organizational framework. The models are under the stewardship of HL7 as balloted products of the organization and will be registered in the public domain where they can be located and used.

Model Development Process

The Vital Statistics Standards Committee began the standards development process by modeling the domain. The Health Level Seven (HL7) Development Framework approach is to define the problem domain, model the domain, and harmonize the domain based on HL7 reference models during requirements documentation[6].

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[6] Health Level Seven (HL7) Development Framework Chapter 2 – Requirement Documentation. 2004 Sept 24: (2.0)5.

The domain analysis models were used as the starting point for our standards development work. Because vital registration processes can vary across jurisdiction, modeling efforts are based on the national vital statistics standards for the reporting of births and deaths and fetal deaths. They also recognized the need to develop different models for birth, death and fetal death reporting to distinguish the differences across these reporting areas.

Future Work

New and expanding needs for data and access to records and for improved security and fraud reduction have increased demands for a more efficient and timely vital statistics system that allows the vital statistics system to continue to play a prominent role in public health as it has throughout its history. Developing the next generation vital statistics systems using new technologies and evolving standards will produce an infrastructure that can better meet current and future needs. As a fundamental part of the community of health data and record registration, it is crucial that vital statistics systems maintain their prominent role in delivering timely and pertinent public health data.   This will only be possible by migrating to re-engineered systems using messaging and structured document technologies to be able to meet tomorrow's information and record needs. Future work must include the determination of a viable and efficient path to exchange vital records data between public and private systems. The Vital Records Domain Analysis Model should serve as the foundation to design systems for the next generation of vital records.

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