



HL7 Version 3 Domain Analysis Model:
Vital Records, Release 1

Section 3 – Vital Records Domain Analysis Model

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Introduction

The Vital Records Domain Analysis Model (VR DAM) describes how birth, death and fetal death records are processed in the United States (U.S.) and identifies the stakeholders participating in the data exchange. The goal of the VR DAM is to serve as a framework to guide future standards development for vital records exchange. Our goal is to lay the foundation for standardized transmission of select vital events data as work towards electronic health records proceeds internationally.

The VR DAM is based on the core set of vital records data elements that are required by the United States Standard Certificates of Live Birth and Death and the U.S. Standard Report of Fetal Death. Activity models utilizing flow diagrams identify the vital registration work flow processes, stakeholders and data exchanges that support collection and recording of births, deaths and fetal deaths in the U.S. The VR DAM also includes birth, death and fetal death class models that depict the vital records data captured and how that data relates to others data within the domain.

Birth Model: US Realm

Birth Registration Activities

The model represents the processes that are followed to record and register the birth of a child. In the United States, registration of vital events is the responsibility of 57 vital records jurisdictions representing 50 states, 5 territories, Washington, DC and New York City. Vital statistics are reported to the National Center for Health Statistics, a Center within the Centers for Disease Control and Prevention (CDC). The experience of state and federal vital records officials has been drawn on for the contents of the model.

Information needed to officially record a live birth is defined by the U.S. Standard Certificate of Birth. The latest revision of the standard certificate was released in 2003, and is in use by approximately 70% of jurisdictions as of the end of 2008; the remaining jurisdictions still use the earlier 1989 certificate revision. Jurisdictions may add additional data items to their certificates. The collection of birth event data is required whether the birth takes place in a facility, at home (planned or unplanned), or en route to a facility.

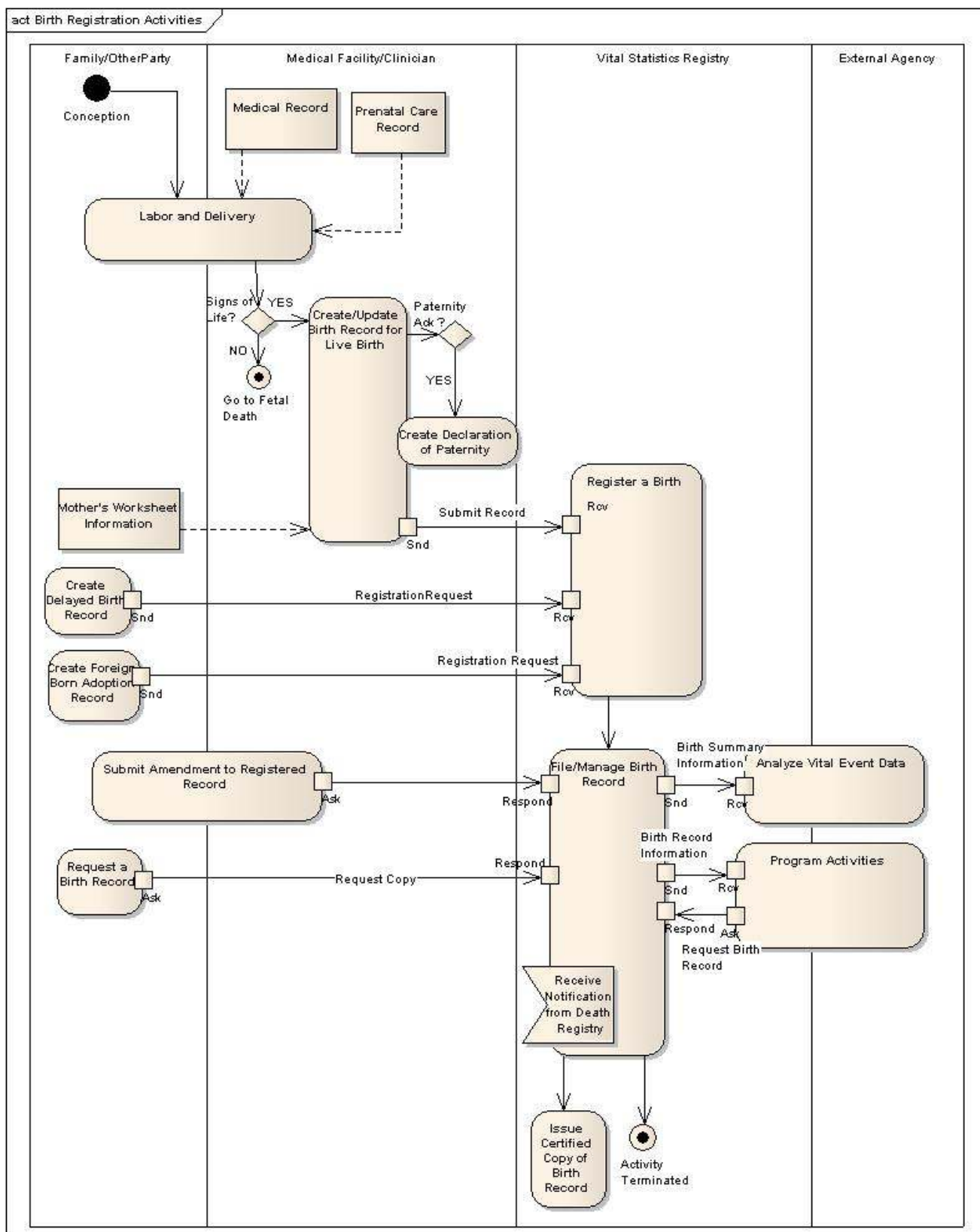


Figure 1: Birth Registration Activities

Analyze Vital Event Data

Activity: Local, state and federal vital statistics organizations collect and disseminate vital statistics data for publication and research.

The National Center for Health Statistics (NCHS) is the federal entity responsible for the analysis and publication of national level vital statistics. NCHS receives information on birth vital events through transmissions from vital statistics offices for the controlling jurisdiction. Analytic functions are also carried out at state and local levels by the applicable vital statistics or public health agency.

Create Delayed Birth Record

Activity: Each jurisdiction sets a time frame for the registration of a live birth, generally within one year of the event. If the registration of a live birth is delayed beyond the period defined by the jurisdiction's law, a request to register a delayed birth must be submitted. In addition to the required live birth information, additional documentary evidence must be submitted showing proof of residence, pregnancy and delivery. The delayed registration application is subject to acceptance and approval of the jurisdiction, and may be ordered by court. Delayed birth registrations are usually associated with unattended births, but may also be filed for hospital births that were not recorded in a timely matter due to omissions.

Note: This activity also supports EBRS Use Case 013: Create Delayed Birth Record.

Create Foreign Born Adoption Record

Activity: The activity takes place to support the registering of a foreign-born child adopted by a U.S. citizen who is a resident of the registration jurisdiction. At least one parent must meet the citizenship and residency requirement. Registration of a foreign-born adoption does not acquire and is not proof of citizenship for the adopted child, and most jurisdictions mark this condition on the issued birth certificate.

Note: This activity also supports EBRS Use Case 012: Create Foreign Born Adoption Record.

Create Declaration of Paternity

Activity: Information is collected from the declared father to be added to a birth certificate when the mother is not married to the father of the baby. (Also known as Paternity Acknowledgement, Acknowledgement of Paternity, etc.) Most birth hospitals attempt to process paternitys at the time of the birth when possible, but paperwork may be submitted at any time. State statute governs the collection and incorporation of these data into the registered birth record. Most jurisdictions require the signature of both parents and a witness. Some jurisdictions require a court order of paternity after the birth has been registered. The mother may refuse to sign a declaration of paternity, in which case the presumptive father must pursue a court-based acknowledgement.

Note: This activity also supports Use Case 002: Create Paternity Acknowledgement.

Create/Update Birth Record for Live Birth

Activity: Information needed to officially record a live birth is defined by the U.S. Standard Certificate of Birth. The latest revision of the standard certificate was released in 2003, and most jurisdictions closely follow its format or are in transition to using the 2003 revision. Jurisdictions may add additional data items to their certificates. The collection of birth event data is required whether the birth takes place in a facility, at home (planned or unplanned), or en route to a facility. For births recorded by the birthing facility, information needed to complete the certificate is collected from the mother on the Mother's Worksheet, and from the facility medical records, which should also include the mother's prenatal care record obtained from the prenatal care provider prior to the birth. Generally, these data are collected on paper and entered into an electronic birth registration system (EBRS) by authorized personnel at the birthing facility. For an attended home delivery, the attendant (nurse midwife or other attendant) collects and reports these data to the jurisdiction. Usually reporting is paper-based, but some jurisdictions with web-based EBRS allow certified nurse midwives to become authorized users and report electronically.

Records may be voided if entered in error, or modified by the facility until submitted to the jurisdiction for registration. In most jurisdictions, the birth records are electronically transmitted to the jurisdiction's vital records administration for official recordation and registration. Some hospitals exclusively or additionally submit a paper record to a local registrar and/or to the jurisdiction, depending on state requirements. Once a birth has been registered by the jurisdiction, restrictions are usually placed on hospital access to the record, and any corrections must be submitted to the vital records office.

Note, this activity also supports EBRS Use Case 001: Create Live Birth Record for Live Birth; EBRS Use Case 005: Create Multiple Records for Plural Delivery; EBRS Use Case 006: Update a Record; and MVRS Use Case 011: Void a Registered Record.

File/Manage Birth Record

Activity: Once a birth has been registered, and a birth vital record created, this record must be stored and managed over time. The vital statistics administration in each jurisdiction is responsible for a) reporting to national statistics agencies, b) securely storing the record for an extended period of time, c) securely issuing certified copies to qualified requestors, d) recording any corrections and amendments to the record, e) sealing original records as required by statute, f) developing policies and procedures for data release for research and statistical use.

If an original birth record is sealed, the replacement record will retain the original certificate file number.

Issue Certified Copy of Birth Record

Activity: Each jurisdiction issues certified copies of birth certificates to authorized applicants as defined by statute. Only the jurisdiction in which the birth event was registered may issue a copy of the birth record. Certified birth records are needed to obtain a passport and a driver's license as well as to prove citizenship and assure entry into school or the military, etc. Each jurisdiction sets fees for conducting a

record search and issuing copies. Under certain circumstances, and when allowed by statute, a jurisdiction may issue a non-certified (informational) copy of a birth record.

Note: This activity supports POS Use Case 002: Produce a Copy.

Labor and Delivery

Activity: Within the US, most births occur in birthing facilities, which are either hospitals or freestanding birthing centers. Recording and submission of a birth record to the jurisdiction is the responsibility of the birthing facility where the event took place, even when the mother and/or baby are transferred to another facility immediately after the birth.

When a baby is delivered at home or on route to a birthing facility, it is considered an out-of-facility birth. Home deliveries may be planned or unplanned. They are often attended by a nurse midwife, who would be responsible for recording the birth and reporting it to Vital Records. Births occurring en route to a facility will usually be recorded and submitted to the Vital Records office within the jurisdiction by the facility where the mother is admitted after the birth. The birth of a foundling is usually reported by the hospital where the newborn is taken for medical care.

Program Activities

Activity: By formal agreement between a public health program and a vital records, birth data may be used to populate other program databases, such as an immunization registry, or may be used for program outreach and intervention (as allowed by law). Jurisdictions may also provide birth data to other programs such as Medicaid for such purposes as establishing eligibility for coverage, or to Child Support Enforcement to obtain monetary support for the child.

It is expected that, in the future, there will be wider distribution of birth data to program activities such as newborn screening, newborn hearing and immunization records. Ideally, these data transfers will be automated based on the filing of the birth record.

Register a Birth

Activity: Each jurisdiction's registrar officially registers all live and delayed birth records submitted by a birthing facility, out of institution birth attendant (or by the mother), or delayed birth applicant. The process of registration involves reviewing each record for accuracy and completeness and assigning a state or other jurisdiction file number (SFN) and filing date to each record. Jurisdictions use specific SFN formats for live births. Delayed births are numbered in sequence within the year of birth. Registration creates an officially recorded birth which may not be changed unless formally amended according to jurisdiction law or by rules or policies set forth by the Vital Registrar's Office.

Note: This activity supports EBRS Use Case 018: Register a Record.

Request a Birth Record

Activity: A certified copy of the birth certificate may be requested by the person named on the certificate, an eligible family member, or another individual with a tangible interest in receiving a copy

of the record, as defined by jurisdiction law. Most jurisdictions require proof of identity from an applicant requesting a birth record before providing a certified copy, as well as proof that the applicant is entitled to receive the record. In some jurisdictions, a non-certified copy of a record may be issued. Issued copies of birth certificates contain the legal portion of the record only. The medical portion of the birth record is never issued and is used for statistical purposes only.

Note: This activity supports POS Use Case 001: Enter a Request.

Submit Amendment to Registered Record

Activity: A registered vital record may be amended in accordance with individual state statute and the guidance issued under Section 21 of the Model State Vital Statistics Act and Regulations, also known as Model Law. Guidance for modifying a registered record is also found in MoVERS Use Case 06. Requests for modifications to a registered record may originate with the record holder, a family member with legitimate right to the record, the healthcare facility, or by an official court order. Amendments may only be processed by selected state vital records staff, and must be accompanied by adequate documented evidence of the basis for requesting the amendment. State registrars retain the right to reject an amendment request without sufficient evidence, even if that request comes from a court order.

All amended records must be flagged as amended within the vital records system and must include a complete audit trail of all amendment dates and identities of those processing the amendments. Multiple amendments may be made to a single record, and the system must retain a complete history of those amendments. Some birth records, such as adoptions, require the original record to be sealed once the amendment has been completed; generally, sealed records are not marked as amended when issued. Other types of birth record amendments, such as paternity acknowledgements, name changes, gender reassignments, and other modifications or additions to the demographic or medical portion of the record, follow individual statute in regards to issuance. Typically, non-sealed amended records, when issued as an abstract from an electronic record, show the word "amended" in the certificate title and may list the date(s) and amended items (new and old value) at the bottom of the certificate. When an amended record is issued from a copy of the original, it may show the old data lined through and the amended information above.

Amendments are to be differentiated from minor corrections or additions allowed to be requested to a record within a specific time after recordation without the record indicating that it has been amended. The governance over minor corrections and additions will vary according to jurisdictional statute.

Note: This activity supports MVRS Use Case 006: Modify a Registered Record.

Declaration of Paternity

Object: A legal affidavit acknowledging paternity when the father of the newborn is not married to the mother. The Declaration of Paternity acknowledges parental rights and obligations and allows the father to be listed on the birth certificate.

Medical Record

Object: The official hospital documentation of the history, treatment, diagnoses, and outcomes for a specific patient. In this case, the medical record of the labor and delivery resulting in a live birth. The medical records of the prenatal care provider may also be included in the official hospital records.

Mother's Worksheet Information

Object: Demographic information on the mother and father of the newborn as well as self-reported behavioral risk factors from the mother is collected on the mother's worksheet.

Prenatal Care Record

Object: Information on prenatal care and medical conditions during pregnancy, if provided by the prenatal care provider, will be used by the hospital to complete the Facility Worksheet.

Activity Terminated

ActivityFinal: The flow of activities terminates at this point.

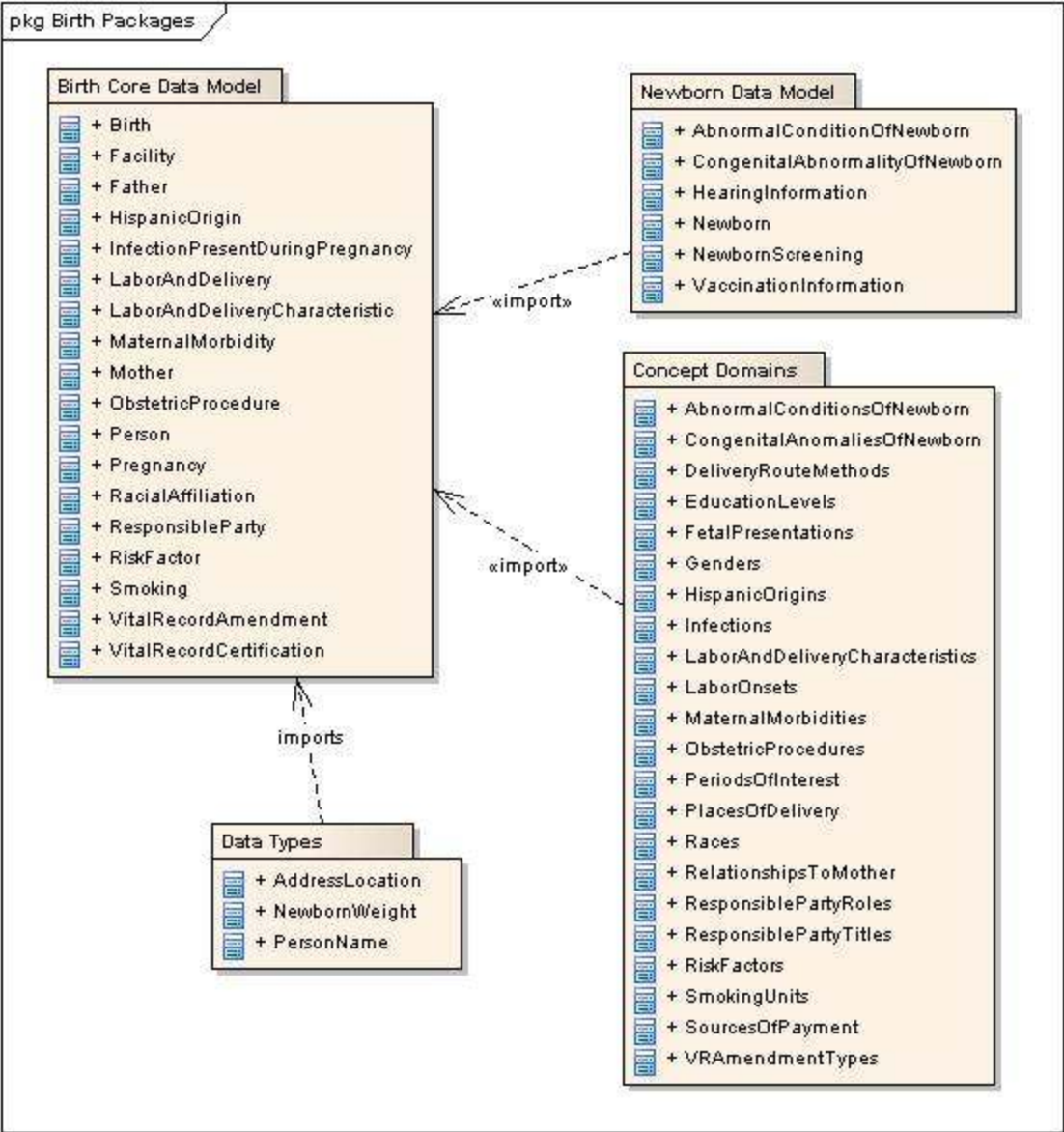
Conception

ActivityInitial: The logical point of initiation for the model is the conception of a fetus.

Go to Fetal Death

ActivityFinal: If, upon delivery, the fetus shows no signs of life, the activity flow is recorded within the Fetal Death Activities model.

Birth Registration Class Model



The included packages provide information on the data that is collected for the child's birth certificate. There are two data model packages, as well as supporting concept domains and data types.

Figure 2: Birth Packages

Birth Core Data Model

The class model for birth information. Note that information that is specific to the newborn has been pulled out to its own package.

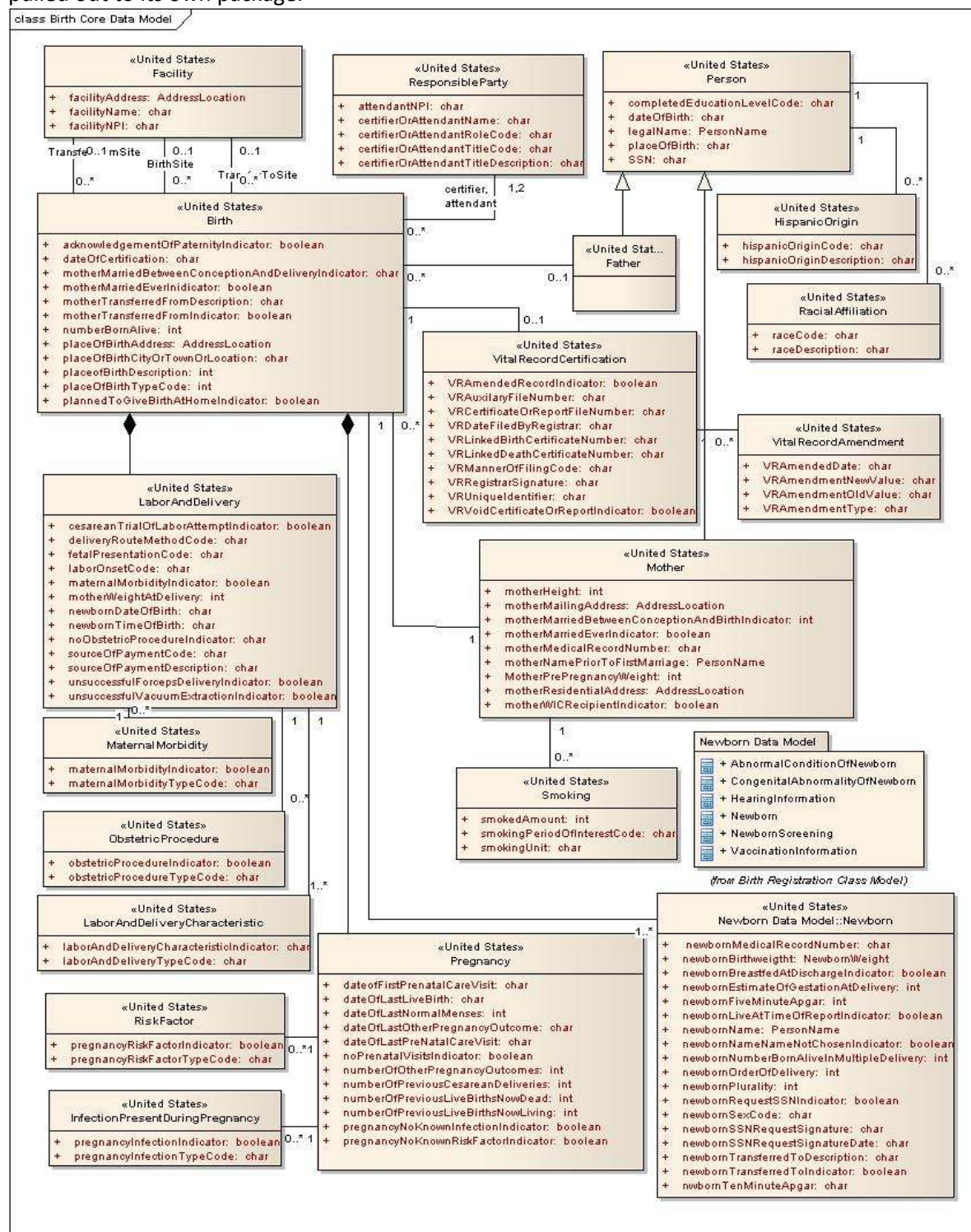


Figure 3: Birth Core Data Model

Birth Core Data Model::Birth

Class: Information collected for each individual birth whether occurring in a single or multiple gestation pregnancy. In order to ease the exposition, the information collected for a birth is split into three classes, with Pregnancy (the prenatal experience), Labor and Delivery, and Delivery collected as separate classes.

Birth Core Data Model::Birth Attributes

Attribute	Type	Notes
acknowledgementOfPaternityIndicator	<i>boolean</i>	A Boolean indicator that states whether or not a paternity acknowledgment form has been completed for infants born to unmarried mothers.
dateOfCertification	<i>char</i>	The date on which the birth was certified by the certifying professional.
motherMarriedBetweenConceptionAndDeliveryIndicator	<i>char</i>	A Boolean indication of whether the mother was married at any time between conception of the baby and its delivery.
motherMarriedEverIndicator	<i>boolean</i>	A Boolean indication of whether the mother has ever been married.
motherTransferredFromDescription	<i>char</i>	A text description of, or name for, the facility the mother was transferred from.
motherTransferredFromIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not the mother was transferred to the birth site from another facility.
numberBornAlive	<i>int</i>	The number of infants born alive in the delivery. The attribute is relevant if the infants are born in a multiple delivery.
placeOfBirthAddress	<i>AddressLocation</i>	The street address of the place where the birth took place. Note, the place of birth attributes are only relevant for deliveries that take place outside of a recognized healthcare facility.
placeOfBirthCityOrTownOrLocation	<i>char</i>	A text description of the place of birth, whether it be a city, a town, or a designation of another type.
placeOfBirthDescription	<i>int</i>	A description of the type of place, e.g. taxi cab, where the birth took place. Only used if the birth place type does not appear within the PlacesOfBirth concept domain. Note, the place of birth attributes are only relevant for deliveries that take place outside of a recognized healthcare facility.
placeOfBirthTypeCode	<i>int</i>	A coded indication of the type of location where birth took place. Note, the place of birth attributes are only relevant for deliveries that take place outside of a recognized healthcare facility. Concept Domain = 'PlacesOfDelivery'
plannedToGiveBirthAtHomeIndicator	<i>boolean</i>	A Boolean indicator stating whether the mother planned to give birth at home.

Birth Core Data Model::Facility

Class: A healthcare facility that provides care to pregnant mothers and newborn infants. For the most part, the facility will be licensed to perform these services.

Facilities are relevant within this model when they serve as places where pregnant women go to deliver a child, or where women or newborns are transferred if needed.

Birth Core Data Model::Facility Attributes

Attribute	Type	Notes
facilityAddress	Address Location	The address at which the facility is located, and that is used to direct mail to the facility.
facilityName	char	The name by which the organization is referred.
facilityNPI	char	A unique identifier for the provider organization. Within the United States, the identifier is known as a National Provider ID, and provided by the Center for Medicare Services (CMS).

Birth Core Data Model::Father

Class Extends: Person. : A person who was legally married to the mother, at any time between conception of this pregnancy and birth, or who has, along with the mother, signed a paternity acknowledgment accepting legal responsibility for the newborn.

The class, which is a specialization of person, has no attributes because none have been identified which are not also captured for the mother.

Birth Core Data Model::HispanicOrigin

Class: Information regarding a person's Hispanic origin. Currently, within the United States, the term "ethnicity" is often also used. For persons of Hispanic background, the code may also indicate the nation or region the person is affiliated with.

Currently, within the standard form used for recording birth data, each recognized Hispanic is captured as a type code value, and whether or not it is reported by the person is captured using the affiliation indicator.

Birth Core Data Model::HispanicOrigin Attributes

Attribute	Type	Notes
hispanicOriginCode	<i>char</i>	A coded indication of the Hispanic origin of the person. If there is no suitable code for the person's Hispanic origin, the descriptive attribute should be used instead. Concept Domain = 'Ethnicities'
hispanicOriginDescription	<i>char</i>	Descriptive text that identifies the Hispanic origin of the person. If the Hispanic origin code is valued, the description provides additional information about the person's origin. If Hispanic origin code is not valued, then the description asserts a Hispanic category that is not addressed by the coding scheme.

Birth Core Data Model::InfectionPresentDuringPregnancy

Class: Information about whether or not various types of infection relevant to pregnancy were present or treated during pregnancy.

Following the conventions of vital statistics recording, each recognized type of infection is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator.

Note, if no infection is present, this will be explicitly indicated.

Birth Core Data Model::InfectionPresentDuringPregnancy Attributes

Attribute	Type	Notes
pregnancyInfectionTypeCode	<i>char</i>	A coded indication of a particular infection that might be present during pregnancy. ConceptDomain = 'Infections'
pregnancyInfectionIndicator	<i>boolean</i>	A Boolean indicator that states whether the mother experienced a particular infection during pregnancy as indicated by the type code value.

Birth Core Data Model::LaborAndDelivery

Class: Information about the labor and delivery component of the birth process.

Birth Core Data Model::LaborAndDelivery Attributes

Attribute	Type	Notes
cesareanTrialOfLaborAttemptIndicator	<i>boolean</i>	A Boolean indicator that states, in the case of a cesarean delivery, whether or not a trial of labor was attempted.
deliveryRouteMethodCode	<i>char</i>	A coded indication of the final route and method of delivery of the newborn. Concept Domain = 'DeliveryRouteMethods'
fetalPresentationCode	<i>char</i>	A coded indication of the position of the fetus at birth. Concept Domain = 'FetalPresentations'
laborOnsetCode	<i>char</i>	A coded indication that characterizes the manner in which labor commenced. Concept Domain = 'LaborOnsets'
motherWeightAtDelivery	<i>int</i>	The weight of the mother at delivery, measured in pounds.
newbornDateOfBirth	<i>char</i>	The date on which the birth took place.
newbornTimeOfBirth	<i>char</i>	The time at which the birth took place. It is recorded using a 24 hour clock.
maternalMorbidityIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was reported to have any of the maternal morbidities listed within the Maternal Morbidity concept domain.
noObstetricProcedureIndicator	<i>char</i>	A Boolean indicator that states whether or not any of the obstetric procedures listed within the ObstetricProcedures concept domain was performed on the mother during this pregnancy.
sourceOfPaymentCode	<i>char</i>	A coded indication of the source of payment for the costs of labor and delivery. This is an indication of the type of insurance coverage for the mother and baby. Concept Domain = 'SourcesOfPayment'
sourceOfPaymentDescription	<i>char</i>	A description of the type of insurance coverage for the mother and baby. The field is used if the actual coverage is not included within the SourcesOfPayment concept domain.
unsuccessfulForcepsDeliveryIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not there was an unsuccessful forceps delivery.
unsuccessfulVacuumExtractionIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not there was an unsuccessful attempt to deliver the baby using vacuum extraction.

Birth Core Data Model::LaborAndDeliveryCharacteristic

Class: A record of possible diagnoses, procedures, or occurrences that took place during the process of labor and delivery.

Following the conventions of vital statistics recording, each recognized labor and delivery characteristic is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator.

Birth Core Data Model::LaborAndDeliveryCharacteristic Attributes

Attribute	Type	Notes
laborAndDeliveryCharacteristicIndicator	char	A Boolean indicator that states whether the mother experienced a particular labor and delivery characteristic as indicated by the type code value.
laborAndDeliveryTypeCode	char	A type of diagnosis, procedure, or occurrence that could take place during the process of labor and delivery. Concept Domain = 'LaborAndDeliveryCharacteristics'

Birth Core Data Model::MaternalMorbidity

Class: Complications affecting the mother associated with labor and delivery.

Following the conventions of vital statistics recording, each recognized morbidity is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator. If no morbidity is present, this will be explicitly indicated.

Birth Core Data Model::MaternalMorbidity Attributes

Attribute	Type	Notes
maternalMorbidityIndicator	boolean	A Boolean indicator that states whether the mother has experienced the morbidity indicated by the type code value.
maternalMorbidityTypeCode	char	A coded indication of a type of disease or condition experienced by the mother during her pregnancy. Concept Domain = 'MaternalMorbidities'

Birth Core Data Model::Mother

Class Extends: **Person.** : The woman who gave birth to the newborn.

Mother is a specialization of Person, and, therefore, the attributes and associations both of person and this class are relevant.

Birth Core Data Model::Mother Attributes

Attribute	Type	Notes
motherHeight	int	The mother's height in inches.

motherMailingAddress	<i>AddressLocation</i>	The postal address that is used to send mail to the mother.
motherMarriedBetweenConceptionAndBirthIndicator	<i>int</i>	A Boolean indicator that states whether or not the mother was married during the period between conception and birth.
motherMarriedEverIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother has ever been married.
motherMedicalRecordNumber	<i>char</i>	An identifier for the medical record established by the provider. It is used to identify a patient within the context of a single healthcare provider.
motherNamePriorToFirstMarriage	<i>PersonName</i>	The name used by the mother prior to her first marriage. If the person has never married, the value will be the same as for the legal name.
MotherPrePregnancyWeight	<i>int</i>	The mother's weight prior to becoming pregnant. Recorded in pounds.
motherResidentialAddress	<i>AddressLocation</i>	The postal address of the mother's residence.
motherWICRecipientIndicator	<i>boolean</i>	A Boolean indicator to show whether the mother is registered as a recipient of aid from the WIC food (special supplemental nutrition program for Women, Infants, and Children) for herself for this pregnancy.

Birth Core Data Model::ObstetricProcedure

Class: Information about whether or not specified obstetric procedures were undertaken during the labor and delivery process.

Following the conventions of vital statistics recording, each recognized obstetric procedure is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator. If no procedure has been performed , this will be explicitly indicated.

Birth Core Data Model::ObstetricProcedure Attributes

Attribute	Type	Notes
obstetricProcedureIndicator	<i>boolean</i>	A Boolean indicator that states whether the particular obstetric procedure was undertaken as indicated by the type code value.
obstetricProcedureTypeCode	<i>char</i>	A type of obstetric procedure that might be performed during the labor and delivery process. Concept Domain = 'Obstetric Procedures'

Birth Core Data Model::Person

Class: A person who is directly involved in the birth process. For this model, the person could be the mother of the child, or the father.

Birth Core Data Model::Person Attributes

Attribute	Type	Notes
completedEducationLevelCode	char	A coded indication of the highest level of education attained by the mother or father. Concept Domain = 'Education Levels'
dateOfBirth	char	The date on which the mother or father was born.
legalName	Person Name	The mother or father's legal name. The name by which they are referred to in official documents and correspondence.
placeOfBirth	char	A text description of the state, territory, or country where the mother or father was born.
SSN	char	An identifier for mother or father's social insurance. In the United States, this is known as the Social Security Number, and is often used as a national identifier for the person. It also may be legally shared with child support programs.

Birth Core Data Model::Pregnancy

Class: Pregnancy is treated as a component of the birth process. It includes information on the mother's experience within the time period between conception and birth.

Birth Core Data Model::Pregnancy Attributes

Attribute	Type	Notes
dateofFirstPrenatalCareVisit	char	The date of the first prenatal care visit.
dateOfLastLiveBirth	char	The date of the mother's last live birth previous to this pregnancy.
dateOfLastNormalMenses	int	The date of the woman's last normal menstrual period.
dateOfLastOtherPregnancyOutcome	char	The date on which the mother's last pregnancy that did not result in a live birth ended.
dateOfLastPreNatalCareVisit	char	The date of the last (most recent) prenatal care visit.

pregnancyNoKnownInfectionIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was diagnosed with or treated for any of the infections listed within the Infections concept domain.
noPrenatalVisitsIndicator	<i>boolean</i>	A Boolean indicator that is used to state whether or not the woman had any prenatal visits during her pregnancy.
numberOfOtherPregnancyOutcomes	<i>int</i>	The total number of other pregnancy outcomes. This includes fetal losses of any gestational age. If this was a multiple delivery, all fetal losses delivered before this infant in the pregnancy should be included.
numberOfPreviousCesareanDeliveries	<i>int</i>	The number of previous cesarean deliveries experienced by the mother.
numberOfPreviousLiveBirthsNowDead	<i>int</i>	The number of children born in previous pregnancies who are now dead.
numberOfPreviousLiveBirthsNowLiving	<i>int</i>	The number of children born to previous pregnancies who are now living.
pregnancyNoKnownRiskFactorIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was reported to have any pregnancy risk factor.

Birth Core Data Model::RacialAffiliation

Class: A racial affiliation of the mother or father as (most typically) reported by the mother. It is possible for a person to report multiple racial affiliations.

Following the conventions of vital statistics recording, each recognized racial category is captured as a type code value, and whether or not it is reported by the person is captured using the affiliation indicator.

Birth Core Data Model::RacialAffiliation Attributes

Attribute	Type	Notes
raceCode	<i>char</i>	A coded value indicating the person's racial affiliation. If there is no suitable code to describe the person's race, then the descriptive attribute should be used instead. Concept Domain = 'Races'
raceDescription	<i>char</i>	Descriptive text that indicates the racial affiliation that is reported by the person. If the race code is valued, the description provides additional information about the person's racial affiliation. If race code is not valued, than the description reports a racial category that is not addressed by the coding scheme.

Birth Core Data Model::ResponsibleParty

Class: A health care practitioner who is involved in the birth process as either a birth attendant or as the practitioner certifying the birth.

Birth Core Data Model::ResponsibleParty Attributes

Attribute	Type	Notes
certifierOrAttendantName	char	The personal name the attendant at birth or birth certifier goes by.
attendantNPI	char	A unique identifier for the attendant at birth. Within the United States, the identifier is known as a National Provider ID, and provided by the Centers for Medicare and Medicaid Services (CMS).
certifierOrAttendantRoleCode	char	A coded indication of the role played by the responsible party. It indicates whether they are certifier or attendant. ConceptDomain = 'ResponsiblePartyRoles'
certifierOrAttendantTitleCode	char	The professional certification or title held by the person, which indicates their qualification to attend at or certify a birth. E.g., nurse midwife, MD, DO. Concept Domain = 'ResponsiblePartyTitles'
certifierOrAttendantTitleDescription	char	A text description of the person's title or credentials. This attribute is used if the person's qualifications do not fit within the defined list of titles.

Birth Core Data Model::RiskFactor

Class: Information about whether or not various known risk factors for pregnancy were present.

Attribute	Type	Notes
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pregnancyRiskFactorIndicator	<i>boolean</i>	A Boolean indicator that states whether the mother experienced a particular risk factor of pregnancy as indicated by the type code value.
pregnancyRiskFactorTypeCode	<i>char</i>	A coded indication of a particular risk factor that might be present during pregnancy. Concept Domain = 'Risk Factors'

Following the conventions of vital statistics recording, each recognized risk factor is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the risk factor indicator. Note, if no risk factor is present, this will be explicitly indicated.

Birth Core Data Model::RiskFactor Attributes

Birth Core Data Model::Smoking

Class: Information about the mother's tobacco smoking experience during and before pregnancy.

Birth Core Data Model::Smoking Attributes

Attribute	Type	Notes
smokingPeriodOfInterestCode	<i>char</i>	A coded indication of the period(s) before and during pregnancy within which the mother smoked cigarettes. Concept Domain = 'PeriodsOfInterest'
smokedAmount	<i>int</i>	The average amount of cigarettes or cigarette packs (as indicated by the smoking unit) smoked during the time period of interest.
smokingUnit	<i>char</i>	A coded indication of whether the mother's smoking behavior is indicated in packs of cigarettes or in single cigarettes. Concept Domain = 'SmokingUnits'

Birth Core Data Model::VitalRecordAmendment

Class: From time to time, a vital record may be amended. This class contains information that is captured for each amendment.

Birth Core Data Model::VitalRecordAmendment Attributes

Attribute	Type	Notes
VRAmendedDate	<i>char</i>	The date an amendment to a registered record is recorded in the system by the individual processing the

		amendment.
VRAmendmentNewValue	<i>char</i>	The content of a specific field in a registered vital record after it is amended.
VRAmendmentOldValue	<i>char</i>	The content of a specific field in a registered vital record prior to its being amended.
VRAmendmentType	<i>char</i>	A codified indication of the type of amendment to be processed.

Birth Core Data Model::VitalRecordCertification

Class: The class captures registration related information that is recorded once a vital record has been filed with the vital statistics registry. Vital records are filed for a birth, a death, and a fetal death.

The information in this class has been defined for consistency across the vital records maintained for births, deaths, and fetal deaths. Some of the attributes will not be valid for all record types.

Birth Core Data Model::VitalRecordCertification Attributes

Attribute	Type	Notes
VRAmendedRecordIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not the record has been amended. Issued copies of a flagged record may or may not indicate that the record has been amended, depending on state statute and the type of amendment.
VRAuxiliaryFileNumber	<i>char</i>	An auxiliary filing identifier for the report. It may be used to indicate the file's number with a local (as opposed to state or other central jurisdictional) registry.
VRCertificateOrReportFileNumber	<i>char</i>	A filing identifier that is assigned to a vital record when it is registered by the jurisdiction, either electronically or manually; also known as a State File Number (SFN). The number format is unique to each jurisdiction. If an original birth record is sealed, the replacement record will retain the original certificate file number.
VRDateFiledByRegistrar	<i>char</i>	The date that the record was filed with the vital statistics registry.
VRLinkedBirthCertificateNumber	<i>char</i>	The identifier of the birth certificate which is linked to this certificate. This information is only captured for death certificates.

VRLinkedDeathCertificateNumber	char	The identifier of the death certificate which is linked to this certificate. This information is only captured for birth certificates.
VRMannerOfFilingCode	char	A coded indication of the manner in which the certificate or report was filed. This information is only captured for death certificates.
VRRegistrarSignature	char	A text or graphic indication of a person's signature as affixed to the vital record.
VRUniquelIdentifier	char	A unique identifier automatically generated by an electronic vital records system to identify an electronic record. This identifier is retained with the electronic record throughout its life cycle.
VRVoidCertificateOrReportIndicator	boolean	A Boolean indicator that states whether or not the certificate identified by the file number is a void certificate.

Newborn Data Model

Data that are collected specifically for the newborn.

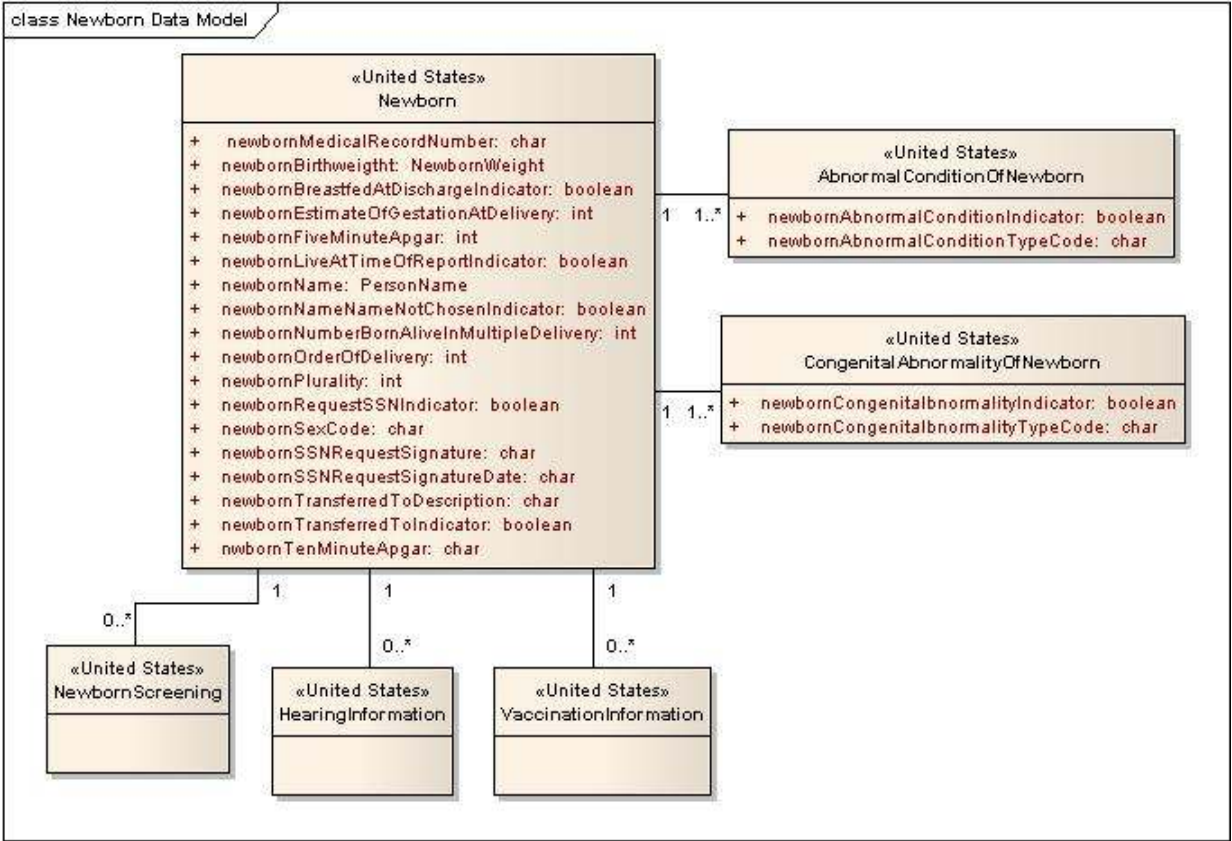


Figure 4: Newborn Data Model

Newborn Data Model::AbnormalConditionOfNewborn

Class: A morbidity experienced by the newborn.

Following the conventions of vital statistics recording, each recognized abnormal condition is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the abnormal condition indicator. If no abnormal condition is present, this will be explicitly indicated.

Newborn Data Model::AbnormalConditionOfNewborn Attributes

Attribute	Type	Notes
newbornAbnormalConditionIndicator	<i>boolean</i>	A Boolean indicator that states whether the infant experienced the abnormal condition indicated by the type code value.
newbornAbnormalConditionTypeCode	<i>char</i>	A coded indication of a type of abnormal condition experienced by the infant on delivery. Concept Domain = 'AbnormalConditions'

Newborn Data Model::CongenitalAnomalyOfNewborn

Class: A malformation of the newborn that was diagnosed prenatally or immediately after delivery.

Following the conventions of vital statistics recording, each recognized type of malformation is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator. If no congenital anomaly is present, this will be explicitly indicated.

Newborn Data Model::CongenitalAnomalyOfNewborn Attributes

Attribute	Type	Notes
newbornCongenitalAnomalyIndicator	<i>boolean</i>	A Boolean indicator that states whether the infant suffers from the malformation indicated by the type code value.
newbornCongenitalAnomalyTypeCode	<i>char</i>	A coded indication of a type of malformation experienced by the infant. Concept Domain = 'CongenitalAnomalyOfNewborn'

Newborn Data Model::HearingInformation

Class: Information on the hearing abilities of the newborn.

The best way to model the attributes for hearing screening will be determined at a later date. Attributes will be added at that point.

Newborn Data Model::Newborn
Class: Information about a newborn child.

Attribute	Type	Notes
newbornMedicalRecordNumber	<i>char</i>	The medical record number assigned to the newborn by the birthing facility.
newbornBirthweight	<i>NewbornWeight</i>	The weight of the baby at birth in grams (preferred), in ounces, or in pounds and ounces.
newbornBreastfedAtDischargeIndicator	<i>boolean</i>	A Boolean indicator stating whether the infant is being breastfed at discharge.
newbornEstimateOfGestationAtDelivery	<i>int</i>	The birth attendant's estimate of the gestational age of the infant at delivery. It is based on all perinatal factors and assessments, but not the neonatal exam. The gestation estimate should not be computed based on the date of the last menstrual period and the date of birth.
newbornFiveMinuteApgar	<i>int</i>	The Apgar score at five minutes after birth.
newbornLiveAtTimeOfReportIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the baby was living at the time of completion of the birth certificate. If the baby has already been discharged to home care, the answer should be "Yes".
newbornName	<i>PersonName</i>	The newborn's legal name. The name by which they are referred to in official documents and correspondence.
newbornNameNameNotChosenIndicator	<i>boolean</i>	A Boolean indicator that states whether or not a name has been chosen for the infant.
newbornOrderOfDelivery	<i>int</i>	The element will only be valued in the case of multiple births. The order that the infant was delivered in the pregnancy. The value should include all live births and fetal losses delivered in the pregnancy.
newbornPlurality	<i>int</i>	The number of live births and fetal deaths resulting from the pregnancy.
newbornRequestSSNIndicator	<i>boolean</i>	A Boolean indicator stating whether or not assignment of a social insurance number is being requested for the child.
newbornSexCode	<i>char</i>	A coded indication of the gender of the infant. Concept Domain = 'Genders'
newbornSSNRequestSignature	<i>char</i>	A text block with the signature of person requesting assignment of the social insurance number.
newbornSSNRequestSignatureDate	<i>char</i>	The date on which the request for social insurance number was signed.

Newborn Data Model::Newborn Attributes		
Attribute	Type	Notes
newbornTransferredToDescription	<i>char</i>	A text name of the facility that the newborn was transferred to.
newbornTransferredToIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not the infant was transferred from the birth site to another facility within 24 hours of delivery.
nwbornTenMinuteApgar	<i>char</i>	The Apgar score at 10 minutes after birth. The score will normally only be recorded if the 5 minute Apgar score was less than 6.
newbornNumberBornAliveInMultipleDelivery	<i>int</i>	The number of live births resulting from the pregnancy.

Newborn Data Model::NewbornScreening

Class: Information on the screening activities carried out to evaluate the condition of the newborn.

The best way to model the attributes for newborn screening will be determined at a later date. Attributes will be added at that point.

Newborn Data Model::VaccinationInformation

Class: Information on vaccines that were provided to the newborn.

The best way to model the attributes for newborn vaccinations will be determined at a later date. Attributes will be added at that point.

Concept Domains

A collection of the concept domains that are relevant to the Birth model. A concept domain has been defined as "The set of all concepts that can be taken as valid values in an instance of a coded attribute or field." (HL7 Version 3 Glossary)

Concept Domains::AbnormalConditionsOfNewborn

Attribute	Type	Notes
antibioticsForSuspectedNeonatalSepsis	char	
assistedVentilationFollowingDelivery	char	
assistedVentilationGreaterThanSixHours	char	
neonatalIntensiveCareUnitAdmission	char	
noListedConditions	char	
seizureOrSeriousNeurologicDysfunction	char	
significantBirthInjury	char	
surfactantReplacementTherapy	char	
unknownAbnormalCondition	char	

Class: A collection of the possible abnormal conditions that may be recorded for a newborn.

Concept Domains::AbnormalConditionsOfNewborn Attributes

Concept Domains::CongenitalAnomalyOfNewborn

Class: A collection of the possible congenital anomalies that may be recorded for a newborn.

Concept Domains::CongenitalAnomalyOfNewborn Attributes

Concept Domains::DeliveryRouteMethods

Class: A collection of the possible methods by which the infant may be delivered.

Attribute	Type	Notes
cesarean	char	
vaginalForceps	char	
vaginalSpontaneous	char	
vaginalVacuum	char	
unknownMethodOfDelivery	char	

Concept Domains::DeliveryRouteMethods Attributes

Concept Domains::EducationLevels

Class: A collection of the different education levels that may be attained by a person.

Concept Domains::EducationLevels Attributes

Attribute	Tyoe	Notes
Attribute	Type	Notes
anencephaly	char	
bachelorsDegree	char	
cleftLipWithOrWithoutCleftPalate	char	
collegeCredit	char	
cleftPalateAlone	char	
doctorateOrProfessionalDegree	char	
congenitalDiaphragmaticHernia	char	
eightGradeOrLess	char	
cyanoticCongenitalHeartDisease	char	
highSchoolGraduateOrGEP	char	
downSyndromeKaryotypeUnknown	char	
mastersDegree	char	
downSyndromeWithKaryotypeConfirmed	char	
ninthTenthGradeNoDiploma	char	
downSyndromeWithKaryotypePending	char	
unknown		
gastroschisis	char	
hypospadias	char	
limbReductionDefect	char	
meningomyeloceleSpinaBifida	char	
noListedAnomaly	char	
omphalocele	char	
suspectedChromosomalDisorderKaryotypeUnknown	char	
suspectedChromosomalDisorderWithKaryotypeConfirmed	char	
suspectedChromosomalDisorderWithKaryotypePending	int	
unknownCongenitalAnomaly	char	

Concept Domains::FetalPresentations

Class: A collection of the different presentations (orientations within the mother's womb) that a fetus may be in prior to delivery.

Concept Domains::FetalPresentations Attributes

Attribute	Type	Notes
breech	char	
cephalic	char	
other	char	

Concept Domains::HispanicOrigins

Class: A collection of different categories used to provide information on whether or not a person has a Hispanic background or heritage, and, if so, the specific Hispanic origin. Note, this collection of concepts is also often known as Ethnicity.

In the United States, federal standards for classifying data on ethnicity or Hispanic origin determine the categories used by federal agencies and exert a strong influence on categorization by state and local agencies and private sector organizations. The federal standards do not conceptually define Hispanic origin, and they recognize the absence of an anthropological or scientific basis for this classification. Instead, the federal standards acknowledge that ethnicity is a social-political construct in which an individual's own identification with a particular ethnicity is preferred to observer identification. The standards specify two minimum Hispanic origin categories: Hispanic or Latino, and Not Hispanic or Latino. The standards define a Hispanic or Latino as a person of "Mexican, Puerto Rican, Cuban, South or Central America, or other Spanish culture or origin, regardless of race." The standards stipulate that Hispanic origin data need not be limited to the two minimum categories, but any expansion must be collapsible to those categories. In addition, the standards stipulate that an individual can be Hispanic or Latino or can be Not Hispanic or Latino, but cannot be both.

Concept Domains::HispanicOrigins Attributes

Attribute	Type	Notes
notSpanishHispanicLatino	char	
yesCuban	char	
yesMexicanMexicanAmericanChicano	char	
yesOtherSpanishHispanicLatino	char	
yesPuertoRican	char	

Concept Domains::Infections

Class: A coded indication of a particular type of infection that might be present during pregnancy.

Attribute	Type	Notes
chlamydia	char	
gonorrhea	char	
hepatitisB	char	
hepatitisC	char	
noneOfTheAbove	char	
syphilis	char	
unknown	char	

Concept Domains::Infections Attributes

Concept Domains::LaborAndDeliveryCharacteristics

Class: A collection of possible procedures or situations that may be encountered during the labor and delivery process.

Concept Domains::LaborAndDeliveryCharacteristics Attributes

Attribute	Type	Notes
antibioticsDuringLabor	char	
augmentationOfLabor	char	
diagnosisOfClinicalChorioamnionitis	char	
epiduralOrSpinalAnesthesia	char	
fetalIntoleranceOfLabor	char	
inductionOfLabor	char	
moderateHeavyMeconiumStaining	char	
noneOfTheAbove	char	
nonVertexPresentation	char	
steroidsPriorToDelivery	char	
unknown	char	

Concept Domains::LaborOnsets

Class: A collection of ways in which the onset of labor is characterized.

Attribute	Type	Notes
noListedOnsets	char	
precipitousLabor	char	
prematureRuptureOfMembranes	char	
prolongedLabor	char	

Concept Domains::LaborOnsets Attributes

Concept Domains::MaternalMorbidities

Class: A collection of diseases or conditions that may be suffered by the mother during the process of labor and delivery.

Attribute	Type	Notes
admissionToIntensiveCareUnit	char	
maternalTransfusion	char	
rupturedUterus	char	
thirdOrFourthDegreePerinealLaceration	char	
noneOfTheAbove	char	
unplannedHysterectomy	char	
unplannedOperatingRoomProcedure	char	

Concept Domains::MaternalMorbidities Attributes

Concept Domains::ObstetricProcedures

Class: A collection of procedures that may be used during the delivery process.

Concept Domains::ObstetricProcedures Attributes

Attribute	Type	Notes
cervicalCerclage	char	
externalCehaplicVersionSucessful	char	
externalCephalicVersionFailed	char	
noneOfTheAbove	char	
tocolysis	char	

Concept Domains::PeriodsOfInterest

Class: A collection of different periods of interest that are used to record a mother's tobacco smoking use. The periods used categorize the tobacco use during the mother's pregnancy.

Concept Domains::PeriodsOfInterest Attributes

Attribute	Type	Notes
firstThreeMonthsOfPregnancy	char	
secondThreeMonthsOfPregnancy	char	
thirdTrimesterOfPregnancy	char	
threeMonthsBeforePregnancy	char	

Concept Domains::PlacesOfDelivery

Class: A collection of different kinds of setting in which a birth could take place.

Concept Domains::PlacesOfDelivery Attributes

Attribute	Type	Notes
clinicOrDoctorsOffice	char	
freestandingBirthCenter	char	
homeBirth	char	
hospital	char	

Concept Domains::Races

Class: A collection of different categories used to provide information on a person's background or heritage.

In the United States, federal standards for classifying data on race determine the categories used by federal agencies and exert a strong influence on categorization by state and local agencies and private sector organizations. The federal standards do not conceptually define race, and they recognize the absence of an anthropological or scientific basis for racial classification. Instead, the federal standards acknowledge that race is a social-political construct in which an individual's own identification with one or more race categories is preferred to observer identification. The standards use a variety of features to define five minimum race categories. Among these features is descent from "the original peoples" of a specified region or nation. The minimum race categories are American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. The federal standards stipulate that race data need not be limited to the five minimum categories, but any expansion must be collapsible to those categories. For example, it is common to identify membership in a Native American tribe using a detailed code that hierarchically depends on the code for American Indian or Alaska Native

within the coding system used to indicate racial categories.

Attribute	Type	Notes
americanIndianOrAlaskanNative	char	
asianIndian	char	
blackOrAfricanAmerican	char	
chinese	char	
filipino	char	
guanianianOrChamorro	char	
japanese	char	
korean	char	
nativeHawaiian	char	
otherAsian	char	
otherDesignatedCategory	char	
otherPacificIslander	char	
samoan	char	
vietnamese	char	
white	char	
unknown	char	

Concept Domains::Races Attributes

Concept Domains::RelationshipsToMother

Class: A collection of different kinds of ways the person providing birth information may be related to

Attribute	Type	Notes
fatherOfBaby	char	
hospitalEmployee	char	
other	char	
otherRelative	char	

the mother.

Concept Domains::RelationshipsToMother Attributes

Concept Domains::ResponsiblePartyRoles

Class: A list of the different roles played by a party who is responsible for the birth process.

Concept Domains::ResponsiblePartyRoles Attributes

Attribute	Type	Notes
certifier	char	

attender	char	
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Attribute	Type	Notes
certifiedNurseMidwifeOrCertifiedMidwife	char	
doctorOfOsteopathy	char	D.O.
hospitalAdministratorOrDesignee	char	
medicalDoctor	char	M.D.
otherMidwife	char	

Concept Domains::ResponsiblePartyTitles

Class: A collection of the titles used to designate different professional qualifications of a person who is responsible for an aspect of the birth process.

Attribute	Type	Notes
assistedReproductiveTechnology	char	
diabetesGestational	char	
diabetesPrepregnancy	char	
eclampsia	char	
fertilityEnhancingDrugsOrArtificialInsemination OrIntrauterineInsemination	char	
hypertensionGestational	char	
hypertensionPrepregnancy	char	
noneOfTheAbove	char	
otherPreviousPoorPregnancyOutcome	char	
pregnancyResultingfromInfertilityTreatment	char	
previousCesareanDelivery	char	
previousPretermBirths	char	
unknown	char	

Concept Domains::ResponsiblePartyTitles Attributes

Concept

Domains::RiskFactors

Class: A coded indication of a particular risk factor that might be present during pregnancy.

Concept Domains::RiskFactors Attributes

Concept Domains::SmokingUnits

Class: A collection of different units used to record a person's cigarette smoking behavior.

Concept Domains::SmokingUnits Attributes

Attribute		Type	Notes
in cigarette pack	Attribute	Type	Notes
	CHAMPUS/TRICARE	char	
	indianHealthService	char	
	medicaid	char	
	other	char	
	otherGovernment	char	
	privateInsurance	char	
	selfPay	char	
	unknown	char	

Concept Domains::SourcesOfPayment

Class: The source of payment (e.g., type of insurance) for the delivery.

Attribute	Type	Notes
formalAmendment	char	Formal amendment, which includes but is not limited to name changes, paternity acknowledgements, legitimations, denials of paternity, gender reassignment, modifications to hospital record, modified cause of death, and requires approved evidentiary documentation.
mnorCorrectionOrAddition	char	A minor correction or addition, usually within a specified time after registration, which may or may not be considered an amendment.
replacementRecordAmendment	char	An amendment that requires the original record to be sealed and a replacement record, not identified as an amended record, to be substituted.

Concept Domains::SourcesOfPayment Attributes

Concept Domains::VRAmendmentTypes

Class: A list of types of amendments to a vital record.

Concept Domains::VRAmendmentTypes Attributes

Allowed Responses Table::Genders

Class: A collection of the possible genders recorded for a person.

Allowed Responses Table::Genders Attributes

Attribute	Type	Notes
female	<i>char</i>	
unknown	<i>char</i>	
male	<i>char</i>	

Data Types

The package is used to manage non-atomic data types used within the Birth Registration model. It includes more or less complex structures that do not correspond to the data types used in database management systems, or to the data types supported by the Enterprise Architect tool.

Data Types::AddressLocation

Class: This data type contains the component parts of a person or organization's address as commonly

Attribute	Type	Notes
apartmentNumber	<i>char</i>	The number or other identifier, e.g., 23B, for an apartment within a building.
cityOrTownOrLocation	<i>char</i>	A text indication of the city, town or other location type that is recorded for the address.
country	<i>char</i>	The country that the address is situated within. If resident in the United States of America, do not value.
county	<i>char</i>	The county that the address is situated within.
numberAndStreet	<i>char</i>	The street name and number for the address. This address feature is sometimes known as a "Street Address Line".
state	<i>char</i>	The state or province that the address is located within.
withinCityLimitsIndicator	<i>char</i>	A Boolean indicator that states whether the address is within the limits of a recognized city or town.
zipCode	<i>char</i>	The zip or postal code that is used by the postal service for routing mail to the address.

constructed within the United States.

Data Types::AddressLocation Attributes

Data Types::NewbornWeight

Class: The weight of a newborn may be recorded either in grams or in ounces (The use of grams is preferred). However, by convention, it is also possible to record the weight in pounds and ounces where 1 pound -16 ounces. Both a value and a unit of measure are recorded. In the case where pounds and ounces are valued, the amount is expressed as a composite string with "/" as a separator. I.e., 7/8 seven pounds and eight ounces.

Data Types::NewbornWeight Attributes

Attribute	Type	Notes
amount	<i>char</i>	The weighed amount. If expressed in pounds and ounces, the weight is expressed as two integer values with "/" as a separator.

unitOfMeasure	<i>char</i>	The unit of measure. Three units are supported: gram, ounce, and pound/ounce.
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Attribute	Type	Notes
firstName	<i>char</i>	The name which the person takes as their first name (a given name).
lastName	<i>char</i>	The name which the person takes as their last name or surname.
middleName	<i>char</i>	The name which the person takes as their middle name (a given name).
nameSuffix	<i>char</i>	The text which the person uses as their name suffix, e.g., Jr.

Data Types::PersonName

Class: This data type contains the component parts of a person's name as commonly constructed within the United States.

Data Types::PersonName Attributes

Death Model: US Realm

Death Registration Activities

The model represents the processes that are followed to record and register the death of a person. In the United States, registration of vital events is the responsibility of 57 vital records jurisdictions representing 50 states, 5 territories, Washington, DC and New York City. Vital statistics are reported to the National Center for Health Statistics, a Center within the Centers for Disease Control and Prevention (CDC). The experience of state and federal vital records officials has been drawn on for the contents of the model.

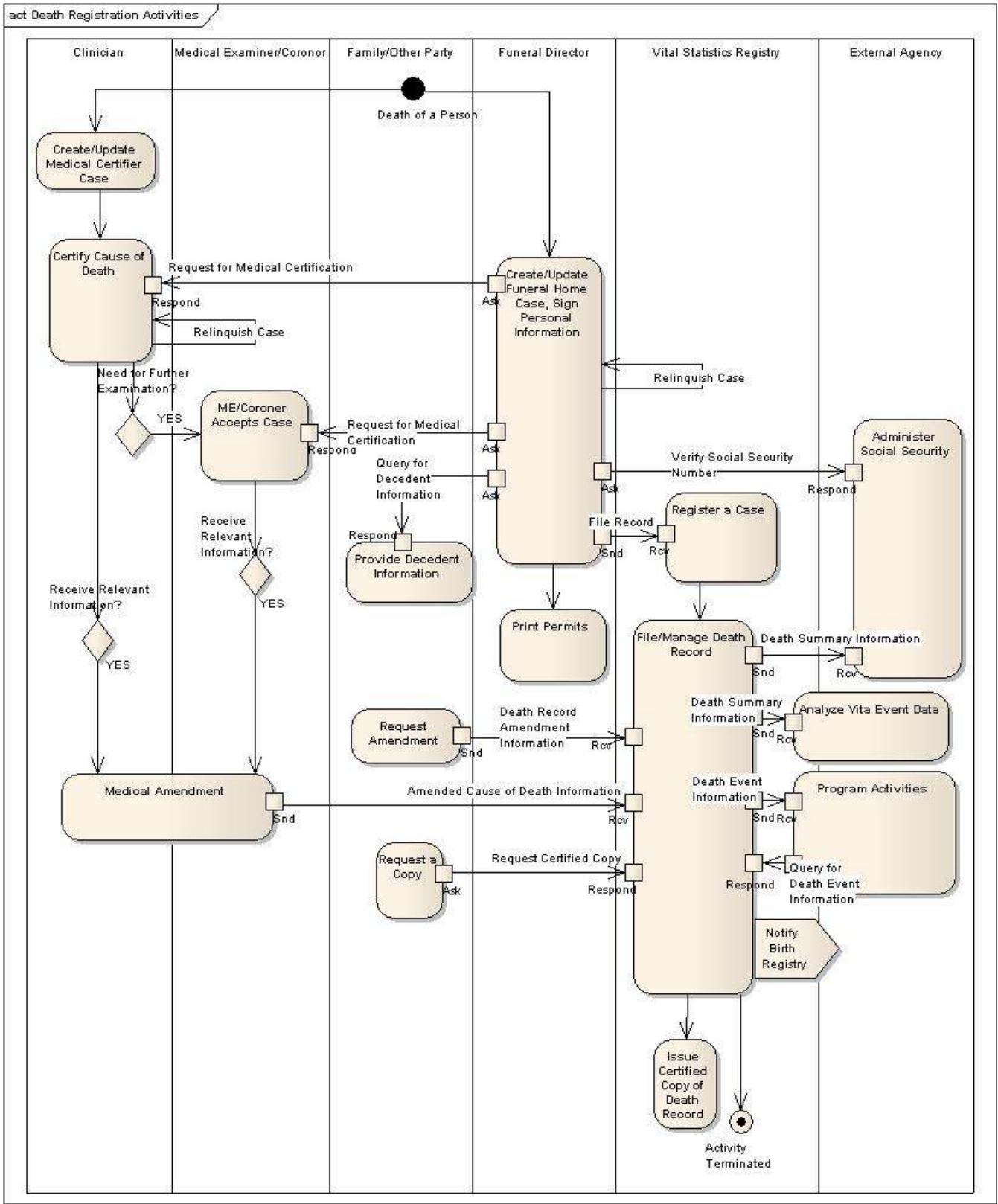


Figure 5: Death Registration Activities

Administer Social Security

Activity: In the United States, the Social Security Administration (SSA) provides identifiers for persons,
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Domain Analysis Model

and collects wage and salary information in order to provide income after retirement or injury. One aspect of this function is to verify the Social Security Number provided for the decedent. In addition, the SSA needs to receive information about a person's death in order to stop social security payments.

Analyze Vita Event Data

Activity: The analysis and publication of vital statistics data in summary form are important functions that use data provided by the vital statistics office of the controlling jurisdiction. Within the US, this function is carried out at various levels. These include, but are not limited to local, state and federal vital statistics organizations.

Within the Federal government, publishing and using summary vital data is primarily managed by the National Center for Health Statistics (NCHS). NCHS receives information on deaths through transmissions from jurisdiction vital statistics offices. Analytic functions are also carried out at state and local levels by the applicable vital statistics or public health agency.

Certify Cause of Death

Activity: When a person dies, the fact of death and its cause must be certified. The certification of cause of death is normally completed by attending clinician, clinician last in attendance, medical examiner, coroner, or other persons with legal authority to pronounce death. However, in some circumstances -which vary depending on the controlling jurisdiction -further inquiry will be required. In those situations, the body will be referred to the medical examiner or coroner who will provide the cause of death information.

Create/Update Funeral Home Case, Sign Personal Information

Activity: Before a person's death can be registered, it is necessary to obtain the personal data that will be required for the death certificate, as well as the medical data provided by the certifying clinician, medical examiner or coroner. This is done by the funeral director or person acting as such who first assumes custody of the body.

The creation of a case allows the funeral home to manage the data for the decedent within a death registration application or through using some other method. As new information is obtained, or as changes need to be recorded, the case is updated. Once needed information is complete, the funeral director will provide the needed signature for the personal information.

In some jurisdictions, the funeral director will provide a notification of death to the vital statistics registry in advance of formally filing the death certificate.

Create/Update Medical Certifier Case

Activity: When a person dies, persons with legal authority to do so will pronounce death and record the time of death to the extent possible. These individuals may be the attending clinician, clinician last in attendance, medical examiner, coroner, or other persons with legal authority to pronounce death.

After a person dies, and the case has been recorded, the medical provider may initiate creation of a death certificate, or begin entering data on a death certificate that has no medical provider associated with it. If necessary, the certificate will be updated as new or changed information needs to be recorded.

File/Manage Death Record

Activity: The registrar or Office of Vital Statistics of the pertinent jurisdiction, is responsible for receiving and filing the death certificate that records pertinent facts surrounding a person's death and for maintaining this information so that it can be made available for administrative, statistical and epidemiologic uses.

The organization of vital statistics registration varies across jurisdictions. In some cases, there is a single state or other jurisdictional office, while in other cases records can be filed with local registrars.

Maintenance of death records requires, among other activities, managing requests for records and mortality statistics and data files, the issuing of certified copies, and requests for amendments to the record.

Issue Certified Copy of Death Record

Activity: One responsibility of the jurisdictional Office of Vital Statistics is to issue death certificates when these are needed for such purposes as claiming life insurance payments and settling estates. Selling these certificates is often a significant source of revenue for carrying out vital statistics functions. The certified copy is provided to authorized applicants as defined by law.

ME/Coroner Accepts Case

Activity: Law in the controlling jurisdiction defines the circumstances under which a medical examiner or coroner will take control of a decedent's case in order to clearly determine the cause of death. In all jurisdictions, if the manner of the person's death is not due to natural causes, e.g., homicide, a further inquiry into the cause of death will be mandated. However, such an inquiry may be required for natural deaths depending on the circumstances and the applicable legislation. The goal of the inquiry is to clearly determine the circumstances surrounding the death, and to definitively establish the cause(s) of death and especially the underlying cause(s) that led to death.

Medical Amendment

Activity: The death certificate may need to be filed before all the information needed to certify the cause or causes of death is available. In such cases, when more information becomes available, for example if toxicity reports have been received, it may be necessary to file a medical amendment to the death certificate. This process is likely to be followed whenever additional information is received which requires modification of the medical sections of the death record. This is more common among medical examiner/coroners.

Print Permits

Activity: Once the cause of death has been determined to the satisfaction of the competent authority

(state, local or other jurisdictional type registrar), the body of the decedent can be released for disposition. In order for the disposition to take place, depending on the jurisdiction, it may be necessary to provide the necessary permits.

In those cases in which determination of the cause of death is still underway, there may be a need for a particular permit (cremation approval) to allow cremation of the decedent's remains.

Program Activities

Activity: Jurisdictions exchange death data with a number of public health and external agencies for the purposes of statistical analysis, fraud protection and the deactivation of records of deceased individuals from program databases. Examples include the exchange of death data with state child health registries and disease registries; infant and child hospital death review committees; state eligibility programs (e.g., retirement, Medicaid); voter registration; child support enforcement; and the National Violent Death Reporting System (NVDRS), as allowed by state statute. Death data is also routinely transmitted to the Social Security Administration and the National Center for Health Statistics.

Provide Decedent Information

Activity: On request from the funeral director, family members or other informed parties will provide the personal data that is needed for the death record.

Register a Case

Activity: When the needed information has been assembled, the death registration is filed with the jurisdictional office of vital statistics. This will normally be done within 5 days after death or the finding of a dead body.

Request a Copy

Activity: A record of the death certificate may be issued on request by to an authorized applicants as defined by statute. In such circumstances, it is common for funeral directors to request the copy on behalf of the family.

It is also possible for organizations involved in program activities or data analysis to request a copy of the certificate.

Request Amendment

Activity: If needed, a family member of the decedent or another interested party may request an amendment to the death record in order to correct mistakes that appear on the record. Depending on the circumstances, the registrar may request judicial review of the request and/or judicial sanction for any changes.

Activity Terminated

ActivityFinal: The flow of activities terminates at this point.

Death of a Person

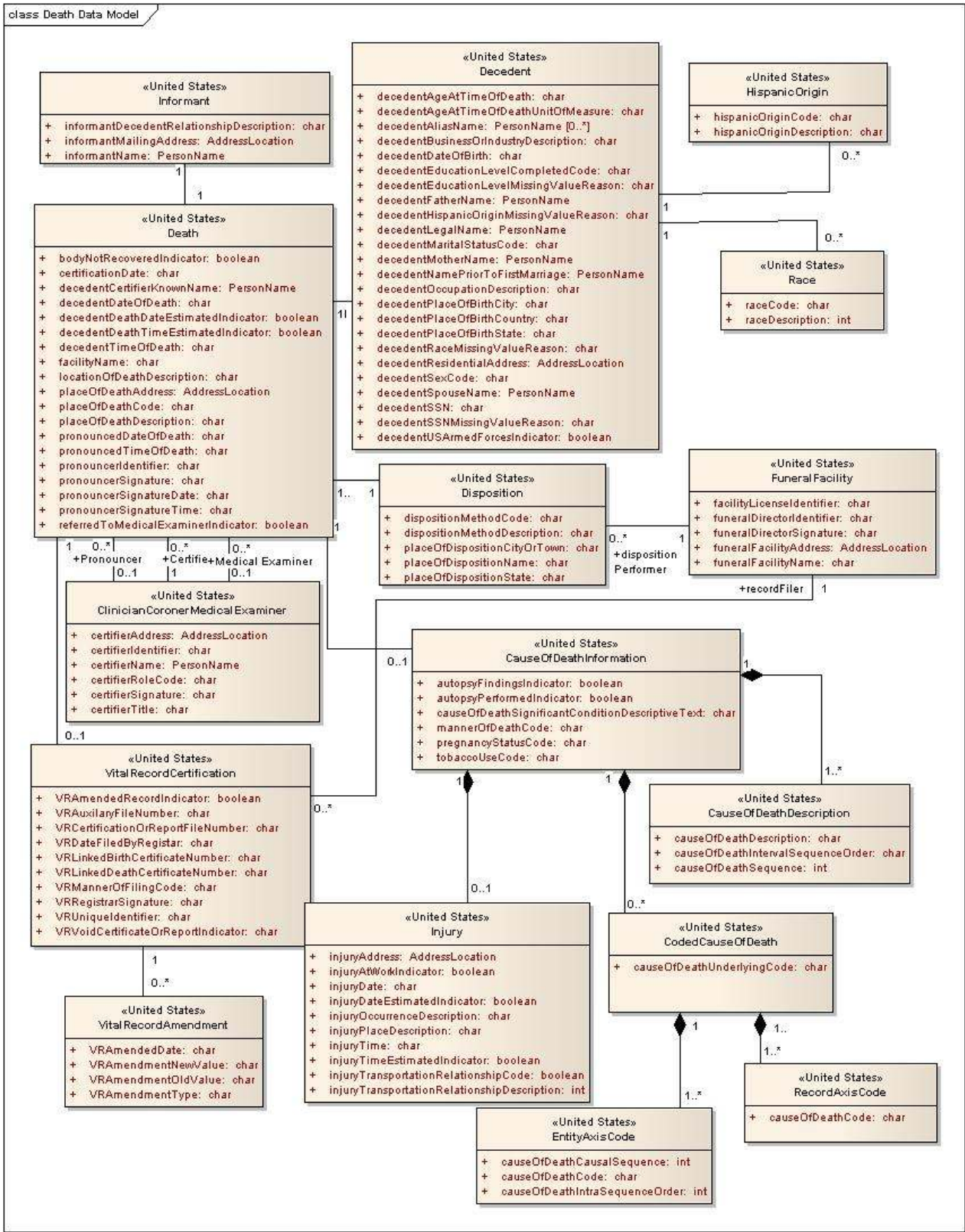
ActivityInitial: The process of death registration starts with the death of a person.

Death Registration Class Model

The class model includes the data needed to support the creation of death certificates. There is single data model package, as well as supporting concept domains and data types.

Death Data Model

Figure 6: Death Data Model



Death Data Model::CauseOfDeathDescription

Class: Information related to the cause of the person's death as provided by the responsible clinician, coroner or medical examiner. This information about the cause of death is treated as one or more text entries arranged in causal sequence. It is desirable, as stated on the US Standard Death certificate, to include a single cause in each text entry, however, that restriction is not always followed, nor is it assumed in the subsequent coding step.

Death Data Model::CauseOfDeathDescription Attributes

Attribute	Type	Notes
causeOfDeathSequence	<i>int</i>	An indication of the sequence in which conditions or diseases occurred, and of their causal ordering. Note, the immediate cause of death should be given #1 in the sequence, and the cause considered the reported underlying cause is that which has the highest integer value assigned for this variable.
causeOfDeathDescription	<i>char</i>	Descriptive text that indicates one or more diseases, injuries, or complications that were implicated as a cause of the person's death.
causeOfDeathIntervalSequenceOrder	<i>char</i>	A measure of the time interval between the onset of the disease, injury or complication, and the person's death.

Death Data Model::CauseOfDeathInformation

Class: Information relating to the decedent's cause of death.

Attribute	Type	Notes
autopsyFindingsIndicator	<i>boolean</i>	An indicator that states whether findings from an autopsy are available.
autopsyPerformedIndicator	<i>boolean</i>	An indicator that states whether an autopsy is to be, or has been performed.
mannerOfDeathCode	<i>char</i>	A coded indication of the manner in which the person died. ConceptDomain = 'MannersOfDeath'
pregnancyStatusCode	<i>char</i>	A code that provides information regarding whether or not the person was pregnant at the time of her death, or whether she was pregnant around the time of death. ConceptDomain = 'PregnancyStatuses'

Death Data Model::CauseOfDeathInformation Attributes

Attribute	Type	Notes
causeOfDeathSignificantConditionDescriptiveText	char	Descriptive text that provides information on a significant condition or conditions that that contributed to death, but did not result in the underlying cause that is elsewhere described. Note, this is not to include pregnancy or smoking status, since they are elsewhere described.
tobaccoUseCode	char	A coded indication of the extent of the person's use of tobacco. The data is captured if tobacco use may have contributed to their death. ConceptDomain = 'ContributoryTobaccoUses'

Death Data Model::ClinicianCoronerMedicalExaminer

Class: A health professional or other responsible person who is involved in the certification of death, and/or the determination of the cause of death. The reader should note that this class can play the role of pronouncer, certifier, and medical examiner with relationship to the death certification. As a result, if an instance diagram were to be constructed, there will be up two instances of the class, to indicate the pronouncing clinician and the certifying clinician. (However, if pronouncer and certifier are the same person, it is customary to omit the pronouncer signature.) There may be a third instance as well, to indicate the medical examiner or coroner.

Death Data Model::ClinicianCoronerMedicalExaminer Attributes

Attribute	Type	Notes
certifierAddress	AddressLocation	The postal address used to locate the clinician or coroner at the time of death certification.
certifierName	PersonName	The name that a person is known by.
certifierRoleCode	char	A coded indication of the role the clinician or coroner plays within the death certification process. ConceptDomain = 'CertifierRoles'
certifierSignature	char	A text or graphic indication of a person's signature as affixed to the death certification or associated with the death record.
certifierTitle	char	Descriptive text that indicates the professional role played by the clinician, coroner or medical examiner. Possible values include, doctor, nurse, judge, coroner.
certifierIdentifier	char	The identifier of a license issued to the certifying professional that indicates their authorization to perform the certification of death.

Death Data Model::CodedCauseOfDeath

Class: A series of coded values that provide structured information about the cause or causes of death. The coded values are derived from the Cause of Death Descriptive Text through an automated process, and are developed to provide a stronger basis for analysis and summary reporting.

Coding of death data uses a suite of packages known as MMDS (Mortality Medical Data System). For more information on the processing used to create cause of death codes refer to "Selected Data Editing Procedures in an Automated Multiple Cause of Death Coding System", UN/ECE Work Session on Statistical Data Editing, Working Paper No. 10 submitted by the National Center for Health Statistics, US.

The MMDS process transforms descriptive text into ICD codes: one set of up to 20 conditions captures the codes as well as the order in which the item appeared on the original death record; one set of up to 20 conditions captures the codes after further processing to refine the information; and a single condition that is selected as the underlying cause of death.

Death Data Model::CodedCauseOfDeath Attributes

Attribute	Type	Notes
causeOfDeathUnderlyingCode	<i>char</i>	<p>A code indicating the underlying cause of death defined by the World Health Organization (WHO) as: a) the disease or injury which initiated the train of events directly leading to death or b) the circumstances of the accident or violence which produced the fatal injury.</p> <p>This is normally the most useful single cause for public health purposes.</p> <p>In most cases, if the death certificate has been properly completed, the underlying cause should be the condition entered in the lowest completed line of part I. If the death certificate has not been completed correctly, for example there is more than one cause on a single line with no indication of sequence, or the conditions entered are not an acceptable causal sequence, it becomes necessary to apply one or more of the selection rules in the International Classification of Diseases.</p> <p>There are also modification rules, which apply to particular conditions, combinations or circumstances, even when the certificate has been properly completed.</p> <p>The purpose behind these rules is to derive the most useful information from the death certificate even when it has been badly completed, and to do so uniformly so that data will be comparable between places and times.</p> <p>ConceptDomain = 'DiseasesOrConditions'</p>

Death Data Model::Death

Class: Information about the person's death.

Death Data Model::Death Attributes

Attribute	Type	Notes
bodyNotRecoveredIndicator	<i>boolean</i>	A Boolean indicator that makes it possible to note that the decedent's body has not been recovered, and will therefore not be available for disposition. This can happen if a person is lost at sea. This item is not currently collected for the standard death certificate.
certificationDate	<i>char</i>	The date on which the person was certified as dead.
decedentCertifierKnownName	<i>PersonName</i>	The name under which the person was certified dead. This attribute is provided to allow for situations in which the name under which the decedent was certified dead differs from their legal name.

decedentDateOfDeath	<i>char</i>	The date on which the person died. It is relevant to note that the exact date will not always be available. Therefore, in implementations it is necessary to support partial dates that only identify year and month, or year.
decedentDeathDateEstimatedIndicator	<i>boolean</i>	An indicator that shows whether or not the date of death is directly known or whether it has been estimated.
decedentTimeOfDeath	<i>char</i>	A record of the time of day at which death occurred. It is recorded using a 24 hour clock.
decedentDeathTimeEstimatedIndicator	<i>boolean</i>	An indicator that shows whether or not the time of death is directly known or whether it has been estimated.
facilityName	<i>char</i>	The name of the health care facility within which the person died. This attribute is only collected if a person died within a healthcare facility.
locationOfDeathDescription	<i>char</i>	Descriptive text for the location at which the person died. This attribute is to be used when the location of address does not have a defined address. For example, "US 95 10 miles south of Burlington New Jersey."
placeOfDeathAddress	<i>AddressLocation</i>	The mailing address for the place where the person died. This attribute is collected if the person died at a home, a health facility, or other location with a postal address. If there is no suitable address for place of death, the place of death description attribute should be used.

Attribute	Type	Notes
placeOfDeathCode	<i>char</i>	A coded indication of the nature of the person's place of death. The list of possible codes includes typical places within a health care facility as well as typical locations outside of a healthcare facility. ConceptDomain = 'PlacesOfDeath'
placeOfDeathDescription	<i>char</i>	A description of the type of place at which the person died, to be used if the available codes are not sufficiently descriptive.
pronouncedDateOfDeath	<i>char</i>	The date on which the responsible clinician pronounced the person as dead.
pronouncedTimeOfDeath	<i>char</i>	The time of day that the person was pronounced dead.
pronouncerIdentifier	<i>char</i>	An identifier for the license that authorizes the pronouncer to practice medicine, or to carry out a medical examination to ascertain cause of death.
pronouncerSignature	<i>char</i>	A text or graphic indication of the pronouncer's signature.
pronouncerSignatureDate	<i>char</i>	The date on which the party pronouncing death added their signature to the statement of the person's death.
pronouncerSignatureTime	<i>Char</i>	The time at which the party pronouncing death added their signature to the statement of the person's death. This item is not currently collected for the standard death certificate.
referredToMedicalExaminerIndicator	<i>Boolean</i>	An indication of whether or not the person was referred to the medical examiner for further investigation of the manner and cause of death. This is most commonly done when the death is not by natural causes.

Death Data Model::Decedent

Class: Information about a person who has died as it is collected for inclusion within the death certificate. The age may be provided using different units of measure, i.e., years, months, days, and minutes depending on how long the person lived. Currently, when information is being passed to NCHS, additional decedent records are provided, one for each alias.

Death Data Model::Decedent Attributes

Attribute	Type	Notes
decedentAgeAtTimeOfDeath	<i>char</i>	The person's chronological age at the time of death.
decedentAgeAtTimeOfDeathUnitOfMeasure	<i>char</i>	The units of measurement, e.g., minutes, days, months, years, etc used to record the person's chronological age at the time of death. ConceptDomain = 'TimeDurationUnits'
decedentAliasName	public Range:0 to *: <i>PersonName</i>	An alias used by the person. That is to say, a name the person was known by other than their legal name. Note, there could be several of these.
decedentDateOfBirth	<i>char</i>	The date of the person's birth. It is relevant to note that the exact date will not always be available. Therefore, in implementations it is necessary to support partial dates that only identify year and month, or year.
decedentEducationLevelCompletedCode	<i>char</i>	A coded indication of the highest level of education attained by the person. ConceptDomain = 'EducationLevels'
decedentEducationLevelMissingValueReason	<i>char</i>	Information about the reason that no data was supplied for the education level of the decedent. ConceptDomain = 'EducationLevelMissingValueReasons'
decedentFatherName	<i>PersonName</i>	The name of the person's father.
decedentHispanicOriginMissingValueReason	<i>char</i>	Information about the reason that no data was supplied for the ethnicity of the decedent. ConceptDomain = 'EthnicityMVRs'
decedentBusinessOrIndustryDescription	<i>char</i>	Descriptive text that indicates the industry within which the person habitually worked. For persons who are involved in multiple industries, this is their primary one -the one that took up the greater part of their working life.
decedentLegalName	<i>PersonName</i>	The person's legal name. The name by which they are referred to in official documents and correspondence.

Attribute	Type	Notes
decendentMaritalStatusCode	<i>char</i>	A coded indication of the person's relationship with a significant other. ConceptDomain = 'MaritalStatuses'
decendentMotherName	<i>PersonName</i>	The name of the person's mother prior to her first marriage (maiden name).
decendentNamePriorToFirstMarriage	<i>PersonName</i>	The name of the person prior to their first marriage. Also known as the maiden name. This also may be referred to as the name on the person's birth certificate. This item is not currently collected for the standard death certificate. However it is widely used to make it easier to match a death record with the corresponding birth record.
decendentOccupationDescription	<i>char</i>	Descriptive text that indicates the primary occupation the person earned their living at, or was involved with.
decendentPlaceOfBirthCity	<i>char</i>	The city or town within which the person was born.
decendentPlaceOfBirthCountry	<i>char</i>	The country within which the person was born.
decendentPlaceOfBirthState	<i>char</i>	The state within which the person was born.
decendentRaceMissingValueReason	<i>char</i>	Information about the reason that no data was supplied for the race of the decedent. ConceptDomain = 'RaceMVRs'
decendentResidentialAddress	<i>AddressLocation</i>	The street address for the place where the decedent lived.
decendentSexCode	<i>char</i>	A coded indication of the gender of the decedent. ConceptDomain = 'Genders'
decendentSpouseName	<i>PersonName</i>	The name of the person's spouse. If female, give name prior to first marriage.
decendentSSN	<i>char</i>	The social security number assigned to the decedent.
decendentSSNMissingValueReason	<i>char</i>	Information about the reason that no data was supplied for the social security number of the decedent. ConceptDomain = 'SocialSecurityNumber MVRs'
decendentUSArmedForcesIndicator	<i>boolean</i>	An indicator of whether or not the person has served within the United States armed forces.

Death Data Model::Disposition

Class: Information that relates to the disposition of the person's body, and to the funeral home that takes responsibility for that disposition.

Death Data Model::Disposition Attributes

Attribute	Type	Notes
dispositionMethodCode	char	A coded indication of the method of disposition of the body. ConceptDomain = 'DispositionMethods'
dispositionMethodDescription	char	A description of the method of disposing the body that is used when none of the accepted code values is appropriate.
placeOfDispositionCityOrTown	char	The city or town within whose limits the person's body is to be, or has been disposed.
placeOfDispositionName	char	The name of the place where the person's body is to be or has been buried or otherwise disposed of.
placeOfDispositionState	char	The state that the place of disposition is located within.

Death Data Model::EntityAxisCode

Class: Entity axis codes provide a representation of the order, placement, and titles of all the diseases or injuries reported on the death certificate as causing or being significant in contributing to death

Death Data Model::EntityAxisCode Attributes

Attribute	Type	Notes
causeOfDeathCausalSequence	int	The causal sequence number that was provided for the disease or condition description item that the code value was extracted from.
causeOfDeathCode	char	A coded indication of the reason for the person's death. Cause of death codes are assigned based on the disease or condition descriptive information provided by the responsible clinician, coroner, or medical examiner. ConceptDomain = 'DiseasesOrConditions'
causeOfDeathIntraSequenceOrder	int	The value provides information about the location, within the disease or condition description text block, of the text used as the source for the cause of death code. In effect, when the coding takes place, each disease or condition description text block is divided into intervals from which the codes are extracted.

Death Data Model::FuneralFacility

Class: An organization which provides funeral services, and which takes responsibility both for the body of the decedent, and for collecting the information needed for the decedent's death certificate. Note, in some cases, the funeral facility that files the person's death certificate may differ from the facility that takes responsibility for disposing of the decedent's body. In particular, this may happen if the person dies some distance away from their place of residence.

Death Data Model::FuneralFacility Attributes

Attribute	Type	Notes
facilityLicenseIdentifier	char	An identifier of the license awarded to the funeral facility that indicates its eligibility to provide the funeral services. This item is not currently collected for the standard death certificate; however it is often collected at the level of the controlling jurisdiction.
funeralDirectorIdentifier	char	An identifier of the license awarded to the funeral facility director that indicates his or her certification to manage the disposition of the decedent's body.
funeralDirectorSignature	char	A text or graphic indication of the funeral director's signature as affixed to a declaration of the disposition arrangements for the person's body or associated with the record. In an electronic system, the signature will be associated with the death record.
funeralFacilityAddress	AddressLocation	The mailing address of the funeral facility taking responsibility for the body of the decedent.
funeralFacilityName	char	The name of the funeral facility.

Death Data Model::HispanicOrigin

Class: Information regarding a person's Hispanic origin. Currently, within the United States, the term "ethnicity" is often also used. For persons of Hispanic background, the code may also indicate the nation or region the person is affiliated with.

Currently, within the standard form used for recording death data, each recognized Hispanic is captured as a type code value, and whether or not it is reported by the person is captured using the affiliation indicator.

Death Data Model::HispanicOrigin Attributes

Attribute	Type	Notes
hispanicOriginCode	<i>char</i>	A coded indication of the Hispanic origin of the decedent. If there is no suitable code for the decedent's Hispanic origin, the descriptive attribute should be used instead. ConceptDomain = 'HispanicOrigins'
hispanicOriginDescription	<i>char</i>	Descriptive text that identifies the Hispanic origin of the decedent. If the Hispanic origin code is valued, the description provides additional information about the decedent's origin. If Hispanic origin code is not valued, then the description asserts a Hispanic category that is not addressed by the coding scheme.

Death Data Model::Informant

Class: A person who can provide knowledge about the decedent.

Death Data Model::Informant Attributes

Attribute	Type	Notes
informantDecedentRelationshipDescription	<i>char</i>	Descriptive text that indicates the relationship between the informant and the decedent. Note, while a text field is used for reporting to NCHS, codes drawn from a defined list may be used at the level of the controlling jurisdiction.
informantMailingAddress	<i>AddressLocation</i>	The address where the informant receives mail.
informantName	<i>PersonName</i>	The name used by the informant.

Death Data Model::Injury

Class: Information about an accident or other injury that was suffered by the decedent and which contributed to his or her death.

Death Data Model::Injury Attributes

Attribute	Type	Notes
injuryAddress	<i>AddressLocation</i>	The street address for the place where the injury occurred.
injuryAtWorkIndicator	<i>boolean</i>	An indicator of whether or not the injury occurred while the person was at work.

Attribute	Type	Notes
injuryDate	<i>char</i>	The date on which the injury occurred.
injuryDateEstimatedIndicator	<i>boolean</i>	An indicator that shows whether or not the date of injury is directly known or whether it has been estimated.
injuryOccurrenceDescription	<i>char</i>	A text description of how the injury occurred.
injuryPlaceDescription	<i>char</i>	A text description of the kind of place where the injury occurred.
injuryTime	<i>char</i>	The time of day, on the date of occurrence, that the injury occurred.
injuryTimeEstimatedIndicator	<i>boolean</i>	An indicator that shows whether or not the time of injury is directly known or whether it has been estimated.
injuryTransportationRelationshipCode	<i>boolean</i>	A coded value that states, if the injury was related to transportation, the specific role played by the decedent, e.g. driver, passenger. ConceptDomain = 'TransportationRoles'
injuryTransportationRelationshipDescription	<i>int</i>	A text description that states, if the injury was related to transportation, the specific role played by the decedent, e.g. driver, passenger. To be used if no suitable code is present.

Death Data Model::Race

Class: A racial affiliation that is reported by the person. Within the United States, race records information about the continent or extended region from which a person has descended.

Death Data Model::Race Attributes

Attribute	Type	Notes
raceCode	<i>char</i>	A coded value indicating the person's racial affiliation. If there is no suitable code to describe the person's race, then the descriptive attribute should be used instead. ConceptDomain = 'Races'
raceDescription	<i>int</i>	Descriptive text that indicates the racial affiliation that is reported by the person. If the race code is valued, the description provides additional information about the person's racial affiliation. If race code is not valued, than the description reports a racial category that is not addressed by the coding scheme.

Death Data Model::RecordAxisCode

Class: Record axis codes provide the set of diseases or injuries that best describe the medical context contributing to and causing death after redundancies are eliminated and conditions have been linked into the most meaningful categories available in the classification.

Death Data Model::RecordAxisCode Attributes

Attribute	Type	Notes
causeOfDeathCode	char	ConceptDomain = 'DiseasesOrConditions'

Death Data Model::VitalRecordAmendment

Class: From time to time, a vital record may be amended. This class contains information that is captured for each amendment.

Death Data Model::VitalRecordAmendment Attributes

Attribute	Type	Notes
VRAmendedDate	char	The date an amendment to a registered record is recorded in the system by the individual processing the amendment.
VRAmendmentNewValue	char	The content of a specific field in a registered vital record after it is amended.
VRAmendmentOldValue	char	The content of a specific field in a registered vital record prior to its being amended.
VRAmendmentType	char	A codified indication of the type of amendment to be processed.

Death Data Model::VitalRecordCertification

Class: The class captures registration related information that is recorded once a vital record has been filed with the vital statistics registry. Vital records are filed for a birth, a death, and a fetal death.

The information in this class has been defined for consistency across the vital records maintained for births, deaths, and fetal deaths. Some of the attributes will not be valid for all record types.

Death Data Model::VitalRecordCertification Attributes

Attribute	Type	Notes
VRAmendedRecordIndicator	boolean	A Boolean indicator that shows whether or not the record has been amended. Issued copies of a flagged record may or may not indicate that the record has been amended, depending on state statute and the type of amendment.
VRAuxiliaryFileNumber	char	An auxiliary filing identifier for the report. It may be used to indicate the file's number with a local (as opposed to state or other central jurisdictional) registry.

Attribute	Type	Notes
VRCertificationOrReportFileNumber	<i>char</i>	A filing identifier that is assigned to a report when it is registered by the jurisdiction, either electronically or manually; also known as a State File Number (SFN). The number format is unique to each jurisdiction.
VRDateFiledByRegistrar	<i>char</i>	The date that the record was filed with the vital statistics registry.
VRLinkedBirthCertificateNumber	<i>char</i>	The identifier of the birth certificate which is linked to this certificate. This information is only captured for death certificates.
VRLinkedDeathCertificateNumber	<i>char</i>	The identifier of the death certificate which is linked to this certificate. This information is only captured for birth certificates.
VRMannerOfFilingCode	<i>char</i>	A coded indication of the manner in which the certificate or report was filed. This information is only captured for death certificates.
VRRegistrarSignature	<i>char</i>	A text or graphic indication of a person's signature as affixed to the vital record.
VRUniqueIdentifier	<i>char</i>	A unique identifier automatically generated by an electronic vital records system to identify an electronic record. This identifier is retained with the electronic record throughout its life cycle.
VRVoidCertificateOrReportIndicator	<i>char</i>	A Boolean indicator that states whether or not the certificate identified by the file number is a void certificate.

Concept Domains

A collection of the concept domains that are relevant to the Death Registration model. A concept domain has been defined as "The set of all concepts that can be taken as valid values in an instance of a coded attribute or field." (HL7 Version 3 Glossary)

Concept Domains::CertifierRoles

Class: The possible roles a clinician or coroner may play within the death certification process.

Concept Domains::CertifierRoles Attributes

Attribute	Type	Notes
certifier	char	The role of certifying the person's death.
certifierPronouncer	char	The role of both certifying the person as dead, and pronouncing the death.
medicalExaminerCoroner	char	The role of carrying out a detailed examination of the decedent and the circumstances of death.

Attribute	Type	Notes
no	char	No, use of tobacco did not contribute to the person's death.
probable	char	It is probable that use of tobacco contributed to the person's death.
yes	char	Yes, use of tobacco contributed to the person's death.
unknown	char	The extent to which tobacco use contributed to the person's death is not known.

Concept Domains::ContributoryTobaccoUses

Class: A list of values to describe the extent to which tobacco use contributed to the person's death.

Concept Domains::ContributoryTobaccoUses Attributes

Concept Domains::DiseasesOrConditions

Class: A list of the possible diseases or conditions that may be recorded as a person's cause of death. Currently, these codes are provided through the ICD code system.

Concept Domains::DispositionMethods

Class: A list of the possible methods that may be used for disposing of the human remains.

Attribute	Type	Notes
burial	char	
cremation	char	
donation	char	
entombment	char	
other	char	The method by which the decedent's body has been disposed is not one of the listed methods. A description of the method should be provided in the specified attribute.
removalFromState	char	
unknown	char	The method of disposing of the decedent's body is not known.

Concept Domains::DispositionMethods Attributes

Concept Domains::EducationLevelMissingValueReasons

Class: A list of the possible reasons that highest education level information is not provided for the decedent.

Attribute	Type	Notes
notObtainable	char	
obtainedButResponseDoesNotFitClassificationScheme	char	
refused	char	
soughtButUnknown	char	
unknown	char	

Concept Domains::EducationLevelMissingValueReasons Attributes

Concept Domains::Education Levels

Class: A collection of the different education levels that may be attained by a person.

Attribute	Type	Notes
associateDegree	char	
bachelorsDegree	char	
collegeCredit	char	
doctorateOrProfessionalDegree	char	
eighthGradeOrLess	char	
highSchoolGraduateOrGED	char	
mastersDegree	char	

ninthToTwelfthGradeNoDiploma	char	
unknown	char	

Concept Domains::EthnicityMissingValueReasons

Class: A list of the possible reasons that ethnicity information is not provided for the decedent.

Concept Domains::EthnicityMissingValueReasons Attributes

Attribute	Type	Notes
notObtainable	char	
refused	char	
soughtButUnknown	char	
unknown	char	

Concept Domains::HispanicOrigins

Class: A collection of different categories used to provide information on whether or not a person has a Hispanic background or heritage, and, if so, the specific Hispanic origin. Note, this collection of concepts is also often known as Ethnicity.

In the United States, federal standards for classifying data on ethnicity or Hispanic origin determine the categories used by federal agencies and exert a strong influence on categorization by state and local agencies and private sector organizations. The federal standards do not conceptually define Hispanic origin, and they recognize the absence of an anthropological or scientific basis for this classification. Instead, the federal standards acknowledge that ethnicity is a social-political construct in which an individual's own identification with a particular ethnicity is preferred to observer identification. The standards specify two minimum Hispanic origin categories: Hispanic or Latino, and Not Hispanic or Latino. The standards define a Hispanic or Latino as a person of "Mexican, Puerto Rican, Cuban, South or Central America, or other Spanish culture or origin, regardless of race." The standards stipulate that Hispanic origin data need not be limited to the two minimum categories, but any expansion must be collapsible to those categories. In addition, the standards stipulate that an individual can be Hispanic or Latino or can be Not Hispanic or Latino, but cannot be both.

Concept Domains::HispanicOrigins Attributes

Attribute	Type	Notes
notSpanishHispanicLatino	char	
yesCuban	char	
yesMexicanMexicanAmericanChicano	char	
yesOtherSpanishHispanicLatino	char	
yesPuertoRican	char	

Concept Domains::MannersOfDeath

Class: A list of the possible manners by which the person died.

Concept Domains::MannersOfDeath Attributes

Attribute	Type	Notes
accident	char	
couldNotBeDetermined	char	
homicide	char	
natural	char	
notOnStandard	int	A value for manner of death has been provided that does not appear on the standard list.
notSpecified	char	The manner of death is not specified.
pendingInvestgation	char	
selfInflicted	char	The death was self-inflicted. This could include injury, and is therefore not identical with suicide.
suicide	char	

Concept Domains::MannersOfFiling

Class: A list of the different methods used for filing a death certificate.

Concept Domains::MannersOfFiling Attributes

Attribute	Type	Notes
electronicFiling	char	
paperFiling	char	
mixedFiling	char	

Concept Domains::MaritalStatuses

Class: A list of the possible marital statuses that may be assigned to the decedent. The values include those used for reporting to NCHS. Other code values may be used by states and other jurisdiction types.

Concept Domains::MaritalStatuses Attributes

Attribute	Type	Notes
divorcedAndNotRemarried	char	
married	char	
marriedButSeparate	char	
neverMarried	char	
notOnCertificatie	char	This information is not provided on the certificate.
notObtainable	char	It was not possible to get information about the person's marital status.
other	char	An accepted form of marital relationship that does not appear on the stated list.
unknown	char	
widowedAndNotRemarried	char	
unknown	char	
widowedAndNotRemarried	char	

Concept Domains::PlacesOfDeath

Class: A list of the possible places -types of organizational or other setting -in which a person may die.

Concept Domains::PlacesOfDeath Attributes

Attribute	Type	Notes
hospice	char	
hospitalDeadOnArrival	char	
hospitalInpatientUnit	char	
hospitalOutpatientServiceOrER	char	
nursingHome	char	
other	char	The decedent died at a type of location that does not fit into one of the codes provided. It is expected that descriptive text will be provided instead.
Residence	Char	
Unknown	Char	It is not known what kind of place the decedent died at.

Concept Domains::PregnancyStatuses

Class: An indication of whether or not a person was pregnant at the time of death.

Attribute	Type	Notes
notApplicable	char	
notPregnant	char	The decedent was not pregnant within the past year
notPregnantFortyTwo	char	The decedent was not pregnant but had been within 42 days of death.
notPregnantOneYear	char	The decedent was not pregnant but had been 43 days to one year before death.
pregnant	char	The decedent was pregnant at the time of death.
unknown	char	Unknown if pregnant within past year.

Concept Domains::PregnancyStatuses Attributes

Concept Domains::RaceMissingValueReasons

Class: A list of the possible reasons that race information is not provided for the decedent.

Attribute	Type	Notes
refused	char	
soughtButUnknown	char	
unknown	char	
notObtainable	char	

Concept Domains::RaceMissingValueReasons Attributes

Concept Domains::Races

Class: A collection of different categories used to provide information on a person's background or heritage.

In the United States, federal standards for classifying data on race determine the categories used by federal agencies and exert a strong influence on categorization by agencies and private sector organizations within different jurisdictions. The federal standards do not conceptually define race, and they recognize the absence of an anthropological or scientific basis for racial classification. Instead, the federal standards acknowledge that race is a social-political construct in which an individual's own identification with one or more race categories is preferred to observer identification. The standards use a variety of features to define five minimum race categories. Among these features is descent from "the original peoples" of a specified region or nation. The minimum race categories are American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. The federal standards stipulate that race data need not be limited to the five minimum categories, but

any expansion must be collapsible to those categories. For example, it is common to identify membership in a Native American tribe using a detailed code that hierarchically depends on the code for American Indian or Alaska Native within the coding system used to indicate racial categories.

Concept Domains::Races Attributes

Attribute	Type	Notes
americanIndianOrAlaskanNative	char	
asianIndian	char	
blackOrAfricanAmerican	char	
chinese	char	
filipino	char	
guanianianOrChamorro	char	
japanese	char	
korean	char	
nativeHawaiian	char	
otherAsian	char	
otherDesignatedCategory	char	
otherPacificIslander	char	
samoan	char	
vietnamese	char	
white	char	
unknown	char	

Concept Domains::SocialSecurityNumberMissingValueReasons

Class: A list of the possible reasons that SSN information is not provided for the decedent.

Concept Domains::SocialSecurityNumberMissingValueReasons Attributes

Attribute	Type	Notes
none	char	
pending	char	
unknown	char	
notObtainable	char	

Concept Domains::TimeDurationUnits

Class: The different units of measure that are relevant when providing information about a person's age.

Concept Domains::TransportationRoles

Class: The list of possible roles that the decedent could play with relationship to a transport vehicle in the context of an accident.

Concept Domains::TransportationRoles Attributes

Attribute	Type	Notes
driverOrOperator	char	
passenger	char	
pedestrian	char	

Concept Domains::VRAmendmentTypes

Attribute	Type	Notes
formalAmendment	char	Formal amendment, which includes but is not limited to name changes, paternity acknowledgements, legitimations, denials of paternity, gender reassignment, modifications to hospital record, modified cause of death, and requires approved evidentiary documentation.
minorCorrectionOrAddition	char	A minor correction or addition, usually within a specified time after registration, which may or may not be considered an amendment.
replacementRecordAmendment	char	An amendment that requires the original record to be sealed and a replacement record, not identified as an amended record, to be substituted.

Class: A list of types of amemdments to a vital record.

Concept Domains::VRAmendmentTypes Attributes

Allowed Responses Table::Genders

Class: A collection of the possible genders that may be recorded for a person.

Attribute	Type	Notes
day	char	
hour	char	
minute	char	
month	char	
year	char	
week	char	

Allowed Responses Table::Genders Attributes

Attribute	Type	Notes
female	<i>char</i>	
unknown	<i>char</i>	
male	<i>char</i>	

Data Types

The package is used to manage non-atomic data types used within the Death Registration model. It includes more or less complex structures that do not correspond to the data types used in database management systems, or to the data types supported by the Enterprise Architect tool.

Data Types::AddressLocation

Class: This data type contains the component parts of a person or organization's address as commonly

Attribute	Type	Notes
apartmentNumber	<i>char</i>	The number or other identifier, e.g., 23B, for an apartment within a building.
cityOrTownOrLocation	<i>char</i>	A text indication of the city, town or other location type that is recorded for the address.
country	<i>char</i>	The country that the address is situated within. If resident in the United States of America, do not value.
county	<i>char</i>	The county that the address is situated within.
numberAndStreet	<i>char</i>	The street name and number for the address. This address feature is sometimes known as a "Street Address Line".
state	<i>char</i>	The state or province that the address is located within.
withinCityLimitsIndicator	<i>boolean</i>	A Boolean indicator that states whether the address is within the limits of a recognized city or town.
zipCode	<i>char</i>	The zip or postal code that is used by the postal service for routing mail to the address.

constructed within the United States.

Data Types::AddressLocation Attributes

Data Types::PersonName

Class: This data type contains the component parts of a person's name as commonly constructed within the United States.

Data Types::PersonName Attributes

Attribute	Type	Notes
firstName	<i>char</i>	The name which the person takes as their first name (a given name).
lastName	<i>char</i>	The name which the person takes as their last name or surname.
middleName	<i>char</i>	The name which the person takes as their middle name (a given name).
nameSuffix	<i>char</i>	The text which the person uses as their name suffix, e.g., Jr.

Fetal Death Model: US Realm

Fetal Death Reporting Activities

The model represents the processes that are followed to record and register a fetal death. In the United States, registration of vital events is the responsibility of 57 vital records jurisdictions representing 50 states, 5 territories, Washington, DC and New York City. Vital statistics are reported to the National Center for Health Statistics, a Center within the Centers for Disease Control and Prevention (CDC). The experience of state and federal vital records officials has been drawn on for the contents of the model.

Fetal death, is defined in the Model State Vital Statistics Act and Regulations (Model Law) as “death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy The death is indicated by the fact that after such expulsion or extraction, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps.” Information needed to officially record a fetal death is defined by the U.S. Standard Report of Fetal Death, and is a combination of the information found on the standard certificates of birth and death. Reporting requirements for fetal death vary among jurisdictions, and are based on gestational age and/or birth weight in grams.

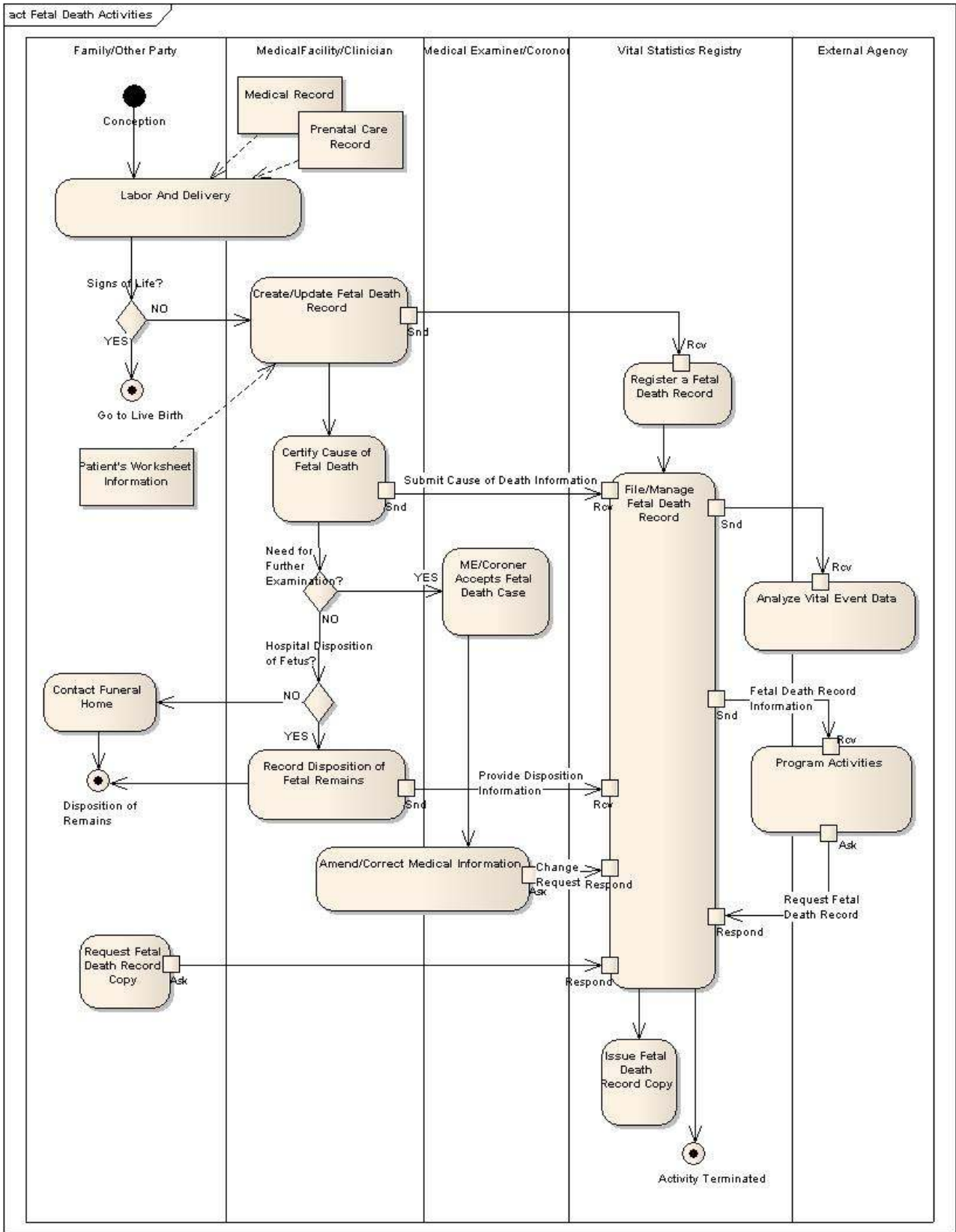


Figure 7: Fetal Death Activities

Amend/Correct Medical Information

Activity: The fetal death report may need to be filed before all the information needed to certify the cause of fetal death is available. In such cases, when more information becomes available, for example if toxicity reports have been received, it may be necessary to amend the medical portion of the fetal death record. This process is likely to be followed whenever additional medical information is received from medical examiners/coroners.

Note: This activity also supports EBRS Use Case 006, Update a Record.

Analyze Vital Event Data

Activity: Local, state and federal vital statistics organizations collect and disseminate vital statistics data for publication and research.

The National Center for Health Statistics (NCHS) is the federal entity responsible for the analysis and publication of national level vital statistics. NCHS receives information on fetal death reports through transmissions from vital statistics offices for the controlling jurisdiction. Analytic functions are also carried out at state and local levels by the applicable vital statistics or public health agency.

Certify Cause of Fetal Death

Activity: The physician attending the mother during delivery must certify the cause of death of a fetus. If the fetus died as a result of a violent act, or in other specific circumstances defined by a jurisdiction, the cause must be determined and certified by the jurisdiction's medical examiner or coroner. Note: This activity also supports the EBRS Use Cases #008 and 009, Certify COD on Fetal Death Record and Decertify COD on Fetal Death Record.

Contact Funeral Home

Activity: If the hospital where a fetal death occurred is not disposing of the remains, a funeral home will be contacted at the request of the family to make the necessary arrangements.

Create/Update Fetal Death Record

Activity: Hospital in some jurisdictions report fetal deaths electronically. However, in most jurisdictions, the Report of Fetal Death is filled out and submitted to the vital records office on paper. If a fetal death occurs in a birthing facility, demographic information usually will be collected on a Patient Worksheet, similar to the Mother's Worksheet used to record a live birth. Medical information is collected from the medical records and recorded on the Facility Worksheet. If a hospital uses an electronic fetal death system (EFDR), this information is entered into the EFDS by the facility and electronically submitted to the vital records office.

Note: This activity also supports EBRS Use Cases #003 and 006, Create Fetal Death Record and Update a Record.

File/Manage Fetal Death Record

Activity: Vital records offices in each jurisdiction are responsible for registering fetal deaths and maintaining this information electronically so that it can be made available for reporting and statistical uses. In fetal death cases referred to the medical examiner, a more definitive cause of death may be determined and added to the record after registration.

Note: This activity also supports EBRS Use Case # 010, Submit Record.

Issue Fetal Death Record Copy

Activity: Vital records offices may issue certified copies of fetal death records if allowed by statute, but this is not the general practice.

Note: This activity also supports POS Use Case # 002, Produce Copy.

Labor And Delivery

Activity: Information on the labor and delivery process is documented as part of the fetal death record . This information may also be relevant for ascertaining the cause of fetal death.

ME/Coroner Accepts Fetal Death Case

Activity: State law defines the circumstances under which a medical examiner or coroner will take control of a case to determine the cause of death. In all jurisdictions, if the manner of death is not due to natural causes, the fetal death case will be referred to the medical examiner or coroner in order to clearly determine the circumstances and to definitively establish the cause(s) of fetal death.

Program Activities

Activity: Jurisdictions use statistical data on fetal deaths to conduct research on maternal and child health. Most jurisdictions will release fetal death statistics to authorized public health programs, such as birth defects registries, for research and health services monitoring.

Record Disposition of Fetal Remains

Activity: If a fetal death occurs in a facility and the hospital disposes of fetal remains, hospital staff must record the method of disposition of the fetal remains on the fetal death report: burial, cremation, donation, hospital disposition, or removal out of state.

Register a Fetal Death Record

Activity: Once a record of Fetal Death has been filed with a jurisdiction’s vital records office, a state file number will be assigned to officially register the record. State statute sets the time limit for the filing of a fetal death after it is recorded. Jurisdictions that allow fetal deaths to be filed with a local office may also contain a local file number.

Note: This activity also supports EBRS Use Case 018: Register a Record.

Request Fetal Death Record Copy

Activity: Jurisdictions may be authorized in statute to issue a Report of Fetal Death in response to a request by a legitimate requestor.

Note: This activity also supports POS Use Case 001: Enter a Request.

Medical Record

Object: . The official hospital documentation of the history, treatment, diagnoses, and outcomes for a specific patient. In this case, the medical record of the labor and delivery resulting in a fetal death. The medical records of the prenatal care provider may also be included in the official hospital records.

Patient's Worksheet Information

Object: The Patient Worksheet is very similar to the Mother's Worksheet used for the birth certificate. The Patient worksheet is completed in the event of a fetal death to record demographic information on the parents. Most jurisdictions distribute a standard patient worksheet format to birthing facilities for use in collecting this information.

Prenatal Care Record

Object: Information on prenatal care and medical conditions during pregnancy, if provided by the prenatal care provider, will be used by the hospital to complete the Facility Worksheet.

Activity Terminated

ActivityFinal: The flow of activity terminates at this point.

Conception

ActivityInitial: The logical point of initiation for the model is the conception of a fetus.

Disposition of Remains

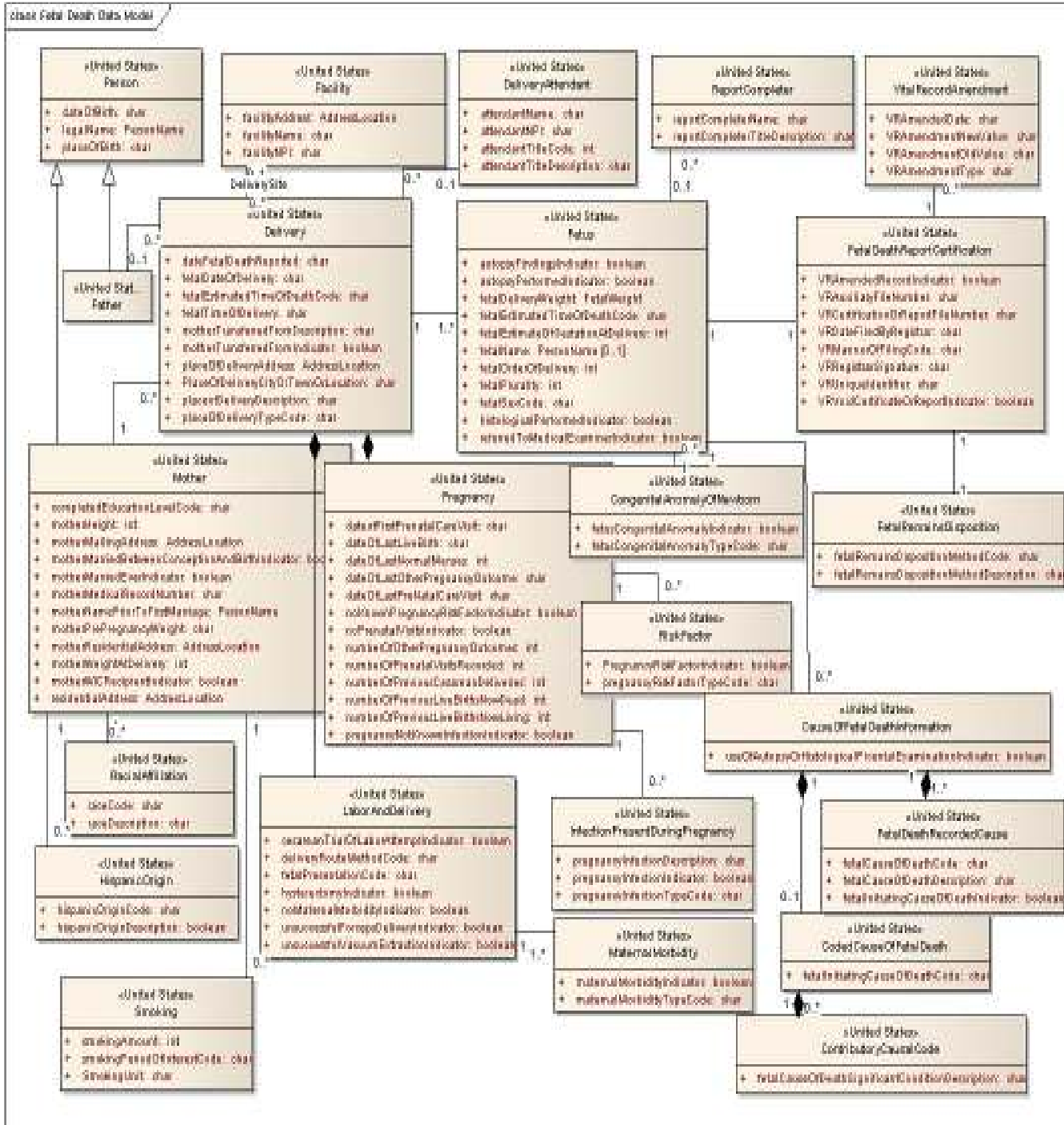
ActivityFinal: Disposal of fetal remains terminates the recording of disposition activity in this model.

Go to Live Birth

ActivityFinal: If the conditions are met upon delivery for a live birth, a Certificate of Live Birth must be recorded, as shown in the Live Birth Activity model. Definitions of live birth and fetal death used by the states and independent reporting areas may differ slightly from the Model Law definition. Jurisdiction-specific definitions are typically found in state statute. If the infant subsequently dies, a certificate of death, NOT a report of fetal death is to be reported.

Fetal Death Reporting Class Model

The class model includes the data needed to support the creation of fetal death reports. There is a single



data model package, as well as supporting concept domains and data types.

Fetal Death Data Model

Figure 8: Fetal Death Data Model

Fetal Death Data Model::CauseOfFetalDeathInformation

Class: Information relating to the fetus's cause of death. The cause of death content is carried within the contained classes as descriptive and coded information.

Fetal Death Data Model::CauseOfFetalDeathInformation Attributes

Attribute	Type	Notes
useOfAutopsyOrHistologicalPlcentalExaminationIndicator	boolean	A Boolean indicator that states whether autopsy or histological placental examination results were used in determining the cause of fetal death.

Fetal Death Data Model::CodedCauseOfFetalDeath

Class: A series of coded values that provide structured information about the cause or causes of fetal death. The coded values are derived from the Cause of Death Descriptive Text through manual coding, and hopefully -in the future -through an automated process. The coded values are developed to provide a stronger basis for analysis and summary reporting.

Attribute	Type	Notes
fetalInitiatingCauseOfDeathCode	char	A coded indication of the initial reason for the fetal death. Cause of death codes are assigned based on the disease or condition descriptive information provided by the responsible clinician, coroner, or medical examiner. A single initiating code is assigned during the coding process. A single initiating code is assigned during the coding process. ConceptDomain = 'DiseasesOrConditions'

Fetal Death Data Model::CodedCauseOfFetalDeath Attributes

Fetal Death Data Model::CongenitalAnomalyOfNewborn

Class: A malformation of the fetus that was diagnosed prenatally or after delivery.

Following the conventions of vital statistics recording, each recognized type of malformation is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator.

Fetal Death Data Model::CongenitalAnomalyOfNewborn Attributes

Attribute	Type	Notes
fetusCongenitalAnomalyIndicator	<i>boolean</i>	A Boolean indicator that states whether the fetus displays the malformation indicated by the type code value.
fetusCongenitalAnomalyTypeCode	<i>char</i>	A coded indication of a type of malformation displayed by the fetus. ConceptDomain = 'CongenitalAnomaliesOfFetus'

Fetal Death Data Model::ContributoryCausalCode

Class: Cause of death codes are assigned based on the disease or condition descriptive information provided by the responsible clinician, coroner, or medical examiner.

Fetal Death Data Model::ContributoryCausalCode Attributes

Attribute	Type	Notes
fetalCauseOfDeathSignificantConditionDescription	<i>char</i>	A text description of a contributory cause for the fetal death. ConceptDomain = 'DiseasesOrConditions'

Fetal Death Data Model::Delivery

Class: Information collected for a single delivery, whether of one or multiple fetuses. The information collected for a delivery is split into three classes: Pregnancy, Labor and Delivery, and Delivery, in order to ease the exposition.

Attribute	Type	Notes
dateFetalDeathReported	<i>char</i>	The date on which the fetal death was reported by the responsible practitioner.
fetalDateOfDelivery	<i>char</i>	The date on which the delivery took place.
fetalEstimatedTimeOfDeathCode	<i>char</i>	A coded value that indicates the relationship between the delivery of the fetus, and the time of fetal death.
fetalTimeOfDelivery	<i>char</i>	The time at which the delivery took place. It is recorded using a 24 hour clock.

Fetal Death Data Model::Delivery Attributes

Attribute	Type	Notes
motherTransferredFromDescription	<i>char</i>	A text description of, or name for, the facility the mother was transferred from.
motherTransferredFromIndicator	<i>boolean</i>	A Boolean indicator that shows whether or not the mother was transferred to the delivery site from another facility.
placeOfDeliveryAddress	<i>AddressLocation</i>	The street address of the place where the delivery took place. Note, the place of delivery attributes are only relevant for deliveries that take place outside of a recognized healthcare facility.
placeOfDeliveryCityOrTownOrLocation	<i>char</i>	A text description of the place of delivery, whether it be a city, a town, or a designation of another type.
placeOf DeliveryDescription	<i>Char</i>	<p>A descriptionof the type of place e.g. taxi cab, where the delivery took place. Only used if the delivery place type does not appear within the PlacesOfDelivery Concept Domain.</p> <p>Note, the place of delivery attributes are only relevant for deliveries that take place outside of a recognized healthcare facility.</p>
placeOfDeliveryTypeCode	<i>Char</i>	<p>A coded indicationof the type of location where the delivery took place.</p> <p>Note, the place of delivery attributes are only relevant for deliveries that take place outside of a recognized healthcare facility.</p> <p>Concept Domain = 'PlacesOfDelivery'</p>

Fetal Death Data Model::DeliveryAttendant

Class: A health care practitioner who is involved in the delivery process as the delivery attendant.

Attribute	Type	Notes
attendantName	char	The personal name the practitioner attending the delivery goes by.
attendantNPI	char	A unique identifier for the attendant. Within the United States, the identifier is known as a National Provider ID, and provided by the Center for Medicare Services (CMS).
attendantTitleCode	int	A coded indication of the professional role played by the delivery attendant.
attendantTitleDescription	char	A text description of the person's title or credentials.

Fetal Death Data Model::DeliveryAttendant Attributes

Fetal Death Data Model::Facility

Class: A healthcare facility that provides care to pregnant women and newborns. Facilities are relevant

Attribute	Type	Notes
facilityAddress	AddressLocation	The address at which the facility is located, and that is used to direct mail to the facility.
facilityName	char	The name by which the organization is referred.
facilityNPI	char	A unique identifier for the provider organization. Within the United States, the identifier is known as a National Provider ID, and provided by the Center for Medicare Services (CMS).

within this model when they serve as places where pregnant women go to deliver.

Fetal Death Data Model::Facility Attributes

Fetal Death Data Model::Father

Class Extends: Person. : A person who is legally married to the mother, accepts paternal responsibility for the fetus, or is identified by the mother.

The class, which is a specialization of person, has no attributes because none have been identified which are not also captured for the mother as well.

Fetal Death Data Model::FetalDeathRecordedCause

Class: Recorded causes of fetal death include the specification of the initiating cause/condition of the fetal death, as well as other significant causes of death. The information is provided by the responsible clinician, coroner or medical examiner. It is intended that only a single initiating cause or condition be provided, but, in some cases, more than one will be recorded.

With the exception of complications of placenta, cord, or membranes, the information is currently provided as text (literal).

Fetal Death Data Model::FetalDeathRecordedCause Attributes

Attribute	Type	Notes
fetalCauseOfDeathCode	char	A coded value indication of a type of fetal cause of death. If there is no suitable code to describe the cause, then the descriptive attribute should be used instead. ConceptDomain = 'DiseasesOrConditions'
fetalCauseOfDeathDescription	char	Descriptive text that indicates one or more diseases, injuries, or complications that were implicated as a cause of the fetal death. If the diseaseOrCondition code is valued, the description provides additional information about cause. If the diseaseOrCondition code is not valued, then the description asserts a cause that is not addressed by the coding scheme.
fetalInitiatingCauseOfDeathIndicator	boolean	A Boolean indicator that states whether a specified disease or condition is considered to be the initiating cause or condition. It is possible for more than one disease or condition to be so indicated.

Fetal Death Data Model::FetalRemainsDisposition

Class: Information that relates to the disposition of the fetus's body.

Fetal Death Data Model::FetalRemainsDisposition Attributes

Attribute	Type	Notes
fetalRemainsDispositionMethodDescription	char	A description of the method of disposing the body that is used when none of the accepted code values is appropriate.
fetalRemainsDispositionMethodCode	char	A coded indication of the method of disposition of the body. ConceptDomain = 'FetalRemainsDispositionMethods'

Fetal Death Data Model::Fetus

Class: Information about a fetus.

Fetal Death Data Model::Fetus Attributes

Attribute	Type	Notes
autopsyFindingsIndicator	<i>boolean</i>	An indicator that states whether findings from an autopsy are available.
fetalEstimateOfGestationAtDelivery	<i>int</i>	The delivery attendant's estimate of the gestational age of the fetus at delivery. It is based on all perinatal factors and assessments, but not the neonatal exam. The gestation estimate should not be computed based on the date of the last menstrual period and the date of delivery.
autopsyPerformedIndicator	<i>boolean</i>	An indicator that states whether an autopsy is to be, or has been performed.
fetalDeliveryWeight	<i>FetalWeight</i>	The weight of the fetus at delivery in grams, ounces, or pounds and ounces.
fetalEstimatedTimeOfDeathCode	<i>char</i>	A coded indication of the relationship between the time of fetal death and the delivery time. ConceptDomain = 'EstimatedTimesOfDeath'
fetalName	<i>PersonName</i>	The name of the fetus. Note, providing the name is optional -at the discretion of the parents.
fetalOrderOfDelivery	<i>int</i>	The element will only be valued in the case of multiple deliveries. The order that the fetus was delivered in the pregnancy. The value should include all live births and fetal losses resulting from the pregnancy.
histologicalPerformedIndicator	<i>boolean</i>	An indicator that states whether a histological placental examination is to be, or has been performed.
fetalPlurality	<i>int</i>	The number of live births and fetal deaths resulting from the pregnancy.
referredToMedicalExaminerIndicator	<i>boolean</i>	An indication of whether or not the fetus was referred to the medical examiner for further investigation of the manner and cause of death. This is most commonly done when the death is not by natural causes.
fetalSexCode	<i>char</i>	A coded indication of the gender of the fetus. Allowed Responses Table = 'Genders'

Fetal Death Data Model::HispanicOrigin

Class: Information regarding a person's Hispanic origin. Currently, within the United States, the term "ethnicity" is often also used. For persons of Hispanic background, the code may also indicate the nation or region the person is affiliated with.

Currently, within the standard form used for recording fetal death, each recognized Hispanic origin is captured as a type code value, and whether or not it is reported by the person is captured using the affiliation indicator.

Fetal Death Data Model::HispanicOrigin Attributes

Attribute	Type	Notes
hispanicOriginCode	char	A coded indication of the Hispanic origin of the mother. If there is no suitable code for the mother's Hispanic origin, the descriptive attribute should be used instead. Concept Domain = 'HispanicOrigins'
hispanicOriginDescription	boolean	Descriptive text that identifies the Hispanic origin of the mother. If the Hispanic origin code is valued, the description provides additional information about the person's origin. If Hispanic origin code is not valued, then the description asserts a Hispanic category that is not addressed by the coding scheme.

Fetal Death Data Model::InfectionPresentDuringPregnancy

Class: Information about whether or not various known infections which may have been present and/or treated during the mother's pregnancy were present.

Following the conventions of vital statistics recording, each recognized infection type is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the infection indicator.

Fetal Death Data Model::InfectionPresentDuringPregnancy Attributes

Attribute	Type	Notes
pregnancyInfectionIndicator	boolean	A Boolean indicator that states whether the mother experienced a particular infection during pregnancy as indicated by the type code value.
pregnancyInfectionDescription	char	A text description of an infection that was present and/or treated during pregnancy. Note, either a description or a type code value must be provided.

Fetal Death	pregnancyInfectionTypeCode	char	A coded indication of a particular infection that might be present during pregnancy. Note, either a description or a type code value must be provided. ConceptDomain = 'Infections'
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Data Model::LaborAndDelivery

Class: Information about the labor and delivery component of the delivery process.

Fetal Death Data Model::LaborAndDelivery Attributes

Attribute	Type	Notes
cesareanTrialOfLaborAttemptIndicator	boolean	A Boolean indicator that states, in the case of a cesarean delivery, whether or not a trial of labor was attempted.
deliveryRouteMethodCode	char	A coded indication of the final route and method of delivery of the fetus. Concept Domain = 'DeliveryRouteMethods'
fetalPresentationCode	char	A coded indication of the position of the fetus at delivery. Concept Domain = 'FetalPresentations'
hysterectomyIndicator	boolean	A Boolean indicator that states whether a hysterotomy or hysterectomy has been performed.
unsuccessfulForcepsDeliveryIndicator	boolean	A Boolean indicator that shows whether or not there was an unsuccessful forceps delivery.
unsuccessfulVacuumExtractionIndicator	boolean	A Boolean indicator that shows whether or not there was an unsuccessful attempt to deliver the fetus using vacuum extraction.
noMaternalMorbidityIndicator	boolean	A Boolean indicator that states whether or not any maternal morbidity was recorded.

Fetal Death Data Model::MaternalMorbidity

Class: Complications affecting the mother associated with labor and delivery.

Following the conventions of vital statistics recording, each recognized morbidity is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator.

Fetal Death Data Model::MaternalMorbidity Attributes

Attribute	Type	Notes
maternalMorbidityIndicator	<i>boolean</i>	A Boolean indicator that states whether the mother has experienced the morbidity indicated by the type code value.
maternalMorbidityTypeCode	<i>char</i>	A coded indication of a type of disease or condition experienced by the mother during her pregnancy. Concept Domain = 'MaternalMorbidities'

Fetal Death Data Model::Mother

Class Extends: *Person.* : The woman who delivered the fetus.

Mother is a specialization of Person, and, therefore, the attributes and associations both of person and of this class are relevant.

Fetal Death Data Model::Mother Attributes

Attribute	Type	Notes
completedEducationLevelCode	<i>char</i>	A coded indication of the highest level of education attained by the mother. Concept Domain = 'Education Levels'
motherHeight	<i>int</i>	The mother's height in inches.
motherMailingAddress	<i>AddressLocation</i>	The postal address that is used to send mail to the mother.
motherMarriedBetweenConceptionAndBirthIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was married during the period between conception and birth.
motherMarriedEverIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother has ever been married.
motherMedicalRecordNumber	<i>char</i>	The medical record number assigned to the mother by the facility in which the delivery took place.
motherNamePriorToFirstMarriage	<i>PersonName</i>	The name used by the mother prior to her first marriage. If the person has never married, the value will be the same as for the legal name.
motherPrePregnancyWeight	<i>char</i>	The mother's weight prior to becoming pregnant. Recorded in pounds.
motherResidentialAddress	<i>AddressLocation</i>	The postal address that designates the place of the mother's residence.
motherWeightAtDelivery	<i>int</i>	The weight of the mother at delivery.
motherWICRecipientIndicator	<i>boolean</i>	A Boolean indicator to show whether the mother is registered as a recipient of aid from the WIC food (special supplemental nutrition program for Women, Infants, and Children) for herself for this pregnancy.
residentialAddress	<i>AddressLocation</i>	The address for the place where the mother currently lives.

Fetal Death Data Model::Person

Class: A person who is directly involved in the delivery process. For this model, the person could be the mother of the child, or the father.

Attribute	Type	Notes
placeOfBirth	char	A text description of the state, territory, or country where the mother or father was born.
dateOfBirth	char	The date on which the mother or father was born.
legalName	PersonName	The mother or father's legal name. The name by which they are referred to in official documents and correspondence.

Fetal Death Data Model::Pregnancy

Class: Pregnancy is treated as a component of the delivery process. It includes information on the mother's experience within the time period between conception and delivery.

Fetal Death Data Model::Pregnancy Attributes

Attribute	Type	Notes
dateofFirstPrenatalCareVisit	<i>char</i>	The date of the first prenatal care visit.
dateOfLastLiveBirth	<i>char</i>	The date of the mother's last live birth previous to this pregnancy.
dateOfLastNormalMenses	<i>int</i>	The date of the woman's last normal menstrual period.
dateOfLastOtherPregnancyOutcome	<i>char</i>	The date on which the mother's last pregnancy that did not result in a live birth ended.
dateOfLastPreNatalCareVisit	<i>char</i>	The date of the last (most recent) prenatal care visit.
noKnownPregnancyRiskFactorIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was reported to have any of the pregnancy risk factors listed within the RiskFactors concept domain.
noPrenatalVisitsIndicator	<i>boolean</i>	A Boolean indicator that is used to state whether or not the woman received no prenatal care during her pregnancy.
numberOfOtherPregnancyOutcomes	<i>int</i>	The total number of other pregnancy outcomes. This includes fetal losses of any gestational age. If this was a multiple delivery, all fetal losses delivered before this infant in the pregnancy should be included.
numberOfPrenatalVisitsRecorded	<i>int</i>	The total number of prenatal visits recorded within the mother's prenatal care record for this pregnancy.
numberOfPreviousCesareanDeliveries	<i>int</i>	The number of previous cesarean deliveries experienced by the mother.
numberOfPreviousLiveBirthsNowDead	<i>int</i>	The number of children born in previous pregnancies who are now dead.
numberOfPreviousLiveBirthsNowLiving	<i>int</i>	The number of children born to previous pregnancies who are now living.
pregnancyNotKnownInfectionIndicator	<i>boolean</i>	A Boolean indicator that states whether or not the mother was diagnosed with or treated for any of the infections listed within the Infections concept domain.

Fetal Death Data Model::RacialAffiliation

Class: A racial affiliation of the mother as (most typically) reported by the mother. It is possible for a person to report multiple racial affiliations.

Following the conventions of vital statistics recording, each recognized racial category is captured as a type code value, and whether or not it is reported by the person is captured using the affiliation indicator.

Fetal Death Data Model::RacialAffiliation Attributes

Attribute	Type	Notes
raceCode	char	A coded value indicating the person's racial affiliation. If there is no suitable code to describe the person's race, then the descriptive attribute should be used instead. Concept Domain = 'Races'
raceDescription	char	Descriptive text that indicates the racial affiliation that is reported by the person. If the race code is valued, the description provides additional information about the person's racial affiliation. If race code is not valued, then the description reports a racial category that is not addressed by the coding scheme.

Attribute	Type	Notes
reportCompleterName	char	The personal name the completer of the report goes by.
reportCompleterTitleDescription	char	A text description of the person's title or credentials.

Fetal Death Data Model::ReportCompleter

Class: A health care practitioner who is involved in the delivery process as the practitioner completing the report.

Fetal Death Data Model::ReportCompleter Attributes

Fetal Death Data Model::RiskFactor

Class: Information about whether or not various types of infection relevant to pregnancy were present

or treated during pregnancy.

Following the conventions of vital statistics recording, each recognized type of infection is captured as a type code value, and whether or not it is present during the delivery process is indicated by the value of the morbidity indicator.

Fetal Death Data Model::RiskFactor Attributes

Attribute	Type	Notes
pregnancyRiskFactorIndicator	<i>boolean</i>	A Boolean indicator that states whether the mother experienced a particular risk factor of pregnancy as indicated by the type code value.
pregnancyRiskFactorTypeCode	<i>char</i>	A coded indication of a particular risk factor that might be present during pregnancy. Concept Domain = 'Risk Factors'

Fetal Death Data Model::Smoking

Class: Information about the mother's tobacco smoking experience during and before pregnancy.

Fetal Death Data Model::Smoking Attributes

Attribute	Type	Notes
smokingAmount	<i>int</i>	The amount of cigarettes or cigarette packs (as indicated by the smoking unit) smoked during the time period of interest.
smokingPeriodOfInterestCode	<i>char</i>	A coded indication of the period(s) before and during pregnancy within which the mother's smoked cigarettes. Concept Domain = 'PeriodsOfInterest'
SmokingUnit	<i>char</i>	A coded indication of whether the mother's smoking behavior is indicated in packs of cigarettes or in single cigarettes. Concept Domain = 'SmokingUnits'

Fetal Death Data Model::VitalRecordAmendment

Class: From time to time, a vital record may be amended. This class contains information that is captured for each amendment.

Fetal Death Data Model::VitalRecordAmendment Attributes

Attribute	Type	Notes
VRAmendedDate	<i>char</i>	The date an amendment to a registered record is recorded in the system by the individual processing the amendment.
VRAmendmentNewValue	<i>char</i>	The content of a specific field in a registered vital record after it is amended.

VRAmendmentOldValue	char	The content of a specific field in a registered vital record prior to its being amended.
VRAmendmentType	char	A codified indication of the type of amendment to be processed.

Fetal Death Data Model::FetalDeathReportCertification

Class: The class captures registration related information that is recorded when a fetal death report has been filed with the vital statistics registry. Vital records are filed for a birth, a death, and a fetal death.

The information in this class has been defined to promote consistency across the vital records maintained for births, deaths, and fetal deaths. Fetal death report certification does not include information used in birth and death records to link births to deaths.

Fetal Death Data Model::FetalDeathReportCertification Attributes

Attribute	Type	Notes
VRAmendedRecordIndicator	boolean	A Boolean indicator that shows whether or not the record has been amended. Issued copies of a flagged record may or may not indicate that the record has been amended, depending on state statute and the type of amendment.
VRAuxiliaryFileNumber	char	An auxiliary filing identifier for the report. It may be used to indicate the file's number with a local (as opposed to state or other central jurisdictional) registry.
VRCertificationOrReportFileNumber	char	A filing identifier that is assigned to a report when it is registered by the jurisdiction, either electronically or manually; also known as a State File Number (SFN). The number format is unique to each jurisdiction.
VRDateFiledByRegistrar	char	The date that the record was filed with the vital statistics registry.
VRMannerOfFilingCode	char	A coded indication of the manner in which the certificate or report was filed. This information is only captured for death certificates.
VRRegistrarSignature	char	A text or graphic indication of a person's signature as affixed to the vital record.
VRUniqueIdentifier	char	A unique identifier automatically generated by an electronic vital records system to identify an electronic record. This identifier is retained with the electronic record throughout its life cycle.
VRVoidCertificateOrReportIndicator	boolean	A Boolean indicator that states whether or not the certificate identified by the file number is a void certificate.

Concept Domains

A collection of the concept domains that are relevant to the Fetal Death Reporting model. A concept domain has been defined as "The set of all concepts that can be taken as valid values in an instance of a coded attribute or field." (HL7 Version 3 Glossary)

Concept Domains::CongenitalAnomaliesOfNewborn

Class: A collection of the possible congenital anomalies that may be recorded for a fetus.

Attribute	Type	Notes
anencephaly	char	
cleftLipWithOrWithoutCleftPalate	char	
cleftPalateAlone	char	
congenitalDiaphragmaticHernia	char	
cyanoticCongenitalHeartDisease	char	
defectNotElsewhereListed	char	
downSyndromeKayotypeUnknown	int	
downSyndromeWithKaryotypeConfirmed	char	
downSyndromeWithKaryotypePending	char	
gastroschisis	char	
hypospadias	char	
limbReductionDefect	char	
meningomyeloceleSpinaBifida	char	
notListedAnomaly	char	
omphalocele	char	
suspectedChromosomalDisorderKaryotypeUnknown	char	
suspectedChromosomalDisorderWithKaryotypeConfirmed	char	
suspectedChromosomalDisorderWithKaryotypePending	char	

Concept Domains::CongenitalAnomaliesOfNewborn Attributes

Concept Domains::DeliveryRouteMethods

Class: A collection of the possible routes by way a fetus may be delivered.

Concept Domains::DeliveryRouteMethods Attributes

Attribute	Type	Notes
cesarean	char	
vaginalForceps	char	

vaginalSpontaneous	char	
vaginalVacuum	char	

Concept Domains::DiseasesOrConditions

Class: A list of the possible diseases or conditions that may be recorded as a fetus's cause of death. Currently, these codes are provided through the ICD code system.

Concept Domains::EstimatedTimesOfDeath

Attribute	Type	Notes
deadAtTimeOfFirstAssessmentLaborOngoing	char	
deadAtTimeOfFirstAssessmentNoLaborOngoing	char	
diedDuringLaborAfterFirstAssessment	char	
unknownTimeOfFetalDeath	char	

Class: A list of the possible relationships between the delivery of the fetus, and the time of fetal death.

Concept Domains::EstimatedTimesOfDeath Attributes

Concept Domains::FetalPresentations

Class: A collection of the different presentations (orientations within the mother's womb) that a fetus may be in prior to delivery.

Concept Domains::FetalPresentations Attributes

Attribute	Type	Notes
breech	char	
cephalic	char	
other	char	

Concept Domains::FetalRemainsDispositionMethods

Class: A list of the possible methods that may be used for disposing of the fetal remains.

Concept Domains::FetalRemainsDispositionMethods Attributes

Attribute	Type	Notes
burial	char	
cremation	char	
donation	char	

hospitalDisposition	char	
other	char	
removalFromState	char	
unknown	char	

Concept Domains::Infections

Class: A coded indication of a particular type of infection that might be present and/or treated during pregnancy.

Concept Domains::Infections Attributes

Attribute	Type	Notes
chlamydia	char	
cytomegalovirus	char	
gonorrhea	char	
groupBStreptococcus	char	
listeria	char	
noneOfTheAbove	char	
parovirus	char	
syphilis	char	
toxoplasmosis	char	
unknown	char	

Concept Domains::MaternalMorbiditytes

Class: A collection of diseases or conditions that may be suffered by the mother during the process of labor and delivery.

Concept Domains::MaternalMorbiditytes Attributes

Attribute	Type	Notes
admissionToIntensiveCareUnit	char	
maternalTransfusion	char	
noRemarkableEvent	char	
rupturedUterus	char	
thirdOrFourthDegreePerinealLaceration	char	
unknown	char	
unplannedHysterectomy	char	
unplannedOperatingRoomProcedure	char	

Concept Domains::PeriodsOfInterest

Class: A collection of different periods of interest that are used to record a mother's smoking behavior.

Concept Domains::PeriodsOfInterest Attributes

Attribute	Type	Notes
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firstThreeMonthsOfPregnancy	char	
secondThreeMonthsOfPregnancy	char	
thirdTrimesterOfPregnancy	char	
threeMonthsBeforePregnancy	char	

Concept Domains::ResponsiblePartyTitles

Class: A collection of the titles used to designate different professional qualifications of a person who is responsible for an aspect of the birth process.

Concept Domains::ResponsiblePartyTitlesAttributes

Attribute	Type	Notes
certifiedNurseMidwifeOrCertifiedMidwife	char	
doctorOfObstetrics	char	
hospitalAdministratorOrDesignee	char	
medicalDoctor	char	
otherMidwife		

Concept Domains::RiskFactors

Class: A coded indication of a particular risk factor that might be present during pregnancy.

Concept Domains::RiskFactors Attributes

Attribute	Type	Notes
assistedReproductiveTechnology	char	
diabetesGestational	char	
diabetesPrepregnancy	char	
fertilityEnhancingDrugsOrArtificialInsemination OrIntrauterineInsemination	char	
hypertensionEclampsia	char	
hypertensionGestational	char	
hypertensionPrepregnancy	char	
otherPreviousPoorPregnancyOutcome	char	Includes perinatal death, small-for-gestational age/intrauterine growth restricted birth.
pregnancyResultedFromInfertilityTreatment	char	
previousCesareanDelivery	char	
previousPreternBirth	char	

Concept Domains::SmokingUnits

Class: A collection of different units used to record a person’s cigarette smoking behavior.

Concept Domains::SmokingUnits Attributes

Attribute	Type	Notes
cigarettePack	char	
individualCigarette	char	

Concept Domains::VRAmendmentTypes

Class: A list of types of amendments to a vital record.

Concept Domains::VRAmendmentTypesAttributes

Attribute	Type	Notes
formalAmendment	char	Formal amendment, which includes but is not limited to name changes, paternity acknowledgements, legitimations, denials of paternity, gender reassignment, modifications to hospital record, modified cause of death, and requires approved evidentiary documentation.
minorCorrectionOrAddtion	<i>char</i>	A minor correction or addition, usually within a specified time after registration, which may or may not be considered an amendment.
replacementRecordAmendment	<i>char</i>	An amendment that requires the original record to be sealed and a replacement record, not identified as an amended record, to be substituted.

Concept Domains::EducationLevels

Class: A collection of different education levels that may be attained by the mother.

Concept Domains::EducationLevels Attributes

Attribute	Type	Notes
associateDegree	<i>char</i>	
bachelorsDegree	<i>char</i>	
collegeCredit	<i>char</i>	
doctorateOrProfessionalDegree	<i>char</i>	
eighthGradeOrLess	<i>char</i>	
highSchoolGraduateOrGED	<i>char</i>	
mastersDegree	<i>char</i>	
ninthToTwelfthGradeNoDiploma	<i>char</i>	
unknown	<i>char</i>	

Concept Domains::HispanicOrigins

Class: A collection of different categories used to provide information on whether or not a person has a Hispanic background or heritage, and, if so, the specific Hispanic origin. Note, this collection of concepts

is also often known as Ethnicity.

In the United States, federal standards for classifying data on ethnicity or Hispanic origin determine the categories used by federal agencies and exert a strong influence on categorization by state and local agencies and private sector organizations. The federal standards do not conceptually define Hispanic origin, and they recognize the absence of an anthropological or scientific basis for this classification. Instead, the federal standards acknowledge that ethnicity is a social-political construct in which an individual's own identification with a particular ethnicity is preferred to observer identification. The standards specify two minimum Hispanic origin categories: Hispanic or Latino, and Not Hispanic or Latino. The standards define a Hispanic or Latino as a person of "Mexican, Puerto Rican, Cuban, South or Central America, or other Spanish culture or origin, regardless of race." The standards stipulate that Hispanic origin data need not be limited to the two minimum categories, but any expansion must be collapsible to those categories. In addition, the standards stipulate that an individual can be Hispanic or Latino or can be Not Hispanic or Latino, but cannot be both.

Concept Domains::HispanicOrigins Attributes

Attribute	Type	Notes
notSpanishHispanicLatino	char	
yesCuban	char	
yesMexicanMexicanAmericanChicano	char	
yesPuertoRican	char	
yesOtherSpanishHispanicLatino	char	

Concept Domains::PlacesOfDelivery

Class: A collection of different kinds of setting in which a birth could take place.

Concept Domains::PlacesOfDelivery Attributes

Attribute	Type	Notes
freestandingBirthCenter	char	
homeBirth	char	
hospital	char	
clinicOrDoctorsOffice	char	

Concept Domains::Races

Class: A collection of different categories used to provide information on a person's background or heritage.

In the United States, federal standards for classifying data on race determine the categories used by federal agencies and exert a strong influence on categorization by local agencies and private sector organizations within the controlling jurisdiction. The federal standards do not conceptually define race, and they recognize the absence of an anthropological or scientific basis for racial classification. Instead, the federal standards acknowledge that race is a social-political construct in which an individual's own identification with one or more race categories is preferred to observer identification. The standards use a variety of features to define five minimum race categories. Among these features is descent from "the original peoples" of a specified region or nation. The minimum race categories are American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. The federal standards stipulate that race data need not be limited to the five minimum categories, but any expansion must be collapsible to those categories. For example, it is common to identify membership in a Native American tribe using a detailed code that hierarchically depends on the code for American Indian or Alaska Native within the coding system used to indicate racial categories.

Concept Domains::Races Attributes

Attribute	Type	Notes
americanIndianOrAlaskanNative	char	
asianIndian	char	
blackOrAfricanAmerican	char	
chinese	char	
filipino	char	
guanianmanianOrChamorro	char	
japanese	char	
korean	char	
nativeHawaiian	char	
otherAsian	char	
otherDesignatedCategory	char	
otherPacificIslander	char	
samoan	char	
vietnamese	char	
white	char	
unknown	char	

Allowed Responses Table::Genders

Class: A collection of the possible genders that may be recorded for a fetus.

Allowed Responses Table::Genders Attributes

Attribute	Type	Notes
female	char	
unknown	char	

male	<i>char</i>	
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Data Types

The package is used to manage non-atomic data types used within the Fetal Death Reporting model. It includes more or less complex structures that do not correspond to the data types used in database management systems, or to the data types supported by the Enterprise Architect tool.

Data Types::AddressLocation

Attribute	Type	Notes
apartmentNumber	<i>char</i>	The number or other identifier, e.g., 23B, for an apartment within a building.
cityOrTownOrLocation	<i>char</i>	A text indication of the city, town or other location type that is recorded for the address.
country	<i>char</i>	The country that the address is situated within. If resident in the United States of America, do not value.
county	<i>char</i>	The county that the address is situated within.
numberAndStreet	<i>char</i>	The street name and number for the address. This address feature is sometimes known as a "Street Address Line".
state	<i>char</i>	The state or province that the address is located within.
withinCityLimitsIndicator	<i>boolean</i>	A Boolean indicator that states whether the address is within the limits of a recognized city or town.
zipCode	<i>char</i>	The zip or postal code that is used by the postal service for routing mail to the address.

Class: This data type contains the component parts of a person or organization's address as commonly constructed within the United States.

Data Types::AddressLocation Attributes

Data Types::FetalWeight

Attribute	Type	Notes
amount	<i>char</i>	The weighed amount. If expressed in pounds and ounces, the weight is expressed as two integer values with "/" as a separator.

<u>Class:</u>	unitOfMeasure	char	The unit of measure. Three units are supported: gram, ounce, and pound/ounce.
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The weight of a fetus may be recorded either in grams or in ounces (The use of grams is preferred). However, by convention, it is also possible to record the weight in pounds and ounces where 1 pound -16 ounces. Both a value and a unit of measure are recorded. In the case where pounds and ounces are valued, the amount is expressed as a composite string with "/" as a separator. I.e., 7/8 seven pounds and eight ounces.

Data Types::FetalWeight Attributes

Data Types::PersonName

Class: This data type contains the component parts of a person's name as commonly constructed within the United States.

Data Types::PersonName Attributes

Attribute	Type	Notes
firstName	char	The name which the person takes as their first name (a given name).
lastName	char	The name which the person takes as their last name or surname.
middleName	char	The name which the person takes as their middle name (a given name).
nameSuffix	char	The text which the person uses as their name suffix, e.g., Jr.