Integrating the Healthcare Enterprise

IHE Cardiology (CARD)

White Paper

Cardiac Electrophysiology Key Data Elements

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Overview

Abstract

Patient, clinician, industry and government demands for improved healthcare quality have led to an increased focus to make patient healthcare information interoperability across disparate systems a reality.

A solution for interoperability is, however, not a simple undertaking. Unstructured textual data forms remain the predominate mechanism for information exchange among health care providers. A good majority of data needed by physicians and other health care providers to make good clinical decisions is embedded in this free text. Efficient and effective interoperability therefore begins by identifying the most relevant documents and the most relevant sections within those documents.

This Cardiac Electrophysiology (EP) Key Data Elements Whitepaper describes a Cardiac Electrophysiology report as an electronic document to be published as a shared document for re-use in an Electronic Health Record (EHR) or Personal Health Record (PHR) shared by a community of care providers. The main purpose of the shared document is for coordination of patient care.

Such an electronic document contains the set of attested results produced by a clinical diagnostic or interventional procedure in fulfillment of one or more test Orders for a patient. The report is shared in a human-readable format. In addition, this electronic laboratory report will contain test results in a machine-readable format, to facilitate the integration of these observations in the database of a document receiving system.

Open Issues and Questions

#	Open Issue Description
1	Not all of the data elements required to satisfy the use cases stated in this document have been identified in the Standards documents named in this whitepaper. Additional work is needed by the clinical users of the data for the selection of the appropriate data elements to satisfy the user cases and for the use of EP Key Data Elements for the further intent of coordination of patient care for EP patients.

Closed Issues

#	Closed Issue Description/ Resolution

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1 Introduction

1.1 Problem Statement

The practice of clinical cardiac electrophysiology requires management of data obtained from multiple sources unique to electrophysiology such as pacemakers, implantable cardioverter defibrillators, cardiac resynchronization devices, implantable loop recorders, cardiac electrogram recording systems, three-dimensional cardiac mapping systems and catheter ablation equipment.

Currently, clinical personnel and data managers must cope with a plethora of data formats and conventions. Some clinical users report the presence of many different computer systems for data entry throughout their data entry workflow, each of which uses different data conventions. Lack of standardization is not only inefficient but also multiplies the potential for error.

There is a need to be able to extract key data elements from systems involved in the diagnosis and treatment of the patient and the medical record in an automated, standards-based data model that can operate in a cross-platform environment across multiple systems including electronic health records and cardiac rhythm management systems regardless of vendor.

The definition and publication of Cardiac Electrophysiology Key Data Elements for Electronic Submission and Cross-System Pre-Population offers the capability to leverage health industry standards that address both the structure and content of data used in the cardiac electrophysiology domain.

1.2 Value Statement

As the use of interoperable health record management systems increases, it appears critical that key data captured during inpatient and outpatient procedures, as well as information related to the continuity of a patient's care, be shared. Other uses for such data include reporting to quality reporting agencies such as the National Cardiac Data Registry (NCDR). The identification of Key Data Elements and the ability to freely exchange those elements will significantly reduce the work-load on care providers, increase the accuracy of the data and reduce the cost of accessing it.

Key targeted improvements include:

- Reduced dependency on handwritten forms and data re-entry;
- Improved monitoring for real-time correction of errors and omissions as data is collected;
- Easier transfer of data between department systems and electronic medical record systems;
- Easier transfer of data between electronic medical record systems and Quality Registries, e.g., NCDR-ICD.

1.3 Scope

This whitepaper defines a method for describing the procedures and outcomes of clinical cardiac electrophysiology patients based on standards-based, coded data elements that can easily be shared between electronic systems. The ultimate goals of doing this are three-fold. First, improve the cross-platform transfer of data from equipment used to acquire or record electrophysiology data into the electronic health record. Second, facilitate compliance with existing and future registries that consume

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the recorded data. Finally, facilitate measurement for quality improvement programs that could leverage the recorded data, including tools for performance measures.

1.4 Stakeholders and Applications

The use of Cardiac EP Key Data Elements depends on many types of data sources with many potential use cases and applications where people and systems are working to provide care for patients. The human stakeholders share a desire to provide quality care for the patient and save time.

For the work to clearly define and communicate the Cardiac EP Key Data Elements, the broad range of stakeholders includes:

- Quality registries
- Healthcare delivery organizations and healthcare providers
- Public or private insurances
- Medical professional associations
- Cardiology device and systems industries
- Health IT industry

1.5 References

1. CDR® ICD Registry™ V2.1 Coder's Data Dictionary http://www.ncdr.com/WebNCDR/NCDRDocuments/ICD_v2_DataDictionary_CodersDictionary_2.1.pdf
2. IHE-Cardiology Supplement CardioReport (CIRC)

   http://www.ihe.net/Technical_Framework/upload/IHE_CARD_Suppl_CIRC_Rev1-1_TI-2011-07-01.pdf
3. ACC/AHA/HRS Key Data Elements and Definitions for Electrophysiological Studies[1]

   http://www.ep-society.org/files/lecture/32_220908.pdf
4. IHE PCC Technical Framework Content Modules http://www.ihe.net/Technical_Framework/upload/IHE_PCC_TF_Rev6-0_Vol_2_2010-08-30.pdf

Additional reading:

1. HITSP_V1.1_2009_C80_-_Clinical_Document_and_Message_Terminology.pdf
2. HITSP_V2.5_2009_C32_-_Summary_Documents_Using_CCD.pdf

[1] Buxton AE, et al. ACC/AHA/HRS 2006 Key Data Elements and Definitions for Electrophysiological Studies and Procedures. JACC Vol. 48, No. 11, 2006. A revision is underway and is expected to publish in 2011.

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3. HITSP_V1.0.1_2010_C154_-_HITSP_Data_Dictionary.pdf

1.6 Standards

1. HL7 CDA Release 2.0
   http://www.hl7.org/documentcenter/private/standards/cda/r2/cda_r2_normativewebedition2010.zip
2. HL7 Implementation Guide for CDA Release 2: Procedure Note (Universal Realm) (DSTU)
   http://www.hl7.org/documentcenter/public/standards/dstu/CDAR2_IG_PROCNOTE_DSTU_R1_2010JUL.zip
3. ASTM/HL7 Continuity of Care Document Implementation Guide for CDAr2
   http://www.hl7.org/documentcenter/private/standards/cda/igs/HL7_CCD_final.zip

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2 Basic Process Flow

In the basic process flow to collect Cardiac EP Key Data Elements, the patient is admitted, a physician performs a procedure and the EP lab systems used in the procedure capture the data. The EP Lab systems, as well as the EHR and ADT systems that stored the data related to the patient's admission and pre-operative encounters, are capable of exporting the data. And finally, a reporting system is capable of building a document that aggregates the data collected in each step of the procedure.

This basic process flow mirrors current manual practices in which someone gathers the appropriate documents and data from:

1. the patient's medical record,
2. the EP Lab Systems used during a specific procedure on a patient,
3. department or EHR systems containing Medications, Laboratory results and Discharge Summary.

The data is then packaged into a report signed by the Electrophysiologist and sent to the referring provider. The data is also extracted from these reports and repackaged for submission to a National Cardiac Data Registry (NCDR) or other quality Registry, or for another reporting purpose, and sent to the receiving system or provider.

3 Real World systems affected

The sources of the Cardiac EP data needed to satisfy the clinical and reporting requirements of this whitepaper are collected and stored on multiple systems used in the clinical workflow. These systems are listed below.

1. **EP Lab System(s)**
   Creates and stores clinical and procedure data during a Cardiac Electrophysiology ICD Implant Procedure.
2. **PACS System (DICOM)**
   Stores image data created during a Cardiac Electrophysiology ICD Implant Procedure.
3. **EP Lab Results Repository**
   Stores aggregated clinical and procedure data created by various systems used during a Cardiac Electrophysiology ICD Implant Procedure.
4. **EHR System**
   Creates and stores clinical and procedure data related to a patient including medications, lab results, encounter data, admission data and discharge summaries.
5. **EHR Report Repository**
   Stores aggregated clinical and procedure results data related to a patient.

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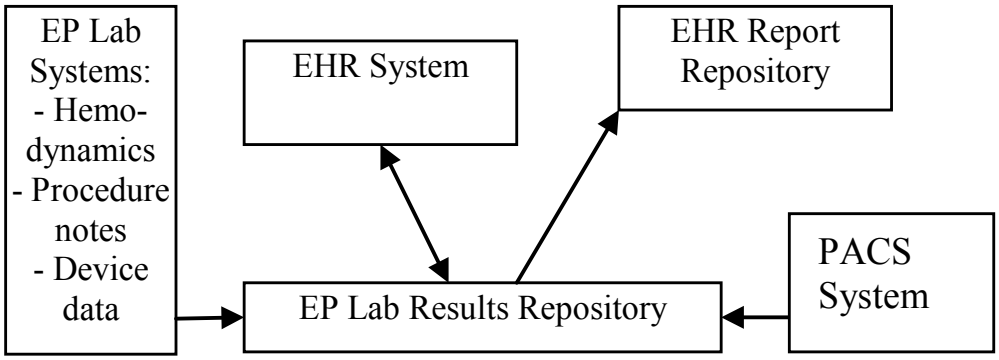

Figure 4-1. Cardiac EP Lab and EHR System Actors

4 Workflow Use Cases

4.1 Use Case 1: EP Lab procedure data is saved

Scenario Physician captures the report from an EP ICD procedure and the report becomes the basic document containing data related to the procedure.

Preconditions: The EP Lab systems record data related to the EP procedure.

Main Flow

1. Patient ICD procedure performed in EP Lab
2. Case completed in Lab
3. Electronic report is generated by the lab system
4. User validates report
5. Electronic report sent to EHR, CVIS, or other system

Events: During the ICD procedure, data related to the procedure is collected and stored in the EP Lab systems used during the procedure.

The physician performing the procedure validates the data related to the procedure. The physician user or the nurse assisting in the ICD procedure exports the procedure data to the patient's EHR, CVIS, or other system.

Post conditions: The aggregated data is stored within the patient's EHR, CVIS, or other system.

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4.2 Use Case 2: Data entry for NCDR-ICD Registry submission

Scenario

Nurse data manager insures that all of the ICD cases for a specific period have been collected and validated by the EP physician who performed the procedure. Nurse enters data into a NCDR ICD Registry form with some of the data pre-populated.

Preconditions: Basic demographic information regarding the patient's arrhythmia history and risk factors are stored in an EHR, CVIS or other system.

Aggregated data from the ICD procedure is also stored within the patient's EHR, CVIS, or other system.

Discharge and additional data have been entered into a discharge summary, which is stored in the patient's EHR, CVIS, or other system.

Main Flow

1. Electronic data is received in EHR, CVIS, or other system and is reviewed by Nurse data manager.
2. Nurse data manager queries additional data sources containing data relevant to each patient at the time of the procedure and views aggregated data for each patient
3. Data is added for the purpose of completing the NCDR ICD Registry submission.
4. Nurse data manager prepares a file for submission to the NCDR ICD Registry

Events: Per workflow procedures, Nurse Data Manager insures that all of the ICD cases for every ICD Implant procedure in the specific time period that is being reported have been collected and validated by the EP physician and stored in each patient's electronic medical record. Data stored in other systems is queried and the data set of the Key Data Elements related to the ICD implant procedure episode of care is used to create a document which is stored in the patient's EHR, CVIS, or other system.

Post conditions: Key Data Elements related to the ICD procedure episode of care are stored in the patient's EHR, CVIS, or other system, and are available for final reporting to the NCDR-ICD Registry.

4.3 Use Case 3: Hospital submits data to NCDR ICD Registry

Scenario

Nurse Data Manager submits data to NCDR ICD Registry form with some of the data pre-populated.

Precondition: Key Data Elements related to the ICD implant procedure episode of care have been stored in the patient's electronic medical record as a document and are available for final reporting to the NCDR-ICD Registry.

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Main Flow

1. Nurse data manager selects patient records for submission to NCDR-ICD Registry
2. NCDR-ICD Registry Submission validated using NCDR tools
3. Data submitted to NCDR-ICD Registry
4. Data is accepted or rejected. If rejected, nurse makes necessary corrections and resubmits to NCDR -ICD Registry.

Events: Nurse data manager at a Hospital reviews data relevant to a patient's ICD procedure at the Hospital and submits the data to the NCDR-ICD Registry.

Post conditions: Submission to the NCDR-ICD Registry is completed.

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5 Proposal for an EP Key Data Elements profile

The work provided in this whitepaper is the basis for a profile to be developed in a subsequent year. The following section will provide an overview of proposed standards for such a profile as well as an initial investigation in involved actors and their transactions

5.1 Introduction to the HL7v3 Clinical Document Architecture

There are two key issues that arise when considering what is needed to facilitate the use cases presented above. First, there is a need to collect data from multiple systems. Second, after data has been collected and aggregated, there is a need for a mechanism to share it. The resolution of these two key issues will be provided by the use of standards for interoperability.

The standard chosen to achieve the objectives identified in the use cases in this document for the transfer of data by the systems acting to communicate the Cardiac EP Key Data Elements is the new standard data format developed by HL7 version 3 - Clinical Document Architecture Release 2 (CDA R2, or simply CDA for the purposes of this whitepaper). This decision reflects a desire for seamless interoperability of disparate systems for the meaningful use of healthcare data for coordination of patient care.

For the purposes of this whitepaper, CDA is important because there is a whole ecosystem of IHE profiles and international medical information standards that use CDA. In this whitepaper and the IHE-Cardiology Cardiac Electrophysiology Key Data Elements profile supplement expected to follow this whitepaper, it will be necessary to assemble the data elements produced by the many systems and model them in CDA terms.

This section of the whitepaper will describe the transfer of Cardiac EP Key Data Elements using the IHE Content Integration standards-based interoperability method of sharing of data in the form of a structured document, which is focused on the meaningful use of healthcare data.

CDA leverages health information standards, classification systems and templates as building blocks for a health infrastructure and maps data elements created by disparate systems into a meaningful context. The use the CDA will capture clinical activity associated with care and transform the data into a format that is both human- and machine-readable.

In CDA, all data is based on and drawn from the HL7v3 Reference Information Model (RIM) and is encoded using XML. Consequently, these messages are internally consistent and precise and, with the benefit of controlled vocabularies, allow for the exchange of fine-grained clinical data without the need for bilateral negotiations between systems.

5.1.1 Relationship to Standards

The IHE Technical Frameworks identify functional components of a distributed healthcare environment (referred to as IHE actors), solely from the point of view of their interactions in the healthcare enterprise. They further define a coordinated set of transactions based on standards (such as HL7, IETF, ASTM, DICOM, ISO, OASIS, etc.) in order to accomplish a particular use case. As the scope of the IHE initiative expands, transactions based on other standards may be included as required.

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At its current level of development, IHE has also created Content Integration Profiles to further specify the payloads of these transactions, again based on standards. This has become necessary as the healthcare industry moves towards the use of transaction standards that have been used in more traditional computing environments. Content Integration Profiles published by the IHE use HL7v3 CDA R2 as the standard to transport and store data. Coded data elements used by CDA R2 are based on standard healthcare terminologies published by SNOMED CT, LOINC, IEEE-11073, ICD-9, ICD-10, CPT-4, and other healthcare standards bodies.

5.1.2 Other Standards Used for this Whitepaper

In order to map Cardiac EP Key Data Elements into standards based coded data elements, the profile that will be expected to grow from this whitepaper will create a content mapping of the key data elements for Electrophysiology. Two of the standards used in the mapping are the data elements encompassed in the **NCDR ICD Registry v2.0** and data elements defined in the **ACC/AHA/HRS Key Data Elements and Definitions for Electrophysiological Studies** documents.

5.2 Data and Document Sharing Actors

There are two actors in the Cardiac EP Key Data Elements whitepaper, the Content Creator and the Content Consumer. Content is created by a Content Creator and is to be consumed by a Content Consumer. The sharing or transmission of content from one actor to the other is addressed by the appropriate use of already-defined IHE transactions described below, and is outside the scope of this whitepaper.

In using the CDA document structure with coded data elements to automatically pre-populate the data so that it can be both read by a human and processed by a receiving system, it is useful to view the actors required in a simple architectural diagram.

Actors

1. **Content Creator** - A Document Source or a Portable Media Creator may embody the Content Creator Actor.

2. **Content Consumer** - A Document Consumer or a Portable Media Importer may embody the Content Consumer Actor.

The sharing or transmission of content or updates from one actor to the other is addressed by the use of appropriate IHE whitepapers described in the section on Content Bindings with XDS, XDM and XDR.

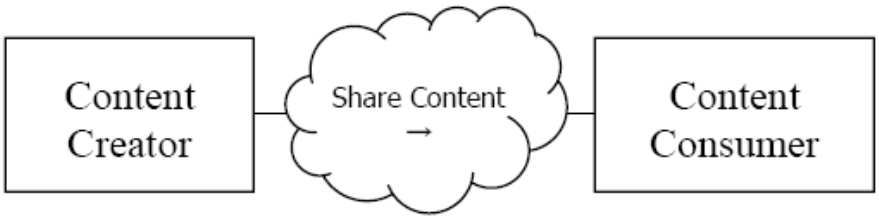

Figure 6.2-1. IHE Actors and Transactions Diagram for code-based Content profiles

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5.3 Cardiac EP Key Data Elements Actors

For each IHE Domain, each integration profile or whitepaper is a representation of a real-world capability that is supported by a set of actors that interact through transactions. Actors are information systems or components of information systems that produce, manage, or act on categories of information required by operational activities in the enterprise.

5.4 Actors

1. **EP Lab System(s)**

   Creates and stores clinical and procedure data during a Cardiac Electrophysiology ICD Implant Procedure (as above)

2. **PACS System (DICOM)**

   Stores image data created during a Cardiac Electrophysiology ICD Implant Procedure (as above)

3. **EP Lab Results Repository - Content Creator**

   As in the Real World actors, the EP Lab Results Repository actor stores aggregated clinical and procedure data created by various systems used during a Cardiac Electrophysiology ICD Implant Procedure (as above)

   The Content Creator actor is a new actor relative to the Real World Actors section and is grouped with the EP Lab Results Repository actor. The Content Creator actor transforms patient, clinical and procedure data related to a Cardiac Electrophysiology ICD Implant procedure into a standards-based file format based on the Clinical Document Architecture (CDA). The Content Creator may also use the IHE-PCC-Query for Existing data (QED) profile. A wide variety of systems often need access to dynamic clinical information stored and maintained in an EMR system or other clinical data repository. The Query for Existing Data Profile (QED) supports dynamic queries for clinical data, including vital signs, problems, medications, immunizations, diagnostic results, procedures and discharge summaries.

4. **EHR System**

   Creates and stores clinical and procedure data related to a patient including medications, lab results, encounter data, admission data and discharge summaries (as above)

5. **EHR Report Repository – Content Consumer**

   Stores aggregated clinical and procedure results data related to a patient including files in the CDA file format. The new feature of storing results in the CDA file format is an added function to the EHR Report Repository described in the previous Real World Actors section and adds the grouping of the HER Report repository with the PCC Content Consumer actor.

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5.5 Transactions

Transactions are interactions between actors that communicate the required information through standards-based messages. The diagrams and tables of actors and transactions in this section indicate which transactions each actor in a given profile will support.

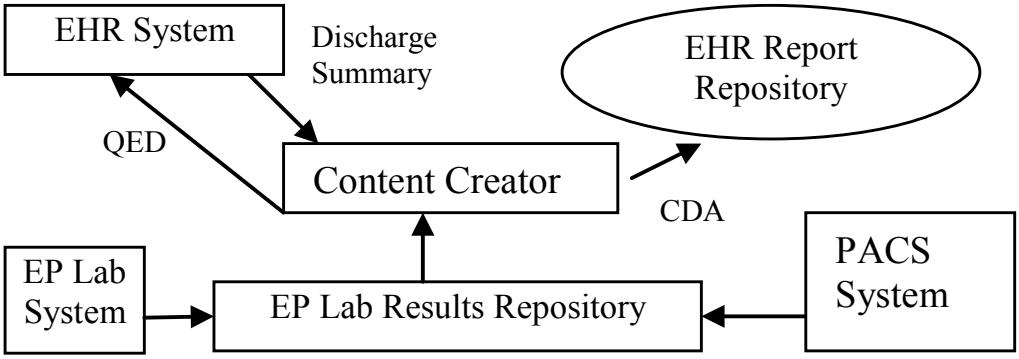

Figure 6.5-1. Cardiac EP Key Data Elements Actors and Transactions Diagram

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6 Mapping of Key Data Elements

The following table compares what the NCDR has identified as the key data elements needed to measure the outcomes of an ICD procedure with the HRS definition of Cardiac Electrophysiology Key Data Elements. In comparing the key data elements defined for the NCDR registry for the measurement of outcomes for an ICD implant procedure with the Electrophysiology Key Data Elements in the latest published standards document gaps are exposed in the set of data required for the use cases in this whitepaper. Resolution of the Open Issue noted in this whitepaper bridges the gaps.

In the table below, the data required for the NCDR-ICD Registry submission is on the left side and is mapped to the corresponding data field present in ACC/AHA/HRS Key Data Elements and Definitions for Electrophysiological Studies.

Table 7-1. NCDR-ICD data requirements mapped to ACC/AHA/HRS Key Data Elements

Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
NCDR Administrative Data	Participant ID	Indicate the participant ID of the submitting facility.	N/A		ex: HRS KDE	
NCDR Administrative Data	Participant Name	Indicate the full name of the facility.	N/A		ex: IDCO IEEE-11073	
NCDR Administrative Data	Participant NPI	Indicate the participant's National Provider Identifier (NPI).	N/A			
NCDR Administrative Data	Time Frame of Data Submission	Indicate the time frame of data included in the data submission. Format: YYYYQQ. e.g., 2006Q4	N/A			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
NCDR Administrative Data	Transmission Number	This is a unique number created, and automatically inserted by the software into extract file. It identifies the number of times the software has created data submission files. The transmission number should be incremented by one every time the data submission files are exported. The transmission number should never be repeated.	N/A			
NCDR Administrative Data	Vendor Identifier	Vendor identification (agreed upon by mutual selection between the vendor and the NCDR) to identify software vendor. This is entered into the schema automatically by vendor software. Vendors must use consistent name identification across sites. Changes to vendor name identification must be approved by the NCDR.	N/A			
NCDR Administrative Data	Vendor Software Version	Vendor's software product name and version number identifying the software which created this record (assigned by vendor). Vendor controls the value in this field. This is entered into the schema automatically by vendor software.	N/A			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
NCDR Administrative Data	Registry Identifier	The NCDR registry identifier describes the data registry to which these records apply. It is implemented in the software at the time the data is collected and records are created. This is entered into the schema automatically by software.	N/A			
NCDR Administrative Data	Registry Version	Registry version describes the version number of the Data Specifications/Dictionary, to which each record conforms. It identifies which fields should have data, and what are the valid data for each field. It is the version implemented in the software at the time the data is collected and the records are created. This is entered into the schema automatically by software.	N/A			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
NCDR Administrative Data	Patient Population	Indicate the population of patients and procedures that are included in the data submission.	N/A	**Medicare Primary Prevention Patients:** Patient procedures in which Insurance Payer is coded as 'Medicare', Procedure Performed is coded as 'Initial Implant' or 'Generator Change,' and ICD Indication is coded as 'Primary Prevention'. **All Patients:** All patients, all procedures, regardless of insurance payer, ICD indication, or procedure performed.		
NCDR Administrative Data	Auxiliary 0	Reserved for future use	N/A			
Patient Demographics	Last Name	Indicate the patient's last name. Hyphenated names should be recorded with a hyphen.	The value on arrival at this facility			
Patient Demographics	First Name	Indicate the patient's first name.	The value on arrival at this facility			
Patient Demographics	Middle Name	Indicate the patient's middle name.	The value on arrival at this facility			
Patient Demographics	SSN	Indicate the patient's United States Social Security Number (SSN).	The value on arrival at this facility			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Patient Demographics	SSN N/A	Indicate if the patient does not have a United States Social Security Number (SSN).	The value on arrival at this facility			
Patient Demographics	Patient ID	Indicate the number created and automatically inserted by the software that uniquely identifies this patient.	The value on arrival at this facility			
Patient Demographics	Other ID	Indicate optional patient identifier, such as medical record number, that can be associated with the patient.	N/A			
Patient Demographics	Birth Date	Indicate the patient's date of birth.	The value on arrival at this facility		HRS	Date of birth
Patient Demographics	Sex	Indicate the patient's sex at birth.	The value on arrival at this facility		HRS	Gender
Patient Demographics	Race - White	Indicate if the patient is White as determined by the patient/family.	The value on arrival at this facility		HRS	Race - White
Patient Demographics	Race - Black/African American	Indicate if the patient is Black or African American as determined by the patient/family.	The value on arrival at this facility		HRS	Race Black or African American
Patient Demographics	Race - Asian	Indicate if the patient is Asian as determined by the patient/family.	The value on arrival at this facility		HRS	Race -Asian
Patient Demographics	Race - American Indian/Alaska n Native	Indicate if the patient is American Indian or Alaskan Native as determined by the patient/family.	The value on arrival at this facility		HRS	Race - American Indian or Alaska Native

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Patient Demographics	Race - Native Hawaiian/Pacific Islander	Indicate if the patient is Native Hawaiian or Pacific Islander as determined by the patient/family.	The value on arrival at this facility		HRS	Race - Native Hawaiian or Other Pacific Islander
Patient Demographics	Hispanic or Latino Ethnicity	Indicate if the patient is of Hispanic or Latino ethnicity as determined by the patient/family.	The value on arrival at this facility		HRS	Hispanic Ethnicity
Patient Demographics	Auxiliary 1	Reserved for future use.	N/A			
Patient Demographics	Auxiliary 2	Reserved for future use.	N/A			
Inpatient Episode of Care for Payers	Arrival Date	Indicate the date the patient arrived at your facility	N/A		HRS	IP Admission Date
Inpatient Episode of Care for Payers	Patient Zip Code	Indicate the patient's United States Postal Service zip code of their primary residence.	The value on arrival at this facility			
Inpatient Episode of Care for Payers	Zip Code N/A	Indicate if the patient does not have a United States Postal Service zip code.	The value on arrival at this facility			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Inpatient Episode of Care for Payers	Reason for Admission	Indicate the primary reason for admission to your facility.	The value on arrival at this facility	**Admitted for this procedure:** The patient was admitted specifically to have the ICD or lead procedure. **Cardiac - Heart Failure:** Heart failure is the primary reason the patient was admitted to this facility. **Cardiac - Other:** A cardiac problem (excluding heart failure) is the primary reason the patient was admitted to this facility. **Non-Cardiac:** A non-cardiac problem is the primary reason the patient was admitted to this facility.		
Inpatient Episode of Care for Payers	Insurance Payers - Private Health Insurance	Indicate if the patient's insurance payer(s) included private health insurance.	The value on arrival at this facility		HRS	Insurance Payer - Commercial
Inpatient Episode of Care for Payers	Insurance Payers - Medicare	Indicate if the patient's insurance payer(s) included Medicare.	The value on arrival at this facility		HRS	Insurance Payer - Government - Medicare
Inpatient Episode of Care for Payers	Insurance Payers - Medicaid	Indicate if the patient's insurance payer(s) included Medicaid.	The value on arrival at this facility		HRS	Insurance Payer - Government - Medicaid
Inpatient Episode of Care for Payers	Insurance Payers - Military Health Care	Indicate if the patient's insurance payer(s) included Military Health Care.	The value on arrival at this facility		HRS	Insurance Payer - Government - Veterans Health Affairs or Department of

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						Defense
Inpatient Episode of Care for Payers	Insurance Payers - State-Specific Plan (Non-Medicaid)	Indicate if the patient's insurance payer(s) included State-specific Plan (non Medicaid).	The value on arrival at this facility			
Inpatient Episode of Care for Payers	Insurance Payers - Indian Health Service	Indicate if the patient's insurance payer(s) included Indian Health Service (IHS).	The value on arrival at this facility			
Inpatient Episode of Care for Payers	Insurance Payers - Non-US Insurance	Indicate if the patient's insurance payer(s) included Non-US Insurance.	The value on arrival at this facility			
Inpatient Episode of Care for Payers	Insurance Payers - None	Indicate if the patient had no insurance payer(s).	The value on arrival at this facility		HRS	Insurance Payer - None
Inpatient Episode of Care for Payers	Health Insurance Claim Number (HIC)	Indicate the patient's Health Insurance Claim (HIC) number.	The value on arrival at this facility			
History and Risk Factors	Heart Failure	Indicate if the patient has been diagnosed with heart failure.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other Cardio Hx- Hx of HF

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Duration of Symptoms Since Initial HF Onset	Indicate the duration of symptoms since initial diagnosis of heart failure.	The first value between birth and the first generator procedure in this admission	< 3 months 3 to 9 months > 9 months		
History and Risk Factors	Prior Heart Failure Hospitalization	Indicate if the patient has been hospitalized for heart failure.	The last value between birth and arrival			
History and Risk Factors	Prior Heart Failure Hospitalization Timeframe	Indicate the timeframe of the most recent hospitalization for heart failure.	The last value between birth and arrival			
History and Risk Factors	NYHA Functional Classification	Indicate the patient's New York Heart Association (NYHA) Functional Classification at the time of decision to implant the generator.	The highest value on the first generator procedure in this admission		HRS	Other Cardio Hx- Hx of HFStatus
History and Risk Factors	Non-Ischemic Dilated Cardiomyopathy	Indicate if the patient has a history of non-ischemic dilated cardiomyopathy (NIDCM) documented by heart failure and reduced systolic function (ejection fraction <40%).	Any occurrence between birth and the first generator procedure in this admission		HRS	Evidence for hypertensive cardiomyopathy
History and Risk Factors	Non-Ischemic Dilated Cardiomyopathy Timeframe	Indicate the timeframe since the initial diagnosis of non-ischemic dilated cardiomyopathy.	The first value between birth and the first generator procedure in this admission	< 3 months 3 to 9 months > 9 months		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Prior Heart Transplant	Indicate if the patient has had previous heart transplant surgery.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	On Heart Transplant Waiting List	Indicate if the patient is currently on a waiting list to receive a heart transplant.	The last value between birth and the first generator procedure in this admission			
History and Risk Factors	Syncope	Indicate if the patient has a history of syncope.	Any occurrence between birth and the first generator procedure in this admission		HRS	Syncope
History and Risk Factors	Family History of Sudden Death	Indicate if the patient has a family history (parent or sibling) of sudden death.	Any occurrence between birth and the first generator procedure in this admission		HRS	10. Family History - Family history of sudden cardiac death
History and Risk Factors	Atrial Fibrillation/Flutter	Indicate if the patient has a history of atrial fibrillation and/or atrial flutter documented in the medical record.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Atrial Fibrillation/Flutter Classification	Indicate the classification of atrial fibrillation or flutter.	The last value between birth and the first generator procedure in this admission	**Paroxysmal:** The arrhythmia terminates spontaneously (without pharmacological therapy or electrical cardioversion). **Persistent (> 7 days):** The arrhythmia is sustained beyond seven days (and is not self-terminating). This category also includes cases of long-standing atrial fibrillation (e.g. greater than one year), cases where atrial fibrillation terminates with pharmacological therapy or electrical cardioversion, or cases where cardioversion is not indicated, not attempted, or unsuccessful. **Permanent (> 1 year):** The arrhythmia has persisted for greater than one year, where pharmacological therapy and/or cardioversion has failed or has been foregone. **Secondary (reversible cause):** Secondary atrial fibrillation occurs when atrial fibrillation is transient and due to an unrelated, reversible cause. It is not the primary problem and treatment of the underlying disorder usually terminates the arrhythmia. It occurs in the setting of acute myocardial infarction, cardiac surgery, pericarditis, myocarditis, hyperthyroidism, or acute pulmonary disease. Conversely, when it is known that atrial fibrillation occurs in the course of a concurrent disorder like well-controlled hypothyroidism, it is not considered secondary. **Unknown:** The patient has a history of atrial fibrillation but the classification is not known or not specified.		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Ventricular Tachycardia	Indicate if the patient had a history of ventricular tachycardia (VT). To qualify as history, VT should be spontaneous and not induced.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Hemodynamic Instability	Indicate if the patient demonstrated hemodynamic instability while having episodes of sustained or non-sustained ventricular tachycardia. Hemodynamic instability can include periods of reduced, unstable, or abnormal bloodabnormal blood pressure with near syncope, or episodes of syncope. It creates a state of hypoperfusion that does not support normal organ perfusion or function.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Ventricular Tachycardia Type	Indicate the type of ventricular tachycardia.	The highest value between birth and the first generator procedure in this admission	**Non-sustained VT:** Nonsustained or unsustained ventricular tachycardia (VT) is three or more beats in duration, terminating spontaneously in <30 seconds. Non-sustained VT can be monomorphic or polymorphic. **Sustained monomorphic VT:** Sustained monomorphic ventricular tachycardia (VT) is VT >30 seconds in duration or requiring termination due to hemodynamic compromise in <30 seconds that has a stable, single QRS morphology. **Sustained polymorphic VT:** Sustained polymorphic ventricular tachycardia (VT) is VT >30 seconds in duration or requiring termination due to hemodynamic compromise in <30 seconds that has a changing or multiform QRS morphology at cycle length >180 milliseconds. **Sustained monomorphic and polymorphic VT:** The patient has a history of both sustained monomorphic and sustained polymorphic ventricular tachycardia. **Unknown:** The patient has a history of ventricular tachycardia but the specific type is not known.		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Cardiac Arrest	Indicate if the patient experienced cardiac arrest due to arrhythmia.	Any occurrence between birth and the first generator procedure in this admission		HRS	Cardiac Arrest due to arrhythmia
History and Risk Factors	Most Recent Cardiac Arrest Date	Indicate the date of the most recent cardiac arrest.	The last value between birth and the first generator procedure in this admission			
History and Risk Factors	VTach/VFib Arrest	Indicate if the cardiac arrest was a result of ventricular tachycardia or ventricular fibrillation. Ventricular tachycardia is three or more fast heart beats (greater than 100 bpm) that originates in one of the ventricles. Ventricular fibrillation occurs when the heart's electrical activity becomes disordered and the ventricles contract in a rapid, unsynchronized way.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Bradycardia Arrest	Indicate if the cardiac arrest was a result of bradycardia.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Special Syndromes w/Risk of Sudden Death	Indicate if the patient has a special syndrome that puts him/her at risk for sudden death.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Special Syndrome Type	Specify the type of syndrome that puts the patient at risk for sudden death.	Any occurrence between birth and the first generator procedure in this admission	**Long QT syndrome:** History of ECG findings of prolonged QT interval. Long QT Syndrome includes prolongation of the corrected QT interval beyond 440 ms for adult males, 460 ms for adult females and 50 ms in the presence of ventricular depolarization abnormalities (i.e., bundle branch blocks or IVCB more than 120 ms. Note: A normal QT interval in a resting ECG with a failure to shorten with an increase in heart rate qualifies as Long QT Syndrome. **Short QT syndrome:** History of ECG findings of short QT interval. Short QT Syndrome is characterized by a QT interval of <=300 ms. **Brugada syndrome:** Polymorphic ventricular tachycardia in the absence of structural heart disease, associated with a baseline ECG pattern during sinus rhythm showing right bundle branch block with ST segment elevation in leads V1 through V3. It can also be characterized by documentation of ECG patterns associated with Brugada Syndrome, some of which may be unmasked when provoked with drugs. The most common genetic mutations identified for Brugada syndrome are in a sodium channel gene (SCN5A). Sodium channel blocking drugs, therefore, may exacerbate the electrocardiographic features and clinical presentation. Brugada syndrome typically presents before the age of 50 years **Catecholaminergic polymorphic VT:** Ventricular Tachycardia associated with syncope and/or cardiac arrest triggered	HRS	Hx Long QT, Long QT

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
				by emotion or exercise in patients whose baseline ECG is normal. **Idiopathic/primary VT/VF:** Ventricular tachycardia or ventricular fibrillation whose cause is unknown. **Other:** The patient has a special syndrome with risk of sudden death which is not specified above. .		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Previous ICD	Indicate if the patient had a previous implantable cardioverter defibrillator (ICD).	Any occurrence between birth and arrival		HRS	Hx of ICD Insertion
History and Risk Factors	Previous ICD Type	Indicate the type of implantable cardioverter defibrillator (ICD).	The last value between birth and arrival	**Single chamber**: A single-chamber ICD defibrillates the ventricle and paces the ventricle. **Dual chamber:** A dual-chamber ICD defibrillates the ventricle and paces the atrium and ventricle. **CRT-D:** A cardiac resynchronization therapy device and defibrillator (CRT-D) has dual capabilities. It is a biventricular pacemaker that sends electrical signals to both ventricles as well as a defibrillator. It may or may not have an atrial pacing wire.	HRS	hx of ICD Insertion - Type
History and Risk Factors	Previous ICD Implant Site	Indicate the location in the body where the previous ICD was implanted.	The last value between birth and arrival	**Pectoral:** The ICD was implanted in the pectoral wall. **Abdominal:** The ICD was implanted in the abdominal wall.		
History and Risk Factors	Previous ICD Date	Indicate the date the patient had a previous ICD.	The last value between birth and arrival			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Previous ICD Reason	Indicate the reason the previous ICD was implanted.	The last value between birth and the previous ICD date	**Primary prevention:** Primary Prevention is an indication for an ICD to prevent sudden cardiac death. It refers to use of ICDs in individuals who are at risk for but have not yet had an episode of sustained ventricular tachycardia, ventricular fibrillation, or resuscitated cardiac arrest. **Secondary prevention:** Secondary prevention refers to an indication for ICD exclusively for patients who have survived one or more cardiac arrests or sustained ventricular tachycardia. Patients with cardiac conditions associated with a high risk of sudden death who have unexplained syncope that is likely to be due to ventricular arrhythmias are considered to have a secondary indication.	HRS	hx of ICD Insertion - Indication
History and Risk Factors	Implant Decision LVEF	Indicate the left ventricular ejection fraction that led to the implant decision.	Any occurrence between birth and the previous ICD		HRS	hx of ICD Insertion - Indication

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
			date			
History and Risk Factors	Implant Decision LVEF Not Available	Indicate if the left ventricular ejection fraction that led to the implant decision is not available.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication
History and Risk Factors	Reason for Initial Implant - Cardiac Arrest/Arrhythmia-Etiology Unknown	Indicate if the reason the previous ICD was implanted for secondary prevention was that the patient had an episode of cardiac arrest or arrhythmia where the etiology was unknown. This includes a sudden loss of consciousness requiring cardioversion or defibrillation to restore hemodynamic stability.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication
History and Risk Factors	Reason for Initial Implant - Spontaneous Sustained Ventricular Tachycardia	Indicate if the reason the previous ICD was implanted for secondary prevention was that the patient had an episode of ventricular tachycardia (VT) that started spontaneously. Spontaneous VT lasts >30 seconds in duration or requires termination due to hemodynamic compromise in <30 seconds.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Reason for Initial Implant - Syncope with High Risk Characteristics	Indicate if the reason the previous ICD was implanted for secondary prevention was that the patient had an episode of syncope (sudden loss of consciousness with loss of postural tone not related to anesthesia) with high risk characteristics. High risk characteristics include non-ischemic dilated cardiomyopathy, or ischemic heart disease with significant ventricular dysfunction, hypertrophic cardiomyopathy, Brugada Syndrome, or Long QT Syndrome.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication
History and Risk Factors	Reason for Initial Implant - Syncope With Inducible Ventricular Tachycardia	Indicate if the reason the previous ICD was implanted for secondary prevention was that the patient had an episode of syncope (sudden loss of consciousness with loss of postural tone not related to anesthesia) while ventricular tachycardia (VT) was induced during an electrophysiological study that induced VT.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Reason for Initial Implant - Ventricular Fibrillation	Indicate if the reason the previous ICD was implanted for secondary prevention was that the patient had an episode of ventricular fibrillation (VF). VF is a rapid, usually more than 300 beats per minute (cycle length 180 msec or less) grossly irregular ventricular rhythm with marked variability in cycle length, lack of discernible discreet QRS complex.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication
History and Risk Factors	Reason for Initial Implant - Not Documented in the Medical Record	Indicate if the reason the previous ICD was implanted for secondary prevention was not documented in the medical record.	Any occurrence between birth and the previous ICD date		HRS	hx of ICD Insertion - Indication
History and Risk Factors	Permanent Pacemaker	Indicate if the patient currently has a permanent pacemaker or had a permanent pacemaker that was implanted at any time prior to this procedure. This includes patients that had a permanent pacemaker previously, but the device is no longer in place.	Any occurrence between birth and the first generator procedure in this admission		HRS	Permanent Pacemaker Hx.
History and Risk Factors	Pacemaker Type	Indicate the type of pacemaker.	The last value between birth and the first generator procedure in this admission	Atrial chamber Ventricular chamber Dual chamber CRT	HRS	Pacemaker Type

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Ischemic Heart Disease	Indicate if the patient has a history of ischemic heart disease that is documented in the medical record.	The highest value between birth and the first generator procedure in this admission		HRS	Evidence of Ischemic heart disease
History and Risk Factors	One Epicardial Artery >=70% Confirmed by Angiography	Indicate if ischemic heart disease is confirmed with at least one epicardial artery with >= 70% obstruction by angiography (or the left main coronary artery >=50%).	The highest value between birth and the first generator procedure in this admission			
History and Risk Factors	Prior MI	Indicate if the patient has had at least one documented previous myocardial infarction.	Any occurrence between birth and the first generator procedure in this admission		HRS	Hx of MI
History and Risk Factors	Most Recent MI Timeframe	Indicate the timeframe of the most recent prior myocardial infarction.	The last value between birth and the first generator procedure in this admission	<= 40 days > 40 days		
History and Risk Factors	Prior PCI	Indicate if the patient had a percutaneous coronary intervention, prior to this admission.	Any occurrence between birth and arrival to this facility		HRS	History of Invasive Cardiac Interventions/Surgery - Hx of PCI procedure

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Most Recent PCI Date	Indicate the date of the most recent PCI.	The last value between birth and arrival to this facility		HRS	History of Invasive Cardiac Interventions/Surgery - Hx of PCI procedure date
History and Risk Factors	Prior CABG	Indicate if the patient had coronary artery bypass graft (CABG) surgery prior to this admission.	Any occurrence between birth and arrival to this facility		HRS	History of Invasive Cardiac Interventions/Surgery - History of coronary artery bypass graft (CABG) surgery
History and Risk Factors	Most Recent CABG Date	If the patient had a CABG prior to this admission, indicate the date of the most recent CABG.	The last value between birth and arrival to this facility		HRS	History of Invasive Cardiac Interventions/Surgery - History of coronary artery bypass graft (CABG) surgery - Date
History and Risk Factors	Primary Valvular Heart Disease	Indicate if the patient has a history of primary valvular heart disease that is moderately severe or severe.	Any occurrence between birth and the first generator procedure in this admission	HRS	HRS	Evidence for valvular heart disease

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Other Structural Abnormalities	Indicate if the patient has any other structural abnormality of the heart, ventricles or great vessels (excluding primary valvular heart disease). These conditions are frequently found in imaging reports such as echo, MRI, CAT scan, MUGA or other imaging studies.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Structural Abnormality Type - Amyloidosis	Indicate if the patient has a history of amyloidosis. Amyloidosis is a rare and potentially fatal disease that occurs when substances called amyloid proteins build up in organs, including the heart.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Structural Abnormality Type - Atrial Septal Defect	Indicate if the patient has a history of an atrial septal defect (ASD). An ASD is a hole in the wall between the two upper chambers of the heart.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Structural Abnormality Type - Chagas Disease	Indicate if the patient has a history of Chagas disease. Chagas disease is an inflammatory, infectious condition caused by a parasite called the reduvid bug and which is transmitted to humans. Also called American trypanosomiasis, may become chronic, and can result in serious heart and digestive problems.	Any occurrence between birth and the first generator procedure in this admission		HRS	Evidence for inflammatory myocarditis-Chagas

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Structural Abnormality Type - Common Ventricle	Indicate if the patient has a history of a common ventricle. Common ventricle is an umbrella term used to describe several very different complex congenital heart defects that share the same problem: the heart has only one functional ventricle (anatomically right or left or indeterminate) supplying the systemic circulation. These defects include tricuspid atresia, hypoplastic left or right heart syndrome, double outlet right ventricle, double inlet left ventricle, and other forms of single ventricle defects.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Hx of congenital heart disease (note much finer detail at ICD-NCDR registry
History and Risk Factors	Structural Abnormality Type - Ebstein's Anomaly	Indicate if the patient has a history of Ebstein's anomaly. Ebstein's anomaly is a rare congenital heart defect that primarily involves the right ventricle and the tricuspid valve. Blood leaks back through the valve and into the right atrium which can lead to cardiomyopathy, and tachyarrhythmias.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Hx of congenital heart disease (note much finer detail at ICD-NCDR registry
History and Risk Factors	Structural Abnormality Type - Giant Cell Myocarditis	Indicate if the patient has a history of giant cell myocarditis. Giant cell myocarditis is a type of myocarditis (or inflammation of the myocardium) that is diagnosed by endocardial biopsy and thought to be mediated by T lymphocytes.	Any occurrence between birth and the first generator procedure in this admission		HRS	Evidence for inflammatory myocarditis-Biopsy

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Structural Abnormality Type - Hypertrophic Cardiomyopathy	Indicate if the patient has a history of hypertrophic cardiomyopathy (HCM). HCM is a disease in which the heart muscle (myocardium) becomes abnormally thick or hypertrophied.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Evidence for hypertensive cardiomyopathy
History and Risk Factors	Structural Abnormality Type - Left Ventricular Aneurysm	Indicate if the patient has a history of a left ventricular aneurysm. A left ventricular aneurysm is a bulge or ballooning in the left ventricle of the heart.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Structural Abnormality Type - LV Non-compaction Syndrome	Indicate if the patient has a history of left ventricular non-compaction syndrome. This is an uncommon congenital abnormality where the left ventricular myocardium fails to compact during embryonic development, leading to cardiomyopathy with a variable degree of ventricular dysfunction. There is genetic heterogeneity and phenotypic variability. Characteristically, there are typically deep trabeculations in the noncompacted area, with varying proportions of the LV myocardium compacted. LV noncompaction is associated with rhythm abnormalities including Wolff-Parkinson-White syndrome, conduction defects, and ventricular tachyarrhythmias.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Hx of congenital heart disease (note much finer detail at ICD-NCDR registry
History and Risk Factors	Structural Abnormality Type - Right Ventricular Dysplasia (ARVD)	Indicate if the patient has a history of right ventricular dysplasia (ARVD). ARVD is an inherited cardiomyopathy characterized by ventricular arrhythmia and right ventricular dysfunction.	Any occurrence between birth and the first generator procedure in this admission		HRS	Arrhythmogenic right ventricular dysplasia/cardio myopathy (ARVD/C)

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Structural Abnormality Type - Sarcoidosis	Indicate if the patient has a history of sarcoidosis. Sarcoidosis is a disease characterized by the development and growth of tiny clumps of inflammatory cells in different areas of the body, including the heart.	Any occurrence between birth and the first generator procedure in this admission		HRS	Evidence for inflammatory myocarditis-Sarcoidosis
History and Risk Factors	Structural Abnormality Type - Transposition of Great Vessels	Indicate if the patient has a history of transposition of great vessels. Transposition of the great vessels is a congenital heart defect in which the two main arteries leaving the heart are reversed (transposed).	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Hx of congenital heart disease (note much finer detail at ICD-NCDR registry
History and Risk Factors	Structural Abnormality Type - Tetralogy of Fallot	Indicate if the patient has a history of Tetralogy of Fallot. Tetralogy of Fallot is a congenital heart defect characterized by a large ventricular septal defect, pulmonary stenosis; right ventricular hypertrophy and an overriding aorta.	Any occurrence between birth and the first generator procedure in this admission		HRS	Other cardivascular history - Hx of congenital heart disease (note much finer detail at ICD-NCDR registry
History and Risk Factors	Structural Abnormality Type - Ventricular Septal Defect	Indicate if the patient has a history of a ventricular septal defect (VSD). A VSD is a hole in the wall between the two lower chambers of the heart.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Structural Abnormality Type - Other	Indicate if the patient has a history of a structural abnormality of the heart that is not otherwise specified.	Any occurrence between birth and the first generator procedure in this admission			
History and Risk Factors	Height	Indicate the patient's height in centimeters.	The last value between arrival and the first generator procedure in this admission		HRS	C. Physical Examination - height
History and Risk Factors	Weight	Indicate the patient's weight in kilograms.	The last value between arrival and the first generator procedure in this admission		HRS	C. Physical Examination - Weight
History and Risk Factors	Cerebrovascular Disease	Indicate if the patient has a history of cerebrovascular disease.	Any occurrence between birth and the first generator procedure in this admission		HRS	History of cerebrovascular disease
History and Risk Factors	Chronic Lung Disease	Indicate if the patient has a history of chronic lung disease.	Any occurrence between birth and the first generator procedure in this admission	Yes Not assessed	HRS	8. History of Invasive Cardiac Interventions/Surgery - History of lung disease

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
History and Risk Factors	Diabetes Mellitus	Indicate if the patient has a history of diabetes mellitus regardless of duration of disease or need for diabetic medications.	Any occurrence between birth and the first generator procedure in this admission		HRS	9. Non-Cardiovascular History - History of diabetes mellitus
History and Risk Factors	Sleep Apnea	Indicate if the patient has a history of sleep apnea that has been diagnosed by a sleep study.	Any occurrence between birth and the first generator procedure in this admission		HRS	8. History of Invasive Cardiac Interventions/Surgery - History of sleep apnea
History and Risk Factors	Currently on Dialysis	Indicate if the patient is currently undergoing either hemodialysis or peritoneal dialysis on an ongoing basis as a result of renal failure.	Any occurrence between arrival and the first generator procedure in this admission			
History and Risk Factors	Hypertension	Indicate if the patient has a current diagnosis of hypertension.	Any occurrence between birth and the first generator procedure in this admission		HRS	Hx of Hypertension
History and Risk Factors	Patient Life Expectancy of >= 1 Year	Indicate if, by physician estimate, the patient is expected to live for one or more years.	Any occurrence on the first generator procedure in this admission	Yes No Not Documented		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	LVEF Assessed	Indicate if a left ejection fraction percentage has been assessed.	Any occurrence between 12 months prior to the first generator procedure and the first generator procedure in this admission		HRS	D. Laboratory Data - Ejection fraction (EF)
Diagnostic Studies Prior to Current Procedure	Most Recent LVEF %	Indicate the most recent left ventricular ejection fraction. The left ventricular ejection fraction can be assessed via invasive (i.e. LV gram), or non-invasive (i.e. Echo, MR, CT or Nuclear) testing. Enter a percentage in the range of 01 - 99. If a percentage range is reported, report the lowest number of the range (i.e.50-55%, is reported as 50%).	The last value between 12 months prior to the first generator procedure and the first generator procedure in this admission		HRS	D. Laboratory Data - Ejection fraction (EF)
Diagnostic Studies Prior to Current Procedure	Most Recent LVEF Timeframe	Indicate the timeframe the left ventricular ejection fraction was obtained.	The last value between 12 months prior to the first generator procedure and the first generator procedure in this admission	<1 month >= 1 to <= 3 months >3 to <= 6 months >6 months		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Electrophysiology Study	Indicate if the patient had an electrophysiology study (EPS).	Any occurrence between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	EP Study Timeframe	Indicate the timeframe the electrophysiology study (EPS) was performed.	The last value between birth and the first generator procedure in this admission	<1 month >= 1 to <= 3 months >3 to <= 6 months >6 months		
Diagnostic Studies Prior to Current Procedure	Ventricular Arrhythmias Induced	Indicate if ventricular arrhythmias were induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission	**No:** Ventricular arrhythmias were not induced during the EP study. **Yes:** Ventricular arrhythmias were induced during the EP study. **Results unattainable:** The results of the electrophysiology study were unattainable.	HRS	How was arrhythmia induced—Ventricle
Diagnostic Studies Prior to Current Procedure	VT Ablation Performed	Indicate if ventricular tachycardia ablation was performed.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	EP Study Findings - Non-Sustained Ventricular Tachycardia	Indicate if non-sustained ventricular tachycardia was induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	EP Study Findings - Sustained Monomorphic Ventricular Tachycardia	Indicate if sustained monomorphic ventricular tachycardia was induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	EP Study Findings - Sustained Polymorphic Ventricular Tachycardia	Indicate if sustained polymorphic ventricular tachycardia was induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	EP Study Findings - Ventricular Flutter	Indicate if ventricular flutter was induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	EP Study Findings - Ventricular Fibrillation	Indicate if ventricular fibrillation was induced during the electrophysiology study.	Any occurrence between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	12 Lead ECG With Automated Measurements	Indicate if the patient had a 12 lead electrocardiogram (ECG) with automated measurements.	The last value between birth and the first generator procedure in this admission		HRS	F. Noninvasive Diagnostic Procedures - ECG
Diagnostic Studies Prior to Current Procedure	12 Lead ECG With Automated Measurements Date	Indicate the date the 12 lead electrocardiogram (ECG) with automated measurements was performed.	The last value between birth and the first generator procedure in this admission		HRS	F. Noninvasive Diagnostic Procedures - ECG
Diagnostic Studies Prior to Current Procedure	PR Interval	Indicate the PR interval, in milliseconds, on the electrocardiogram.	The last value between birth and the first generator procedure in this admission		HRS	PR Interval
Diagnostic Studies Prior to Current Procedure	PR Interval Not Obtainable	Indicate if the PR interval on the electrocardiogram was not obtainable.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	QRS Duration (Non-Ventricular Paced Complex)	Indicate the duration of the non-ventricular paced or intrinsic QRS complex, in milliseconds, that was derived from the surface electrocardiogram (ECG). Surface ECGs are obtained from the surface of the body and do not include intracardiac ECGs.	The last value between birth and the first generator procedure in this admission		HRS	Specific ECG pattern - QRS Duration

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Only Ventricular Paced QRS Complexes Present	Indicate if there were only ventricular paced QRS complexes present.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - AFib/Flutter	The cardiac rhythm is atrial fibrillation or atrial flutter.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Atrial Tachycardia	The cardiac rhythm is greater than 100 beats per minute that originates from the atria or sinoatrial node.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Idioventricular	The cardiac rhythm originates in the ventricles. The heart rate is usually regular and ranging between 30-40 beats per minute (the intrinsic ventricular rate), but can be higher or lower. If atrial activity is present, there is usually no relationship between the atrial and ventricular complexes.	The last value between birth and the first generator procedure in this admission		HRS	C. Physical Examination - Heart rate (slight difference in timing)

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Junctional	The cardiac rhythm arises from the atrioventricular (AV) junction.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node FunctionvAtrio-His (AH) interval
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Paced	The cardiac rhythm originates from a pacemaker.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Sinus Rhythm	The cardiac rhythm originates from the sinoatrial node. If the patient is in sinus rhythm with 1st degree heart block, code sinus rhythm.	The last value between birth and the first generator procedure in this admission		HRS	3. Diagnostic Evaluation - a. Sinus Node Function - Sinus node function

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Second Degree Heart Block	Characterized by one of the following: Mobitz I: progressive PR prolongation and shortening of RR interval until P wave is blocked. Pause after blocked P wave is less than twice the PP interval. PR following block is shorter than PR immediately preceding block. Mobitz II: regular sinus/atrial rhythm with intermittent nonconducted P waves. Constant PR interval in the conducted beats.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Cardiac Rhythm - Third Degree Heart Block	Characterized by independent atrial and ventricular complexes with the atrial rate usually exceeding ventricular rate. Also known as complete heart block.	The last value between birth and the first generator procedure in this admission			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Underlying Atrial Rhythm	Indicate, for the paced rhythm, the underlying atrial rhythm.	The last value between birth and the first generator procedure in this admission	**Sinus rhythm:** The atrial rhythm originates from the sinoatrial node. **Atrial fibrillation/atrial flutter:** There are no consistent P waves. With atrial flutter, in the place of P waves, there is uncoordinated atrial activity with rapid oscillations or fibrillation waves that vary in amplitude, shape, timing, and are associated with an irregular ventricular response (if atrioventricular conduction is intact). With atrial flutter, there is a sawtooth pattern of regular atrial activation. **Sinus arrest:** The patient has no conduction through the sinoatrial node with a pause for a minimum of 3 seconds. **Results unattainable:** The results of the electrophysiology study were unattainable.		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Pacing Type	Indicate the type of pacing noted in the cardiac rhythm.	The last value between birth and the first generator procedure in this admission	**Atrial pacing:** The patient's pacemaker is firing to create an atrial contraction or a "p wave". **Ventricular pacing:** The patient's pacemaker is firing to create a ventricular contraction or a "QRS complex". **Both:** The patient's pacemaker is firing to create both atrial and ventricular contractions.		
Diagnostic Studies Prior to Current Procedure	Ventricular Paced QRS Duration	Indicate the duration of the ventricular paced QRS complex in milliseconds that was derived from the surface electrocardiogram (ECG). Surface ECGs are obtained from the surface of the body and do not include intracardiac ECGs.	The last value between birth and the first generator procedure in this admission			
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction	Indicate if the patient has Abnormal intraventricular conduction, with fascicular blocks, bundle branch blocks, non-specific conduction delays or ventricular pacing.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Left Anterior Fascicular Block	Indicate if the patient has left anterior fascicular block.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Left Posterior Fascicular Block	Indicate if the patient has left posterior fascicular block.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Left Bundle Branch Block	Indicate if the patient has left bundle branch block.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Delay, Nonspecific	Indicate if the patient has an intraventricular conduction delay that was nonspecific.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Right Bundle Branch Block	Indicate if the patient has right bundle branch block.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction
Diagnostic Studies Prior to Current Procedure	Abnormal Intraventricular Conduction Type - Ventricular Paced Rhythm	Indicate if the patient has a ventricular paced rhythm. If, on the ECG closest to the procedure, the patient is not paced 100% of the time, code no.	The last value between birth and the first generator procedure in this admission		HRS	G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function - Intraventricular conduction
Diagnostic Studies Prior to Current Procedure	Systolic Blood Pressure	Indicate the systolic blood pressure in mmHg.	The last value between birth and the first generator procedure in this admission		HRS	C. Physical Examination - Systolic and diastolic blood pressure
Diagnostic Studies Prior to Current Procedure	Diastolic Blood Pressure	Indicate the diastolic blood pressure in mm Hg.	The last value between birth and the first generator procedure in this admission		HRS	C. Physical Examination - Systolic and diastolic blood pressure

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	BUN	Indicate the blood urea nitrogen (BUN) value, in mg/dL.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Blood urea nitrogen (BUN)
Diagnostic Studies Prior to Current Procedure	BUN Not Drawn	Indicate if a blood urea nitrogen (BUN) was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Blood urea nitrogen (BUN)
Diagnostic Studies Prior to Current Procedure	Hemoglobin	Indicate the hemoglobin (Hgb) value in g/dL.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Serum hemoglobin (mg/dl)/hematocrit.
Diagnostic Studies Prior to Current Procedure	Hemoglobin Not Drawn	Indicate if the hemoglobin value was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Serum hemoglobin (mg/dl)/hematocrit.
Diagnostic Studies Prior to Current Procedure	Sodium	Indicate the sodium (Na) level, in mEq/L.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Sodium

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	Sodium Not Drawn	Indicate if the sodium level was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Sodium
Diagnostic Studies Prior to Current Procedure	Creatinine	Indicate the creatinine level (Cr) in mg/dL.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Serum creatinine
Diagnostic Studies Prior to Current Procedure	Creatinine Not Drawn	Indicate if a creatinine level was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Serum creatinine
Diagnostic Studies Prior to Current Procedure	Potassium	Indicate the Potassium (K) level, in mEq/L.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Potassium
Diagnostic Studies Prior to Current Procedure	Potassium Not Drawn	Indicate if the potassium level was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Potassium

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Diagnostic Studies Prior to Current Procedure	BNP	Indicate the patient's brain natriuretic peptide (BNP) level in pg/ml.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Brain-natriuretic peptide (BNP) or N-terminal BNP
Diagnostic Studies Prior to Current Procedure	NT-proBNP	Indicate the patient's NT-pro- brain natriuretic peptide (BNP) level in pg/ml.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Brain-natriuretic peptide (BNP) or N-terminal BNP
Diagnostic Studies Prior to Current Procedure	BNP or NT-proBNP Not Drawn	Indicate if a BNP or NT-proBNP level was not drawn.	The last value between birth and the first generator procedure in this admission		HRS	D. Laboratory Data - Brain-natriuretic peptide (BNP) or N-terminal BNP
Pre-op and Procedure Data	Procedure Date	Indicate the date of the procedure.	Any occurrence on current procedure		HRS	Date of EP Study
Pre-op and Procedure Data	Procedure Time	Indicate the time the procedure started, to the nearest minute. The time of the procedure is the time that the skin incision, vascular access, or its equivalent, was made in order to start the procedure.	Any occurrence on current procedure		HRS	Date of EP Study

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Pre-op and Procedure Data	Procedure Type	Indicate the procedure that was performed.	Any occurrence on current procedure	**Initial generator implant:** The patient is receiving an ICD generator for the first time. Complete all sections of the data collection form for all patients having an initial generator implant. **Generator change:** The patient already has an ICD and is receiving a generator that is an upgrade or a change from one that was previously implanted. Complete all sections of the data collection form for all patients having a generator change/upgrade. **Lead only:** A lead procedure is being performed without a generator change. ***Complete all sections of the data collection form, except section C (History and Risk), section D(Diagnostic Studies), and section F (ICD Implant) for all patients having a procedure where new leads were implanted and/or existing leads were reused, extracted or abandoned.***		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Pre-op and Procedure Data	Prophylactic Antibiotics w/in 1 Hour of Procedure Start Time	Indicate whether there is documentation of an order or administration of an antibiotic.	Any occurrence between 2 hours prior to procedure and start of current procedure	No - not given, reason unspecified No - not given, medical reason documented Yes		
Pre-op and Procedure Data	Routine Warfarin (Coumadin) Therapy	Indicate if the patient has been taking warfarin (Coumadin) on a routine basis, prior to the procedure.	Any occurrence between 1 month prior to current procedure and current procedure		HRS	Hx Med at Time of Arrhythmia - Non-cardio
Pre-op and Procedure Data	Warfarin (Coumadin) Held for Procedure	Indicate if warfarin was held or discontinued for the procedure.	Any occurrence on current procedure		HRS	Hx Med at Time of Arrhythmia - antiarrhytmic Agents

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Pre-op and Procedure Data	INR Drawn	Indicate if an international normalized ratio (INR) was drawn.	The last value between 1 month prior to current procedure and current procedure	**Primary prevention:** Primary Prevention is an indication for an ICD to prevent sudden cardiac death. It refers to use of ICDs in individuals who are at risk for but have not yet had an episode of sustained ventricular tachycardia, ventricular fibrillation, or resuscitated cardiac arrest. **Secondary prevention:** Secondary prevention refers to an indication for ICD exclusively for patients who have survived one or more cardiac arrests or sustained ventricular tachycardia. Patients with cardiac conditions associated with a high risk of sudden death who have unexplained syncope that is likely to be due to ventricular arrhythmias are considered to have a secondary indication.	HRS	International Normalized Ratio

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Pre-op and Procedure Data	INR	Indicate the international normalized ratio (INR) if the patient is on routine warfarin or coumadin therapy.	The last value between 1 month prior to current procedure and current procedure	Single chamber Dual chamber CRT-D	HRS	International Normalized Ratio
Pre-op and Procedure Data	INR Drawn Date	Indicate the date the international normalized ratio (INR) sample was collected.	The last value between 1 month prior to current procedure and current procedure		HRS	International Normalized Ratio
Pre-op and Procedure Data	Premarket Clinical Trial	Indicate if the ICD procedure (generator implant or lead procedure) is part of a clinical trial, excluding post-market surveillance trials.	Any occurrence on current procedure			
Pre-op and Procedure Data	Premarket Clinical Trial Name	Indicate the name of the premarket clinical trial.	The value on current procedure			
Pre-op and Procedure Data	Auxiliary 3	Reserved for future use	N/A			
Pre-op and Procedure Data	Auxiliary 4	Reserved for future use	N/A			
Current ICD Implant / Explant Procedure	Generator Operator's Last Name	Indicate the last name of the operator who is implanting the device.	The value on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Current ICD Implant / Explant Procedure	Generator Operator's First Name	Indicate the first name of the operator who is implanting the device	The value on current procedure			
Current ICD Implant / Explant Procedure	Generator Operator's Middle Name	Indicate the middle name of the operator who is implanting the device.	The value on current procedure			
Current ICD Implant / Explant Procedure	Generator Operator's NPI	Indicate the National Provider Identifier (NPI) of the operator who is implanting the device. NPI's, assigned by the Center for Medicare and Medicaid Services (CMS), are used to uniquely identify physicians for Medicare billing purposes.	The value on current procedure			
Current ICD Implant / Explant Procedure	Generator Group TIN	Indicate the group-level Taxpayer Identification Number for the Taxpayer holder of record for the Physician's National Provider Identifier (NPI) that implanted the device.	The value on current procedure			
Current ICD Implant / Explant Procedure	ICD Indication	Indicate the ICD procedure indication	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Planned ICD Type	Indicate the type of ICD that was planned for implantation.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Device Implanted	Indicate if an ICD device was implanted.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Current ICD Implant / Explant Procedure	Final Device Type	Indicate the ICD type that was implanted at the completion of the procedure.	Any occurrence on current procedure		HRS	Pacemaker implantation - specify type of pacemaker
Current ICD Implant / Explant Procedure	CS/LV Lead Successful	Indicate if the coronary sinus/left ventricular (CS/LV) lead was successfully implanted.	Any occurrence on current procedure	**Yes** **Not implanted.** **Previously implanted**: The lead was placed prior to this procedure (the patient had a previously implanted CRT-D, or had a lead placed during open heart surgery.		
Current ICD Implant / Explant Procedure	Reason CS/LV Lead Not Implanted	Indicate the reason a Coronary Sinus Access or Left Ventricular (CS/LV) lead was not implanted.	Any occurrence on current procedure	Vascular access Coronary sinus access Tributary vein access Coronary sinus dissection Unacceptable threshold Diaphragmatic stimulation		
Current ICD Implant / Explant Procedure	Implant Device ID	Indicate the unique ACC assigned identification number associated with the implanted device.	Any occurrence on current procedure		HRS	Current ICD Mode
Current ICD Implant / Explant Procedure	Device Manufacturer	Indicate the name of the manufacturer of the device.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Device Model Name	Indicate the name of the model of the device.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Device Model Number	Indicate the number of the model of the device.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Current ICD Implant / Explant Procedure	Implant Device Serial Number	Indicate the serial number of the device that was implanted.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Lowest Energy Tested That Was Successful	Indicate the lowest energy tested (LET) or defibrillation threshold that demonstrated that the device performs successfully (in joules).	The lowest value on current procedure			
Current ICD Implant / Explant Procedure	LET Not Tested	Indicate if the lowest energy tested (LET) that was successful was not tested.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Upper Limit of Vulnerability (ULV)	Indicate the upper limit of vulnerability (ULV) in joules.	The highest value on current procedure			
Current ICD Implant / Explant Procedure	ULV Not Tested	Indicate if the upper limit of vulnerability (ULV) was not tested.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - End of Expected Battery Life	Indicate if a reason for reimplant is end of expected battery life of a previous ICD.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Replaced At Time of Lead Revision	Indicate if a reason for reimplant is that the generator is being replaced at the time of lead revision.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Upgrade	Indicate if a reason for reimplant is an upgrade of a previous device with additional pacing capabilities such as an upgrade from a single to a dual chamber device, or the replacement of a non-CRT with a CRT device.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Infection	Indicate if a reason for reimplant is due to infection in the location of the previously implanted device.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Under Manufacturer Advisory/Recall	Indicate if a reason for reimplant is that the previous device has been recognized by the manufacturer as demonstrating a recurring performance failure resulting in an advisory letter to physicians. This may or may not reach the level of a food and drug administration (FDA) designated recall. This also may or may not have led to device malfunction.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Faulty Connector/Header	Indicate if a reason for reimplant is that there was a faulty connector/header which required another implant.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Device Relocation	Indicate if a reason for reimplant is that the device needed to be relocated because of a medical condition, or procedure near the original pocket. An example is if the patient was diagnosed with breast cancer and required treatment or surgery near the original implant.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason(s) for Reimplant - Malfunction	Indicate if a reason for reimplant is that the previous generator has malfunctioned. The device performance is outside the manufacturer's designated specification and cannot be resolved with reprogramming, necessitating in the replacement of the device, in the opinion of the physician.	Any occurrence on current procedure			
Current ICD Implant / Explant Procedure	Reason for Malfunction	Indicate the reason for malfunction of the previous ICD.	Any occurrence on current procedure	The malfunction affected atrial pacing. The malfunction affected the left ventricular (LV) pacing. The malfunction affected the right ventricular (RV) pacing. The malfunction affected the defibrillator. There was premature battery depletion.		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Implanted Device History Prior to Current ICD Implant / Explant Procedure	ATP or Shock Therapy Delivered	Indicate if, at any point in time, the ICD being removed had delivered antitachycardia pacing (ATP) or shock therapy.	Any occurrence between the previous ICD implant date and the current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	ATP or Shock Therapy Appropriate	Indicate if, at any point in time, the ICD being removed had delivered appropriate antitachycardia pacing (ATP) or shock therapy for spontaneous ventricular tachycardia and/or ventricular fibrillation.	Any occurrence between the previous ICD implant date and the current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	ATP Therapy Successful	Indicate if the antitachycardia pacing (ATP) therapy for ventricular tachycardia and/or ventricular fibrillation was successful.	Any occurrence between the previous ICD implant date and the current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Shock Therapy Successful	Indicate if the shock therapy for ventricular tachycardia and/or ventricular fibrillation was successful.	Any occurrence between the previous ICD implant date and the current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Device Explanted	Indicate if the previous ICD was explanted.	Any occurrence between previous ICD implant and current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Explant Date	Indicate the date the device was explanted.	The last value between previous ICD implant and current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Device Returned to Manufacturer	Indicate if the explanted generator device was returned to the manufacturer.	Any occurrence between previous ICD implant and current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Battery Voltage	Indicate the battery voltage (in volts) of the explanted device.	The last value between previous ICD implant and current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Battery Voltage Not Available	Indicate if the battery voltage (in volts) of the explanted device was not available.	Any occurrence between previous ICD implant and current procedure			
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Explant Device ID	Indicate the unique ACC assigned identification number associated with the explanted device.	Any occurrence between previous ICD implant and current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Implanted Device History Prior to Current ICD Implant / Explant Procedure	Explant Device Serial Number	Indicate the serial number of the explanted device.	Any occurrence between previous ICD implant and current procedure			
Lead Assessment During Procedure	Lead Operator's Last Name	Indicate the last name of the operator who is performing the lead procedure.	The value on current procedure			
Lead Assessment During Procedure	Lead Operator's First Name	Indicate the first name of the operator who is performing the lead procedure.	The value on current procedure			
Lead Assessment During Procedure	Lead Operator's Middle Initial	Indicate the middle name of the operator who is performing the lead procedure.	The value on current procedure			
Lead Assessment During Procedure	Lead Operator's NPI	Indicate the National Provider Identifier (NPI) of the operator who is performing the lead procedure. NPI's, assigned by the Center for Medicare and Medicaid Services (CMS), are used to uniquely identify physicians for Medicare billing purposes.	The value on current procedure			
Lead Assessment During Procedure	Lead Group TIN	Indicate the group-level Taxpayer Identification Number for the Taxpayer holder of record for the Physician's National Provider Identifier (NPI) that performed the lead procedure.	The value on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Lead Counter	The software-assigned lead counter should start at one and be incremented by one for each new or existing lead documented.	N/A		HRS	
Lead Assessment During Procedure	Lead Identification	Indicate if the lead is a new or existing lead. All new leads placed or existing leads extracted, abandoned, or reused should be identified in the leads section.	The value on current procedure	**New lead:** A lead that is implanted for the first time. **Existing lead:** A lead that has been previously implanted.		
Lead Assessment During Procedure	Lead ID	Indicate the NCDR assigned ID for new or existing leads placed, identified, extracted or abandoned during the procedure.	The value on current procedure			
Lead Assessment During Procedure	Lead Manufacturer	Indicate the original manufacturer of the lead.	The value on current procedure			
Lead Assessment During Procedure	Lead Model Name	Indicate the manufacturer's model name of the lead.	The value on current procedure		HRS	Make and model number of extracted device/lead(s)(note lead status must be extracted)
Lead Assessment During Procedure	Lead Model Number	Indicate the manufacturer's model number of the lead.	The value on current procedure		HRS	Make and model number of extracted device/lead(s)(note lead status must be extracted)
Lead Assessment During Procedure	Lead Serial Number	Indicate the manufacturer's serial number of the lead.	The value on current procedure		HRS	Make and model number of extracted device/lead(s)(n

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						ote lead status must be extracted)
Lead Assessment During Procedure	Lead Location	Indicate the location of the lead.	Any occurrence on current procedure	**RA endocardial:** A pacing lead placed transvenously into the right atrial endocardium. **LV epicardial:** A pacing or defibrillation lead placed transthoracically onto the left ventricular epicardium. **RV endocardial:** A pacing or defibrillation lead placed transvenously into the right ventricular endocardium. **SVC/subclavian:** A defibrillating lead placed in the superior vena cava or subclavian vein. **LV via coronary venous system:** A pacing or defibrillating lead placed transvenously onto the left ventricle through the coronary venous system. **Subcutaneous array:** A defibrillation electrode that is placed subcutaneously. **Other:** A lead placed in a location not specified above.	HRS	G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation-endocardial/epicardial lead positions(each separate lead is recorded in the ICD registry) location is also used for lead extraction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Existing Lead Implant Date	Indicate the date the existing lead was initially implanted.	The last value between birth and current procedure			
Lead Assessment During Procedure	Existing Lead Function	Indicate the function of the existing lead.	Any occurrence on current procedure	**Normal:** The lead function was assessed and has been determined to be functioning normally with acceptable pacing, sensing and/or defibrillation parameters. **Abnormal:** The lead function was assessed and has unacceptable pacing, sensing or defibrillation parameters. **Not assessed:** The lead function was not assessed.		
Lead Assessment During Procedure	Manufacturer Advisory/Recall	Indicate if there is a recognized lead problem that has resulted in a formal advisory or recall from the manufacturer, or the Food and Drug Administration (FDA).	Any occurrence on current procedure			
Lead Assessment During Procedure	Existing Lead Status	Indicate the status of the existing lead.	Any occurrence on current procedure	**Extracted:** The existing lead was extracted in whole or part and removed. **Abandoned:** The existing lead was left in situ, abandoned and not reused. **Reused:** The existing lead was left in situ and reused.		G. Electrophysiology - 5. Other Procedures - b. Lead Extraction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Returned to Manufacturer	Indicate if the explanted lead was returned to the manufacturer.	Any occurrence on current procedure			
Lead Assessment During Procedure	Existing Lead Placement Issues	Indicate if the existing lead had placement issues (dislodgement, perforation or infection).	Any occurrence on current procedure			
Lead Assessment During Procedure	Dislodgement	Indicate if there was movement (macroscopic or microscopic) of an existing lead within the heart or vascular tree away from the original implantation site.	Any occurrence on current procedure			
Lead Assessment During Procedure	Perforation	Indicate if there was penetration of the existing lead through a systemic vein, coronary vein, or the myocardium.	Any occurrence on current procedure			
Lead Assessment During Procedure	Erosion	Indicate if there was erosion of the existing lead.	Any occurrence on current procedure			
Lead Assessment During Procedure	Faulty Connector/Header	Indicate if there was a faulty connector/header in the existing lead.	Any occurrence on current procedure			
Lead Assessment During Procedure	Patient's Clinical Status	Indicate if a non lead-related medical or surgical procedure required the existing lead to be replaced.	Any occurrence on current procedure			
Lead Assessment During Procedure	Infection	Indicate if there was a suspected or documented infection of the existing lead.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Documented Infection	Indicate if there was a documented infection of the existing lead as evidenced by positive microbiological cultures/smears or other microbiological evidence indicating infection.	Any occurrence on current procedure			
Lead Assessment During Procedure	Pacing Issues	Indicate if there were pacing issues, such as oversensing, undersensing, failure to pace, failure to capture with acceptable safety margin, or extracardiac stimulation.	Any occurrence on current procedure			
Lead Assessment During Procedure	Oversensing	Indicate if the existing lead was functioning abnormally due to oversensing. Oversensing manifests as sensing of electrical signals not related to cardiac depolarization of the lead chamber that cannot be resolved acceptably by device reprogramming.	Any occurrence on current procedure			
Lead Assessment During Procedure	Undersensing	Indicate if the existing lead was functioning abnormally due to undersensing. Undersensing manifests as failure to sense appropriate cardiac depolarizations that cannot be resolved with reprogramming.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Failure To Pace	Indicate if the existing lead was functioning abnormally because there was failure to pace. Failure to pace manifests as absence of pacemaker stimulation artifacts on electrocardiographic recordings despite rates below pacemaker programmed rate.	Any occurrence on current procedure			
Lead Assessment During Procedure	Failure to Capture with Acceptable Safety Margin	Indicate if the existing lead was functioning abnormally because there was failure to capture with acceptable safety margins. This manifests as a high pacing threshold that results in either intermittent failure to capture at maximal programmed output or excessive battery drain leading to premature battery exhaustion.	Any occurrence on current procedure			
Lead Assessment During Procedure	Extracardiac Stimulation	Indicate if the existing lead was functioning abnormally because there was extracardiac stimulation. This manifests as stimulation by the lead of non-cardiac structures such as the diaphragm, chest wall, or pectoral muscle.	Any occurrence on current procedure			
Lead Assessment During Procedure	Defibrillation Issues	Indicate if the existing lead had defibrillation issues such as oversensing with or without shock/ATP, or failed shocks/inadequate DFT safety margins.	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Oversensing with Shock or ATP	Indicate if the existing lead had defibrillation problems due to oversensing with shock/antitachycardia pacing (ATP). This manifests as sensing of non-cardiac depolarization signals that met arrhythmia detection criteria and elicited programmed tachyarrhythmia therapy.	Any occurrence on current procedure			
Lead Assessment During Procedure	Oversensing without Shock or ATP	Indicate if the existing lead had defibrillation issues due to oversensing without shock/antitachycardia pacing (ATP). This manifests as sensing of non-cardiac depolarization signals that did not meet arrhythmia detection criteria and do not elicit programmed tachyarrhythmia therapy.	Any occurrence on current procedure			
Lead Assessment During Procedure	Failed to Shock with Inadequate DFT Safety Margin	Indicate if the existing lead had defibrillation issues due to failed shocks or inadequate defibrillation threshold safety margins.	Any occurrence on current procedure			
Lead Assessment During Procedure	Lead Integrity Issues	Indicate if the existing lead had abnormal function due to lead integrity issues (insulation failure or conductor fracture).	Any occurrence on current procedure			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Lead Assessment During Procedure	Insulation Failure	Indicate if the existing lead had abnormal function due to a lead integrity issue of insulation failure. Insulation failure manifests as low lead impedance either absolutely (below manufacturer's product specifications) or by a significant decrease from previously stable chronic values.	Any occurrence on current procedure			
Lead Assessment During Procedure	Conductor Failure	Indicate if the existing lead had abnormal function due to a lead integrity issue of conductor failure. Conductor failure manifests by high lead impedance either absolutely (above manufacturer's product specifications) or by a significant increase from previously stable chronic values.	Any occurrence on current procedure			
Intra or Post Procedure Events	Intra or Post Procedure Events	Indicate if there were any Intra or Post Procedure Events.	Any occurrence between start of procedure and until next procedure or discharge			
Intra or Post Procedure Events	Cardiac Arrest	Indicate if the patient experienced cardiac arrest.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Cardiac arrest

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Drug Reaction	Indicate if the patient experienced a drug reaction as documented by anaphylaxis, or rash.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - drug reaction
Intra or Post Procedure Events	Cardiac Perforation	Indicate if cardiac perforation occurred. Cardiac perforation may or may not be symptomatic and may or may not be self-sealing. It can be documented by migration of pacing or defibrillator leads to the epicardial surface, resulting in pain and/or hypotension, pericardial effusion, cardiac tamponade, failure to capture, capture of the diaphragm, phrenic nerve or intercostals muscle of sufficient magnitude to require repositioning.	Any occurrence between start of procedure and until next procedure or discharge			
Intra or Post Procedure Events	Cardiac Valve Injury	Indicate if a new cardiac valve injury was documented in the medical record. Cardiac valve injury results when manipulation of the pacing or defibrillation leads results in a tear in a valve leaflet or chordae tendinae and manifests as a new regurgitant murmur after the procedure.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Cardiac valve injury

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Conduction Block	Indicate if a new atrial or ventricular conduction block was documented in the medical record. New conduction blocks occur when pacing or defibrillation leads are manipulated which causes an injury to the specialized cardiac conduction system. It can manifest as a new right bundle branch block, or a complete heart block in a patient with a pre-existing left bundle branch block.	Any occurrence between start of procedure and until next procedure or discharge			
Intra or Post Procedure Events	Coronary Venous Dissection	Indicate if the patient had a coronary venous dissection as documented by manipulation of the pacing or defibrillating leads in the coronary sinus which can result in a tear of the coronary sinus endothelium with dissection into the coronary sinus wall sometimes at times referred to as "staining" following contrast injection. This can also result in perforation of the coronary sinus.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Coronary Venous Dissection
Intra or Post Procedure Events	Hematoma Requiring Re-op, Evacuation or Transfusion	Indicate if the patient experienced a hematoma as a result of the procedure, requiring a reoperation, evacuation or transfusion.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - pocket hematoma

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Hemothorax	Indicate if the patient experienced a hemothorax as documented by accumulation of blood in the thorax.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - hemothorax
Intra or Post Procedure Events	Infection Requiring Antibiotics	Indicate if the patient experienced an infection related to the procedure which required antibiotics.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - infection related to device
Intra or Post Procedure Events	Lead Dislodgement	Indicate if the patient experienced a lead dislodgement as documented by movement of a lead that requires repositioning and reoperation.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - lead dislodgement
Intra or Post Procedure Events	Myocardial Infarction	Indicate if the patient had a myocardial infarction.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Myocardial infarction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Pericardial Tamponade	Indicate if the patient experienced fluid in the pericardial space compromising cardiac filling and requiring intervention.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - pericardial tamponade
Intra or Post Procedure Events	Peripheral Embolus	Indicate if the patient experienced a peripheral embolus as documented by acute occlusion of an artery resulting from embolization of a cardiac or proximal arterial thrombus.	Any occurrence between start of procedure and until next procedure or discharge			
Intra or Post Procedure Events	Peripheral Nerve Injury	Indicate if the patient experienced a peripheral nerve injury as documented by sensory or motor loss of peripheral nerve function. This may result from external nerve compression as a result of positioning during a procedure, internal compression (e.g. secondary to hematoma formation) or direct nerve damage.	Any occurrence between start of procedure and until next procedure or discharge			
Intra or Post Procedure Events	Set Screw Problem	Indicate if the patient had a pacing and/or sensing problem associated with high impedance due to a poor connection between a lead and ICD caused by a loose set screw.	Any occurrence between start of procedure and until next procedure or discharge			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Pneumothorax	Indicate if the patient experienced a pneumothorax as documented by air in the thorax sufficient to require insertion of a chest tube.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Pnuemothorax
Intra or Post Procedure Events	TIA or Stroke (CVA)	Indicate if the patient had a cerebrovascular accident (CVA or stroke), or a transischemic attack (TIA). A TIA is documented by loss of neurological function that was abrupt in onset but with complete return of function within 24 hours. A stroke or CVA is documented by a loss of neurological function caused by an ischemic or hemorrhagic event with residual symptoms lasting at least 24 hours after onset or leading to death.	Any occurrence between start of procedure and until next procedure or discharge			H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - CVA/TIA
Intra or Post Procedure Events	Urgent Cardiac Surgery	Indicate if the patient needed to have urgent, unplanned cardiac surgery.	Any occurrence between start of procedure and until next procedure or discharge			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Intra or Post Procedure Events	Venous Obstruction	Indicate if the patient experienced a venous obstruction distal to the vascular access site documented by swelling, pain and discoloration of an extremity and confirmed by some imaging technique demonstrating >50% diameter reduction in the affected vein.	Any occurrence between start of procedure and until next procedure or discharge			
Discharge	CABG	Indicate if Coronary Artery Bypass Graft (CABG) Surgery was performed during this admission.	Any occurrence between arrival and discharge			
Discharge	CABG Date	Indicate the date of the coronary artery bypass graft (CABG) surgery.	The first value between arrival and discharge			
Discharge	PCI	Indicate if the patient had a percutaneous coronary intervention (PCI) during this admission.	Any occurrence between arrival and discharge			
Discharge	PCI Date	Indicate the date of the percutaneous coronary intervention (PCI) procedure.	The first value between arrival and discharge			
Discharge	Discharge Date	Indicate the date on which the patient was discharged from your facility.	The value on discharge		HRS	IP Discharge Date
Discharge	Discharge Status	Indicate whether the patient was alive or deceased at discharge.	The value on discharge		HRS	Disposition after health care encounter
Discharge	Cause of Death	Indicate the cause of death.	The value on time of death			

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Discharge	Death During The Procedure	Indicate if the patient expired during the procedure where the device or leads were being implanted.	Any occurrence on discharge		HRS	H. Complications/ Adverse Events - Adverse events resulting from EP study and/or ablation - Death
Discharge	Discharged Against Medical Advice	Indicate if the patient was discharged or eloped against medical advice.	Any occurrence on discharge			
Discharge	ACE Inhibitor (Any)	Indicate if any ACE Inhibitor was continued or prescribed at discharge.	Any occurrence on discharge	**Yes:** Medication was prescribed **Contraindicated:** Medication was not prescribed because of a contraindication. *Contraindications must be documented explicitly by the physician, or clearly evidenced within the medical record* **Blinded:** Patient was in research study or clinical trial and administration of this specific medication is unknown **No:** Medication was not prescribed		
Discharge	Antiarrhythmic Agent (Amiodarone)	Indicate if Amiodarone was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s)

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						prescribed at discharge
Discharge	Antiarrhythmic Agent (Disopyramide)	Indicate if Disopyramide was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Dofetilide)	Indicate if Dofetilide was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Flecainide)	Indicate if Flecainide was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Other)	Indicate if any antiarrhythmic agent was continued or prescribed at discharge that isn't otherwise specified.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Procainamide)	Indicate if Procainamide was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Propafenone)	Indicate if Propafenone was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Mexiletine)	Indicate if Mexiletine was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Quinidine)	Indicate if Quinidine was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Antiarrhythmic Agent (Sotalol)	Indicate if Sotalol was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	ARB (Any)	Indicate if any ARB was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Nonantiarrhythmic cardiac medication(s) prescribed at discharge
Discharge	ASA (Any)	Indicate if any ASA was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Nonantiarrhythmic cardiac medication(s) prescribed at discharge

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Discharge	Beta Blocker (Any)	Indicate if any Beta Blocker was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Calcium Channel Blocker (Diltiazem)	Indicate if Diltiazem was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Calcium Channel Blocker (Other)	Indicate if any calcium channel blocker was continued or prescribed at discharge that isn't otherwise specified.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Calcium Channel Blocker (Verapamil)	Indicate if Verapamil was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Digoxin (Any)	Indicate if any Digoxin was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Diuretic (Any)	Indicate if any Diuretic was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Nonantiarrhythmic cardiac medication(s) prescribed at discharge

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Discharge	Hydralazine (Any)	Indicate if any Hydralazine was continued or prescribed at discharge.	Any occurrence on discharge	same as above		
Discharge	Lipid Lowering Agent (Statin)	Indicate if a Statin was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Nonantiarrhythmic cardiac medication(s) prescribed at discharge
Discharge	Lipid Lowering Agent (Non-Statin)	Indicate if a Non-Statin was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Nonantiarrhythmic cardiac medication(s) prescribed at discharge
Discharge	Long Acting Nitroglycerin	Indicate if Long Acting Nitroglycerin was continued or prescribed at discharge.	Any occurrence on discharge	same as above		J. Discharge Information - Antiarrhythmic drug(s) prescribed at discharge
Discharge	Platelet Aggregation Inhibitor (Clopidogrel)	Indicate if Clopidogrel was continued or prescribed at discharge.	Any occurrence on discharge	same as above		
Discharge	Platelet Aggregation Inhibitor (Prasugrel)	Indicate if Prasugrel was continued or prescribed at discharge.	Any occurrence on discharge	same as above		

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Discharge	Platelet Aggregation Inhibitor (Ticlopidine)	Indicate if Ticlopidine was continued or prescribed at discharge.	Any occurrence on discharge	same as above		
Discharge	Warfarin (Coumadin)	Indicate if Coumadin was prescribed at discharge.	Any occurrence on discharge	same as above		
				Not ICD	HRS	Presentation to Healthcare Facility
				Not ICD	HRS	Was the Pt and Outpatient
pt History				Not ICD	HRS	Presyncope
pt History				Not ICD	HRS	Palpitations
pt History				Not ICD	HRS	Drop Attack
pt History				Not ICD	HRS	Angina Due to Arrhythmia
pt History				Not ICD	HRS	Dysnepea
pt History				Not ICD	HRS	Fatigue
pt History				Not ICD	HRS	HF caused by arrhythmia
Arrhythmia				Not ICD	HRS	Sinus Node Function, date
Arrhythmia				Not ICD	HRS	
Arrhythmia				Not ICD	HRS	Sinus Node Function Type
Arrhythmia				Not ICD	HRS	AV Conduction Date
Arrhythmia				Not ICD	HRS	AV Conduction Type
Arrhythmia				Not ICD	HRS	IV conduction

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						Date
Arrhythmia				Not ICD	HRS	IV conduction Type
Arrhythmia				Not ICD	HRS	SVT Date
Arrhythmia				Not ICD	HRS	SVT Type
Arrhythmia				Not ICD	HRS	VT Date
Arrhythmia				Not ICD	HRS	VT Type
Arrhythmia				Not ICD	HRS	Hx Meds @ Time of Arrhythmia - Antiarrhythmic
Arrhythmia				Not ICD	HRS	Hx Meds @ Time of Arrhythmia - Non-antiarrhythmic
Arrhythmia				Not ICD	HRS	Hx Meds @ Time of Arrhythmia - Non- Cardio
Specific ECG Pattern				Not ICD	HRS	Simultaneous ECG measurements
Specific ECG Pattern				Not ICD	HRS	P-Wave Duration
Specific ECG Pattern				Not ICD	HRS	Epsilon wave
5. Therapeutic				Not ICD	HRS	skipped
6. Pacemaker/ICD HX				Not ICD	HRS	Pacemaker Indications
6. Pacemaker/ICD HX				Not ICD	HRS	PacemakerVenous Access

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
6. Pacemaker/ICD HX				Not ICD	HRS	Pacemaker Lead Positions
6. Pacemaker/ICD HX				Not ICD	HRS	PacemakerCoronary Sinus
6. Pacemaker/ICD HX				Not ICD	HRS	Pacemaker Current Pacing mode
7.Other Cardiovascular Hx				Not ICD	HRS	Hx angina
7.Other Cardiovascular Hx				Not ICD	HRS	HF Stage
7.Other Cardiovascular Hx				Not ICD	HRS	Evidence for myocardial infiltrative or storage disease
7.Other Cardiovascular Hx				Not ICD	HRS	Evidence for toxic cardiomyopathy
7.Other Cardiovascular Hx				Not ICD	HRS	Evidence for ventricular dysfunction due to tachyarrhythmias
7.Other Cardiovascular Hx				Not ICD	HRS	Evidence for primary myocardial hypertrophic or other muscle disease
7.Other Cardiovascular Hx				Not ICD	HRS	Evidence for idiopathic cardiomyopathy

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
8. History of Invasive Cardiac Interventions/Surgery				Not ICD	HRS	History of other cardiac surgery
8. History of Invasive Cardiac Interventions/Surgery				Not ICD	HRS	Hx of intervention for congenital heart surgery
8. History of Invasive Cardiac Interventions/Surgery				Not ICD	HRS	History of valve intervention
9. Non-Cardiovascular History				Not ICD	HRS	History of chronic liver disease
9. Non-Cardiovascular History				Not ICD	HRS	History of peripheral vascular/arterial
9. Non-Cardiovascular History				Not ICD	HRS	History of pulmonary hypertension
9. Non-Cardiovascular History				Not ICD	HRS	History of chronic renal insufficiency
9. Non-Cardiovascular History				Not ICD	HRS	History of dyslipidemia
9. Non-Cardiovascular History				Not ICD	HRS	History of musculo-skeletal disease
9. Non-Cardiovascular History				Not ICD	HRS	History of allergies to medications
10. Family History				Not ICD	HRS	Family history

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						of arrhythmias
10. Family History				Not ICD	HRS	Family history of recurrent syncope
10. Family History				Not ICD	HRS	Specific familial arrhythmia syndromes
10. Family History				Not ICD	HRS	Family history of ischemic heart disease
10. Family History				Not ICD	HRS	Familial cardiomyopathy
C. Physical Examination				Not ICD	HRS	Third heart sound (S3)
C. Physical Examination				Not ICD	HRS	Fourth heart sound (S4)
C. Physical Examination				Not ICD	HRS	Heart murmur
C. Physical Examination				Not ICD	HRS	Lung (pulmonary) examination
D. Laboratory Data				Not ICD	HRS	Wall motion abnormalities
D. Laboratory Data				Not ICD	HRS	Right ventricular size and function
D. Laboratory Data				Not ICD	HRS	Complete blood count (CBC)
D. Laboratory Data				Not ICD	HRS	Platelet count
D. Laboratory Data				Not ICD	HRS	Red blood count
D. Laboratory				Not ICD	HRS	White blood

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Data						count
D. Laboratory Data				Not ICD	HRS	Serum albumin
D. Laboratory Data				Not ICD	HRS	Calcium
D. Laboratory Data				Not ICD	HRS	Magnesium
D. Laboratory Data				Not ICD	HRS	Glucose (fasting)
D. Laboratory Data				Not ICD	HRS	Hemoglobin A-1-C
D. Laboratory Data				Not ICD	HRS	Total cholesterol
D. Laboratory Data				Not ICD	HRS	HDL cholesterol
D. Laboratory Data				Not ICD	HRS	LDL cholesterol
D. Laboratory Data				Not ICD	HRS	Triglycerides
D. Laboratory Data				Not ICD	HRS	Thyroid stimulating hormone
D. Laboratory Data				Not ICD	HRS	Goal INR
D. Laboratory Data				Not ICD	HRS	Inflammatory markers
E. Invasive Diagnostic Procedures				Not ICD	HRS	Coronary angiography performed
E. Invasive Diagnostic Procedures				Not ICD	HRS	Left heart catheterization

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
E. Invasive Diagnostic Procedures				Not ICD	HRS	Right heart catheterization
E. Invasive Diagnostic Procedures				Not ICD	HRS	Congenital heart disease diagnosis
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Assessment of inter- and intraventricular dyssynchrony on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Left atrial (LA) size—M-mode on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	LA volume on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Left ventricular diastolic diameter on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Left ventricular systolic diameter on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Left ventricular diastolic function on echocardiograph

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
						y
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Left ventricular wall thickness on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Thrombus with location on echocardiography
F. Noninvasive Diagnostic Procedures - 1. Echocardiography				Not ICD	HRS	Spontaneous echo contrast with location
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						Heart rate on electrocardiogram
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						ECG pattern of previous myocardial infarction
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						ECG pattern of left ventricular hypertrophy (LVH)
F. Noninvasive Diagnostic Procedures - 2. electrocardiograph						ECG pattern of left ventricular hypertrophy (LVH)

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
y						
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						ECG pattern of right ventricular hypertrophy (RVH)
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						ECG pattern of WPW
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						ECG pattern of atrial abnormality
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						QT interval on ECG
F. Noninvasive Diagnostic Procedures - 2. electrocardiography						QT dispersion
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Normal exercise test
F. Noninvasive Diagnostic Procedures - 3.						Exercise test

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Exercise Testing						
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Exercise protocol
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Exercise test imaging modalities
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Length of exercise
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Distance walked—6-min walk
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Maximum heart rate and blood pressure
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Maximal (symptom limited) or submaximal test
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Metabolic equivalents (METS) achieved
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Evidence of ischemia on exercise test

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
F. Noninvasive Diagnostic Procedures - 3. Exercise Testing						Arrhythmia occurred on exercise test
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						MRI
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Radionuclide ventriculograph y (RVG)
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Myocardial perfusion imaging
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Computed axial tomography (CT scan)
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Microvolt T-wave alternans (MTWA)

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Continuous ambulatory ECG monitor
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Heart rate variability
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Signal-averaged ECG (SAECG)
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Baroreflex sensitivity (BRS)
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Heart rate turbulence (HRT)
F. Noninvasive Diagnostic Procedures - 4. Other Noninvasive Diagnostic Procedures						Tilt table tests

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 1. Indications for DiagnosticsStudy						Evaluation of specific arrhythmia
G. Electrophysiology - 1. Indications for DiagnosticsStudy						Evaluation of prior antiarrhythmic treatment
G. Electrophysiology - 1. Indications for DiagnosticsStudy						Evaluation of event/symptoms suggesting arrhythmia
G. Electrophysiology - 1. Indications for DiagnosticsStudy						Evaluation of risk for ventricular tachyarrhythmia
G. Electrophysiology - 2. Description of Procedure						Catheters used
G. Electrophysiology - 2. Description of Procedure						Catheter insertion
G. Electrophysiology - 2. Description of Procedure						Catheter placement
G. Electrophysiology - 2. Description of Procedure						Antiarrhythmic medications present at time of procedure
G. Electrophysiology - 2. Description of						Drugs administered for sedation/general

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Procedure						anesthesia
G. Electrophysiology - 2. Description of Procedure						Drugs administered for therapy/diagnostics
G. Electrophysiology - 3. Diagnostic Evaluation - a. Sinus Node Function						Arrhythmias observed—sinus node function
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						Intra-atrial conduction
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						Refractory period—Atrial function
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						Atrial stimulation performed
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						Arrhythmias observed—Atrial function
G. Electrophysiology - 3. Diagnostic Evaluation -						How was arrhythmia induced— Atrial function

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
b.Atrial Function						
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						How was arrhythmia induced—AV node function
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						Duration of arrhythmia—Atrial function
G. Electrophysiology - 3. Diagnostic Evaluation - b.Atrial Function						How did the arrhythmia terminate—Atrial function
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						Anterograde refractory period—AV node function
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						Retrograde refractory period of the ventriculoatrial conduction system
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						Wenckebach cycle length

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						Arrhythmias observed—AV node function
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						Duration of arrhythmia—AV node function
G. Electrophysiology - 3. Diagnostic Evaluation - c. AV Node Function						How did the arrhythmia terminate—AV node function
G. Electrophysiology - 3. Diagnostic Evaluation - d. His-Purkinje System Function						His-ventricular (HV) interval
G. Electrophysiology - 3. Diagnostic Evaluation - d. His-Purkinje System Function						Refractory period—His-Purkinje system
G. Electrophysiology - 3. Diagnostic Evaluation - d. His-Purkinje System Function						Intra or infra-Hisian block

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Accessory pathway (bypass tract)
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Block cycle length—Accessory pathway
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Effective refractory period of accessory pathway
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Shortest pre-excited RR interval during AF
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Arrhythmias observed—Accessory pathway

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						How was arrhythmia induced—Accessory pathway
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						Duration of arrhythmia—Accessory pathway
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						How did the arrhythmia
G. Electrophysiology - 3. Diagnostic Evaluation - e. Accessory Pathway (Bypass Tract) Function						terminate—Accessory pathway
G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function						Refractory period—Ventricle

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function						Ventricular stimulation performed
G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function						Arrhythmias observed—Ventricle
G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function						Duration of arrhythmia—Ventricle
G. Electrophysiology - 3. Diagnostic Evaluation - f. Ventricular Function						How did the arrhythmia terminate—Ventricle
G. Electrophysiology - 4. Therapeutic Procedures - a. Indication for Therapeutic Procedures						Indications for catheter ablation
G. Electrophysiology - 4. Therapeutic Procedures - a. Indication for Therapeutic						Catheter ablation performed

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
Procedures						
G. Electrophysiology - 4. Therapeutic Procedures - a. Indication for Therapeutic Procedures						Targeted substrate for ablation
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						Ablation procedure
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						Inappropriate ST
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						AF
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						AT

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						Accessory pathway
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						AV junction
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						Right VT
G. Electrophysiology - 4. Therapeutic Procedures - b. Outcome of Ablation						Left VT
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Pacemaker implantation - Indication
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Pacemaker implantation - Venous access:

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Pacemaker implantation - coronary sinus
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Pacemaker implantation - specify if capable of
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Defibrillator implantation - Indication
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Defibrillator implantation - subcutaneous Array
G. Electrophysiology - 5. Other Procedures - a. Pacemaker/ICD Implantation						Defibrillator implantation - specify if capable of
G. Electrophysiology - 5. Other Procedures - b. Lead Extraction						Indication

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 5. Other Procedures - b. Lead Extraction						Method of extraction
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Indications
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Type of cardioversion
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Number of shocks delivered
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Maximal energy used
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Cardioversion attempt
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Complications of cardioversion

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Section	Field Name	NCDR Coding Instructions	Target Value	Description	Map to	Field Name
G. Electrophysiology - 5. Other Procedures - c. Cardioversion						Pattern of recurrence
H. Complications/Adverse Events - Adverse events resulting from EP study and/or ablation						all

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