Adult Cardiac Surgery National Database
of the
Society of Thoracic Surgeons

Software Specifications

Version 2.81

Current as of June 6, 2014

Note: Some portions of this document are highlighted in gray. Although it is critical for the success of the developer's software that all of the information in this document be understood and followed, the highlights are used to point out areas that have changed since previous versions or areas of extreme importance to the functionality of the software.

Purpose:

The purpose of this document is to describe the features that are required to exist in software certified by The Society of Thoracic Surgeons (STS) for the collection and submission of Adult Cardiac Surgery data. The STS is making an effort to set minimum standards for the software to be used by its members, while allowing enough flexibility so that developers can produce competitive features for the members' benefit.

The intended audience for this document is the software developers who are designing and maintaining the code used by participants to collect and submit data to the STS database. This information will be essential for developers working for vendors who will distribute their software to many members as well as developers working for an individual member designing a package to be used only by themselves (Participant Generated Software).

Note: All software used to collect data to be submitted to the STS Data Warehouse must go through a certification process before data will be accepted into the national database. Developers must also have a signed contract on file with the STS before the certification process can begin.

Since the functionality of the software will revolve around the data specifications, this document will start by providing some information about the specifications.

Data Specifications:

1. Structural changes between versions 2.73 and 2.81.

    Some changes have been made to the structure and the information presented in the Data Specifications database to help make the information more usable and to make the format more consistent with the specifications for other STS databases.

    The changes made include, but are not limited to:
    • The field ParentHarvestCodes was added which contains a bar-delimited list of harvest codes associated with the choices in the ParentValue field.
    • The field ACCField was dropped since the information for this field changes too frequently to be useful in the data specifications.

2. Purpose of the Data Specifications

    The data specifications describe the data fields that are required to exist in certified software. It details the field names, definitions, dependencies, acceptable values, the harvest codes associated with those values, etc. Developers of certified software should use the data specifications to ensure their software:

        a. includes all core fields in the application (see description of Core fields below),

b. uses the correct programmatic name (Short Name) for each field,
c. follows the defined field dependency rules (see description of Parent / Child relationships below),
d. accepts only the defined valid values appropriate to each field and ensures that the values are in the correct format,
e. provides the user with appropriate field definitions, and
f. includes only the appropriate fields in the extracted data files the site will submit to the Data Warehouse.

3. Data Version Numbers

As medicine, technology and interest in research areas change, the data specifications have and will change to collect additional and more detailed information. A Data Version number is assigned by the STS to each official version of the data specifications. This number will play a key role in how the data is handled and processed (see Software Specifications below).

STS members were required to start using certified software as of January 1, 2000. At that time, version 2.35 of the data specifications was put into affect and any data collected for procedures performed before January 1, 2000 were converted as closely as possible to the 2.35 format.

Since that time, the data specifications have been upgraded five times; first to version 2.41 and then to 2.52.1, 2.61, 2.73 and now 2.81. For the upgrades to versions 2.41, 2.52.1, and 2.61, there was a conversion period when the data could be recorded following either the version being replaced or the newer version. This allowed sites to continue entering their data into an old version of their software while they are waiting to have their software upgraded.

Beginning with the upgrade to version 2.73, the data version of the record is determined by the date of surgery. When users indicate they want to create a new data record, the software must first prompt the user for the surgery date. This process will ensure that all records in the national database for procedures performed during a specific time period will follow the same data version, regardless of when the record was created.

The following table defines which version of the data specifications will be accepted into the national database for procedures performed during the specified time periods:

Surgery date	Data Specifications version number
Any dates up to December 31, 1999	Data converted to 2.35 format
January 1, 2000 through December 31, 2001	2.35
January 1, 2002 through June 30, 2002	2.35 or 2.41
July 1, 2002 through December 31, 2003	2.41
January 1, 2004 through June 30, 2004	2.41 or 2.52.1
July 1, 2004 through June 31, 2007	2.52.1
July 1, 2007 through December 31, 2007	2.52.1 or 2.61
January 1, 2008 through June 30, 2011	2.61
July 1, 2011 through June 30, 2014	2.73
July 1, 2014 through the current date	2.81

4. Sequence Number

The sequence number field (SeqNo) is provided in the data specifications solely for identifying fields and sorting fields within the data specification database and documentation. They are not intended as a permanent identifier for individual fields and a number assigned to a field in one version of the data specifications might be assigned to a different field in another version. Because of this, it is highly recommended that developers should not use the SeqNo value as a field identifier in any of their programs. See Appendix D for a list of SeqNo values for each field for each of the most recent versions of the data specifications.

5. Future Upgrades

As the need arises, new versions of the data specifications will be distributed by the STS. In the interest of keeping major software upgrades and testing down to a minimum, the STS does not expect to upgrade the specifications more frequently than once every other year. Developers should anticipate these upgrades and design their software in such a way that the new versions can be incorporated with minimal software changes and that records created under different data versions will be handled properly, as described below.

6. Data Specifications field descriptions

The data specifications are maintained in a table in an Access database to allow the information to be cut and pasted, sorted and reported on in a variety of ways to make incorporating the information easier for the developer. The table for the 2.81 version of the specifications contains 20 fields which are described here:

Table name: tblDataSpecificationsV2_8

A. SectionName – The name of the section of the DCF where the field is located.

B. SectionSeqNo – The order number of the section of the DCF where the field is located.

C. SeqNo – An arbitrary number (sequence number) used for ordering the fields within a specific version of the data specifications. The ordering of the numbers is set to loosely follow the order in which the fields appear in the DCF. As described above, the SeqNo value for one field can change from one version of the specifications to the next. The values, therefore, should never be used in any reports, queries or programs to refer to a specific field.

D. LongName – The longer and more descriptive name of the field. In most cases, the LongName does not change from one version of the specifications to the next, but they do change in some instances. Because of this, the LongName value should never be used to refer to a field in reports, queries or programs.

E. ShortName – The short, programmatic name assigned to the field. The ShortName value should be used in all reports, queries and programs to refer to a given field as this value will not change from one version of the specifications to another.

F. Core – This field contains a value of Yes or No to define whether or not the field should be available to the users for data entry. Whether or not the field is included in data files exported for submission to the STS database depends on what other data versions are being included in the data extract. (See the "Data export for harvest to the data warehouse" section of the Software Specifications below.) The values in this field have the following meanings:

   ▪ Yes = Field must be available to the users for entering data for records following this version of the data specifications and the field must be included in the data files exported for submission to the STS database that contain records following this data version.

   ▪ No = Field is not required to be available to the users for entering data for records following this version of the data specifications. Fields defined with Core=No are in the specification only to be able to express that the field was being collected in the previous version of the specifications, but is no longer being collected. A field defined in this way in one version of the specifications, will not appear at all in the next version.

G. Harvest – This field contains a value of Yes, No or Optional to define whether or not the data for this field is included in the export file to be submitted to the data warehouse. (See the "Data export for harvest to the data warehouse" section of the Software Specifications below for more details about the contents of the files submitted to the data warehouse.) The values for this field have the following meanings:

- Yes – Data from this field must be included in the data file for all records following this version of the data specifications.
- No – Data from this field must not be included in the data file for all records following this version of the data specifications.
- Optional – The individual users determine whether or not the data from this field is included in the data file. By default, the software should treat this as a Yes and include the data in the extract. The users must explicitly state that they do not want the data for this field included. This distinction is defined for fields the STS would prefer to have included in the harvest, but the site might have reasons (such as not being allowed by state laws) for not including the values in the harvest file.

H. Format – The format in which the values for the field should be collected. The options for this field are:

- Date - mm/dd/yyyy: Date values only with the month specified as a 2-digit numeric value, day specified as a 2-digit numeric value, and year specified as a 4-digit numeric value.
- Time - hh:mm (24-hour clock): Time values only with the hours specified as a 2-digit numeric value (in 24-hour format), and the minutes specified as a 2-digit numeric value.
- Date/Time - mm/dd/yyyy hh:mm : Date and time values in one field with the month specified as a 2-digit numeric value, day specified as a 2-digit numeric value, and year specified as a 4-digit numeric value, followed by a single space and then the hours specified as a 2-digit numeric value (in 24-hour format), and the minutes specified as a 2-digit numeric value.
- Integer: Numeric values with no decimal points.
- Real: Numeric values with at least one decimal point.
- Text: Value can contain any alphanumeric characters.
- Text (categorical values specified by STS): Values displayed to the user are the text descriptions defined in the data specifications table. The values submitted to the Data Warehouse are the Harvest Codes defined in the data specifications.
- Text (categorical values specified by user): Values displayed to the user and submitted to the Data Warehouse come from a list maintained by the user (see item "e" under the "3. Data Entry" section of the "Software Specification" below).

I. DataSource – This field defines how the data is entered into the field. The options for this field are as follows (note, in some cases, there is more than one option for data source, such as "User or Calculated"):
- User – The user enters the value, otherwise it is left missing (null).
- Automatic – The software automatically inserts a value for every record. This is usually assigned to administrative fields that must contain a value, such as the DataVrsn field.

- Calculated – The value is calculated by the software based on values in other fields (for example, the risk model fields). The formulas used to calculate the Meld Score, the total ventilation hours, and the total circulatory arrest time are provided in Appendix A, Appendix B, and Appendix C respectively below. The methods used to calculate the risk scores are provided in separate documentation (contact the Data Warehouse for this information).
- Lookup – The software automatically inserts a value after looking up the information kept in a table maintained by the user. For example, HospStat is filled in based on which HospName value is selected (see item "e" under the "3. Data Entry" section of the "Software Specification" below).

J. Definition – The official definition of the field.
K. LowValue – The lowest valid value that can be accepted for the specified field. This is used only in fields that accept numeric values.
L. HighValue – The highest valid value that can be accepted for the specified field. This is used only in fields that accept numeric values.
M. UsualRangeLow - The lowest value that is likely to be entered by the user. If the user enters a value that is below this number, but still greater than or equal to the value defined in LowValue, the value should be accepted, but the user should be given a message that the value they entered is unusually low and that they should verify the value.
N. UsualRangeHigh - The highest value that is likely to be entered by the user. If the user enters a value that is above this number, but still less than or equal to the value defined in HighValue, the value should be accepted, but the user should be given a message that the value they entered is unusually high and that they should verify the value.
O. ParentLongName – The "parent" field on which this field (the "child" field) is dependant. Software must be defined such that the parent field must contain a value that is specified in the ParentValue field before data can be entered into this field, otherwise the field is disabled or unavailable.
P. ParentShortName – The programmatic "ShortName" of the parent field.
Q. ParentValue – The list of values the parent field can have before this field can be available for data entry.
R. ParentHarvestCodes – A bar-delimited list of the harvest codes associated with the values identified in the ParentValue field.

Table name: tblDataSpecificationsV2_8 _HarvestCodes

A. ShortName – The short programmatic name assigned to the field.
B. HarvestCode– The code that is assigned to each choice in the valid data. These are the values that are used in the exported data file that is submitted to the Data Warehouse.
C. Description – The text description of the choice. This is the value the user sees while doing data entry.

D. DisplayOrder – The order in which the choices are displayed to the user for this field.
E. Definition – The official definition of the specified choice for this field. Note that not all choices will have a definition.

Software specifications:

It is not the intention of the STS to regulate the algorithms and methodologies the developers use to produce their software. However, there are specific features and functionalities that are needed in the software to allow data to be collected and submitted in a uniform format and to enable the warehouse to communicate with the members about individual records and data items. The purpose of this section is to describe those features and functions.

1. General features

   The certified software must have the following minimum features:

   a. Provide a user-friendly interface that can be used on a current personal computer operating system.
   b. Allow users to be able to view and select the actual data values for each field. If the data is coded internally, user should, by default, view the non-coded values.
   c. Ensure all date values are year 2000 compliant having a 4-digit year format.
   d. Software must accept and integrate data previously collected and maintained in other software products or data versions. (See "Data Import", below).
   e. The user's data must be accessible for *ad hoc* queries either through the software package or by common third party software (e.g. Microsoft Access, Crystal Reports, etc.) If the data is not directly accessible, then the software must provide the ability for the user to export the data in a standard file format which can be queried using common third party query software. (See "Data Export for Analysis by Users", below). When users are querying their data, grouping records that were created under multiple data version numbers must be invisible to the user. For example, if a user wants to analyze a risk factor in their data for a time period of two years, the fact that their data was recorded under two different version numbers during that period must not require any additional steps for the user to build the query. We strongly recommend ensuring this by keeping all data in one database regardless of the version number. This requirement is the result of feedback from many frustrated users.
   f. Users must be able to select specific records in their database via key fields including patient's name and the record identification field (RecordID). The search mechanism must label the RecordID field with the text "RecordID".
   g. Software must include a utility that allows users to check the completeness of any or all of their data fields. This utility must allow the user to select which fields are included in the data check and have the option of including all fields or just specified fields. (See "Data quality and completeness checks" below)
   h. Software must include a utility that allows on-demand updates for the valid values and harvest codes for valve and VAD device lists (see "On-demand updates" below)

2. Record management

Each record in the database describes one surgical case (i.e., one admission to the hospital). On each record, there are four key fields used for record management:

  a. Participant identification number (ParticID): Each group of surgeons collecting and entering data into a database for submission to the STS is assigned a 5-digit ParticID by the STS. In most cases, all data being entered into a database will be for one participating group, in which case all records will have the same value in this field. In these situations, the developer can have the software enter the value into the record automatically for the user.

  In some situations however, more than one participating group will be entering their data into a single database. In these situations, the user should select the appropriate ParticID value from a drop down list (see "Categorical values specified by user" under the Data Source description in the "Explanation of Data Specification Terms", below).

  A value for ParticID is required and the software should ensure one exists on every record.

  b. Record identification number (RecordID): The RecordID field contains a unique numeric value that identifies the record in the database. This is an arbitrary number and must not be a value that could identify the patient, such as Social Security Number, Medical Record Number, etc. Once attached to a specific record, the value can never be changed, nor can it be reused if the record is deleted. The data warehouse uses the RecordID field to communicate record-specific data quality issues to the participants. Because of this, users must be able to select cases from their database for review using this field and the field must be labeled "RecordID" on the data entry screen. See also the special considerations necessary for this field when importing data from another database in the "Data Import" section, below.

  Beginning with version 2.73 of the data specifications, the values generated by the software for the RecordID field must be a combination of a vendor specific code followed by an alphanumeric value that makes the identifier unique. The vendor-specific code will consist of three characters and will be assigned to each vendor and Participant Generated Software site by the STS. The codes will be in a format similar to "V01". For example, the software will generate a RecordID value of V01000001 for the first record and V01000002 for the second record. The purpose of this feature is to allow sites to move their data from one version of a software package to another, or from one vendor package to another, and maintain the referential integrity of their data records.

  Together, the ParticID and the RecordID will affect a composite key, which is unique to each record throughout the national STS database.

c. <u>Data Version Number (DataVrsn)</u>: The DataVrsn field contains the data specifications version number under which the record is created. The value is automatically entered into the record by the software at the time the record is created. The value then can never be changed, even if the software is upgraded to a newer version of the specifications.

Once a record is created and a data version has been assigned to it, that record will always follow the rules defined by that version of the data specifications. When a user selects a record for editing that has an older data version number, the software must follow the older data specification rules for editing that record. This includes controlling which fields are available to the user, which values are available for each field and the appropriate parent/child dependencies.

d. <u>Patient identification number (PatID)</u>: The PatID field contains a unique, arbitrary number to uniquely identify the patient in the database. If one patient has multiple admissions to the hospital, the records for each admission will contain the same PatID value. The number, once assigned to a patient, can not be edited or reused if the patient records are ever deleted. In order to avoid issues of patient confidentiality in transferring records, the PatID value should not be any known identifier such as Social Security Number or Medical Record Number. A PatID value is required on every record regardless of the structure of the software's database.

Beginning with version 2.73 of the data specifications, the values generated by the software for the PatID field must be a combination of a vendor specific code followed by an alphanumeric value that makes the identifier unique. The vendor-specific code will consist of three characters and will be assigned to each vendor and Participant Generated Software site by the STS. The codes will be in a format similar to "V01". For example, the software will generate a PatID value of V01000001 for the first patient record and V01000002 for the second patient record. The purpose of this feature is to allow sites to move their data from one version of a software package to another, or from one vendor package to another, and maintain the referential integrity of their data records.

3. Data entry

The software must have the following features to control the data being entered by the users:

a. For export of data to the warehouse, most data fields have a default value, usually null or blank, which indicates that the data is "Missing" (see data specifications). For data entry purposes the site and vendor may choose to institute internal codes for "Missing" values. As the site drives the need for this feature, the STS data specifications do not define standard codes for "Missing" values during data entry. If a site applies data entry "Missing" codes, the harvest

process must include a step that maps the missing code to the STS specification for "Missing" values (null or blank). Note: zero must never be used to indicate missing data.

b. The user should always be able to delete entered data, and return the field's value to the null or "Missing" value.

c. For any field having specific values or a range of acceptable values defined, the software must restrict data entries to this set of values. For categorical variables this is expressed as a set of harvest codes and descriptions and the user must select from a pick list of these values. For numerical variables, this is expressed as a valid numeric range defined as a LowValue and HighValue, and the user must enter a value on or between the specified limits. If the user enters a value that is not one of the harvest codes or is outside of the defined range, the user must be given an error message that the value is invalid and the invalid value must not be stored in the database.

d. Where a numeric variable has a UsualRangeLow and UsualRangeHigh specified, if the user attempts to enter a value that is outside of that range but still inside the LowValue/HighValue range, the software must warn the user that they are entering an unusual value and ask if the entry is correct. If the user confirms that the value is correct, then it should be accepted into the field.

e. Some categorical text fields are designed to have data values controlled by the user. This applies primarily to a few site-specific fields such as hospital name and surgeon name. These fields are indicated in the Data Specifications by their Format specifying "Text (categorical values specified by User)". The user should be able to maintain the pick list of valid data for these fields including the ability to add, change, or delete list elements. During data entry, the user should be able to enter only values that are in this pick list.

The process of maintaining the list should be separate from the data entry process. In other words, users must purposely add a value to the list to make it available for selection during data entry. If a user enters a value that is not on the list, it should be rejected and not automatically added to the list. The idea here is to avoid the possibility of users entering "free text" which causes unacceptable data quality issues at the warehouse.

It is important that the vendor support the site's ability to control these fields. Items in the user list should not have more than one choice for the same entity. For example, the hospital names "General Memorial Hospital" and "GMH" should not represent select choices for the same hospital.

f. Documentation including data definitions and help should be easily accessible to the user, preferably on-line.

4. Field dependencies

Field dependencies exist where one field (the "parent" field) controls whether or not one or more other fields (the "child" fields) can contain data. Child fields are indicated in the specifications by having their immediate parent field named in the "Parent Field" section of their specification. For example, "RF-Cerebrovascular Dis " is a parent field to its child " RF-Prior CVA". The following guidelines must be followed to handle dependent fields:

a. If the data value of a parent field indicates that no data should be in its dependent fields, then those dependent fields should be skipped or unavailable on the data entry screen. In the example above, only if "RF-Cerebrovascular Dis" = "Yes" should "RF-Prior CVA" be available for data entry.

b. If a parent field contains a "No" value, vendors can choose one of two methods for handling the values in the associated child fields:

   1. set all child field values to Null, or
   2. set child field values to "No" as is appropriate.

   Note that the STS highly recommends following the first method of setting all child fields to Null.

   If a vendor chooses the second method, then they must also program their software so that, if the user later changes the parent value to Yes, all of the child fields are reset to Null.

   Vendors must keep in mind that the first method is required in the export file created for submission to the data warehouse. In other words, regardless of what is in the user's database, the export file must contain Nulls in child fields when the parent is No.

   Also, vendors must notify the STS and the data warehouse if their software will insert No values into child fields when the parent is No. This will allow the warehouse to know that the data received by a site during a data harvest will not look exactly like what the user has in their database.

c. If a parent field is originally set to "Yes", then values can be entered into its child fields. If the record is subsequently edited by the user and the parent value is changed to "No", the values in the child fields must be automatically changed to Null or No depending on the method being used by the vendor as described above. This will avoid the possibility of conflicting information being left in the data record (for example "RF-Cerebrovascular Dis"is "No" but "RF-Prior CVA" is "Yes").

d. Reporting on missing data values needs to be handled differently in dependent (child) fields, since its meaning depends upon the data value of the parent field. See "Data quality and completeness checks" below for a full description of how this should be handled.

5. Data quality and completeness checks

The software must provide the users with a utility for checking the accuracy and completeness of their data that includes the following features:

Data quality checks can be run during data entry and/or on demand for groups of records as specified by the user. This utility produces a data quality report indicating which records and fields failed the data checks. This report is used by the site data manager to review and potentially repair the data.

a. Certified software must contain a utility for checking and reporting on data completeness. This utility must include the following features:

   i) The user must be able to identify in a list the fields that they want to have checked for completeness. The user should be able to select just one field, all fields, or any number of fields desired (by default, the utility should report on ALL fields). It is recommended that user should be able to save the selected list so as not to have to go through the selection process again the next time data quality is being checked.
   ii) The utility should report on individual records or groups of records (recommend grouping by surgery date range) as specified by the user.
   iii) The utility must take into consideration dependent fields when checking for completeness. For fields defined as "child" fields of a "parent" field, the child is considered missing only if the parent is answered "Yes" (or in a way that would allow the user to enter data into the child field) and the child field contains no data. Following this guideline will restrict reporting missing data to only those situations where data is clinically expected.

6. Data Import

a. Software must be able to import data in standard file formats from third party applications. At a minimum, this must include delimited, ASCII text files. Other common formats (e.g. Excel or MS Access) are also recommended. This functionality is to only be used on a one-time basis. For example, this utility should only be used when a user first purchases a new certified software package and wants to import the data they had been collecting up to that time in a different package. Once the old data has been imported into the new package, all future data should be entered directly into the new package via the data entry

screens and no additional data should be imported. Using the import feature to regularly import data so that it can be exported in the STS format for submission to the Data Warehouse is strictly against the STS policies.

b. Data that is imported will require controlled conversion to an acceptable STS data version. The conversion process must include reviewing the data for consistency with the STS data (i.e. mapping the categorical values in the imported data to the appropriate STS values). The site data manager and software vendor hold responsibility for the accuracy (both clinical definition and harvest format) of all imported data harvested to the warehouse. The software will assign to each imported record the STS data version number to which the data is converted. The data version to which the data is converted must be appropriate for the date of surgery for that record. The warehouse will handle data according to the STS data version number on each observation in a harvest file regardless of whether it was created in the software's data entry utility or imported from another source.

c. Special consideration is needed for the values in the RecordID field when importing data. This is especially true when importing data that was previously submitted to the data warehouse (i.e. data from another certified software package). RecordID values must never change once they are assigned to a record. The software developers and data managers must ensure that the values in the imported data do not change in the conversion process, and that they do not cause duplication of values with any existing records. Developers must also ensure that new records created after the data has been imported are not assigned RecordID values that already exist in the data. If data is to be imported that would cause a conflict in this manner, the software developer must contact the Data Warehouse to determine what steps need to be taken.

7. Record subsets and queries

Software must allow users to search for Individual records selected by RecordID or by patient identifiers including patient name and surgery date. Users should also be able to construct more general queries including field selection, record selection, sorting, and summarizing. It is acceptable if this function is provided by a third party application (e.g. MS Access or Crystal Reports).

8. Reporting

Software should provide the users with reporting abilities that can do the following:

a. View and print a data completeness report listing the records having missing fields and which fields are missing from each record.

b. Build, save, copy, and modify more general reports with capability to select fields, record subsets, sorting, and summary statistics. (It is acceptable if this function is provided by a third party application, such as MS Access or Crystal Reports).

c. Data harvest procedure provides the site with a report documenting the following:
   1. whether or not the extract completed successfully
   2. number of records extracted
   3. time frame of the data extract (by date of surgery)
   4. date the data extraction was performed
   5. name of the person who performed the data extraction

9. Data export for analysis by users

   The software must allow users to export their data for their own use in the following manner:

   a. Software must be able to export data in standard file formats suitable for transfer into third party applications. This must include at a minimum bar-delimited, ASCII text, and optionally other common formats such as Excel and Access. Developers should keep in mind that sites may need to export their data for reasons other than the STS data harvests.

   b. User should be able to choose whether an export includes all data or selected records and fields. Users must be able to select any field in their database including custom fields and other non-STS fields.

   c. If data is coded for internal storage (e.g. text string is stored as a number), the data must be able to be decoded when written to the export file so that actual values (e.g. full text strings) are contained in export file. The user can decide which format should be used for each export file.

   d. Export files must identify the data fields using field names (i.e., the STS ShortName or LongName) that are familiar to the users.

   e. User can control export file naming convention.

10. Data export for harvest to the data warehouse

    As one of the key reasons for having certified software, the software must allow users to export their data for submission to the STS data warehouse following these exact guidelines:

a. The user must be able to specify the records to be exported for harvest by using range limits for the surgery date.

b. The Data Harvest file exported must adhere to this specific format:
   1. File is an ASCII text file with vertical bar delimiters
   2. The first row is a "header" record containing the STS short field names in the same sequence as the data fields in subsequent rows
   3. Each subsequent row represents one data record describing one surgical case

c. Only a single harvest file for each participant can be submitted to the warehouse for processing. Participants may submit repeatedly during a harvest, but each submission is only one file.

d. The extracted file must contain data for only one participant ID (ParticID) value. If the site's database contains data for more than one participant, all of which is to be submitted to the warehouse, the software must extract the data for each ParticID into separate data files each with an appropriate file name (see below).

e. The harvest file must include all fields, and only those fields, defined in the data specifications with Core = "Yes" and Harvest = "Yes" or "Optional" for all STS data versions within the harvest file. In other words, a file containing v2.52.1 and v2.61 records would contain all fields where Core is "Yes" and Harvest is "Yes" or "Optional" for either version of the specifications (more information on submitting data from multiple data versions is given below). Fields with Core="No" or Harvest="No" and site-specific or custom fields must not be included in the export file.

f. Fields that are defined as Core = Yes and Harvest = Optional must be included in the data file. What is "optional" is whether or not the field contains data. By default, the software should include all data for optional fields. If the user specifies that an optional field should not be included, the data file will include the field but every record will contain a blank (null) in that field. This is necessary for the warehouse to be able to tell the difference between a field being left out by mistake and a site opting not to include that data.

g. The values in the harvest file must be the "Harvest Coding" of the data values and not the full text strings.

h. A harvest report should be produced whenever a data harvest is performed (see "Reporting", above).

i. The software must create the exported data file using the file naming convention of XXXXXadt.dat where "XXXXX" is the 5-digit ParticID for the data contained in the file. The users should not specify the file naming convention. Files not using

this naming convention can not be accepted by the automated process at the data warehouse and may be returned to the participant.

<u>When records from more than one data version are being exported for an STS data harvest, the file must adhere to the following format:</u>

j. The first record of the file must be the one and only "header" record containing the STS short field names in the same sequence as the data fields in subsequent rows.

k. Every data record in the file must contain the same fields which will consist of a superset of the Core, Harvested fields from all included data versions.

l. On each data record, the fields that are Core and Harvested for the data version specified in the DataVrsn field will contain data values as available and appropriate. The fields that are not Core or not Harvested for that data version will contain nulls (blanks). When the data is being processed by the warehouse, only the fields appropriate for the data version specified on the record will be included.

For an example of a data file containing more than one data version, consider a data file being submitted with records having data versions 2.52.1 and 2.61. The software will produce one data file with one header record that will identify all of the Core / Harvested fields for both versions, including "Patient Age" (Age), "RF-Renal fail" (RenFail), and "Hospital National Provider Identifier" (HospNPI). The Age field is Core to both 2.52.1 and 2.61. RenFail is Core for 2.52.1 but is not Core in 2.61. HospNPI didn't exist in 2.52.1 but is a Core field in 2.61. A data record in the extracted file that has a DataVrsn value of 2.52.1 should contain a value in Age and RenFail, but would contain a null in HospNPI. A data record that has a DataVrsn value of 2.61 should contain a value in Age and HospNPI, but would contain a null in RenFail.

11. Customization

It is up to the developer's discretion as to whether or not the users will have the ability to add customized fields to their software and database. If the user will have this ability, the following items must be considered:

a. In no case can the field names, short field names, or categorical data values specified by the STS be customized or modified by the users. (Please note however in the STS specifications that users can build the categorical data values for certain fields such as Hospital Name, see "Data entry", above.)

b. Fields added by users must not be included in the data file exported for submission to the STS data warehouse.

c. Developers should make clear to the potential users whether users can add custom fields themselves, or if they will require contracted work by the developer.

d. It should be possible for users of customizable software to import custom fields that they might have created in a previous database or software package.

e. Most importantly, developers who allow users to add customized fields must keep in mind that software upgrades will be necessary from time to time as new versions of the data specifications become available. These changes include adding new fields, discontinuing fields, and moving fields to a new location. It is the developer's responsibility to handle how a user's customization is incorporated when their software is being upgraded.

12. Combining collection of STS and non-STS database fields

Developers who design their software to collect data for more than just the STS Adult Cardiac database must not combine fields from other databases with the STS fields unless it is explicitly stated by the STS that the fields are the same in definition and coding. Contact the STS to determine what, if any non-STS fields can be mapped in this manner.

13. On-demand updates

Starting with v2.61, certified software was required to have the ability to load updated values to be used in two areas:
   a. Valve explant and implant prosthesis fields (Valve Explant Device, Second Valve Explant Device, VS-Aortic Proc-Implant Model Number, VS-Mitral Proc-Implant Model Number, VS-Tricuspid Proc-Implant Model Number, VS-Pulmonic Proc-Implant Model Number). Note that applying the valve list to the two explant fields is new to v2.81.
   b. VAD device fields (Previous VAD Device Model Number, VAD-Device, VAD-Device #2, VAD-Device #3)

The Data Warehouse will provide data files that will contain the information needed for each area which will be in a bar-delimited ASCII text format. Each set of information will be assigned a version number by the Data Warehouse. Updated versions of these files will be made available annually.

Software should be designed to be able to load these updates so that they can be used by the users during the data entry process. This will allow newly available devices to be valid choices for the users without having to wait for a full specification and software upgrade.

It is important for the Data Warehouse to know what version of the on-demand files was in place when a user created a record or made subsequent updates to a record. When v2.61 was released, this was handled with a field on the data record for each area where the on-demand files applied: "Valve Implant List Version Number" (ValveVrsn) for the valve device fields and "VAD Product Type List Version Number" (VADListVrsn) for the VAD device fields. Since all of the on-demand files will always be updated at the same time, starting with v2.73, these two fields were dropped and one new field named "On-Demand Files Version Number" (OnDemandVrsn) was added in their place. For records with DataVrsn 2.73 or later, this one field will be used to identify the version of all on-demand files in use for that record.

Unlike the DataVrsn field, the On-Demand version numbers can be updated after a record has been created. For example, when a record is first created and a valve prosthesis device is indicated, the OnDemandVrsn field will identify the version of the on-demand file in use at that time. If, at some time later, updated versions of the on-demand files are loaded into the system and then this record is edited by the user, the OnDemandVrsn value should be updated to indicate the newer version of the device list was available to the user.

Appendix A: Calculation of MELD scores:

Starting with version 2.73, software must be able to calculate the MELD score for each patient. The results from this calculation are entered by the software into the field RF-MELD Score (MELDScr). The value of this score is calculated using the values entered by the user into the three fields "RF-Total Bilirubin" (TotBlrbn), "RF-INR" (INR), and "RF-Last Creat Level" (CreatLst). The patient's dialysis status (RF-Renal Fail-Dialysis) is also considered in the calculation.

The calculation can be made by creating a "factor" for each of the three variables involved in the score. The value of the variable is used to determine the value of the factor. The factors are then used in a formula to determine the MELD score. The algorithm for determining the value of each factor is as follows:

If RF-Total Bilirubin is >0 and <=1 then bilirubin_factor = 1
otherwise, if RF-Total Bilirubin is >1, then bilirubin_factor = the specified RF-Total Bilirubin value.

If RF-INR is >0 and <=1 then inr_factor = 1
otherwise, if RF-INR is > 1, then inr_factor = the specified RF-INR value.

if RF-Renal Fail-Dialysis=Yes, then creatinine_factor = 4
otherwise, if RF-Last Creat Level is >0 and <=1 then creatinine_factor = 1
    otherwise, if RF-Last Creat Level is >1 and <=4, then creatinine_factor = the RF-Last Creat Level value
        otherwise, if RF-Last Creat Level is >4, then creatinine_factor = 4

After determining the three factors, the calculation is done using the formula:

MELDScr = (3.8 x Ln([bilirubin_factor])) + (11.2 x Ln([inr_factor])) + (9.6 x Ln([creatinine_factor])) + 6.4

Note that "Ln" refers to the mathematical "natural log" function.

No score should be calculated if any of the following conditions are true:
- RF-Total Bilirubin is missing
- RF-INR is missing
- Last Creat Level is missing and RF-Renal Fail-Dialysis = No or is missing

Most patients will have a score between 0 and 60, but some scores can be negative.

Appendix B: Calculation of Total Postoperative Ventilation Hours

Starting with v2.81, software must be able to calculate the value for the field "Total Postoperative Ventilation Hours" (VentHrsTot). This calculation uses the following fields:

- OR Exit Date And Time (ORExitDT)
- Initial Extubation Date and Time (ExtubateDT)
- Additional Hours Ventilated (VentHrsA)

The calculation for the total ventilation hours is performed by calculating the number of hours between ORExitDT and ExtubateDT and adding the number of additional hours specified in VentHrsA. The equation for calculating Total Postoperative Ventilation Hours must take the following into consideration:

- If ORExitDT or ExtubateDT are missing, VentHrsTot is left missing (regardless of whether or not there is a value in VentHrsA)
- The difference between ORExitDT and ExtubateDT must be rounded to the nearest hour (less than ½ hour rounds down, ½ hour or more rounds up).
- If VentHrsA has no value, then VentHrsTot must be just the rounded difference between ORExitDT and ExtubateDT.
- If the difference between ORExitDT and ExtubateDT results in a negative number (i.e., the patient was extubated before leaving the OR), then zero should be used for this part of the calculation and added to any additional hours (VentHrsA) to generate the total postoperative hours.

Appendix C: Calculation of Total Circulatory Arrest Time

Starting with v2.81, software must be able to calculate the value for the field "Total Circulatory Arrest Time" (TotCircArrTm). This calculation uses the following fields:

- Circulatory Arrest Time Without Cerebral Perfusion (DHCATm)
- Cerebral Perfusion Time (CPerfTime)

The calculation for the total circulatory arrest time is performed by adding DHCATm and CPerfTime. The equation for calculating Total Circulatory Arrest Time must take the following into consideration:

- If DHCATm has no value, TotCircArrTm is set to missing, regardless of whether there is a value in CPerfTime.
- CPerfTime might not have a value because the field Circulatory Arrest With Cerebral Perfsuion (CPerfUtil) is No. CPerfTime might also not have a value, even if (CPerfUtil) is Yes.   In either of these cases, TotCircArrTm would be set to the value in DHCATm.

Appendix D: Field ShortName and SeqNo by DataVrsn.

The following table lists all fields that have been collected in the STS Adult CV Database since 1999. The sequence number (SeqNo) of each field for a given version of the specifications is specified under the version number. If no sequence number is specified, the field was not a Core field for that version of the specifications.

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
VendorID	10	10	10	10	10	5
SoftVrsn	20	20	20	20	20	10
DataVrsn	30	30	30	30	30	15
OnDemandVrsn					31	20
ParticID	40	40	40	40	40	25
RecordID	50	50	50	50	50	30
CostLink		52	60	60	60	35
PatID	60	60	80	80	80	40
ClinTrial						45
ClinTrialPatID						46
PatLName	80	80	100	100	90	50
PatFName	90	90	110	110	100	55
PatMName					120	60
DOB	110	110	130	130	130	65
Age	120	120	140	140	140	70
Gender	130	130	150	150	150	75
SSN	140	140	160	160	160	80
MedRecN	150	150	170	170	170	85
PatAddr					180	90
PatCity					190	95
PatRegion					200	100
PatZIP	190	190	180	180	210	105
PatientCountry						115
PermAddr					230	120
RaceDocumented						150
RaceCaucasian				191	290	155
RaceBlack				192	300	160
RaceAsian				193	310	165
RaceNativeAm				194	320	170

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
RacNativePacific				195	330	175
RaceOther				196	340	180
Ethnicity				199	350	185
HospName	280	280	220	220	380	205
HospZIP	282	282	230	230	390	210
HospStat	284	284	240	240	400	215
HospNPI				241	410	220
PayorGov				247	420	225
PayorGovMcare				248	430	230
PayorGovMcareFFS					450	240
PayorGovMcaid				249	460	245
PayorGovMil				250	470	250
PayorGovState				251	480	255
PayorGovIHS				252	490	260
PayorGovCor					500	265
PayorGovOth						270
PayorCom				254	510	275
PayorHMO				255	520	280
PayorNonUS				256	530	285
PayorNS				257	540	290
AdmitDt	320	320	260	260	570	305
SurgDt	330	330	270	270	610	310
DischDt	340	340	280	280	620	315
AdmitSrc					580	320
OthHosCS					590	325
HeightCm	420	420	360	360	640	330
WeightKg	400	400	350	350	630	335
FHCAD	470	470	390	390	670	355
Diabetes	480	480	400	400	780	360
DiabCtrl	490	490	410	410	790	365
Dyslip				421	800	370
Dialysis	560	560	450	450	810	375
Hypertn	570	570	460	460	820	380
InfEndo	610	610	490	490	830	385
InfEndTy	620	620	500	500	840	390
InfEndCult					850	395
TobaccoUse						400

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
ChrLungD	660	660	510	510	860	405
ChrLungDType						410
PFT					880	415
FEV1					890	420
DLCO					892	425
DLCOPred					893	430
ABG					900	435
PCO2					920	440
PO2					910	445
HmO2					930	450
BDTx					940	455
SlpApn					950	460
Pneumonia					1140	465
IVDrugAb					1130	470
Depression						475
Alcohol					1131	480
LiverDis					960	485
ImmSupp	670	670	520	520	970	490
MediastRad					1150	495
Cancer					1160	500
PVD	680	680	530	530	980	505
ThAoDisease						510
Syncope					1001	515
UnrespStat					1000	520
CVD	690	690	540	540	1010	525
CVA	590	590	470	552	1020	530
CVAWhen	600	600	480	553	1030	535
CVDTIA				555	1050	540
CVDCarSten					1070	545
CVDStenRt					1071	550
CVDStenLft					1072	555
CVDPCarSurg				557	1080	560
WBC				392	690	565
RFHemoglobin						570
Hct				391	680	575
Platelets					700	580
CreatLst	550	525	430	430	750	585

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
TotAlbumin					730	590
TotBlrbn					720	595
A1cLvl				412	740	600
HITAnti					711	605
INR					710	610
MELDScr					815	615
BNP						620
NTproBNP						625
hsTnT						630
hsCRP						635
GDF15						640
FiveMWalkTest					1161	645
FiveMWalk1					1170	650
FiveMWalk2					1180	655
FiveMWalk3					1190	660
PrCVInt	710	710	570	570	1200	665
PrCAB	760	760	600	600	1215	670
PrValve	770	770	610	610	1216	675
PrValveProc1						695
PrValveProc2						700
PrValveProc3						705
PrValveProc4						710
PrValveProc5						715
POCPCI			660	660	1480	775
POCPCIWhen					1481	780
POCPCIndSurg					1490	785
POCPCISt				661	1500	790
POCPCIStTy				663	1510	795
POCPCIIn			670	670	1520	800
POC						805
POCInt1						810
POCInt2						815
POCInt3						820
POCInt4						825
POCInt5						830
POCInt6						835
POCInt7						840

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
PrevMI				751	1540	885
MIWhen	1360	1360	760	760	1550	890
CardSympTimeOfAdm						895
CardSympTimeOfSurg						900
AnginalClass					1570	905
CHF	1370	1370	770	770	1580	910
ClassNYH	1540	1540	870	775	1585	915
PriorHF					1590	920
CarShock	1420	1420	810	810	1620	930
Resusc	1440	1440	830	830	1630	935
Arrhythmia						945
ArrhythVV						950
ArrhythSSS						955
ArrhythAFlutter						960
ArrhythSecond						965
ArrhythThird						970
ArrhythPPaced						975
ArrhythAFib						980
ArrhythAFibDur						985
MedACEI48					1730	1020
MedADP5Days				1021	1850	1025
MedADPIDis				1022	1860	1030
MedAmiodarone						1035
MedACoag	1720	1720	930	930	1750	1040
MedACMN			940	940	1760	1045
MedAplt5Days				1023	1870	1050
MedASA	1760	1760	990	990	1820	1055
MedBeta	1650	1650	890	890	1710	1060
MedBetaTher						1065
MedCChanTher						1070
MedCoum			950	950	1780	1075
MedXaInhibitors						1080
MedGP			1030	1030	1880	1085
MedGPMN			1040	1040	1890	1090
MedInotr	1740	1740	970	970	1790	1095
MedLipid			1000	1000	1830	1100
MedLipMN			1010	1010	1840	1105

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
MedLongActNit						1110
MedNitIV	1690	1690	910	910	1740	1115
MedOthAntiang						1120
MedSter	1750	1750	980	980	1800	1130
MedThrombinIn						1135
MedThrom					1900	1140
CarCathPer					1910	1145
CarCathDt					1920	1150
CorAnatDisKnown						1155
Dominance						1160
StenSource						1165
NumDisV	1820	1820	1050	1050	1930	1170
PctStenKnown						1175
GraftsPrsnt						1180
StentPrsnt						1185
FFRPerf						1190
PctStenLMain						1195
GrftStenLMain						1200
StntStenLMain						1205
FFRLMain						1210
PctStenProxLAD						1215
GrftStenProxLAD						1220
StntStenProxLAD						1225
FFRProxLAD						1230
PctStenMidLAD						1235
GrftStenMidLAD						1240
StntStenMidLAD						1245
FFRMidLAD						1250
PctStenDistLAD						1255
GrftStenDistLAD						1260
StntStenDistLAD						1265
FFRDistLAD						1270
PctStenDiag1						1275
GrftStenDiag1						1280
StntStenDiag1						1285
FFRDiag1						1290
PctStenDiag2						1295

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
GrftStenDiag2						1300
StntStenDiag2						1305
FFRDiag2						1310
PctStenDiag3						1315
GrftStenDiag3						1320
StntStenDiag3						1325
FFRDiag3						1330
PctStenCircflx						1335
GrftStenCircflx						1340
StntStenCircflx						1345
FFRCircflx						1350
PctStenOM1						1355
GrftStenOM1						1360
StntStenOM1						1365
FFROM1						1370
PctStenOM2						1375
GrftStenOM2						1380
StntStenOM2						1385
FFROM2						1390
PctStenOM3						1395
GrftStenOM3						1400
StntStenOM3						1405
FFROM3						1410
PctStenRamus						1415
GrftStenRamus						1420
StntStenRamus						1425
FFRRamus						1430
PctStenRCA						1435
GrftStenRCA						1440
StntStenRCA						1445
FFRRCA						1450
PctStenAM						1455
GrftStenAM						1460
StntStenAM						1465
FFRAM						1470
PctStenPDA						1475
GrftStenPDA						1480

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
StntStenPDA						1485
FFRPDA						1490
PctStenPLB						1495
GrftStenPLB						1500
StntStenPLB						1505
FFRPLB						1510
SyntaxScrKnown						1515
SyntaxScr						1520
StressTst						1525
StressTstRes						1530
RiskIschemia						1535
HDEFD		1858	1070	1070	1950	1540
HDEF	1860	1860	1080	1080	1960	1545
DimAvail						1555
LVSD					1980	1560
LVEDD					1990	1565
PASYSMeas					2020	1570
PASYS					2030	1575
VDInsufA	2050	2050	1170	1170	2155	1590
VDAort					2040	1595
VDStenA	2010	2010	1120	1120	2152	1600
AoHemoDatAvail						1605
VDAoVA					2153	1610
VDGradA		2015	1130	1130	2154	1615
VDAoEt1						1625
VDAoEt2						1630
VDAoEt3						1635
VDAoEt4						1640
VDAoEt5						1645
VDInsufM	2060	2060	1180	1180	2270	1680
VDMit					2160	1685
VDStenM	2020	2020	1140	1140	2240	1690
MiHemoDatAvail						1695
VDMVA					2250	1700
VDGradM					2260	1705
VDMitFC					2230	1715
VDMiEt1						1720

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
VDMiEt2						1725
VDMiEt3						1730
VDMiLes1						1735
VDMiLes2						1740
VDMiLes3						1745
VDInsufT	2070	2070	1190	1190	2320	1775
VDTr					2280	1780
VDStenT	2030	2030	1150	1150	2300	1785
VDTrAnnMeas						1790
VDTrAnnSize						1795
VDTrEt1						1800
VDTrEt2						1805
VDTrEt3						1810
VDInsufP	2080	2080	1200	1200	2340	1820
VDPulm					2321	1825
RVEDDKnown						1830
RVEDD						1835
VDStenP	2040	2040	1160	1160	2330	1840
PuHemoDatAvail						1845
VDGradP						1850
VDPuEt						1855
AortaDisease						1860
ADPres						1865
ADLocRoot						1870
ADLocAsc						1875
ADLocArch						1880
ADLocDesThor						1885
ADLocThora						1890
ADLesTAneur						1895
ADLesTCoarcNar						1900
ADLesTRup						1905
ADLesTPseudo						1910
ADLesTPenUlcer						1915
ADLesTIntraHema						1920
ADLesTDis						1925
ADLesTDisTmg						1930
ADLesTDisTy						1935

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
ADEt1						1940
ADEt2						1945
ADEt3						1950
Surgeon	2230	2230	1210	1210	2350	1955
SurgNPI				1221	2360	1960
TIN				1222	2370	1965
Incidenc			560	1230	2380	1970
Status	2300	2300	1240	1240	2390	1975
UrgEmergRsn						1990
PCancCase					2415	1995
PCancCaseDt					2416	2000
PCancCaseTmg					2417	2005
PCancCaseRsn					2418	2010
PCancCaseCAB					2419	2015
PCancCaseMech					2421	2020
PCancCaseONC					2423	2025
PCancCaseValSur						2030
PCancCaseValTrans						2035
PCancCaseOC					2422	2040
CCancCase					2424	2050
CCancCaseTmg					2425	2055
CCancCaseRsn					2426	2060
CCancCaseCAB					2427	2065
CCancCaseMech					2429	2075
CCancCaseONC					2431	2080
CCancCaseValSur						2085
CCancCaseValTrans						2090
CCancCaseOC					2430	2095
OPApp					2435	2100
ApproachCon						2105
Robotic			1270	1270	2436	2110
RobotTim						2115
OpCAB	2340	2340	1280	1280	2437	2120
OpValve			1290	1290	2440	2125
VADProc					2480	2130
OpOCard	2510	2510	1310	1310	2490	2140
AFibProc						2145

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
AortProc						2150
OpONCard	2520	2520	1320	1320	2500	2155
CPT1Code1				1321	2510	2195
CPT1Code2				1322	2520	2200
CPT1Code3				1323	2530	2205
CPT1Code4				1324	2540	2210
CPT1Code5				1325	2550	2215
CPT1Code6				1326	2560	2220
CPT1Code7				1327	2570	2225
CPT1Code8				1328	2580	2230
CPT1Code9				1329	2590	2235
CPT1Code10				1330	2600	2240
OREntryDT				1335	2610	2245
ORExitDT				1336	2620	2250
IntubateDT				1337	2670	2255
ExtubateDT				1338	2680	2260
SIStartDT				1341	2690	2265
SIStopDT				1342	2700	2270
AnesEndDT						2275
AbxSelect				1345	2710	2280
AbxTiming				1346	2720	2285
AbxDisc				1347	2730	2290
AddIntraopPAnti						2295
LwstTemp					2780	2300
LwstTempSrc						2305
LwstIntraHemo						2310
LwstHct					2790	2315
HighIntraGlu						2320
CPBUtil			1350	1350	2740	2325
CPBCmb			1360	1360	2750	2330
CPBCmbR			1370	1370	2760	2335
CanArtStAort					2851	2340
CanArtStFem					2852	2345
CanArtStAx					2853	2350
CanArtStInn						2355
CanArtStOth					2854	2360
CanVenStFem					2856	2365

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CanVenStJug					2857	2370
CanVenStRtA					2858	2375
CanVenStLfA					2859	2380
CanVenStPulm					2861	2385
CanVenStBi					2862	2390
CanVenStOth					2863	2395
PerfusTm	4360	4360	1380	1380	2770	2400
CircArr				1381	2865	2405
DHCATm				1382	2866	2410
CPerfUtil					2867	2415
CPerfTime					2868	2420
CPerfTyp					2869	2425
AortOccl	3880	3880	1400	1400	2870	2430
XClampTm	4350	4350	1410	1410	2880	2435
CplegiaDeliv					2900	2440
CplegiaType					2901	2445
CerOxUsed					2930	2450
ConCalc					3005	2490
AsmtAscAA					3010	2495
AsmtAoDx					3020	2500
AsmtAPln					3030	2505
IBldProdRef				1461	3050	2510
IBldProd			1460	1460	3040	2515
IBdRBCU			1470	1470	3060	2520
IBdFFPU			1480	1480	3070	2525
IBdPlatU			1500	1500	3090	2530
IBdCryoU			1490	1490	3080	2535
IntraClotFact						2545
IMedEACA				1511	3120	2550
IMedTran				1513	3140	2555
InOpTEE					3157	2560
PRepAR					3158	2565
PRepMR					3159	2570
PRepTR					3161	2575
PRepEF						2580
CombCardPCI						2585
CombProcs						2590

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CombProcsStatus						2595
CombProcsPCI						2600
CombProcsStentTy						2605
DistArt	2570	2570	1520	1520	3190	2625
DistVein	2580	2580	1530	1530	3200	2630
DistVeinHTech				1531	3205	2635
SaphHarPrepTm						2650
IMAArtUs	2590	2590	1560	1560	3210	2655
NoIMARsn					3220	2660
NumIMADA	2660	2660	1580	1580	3230	2665
IMATechn	4070	4070	1570	1570	3240	2670
NumRadArtUs					3260	2675
NumRadDA	2680	2680	1600	1600	3270	2680
RadHTech				1601	3280	2685
RadHarvPrepTm						2700
NumOArtD			1620	1620	3300	2705
ProxTech						2710
CABDistSite01					3390	2730
CABProximalSite01					3360	2740
CABConduit01					3380	2750
CABDistPos01					3410	2755
CABEndArt01					3420	2760
CAB02					3440	2770
CABDistSite02					3480	2790
CABProximalSite02					3450	2800
CABConduit02					3470	2810
CABDistPos02					3500	2815
CABEndArt02					3510	2820
CAB03					3530	2830
CABDistSite03					3570	2850
CABProximalSite03					3540	2860
CABConduit03					3560	2870
CABDistPos03					3590	2875
CABEndArt03					3600	2880
CAB04					3620	2890
CABDistSite04					3660	2910
CABProximalSite04					3630	2920

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CABConduit04					3650	2930
CABDistPos04					3680	2935
CABEndArt04					3690	2940
CAB05					3710	2950
CABDistSite05					3750	2970
CABProximalSite05					3720	2980
CABConduit05					3740	2990
CABDistPos05					3770	2995
CABEndArt05					3780	3000
CAB06					3800	3010
CABDistSite06					3840	3030
CABProximalSite06					3810	3040
CABConduit06					3830	3050
CABDistPos06					3860	3055
CABEndArt06					3870	3060
CAB07					3890	3070
CABDistSite07					3930	3090
CABProximalSite07					3900	3100
CABConduit07					3920	3110
CABDistPos07					3950	3115
CABEndArt07					3960	3120
CAB08					3980	3130
CABDistSite08					4020	3150
CABProximalSite08					3990	3160
CABConduit08					4010	3170
CABDistPos08					4040	3175
CABEndArt08					4050	3180
CAB09					4070	3190
CABDistSite09					4110	3210
CABProximalSite09					4080	3220
CABConduit09					4100	3230
CABDistPos09					4130	3235
CABEndArt09					4140	3240
CAB10					4160	3250
CABDistSite10					4200	3270
CABProximalSite10					4170	3280
CABConduit10					4190	3290

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CABDistPos10					4220	3295
CABEndArt10					4230	3300
ValExp					2450	3310
ValExpPos					2451	3315
ValExpTyp					2460	3320
ValExpEt						3325
ValExpDevKnown						3330
ValExpDev					2462	3335
ValExpUDI						3340
ValExp2					2463	3350
ValExpPos2					2464	3355
ValExpTyp2					2465	3360
ValExpEt2						3365
ValExpDevKnown2						3370
ValExpDev2					2467	3375
ValExpDevUDI						3380
VSAV					4270	3390
VSAVPr					4280	3395
VSTCV					4295	3400
VSTCVR					4300	3405
VSAVRComA					4282	3410
VSAVRLPlic					4284	3415
VSAVRPTFE					4286	3420
VSAVRComRS					4288	3425
VSAVRRaphe					4290	3430
VSAVRRingA					4283	3435
VSAVRLResect					4285	3440
VSAVRLPPatch					4287	3445
VSAVRDeb					4289	3450
VSAVRPeriLeak						3455
AnlrEnl			1670	1670	4310	3460
AorticImplant						3470
AorticImplantTy						3475
VSAoIm	3250	3250	1690	1690	4330	3480
VSAoImSz	3260	3260	1700	1700	4340	3485
VSAoImUDI						3490
VSMV					4351	3495

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VSMVPr					4352	3500
VSMitRAnnulo					4361	3505
VSMitRLeafRes					4362	3510
VSLeafResTyp					4380	3515
VSLeafRepLoc					4390	3520
VSMitRLeafPlic						3525
VSMitRLeafDeb						3530
VSMitRFold						3535
VSMitRSlidP					4391	3540
VSMitRADecalc					4393	3545
VSMitRPTFE					4394	3550
VSNeoChNum					4400	3555
VSMitRChord					4401	3560
VSMitRLeafERP					4402	3565
VSMitREdge					4403	3570
VSMitRMLeafClip						3575
VSMitRMitComm					4404	3580
VSMitRMitCplasty						3585
VSMitRMitCleft						3590
VSMitRMitOth						3595
MitralIntent				1641	4410	3600
VSChorPres					4450	3605
VSTCVMit						3610
MitralImplant						3615
MitralImplantTy						3620
VSMiIm	3310	3310	1750	1750	4430	3625
VSMiImSz	3320	3320	1760	1760	4440	3630
VSMiImUDI						3635
VSTV						3640
OpTricus	2370	2370	1650	1650	4500	3645
VSTCVTri						3650
OpTricusAnTy					4510	3655
TricuspidImplant						3660
TricusImplantTy						3665
VSTrIm	3370	3370	1810	1810	4540	3670
VSTrImSz	3380	3380	1820	1820	4550	3675
VSTrImUDI						3680

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
VSPV						3685
OpPulm	2380	2380	1660	1660	4560	3690
VSTCVPu						3695
PulmonicImplant						3700
PulmonicImplantTy						3705
VSPulm	3430	3430	1870	1870	4580	3710
VSPulmSz	3440	3440	1880	1880	4590	3715
VSPulmUDI						3720
IABP	4480	4480	1430	1430	4610	3725
IABPWhen	4490	4490	1440	1440	4620	3730
IABPInd	4500	4500	1450	1450	4630	3735
CathBasAssist					4660	3745
CathBasAssistTy						3755
CathBasAssistWhen					4690	3760
CathBasAssistInd					4700	3765
ECMO					4730	3775
ECMOWhen					4740	3780
ECMOInd					4750	3785
PrevVAD			1920	1920	4760	3790
PrevVADF				1921	4770	3795
PrevVADD					4771	3800
PrevVADIn					4772	3805
PrevVADTy					4773	3810
PrevVADDevice					4774	3815
PrevVADUDI						3820
PrevVADExp						3825
PrevVADExpRsn						3830
PrevVADExpDt						3835
VADImp						3840
VADImpTmg						3845
VADInd			1930	1930	4790	3850
VImpTy			2030	2030	4850	3855
VProdTy			2040	2040	4880	3860
VImpDt			2050	2050	4890	3865
VImpUDI						3870
VExp			2060	2060	4900	3875
VExpRsn			2080	2080	4920	3880

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
VExpDt			2070	2070	4910	3885
VImp2				2129	4940	3895
VADImpTmg2						3900
VADInd2						3905
VImpTy2			2130	2130	4950	3910
VProdTy2			2140	2140	4980	3915
VImpDt2			2150	2150	4990	3920
VImpUDI2						3925
VExp2			2160	2160	5000	3930
VExpRsn2			2180	2180	5020	3935
VExpDt2			2170	2170	5010	3940
VImp3				2209	5040	3950
VADImpTmg3						3955
VADInd3						3960
VImpTy3			2210	2210	5050	3965
VProdTy3			2220	2220	5080	3970
VImpDt3			2230	2230	5090	3975
VImpUDI3						3980
VExp3			2240	2240	5100	3985
VExpRsn3			2260	2260	5120	3990
VExpDt3			2250	2250	5110	3995
CompMAD						4010
CompMAD1						4015
CompMAD2						4020
CompMAD3						4025
OCarAFibEpLes						4070
OCarASDPFO						4075
OCarAAProc						4080
OCarACD			2450	2450	5400	4085
OCarLeadInsert						4090
OCarStemCell						4095
OCarLasr	4200	4200	2420	2420	5370	4100
OCarAFibIntraLes						4105
OCarASDSec						4110
OCarACDLE					5430	4120
OCarLVA	4150	4150	2360	2360	5220	4125
OCPulThromDis					5540	4130

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
OCarSubaStenRes						4135
OCarSubaStenResTy						4140
OCarSVR		4185	2400	2400	5290	4145
OCTumor					5530	4150
OCarCrTx	4220	4220	2440	2440	5390	4152
OCarTrma	4210	4210	2430	2430	5380	4153
OCarVSD	4160	4160	2370	2370	5230	4155
OCarOthr	4250	4250	2560	2560	5550	4160
OCarCong	4190	4190	2410	2410	5300	4162
OCarAFibLesLoc						4191
OCarLesDoc						4195
OCarAFibMethRad					5455	4200
OCarAFibMethRadBi						4205
OCarAFibMethCAS					5460	4210
OCarAFibMethCryo					5457	4215
AFibLes1						4250
AFibLes2						4255
AFibLes3a						4260
AFibLes3b						4265
AFibLes4						4270
AFibLes5						4275
AFibLes6						4280
AFibLes7						4285
AFibLes8						4290
AFibLes9						4295
AFibLes10						4300
AFibLes11						4305
AFibLes12						4310
AFibLes13						4315
AFibLes14						4320
AFibLes15a						4325
AFibLes15b						4330
AFibLes16						4335
AortProcRoot						4340
AortProcAsc						4345
AortProcHemi						4350
AortProcTotArch						4355

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
AortProcDesProx						4360
AortProcDesMid						4365
AortProcDesDist						4370
AortProcThora						4375
SynthGft						4380
SynthGftInter						4385
SynthGftCSF						4390
SynthGftEleph						4395
AortProcCoil						4400
AortProcTEVAR						4405
AortProcOther						4410
OCarCongDiag1					5310	4500
OCarCongDiag2					5320	4505
OCarCongDiag3					5330	4510
OCarCongProc1					5340	4515
OCarCongProc2					5350	4520
OCarCongProc3					5360	4525
ONCCarEn	4320	4320	2570	2570	5560	4530
ONCOVasc	4330	4330	2580	2580	5570	4535
ONCOThor	4340	4340	2590	2590	5580	4540
ONCOther			2600	2600	5590	4545
PostOpPeakGlu						4550
PostCreat				2605	5610	4555
BldProd	4630	4630	2610	2610	5620	4560
BdRBCU			2620	2620	5630	4565
BdFFPU			2630	2630	5640	4570
BdCryoU			2640	2640	5650	4575
BdPlatU			2650	2650	5660	4580
ExtubOR			2660	2660	5670	4585
ReIntub		4678	2680	2680	5680	4590
VentHrsA		4679	2690	2690	5690	4595
VentHrsTot						4600
ICUVisit			300	300	5700	4605
ICUInHrs		354	310	310	5710	4610
ICUReadm		355	320	320	5720	4615
ICUAdHrs		356	330	330	5730	4620
POpTTEch					5744	4625

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POpTTAR					5745	4630
POpTTMR					5746	4635
POpTTTR					5747	4640
POpTTPu						4645
POpEFD					5748	4650
POpEF					5749	4655
POpEnzDrawn					5750	4660
POpPkCKMB					5751	4665
POpPkTrI					5752	4670
POpPkTrT					5753	4675
POpEKG					5754	4680
POpImagStdy					5755	4685
SurSInf					5841	4690
CSternalSupInf					5850	4695
DeepSternInf						4700
DeepSternInfDt						4705
CIThor	4930	4930	2790	2790	5930	4710
ConduitHarv						4715
CanSite						4720
WoundInter						4725
WoundIntOpen						4730
WoundIntVac						4735
WoundIntMuscle						4740
WoundIntOmental						4745
Complics	4760	4760	2710	2710	5759	4750
COpReBld	4840	4840	2720	2720	5760	4755
COpReBldTim					5770	4760
COpReVlv	4850	4850	2730	2730	5780	4765
COpReGft	4860	4860	2740	2740	5790	4770
COpReOth	4870	4870	2750	2750	5800	4775
COpReNon	4880	4880	2760	2760	5810	4780
COpPlndDelay					5811	4785
CSternal					5830	4790
CSternalDehis					5840	4795
CSepsis					6010	4800
CSepsisPBC					6020	4805
CNStrokP	5000	5000	2830	2830	6030	4810

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CNStrokTTIA				2841	6040	4815
CNComaEnceph					6070	4820
CNParal				2851	6110	4825
CNParalTy				2852	6120	4830
CPVntLng	5050	5050	2860	2860	6130	4835
CPPneum	5100	5100	2880	2880	6150	4840
CVTE					6160	4845
PulmEmb					6170	4850
DVT					6180	4855
CPlEff					6190	4860
PostOpPneumo						4865
CRenFail	5120	5120	2890	2890	6200	4870
CRenDial		5130	2900	2900	6210	4875
DialDur					6220	4880
CUltraFil					6230	4885
CVaIlFem	5230	5230	2910	2910	6240	4890
CVaLbIsc	5240	5240	2920	2920	6250	4895
CRhythmDis					6270	4900
COtArrst	5270	5270	2940	2940	6280	4905
COtCoag	5280	5280	2950	2950	6290	4910
COtTamp	5290	5290	2960	2960	6300	4915
COtGI	5300	5300	2970	2970	6310	4920
COtMSF	5310	5310	2980	2980	6320	4925
COtAFib	5320	5320	2990	2990	6330	4930
CVaAoDis	5220	5220	3000	3000	6340	4935
RecLarynNrvInj					6341	4940
PhrenNrvInj					6342	4945
COtOther			3010	3010	6350	4950
Mortalty		5337	3020	3020	6360	5005
MtDCStat	5340	5340	3030	3030	6370	5010
Mt30Stat	5350	5350	3040	3040	6380	5015
Mt30StatMeth					6381	5020
MtOpD	5400	5355	3050	3050	6390	5025
MtDate	5360	5360	3060	3060	6400	5030
MtLocatn	5370	5370	3070	3070	6410	5035
MtCause	5380	5380	3080	3080	6420	5040
DisLoctn		5336	3190	3190	6520	5045

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CardRef			3200	3200	6530	5050
SmokCoun			3210	3210	6540	5055
DCASA		5331	3120	3120	6460	5060
DCP2Y12						5065
DCADP			3090	3090	6430	5070
DCOthAntiplat						5075
DCDirThromIn					6511	5080
DCCoum			3180	3180	6510	5085
DCFactorXa						5090
DCOthAnticoag						5095
DCACE		5332	3130	3130	6470	5100
DCBeta		5333	3140	3140	6480	5105
DCAmiodarone						5110
DCLipLowStat						5115
DCLipLowNonStat						5120
Readmit						5140
ReadmitDt						5145
ReadmRsn	5510	5510	3230	3230	6560	5160
ReadmPro			3240	3240	6570	5165
PredMort	2530	5610	3250	3250	6590	5170
PredDeep		5620	3260	3260	6600	5175
PredReop		5630	3270	3270	6610	5180
PredStro		5640	3280	3280	6620	5185
PredVent		5650	3290	3290	6630	5190
PredRenF		5660	3300	3300	6640	5195
PredMM		5670	3310	3310	6650	5200
Pred6D		5680	3320	3320	6660	5205
Pred14D		5690	3330	3330	6670	5210
TempYN1						5215
TempYN2						5220
TempDt						5225
TempCode						5230
TempText						5235
AnasDev			1550	1550		
AnasDevU			1540	1540		
Angina	1380	1380	780			
AngType	1390	1390	790			

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
AngUnstT	1400	1400				
AoDisAc					5516	
AoDisTyp					5517	
AoTrTyp					5518	
ArrhyAfib				853	1700	
ArrhyAfibTy					1701	
Arrhyth	1450	1450	840	840		
ArrhyTHB				852	1690	
ArrhythWhen					1650	
ArrhyTyp	1460	1460	850			
ArrhyVtach				851	1660	
ArrhyVtachHrtBlk					1670	
ArrhyVtachSicSinSyn					1680	
ArrivalDt					550	
ArrivalTm					560	
CABDisLoc01					3355	
CABDisLoc02					3445	
CABDisLoc03					3535	
CABDisLoc04					3625	
CABDisLoc05					3715	
CABDisLoc06					3805	
CABDisLoc07					3895	
CABDisLoc08					3985	
CABDisLoc09					4075	
CABDisLoc10					4165	
CABDistTech01					3400	
CABDistTech02					3490	
CABDistTech03					3580	
CABDistTech04					3670	
CABDistTech05					3760	
CABDistTech06					3850	
CABDistTech07					3940	
CABDistTech08					4030	
CABDistTech09					4120	
CABDistTech10					4210	
CABHybrPCI					3165	
CABHyPCI01					3430	

ShortName	2_35	2_41	2_52_1	2_61	2_73	2_8
CABHyPCI02					3520	
CABHyPCI03					3610	
CABHyPCI04					3700	
CABHyPCI05					3790	
CABHyPCI06					3880	
CABHyPCI07					3970	
CABHyPCI08					4060	
CABHyPCI09					4150	
CABHyPCI10					4240	
CABPctSten01					3356	
CABPctSten02					3446	
CABPctSten03					3536	
CABPctSten04					3626	
CABPctSten05					3716	
CABPctSten06					3806	
CABPctSten07					3896	
CABPctSten08					3986	
CABPctSten09					4076	
CABPctSten10					4166	
CABPrevCon01					3357	
CABPrevCon02					3447	
CABPrevCon03					3537	
CABPrevCon04					3627	
CABPrevCon05					3717	
CABPrevCon06					3807	
CABPrevCon07					3897	
CABPrevCon08					3987	
CABPrevCon09					4077	
CABPrevCon10					4167	
CABProxTech01					3370	
CABProxTech02					3460	
CABProxTech03					3550	
CABProxTech04					3640	
CABProxTech05					3730	
CABProxTech06					3820	
CABProxTech07					3910	
CABProxTech08					4000	

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CABProxTech09					4090	
CABProxTech10					4180	
CABUpln	2550	2550				
CanAortAtr				1393		
CanAortFem				1391		
CanFemAtr				1394		
CanFemFem				1392		
Cannulat	3760	3760	1390			
CanOther				1395		
CardPres				791	1610	
CarShTyp	1430	1430	820			
CathBasAssistDev					4670	
CathBasAssistRemDt					4710	
CCancCaseVal					2428	
CIArm				2801		
CigSmoker				385	650	
CigSmokerCurr					660	
CILeg	4940	4940	2800	2800	5940	
CISeptic	4960	4960	2810	2810		
CIStDeep	4920	4920	2780	2780	5860	
CIUTI	4970	4970				
ClassCCS	1530	1530				
CNComa	5030	5030	2850	2850		
CNStrokT	5010	5010	2840			
CNStrokTRIND				2842		
CnvIndic	3520	3520				
CnvStdIn	3510	3510				
COFirstInd				1426	2980	
ConvCPB		3479				
COpPerMI	4890	4890	2770	2770		
CorShunt	3930	3930				
COtHtBlk	5260	5260	2930	2930		
CPBUsed	3750	3478				
Cplegia	4380	4380	1420	1420		
CPPulEmb	5070	5070	2870	2870		
CSternalMedia					5870	
CSternalMediaDtDiag					5880	

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CSternalMediaSPMuscle					5910	
CSternalMediaSPOmental					5920	
CSternalMediaSPOpen					5890	
CSternalMediaSPWVac					5900	
CumulSatLft				1424	2960	
CumulSatRt				1425	2970	
CVDComa				551		
CVDNInvas				556		
CVDRIND				554		
CVDType	700	700	550			
DCAArhy			3100	3100	6440	
DCAArMN			3110	3110		
DCAntPlt		5335				
DCLipid		5334	3150	3150	6490	
DCLipMT			3160	3160	6500	
EmergRsn	2320	2320	1260	1260	2410	
EndoProc					5520	
EndoProcDeb					5521	
FlowPtcy	4080	4080				
HDEFMeth	1870	1870	1090	1090	1970	
HDPAD		1915	1100	1100		
HDPAMean	1940	1940	1110	1110		
HICNumber				171	440	
HPVCI			1980	1980		
HPVCVP			1960	1960		
HPVPCWP			1950	1950		
HPVPVO2			2020			
HPVPVO2M			2010			
HPVPVR			1970			
HPVRVEF			1990	1990		
HPVRVMth			2000			
HybrProc					3180	
HybrStat					3170	
Hyprchol	510	510	420			
IABPRemDt					4640	
IBdFactorVII					3091	
IMedAprot				1509		

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IMedAprotD				1510		
IMedDesmo				1512		
IndMnInv	3480	3480				
IndReop					1340	
IntPVAD			1940	1940		
IschTCFX	3970					
IschTLAD	3950					
IschTRCA	3960					
LMainDis	1830	1830	1060	1060	1940	
LVADInf			2110	2032		
LVADinf2				2131		
LVADInf3				2211		
MedAArrhy					1770	
MedACEI		1670	900	900		
MedADPI			1020			
MedAPlt		1710				
MedDig	1640	1640				
MedDiur	1730	1730				
MI	1340	1340	750			
NonStVDys					1350	
NumGEPDA	2700	2700	1610	1610		
NumIncis	3500	3500				
OCAoProcType					5471	
OCarACDL			2460	2460		
OCarACDLI					5410	
OCarAFES			2480			
OCarAFib			2470	2470		
OCarAFibAProc					5465	
OCarAFibMethLas					5459	
OCarAFibMethMicro					5458	
OCarAFibMethUltra					5456	
OCarAFibSur					5450	
OCarAFibSurLAA					5452	
OCarAFibSurLoc					5451	
OCarAICD	4240	4240				
OCarASD	4170	4170	2380	2380	5240	
OCarASDTy					5241	

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OCarBati	4180	4180	2390	2390		
OCarPace	4230	4230				
ONCAoAn	4260	4260	2510	2510		
ONCAoGraft					5474	
ONCAoRt					5473	
ONCArch			2530	2530	5490	
ONCArchRepExt					5491	
ONCAsc			2520	2520	5480	
ONCDesc			2540	2540	5500	
ONCThAbd			2550	2550	5510	
ONCThAbdExtent					5514	
ONCThAbdGraft					5511	
ONCThAbdInterVes					5512	
ONCThAbdLumCSF					5513	
OpAortic	2350	2350	1630	1630		
OpMinInv	2500					
OpMitral	2360	2360	1640	1640		
OthTobUse					661	
PatCountry					220	
PatMInit	100	100	120	120		
PatPermAddr					240	
PatPermCity					250	
PatPermCountry					280	
PatPermRegion					260	
PatPermZIP					270	
Payor	290	290	250			
PCancCaseVal					2420	
POArr					1445	
POCO				671	1530	
POCPaceT			650			
PrCBNum	740	740				
PrCNNum	750	750				
PredCoefVrsn				3249		
PreRSO2Lft				1422	2940	
PreRSO2Rt				1423	2950	
PrevProcAVBall					1285	
PrevProcAVRepair					1230	

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PrevProcAVReplace					1220	
PrevProcMVBall					1290	
PrevProcMVRepair					1250	
PrevProcMVReplace					1240	
PrevProcPercVRepair					1310	
PrevProcPV					1280	
PrevProcTCVRep					1300	
PrevProcTVRepair					1270	
PrevProcTVReplace					1260	
PrimInc	3490	3490				
PrNSBall	1280	1280				
PrNSStnt	1230	1230				
PrOCAICD			630	630	1460	
PrOCPace			640	640	1470	
PrOthCar	940	940	620	620	1440	
PrOthCongen				621	1450	
ProxLAD					1941	
PrPTCA	1160	1160				
PrPTIntv	1190	1190				
PrValDtKnown					1410	
PrValveDate					1420	
PrValveMonths					1430	
PVCmpBld			2290	2290	5140	
PVCmpBO				2341	5200	
PVCmpDCI			2310	2310	5160	
PVCmpEnd			2330	2330	5180	
PVCmpESt			2300	2300	5150	
PVCmpHem					5191	
PVCmpMal			2340	2340	5190	
PVCmpPPI			2320	2320	5170	
Race	210	210	190			
RadArtUs	2670	2670	1590	1590		
RadHrvstT				1602	3285	
RadPrepT					3286	
Readm30	5500	5500	3220	3220	6550	
RecComp	70	70	90			
RefCard	220	220	200	200	360	

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RefPhys	250	250	210	210	370	
RenFail	530	530	440			
ResectSubA					4311	
RVADInf			2120	2033		
RVADinf2				2132		
RVADInf3				2212		
SameDay	350	350				
SaphHrvstT				1532	3206	
SaphPrepT					3207	
SCRSO2Lft				1427	2990	
SCRSO2Rt				1428	3000	
SIStartT		4347	1330			
SIStopT		4348	1340			
SmokCurr	450	450	380			
Smoker	440	440	370			
StntIntv		1235				
STSCustNum1				3400	6680	
STSCustNum2				3410	6690	
STSCustNum3				3420	6700	
STSCustNum4				3430	6710	
STSCustNum5				3440	6720	
STSCustTxt1				3450	6730	
STSCustTxt2				3460	6740	
STSCustTxt3				3470	6750	
STSCustTxt4				3480	6760	
STSCustTxt5				3490	6770	
STSTLink		54	70	70		
SurgGrp	2235	2235				
SurgID			1220			
SutrTech	4040	4040				
ThrIntvl	1260	1260				
Thrmblys	1240	1240				
TotHrICU		357	340	340		
UnplAo					2505	
UnplAV					2503	
UnplCABG					2502	
UnplMV					2504	

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UnplOth					2507	
UnplProc					2501	
UnplVAD					2506	
UrgntRsn	2310	2310	1250	1250	2400	
VAD	4550	4550	1300	1300		
VADDiscS			2350	2350	5210	
VADListVrsn				1922		
ValExpMan					2461	
ValExpMan2					2466	
ValveVrsn				1881		
VCardTx			2090			
VCardTx2			2190			
VCardTx3			2270			
VDAoEt					2090	
VDAortTumor					2150	
VDCongenT					2120	
VDEndAB					2110	
VDLVOutOb					2140	
VDMitAnDegDis					2190	
VDMitDegLoc					2180	
VDMitET					2170	
VDMitIsTy					2210	
VDMitPMR					2220	
VDMitTumor					2221	
VDPrimAo					2130	
VDTrEt					2290	
VentHrs	4680	4680	2700			
VentHrsI		4676	2670			
VSAoEx	3280	3280				
VSAoExSz	3290	3290				
VSAoExTy	3270	3270				
VSAoImTy	3240	3240	1680	1680		
VslStblz	4050	4050				
VSMiEx	3340	3340				
VSMiExSz	3350	3350				
VSMiExTy	3330	3330				
VSMiImTy	3300	3300	1740	1740		

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VSPuEx	3460	3460				
VSPuExSz	3470	3470				
VSPuExTy	3450	3450				
VSPuImTy	3420	3420	1860	1860		
VSTrEx	3400	3400				
VSTrExSz	3410	3410				
VSTrExTy	3390	3390				
VSTrImTy	3360	3360	1800	1800		
VTxDt			2100	2100	4930	
VTxDt2			2200	2200	5030	
VTxDt3			2280	2280	5130	
WndIntOpen					5960	
WndIntWVac					5970	