

# Guidelines for Interfacing to eNICQ

## Interface Overview

To avoid duplicate entry of common data items, many of our centers have chosen to interface their existing medical record systems to eNICQ. The Vermont Oxford Network provides this set of guidelines for centers that choose this option. The design and maintenance of any interface system is entirely the responsibility of the center.

## Interface Scope

We currently advise that any interface designed for eNICQ be limited to the data items for the VLBW and Expanded databases. Centers participating in the Neonatal Encephalopathy Registry should do all their data entry within the eNICQ program itself due to the more complicated relationships that exist for those data items.

## Source Documents

In designing your interface to eNICQ, you will want to refer to some of the Vermont Oxford Network's primary documents for database operations, electronic data, and our eNICQ software. Please visit the downloads page of our website for the latest version of these documents:

<http://www.vtoxford.org/home.aspx?p=tools/downloads.htm>

On the downloads page, the most important documents available are the *Manual of Operations* and the *EDS Instructions*. Both of these documents are updated annually so please be sure to get the most up to date version.

Also available online is the eNICQ help file itself. This resource is available at the following location:

[http://www.vtoxford.org/enicq/help/enicq\\_guide.htm](http://www.vtoxford.org/enicq/help/enicq_guide.htm)

## Table Structure

The eNICQ software stores infant records for the VLBW and Expanded databases in a table named 'tblInfantMain' within the von.mde Access file. This table follows a structure similar (but not identical) to the export file format. The export file format can be viewed in Appendix A of the *EDS Instructions* document.

In addition to the fields that are in common with the export file format of Appendix A of the *EDS Instructions*, there are also a series of housekeeping fields that are unique to tblInfantMain. A summary listing of these fields and instructions for populating them is included at the end of this document.

Appendix A of the *EDS Instructions* also provides information on data types of items, ranges of acceptable values and suggestions on when certain codes might be applicable. Using this information as a guide, you should be able to extrapolate how to populate the data items based on information available in your source database.

## Data Flow

We recommend that any interface for eNICQ be designed to move data in one direction only. Data should move from the source database to eNICQ's database, but not from the eNICQ database back to the source database. Your users will need to be educated about this design

principal so that they understand that any changes they make to items from the source database in eNICQ will not be carried back to the source system and that those changes may be lost next time the interface is run.

You will likely choose to populate only some of the fields in eNICQ from your source database, leaving others to be completed within the eNICQ software. Your users will need to be educated as to which fields are populated from the source database and which fields are to be entered in eNICQ.

### **Data Definitions**

Data brought into eNICQ via interface should be consistent with the data definitions of the Vermont Oxford Network or should be reviewed by a human operator who will confirm that the entries are consistent with the data definitions. The data definitions are published in Part II of the *Manual of Operations*. Compliance with the data definitions is each network member center's responsibility. Please take care in reviewing your source data items to ensure that they are entered with the same conditions that apply to the Vermont Oxford Network definitions for the corresponding items.

Similarly, please take care if you design any automated text parsing routines to scan your source data for keywords to extrapolate answers for data items. Such a routine can serve to make a human operator aware of the presence of a keyword but generally it takes a human being to review the context in order to accurately answer the question. When using text parsing routines please educate your users to their responsibility in reviewing the outputs of these routines and provide them with a process for correcting the results.

### **Data Integrity**

The key fields in the eNICQ database for infant records are HOSPNO and ID. Typically, all records that a center enters will have the same value for HOSPNO, a unique integer value assigned to each Vermont Oxford Network member center. The ID field is a unique integer value for each infant record that a center submits. While the HOSPNO field will simply be a constant value, the ID field will need to be assigned and tracked from your source system.

To generate the ID field for a new eligible record, find the highest current value for ID in tblInfantMain and increment that value by one. Assign this ID value to your new eligible record in your source database. The ID values assigned to your Vermont Oxford Network records will need to be maintained in your source database so that you are able to accurately update changes from your source database to the records in eNICQ in later interface runs.

While ID assignment should primarily be an automated process, it is advisable to provide your users with a means of manually overriding an ID assignment. The reason for this is that on occasion a user will be instructed by the Vermont Oxford Network to set aside a series of ID numbers for later use. Users can be permitted to alter the value assigned to the ID field only if the alternate value they choose does not already exist in tblInfantMain. Users cannot be permitted to alter the ID value once the record has been transferred over to tblInfantMain.

### **Determining Eligibility**

The eNICQ software will not be able to process records and submit them to the Vermont Oxford Network unless the records meet our eligibility conditions. For this reason, it is advisable to determine eligibility of records before moving the data from your source database to tblInfantMain in the eNICQ database. The conditions for eligibility can be found in the *Manual of Operations*. For quick reference, these conditions are usually printed on the inside of the front cover of that publication.

Using the eligibility conditions, you can write your own routine to filter out eligible infants, or you can provide your users with a queue in the source application where they can manually select the eligible records, or you can implement some combination of the two. Please design your system so that it avoids the accidental introduction of ineligible records into eNICQ.

### **Auto Completion of Missing Items**

The eNICQ program will automatically complete some data items when a record is validated. If missing items are detected that it is able to fill in automatically, it will do so. The types of items that it may complete include the following:

Dependent Fields: Many fields depend on the presence of other items for completion. For example, the field UGRADE1 (Worst Grade of PIH) won't apply if the field USOUND1 (Cranial Ultrasound) is coded 'no'. The auto completion routine will fill dependent fields with N/A or Unknown codes as appropriate.

Length of Stay Fields: The Length of Stay fields LOS1 and LOSTOT will be calculated if the required dates are available. Several items depend on Length of Stay, such as the Late Infection fields LBPATH, CNEGSTAPH and FUNGAL. Based on age calculations, these fields will be filled with N/A codes as appropriate.

Transfer Fields: If the record doesn't have an initial disposition of 'transfer', then all fields related to transfers will be filled with N/A codes.

Delivery Room Death Fields: If the record is listed as Died in Delivery, any fields not required for a Delivery Room Death record will be filled with N/A codes.

The full scope of the auto completion routine is much more complex than this, but these examples should provide an understanding of the types of scenarios that are covered by auto completion.

### **Creation and Deletion of Records**

Once the interface system is in place, records should only be created in your source database and introduced to eNICQ via the interface. While the ability to create records in eNICQ will still be available, users should be educated not to do this.

Similarly, the deletion of records should also be performed from the source application and not within eNICQ. Handling of a deletion has a few additional rules concerning the record's export status that you will need to follow.

A record that has not been exported can be deleted directly from tblInfantMain by the source application. A non-exported record can be identified by the lack of any value in the 'LastExportDateTime' field. After a record has been deleted in this manner, the user is free to reuse the ID number that had been assigned to the record.

A record that has been exported cannot be deleted directly from tblInfantMain. Instead, update the 'DELETED' field for the record in tblInfantMain with a value of '1'. This will prompt the eNICQ application to export a delete record to the Vermont Oxford Network. The ID number of a record deleted in this manner cannot be re-used by the user.

### **Validation and Correction Cycle**

Once a record has been established in the eNICQ application via the interface, the user will then be able to complete any outstanding items and correct any errors identified by eNICQ's own validation routine. Once a record has successfully validated, it will then be eligible for export to

the Vermont Oxford Network. Records received by the Vermont Oxford Network are again validated using the latest version of the business rules. Any records with errors identified at our office are then returned to the center for correction and resubmission.

When your users perform corrections to the data, either based on validation within eNICQ or errors returned from the Vermont Oxford Network office, it is again important to note that items that originate on your source database must first be corrected on your source database. The changes should then be updated over to eNICQ via the interface.

### Concurrency Issues

The eNICQ system was not designed for a multi-user environment and has no record locking provisions. Your users will need to exit the system prior to running the interface.

### Summary of Fields in tblInfantMain

The primary source for understanding the structure of tblInfantMain is Appendix A of the *EDS Instructions* document. Appendix A contains all the same data items that are in tblInfantMain. The fields that are different between Appendix A and tblInfantMain are housekeeping fields and protected data items. Those differences will be explained here.

Referring to Appendix A, please note that the table begins with a 'Housekeeping Fields' section. Ignore this portion of Appendix A and instead substitute the following summary of housekeeping fields and protected data items in tblInfantMain:

Field Name	Description	Field Type	Notes
<b>Protected Data Items</b>			
PatientFirstName	Patient's First Name	Text50	
PatientLastName	Patient's Last Name	Text50	
MotherFirstName	Mother's First Name	Text50	
MotherLastName	Mother's Last Name	Text50	
MedicalRecordNumber	Medical Record Number	Text50	
DOB	Date of Birth	Date	Fill or complete manually
DOA	Date of Admission	Date	Fill or complete manually
DID	Date of Initial Disposition	Date	Fill or complete manually
DPTD	Date of Post Transfer Disposition	Date	Fill or complete manually
DFD	Date of Final Disposition	Date	Fill or complete manually
<b>Housekeeping Fields</b>			
LastEditDateTime	Date of Last Edit	Date	Fill with current date time stamp
LastValidationDateTime	Date of Last Validation	Date	Do not update
LastExportDateTime	Date of Last Export	Date	Do not update
INITIALS	Initials of last edit	Text3	Fill with 'SYS'
DELETED	Deletion flag	Byte	See instructions on deletions
STAT28	28 Day Status	Text1	Do not update
STATDS	Discharge Status	Text1	Do not update
STATXF	Transfer Status	Text1	Do not update
STATXFA	Transfer Part A Status	Text1	Do not update
STATXFB	Transfer Part B Status	Text1	Do not update
STATXFC	Transfer Part C Status	Text1	Do not update
STATXFD	Transfer Part D Status	Text1	Do not update
STATSD	Supplemental Data Status	Text1	Do not update
RECSTAT	Record Status	Text1	Do not update

**Protected Data Items** contain personal patient identifiers. These items are not submitted to the Vermont Oxford Network by eNICQ. The Vermont Oxford Network does not accept protected health care information.

The name items and medical record number are used for internal reporting in eNICQ and for the user's convenience in identifying the patients during data entry.

The date fields are used for internal calculations to determine values for length of stay data items. They are required and will need to either be populated by your interface or entered by the user manually. For definitions of the date items, please refer to the *Manual of Operations*. You will find these items described under the instructions for completing the Patient Identification Worksheet in Part II of the manual.

**Housekeeping Fields** contain information used internally by the eNICQ software in processing the records. In most cases, these items should not be populated by your interface on creating new records nor should your interface alter any existing values during an update operation. There are two exceptions to this rule:

LastEditDateTime should always be populated when your interface creates or updates a record. Fill this item with the current date time stamp. This tells eNICQ that the values for the record have changed. The INITIALS field can also be filled at this time. Use a value of 'SYS' for the INITIALS to indicate that the record was edited by an automated system and not the user.

DELETED should only be populated when the rules for record deletion call for it. Please review the rules for record deletion listed earlier in this document under the header **Creation and Deletion of Records**.

**NOTE:** The data items in eNICQ that are shown in Appendix A of the *EDS Instructions* are subject to annual update. Be sure to review the latest version of the *EDS Instructions* when designing your interface and make a point to check annually for changes that may affect your system. This publication is generally available in the fall for the upcoming format year.

Also note that while the housekeeping fields listed above do not usually change, they are also subject to update and the Vermont Oxford Network may implement those changes without notice.