

## Requirements for Importing Data from Patient Information Systems into the HI★TRACK Tracking Software

The HITRACK data and patient information management system is designed to help hospitals operate more efficient and successful newborn hearing screening programs, including timely and appropriate referral to diagnosis and intervention where necessary. HITRACK does this by keeping track of where infants are in the early hearing detection and intervention process, compiling reports and reminders, and generating letters to various participants who need to be informed about results at various stages of the process. For these activities to occur, information about the infant's demographic characteristics, contact information, and screening status must be available in the HITRACK system. Although such information can be entered directly into HITRACK, some of these data may also be available in other electronic databases. For example, computer-based hospital records often contain demographic and contact information about the baby. By "linking" existing information to the HITRACK software, the data and patient management process is more efficient and accurate for the screening program staff. The purpose of this document is to outline how such a linkage is best accomplished.

When you are ready to begin working on a linkage, be sure to contact the HITRACK Helpdesk at 435-797-3584 or [NCHAM.HelpDesk@usu.edu](mailto:NCHAM.HelpDesk@usu.edu) to make sure you have the most recent version of HITRACK for your testing procedures and so we can assist with your work as needed.

### Flat File Structure

The data structure outlined in Table 1 includes all variables that can be picked up from a data file and imported into HITRACK (fields printed in bold must be filled). The data structure for any file sent to HITRACK must include all data fields listed. Please note, however, that the patient data system does not necessarily have to write to all fields. For example, even if you don't have information about specific risk indicators, those fields must be included in the export data structure.

If your data system will be exporting multiple screening attempts or multiple contacts these rows must be exported as separate rows. Be sure to export all of the patient identifying fields (infant's medical record number, infant's last name, birth hospital code and infant's date of birth) in the additional rows so that HITRACK will be able to append the data to the correct patient. (Note: Use the "MCONTTYPE" field to differentiate between types of contacts.)

In November 2008 two new fields were added that are specific to the HITRACK 4 version. Columns for Mother Ethnicity and Mother Education Level have been added to assist State organizations in collecting and reporting CDC-related demographic data. These columns have been added at the end of the data structure and will not impact previously constructed data files.

## File Data Format

Data to be imported to HITRACK must be written in a comma delimited ASCII text file (\*.txt), and a .txt file extension must be included as part of the filename. Column headers should not be included. The following lists some further specifications for the various file elements, as well as some general formatting rules:

<b>File Element</b>	<b>Format</b>
Character fields	Must be enclosed in double quotes
Date fields	yyyymmdd
Field separator	Comma
Record separator	Carriage return/linefeed
End of file marker	1A hex or CHR(26)

In addition to the above specifications, some general formatting rules must be followed when writing to an ASCII text file:

- The data must be in a *comma delimited* text file format.
- Alphanumeric (text) fields **MUST BE** enclosed in double quotation marks (e.g., "some text"). The purpose of having text enclosed in double quotation marks is to prevent conflicts between comma(s) included in the text with the commas used to indicate location of variable fields.
- Date and numeric fields **SHOULD NOT** be enclosed in quotes.
- Strictly adhere to the order and number of fields as shown in Table 1 that contains a complete list of variables and their sequence.
- Records need to be separated with a carriage return/line feed, and an end of file marker needs to be sent.
- In the instances where data will not be written to a data field, a comma still needs to be included to denote the presence of a field.

In summary, the data structure for an ASCII text file should contain all the columns described in Table 1, formatted as described above. **The exact order of the columns is critical!!**

## Look-up Codes and Pick-Lists

Several of the columns listed in the field specification refer to Codes. (i.e. Foreign Key references) These lists of codes and their look-up definitions are collectively known as "Program Information".

The possible values for items not listed in the specification table are customizable and vary depending on the site installation and setup. These items can be exported from HITRACK using the "Export Program Information" feature in Utilities (or Tools in HITRACK 4). The following files will be created after the export:

- nur\_type.txt (Nursery Levels)
- race.txt (Races)
- screener.txt (Screeners)
- pednames.txt (Physicians)
- ins\_prog.txt (Insurance Types)
- hospital.txt (Birthing and Screening Sites)
- audnetid.txt (Audiologists)

These comma delimited files will reflect the current look-up codes in the HITRACK system. The first column in each file is the Code (Primary Key) that should be referenced when the patient information file is created.

## HITRACK 4 Supported Look-up Codes

Columns for Mother's Ethnicity and Mother's Education level have been added to provide CDC reporting activities in HITRACK 4. The following tables show the CDC labels and the HITRACK 4 compatible codes for these two new columns.

### Ethnicity

eeeebbb-fa1c-4398-9230-045d3ce5abe0	Hispanic or Latino
eeeebbb-fa1c-4398-9230-045d3ce5abe1	Not Hispanic or Latino
eeeebbb-fa1c-4398-9230-045d3ce5abe3	Unknown

### Education Level

eded6464-f022-1e7e-1479-4e91d70dd004	College Graduate or above
eded6464-f022-1e7e-1479-4e91d70dd002	High School Graduate or GED
eded6464-f022-1e7e-1479-4e91d70dd001	Less than High School
eded6464-f022-1e7e-1479-4e91d70dd003	Some College or AA/AS degree
eded6464-f022-1e7e-1479-4e91d70dd005	Unknown

## Importing Data

To import data to HITRACK:

- Create a file named alldata.txt using the above instructions.
- Create the file in a specific location on the hard drive or network drive.
- Data for any or all of the variables in Table 1 can be included, but the data structure (noted by commas) must include all variables listed.
- Set up the HITRACK Merge
  - In HITRACK 3.5: Go to **Preferences** → Merge Settings in HITRACK and set the appropriate import path for "Demographic Data (Expanded)".
  - In HITRACK 4: Go to **Settings** → Facilities. Select your Facility and then choose Merge Sources to add a source for "Demographic Data (Expanded)" with an appropriate import path.
- Go to **Merge** in HITRACK and import the data.

When HITRACK imports the data, it will first check whether a record for that child exists by matching on the three required fields (infant's medical record number, infant's last name, and infant's date of birth). If an exact match is found on all three variables, HITRACK will assume it is the same child and update demographic data with the data from the hospital. If a record matches on 2 of 3 variables, it is put in a holding bin for the user to examine and resolve. If an exact match is not found on all three variables, a new record will be created in HITRACK.

## Recommended Process for Testing Software Links and Coordinating Technical Assistance

Even the most carefully planned and programmed software link needs to be rigorously tested so that "bugs" can be found and fixed prior to general use. Although the length of time required to successfully execute this final phase of software development depends to some degree on the amount of time that can be devoted to the task by the patient system developers and the HITRACK staff, a rule of thumb would be to allow at least one month between the completion of the programming work and the time you expect to begin routine use. Steps for testing the links include:

1. "In-house" alpha testing, in which your team attempts to merge the file under varying data sets and conditions. During this phase, the HITRACK Help Desk and hospital staff will also work together to prepare documentation on the software link for distribution to users.
2. Beta testing, in which a small number of hospitals who have agreed to participate in the process use the export/import function on a routine basis.

**Table 1: Expanded Merging Specifications for  
Merging Patient Information Data into HITRACK**

<b>Field Name</b>	<b>Type</b>	<b>Length</b>	<b>Required</b>	<b>Description</b>
CMID	Character	15	Yes	Child's Medical ID
CDOB	Date	8	Yes	Child DOB (yyyymmdd)
CLAST	Character	20	Yes	Child's Lastname
CFIRST	Character	10	No	Child's Firstname
CINITIAL	Character	1	No	Child's Initial
HOSP_CODE	Character	3	Yes	3 Letter Code for Hospitals ("hospital.txt")
SCRN_SITE	Character	3	No	3 Letter Code for Screening Site ("hospital.txt"). Required if screening results are sent
SEX	Character	1	No	1 Letter code for Child's Gender (M, F, U)
TYPE	Character	1	No	1 Letter code for Nursery (1=Well baby, 2=NICU or Special care level II,3=Special care level III "nur_type.txt")
CTOB	Character	8	No	Child's Time of birth (text)
MULTI_CODE	Character	1	No	1 Letter code for birth order (S=single birth, A=1st born of multiple, B=2nd born of multiple, C=3rd born of multiple, etc.)
BW_GRAMS	Integer	4	No	Birth weight in grams
CICUDAYS	Integer	4	No	Number of days spent in ICU
CDELTYPE	Character	1	No	Delivery type (1=vaginal, 2=forceps, 3=CSEC, 4=Vacuum Ext, 9 =Unknown)
CDISDTE	Date	8	No	Child's Discharge Date (yyyymmdd)
PE_ID	Character	4	No	4 Letter code for Doctor ("pednames.txt")
INS_CODE	Character	2	No	2 Letter code for Insurance ("ins_prog.txt")
NOTES	Character	255	No	Free form notes.
RACE	Character	2	No	2 Letter code for Race ("race.txt")
CGESTTIME	Character	2	No	Gestation in weeks
TRKVAR1	Character	1	No	1st Tracking Flag (Attribute tracking )
TRKVAR2	Character	1	No	2nd Tracking Flag (Attribute tracking)
TRKVAR3	Character	1	No	3rd Tracking Flag (Attribute tracking)
BIRTH_ID	Character	15	No	Alternate Medical ID
MIDNUM	Character	50	No	Mother's Identification number
MLAST	Character	20	No	Mother's Last name
MFIRST	Character	15	No	Mother's First name
MINITIAL	Character	1	No	Mother's Initial
MADD	Character	30	No	Mother's First Address line
MADD2	Character	30	No	Mother's 2nd Address line
MCTY_TOWN	Character	16	No	Mother's Town
MSTATE	Character	20	No	Mother's Country
MZIP	Character	10	No	Mother's Postal Code
M_PHONE	Character	19	No	Mother's Phone
MRACE	Character	2	No	2 Letter code for Race ("race.txt")
M_LANG	Character	2	No	2 letter code for Mother's Language. ("languag.txt")
M_BIRTH	Date	8	No	Mother DOB (yyyymmdd)
MADMDATE	Date	8	No	Mother's Admission Date (yyyymmdd)
MDISDATE	Date	8	No	Mother's Discharge Date (yyyymmdd)
MMAIDEN	Character	20	No	Mother's Maiden Name
MCONTTYPE	Character	2	No	Type of Contact (Used to distinguish between multiple contacts: 01=Foster Parent, 02=Social Worker, 99=Unknown, FC=Father, MC=Mother)
MPHONE1	Character	19	No	Mother's Secondary Phone Number

MPHONE2	Character	19	No	Mother's Alternate Phone Number
MPREFER	Integer	4	No	Preferred Contact (1=Yes, 0=No)
SCRNLTEAR	Character	1	No	Left Ear Screen result: 1=Pass, 2=Refer, B=Broken appointment (outpatient only), C=Could not test, D=Deceased, E="No Scrn.->Dx" (outpatient), I=Invalid, L=Lost/Locate (outpatient), M=Missed (inpatient only), N="Ear Test Not required", R=Refused, S=Scheduled (outpatient), T=Transferred Out (inpatient), X=Follow up discontinued (outpatient)
SCRNLDTTE	Date	8	No	Left Ear Screening Date (yyyymmdd)
SCRNLTSR	Character	3	No	Left Ear Screener ("screener.txt")
SCRNRTEAR	Character	1	No	Right Ear Screen Result (See Left Ear Screen result above for codes.)
SCRNRDTTE	Date	8	No	Right Ear Screening Date (yyyymmdd)
SCRNRTSR	Character	3	No	Right Ear Screener ("screener.txt")
SCRN_TYPE	Character	1	No	Screen Type (A=A-ABR, O=OAE) Required if screening results are sent. If sending more than 1 type, then separate records should be sent each containing results for a different screening type.
STAGE	Character	1	No	Level of Screening (I=Inpatient, O=Outpatient) Required if screening results are sent
SCRNLTID	Character	12	No	Left Screening Test Equipment ID
SCRNRRTID	Character	12	No	Right Screening Equipment Test ID
SCRN_SITE2	Character	3	No	(Not used, but column must be accounted for)
FX	Character	1	No	Risk Indicator - Family history (Y,N,U)
BW	Character	1	No	Risk Indicator - Birth weight less than 1500 grams (Y,N,U)
ME	Character	1	No	Risk Indicator - Bacterial Meningitis (Y,N,U)
OD	Character	1	No	Risk Indicator - Ototoxic Medication (Y,N,U)
HL	Character	1	No	Risk Indicator - Syndrome associated with hearing loss
HY	Character	1	No	Risk Indicator - Hyberbilirubinemia (Y,N,U)
CI	Character	1	No	Risk Indicator - Congenital Infection (Y,N,U)
CF	Character	1	No	Risk Indicator - Crano-facial anomalies (Y,N,U)
MV	Character	1	No	Risk Indicator - Mechanical ventilation (Y,N,U)
AP	Character	1	No	Risk Indicator - Abnormal Apgar Scores (Y,N,U)
OTHER	Character	30	No	Risk Indicator - Other Risk Indicators
RILLNICU	Character	1	No	Risk Indicator - Illness requiring more than 48 in NICU (Y,N,U)
RCAREGC	Character	1	No	Risk Indicator - Caregiver Concern (Y,N,U)
RHEADT	Character	1	No	Risk Indicator - Head trauma (Y,N,U)
ROMEFF	Character	1	No	Risk Indicator - Recurrent/Persistent otitis media with effusion
RSYNPHL	Character	1	No	Risk Indicator - Syndrome associated with progressive hearing loss (Y,N,U)
RNEONATI	Character	1	No	Risk Indicator - Neonatal Indicators (Y,N,U)
MCOUNTY	Character	50	No	Mother's County
ETHNICITY	Character	36	No	Mother's Ethnicity GUID (HITRACK 4 only)
EDUCATION	Character	36	No	Mother's Education Level GUID (HITRACK 4 only)

NOTE: If the record being imported has variables with codes different from what HITRACK is expecting, the record will be accepted and a statement will appear on the record that there are "Unknown Program Information"