GSI CORTI™

USER MANUAL

DATA MANAGER

Setting The Clinical Standard   www.grason-stadler.com

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gsi
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Corti Data Manager

Introduction

The Corti Data Manager is a data management tool that compliments the GSI Corti. It provides the ability to transfer patient OAE test data from the device to a PC for the purposes of viewing, archiving, managing and printing OAE reports, and transferring patient names to the Corti unit. For Newborn Hearing Screening Programs, the database integrates with 3rd party database tools such as HiTrack and OZ eSP. Reports may be saved in different electronic formats such as PDF, RTF or image files (BMP, JPEG, TIFF, etc.) and attached to an Electronic Medical Record (EMR). Auto Print is a tool which allows the user to by-pass data management functionality while maintaining the ability to quickly print OAE test results. Auto Print is designed to be used *in lieu of* Data Manager.

Intended Use

The GSI Corti Database Software is used to view, archive, and report OAE data acquired from the GSI Corti Otoacoustic Emissions (OAE) device. Screening and diagnostic data is acquired from the GSI Corti. The Corti device is connected to a PC and the OAE data is transferred to the Database Software. The Database Software can also be a vehicle to generate and transfer patient names to the Corti device. The OAE data is used as part of an audiologic diagnostic evaluation or as part of the infant hearing screening programs for newborns or infants. The results are of interest to the audiologist, otolaryngologist, nursing staff, and/or nurse managers. Test results obtained with the GSI Corti device can only be transferred, viewed, and saved within the Database Software if the device is connected to a PC via USB or wirelessly. Previously acquired data may be viewed for evaluation without a connection to the Corti. Data transferred from the Corti device includes Transient Evoked Otoacoustic Emissions (TEOAE) or Distortion Product Otoacoustic Emissions (DPOAE) from each ear, displayed in graphic and tabular formats. The data will include screening or diagnostic data of both or either OAEs. Screening data will include results that include Pass, Refer, Noise, or No Seal. Diagnostic test results include the absolute responses at each stimulus, the noise floor and/or the Signal to Noise ratio of the response at each stimulus. The patient demographic and test result data is saved to a directory for future retrieval and/or converted to electronic format for transfer to an EMR program. The Database Software provides reports in electronic formats that are compatible with electronic medical records including PDF, RTF, JPEG, TIFF, GIF, PNG, BMP, EMF, and WMF.

Setup

Precautions for Patient Confidentiality

- Store a backup of the data in a safe manner.
- Create backups of patients' data regularly.
- To avoid data from being misused if stolen, the data must be encrypted.
- All users should have a unique login to the PC.
- When using a third party networked software, the communication to the database should be secure (encrypted) to avoid patient information being captured during network transmission. See the third party user manual for details.
- When using a third party networked software, all users should have a unique login to the database to ensure traceability and identification of data is updated or deleted from the database. See the third party user manual for details.

Prerequisites

Corti Data Manager PC Minimum Requirements

- CPU: 1 GHz
- RAM: 512 MB
- Hard Disk: 2 GB
- USB Ports: 2.0
- USB Port: 1 for each connected instrument
- Optionally, an additional USB port will be required if a printer is connected to the PC
- Display Resolution: 1024 x 768
- CD-ROM Drive (if installing from a CD)
- Network connection if installing from a network location
- Network connection if printing to a network printer
- Internet Explorer 6.0 or later and current service pack are recommended

Corti Data Manager Supported Operating Systems

- Microsoft Windows® 10
- Microsoft Windows® 8.1 Pro
- Microsoft Windows® 7 Pro

Corti Data Manager Software Requirements

- Microsoft .NET Framework version 4.0 (bundled with installer if not already installed)
- PDF Viewer
- FTDI USB Driver for instrument connection

Installation Instructions

The software installation requires selection of GSI Data Manager Software *or* Auto Print. Users that require full reporting functionality, database tools, statistical analyses, etc should install GSI Data Manager. Users that require only a printout of test data without the use of the full database functionality should install Auto Print.

Installing the Corti Data Manager

- The Corti Data Manager is provided with the purchase of each Corti unit. The Data Manager may be installed from the supplied flash drive or CD.
- For installation from the CD:
    o Insert CD in to the CD drive
    o Use Windows Explorer to navigate to the "start" application file
    o Select GSI Data Manager and click OK
    o Follow the on screen instructions
- For installation from the flash drive:
    o Insert flash drive in to an available USB port on the computer
    o Use Windows Explorer to navigate to the "start" application file
    o Double click and select GSI Data Manager
    o Follow the on screen instructions

NOTE: Always make a copy of the database file and store the copied file in a safe location before a new install or upgrade.

Installing Auto Print

- For installation from the CD
    o Insert the CD into the CD drive
    o Use Windows Explorer to navigate to "start" application file
    o Select GSI Auto Print and click OK
    o Follow the on screen instructions
- For installation from the flash drive
    o Insert the flash drive into an available USB port on the computer
    o Use Windows Explorer to navigate to 'start' application file
    o Select GSI Auto Print and click OK
    o Follow the on screen instructions

NOTE: Install Auto Print for print only functionality.

Connecting the Corti to the PC via USB

1. Make sure the Corti is charged.
2. Use a standard USB to micro USB cable.
3. Plug the micro USB connector into the port on bottom of the Corti.
4. Plug the USB connector (A plug) into a USB port on the computer.
5. Power on the PC and launch the Data Manager or Auto Print.
6. Power on the Corti.
7. The Corti will display "Waiting on PC."
8. The Data Manager or Auto Print is now ready for data transfer, name transfer or auto printing.

Connecting the Corti to the PC via Wireless Technology

1. Make sure the Corti is charged.
2. Power on the PC and launch the Data Manager software.
3. Power on the Corti.
4. Make sure the Corti is paired to your PC. Pairing is only required on initial data transfer.
5. Initiate connection from Data Manager by selecting
6. From the main screen, press the ↑UP arrow.
7. Press ←CONNECT→ for data transfer.

NOTE: Auto print is not available using wireless technology.

Connecting the Corti Resting in the Corti Cradle to the PC

1. Make sure the Corti is charged.
2. Use a standard USB to Type B USB cable.
3. Plug the Type B plug end of the USB cable into the port on the Corti cradle.
   Note: the cradle does not need to be connected to power for data transfer
4. Plug the USB connector (A plug) into a USB port on the computer.
5. Power on the PC and launch the Data Manager or Auto Print.
6. Power on the Corti while it sits in the cradle.
7. The Corti will display "Waiting on PC."
8. The Data Manager or Auto Print is now ready for data transfer, name transfer or auto printing.
9. If this is the first time the Corti is connected to the Data Manager, click the *Detect Com Port* button in the *Transfer* area of the toolbar if necessary.


NOTE: The remaining text in this user manual assumes connections are made direct to the Corti unit, but all functions can also be conducted with the Corti in the Cradle or wirelessly when using Data Manager.

NOTE: See Auto Print section full description and set up options.

NOTE: GSI Corti test results may be transferred to GSI Suite v2.4.xx or higher. See GSI Suite user manual for more information.

General Functionality

Overview
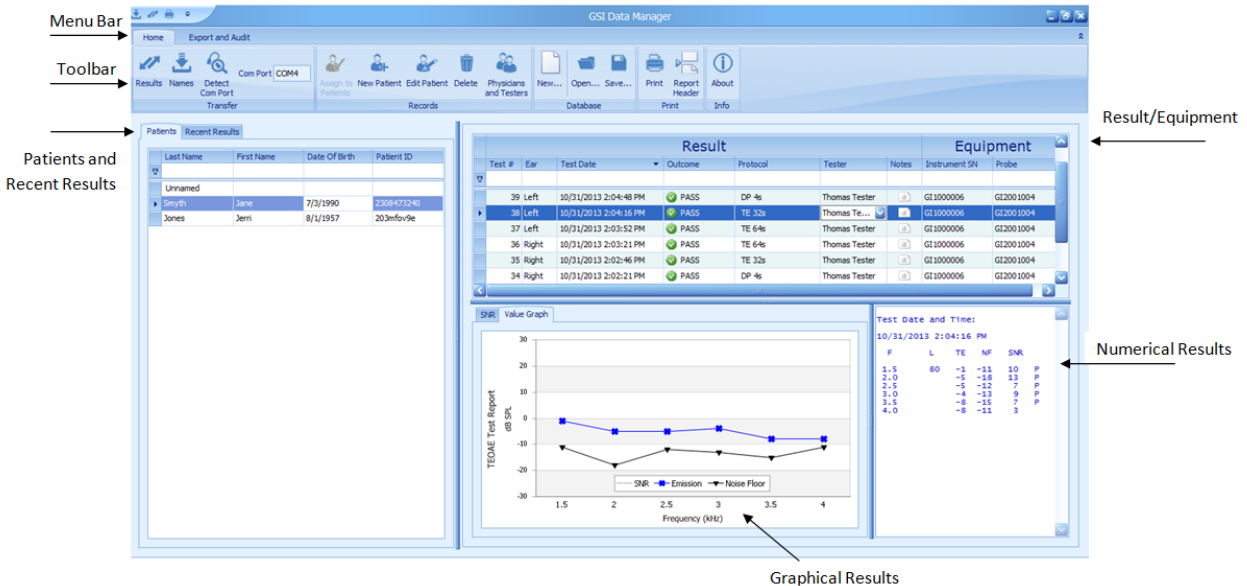
Main Window Details

Menu Bar

Home Tab: The majority of functions such as viewing test data, adding patients, transferring patient names are accessible in the Home Tab.

Export and Audit Tab: Allows for exporting patient data to 3rd party database tools used for NHS patient tracking and for auditing ear or test changes made to patient records.

Tool Bar

Tool Bar: A row of icons in the Home Tab and Export/Audit Tab that activate key functions when selected.

Patients and Recent Results

Patients Tab: displays a cumulative list of all patients that have been entered into the Database Manager including the most recent. "Unnamed" tests are test data that have been transferred from the Corti device that have not been assigned to a specific patient.

Recent Results Tab: displays the most recent list of patient and/or test results that have been transferred from the Corti for easy access to the most current data.

Result/Equipment

Results section displays all test records for a selected patient. Equipment section displays the software version, and the serial number of the unit and probe used to acquire the test results.

Numeric Results

Displays OAE test data of selected test in numerical form.

Graphic Results

Value Graph Tab: Displays the OAE test results in graphic form of the selected test in the Test Results list. The response amplitude, noise floor and Boys Town Normative data (optional) are displayed.

SNR Tab: Displays the Signal-to-Noise Ratio of each test frequency or frequency band in bar graph form of the selected test in the Test Results list.

NOTE: If multiple test results are selected at the same time, the numeric, Value Graphs and SNR graph sections will be blank.

Home Tab Functions

Transfer Information
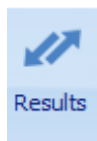
Results: Transfer test results from Corti to the Data Manager via micro USB:
1. Turn on the Corti.
2. Connect the Corti to the PC using the micro USB connector.
3. The Data Manager will default to the previously used Com Port number and automatically detect the Corti unit on that port. See **Detect Com Port** below if this is the first time the instrument is connected.
4. Corti will display "Waiting on PC."
5. Click **Results** icon to begin data transfer and select OK went complete.
6. "Recent Results" tab will show the latest uploaded test results. The Patient Tab will show all patient data transferred.

Results: Transfer test results from Corti to the Data Manager wirelessly.
1. Turn on the Corti.
2. Click the **Results** icon to begin data transfer.
3. Immediately press the ↑UP arrow from the main screen of the Corti to display the wireless screen for data transfer.
4. Press ←CONNECT→ on the Corti for data transfer.
5. The "Recent Results" tab will show the latest uploaded test results.
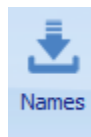
Names: Transfer patient names to Corti via micro USB cable:
1. Turn on the Corti.
2. Connect the Corti to the PC using the micro USB connector.
3. The Data Manager will default to the previously used Com Port number and automatically detect the Corti unit on that port. See **Detect Com Port** below if this is the first time the instrument is connected.
3. Corti will display "Waiting on PC."
4. Click on **Names** icon and Store Names to Instrument window will appear.

5. If necessary, clear previously transferred list by clicking **Clear List.**
6. If desired, click Clear Instrument to delete all patients and test records on the Corti.
7. Drag names from Patients list to the Store Names to Instrument window.
8. Patient names are displayed in alphabetical order by last name (or First Identifier). Patient names are transferred into the Corti in alphabetical order.

9. Click **Store Names** to transfer names to the Corti.

Names: Transfer patient names to Corti using wireless technology
1. Click on **Names** icon and Store Names to Instrument window will appear.
2. Clear the previously transferred list by clicking **Clear List.**
3. If desired, click Clear Instrument to delete all patient records on the Corti.
4. Per on screen instructions, drag names from the Patients list to the Store Names window. The patient names will be in alphabetical order by last name.
5. Click **Store Names** to transfer names to the Corti.
6. After **Store Names** is selected immediately Press the ↑UP arrow from the main screen on the Corti to display the Bluetooth screen for data transfer.
7. Press ←CONNECT→ for the Corti unit to link and transfer the names.

**Detect Com Port:** Detect the Com Port for the Corti connection:
1. Turn on the Corti and connect to the PC using the micro USB connector.
2. Click **Detect Com Port** when the Corti is connected for the first time or when connecting to a different Corti device.

Manage Patient Records
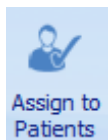
Assign to Patients: Assign unnamed tests to patient records. Transferred test results will be listed as "Unnamed" if patient names were not transferred to the device prior to testing.

1. Add all New Patient names to database (see instructions below).
2. Click on **Assign to Patients** icon.
3. Drag the unnamed test results from the list on the left, to the corresponding patient on the right.
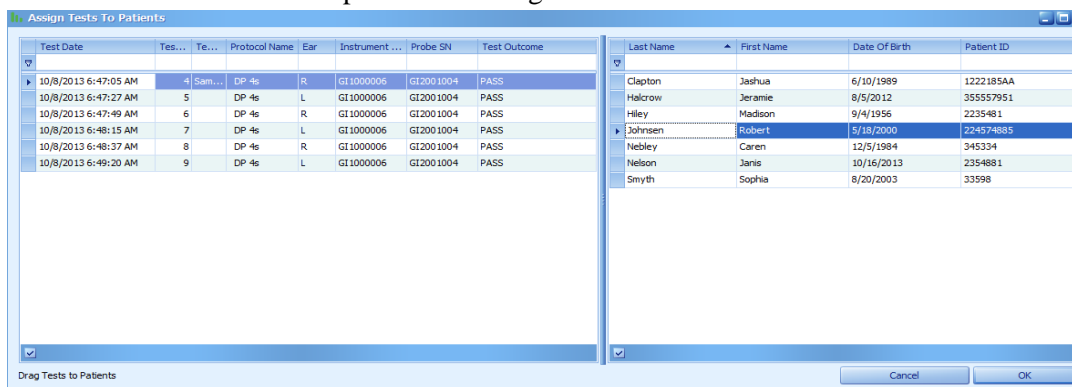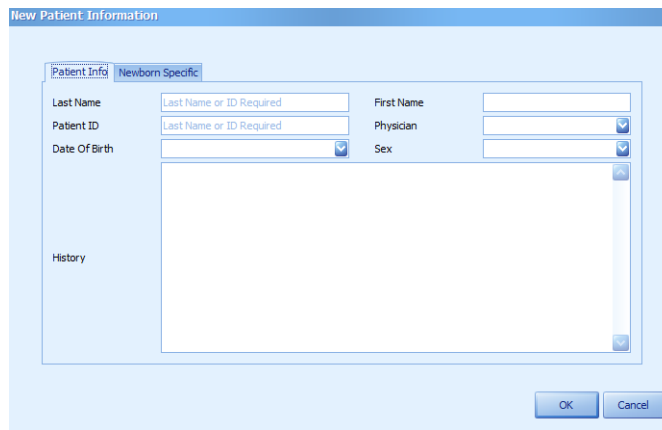

NOTE: Multiple tests can be transferred to the same patient at one time by pressing the Ctrl key when selecting tests.

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4. A confirmation window will pop up stating the patient name and number of tests to be transferred. Click **OK** if accurate.
5. Click **OK** when all transfers are complete.
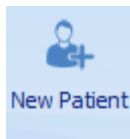
New Patient: Add a new patient name to the database:

1. Click on the **New Patient** icon.
2. Enter patient demographics. Minimum of last name or ID is required.
3. Enter patient-specific history if desired
4. For NHS programs, use the **Newborn Specific** tab to enter demographics such as mother's last name, nursery type, history, etc. When **Use HiTrack** is selected, additional HiTrack fields are displayed in the Newborn Specific tab.
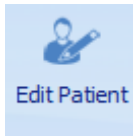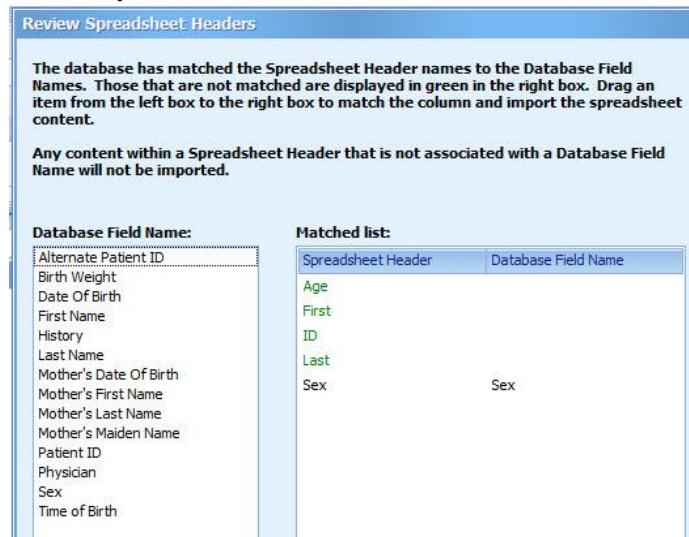
Edit Patient: Edit a Patient Record
1. Select a Patient from the Patient list.
2. Click **Edit Patient** icon.
3. Add to or correct patient information.
4. Click OK to save.

Import Patient Information: New patient demographic information may be imported from a spreadsheet in *.xlsx, *.xls or *.csv format.
1. Click on Import Patient Information icon.
2. Locate the spreadsheet file that contains the patient information and select Open.
3. Review the matched list that compares the available data manager field names and the spreadsheet headers. Headers in green do not match any of the available field names. In the example below, Age, First, ID and Last do not match any of the GSI Database Field Names.

4. Drag and drop the appropriate GSI data base field name to the appropriate/matched spreadsheet header. Header will display in black and Database Field Name will appear when matched. In the example below, 'First' has been matched to First Name, 'ID' has been matched to Patient ID and 'Last'

has been matched to Last Name. 'Age' is not matched in this example and remains green.
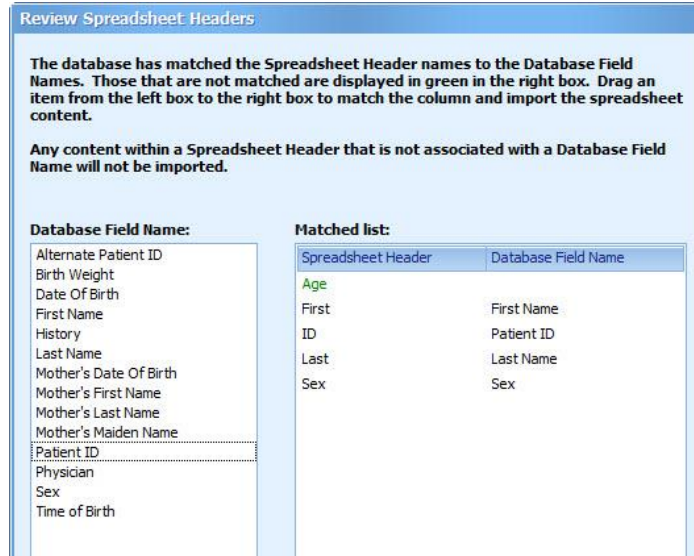

5. After all the desired fields are matched, click OK to begin import.
6. If any fields are not matched, a message will appear to Press OK to import without this data. Click Cancel to abort the import.
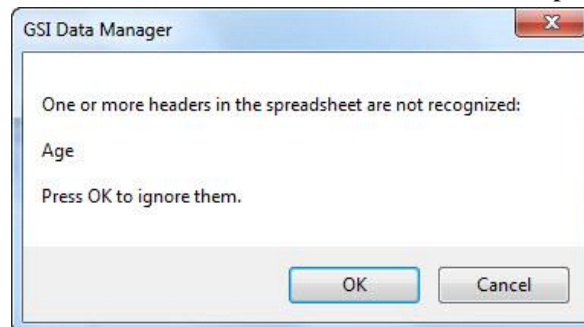
7. A confirmation of the number of patient names to be imported will appear. Click Yes to complete the import. Click No to cancel the import.
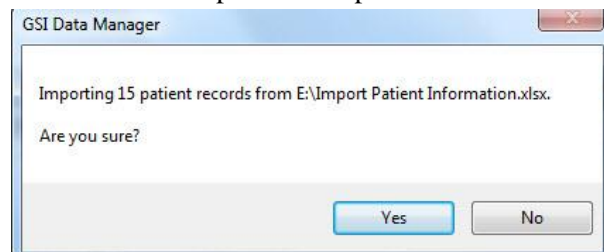
8. Newly imported patient (s) will appear at the bottom of the Patients Tab.
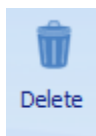
**Delete**: Delete a Patient or Test from the database
1. Click on the Patient name in the Patients Tab or the specific test to be deleted.
2. Click **Delete** icon.
3. A warning window will pop up with the specific patient name/test to be deleted.

4. Click **Yes** to *permanently* delete the patient and test results from the database.

5. Click **No** to cancel the delete function.

**NOTE**: Unnamed tests cannot be deleted.
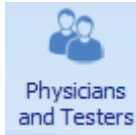
Physician and Testers: Add Physician and Testers Names. A list of referring physicians and testers may be added and assigned to the patient record in the New Patient tab or in the test results section. NOTE: This function is disabled when **Use HiTrack** is selected.

1. Click on **Physicians and Testers** icon.
2. Click "+" to add a name to the individual list.
3. Enter the name on the line as it will appear in the database and on the report.
4. Click OK to save.
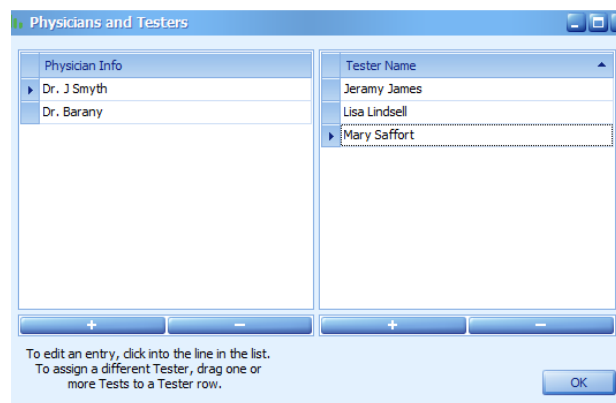
Manage Database Files
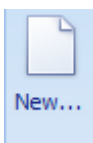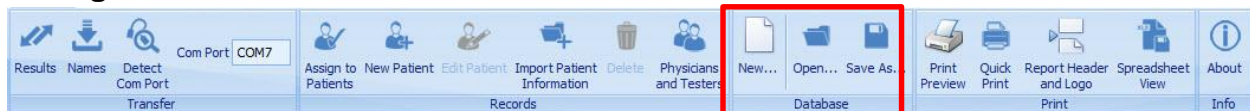
New: Create a New Corti Database
1. Click on the **New Database** icon.
2. Name and save the New Database file to desired PC location. Click **OK**.
3. A dialog box will appear indicating that the new Corti database will be in use the next time the Data Manager is opened. Click **OK**.
   NOTE: Previous database will be archived.
4. Corti Data Manager will automatically close.
5. Re-open the Data Manager to view the new and *empty* database.
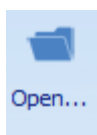
Open: Open an Existing Corti Database
1. Click the **Open Folder** icon.
2. Locate and highlight the desired database file and click **Open**.
3. A dialog box will appear indicating that the new Corti database will be in use the next time the Data Manager is opened. Click OK.
   NOTE: Previous database will be saved in its original location.
4. Corti Data Manager will automatically close.

5. Re-open the Data Manager to view the selected database.

Save As: Save a Database
1. Click on the **Save As** icon.
2. Name and Save the current database file to the desired location on the PC.
3. Confirmation window will pop up. Click OK.
4. Corti Data Manager will automatically close.
5. Re-open Data Manager to view the newly named database file.

NOTE: It is recommended that all databases be named for easy access to historical patient test results.

NOTE: Upon software installation, the default database name is GSIpatient.mdb and is located at C: Users/XXX. It is recommended to Save and name the default database to the desired location on your computer.

Print Patient Reports

Print Preview: Preview Patient Reports including demographics, numeric and graphic OAE results prior to printing.
1. Select the patient record in the Patients list to be printed.
2. To preview and print all test results for selected patient, click on the **Print Preview** icon to view the report.
3. To print selected test results for the selected patient, highlight desired tests in the patient results list.
   NOTE: Select multiple tests to be printed by pressing the Ctrl key when selecting tests.
4. To print more than one patient report at a time, highlight the desired patients' names in the Patient Tab.
5. Click **Print** Preview to view report (s).
6. Click **Quick Print** in the Print Preview tab (shown below) to print directly to the default printer.

7. Click **Print** to select a printer or to print multiple copies.
8. Click **Export** to icon to access electronic printing options such as PDF, RTF or image file (BMP, JPEG, TIFF, etc.).
9. Close **Print Preview** to return to Corti Data Manager.

Quick Print (Home Tab): Print directly to default printer bypassing Print Preview.

1. Select the Patient record in the Patients Tab to be printed.
2. Click Quick Print to print all tests performed on the patient.
3. To print selected test results, highlight desired tests in the patient results list.
    NOTE: Select multiple tests to be printed by pressing the Ctrl key when selecting tests.
4. Click Quick Print to print selected tests to default printer.

Report Header and Logo: Enter Report Header and import a facility logo.
1. Click on **Report Header** icon.
2. Enter Facility name and address to appear in the report.
3. Click Choose Header Logo, if desired.
4. Locate desired logo to appear in all reports and click Open. Logo will appear in the Current Logo window as shown below.
5. Click OK to save.
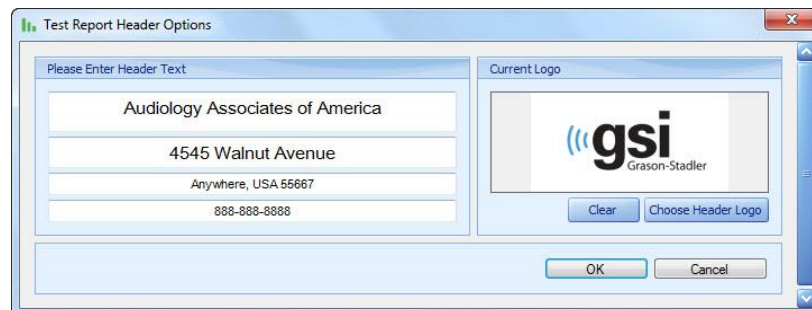
NOTE: Logo files of the following types are acceptable: GIF, JPG, PNG, TIFF, EXIF, and BMP.

Spreadsheet View: Display Patient Results in read-only Excel Format
1. Select desired patient records and click on Spreadsheet View icon.
2. View test data in Test Records tab.
3. View overall and individual tester statistics in Statistics tab.
4. Click Save or Save As to save the spreadsheet to the PC for full functionality with Excel or any other compatible program.

Database Information
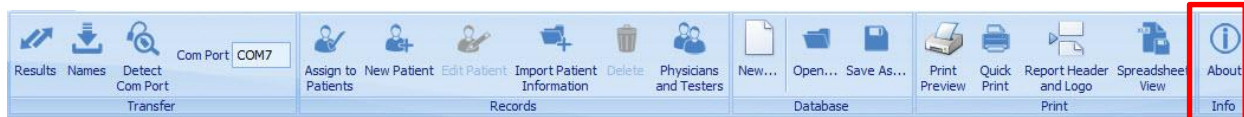
Click on the **About** icon to view

- The version of the Data Manager in use.
- The name and location of the database in use.

- The name and location of the log file.
- Detailed information About Boys Town Norms.

Export and Audit Toolbar Functions

Settings

No Exports: Recommended (default) selection for non-Newborn Hearing Screening facilities.
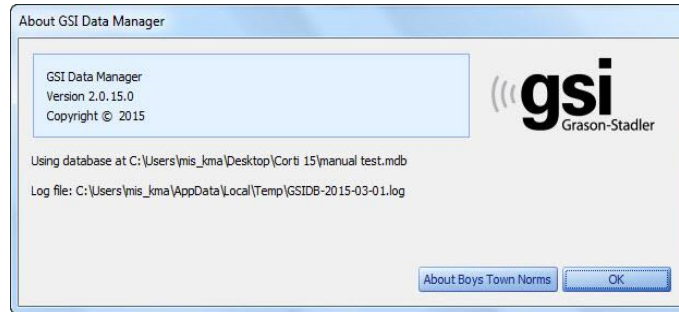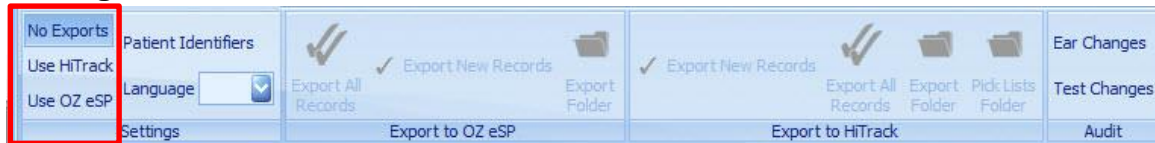
Export to OZ eSP
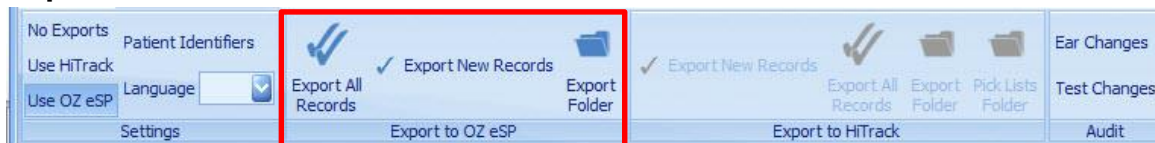
1. In Settings, select **Use OZ eSP.**
2. Click Export Folder to set the location of the exported data file.
3. Click the appropriate icon to export All Records or New Records.
4. Export status window will display the number of exported records and the location of the exported file.
5. Click OK to complete.

Export to HiTrack
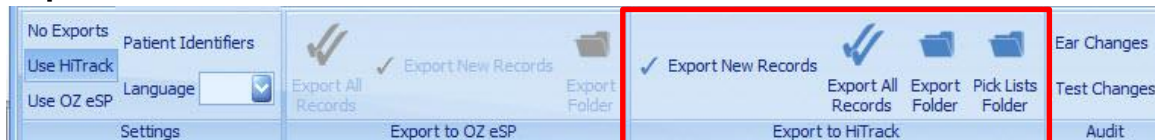
1. In Settings, select **Use HiTrack**.
2. Click Export Folder to set the location of the exported data file.
3. Click the appropriate icon to export all New Records or All Records.
4. Export Status window will display the number of incomplete records and/or the number of exported records and the location of the exported file.
5. Click OK to complete.
6. Click Pick List Folder to access the location of a facility's Pick Lists such as Physician or Tester.

Patient Identifiers

Patient Identifiers enables the user to select which two fields are visible on the Corti when Names are transferred. Both fields are visible on the Corti when scrolling to select a patient. After a patient is selected, only the first identifier is visible on the main Corti screen. The default setting for the first identifier is Last Name. The default setting for the second identifier is First Name. You can select alternatives for the last name and first name using Patient Identifiers.

1. Select Patient Identifiers.
2. In the First Identifier section, select the desired field; this label will be seen in the Corti. The First Identifier must be a unique identifier for the patient.
3. In the Second Identifier box, select the desired field; this label will be seen in the Corti.
4. Click OK.

NOTE: An "unnamed" Patient will be included at the beginning of the Corti list for instances when a patient is being tested but the patient name was not transferred to the Corti.

NOTE: If the designated identifying information is missing "No XXX" will display on the Corti. For example, if only Last Name is downloaded to the Corti, "No First NM" will display on the second line when scrolling to select a patient.

Languages
The Corti Data Manager may be displayed in English (US), English (UK), German, Italian, Spanish, Russian and Chinese by selecting the desired language from the drop down menu. Language changes will occur the next time the Data Manager is opened. Some text strings are displayed in English only.

Audit
Data Manager will allow the user to make corrections to the ear tested or the assigned patient should inadvertent errors occur. Corrections will automatically be documented for viewing at a later date. Audit data cannot be deleted.
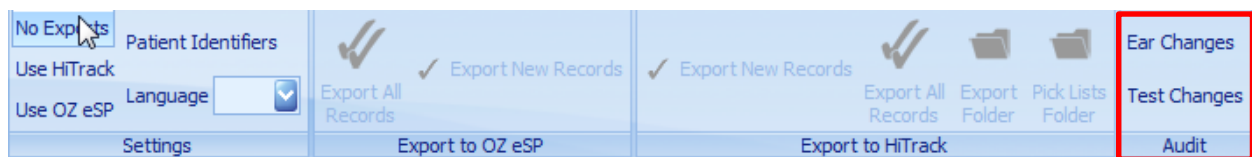
1. Click on **Ear Changes** to review test records that had Test Ear changed.
2. Click on **Test Changes** to review patient specific test results that have been re-assigned from one patient name to another.

Viewing Patient Data

Graphical Results
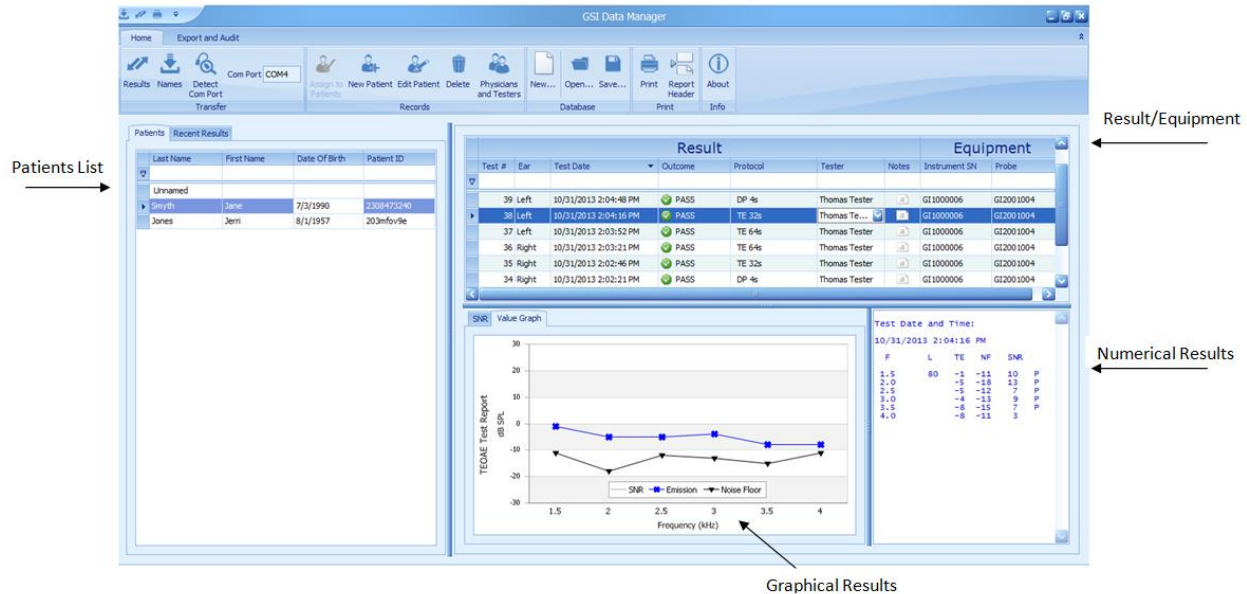
Viewing Patient Details

Patients: Cumulative list of all patient names in the database including all recently transferred results. The selected Patient is highlighted in dark blue.

Sorting Column Header Information: Click on the column header to sort the information below it. Example: Clicking on the Last Name will sort the last names alphabetically from A to Z. Clicking on the Last Name again will sort the last names from Z to A.

Auto Filter: Tool that assists in quickly finding a patient or tests when the patient database is large. Type the text for a searchable variable in the open field. All applicable patient records will be displayed. In the example below, all patients' names starting with "ada" were identified by typing "ada" in the **Auto Filter** last name field. To close **Auto Filter** and view the entire database, click on the **X** at the bottom of the patient window.

Recent Results

X to Close Auto Filter
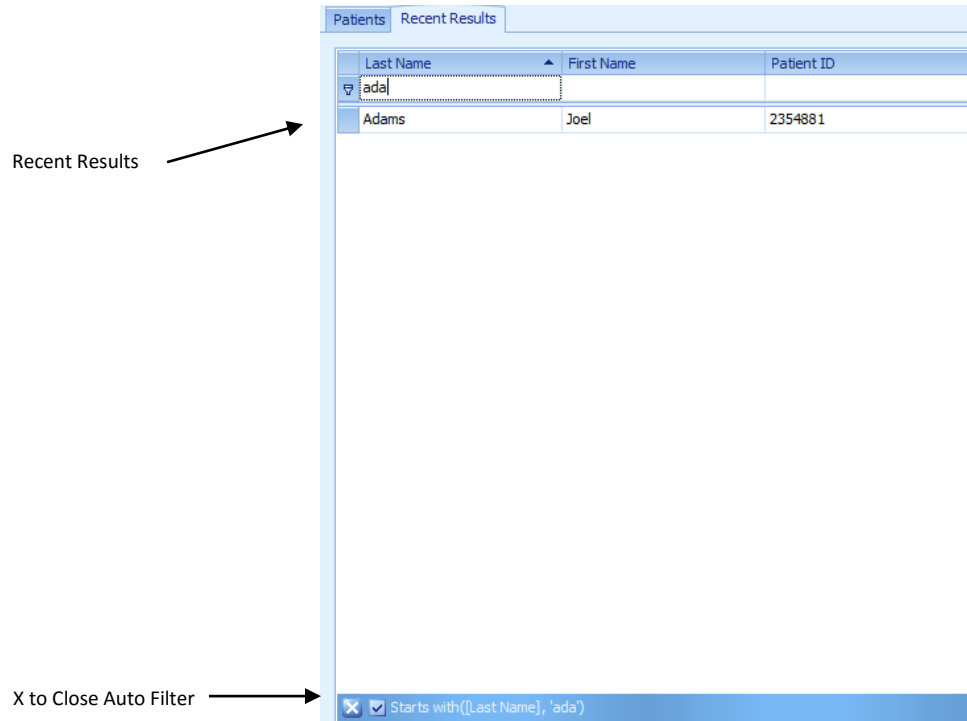
"Unnamed" Patient: appears in patient list when data has been transferred from the Corti but not assigned to a patient name.

Selected Patient: The selected or active patient is always highlighted in dark blue. Click on the row of the patient to select.

Recent Results Tab: List of all patients and/or tests that were most recently transferred from the Corti to the Database Manager for easy access. This includes all functions as stated above for Patient List.

Viewing Patient Results

Result: Cumulative list of test results obtained on selected patient.

Equipment: Includes the serial numbers of the Corti and probe that were used to collect the results.

Sorting Column Header Information: Click on the column header to sort the information below. Example: Clicking on Test Date will sort the dates from most recent to oldest date. Clicking on the Test Date again will sort the dates from oldest to newest.

Auto Filter: Tool that assists in quickly finding specific test results.. Close the Auto Filter and view the entire database by clicking on the X at the bottom of the patient window.

Selected Test: The selected or active test is highlighted in blue.

Column Header Details: The following is an explanation of the Result Column Headers. Refer to **Customization of the Results/Equipment Tab** for display options.

	Test #	Ear	Test Date	Result	Avg Time	Protocol	Test Type ▲	Tester	Notes
▽									
	1	Left	1/23/2015 9:11:41 AM	Noisy	4	DP 4s	DP	Doe, Jane	a
	2	Right	1/23/2015 9:12:21 AM	No Seal	4	DP 4s	DP	Smyth, Sam	a
	3	Left	1/23/2015 9:27:04 AM	✓ PASS	4	DP 4s	DP	Smyth, Sam	a
	4	Right	1/23/2015 9:27:34 AM	✗ REFER	4	DP 4s	DP	Doe, Jane	a
	5	Right	1/23/2015 9:28:07 AM	✗ REFER	4	DP 4s	DP		a
	6	Right	1/23/2015 9:28:41 AM	Can not obtain pressure	4	DP 4s	DP		a

Test Number – When the Corti is in Save 250 mode and patient names are not used, the tests are numbered automatically by the Corti. The **Test #** for each test is displayed. Refer to Save 250 mode in the Corti user manual.

Ear – The ear (Left or Right) that was tested

Test Date – Date and time the test was completed as designated on Corti.

Ave Time – Averaging time selected for DP or TE. Refer to the Corti user manual.

Results –Results of testing.

Protocol – Name of the protocol used for testing as designated on Corti.

Test Type – When **HiTrack** is selected as the Export: DP, DPHF3, DPHF4 or TE will be displayed

Tester – Name of the person conducting the test. Select the test name using the pull-down menu at the column header.

Notes – Select this to enter notes for a specific test. A highlighted, capital "A" designates notes have been entered. Notes will be included in the patient report.

Equipment: The serial number of the Corti, probe and Corti firmware version number can be displayed with each test result.

Graphical Results: Displays test results of selected test in graphic form.

Value Graph: Displays the graph of OAE test data showing amplitude in dB SPL of the emission and noise floor across the test frequency range. Ear data is color and symbol coded: red circles for right, blue X's for left. A solid green line will appear if the Minimum Amplitude setting was enabled on the Corti during testing.

Value Graph DPOAE: The Boys Town Norm template may be displayed by clicking in the black box in the legend. The template will only appear if the test protocol L1 and L2 levels were 65 and 55 dB SPL respectively.
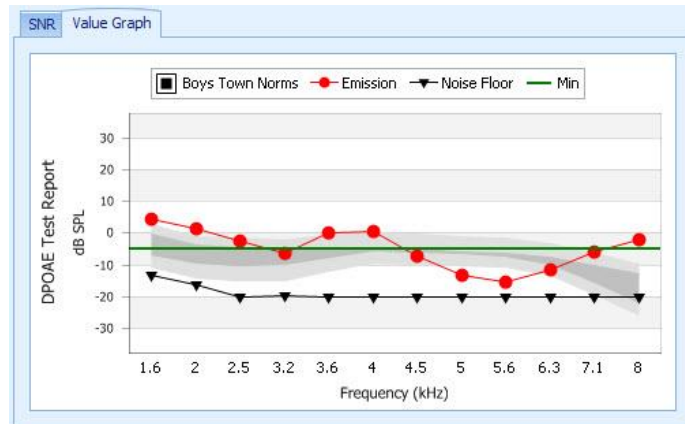
Value Graph Details: Move the mouse over an individual data point to view details at a frequency as shown below. The enlarged symbols (e.g. enlarged circle and diamond symbols below) designate the selected frequency.
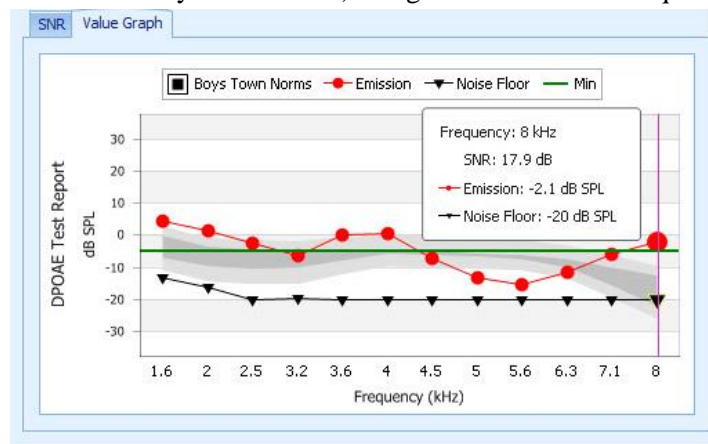
SNR: The SNR Tab displays the signal to noise ratio at each test frequency in bar graph form. For screening results, green bars indicate a pass and orange bars represent non-pass. For diagnostic tests where no pass/refer algorithm is applied, gray bars will appear at each test frequency. A solid green line indicates the required SNR ratio for Pass for the test protocol.

SNR Details: Move the mouse over an individual data point to view the specific SNR at a test frequency as shown below.
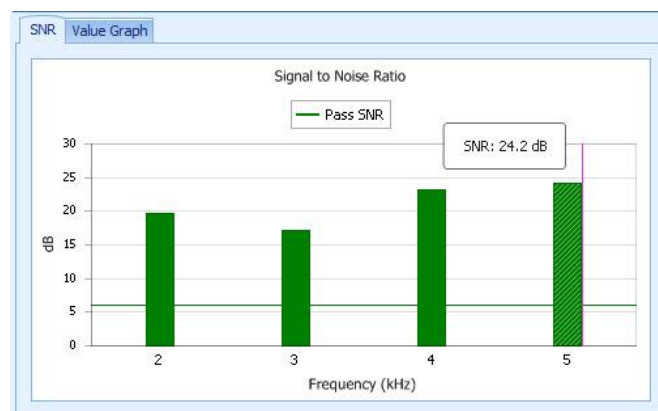

Numeric test results: Numeric view provides complete test information including F2 frequencies, L1 and L2, DP or TE, NF, SNR and a "P" for pass in protocols with pass/refer criteria.

Customizing the Display

Upon installation, columns and data windows are sized to best fit the resolution of the computer screen. Columns of data may be added, deleted, or moved in Patient and Results windows to customize the Data Manager view. Patients and Results/Equipment windows can be sized. The most recent changes to the Data Manager will be saved and applied the next time the Data Manager is opened.
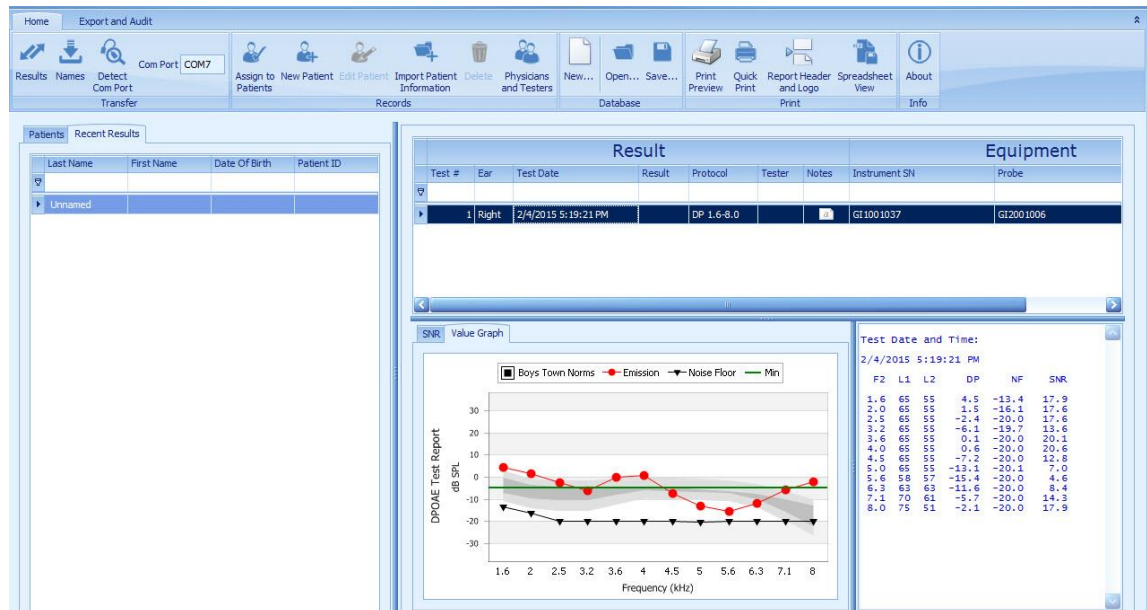
Customization of the Patients Tab

Sort Columns: Right click in column header such as Last Name to sort the information below. Example: Clicking on the Last Name will sort the last names alphabetically from A to Z. Clicking on the Last Name again will sort the last names from Z to A.

Move Columns: To move columns, click and drag column header to the desired location.

Add Columns: To add columns in Patients tab, right click in the header column and select **Column Chooser**. Double click or drag the desired column of data to add from the **Customization Window** to the desired location in the Patients Tab. Click on the **X** to close the Customization Window.

Column Chooser ⟶

Remove Columns: To remove columns, right click on the column to remove in Patients
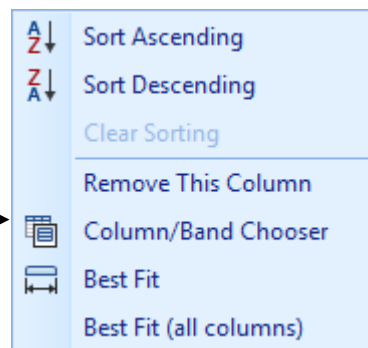
tab and select **Remove This Column** in the menu. Alternatively, drag the header of the column back to the Customization window. Click on the **X** to close the Customization Window.

NOTE: Adding multiple columns of data will alter the Main Window view.

Size the Patients Window: The Patients window may be sized by clicking on the dark blue border on the right side of the window and dragging the window horizontally to the desired position.

NOTE: It is recommended that hearing screening programs add **Screening Status** field to the Patient Tab. Screening Status automatically assigns the status of the patient as they progress through the four stages of the screening process:

- **Not Screened**: Patient name entered in Data Manager.
- **In Progress**: Patient name transferred to the Corti.
- **Completed**: Tests assigned to the patient *or* when "Not Screened/Reason" field is populated in the Newborn Specific Tab of Patient Info dialog
- **Exported**: Tests are successfully exported to Oz or HiTrack.

Customization of the Result/Equipment Tab

Sort Columns: Right click in column header to sort the information below. Example: Clicking on Test Date will sort the dates from most recent to oldest date. Clicking on the Test Date again will sort the dates from oldest to newest.

Move Columns: To move columns, click and drag column header to the desired location.

Add Columns: To add columns in Results/Equipment tab, right click in the header column and select **Column Chooser**. Double click or drag the desired column of data to add from the **Customization Window** to the desired location in the Patients Tab. Click on the **X** to close the Customization Window.

Column Chooser ⟶
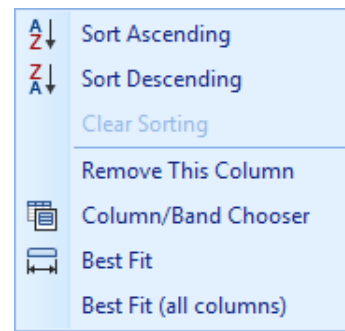
Remove Columns: To remove columns, right click on the column to remove in Results/Equipment tab and select **Remove This Column** in the menu. Alternatively, drag the header of the column back to the Customization window. Click on the **X** to close the Customization Window.

NOTE: Adding multiple columns of data will alter the Main Window view.

Remove Bands: To remove an entire band (section) of fields, such as the Equipment band, click on the band title in the Patients tab and drag it to the Bands tab in the Customization window.
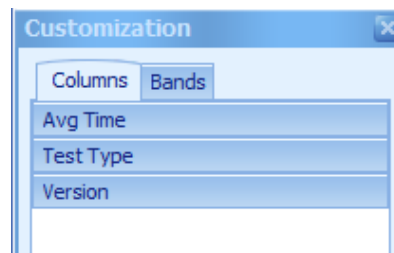
Size the Result/Equipment and Graphic Window: The Results/Equipment and Graphic window may be sized by clicking on the dark blue borders of the window window and dragging the window to the desired position.

Typical Use Cases for GSI Data Manager

Transfer Patient Names to Corti, Transfer Data to Data Manager

A typical use of the Corti Data Manager would be to transfer patient names to the Corti at the start of the day, test patients, transfer data to the Data Manager Software and print the test results. The steps are as follows:

1. Launch GSI Database Manager.

2. Click on **New Patient** icon to add all patient names to be tested.

3. Turn on the Corti and connect the device to the computer.

4. Click on the transfer **Names** icon.

5. Drag the patient names to be tested from the patient list to the **Store Names to Instrument** window.

   NOTE: A maximum of 50 patient names can be stored to the Corti.

6. Click **Store Names** to transfer to device.

   NOTE: Previous test data will be deleted from device prior to **Names** transfer.
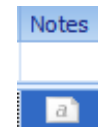
7. Complete all of the testing with the Corti.

8. Turn on the Corti and connect to the computer.

9. Click on the **Results** icon to transfer the test data from the Corti to the computer.

10. Add notes to a specific test by clicking on the **Notes** icon in Results and click OK.

    NOTE: Notes will appear in the printed report.

11. To print, select the patient name, the desired test results, and click on **Print Preview** icon to review report or **Quick Print** to print the report without review.

Collect Test Results, Transfer Results to Data Manager, Assign Results to Patient

The Corti will automatically number each test when in 250 Test mode. After transferring the data to the Data Manager, each test can be assigned to a patient name. In this scenario, it is important to *manually record* the Test Number displayed on the Corti to the patient name/ear for each test to accurately assign tests to the appropriate patient name.

NOTE: The Corti must be set to the "**250 Test**" mode to automatically number each test. Refer to the Corti User Manual to set the Corti to the **250 Test** mode.

NOTE: Include the **Test Number** in the Result window when using this process. Refer to section "**Customization of the Results Tab**" of this manual to add the Test Number.

The steps are as follows:

1. Test patients noting test numbers that appear on the Corti after each test.

2. Launch the Corti Data Manager, turn on the Corti and click on the Results icon.

3. Navigate to the **Recent Results** tab and click on the "Unnamed" patient to view all transferred tests.

4. Add all names of patients tested by clicking on the **New Patient** icon.

5. Click on the **Assign to Patients** icon.

6. Click and drag all unnamed test results on the left side to the appropriate patient name on the right side of the window as shown and click OK when done.
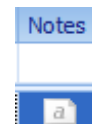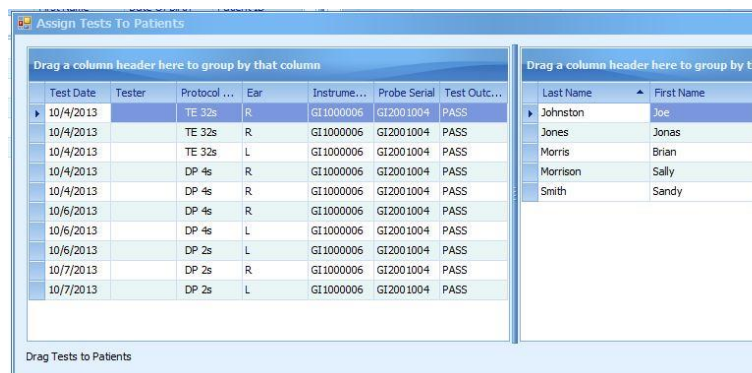
7. Select a patient from the Patient list and review all tests. Add notes to a specific test by clicking on the **Notes** icon in Results and click OK.

    NOTE: Notes will appear in the printed report.

8. Select the tests in the list to be printed and click on the **Print Preview** icon to view report (s) before printing.

9. Or click **Quick Print** from the main Data Manager window to print the report without review.

GSI Auto Print

Auto Print is a PC-based printing tool which allows the user to by-pass data management functionality of the GSI Data Manager while maintaining the ability to print OAE test results. It is designed to be used *in lieu of* Data Manager. After Auto Print software is installed and desired printer type and settings are selected, the software should remain open on the PC. Auto Print will continually scan the USB ports so when the Corti is connected to the PC, it will be automatically detected, data transferred for reporting purposes and the report printed to the designated printer.

NOTE: Users that require full data base functionality or detailed reporting capabilities such as medical history or referring physician should install Data Manager.

NOTE: The desired printer must be installed on the PC prior to Auto Print set up. PDF and default printer reports are similar to the reports generated by Data Manager.

Overview

Main Window Details

Menu Bar

Home Tab: Allows for the selection of the desired printer type for Corti reports. Available selections in the **Settings Tab** will vary depending on the printer type selected. For example, all PDF related selections will not be available unless **Print to PDF** is the selected printer.

Settings Tab: Allows for the selection of settings that affect the printed results. For example, if Boys Town Norms is selected, the normative shaded area will appear on the Value Graph of printed DPOAE results. Only settings appropriate for the printer type selected in the Home Tab will be available.

NOTE: Some settings will be on by default depending on the selected printer. For example, if **Print to Label Printer** is selected, **Print 1 Test Per Page**, will be on by default.

Home Tab Functions

Printer Selection

Selecting the printer type for Corti reports is the first step in Auto Print. All available print settings will be dependent on this selection. *The selected printer must be installed on the PC prior to setting up Auto Print.*

NOTE: Icons for printer type and settings will appear dark blue when selected. In the example below, Print to PDF is the selected printer type.

Print to PDF: Selects PDF as the default printer type for Auto Print.

Print to Default Printer: Selects any installed PC printer for Auto Print.

Print to Label Printer: Selects a PC-based label printer for Auto Print.

View PDF Files: Allows for quick access to the **PDF Export Folder** where printed PDF reports are saved. This selection is only available if **Print To PDF** is the selected printer.

About: Provides software version number, PDF file location if applicable, log file location and access to About Boys Town Norms.

Settings Tab Functions
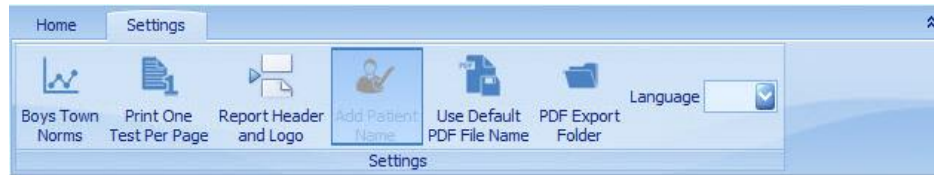
Boys Town Norms: Normative data will appear on the DPOAE Value Graph style for all printer types. The values used to create the template are shown in Table A1 from Gorga, M.P., Neely, S.T., Ohlrich, B., Hoover, B., Redner, J. and Peters, J. (1997). "From laboratory to clinic: a large scale study of distortion product otoacoustic emissions in ears with normal hearing and ears with hearing loss." Ear & Hearing, 18, 440-455.

Print One Test Per Page: When selected, only one OAE test will print per page. This setting is on by default if **Print to Label Printer** is selected.

Report Header and Logo: For PDF and default printers, facility address and/or logo may be printed on each test page. This setting is not available for label printers.

NOTE: Entering header and logo information will enable this setting.

Add Patient Name: This setting allows the user to enter one patient name regardless of the number of tests printed. **Add Patient Name** applies to all printer types. This setting is on by default with **Print to PDF**. It is possible to by-pass Add Patient Name by clicking OK when prompted to add a name.

Use Default PDF File Name: When selected, PDF file names are generated automatically based on the patient name (if entered), Corti serial number and test date and time. Reports will be saved to the designated PDF Export folder with no other action required. When NOT selected, a directory will appear so PDF file name and default directory can be modified each time results are printed.

PDF Export Folder: Allows the user to designate or change the location on the PC of printed PDF reports. When the **View PDF Files** is selected in the Home Tab, this folder will be accessed.

Language: The GSI Auto Print may be displayed in English (US), English (UK), German, Italian, Spanish, Russian and Chinese by selecting the desired language from the drop down menu. Language changes will occur after closing and re-opening Auto Print. Some text strings are displayed in English only.

Printer Set Up

Prior to using Auto Print for the first time, the selected printer must be installed on the PC. For **Print to PDF**, a PDF reader must be installed.

NOTE: Wireless connection to the PC is not available for Auto Print.

Save 250 vs L/R Mode

Auto Print allows for entering one patient name to all printed reports. If the Corti is set to L/R Mode, the entered patient name corresponds to the patient tested. If the Corti is set to Save 250 and a patient name entered, all printed reports will contain the same patient name. If all tests performed on a single patient require printing (rather than the last left test and last right test), then setting the Corti to SAVE 250 is recommended. It is possible to by-pass Add Patient Name by clicking OK when prompted to add a name.

Print to PDF Set Up

1. Launch GSI Auto Print software.
2. Click on **Print to PDF** in Home Tab.
3. In Settings Tab, select **PDF Export Folder** to enter the designated location on the PC for the PDF reports. NOTE: This action is required the first time Auto Print is set up or when changing the location on the PC.
4. In Settings Tab, select desired report settings of **Boys Town Norms**, **Print 1 Test per Page** and/or **Use Default PDF File Name. Add Patient Name** is on by default**.**
5. Select and enter report **Header and Logo**, if desired.
6. When selections are complete, minimize the Auto Print window and perform a test print.
7. Turn on the Corti and ensure there is at least 1 test stored in memory.
8. Connect the Corti to the PC directly or via the cradle.
9. Auto Print will automatically detect the Corti. No other action is required to connect. (Note: "Waiting on PC" will appear on the Corti display when connected.)
10. A test transfer confirmation window will appear temporarily and will minimize after 5 seconds. It is not necessary to close this window.
11. When prompted, enter the **Patient Name** that will appear on the report or click OK to print without a patient name.
12. A second window will momentarily appear confirming printing.
13. Auto Print will print all tests stored in the device.
14. To review the PDF report, go to **Home Tab→View PDF Files**.
15. Modify report settings if needed.

Print to Default Printer Set Up

1. Launch GSI Auto Print software.
2. Click on **Print to Default Printer** in Home Tab.
3. In Settings Tab, select desired report settings of **Boys Town Norms**, **Print 1 Test per Page,** and/or **Add Patient Name.**
4. Select and enter report **Header and Logo**, if desired.
5. When selections are complete, minimize the Auto Print window and perform a test print.

6. Turn on the Corti and ensure there is at least 1 test stored in memory.
7. Connect the Corti to the PC directly or via the cradle.
8. Auto Print will automatically detect the Corti. No other action is required to connect.
   NOTE: "Waiting on PC" will appear on the Corti display when connected.
9. A window will appear confirming test transfer and will minimize on the PC after 5 seconds. It is not necessary to close this window.
10. When prompted, enter the **Patient Name** that will appear on the report (if selected) or click OK to print without a patient name.
11. A second window will momentarily appear confirming printing.
12. All tests stored on the Corti will print to the default printer.
13. Review the printed report and modify report settings if needed.

Print to Label Printer

1. Launch GSI Auto Print software.
2. Click on **Print to Label Printer** in Home Tab.
3. Select the label printer from the printer drop down menu and click OK.
4. In Settings Tab, select desired report settings of **Boys Town Norms** and **Add Patient Name**. NOTE: Boys Town Norms will print for DPOAE results if the Corti display is set to Value Graph.
5. When selections are complete, minimize the Auto Print window and perform a test print.
6. Turn on the Corti and ensure there is at least 1 test stored in memory.
7. Connect the Corti to the PC directly or via the cradle.
8. Auto Print will automatically detect the Corti. No other action is required to connect.
   NOTE: "Waiting on PC" will appear on the Corti display when connected.
9. A window will appear confirming test transfer and will minimize on the PC after 5 seconds. It is not necessary to close this window.
10. When prompted, enter the patient name that will appear on the label (if selected) or click OK to print without a patient name.
11. A second window will momentarily appear confirming printing.
12. All tests stored on the Corti will print to the label printer.
13. Review the printed label and modify label settings if needed.

NOTE: Label print out will match Corti display. If SNR Graph is set on the Corti, then the SNR bar graph will print on the label. If the Corti is set to Value Graph, the Value graph will print on the label.

NOTE: All printed test results are marked for deletion on the Corti, but will continue to be stored in memory until a new test is started at which time all tests in the memory will be erased. This allows for reprinting the tests if printing is unsuccessful (for example the paper runs out before printing is complete).

Typical Use Cases for GSI Auto Print

Use cases below assume that Auto Print set up has been completed and that the Corti is set to L/R mode.

Printing PDF Reports

An electronic report may be quickly generated and attached to the patient's electronic medical record.
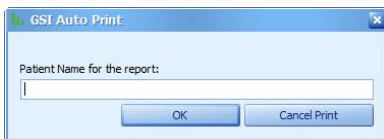
1. Complete left and right ear OAE testing on the patient.
2. Connect the Corti to the PC.
3. When prompted, enter the patient's name for the report and select OK.
4. PDF report will automatically print to the **PDF Export Folder**.
5. Go to **Home Tab→View PDF Files** to view the electronic report.
6. The report can be attached to the patients' electronic medical record.

Printing OAE Test Results to Label Printer

Corti test results may be printed to sticky labels which can be placed in the patient's chart.
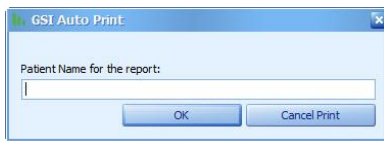
1. Complete left and right ear OAE testing on the patient.
2. Connect the Corti to the PC.
3. When prompted, enter the patient's name which will appear on each printed label.
4. Right ear and left ear test results will print on separate labels.
5. Place label in the patient's chart.