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SHOEBOX is a Class II medical device listed with
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and Health Canada (License No: 93571).

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Introduction

Thank you for choosing SHOEBOX Audiometry, Standard Edition. This iPad-based audiometer offers innovations for hearing testing not found in traditional tools. Users can test themselves via the fun, accurate and cost-effective self-test game interface. SHOEBOX works with nearly any age (4+) and is largely language independent.
Patient Home Screen

The ‘Patient Home Screen’ acts as the main screen in SHOEBOX Audiometry from which all tests and patient management start. This screen is split into 3 main sections:

1. On the left you will find a list of all the patients included in the currently selected project.
2. To the top right, you’ll find activity action buttons.
3. On the bottom right you’ll find all the test results for the selected patient.

When a patient is selected the activity buttons will initiate new tests for the given patient while the results section will display the patient’s previously completed assessment results.

Tap the project selection dropdown to switch projects.

View past results for the selected patient and tap an item to view more details.

Use the action buttons to start new tests or questionnaires for the selected patient.
Managing Patients

Creating Patients

New patients can be created by tapping the 'Create Patient' button at the bottom of the patient list. Doing so will bring up an empty 'Patient Details Form', fields marked with a ‘*’ are required. Tap the ‘Save’ button when you are done to create the patient entry.

Editing Patient Details

If the patient details change, or you notice an input error, you can always edit the information by tapping on the ‘Info’ icon. This will bring up the same 'Patient Details Form' you used to create the patient. Simply update the desired fields and tap the ‘Save’ button to update the patient.

Deleting Patients

If you find yourself in need of deleting a patient, you can do so from the main Patient Home Screen. Simply swipe left on the patient you wish to remove and tap the 'Delete' button when it appears.
Starting Activities

When you’re ready to start a test or questionnaire, simply select a patient and tap the activity button for the type of assessment you wish to start. More information on each activity can be found in the corresponding section in this User Guide:

- Automated Pure Tone Test
- Questionnaire

Viewing Results

Once an activity has been completed, it will appear in the ‘Patient Home Screen’ results section. Results are grouped and displayed by day, with most recently completed activities at the top. To view an activity result in more detail simply tap on the entry in the results list.

Did You Know?

Most activity result screens will provide the ability to easily print or email the results. Simply select the menu from the top right corner and select the desired action.
Automatic Pure Tone Test

Setup

Start by plugging in a calibrated transducer and selecting it from one of the options displayed. Be sure you select the same transducer that you plugged in. If you only have one transducer enabled SHOEBOX Audiometry will skip this step and automatically select the only available transducer.

Once all verbal instructions are given to the patient and they are ready to begin testing, place the headphones on the patient with the center of the headphone speaker lined up with the center of the ear canal.

Analyzing Background Noise

When starting an automated test, SHOEBOX Audiometry will optionally analyze the room and confirm whether or not you are in a sufficiently quiet place before the test starts. This is best done in the same room the test will be completed in. We recommend an enclosed room with little to no background noises; such as voices, fans, or announcements.

Did You Know?

Transducers can be enabled or disabled in the 'Transducers' section of the Settings.

Tips For Headphone Placement

• Have the patient remove any jewelry or accessories that might affect the placement of the headphones.
• Ensure that the headphones are over/in the patient's ears. The speaker should be centered over the external auditory canal.
• The adjustment band should feel snug.

TDH-50

Sennheiser HDA 280
Playing the Game

When the test begins, an object will appear on the screen. When the patient touches the object, they will either hear or not hear a sound. All they will need to do is drag the object over the appropriate icon to indicate whether they heard the sound or not.

* Remember, ANY sound heard should count as a positive response.

The patient will be required to repeat this action many times, and will often drag to the ‘Tone Not Heard’ icon. SHOEBOX Audiometry automatically adjusts the presented volume and displays new objects as it works to pin-point the patient’s threshold for the current frequency.

Once a threshold is determined, or SHOEBOX Audiometry detects some irregularity in the patient’s responses, it will record its findings and move on to the next frequency. When it does this, the background image and object icons may change if specific games are being utilized.
Once all selected frequencies are tested, the game will conclude and the audiogram results will be displayed according to the default test view setting. For any test performed using Extended High Frequencies (EHF), results will only display in the tabular results view. You can toggle between the tabular and audiogram view for all tests performed using regular frequencies, regardless of your default setting. If you have a SHOEOBOX passcode enabled, you will be required to enter it at this point. This is a security feature that blocks the patient from accessing other patients’ data.

After all retesting is complete, a proposed interpretation is made for each ear. Either the results are within normal limits and no further action is required, or it is recommended that the patient be referred for further testing. The proposed result can be edited directly on the screen, allowing the tester to make the final recommendations.

### Interpreting Results

When reviewing the audiogram, each tested frequency will display an icon at the point of the determined threshold. These icons will indicate one of three outcomes:

- **Valid Result** - The test at this frequency was successful, no further action is required.
- **Unreliable Result** - The test at this frequency was unreliable based on the user’s interactions. A retest at this frequency is recommended.
- **Too Noisy** - The ambient noise during this portion of the test was too high. A retest at this frequency is recommended.
- **Needs Masking** - The test has identified that distraction in the opposite ear is required to test the affected ear appropriately. It is recommended that you retest at this frequency with masking enabled.

### Retesting

If you agree with the recommendations of SHOEOBOX Audiometry as it relates to selected retest frequencies, you simply click on ‘Continue’ and these affected frequencies will be retested one more time. If you prefer to accept the results as they are, simply touch all of the affected symbols to disable them, or the function buttons at the bottom of the screen. You’ll notice the ‘Continue’ button changes to a ‘Done’ button, indicating you’re finished with the test.

### Configuration

To configure the Automated Pure Tone Test for your practice visit the “Test Types” section in the SHOEOBOX Audiometry Settings.
Questionnaires

Completing a Questionnaire

A questionnaire can be used to gather more information about how a patient’s hearing is affecting their quality of life and what treatment options they would be best suited for. When completing a questionnaire, simply tap the answer box beside a question and select an option from the pop-up menu.

Configuration

The type of questionnaire used when a questionnaire activity is started can be set in the “General” section in the SHOEBOX Audiometry Settings.

Available Questionnaires

Currently, SHOEBOX Audiometry has the following questionnaires incorporated:

1. Hearing Handicap Inventory for Adults - Screening version (HHIA-S)
2. World Health Organization (WHO) Ear and Hearing Health Survey.

Tap the answer box beside a question then select an option from the pop-up menu.
Once you’ve successfully installed the SHOEBOX Standard program and have completed the setup wizard, you’ll be able to customize the iPad Audiometer to meet your own preferences. To do so, tap the Settings icon at the top left of the patient home screen.

Automated Test Types

Use this section to customize the Automated Pure Tone Test. In this section you can:

- Choose 'Screening', 'Adult', 'Child', or 'OSHA' game mode to edit or create as many custom configurations as needed by selecting the + symbol on the upper right of the screen.
- Choose which frequencies are used and what order they are presented by tapping the 'Frequencies' section and then touching and dragging the ≡ symbol to reorder each frequency. If you have an EHF license and calibrated transducers, you can add EHF frequencies to any new or existing test type.
- Choose which types of games are used and what order they are presented.
- Set the upper and lower volume limits.
- Choose to display test data on the screen. This is helpful when testing children in coaching them through the test, or for training purposes.

- Choose which audiogram symbols are used in the audiogram (simple or professional).
- Set the default view type (audiogram or tabular) of the regular frequency tests. All tests performed with EHF can only be displayed using the tabular results view.

Transducers

SHOEBOX Audiometry automatically downloads calibration information for each transducer selected during initial set up. Once downloaded, you’ll find them listed in the ‘Transducers’ section of the Settings. Here you can choose to perform daily verification checks, and enable or disable select transducers. When only one transducer is enabled, SHOEBOX Audiometry can speed up test setup times by skipping the transducer selection step for each test.

General

In the General Settings section you’ll find a variety of additional configuration options should you require them. These include:

- Audiogram email - enter a default email address which will be the address from which results are emailed.
- Enable/disable a SHOEBOX Audiometry passcode
- Enable/disable SHOEBOX Audiometry lock screen
- Frequencies used for calculating Pure Tone Average (PTA)
- Which patient questionnaire should be used when a questionnaire activity is started
- Enable/disable Web Cloud Portal sync
Troubleshooting

Q What is the best way to test younger children?
A There are three approaches to using SHOEBOX Audiometry for testing children, based on their age and attention span.

1 Children older than 6 can usually test themselves. Demonstrate the game once at the first frequency and then let them play on their own.
2 For younger children it may be better to hold the iPad for the child, with the game facing the child, and have them direct you on where to place the objects based on what they hear.
3 If the child is distracted by the images, hold the iPad like a traditional audiometer and ask them to indicate when they hear the sounds by raising their hand or nodding their head.

Q What thresholds are being used to identify that a patient requires further testing?
A The lower intensity limit is -10 dB HL. Normal hearing is usually considered to be anything 25dB or less. Anything greater than 25 dB will trigger the unit to suggest further investigation and possible referral.

Q Is the patient data on the device secure?
A We recommend that you include a passcode on your SHOEBOX Audiometry iPad to ensure the data is protected. We also encrypt the information any time you email results. It is your responsibility to ensure these functions meet your organization’s privacy requirements.

Q What are the recommended ambient noise levels used?
A There are two sets of Maximum Permissible Ambient Noise Levels (MPANLs) that can be selected to monitor during testing – ANSI S3.1-1999 or OSHA.

Q I’m being warned it is too loud to test, can I continue anyway?
A You may continue the test by accepting this warning. It is important to note that mild hearing loss may not be detected if ambient noise is high. The game will identify which results may be invalid per frequency due to high ambient noise and suggest you retest them, perhaps in a different location.
## Symbols Legend

### Audiogram Threshold Symbols:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>Left air conduction</td>
<td>○</td>
<td>Right air conduction</td>
<td></td>
<td>Air</td>
</tr>
<tr>
<td>✗</td>
<td>No response to upper limits air conduction, left</td>
<td>○</td>
<td>No response to upper limits air conduction, right</td>
<td></td>
<td>Masked air</td>
</tr>
<tr>
<td></td>
<td>Left masked air conduction</td>
<td>△</td>
<td>Right masked air conduction</td>
<td></td>
<td>Bone</td>
</tr>
<tr>
<td></td>
<td>No response to upper limits masked air conduction, left</td>
<td>△</td>
<td>No response to upper limits masked air conduction, right</td>
<td></td>
<td>Too Noisy</td>
</tr>
<tr>
<td></td>
<td>Unmasked bone, left side</td>
<td>&lt;</td>
<td>Unmasked bone, right side</td>
<td></td>
<td>Unreliable</td>
</tr>
<tr>
<td></td>
<td>No response to upper limits unmasked bone, left side</td>
<td>&lt;</td>
<td>No response to upper limits unmasked bone, right side</td>
<td></td>
<td>Needs Masking</td>
</tr>
<tr>
<td></td>
<td>Masked bone conduction left side</td>
<td>[</td>
<td>Masked bone conduction right side</td>
<td></td>
<td>Threshold should be re-tested</td>
</tr>
<tr>
<td></td>
<td>No response masked bone left side</td>
<td>]</td>
<td>No response masked bone right side</td>
<td></td>
<td>No Response</td>
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</table>

### Tabular View Abbreviations:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR</td>
<td>No response</td>
<td>m</td>
<td>Threshold was obtained using masking</td>
<td>TN</td>
<td>Result too noisy</td>
</tr>
<tr>
<td>+B</td>
<td>Bone testing suggested</td>
<td>+M</td>
<td>Masking suggested</td>
<td>?</td>
<td>Unreliable</td>
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</tbody>
</table>

### Other Software Symbols:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>🎧</td>
<td>Heard a sound</td>
<td>🎧</td>
<td>Did not hear a sound</td>
<td>🤖</td>
<td>New Patient</td>
</tr>
<tr>
<td>📦</td>
<td>Patient Information</td>
<td>🌪️</td>
<td>Upload to Web Portal</td>
<td>🖊</td>
<td>Notes</td>
</tr>
<tr>
<td>+</td>
<td>Add Item / Create New</td>
<td>+</td>
<td>Reorder Item</td>
<td>🔴</td>
<td>Warning</td>
</tr>
</tbody>
</table>