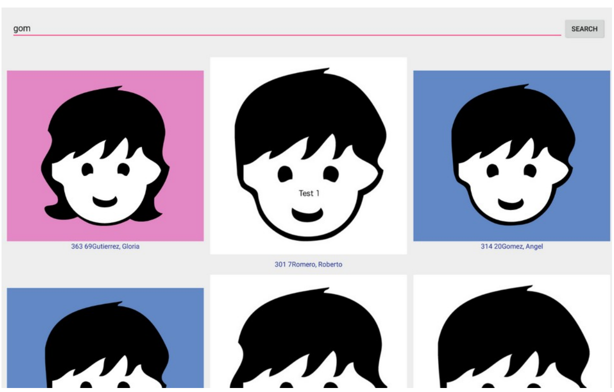
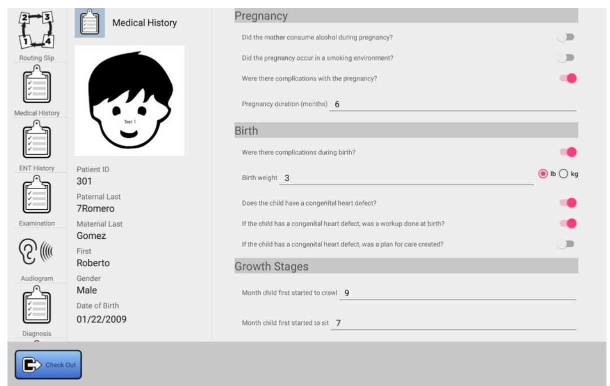
Thousand Smiles Foundation





EMR Charts App User Manual

Version 0.2.1 – December 2020

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Syd Logan	12/15/2020	Initial, write general section, coarse outline of remainder. Corresponds to Version 3.0 of the application	0.1
Syd Logan	12/17/2020	Describe logout, change station context menu items	0.2
Syd Logan	12/19/2020	Add description for exiting via options menu item	0.2.1

1. Introduction

1.1 Purpose

The purpose of this document is to document the user functions of the Thousand Smiles EMR Chart Application.

1.2 Primary Intended Audience

The primary users of the EMR Chart App include the following:

Caregivers: Caregivers provide care to patients. Caregivers include X-Ray, ENT, Dentists, Audiologists, Surgery Screeners, Hygienists, etc., as well as those who support them directly and might need access to the chart, for example dental assistants and nurses. Each caregiver has a section of the EMR chart application that supports the viewing and recording of patient data specific to the class of care provided by that caregiver.

Runners: Runners are users which take a registered patient from the waiting area to a caregiver for care. They monitor stations for vacancy, identify patients in need of care, and ensure that the routing slip maintained in the chart accurately reflects the movement of the patient through the clinic.

1.3 Assumptions

The manual assumes some basic familiarity with the use of Google's Android OS or Kindle Fire OS (the tablets in use at our clinic are Kindle Fire HD 10 models). People with iOS (iPhone) experience will be able to adapt easily to Android after a little use.

2. Organization

The document is organized into two broad sections. The first section details basic functionality of the system that is of interest to all users, regardless of their function. This includes items such as the following:

- Starting the application
- Logging in
- Selecting a station (Dental, ENT, etc.)
- Searching for patients
- Patient checkin and checkout
- Exiting the application

Following this, there will be sections that describe the chart app in terms of its individual users:

- Runners
- Dentists
- ENT

and so on.

Each user, for example a dentist, is supported directly in the application with screens which allow for the viewing and editing of clinical data that is relevant to their function only. For example, a dentist can view and edit a tooth chart, while ENT is able to view audiograms obtained for the patient. The reverse is not the case, e.g., ENT cannot edit tooth charts, and dentists cannot view audiograms. This simplifies navigation of the charts by focusing the content to areas which are meaningful to the individual users of the system, and it protects the integrity of the chart by only allowing changes to a specific area of the chart to be made by the specialists who provide the care. Finally, isolation of chart data based upon speciality allows us to conform to **Standard Official Mexicana NOM-024-SSA3-2010** regulations which state that patient data only be viewed on a need-only basis.

Each of these sections will go into detail of how to use the chart app to record clinical data for a specific patient type (e.g., Dental), and how to view patient data from previous clinics, again based on the type of the patient. These sections will detail each screen available, and run through one or more examples based on a hypothetical patient visit.

3. Common Functions

The following subsections describe functionality common to all users of the EMR Chart application.

3.1 Starting the application

To start the application, first ensure that the tablet is powered on. The power button is located in the upper right hand corner. Once powered on, the tablet will boot showing the main desktop. Navigate the desktop and locate the following icon (Figure 3.1), and with your finger, double tap it.

Figure 3.1 Application Icon

You will then see a splash screen similar to Figure 3.2, identifying the Chart application and its version. After a few seconds, you will be taken to the login screen.

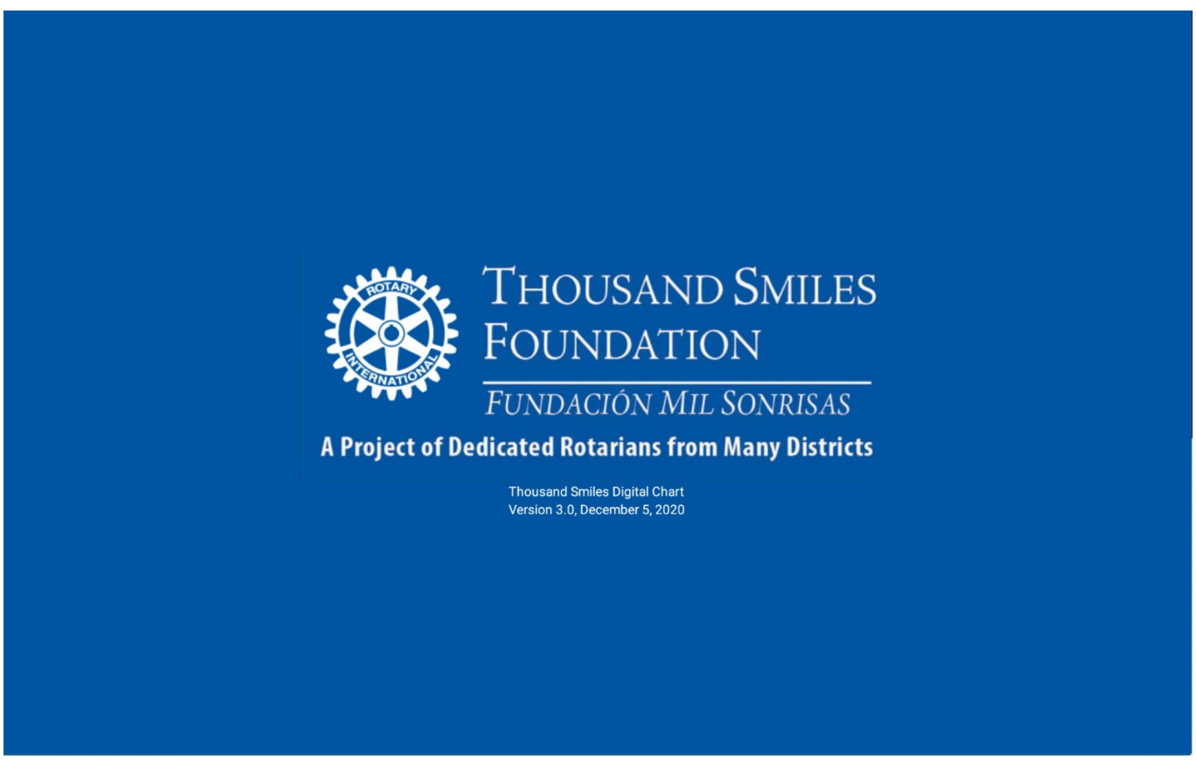


Figure 3.2 Splash Screen

3.2 Logging in

Figure 3.3 illustrates the login screen. Enter the username and password that you used when registering for the clinic at http://thousandsmiles.org, then click on the SIGN IN button to login.

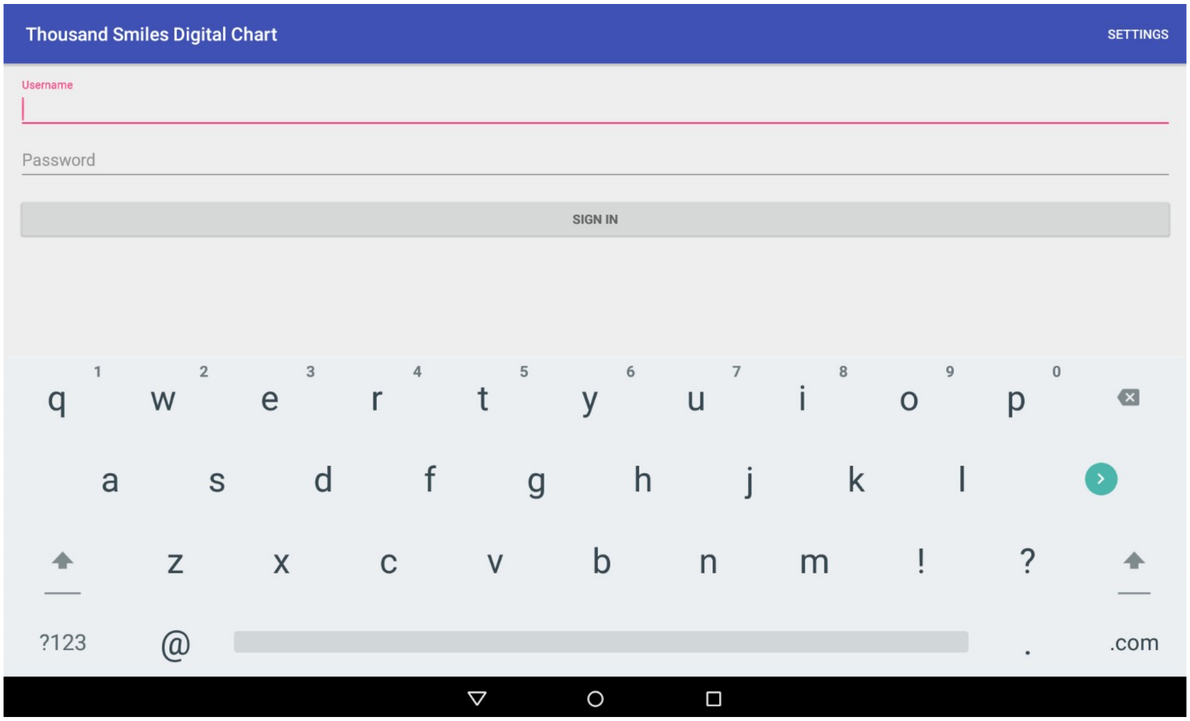


Figure 3.3 Login Screen

3.3 Changing the IP Address of the Server

In most cases, the IP address of the server hosting the clinic data will be set prior to the clinic. For new tablets, or if instructed by an administrator to do so, the IP address can be changed by clicking on the Settings link (see Figure 3.3) in the login screen, or by pressing and holding down the options button on the patient search screen. Figures 3.4 and 3.5 illustrate changing the IP address to the default for our clinics, which is 192.168.0.128. Click on the item (IP address or Port), edit the value using the built in keyboard, and click OK to save.

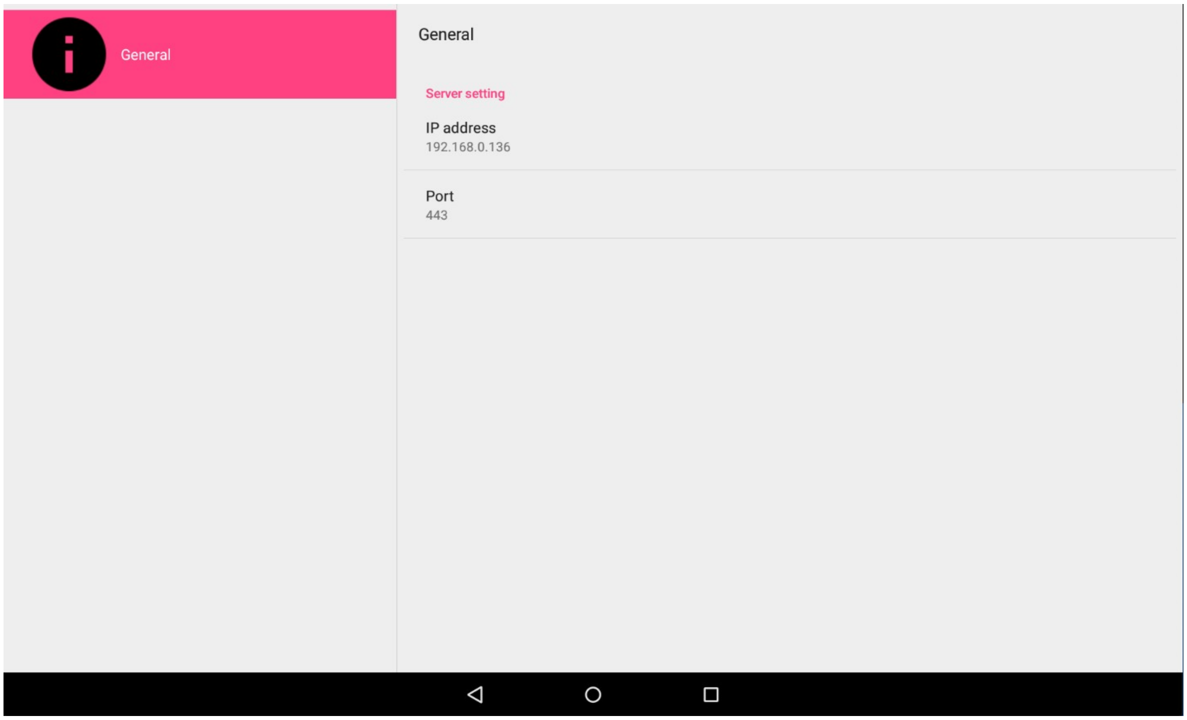


Figure 3.4 General Settings Dialog

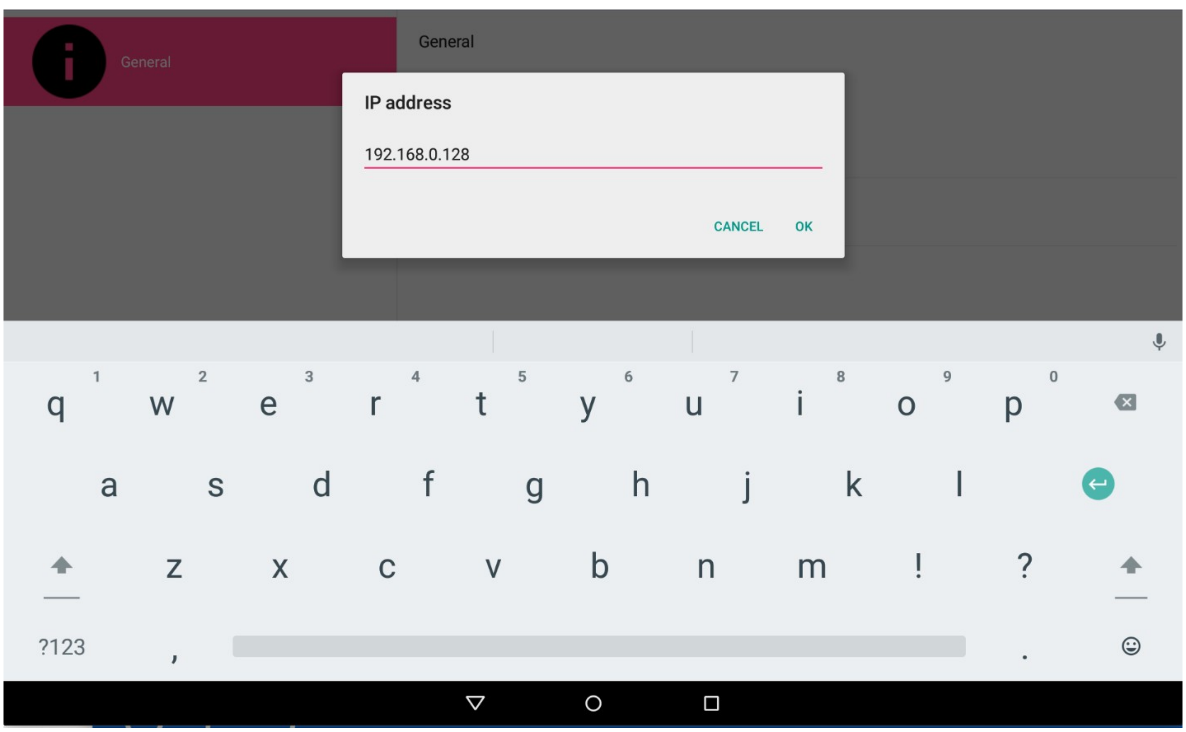


Figure 3.5 Changing the IP address of the server

3.4 Selecting a Station

Once you are logged in, you will need to select your station. The station selection controls what views you will have into the charts. For example, selecting ENT will configure the application to show only those portions of the chart that are relevant to ENT specialists. Runners should select the Runner icon, regardless of the specialty they are supporting. See Figure 3.6, below.

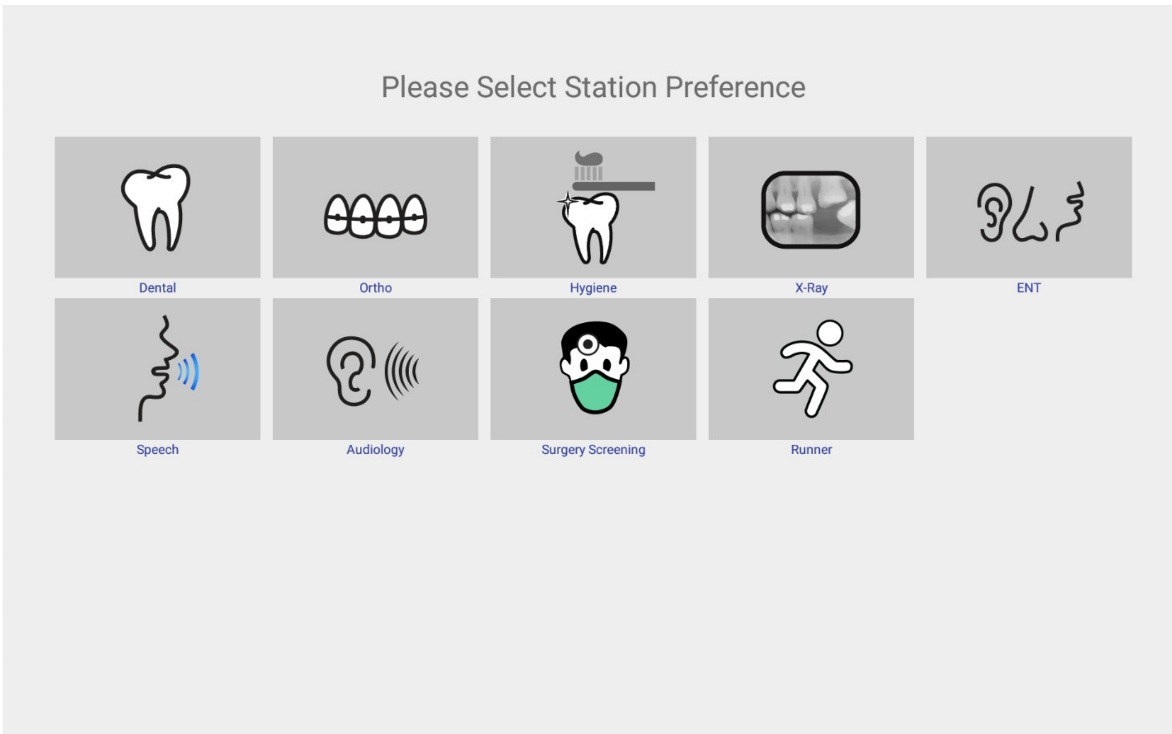


Figure 3.6 Station Selection Screen

To change your selection, you must restart the application, re-login, and make a new selection. You only need to make the selection once for each login.

3.5 Patient Flow

Before we continue, it helps to briefly go over how patients flow in the clinic. In general:

- Patients are categorized at registration time based on the care needed.
- Headshots of the patient are taken at time of registration. These headshots are an aid to identifying the patients, visible in all patient searches, and at all times when the patient chart is being viewed.
- Registered patients are staged in a waiting area until called.
- The system assigns at registration time a routing slip consisting of stations the patient should visit based on that care. That routing slip is viewable and editable by runners and caregivers on the tablet.
- Runners are assigned to a specific station or set of stations, and they use the chart app to find a patient which needs to be seen by the station(s) that they support.
- Patients are checked in by the specialist (who also has a tablet) at the station in order to gain access to the chart. Access to chart data is based on the station type.
- Once a patient is seen, the runner or station must remove the patient from the routing slip.
- The patient is then checked out by the specialist.
- The runner then takes the patient to the staging area, or, if there is no longer an item in the routing slip, discharges the patient.

The following sections provide details of the above steps.

3.5.1 Categorization of patients

When patients are registered at the beginning of the day, they are categorized based on the general care they are to receive, based on input from the patient ("I need to see a dentist") or a best estimate made by the registration personal. Categories include dental, surgery, hearing aids (patient is here to receive a hearing aid), and so on. The selection of a category will pre-fill in the chart, for this visit, a routing slip (See Section 3.6). The routing slip for a dental patient might include X-Ray and Dental, or for a cleft patient, Surgery Screening and ENT.

3.5.2 Runner Responsibilities

The main job of a runner is to make sure that patients are routed to stations based on the routing slip. To do this, they will:

- Identify a station to support for the day. See Section 3.4 for details. For example, a specific runner might support X-Ray. Each station should have one of more runners supporting it.
- Identify when a patient needs to be taken to the station(s) the runner is supporting. For example, a dental station may be staffed with a dentist and assistant, and be ready for the next patient.
- Search for a patient that has "Dental" in the routing slip. See Section 3.6, Patient Search.
- Locate the patient in the staging area, either by name, comparing to the photo displayed in the search result, or patient ID.
- Escort the patient to the station (e.g., dental chair)
- Remove the station from the patient's routing slip. Once removed from the routing slip, the patient will not be listed in subsequent searches made by the runner for that station. For

example, once Dental has been removed from the patient's routing slip, the patient will no longer appear in search results for dental patients.

3.6 Patient Search

When a patient is not checked in at the station, the main screen of the EMR Chart application consists of a search screen. See Figure 3.7. This search screen is used by the runner to find patients to escort to a station, and at the station it is used to find patients to check in and gain access to the contents of the chart.

Figure 3.7 Main Search Screen

The search screen consists of the following sections (numbers are highlighted in Figure 3.7):

- (1) Patient search field. Here, enter 2 or more letters from the patient's name (first, middle, last) or a date of birth. Search results will be filtered accordingly.
- (3) Calendar – use this to select the patient date of birth when searching by date of birth of the patient rather than by name. Note that you can only search by name OR by date of birth, not by both.
- (4) Options menu. Press and hold to access a menu to logout, change settings such as host IP address, or change your station type.
- (5) Station Filters. Selecting a station will filter the search results so that only patients that have that station in their routing slip will be displayed. Click "Search All" to search all patients registered at today's clinic, regardless of the content of the routing slip.
- (2) Search button. Clicking this will cause the tablet to search for, and display, patients matching the search criteria specified in (1). If no search criteria was specified, all patients registered for today's clinic matching the specified Station Filter in (4) will be displayed.

- (6) Results area. Headshots of matching patients will be displayed below the station filters. Click on a headshot to get more information about the patient, and the check the patient in.

3.6.1 Example: Search for Dental Patients by Name

The following shows steps that can be used to find Dental patient 788 based on the father's last name Gomez. This can be used by a runner to find a specific patient based on knowing the name of the patient. A station would use similar steps to find a patient to checkin (view and edit the chart) when presented with the patient by a runner.

1) Select Dental in the Station Filters. See Figure 3.8
2) Enter "gom" into the search field. See Figure 3.9.
3) Hit the Search button.
4) Using your finger, scroll through the headshots looking for a match based on the photo, or name of the patient. See Figure 3.10.
5) Click on the matching photo (Figure 3.11 and 3.12) to get more details and verify the patient (runners) or check the patient in (station).
6) Repeat steps 1 – 5 until you are able to find the patient. If unable, verbally verify that the patient has registered for the clinic, sending them back to the registration table if necessary. You might also use the "Search All" filter to search for the patient in case they were mis-categorized as Dental at registration, or for whatever reason, Dental was removed from the routing slip.

Figure 3.8 Selecting Dental Station Search Filter

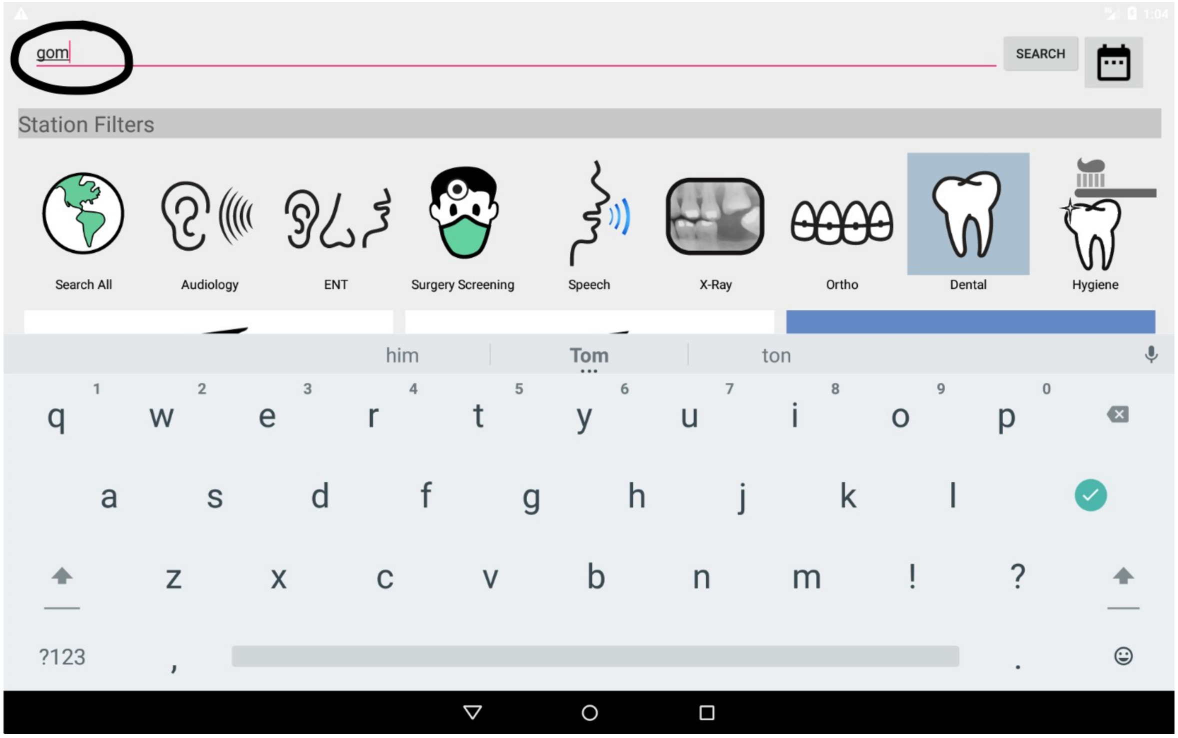


Figure 3.9 Entering Search Term "gom"

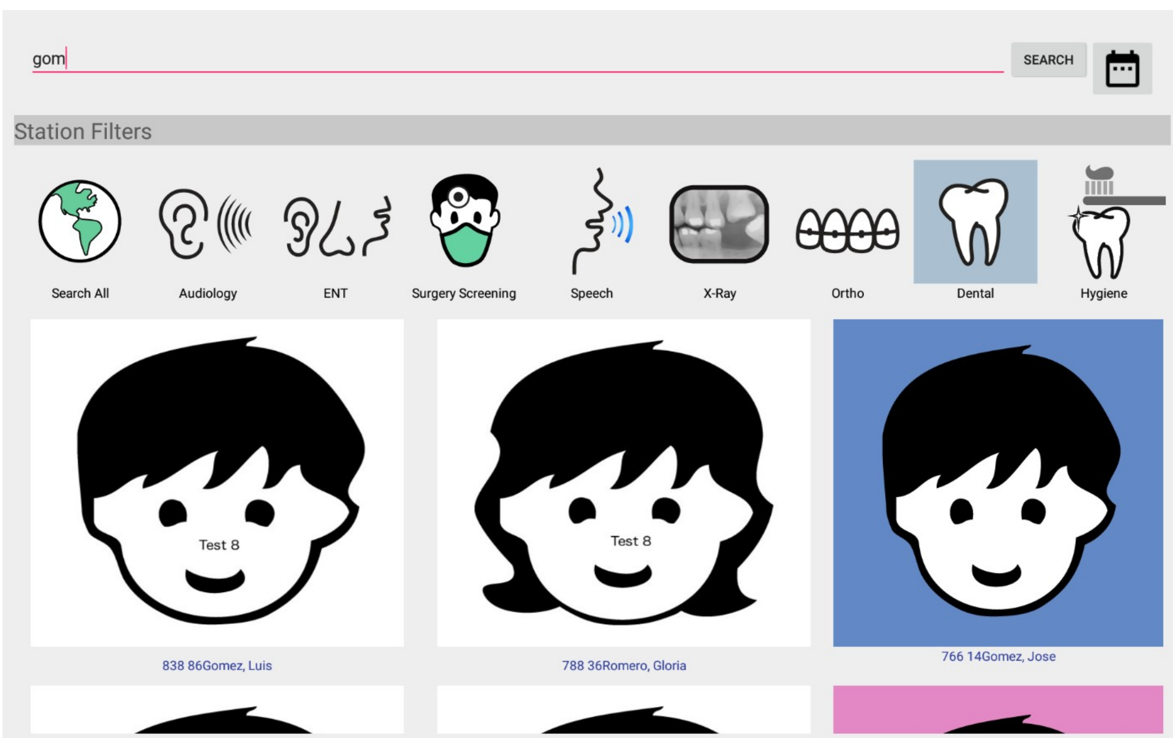


Figure 3.10 Search Results

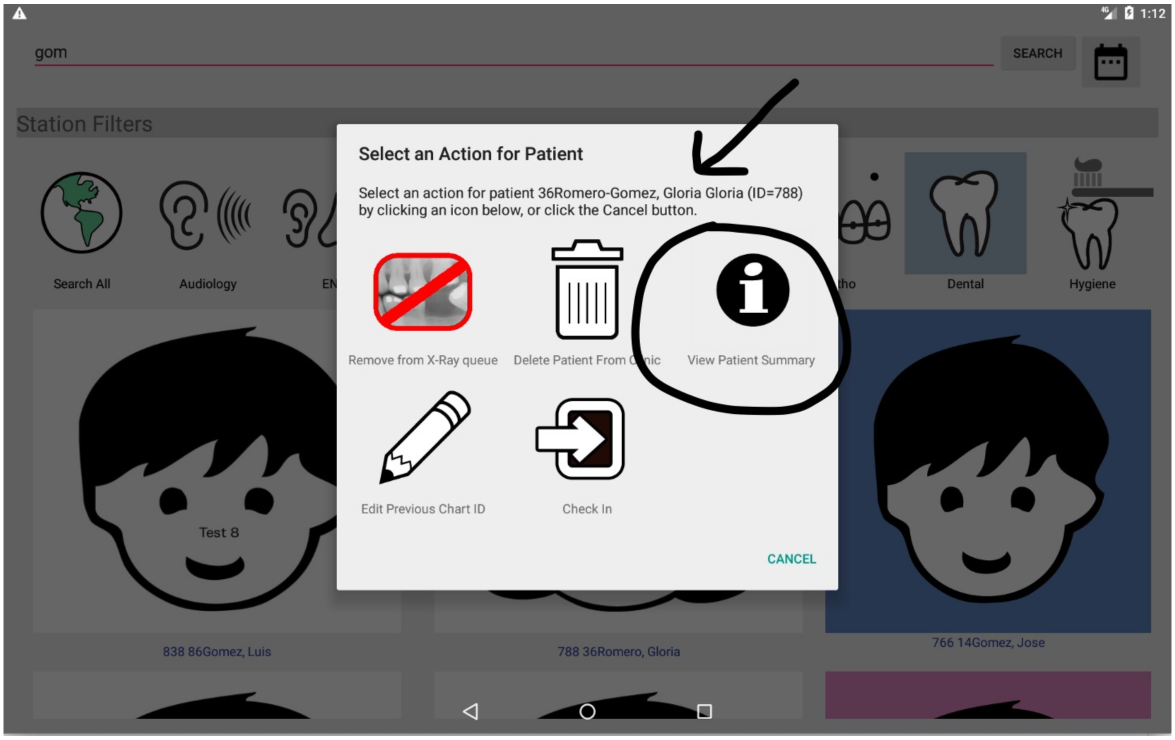


Figure 3.11 Clicking on headshot leads to full name and DOB of patient, plus options

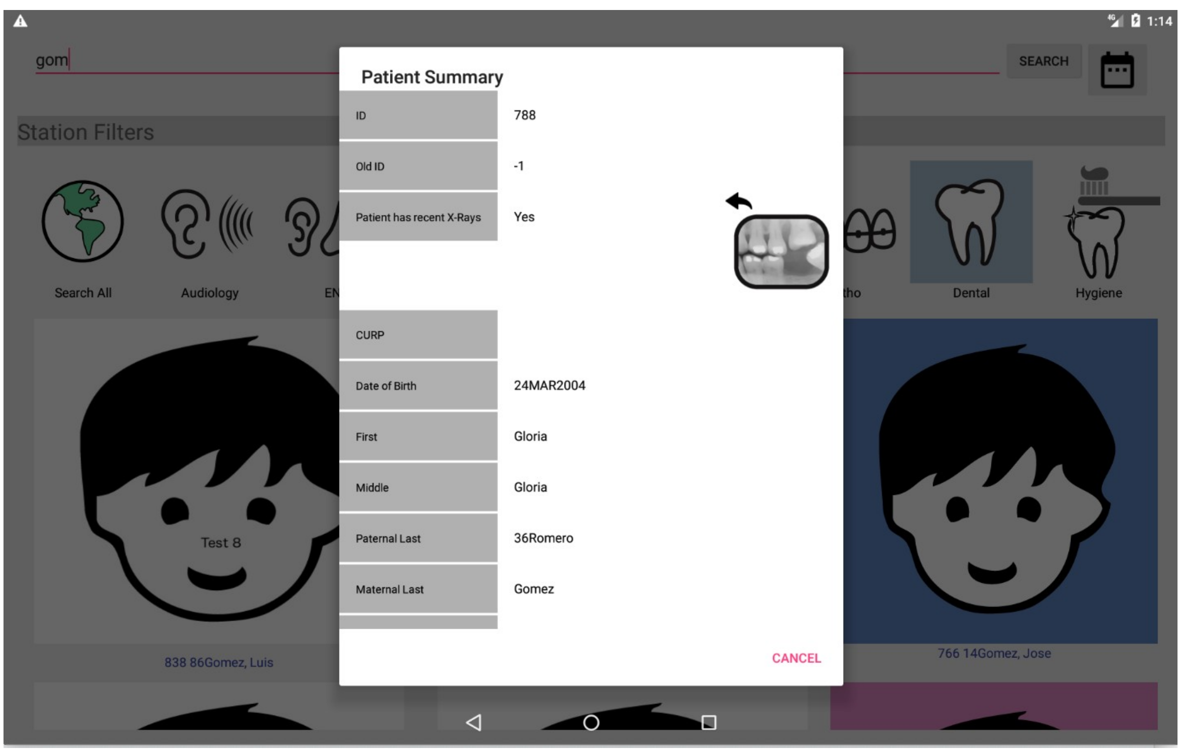


Figure 3.12 Clicking the “View Patient Summary” button for more patient info

3.6.2 Example: Find all patients waiting for Dental

This is the typical way a runner will find the set of patients with a specific station in their routing slip. Use this when you want to find a patient to route and it doesn't matter which patient it is. Otherwise, search by name or date of birth.

1) Select Dental in the Station Filters. See Figure 3.8
2) Hit the Search button. You do not need to use a search term to see all patients that have Dental in the routing slip.
3) Using your finger, scroll through the headshots. See Figure 3.10.
4) Click on any photo (Figure 3.11 – Figure 3.12) to get full patient details, check in the patient, or perform other tasks.

3.6.3 Example: Find a Dental Patient based on Date of Birth

These steps are identical to search by name, but instead of entering part of the patient name, you want to search by patient date of birth.

1) Select Dental in the Station Filters. See Figure 3.8
2) Click on the Calendar Icon, locate and select the patient DOB. See Figure 3-13 and 3-14.
3) After dismissing the date selector, the DOB will display in the search field (Figure 3-15).
3) Hit the Search button.
4) Using your finger, scroll through the headshots looking for a match based on the photo, or name of the patient. With date of birth searches, only one or two results will usually match, making this the preferred way to search if the patient date of birth is known. See Figure 3.16.
5) Click on the matching photo (Figure 3.11 and 3.12) to get more details and verify the patient (runners) or check the patient in (station).
6) Repeat steps 1 – 5 until you are able to find the patient. If unable, verbally verify that the patient has registered for the clinic, sending them back to the registration table if necessary. You might also use the "Search All" filter to search for the patient in case they were mis-categorized as Dental at registration, or for whatever reason, Dental was removed from the routing slip.

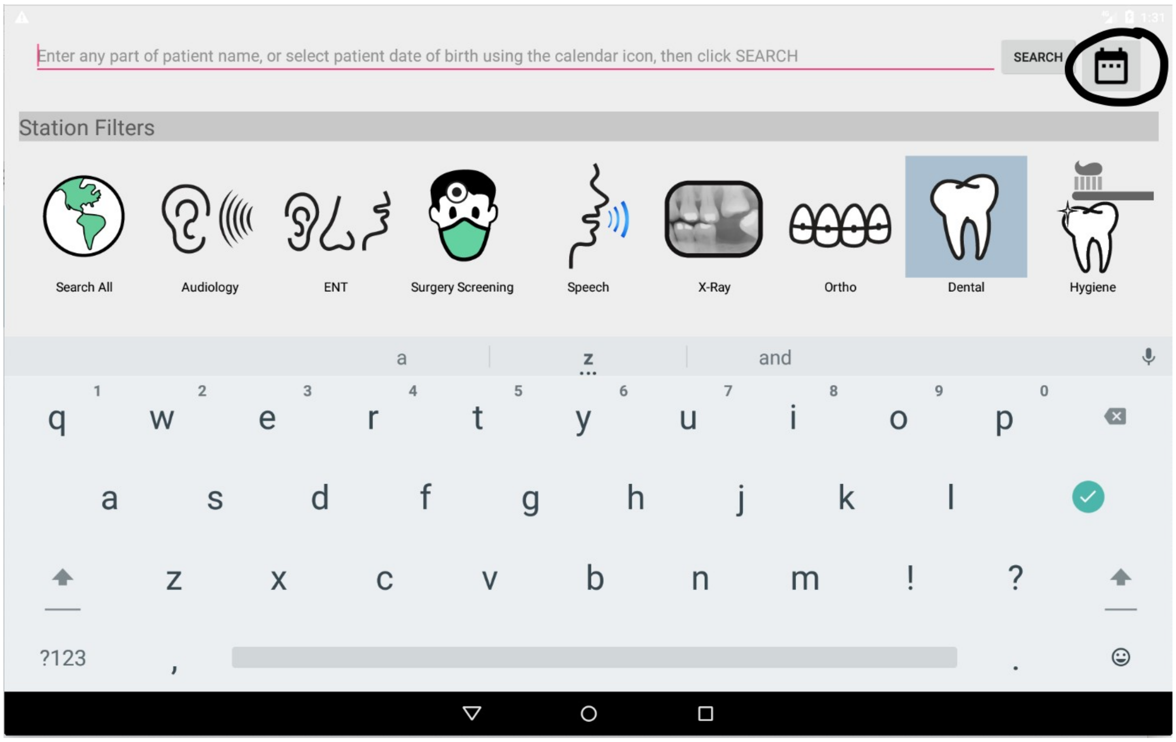


Figure 3-13 Location of the Calendar Icon

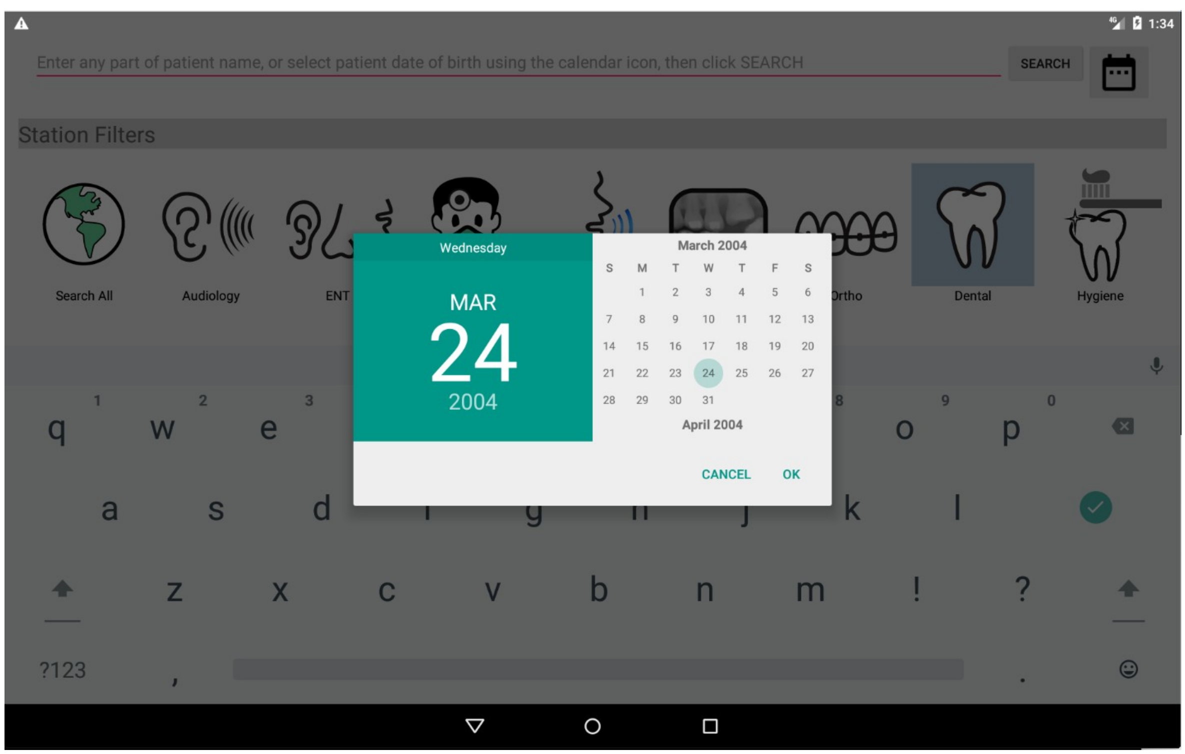


Figure 3.14 Calendar/Date of Birth Selection

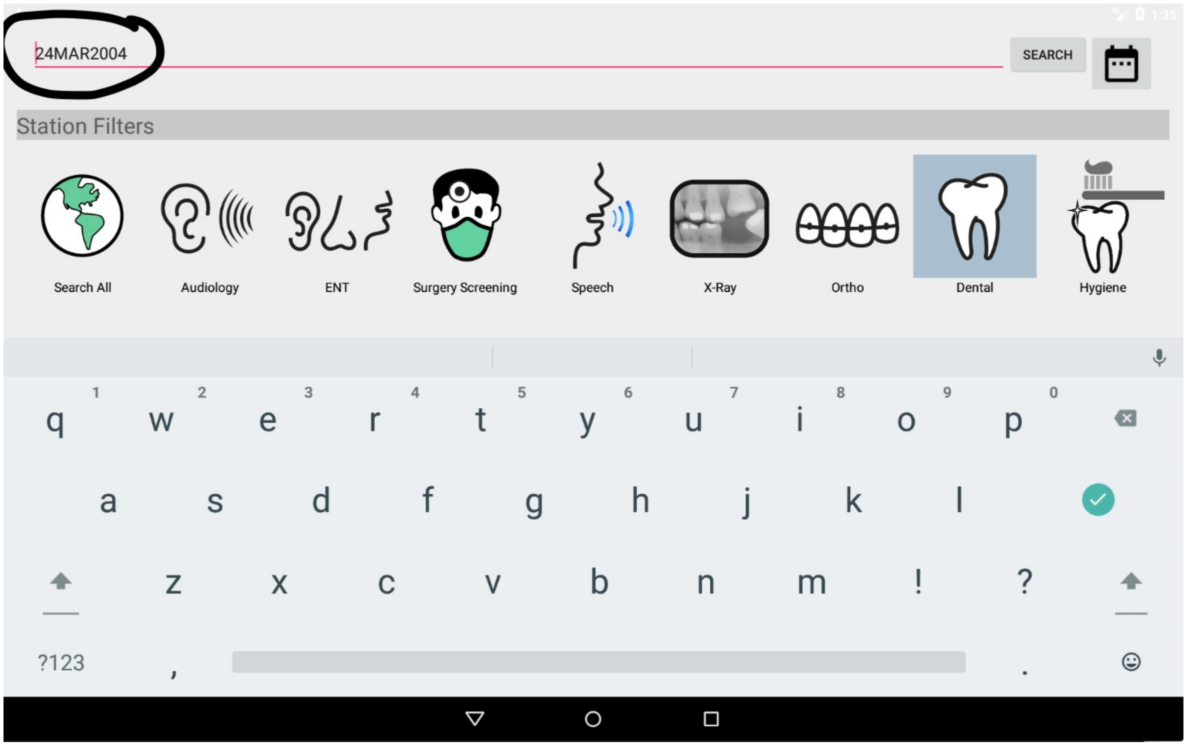


Figure 3.15 Search Field set to date selected in calendar control

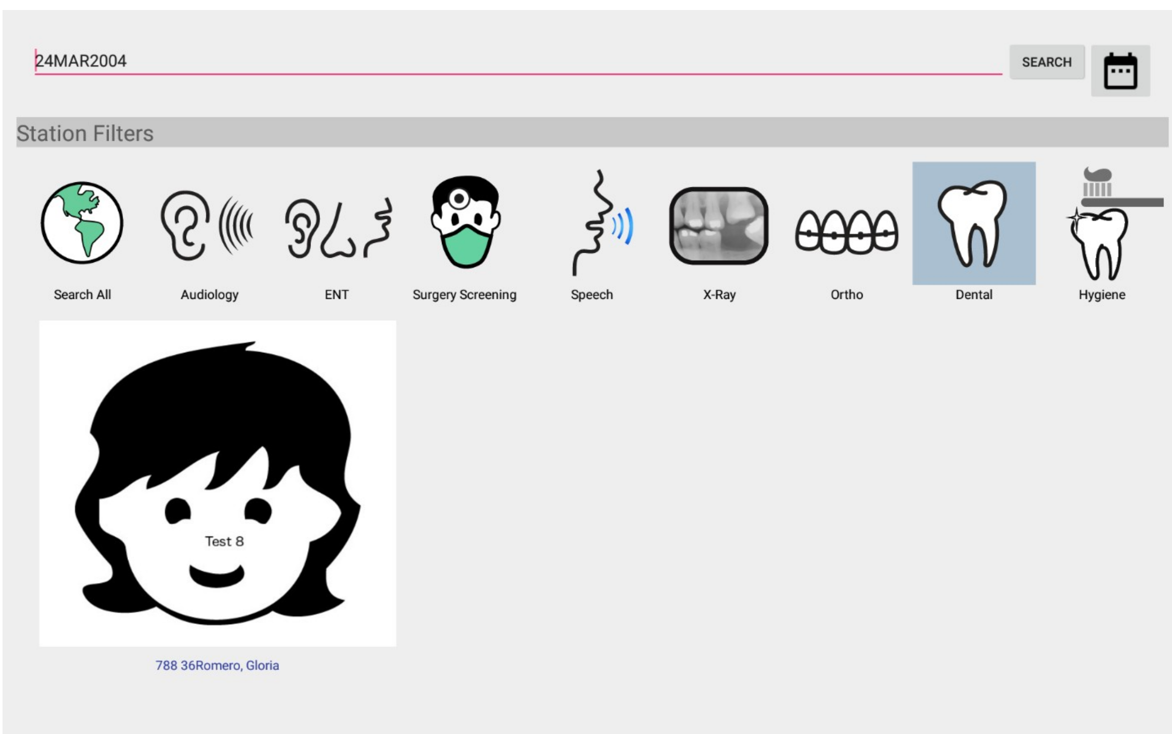


Figure 3.16 Patient registered for the clinic that has dental in routing slip and matches enter DOB

3.7 Patient Checkin and Checkout

Once a patient is identified at the staging area and taken by a runner to a station (e.g., a dental chair, X-Ray, etc..) that patient must be "checked in" in order to view and edit the patient's digital chart. After the patient care has been provided at the station, the patient must be "checked out" in order to close the chart for that patient and return the tablet to the search screen where the process can be repeated for the next patient.

3.7.1 Checkin

A patient is checked in using the "Check in" button as shown in Figure 3.17. To get to this dialog, simply click on a headshot in the search results screen. When this button is touched, you will be asked to verify the checkin (Figure 3.18). By clicking "Yes", you will be taken to the content of the patient's chart, tailored to your station, for viewing or editing. Refer to Section 4 for more details on viewing and editing the patient chart for your specific station.

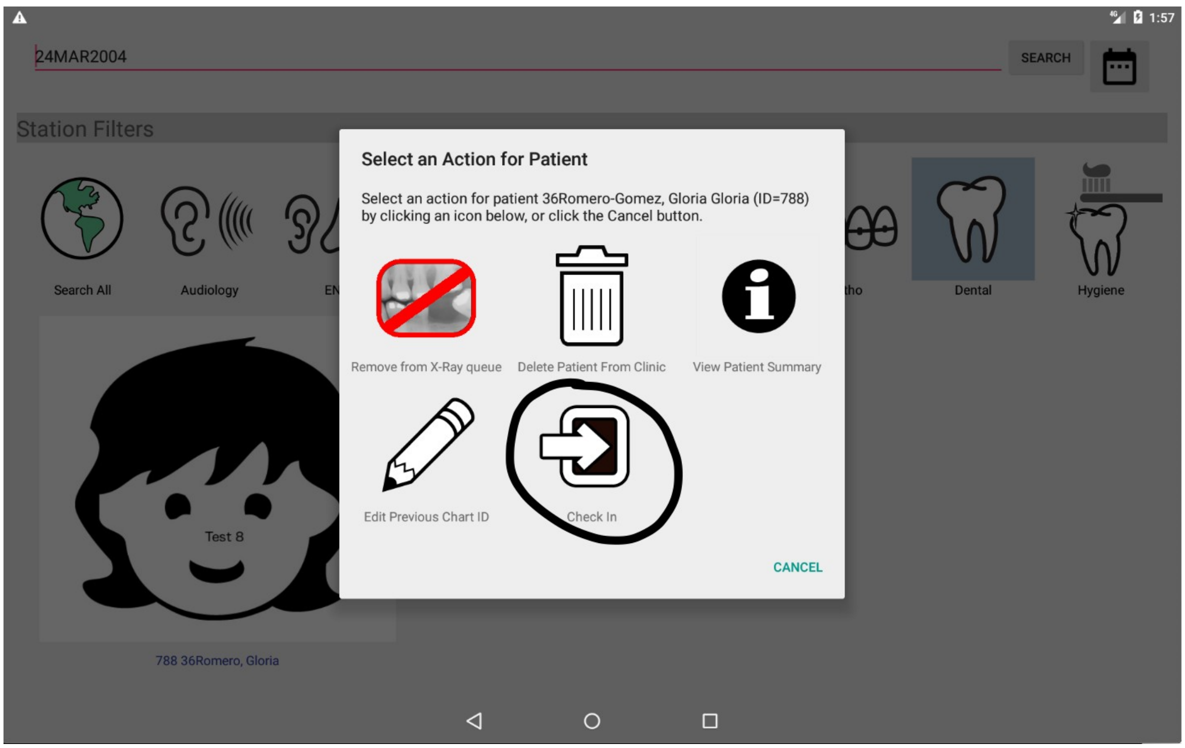


Figure 3.17 Patient Check In Button

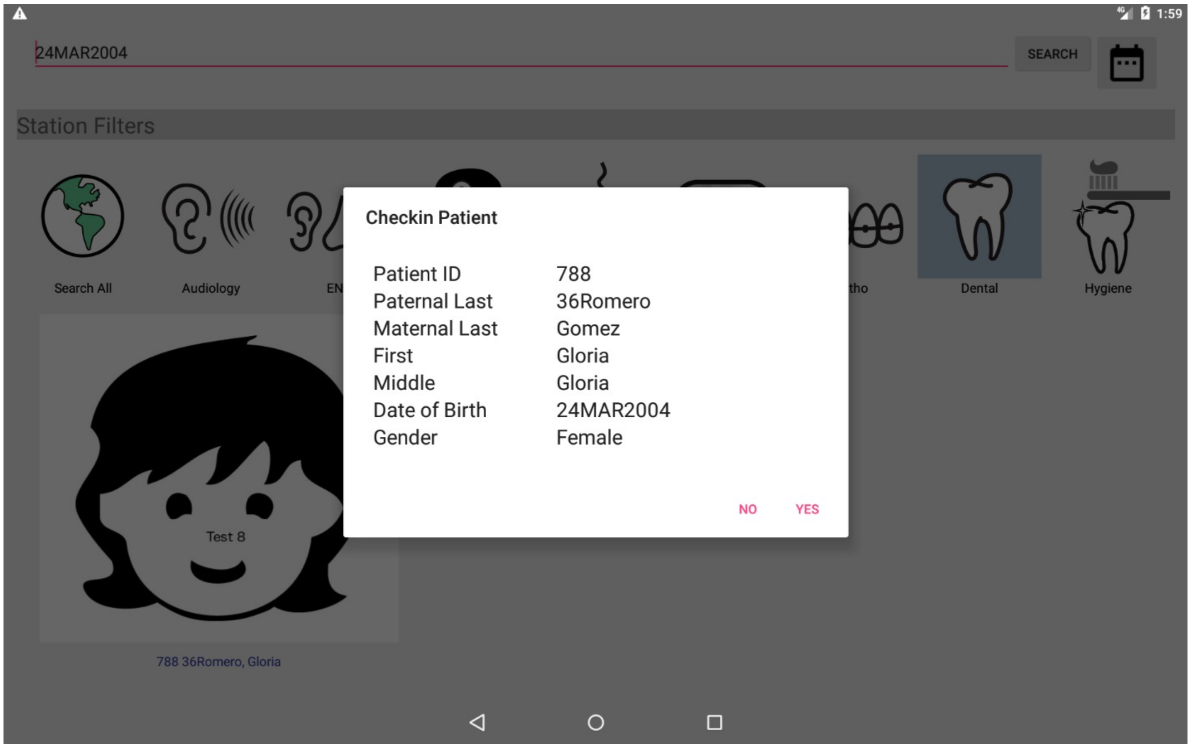


Figure 3.18 Verifying the Patient Checkin

3.7.2 Checking out the Patient

You must "check out" the patient once all patient data has been added to the chart at the station, and you have removed your station (Dental, X-Ray, etc.) from the patient routing slip. Once the patient is checked out, you will be returned to the search screen, allowing you to search for, and check in, the next patient. In Figure XXX, we have completed (but not saved) the dental treatment record for patient 788, and are ready to dismiss the patient back to the staging area. This can be done by clicking on the "Check Out" button that is circled in Figure 3.19. If there are changes to be saved (as there are in this case, since there is a Save button displaying), then you will be prompted to save those changes as a part of the check out process (Figure 20). You will also be given a dialog allowing you to add final notes and specify a return to clinic interval. See Figure 3.22. Once that dialog is dismissed, you will return to the search screen where you can search for the next patient.

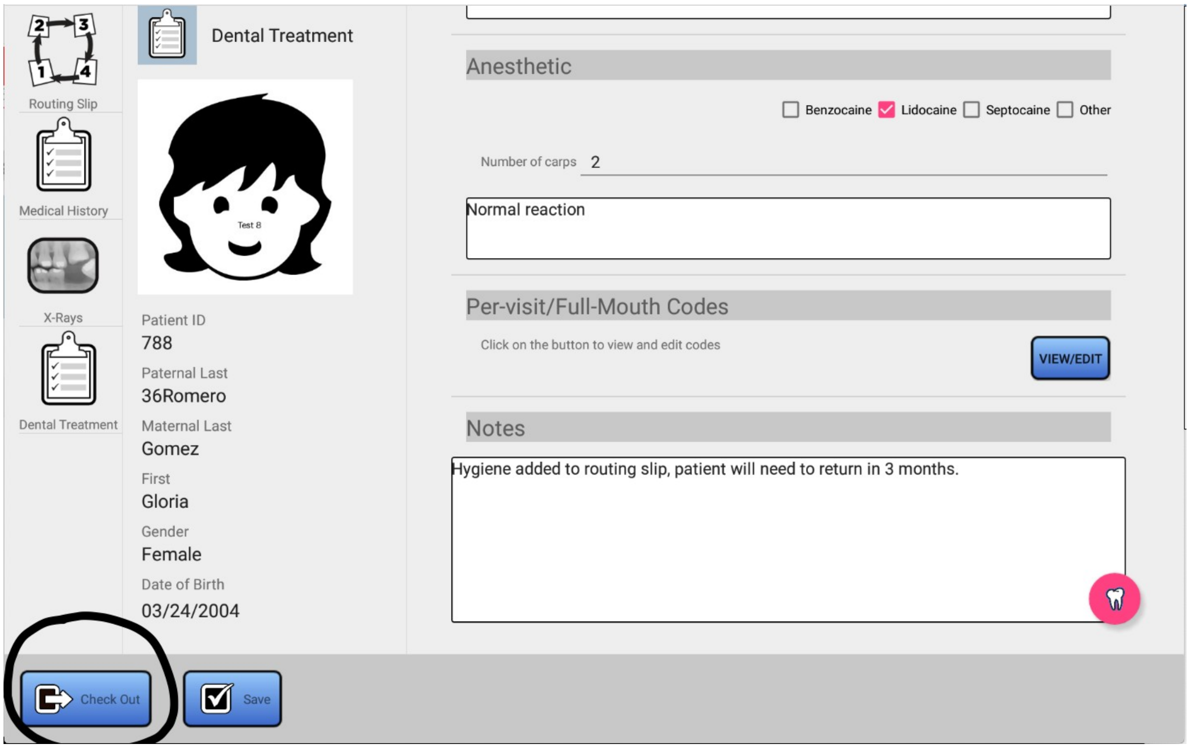


Figure 3.19 Patient Checkout Button

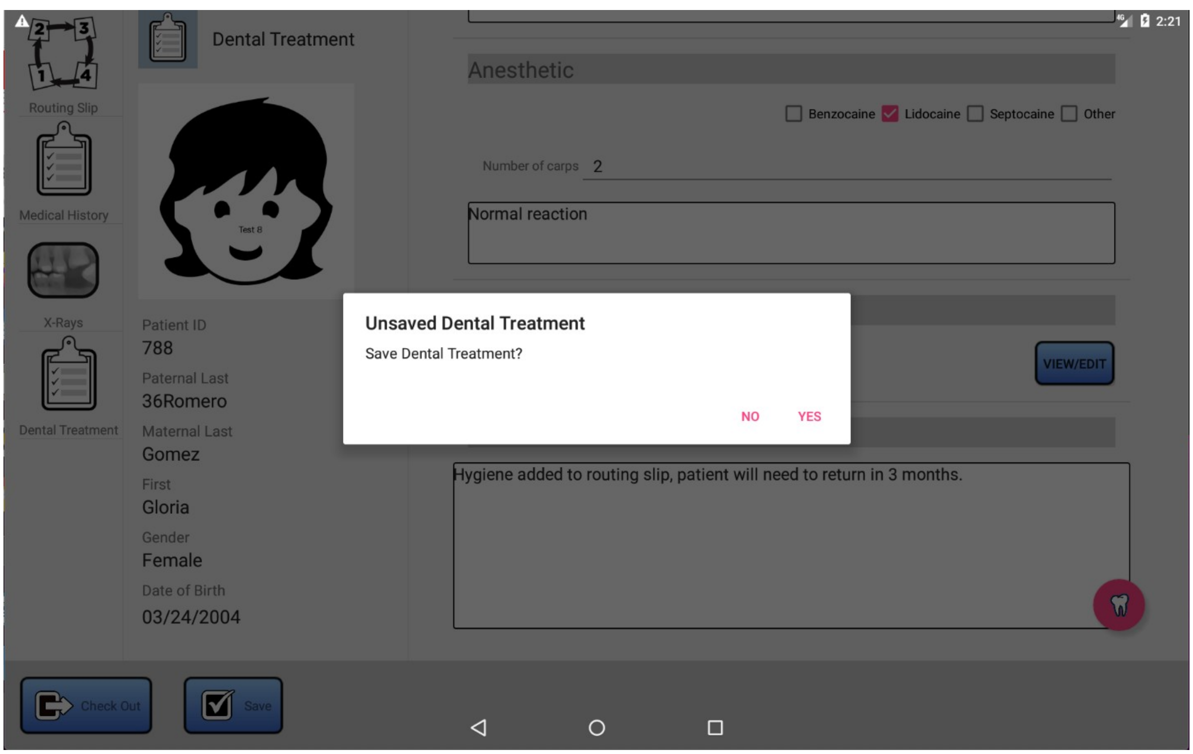


Figure 3.20 Handling unsaved changes at patient checkout

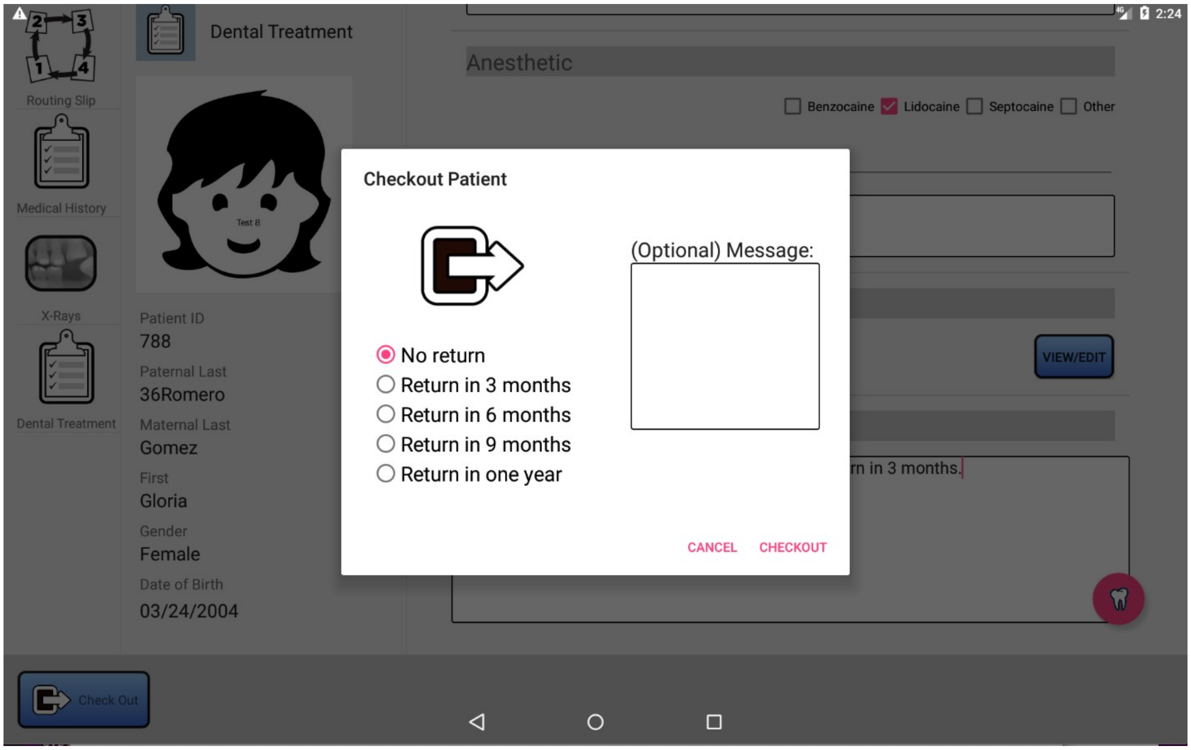


Figure 3.21 Checking Out – Return to Clinic and Final Notes

3.8 Routing Slips

3.8.1 Introduction

When a patient is registered, he or she is categorized based on care needed as. The categories are:

- Dental
- Orthodontics (Ortho)
- Ears (not cleft, but has hearing issues)
- Hearing Aids (returning Ears patient for hearing aid dispensing)
- Cleft (Initial visit)
- Cleft (Returning visit)
- Other

The category is assigned based on discussion with the patient, family, or perhaps consultation with a caregiver present in the registration area. Each category implies a sequence of steps in the care of the patient, and a list caregivers/stations that the child should visit while at the clinic. For example, a dental patient may visit X-rays, a dentist, and hygiene before the day is complete. These stations are all present in the patient routing slip.

Runners use the routing skip to find patients to take to the station(s) that they are supporting.

Caregivers use the routing slip to add additional points of care that were not assigned by default at registration. For example, a dentist may add hygiene to the routing slip of a dental patient after determining a child's teeth are in need of cleaning. Or, ENT may add audiology to the routing slip in order to get an audiogram taken for a child that he or she has seen.

3.8.2 Changing the Routing Slip

Both runners and caregivers, working together, ensure that the routing slip is accurate by removing stations from the routing slip of a patient once work is completed. It doesn't matter who actually performs this step, but not doing so will make the job harder on a runner because a patient who has already seen dental, for example, will see that patient in dental search results, leading to confusion. Once removed from the routing slip, say dental, a patient will no longer show in the list of patients needing to be taken to a dental chair when a search is performed.

To see the routing slip, the caregiver or runner must check in the patient (a runner can check in patients just like any of the caregivers, but the only part of the chart they have access to is the routing slip). Figure 3.22 identifies the location of the routing slip portion of the chart. Click on that icon to view and modify the routing slip, as shown in Figure 3.23.

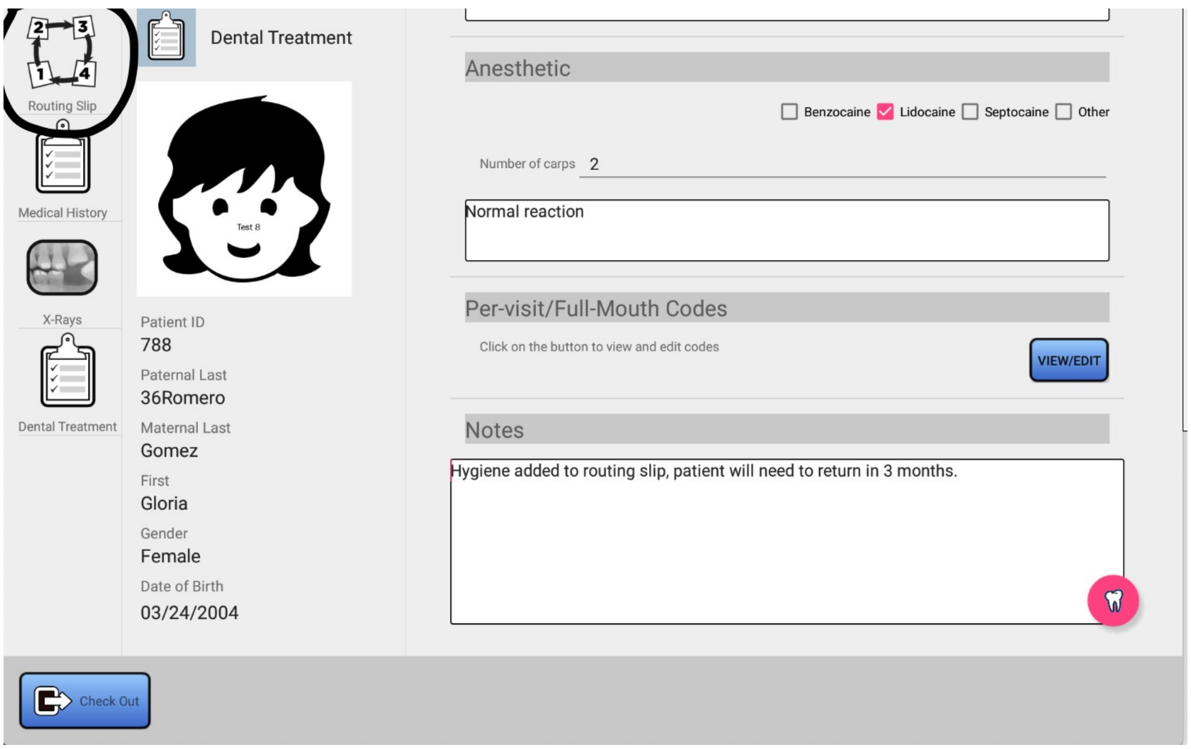


Figure 3.22 Routing Slip Icon

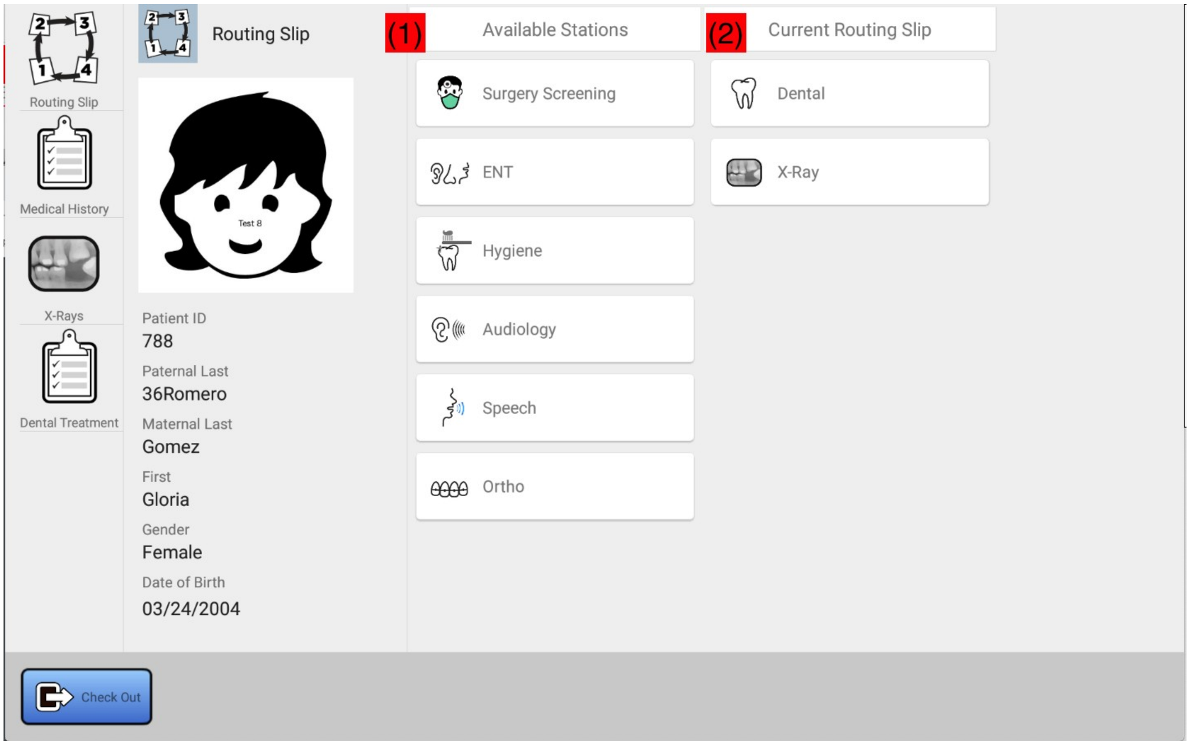


Figure 3.23 Routing Slip

In Figure 3.23, you can see that the routing slip consists of two columns. The left column (identified by (1) in the figure) list stations that are available in the clinic, but not a part of the current routing slip. Searches made for patients filtered by any of these stations will result in the patient not being shown in the results. The right columns (identified by (1) in the figure) contains the current patient routing slip.

You can use your finger to drag and drop items from one list and drag them to the other. Hold your finger down over the item for about 1 second, then you will see it detach from the current list (Figure 3.24). Then, while still holding your finger down, drag it to the other list and lift your finger. It will then be added to the destination list (Figure 3.25).

You can make as many changes as necessary. Use the Save button on the lower left corner of the screen to save changes.

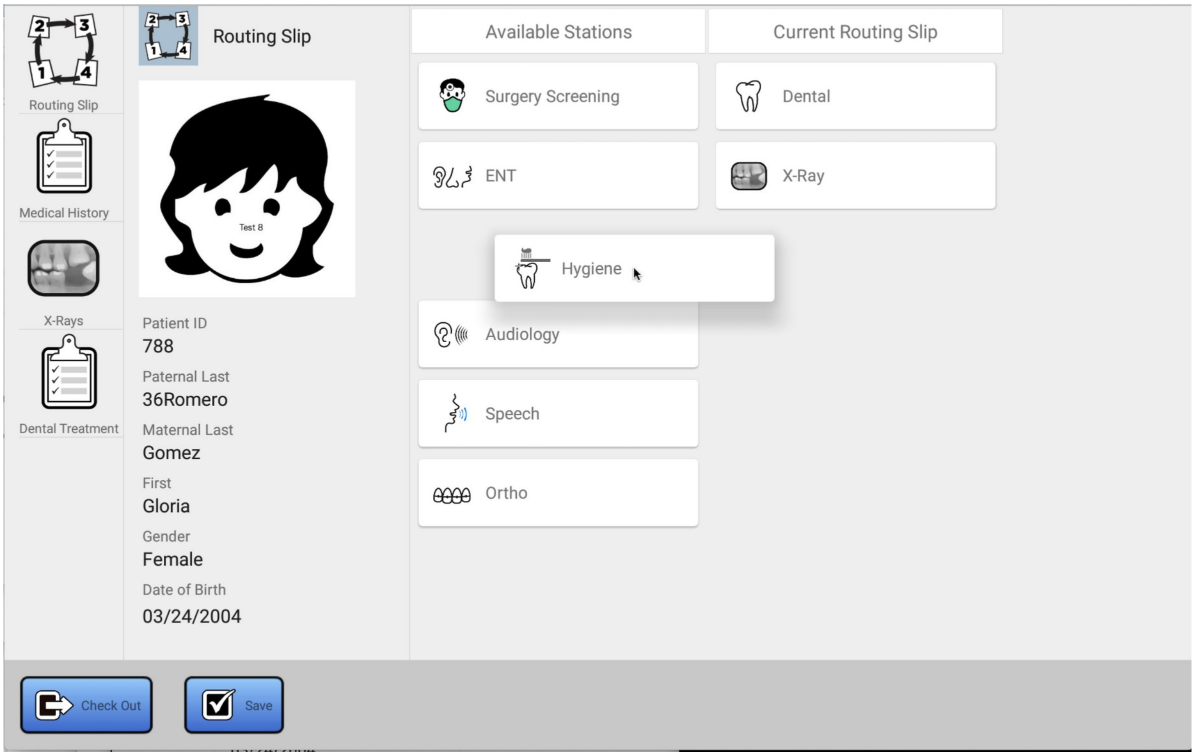


Figure 3.24 Dragging Hygiene from the available list to the routing slip

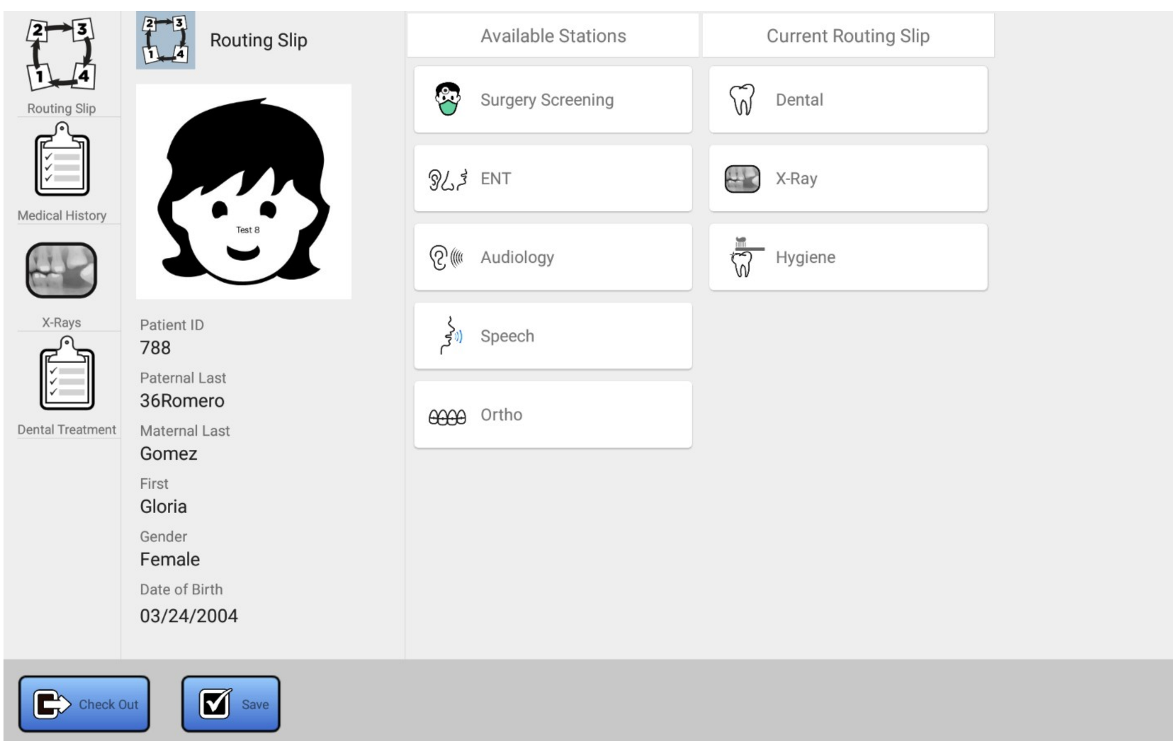


Figure 3.25 Hygiene is now on the routing slip

3.9 Removing a Patient from the Clinic

On occasion, patients will leave the clinic without notice prior to visiting each station on the routing slip. When this child is called by the runner, there is no response after repeated attempts. Or, a child may need to be discharged at the discretion of staff (for example, the child might have a fever and needs to be sent home).

This can be done by the following steps:

1. Search for the patient using the search screen.
2. Select the patient.
3. Click on the "Delete Patient From Clinic" button and follow the instructions (Figure 3.26).

Note: none of the data that was obtained (X-Rays, chart entries) will be removed. The patient will simply no longer be listed in search results.

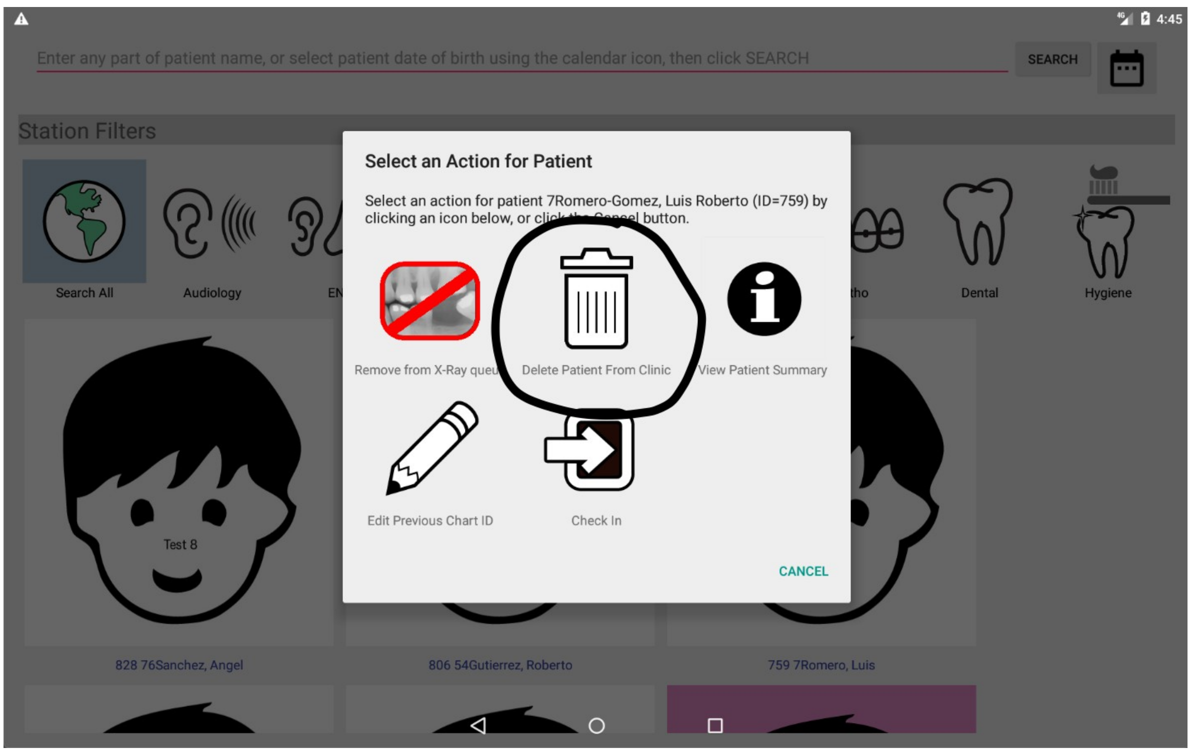


Figure 3.26 Removing a Patient from the Clinic

3.10 Recording the Paper Chart ID

For cleft patients that have a paper chart (as of this version of the chart application, surgery screening patients still have paper charts, ENT and Audiology are digital), it is necessary to retrieve the paper chart (or previous) ID that was assigned to the patient in the legacy database in order to find the paper charts. This is because the ID assigned by the tablet-based EMR is a different number than that used in the older system.

Similarly, dental and ortho may find this feature useful until such time that everything has gone digital. This paper chart number might also be used to record the chart number for charts in archive, in case we are completely digital yet for some reason, there is a need to go back and look at something in the older paper charts. However, there can only be one "paper" chart ID recorded for each patient.

Regardless of the reason, you can record a paper chart number by following these steps:

1. Search for the patient using the search screen.
2. Select the patient.
3. Click on the "Edit Previous Chart ID" button (Figure 3.27).
4. Edit and save the previous chart ID (Figure 3.28)

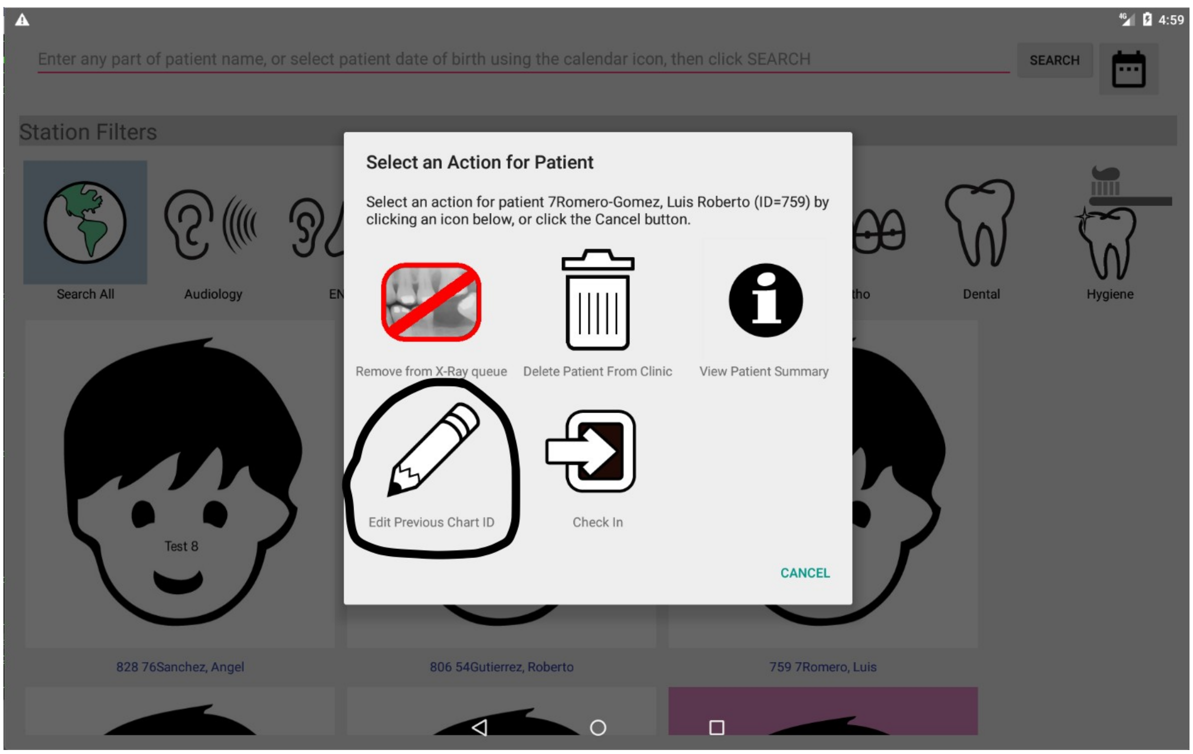


Figure 3.27 Edit Previous Chart ID

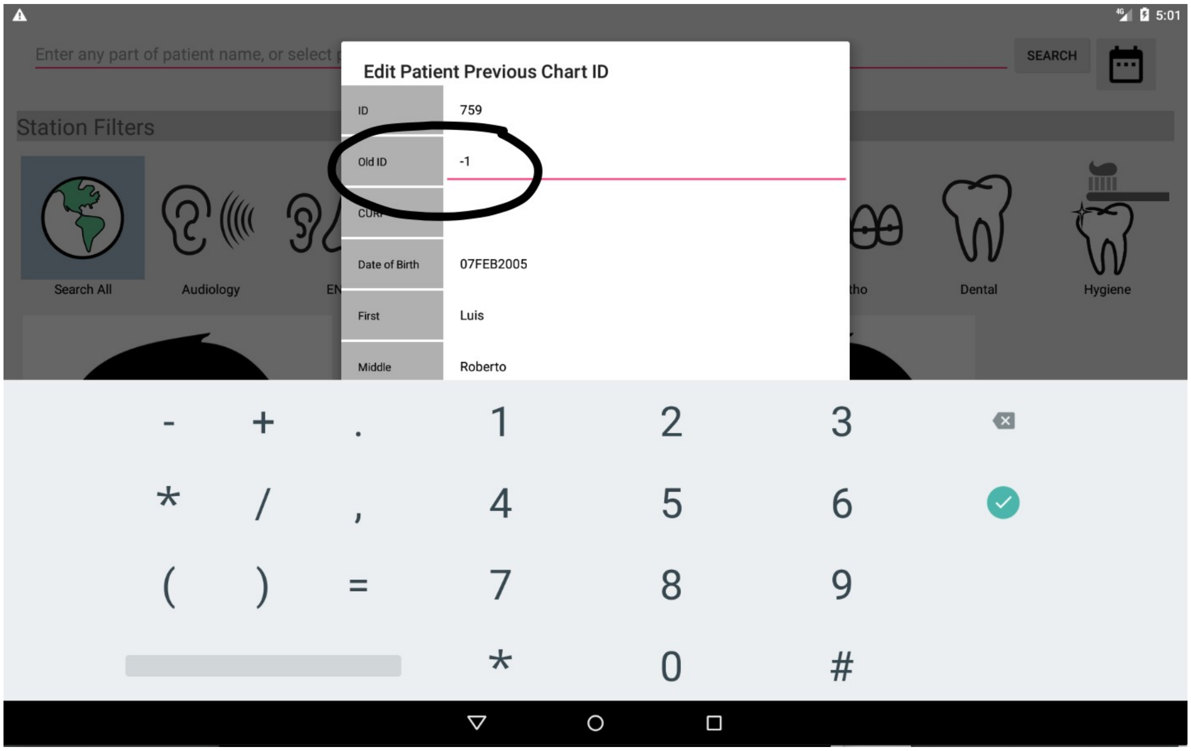


Figure 3.28 Editing Previous Chart ID

Note that the chart ID “-1” is reserved to indicate that no such chart exists.

3.11 Retrieving the Patient Paper Chart ID

As described in the previous section, patients may have previous paper charts, and their ID may be stored in the database. Looking up this paper ID chart may help in searching for that chart. The expected use case for this at this point is surgery screening and perhaps orthodontics, which currently are not supported in the digital charts. To view the previous paper chart ID, follow these steps:

1. Search for the patient using the search screen.
2. Select the patient.
3. Click on the “View Patient Summary” button (Figure 3.29).
4. The patient ID is displayed as shown in Figure 3.30

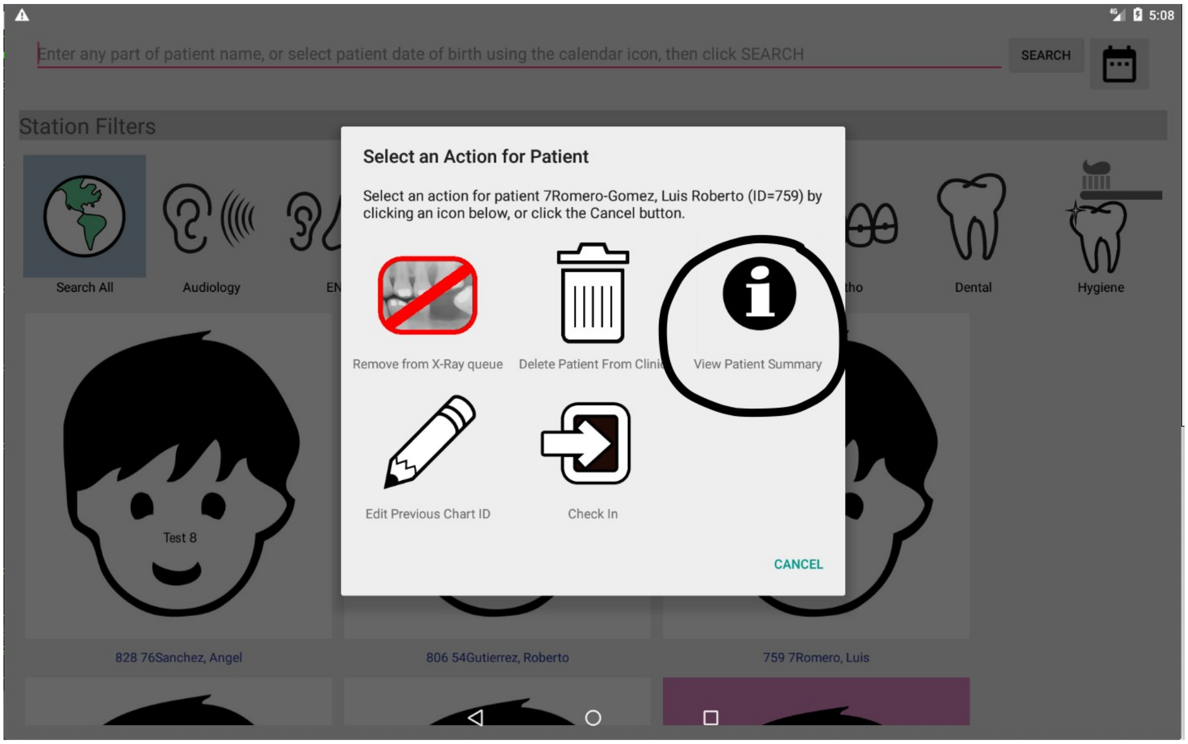


Figure 3.29 View Patient Summary button

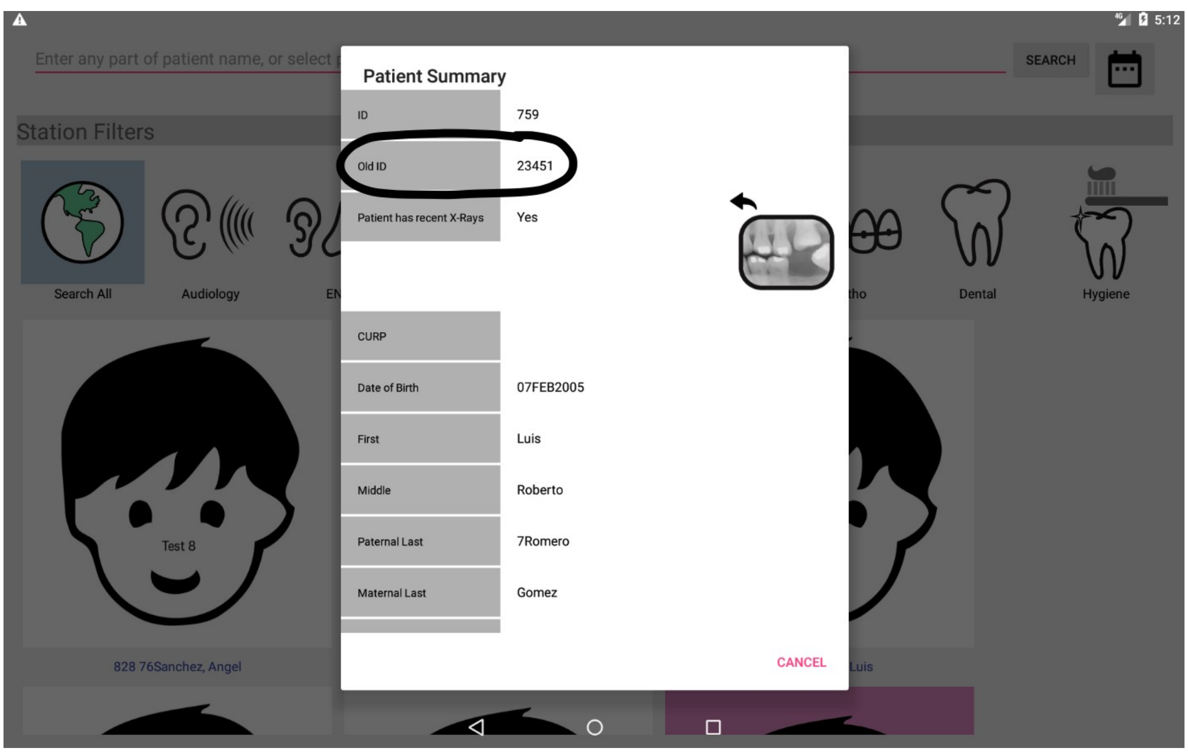


Figure 3.30 Old Chart ID (-1 indicates there is none recorded for this patient)

3.12 Removing X-Ray from the Routing Slip

The policy of Thousand Smiles is that patients are given no more than 1 set of x-rays per 12 month (1 year) period. However, all dental patients, regardless of this status, will have x-ray added to their routing slip automatically at time of registration (this may change in the future).

Any patient that has x-ray in their routing slip. yet has recent x-rays will be flagged in the following ways:

1. On the action dialog that is displayed when a headshot is clicked in the search results page, a button will be displayed allowing the runner or any caregiver to see that the patient has recent x-rays, and x-ray is in the current routing slip. This button can be used to remove x-ray from the patient's routing slip, if desired. See Figure 3.31.
2. The patient info screen will indicate with an icon and status that the patient has had x-rays in the past year. See Figure 3.30.

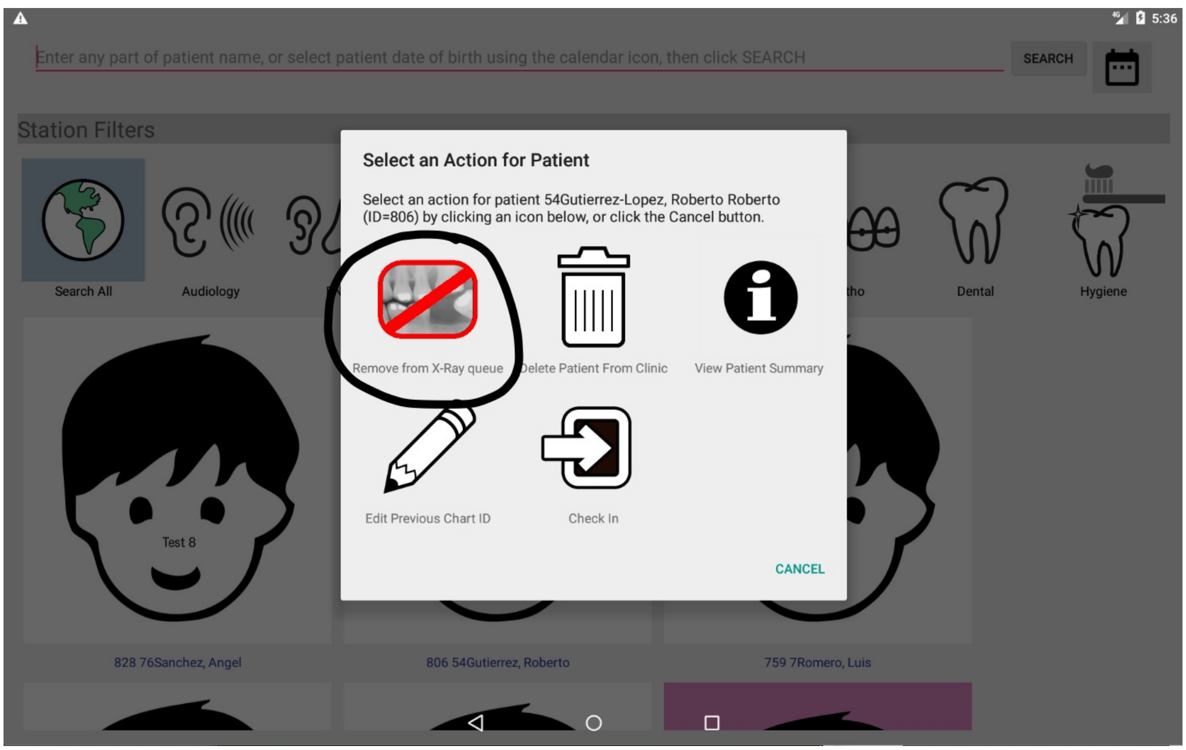


Figure 3.31 Patient with Recent X-Rays showing button for removing x-ray from routing slip

3.13 Exiting and Restarting the Application

When you are no longer using the application, you should exit the application. This will ensure that the next user has to log in, and any patient chart accesses performed by that person are not logged as having been done by you. Exiting the application can be done in two ways:

- Minimizing the application and swiping it away
- Using the options menu on the search screen and selecting the exit function

3.13.1 Exiting by Swiping Away the Application

You can exit in this way by:

- Swiping up from the bottom of the screen (but don't swipe too far up or the app drawer opens).
- Tapping the small square icon on the bottom of the screen. See Figure 3.32.
- Swiping left or right as though you are trying to flick the application off the screen. See Figure 3.33

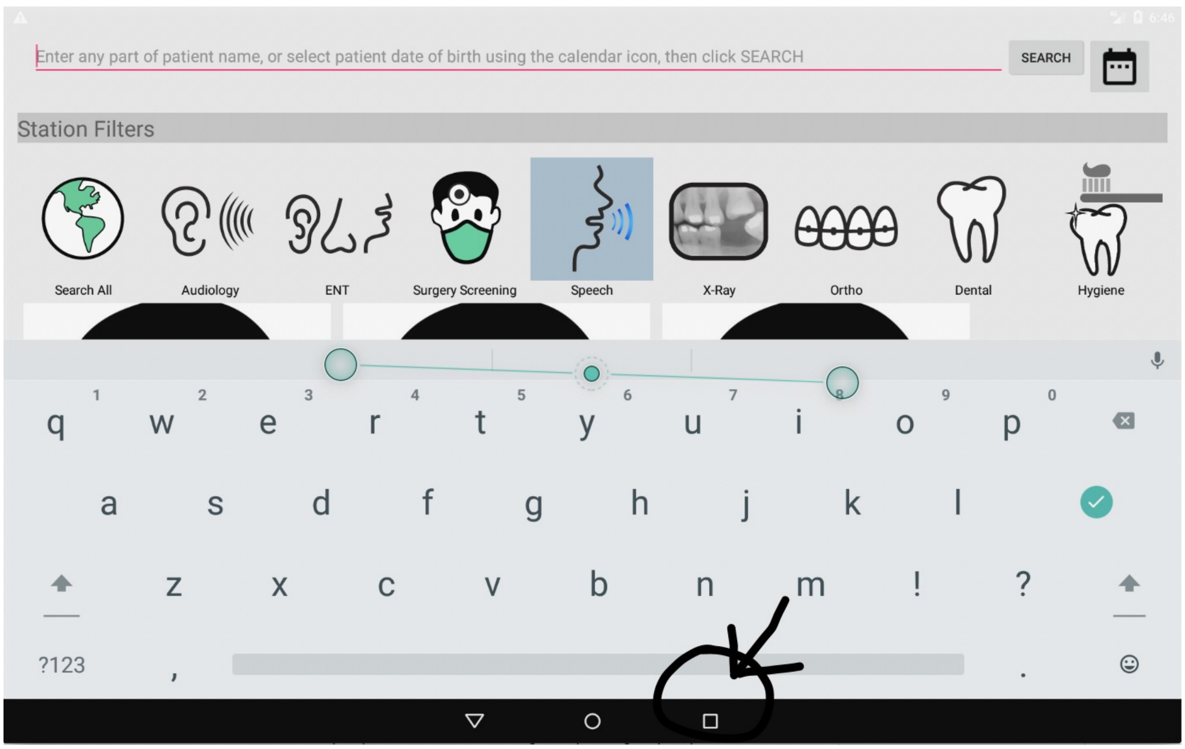


Figure 3.32 Location of the Square Icon.

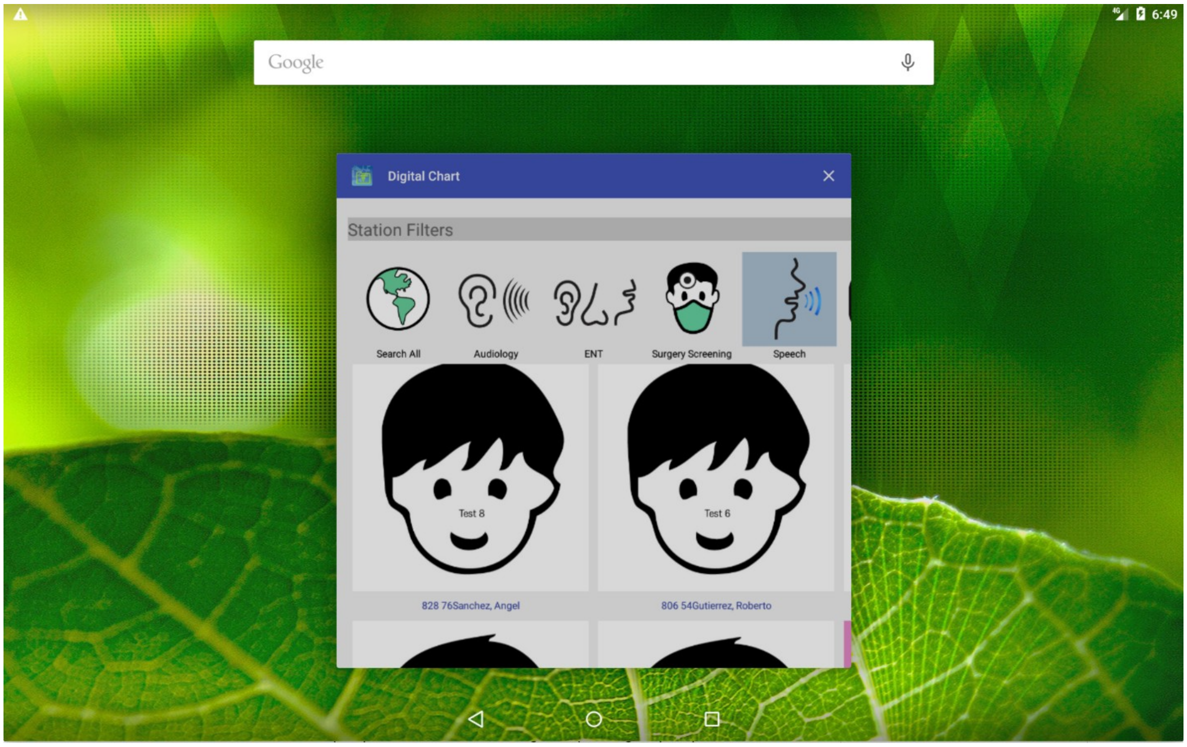


Figure 3.33 Swipe the minimized application left or right with your finger to exit.

3.13.2 Exiting via the Options Menu

From the search screen, press and hold down on the options menu button in the upper right hand corner of the screen, then select the Exit menu option from the menu that appears to exit the application. This method will ask for confirmation before exiting. See Figure 3.34.

3.14 Changing the Station Type

In rare circumstances, you may want to change your station type. This will allow you to see portions of the chart associated with a different caregiver. To do so, press down on the options menu and select the "Change Station" item (Figure 3.34). This will return you to the station selection screen.

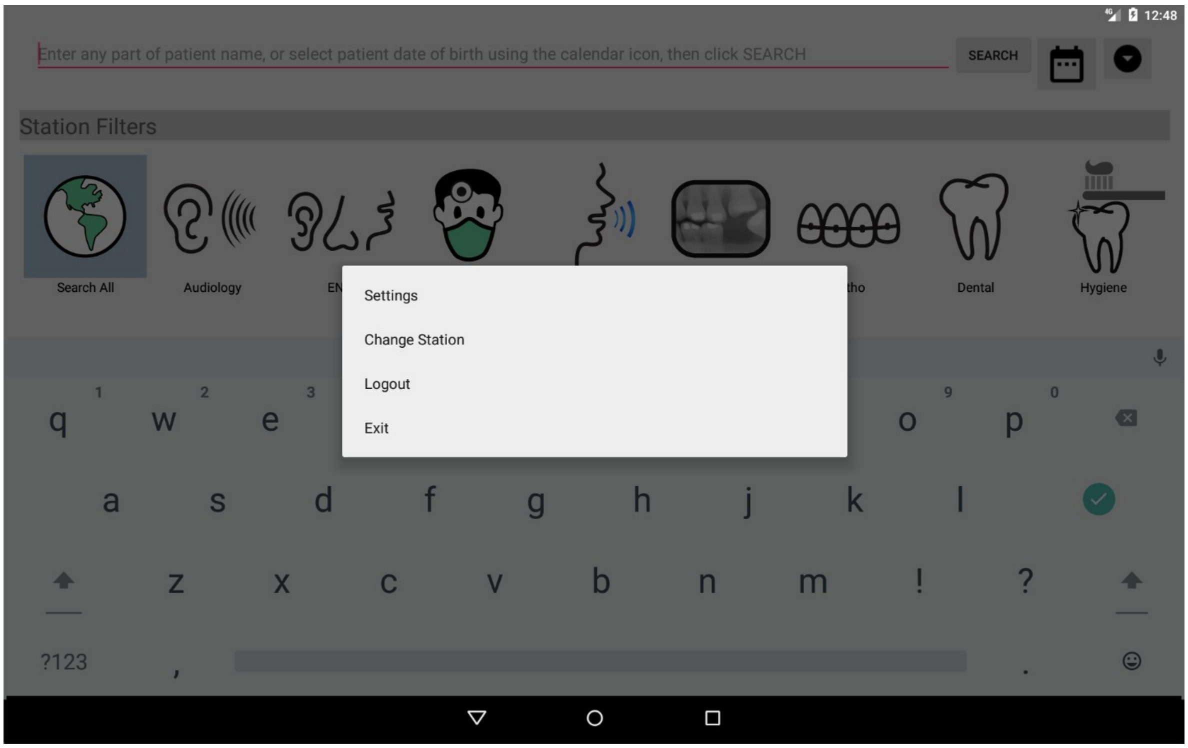


Figure 3.34 Patient Search Screen Option Menu

3.15 Logging Out

To log out (return to the login screen), press down on the options menu on the patient search screen, and select "Logout" from the menu that displays (Figure 3.34). The application will return to the login screen, allowing another user to login. This is advised whenever you are done for the day, or someone else is going to use your tablet. If someone else uses a tablet to which you are currently logged in, and viewing of chart data or changes made will be logged as though you were the one performing them, which is not desirable.

4. Dental Chart

TBD

5. ENT Chart

TBD

6. Audiology Chart

TBD

7. X-Ray Chart

TBD