

# Thousand Smiles Foundation

The screenshot shows a mobile application interface for managing patient records. On the left, there is a grid of six portrait photos of children. The top row contains three photos: a girl (pink background), a boy (white background labeled 'Test 1'), and another boy (blue background labeled '314 200Gomez, Angel'). The bottom row contains three more photos of boys. To the right of the grid is a detailed medical history form for a child named Roberto Gomez. The form includes sections for 'Pregnancy', 'Birth', and 'Growth Stages', each with various input fields and checkboxes. A 'Medical History' section on the far right lists 'Patient ID: 301', 'Paternal Last Name: Romero', 'Maternal Last Name: Gomez', 'First Name: Roberto', 'Gender: Male', and 'Date of Birth: 01/22/2009'. At the bottom right is a 'Check Out' button.

## *EMR Registration App User Manual*

**Version 1.2.2 – April 2021**

## Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
1.1 Purpose.....	1
1.2 Primary Intended Audience.....	1
1.3 Assumptions.....	1
<b>2. Organization and Quick Start.....</b>	<b>1</b>
2.1 Organization.....	1
2.2 Quick Start Instructions.....	2
2.3 How Long Does it Take to Register a Patient?.....	3
2.4 Patient Flow.....	3
2.5 Categorization of Patients.....	4
<b>3. Common Functions.....</b>	<b>4</b>
3.1 Selecting The Language.....	4
3.2 Starting the Application.....	4
3.3 Logging in.....	6
3.4 Changing the IP Address of the Server.....	6
3.5 Hiding the Keyboard.....	8
3.6 Exiting and Restarting the Application.....	8
<b>4. Patient Registration.....</b>	<b>10</b>
4.1 Registration Flow.....	10
4.2 Patient Search.....	12
4.2.1 Finding a Patient based on Date of Birth.....	13
4.2.2 Search for Patient by Name.....	17
4.3 Patient Characterization.....	20
4.4 Patient Demographics.....	23
4.4.1 Detecting Duplicate Patients.....	24
4.5 CURP Verification.....	26
4.5.1 CURP was Entered on the Demographics Form.....	27
4.5.2 CURP was NOT Entered on the Demographics Form (Unknown CURP).....	29
4.5.3 Notes.....	31
4.6 Medical History.....	32
4.6.1 Overview.....	32
4.6.2 Editing Current and Allergy Medications.....	32
4.6.3 Form Validation.....	35
4.7 Patient Headshots.....	37
4.7.1 Overview.....	37
4.7.2 Guidelines for the Headshot.....	37
4.7.3 Layout of the Headshot Screen.....	39
4.7.4 Camera Controls.....	40
4.8 Consent and Registration.....	42

## Revision History

Name	Date	Reason For Changes	Version
Syd Logan	1/11/2020	Initial	0.1
Syd Logan	1/15/2020	Write intro, overview of registration process, common functions. Write patient search section. Outline rest of document.	0.2
Syd Logan	1/16/2021	Version 1.0	1.0
Syd Logan	3/29/2021	Add illustration showing error message displayed when invalid search term is entered	1.1
Syd Logan	3/30/2021	Document detection and handling of duplicate patients.	1.2
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Syd Logan	4/19/2021	Add clarification to patient classification decision in section 4.3	1.2.2

## Source Code For This Document

This document was created using LibreOffice Version 6.4.1.2.

LibreOffice is free software and is available for download on the Internet.

The latest source for this document can be found at [https://github.com/slogan621/tscharts-register/blob/master/docs/src/registration\\_user\\_manual.odt](https://github.com/slogan621/tscharts-register/blob/master/docs/src/registration_user_manual.odt).

Please fork the above github repo and create a pull request for any changes or translations that you'd like to contribute (e.g., translation to the Spanish Language). The project will only accept documents that are created with LibreOffice (or saved in ODT format).

# 1. Introduction

## 1.1 Purpose

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

## 1.2 Primary Intended Audience

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

**Registration Volunteers:** These volunteers assist patients and their parents with the task of registration. At times, they may operate the tablet (example, taking headshot photo of the patient) and at other times, they may supervise depending on the situation.

**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 and Quick Start

## 2.1 Organization

The document is organized into three 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, Logging Out
- Exiting the application

Following this is a “quick start” section that introduces the basic steps needed to register a patient.

Finally, a detailed screen-by-screen explanation of the application is presented.

## 2.2 Quick Start Instructions

The registration process, based on a tablet, is designed to be performed in part by the patient with the assistance of a volunteer familiar with the registration application. The registration tablets are all set up to operate in the Spanish language. The following outlines the process of registration and suggests tasks that involve the patient or his/her parents.

The following steps are performed for each patient that is registered.

- Determine whether or not this is the first time the patient has visited the clinic.
  - Ask the patient or parent. Cleft patients < 1 year in age are likely to be new.

If the patient is a returning patient:

- Search for the patient in one of two ways, by patient name or by DOB. Either
  - Enter some portion of the patient's name provided.
    - Use 3 characters from the patient name. For example, for "Gomez", any of the following can be used. Note that case does not matter in this search:
      - gom
      - ome
      - mez

or

- Use the calendar control to enter the patient date of birth. This method will usually isolate the search results to only a few matches, and is preferred.
- The search results in a scrollable screen of headshots of patients that match the search terms. The search may take anywhere from 5 to 20 seconds to complete based on the number of matches found and the load of the network. There may be zero or more headshots that result from the search.
- Verify the search result by comparing headshot results and visually looking at the patient. Show the resulting headshot to the patient or parent so they can verify as well. Click on the headshot to get more detail about the patient.
- Click on the headshot in the search results, and confirm you would like to register the patient.
- Note, if the patient insists they are returning yet no search result was found, re-attempt the search after carefully verifying either the DOB or name was entered correctly. It is important that we try hard to find that patient via search to avoid duplicates in the database. However, if after 2 or 3 attempts, no search result is found, treat the patient as a new patient.

If the patient is a new patient:

- Click on the Register New Patient Button, and confirm that you would like to register a new patient

The remaining steps apply to both new and returning patients

- Fill out each screen in the order presented. Use the Next Button to continue with registration as each screen is completed.
  - For returning patients, the screens are pre-filled with data from the last clinic. This will greatly accelerate the process of registration. You will, however, be required to take a new headshot image and the patient will have to re-agree to the conditions and consent form.

- You should also have the patient read the content of each screen to verify the data has or not changed. Make corrections and updates as required..
- Whenever possible, allow the patient or parent to operate the tablet. Most are familiar with the use of mobile phones and tablets. Allowing them to enter the data often can result in better accuracy (a volunteer may mis-hear or mis-type in names, for example).
  - Note that validation is performed on each screen to verify required data is entered and is in valid ranges. Registration cannot occur unless all required data is entered and required ranges are validated. In some cases, data is optional or can be skipped as directed on the tablet.
  - Have the parent or patient read the conditions and consent agreement. The agreement is in Spanish, and must be agreed to in order to complete registration
    - Have the parent or patient click to accept the consent agreement and optionally the photo release checkboxes.
  - Click the Register button to register the patient.
  - The tablet will return to the search screen, ready for the next patient registration.

## 2.3 How Long Does it Take to Register a Patient?

Registration of a returning patient can be performed in less than a minute. In most cases, the medical history, and patient demographics will be identical to that already stored in the database for the patient, so all the patient needs to do is verify the content on many of the forms. If a CURP has not been recorded, lookup and validation may add a minute or two to the processes.

For new patients, expect anywhere from 5 to 10 minutes for the registration process to be completed, per patient.

Registration can be supplied with anywhere from 4 to 8 tablets to work with during the registration portion of the clinic. Therefore, patients can and should be registered concurrently to speed up the process. Identifying parents and patients comfortable with using a tablet and allowing them to self register can increase the throughput of the registration process significantly. Experience registering 80 or so dental patients shows that the entire process, when well-managed, can be completed in 2 to 3 hours.

## 2.4 Patient Flow

Before we continue, it helps to put registration in context by briefly going 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.

## 2.5 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 personnel. Categories include dental, surgery, hearing aids (patient is here to receive a hearing aid), and so on. The selection of a category will initialize a routing slip. This routing slip is a part of the chart and is valid only the day of the clinic. The initial routing slip for a dental patient might include X-Ray and Dental, or for a cleft patient, Surgery Screening and ENT. Thus, it is important at registration to be accurate as possible when identifying why the patient is here for a visit, and to correctly select the reason for the patient visit when prompted by the tablet. The process is described in more detail in Section 4.3 of this manual.

## 3. Common Functions

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

### 3.1 Selecting The Language

This application has been localized for both English and Spanish language speakers. The default language is Spanish, and should remain Spanish to allow patients to participate in verifying screen contents, or to self-register. From the desktop, click the Settings icon, then select the **Keyboard and Language** category, and finally, use **Language** to select the language. At this point, the entire tablet will display text in the selected language. For best results, restart the chart application after changing the language of the tablet.

### 3.2 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 of the tablet. 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 Registration application and its version. After a few seconds, you will be taken to the login screen.

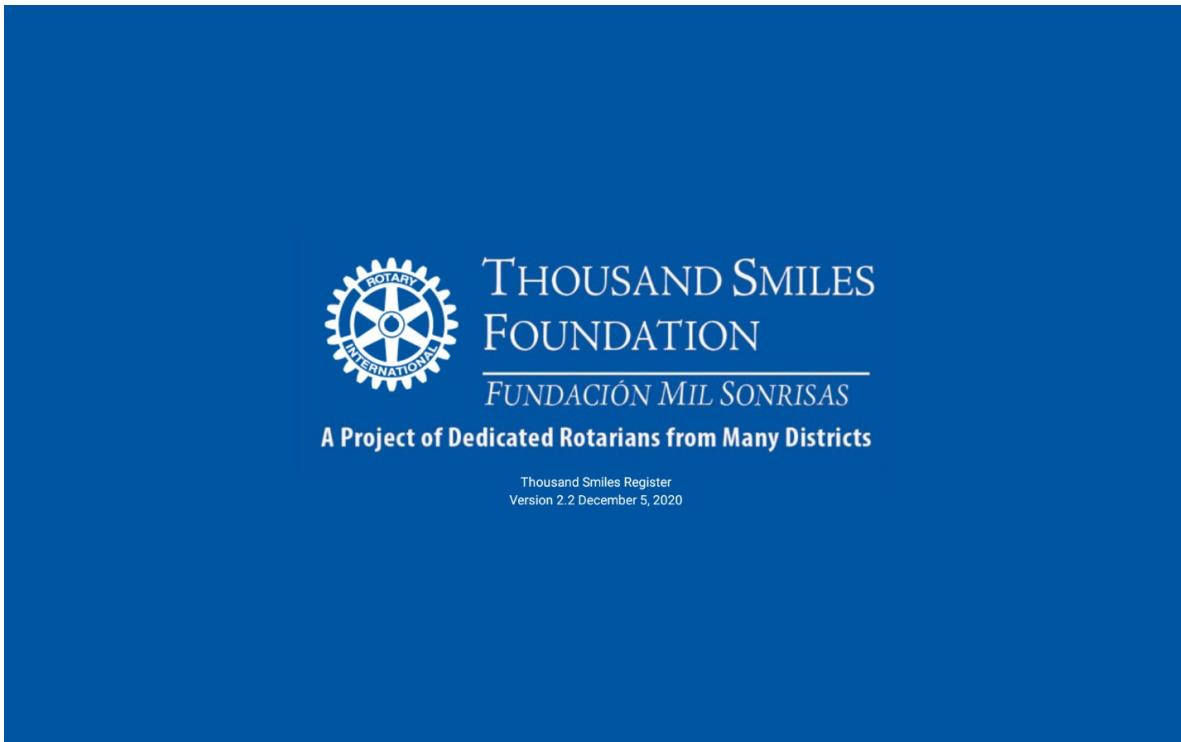


Figure 3.2 Splash Screen

### 3.3 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.

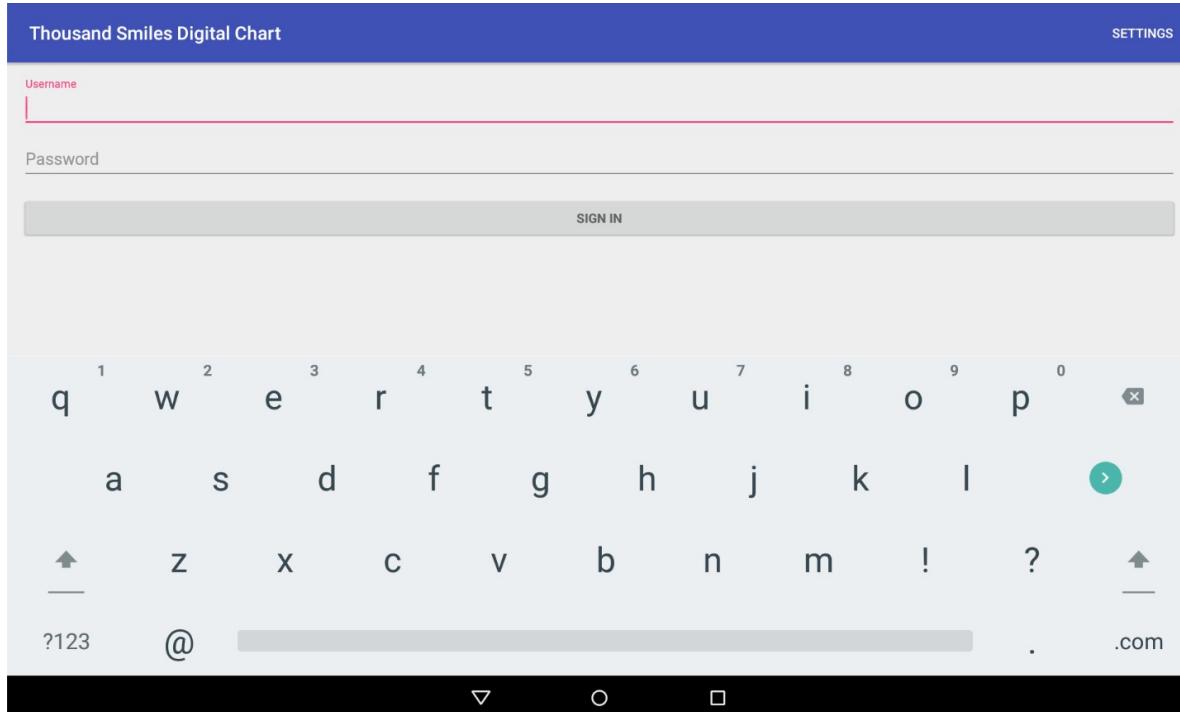


Figure 3.3 Login Screen

### 3.4 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.

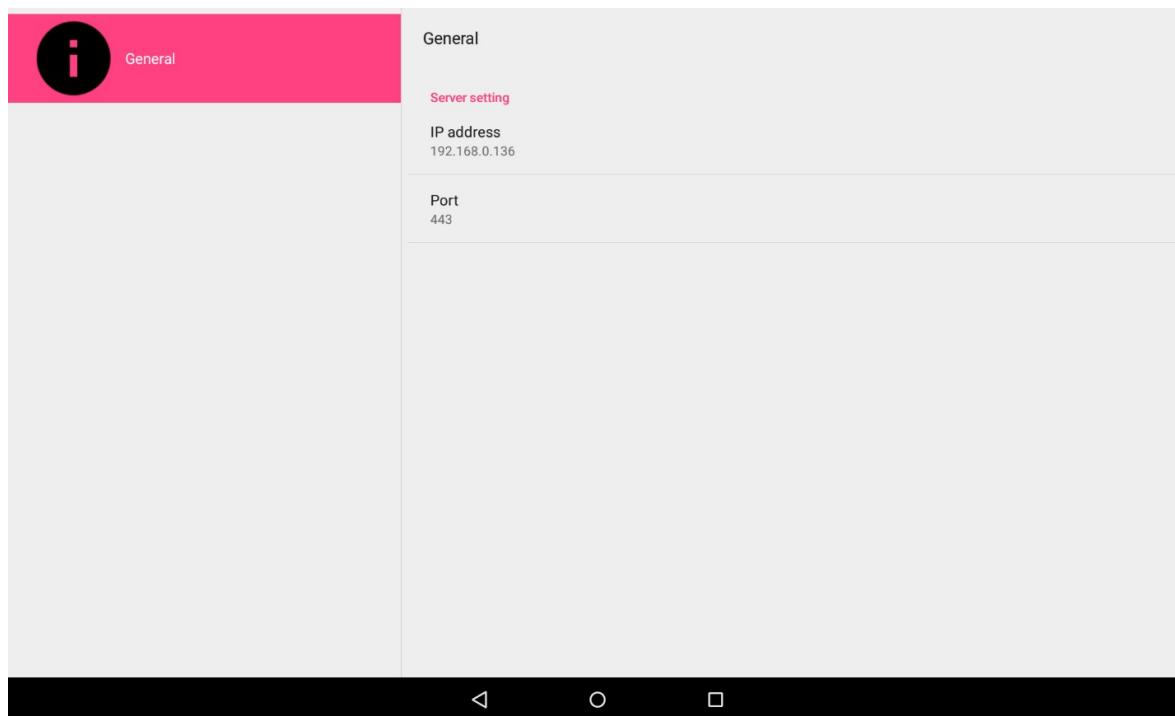


Figure 3.4 General Settings Dialog

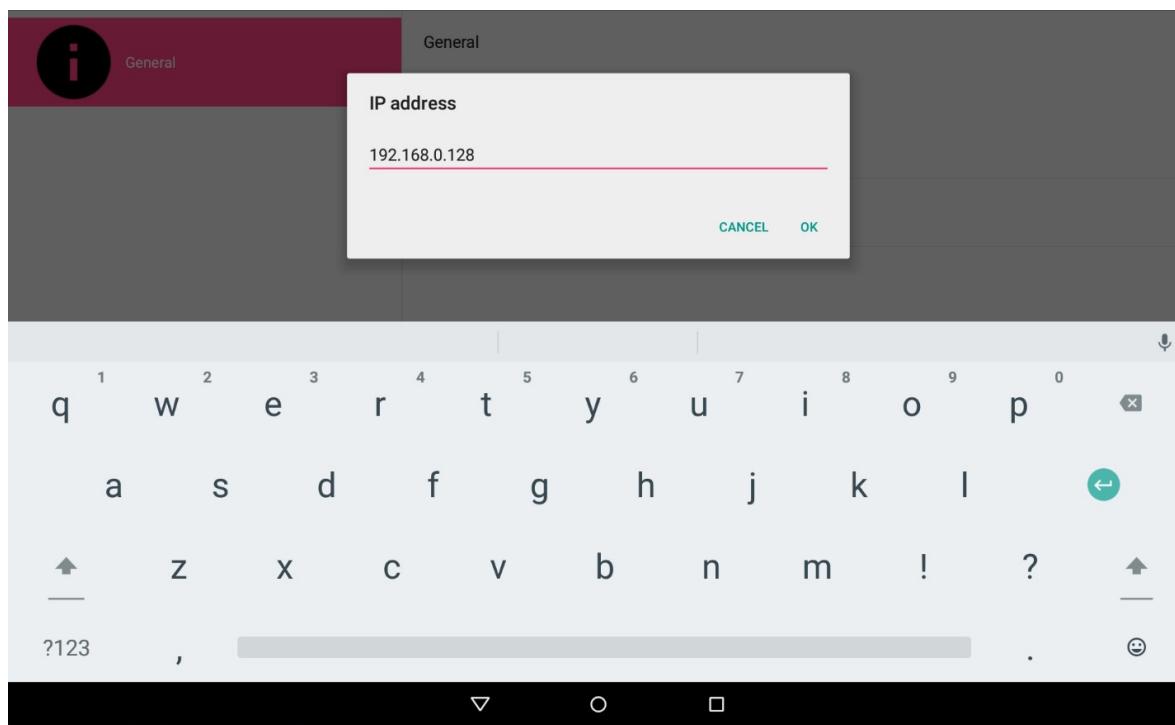


Figure 3.5 Changing the IP address of the server

### 3.5 Hiding the Keyboard

Often during the registration process the tablet will be used to enter data using a “soft” keyboard that appears on the screen as shown in Figure 3.6. This will occur when any text field is clicked on. When visible, this keyboard will cover up to  $\frac{1}{2}$  of the screen. You may find it necessary to hide this keyboard in order to access remaining fields on a screen, or to continue on to the next screen.

To hide the keyboard, use the down button (1) shown in Figure 3.6.

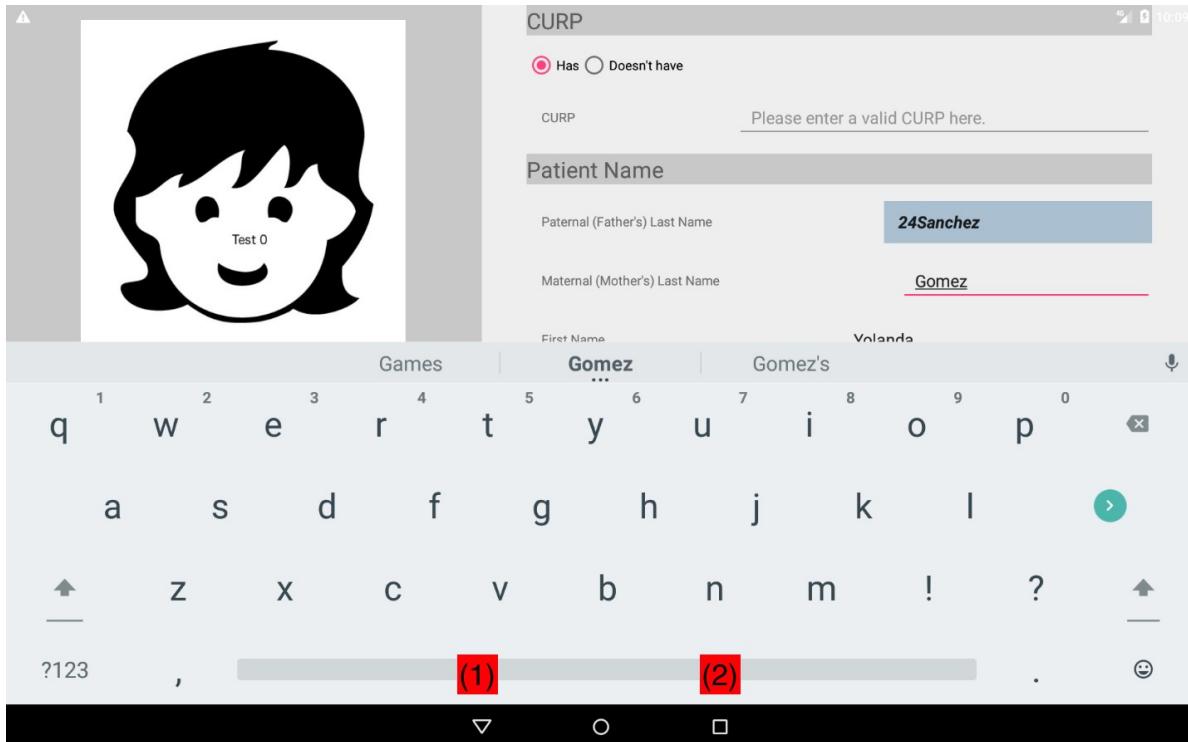


Figure 3.6 Soft keyboard and Location of Navigation Bar and Controls.

### 3.6 Exiting and Restarting the Application

You can exit 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 (2) in Figure 3.6.
- Swiping left or right as though you are trying to flick the application off the screen. See Figure 3.7

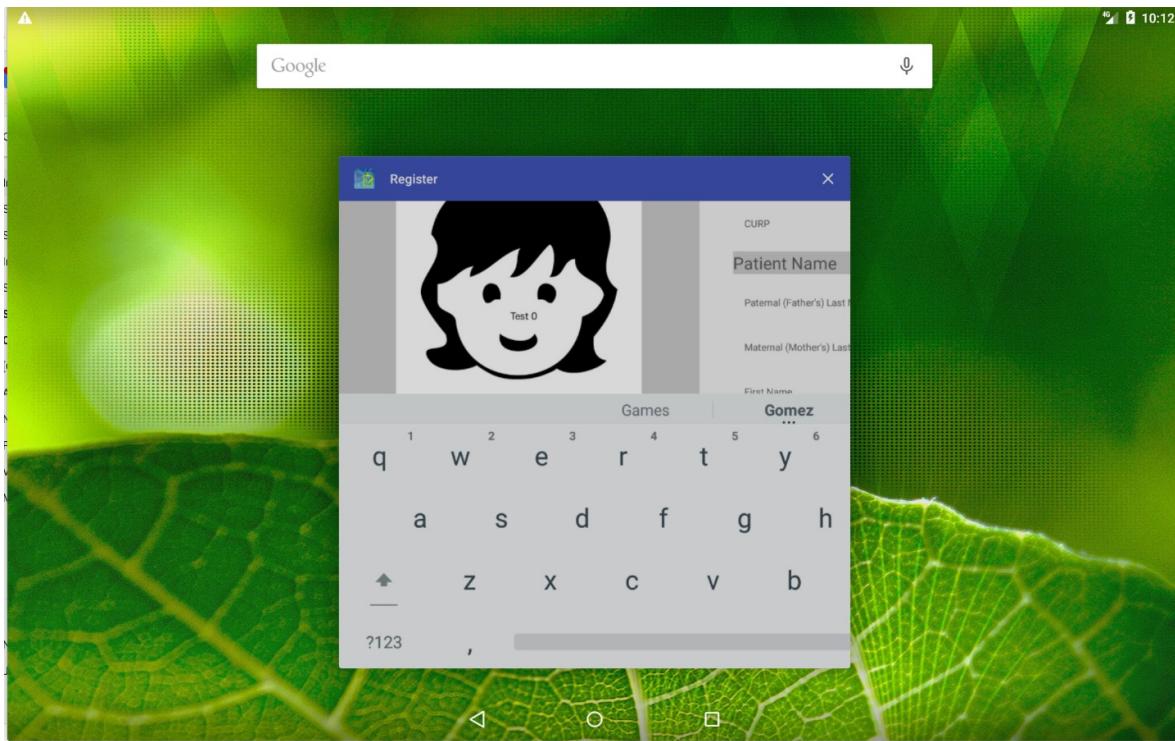
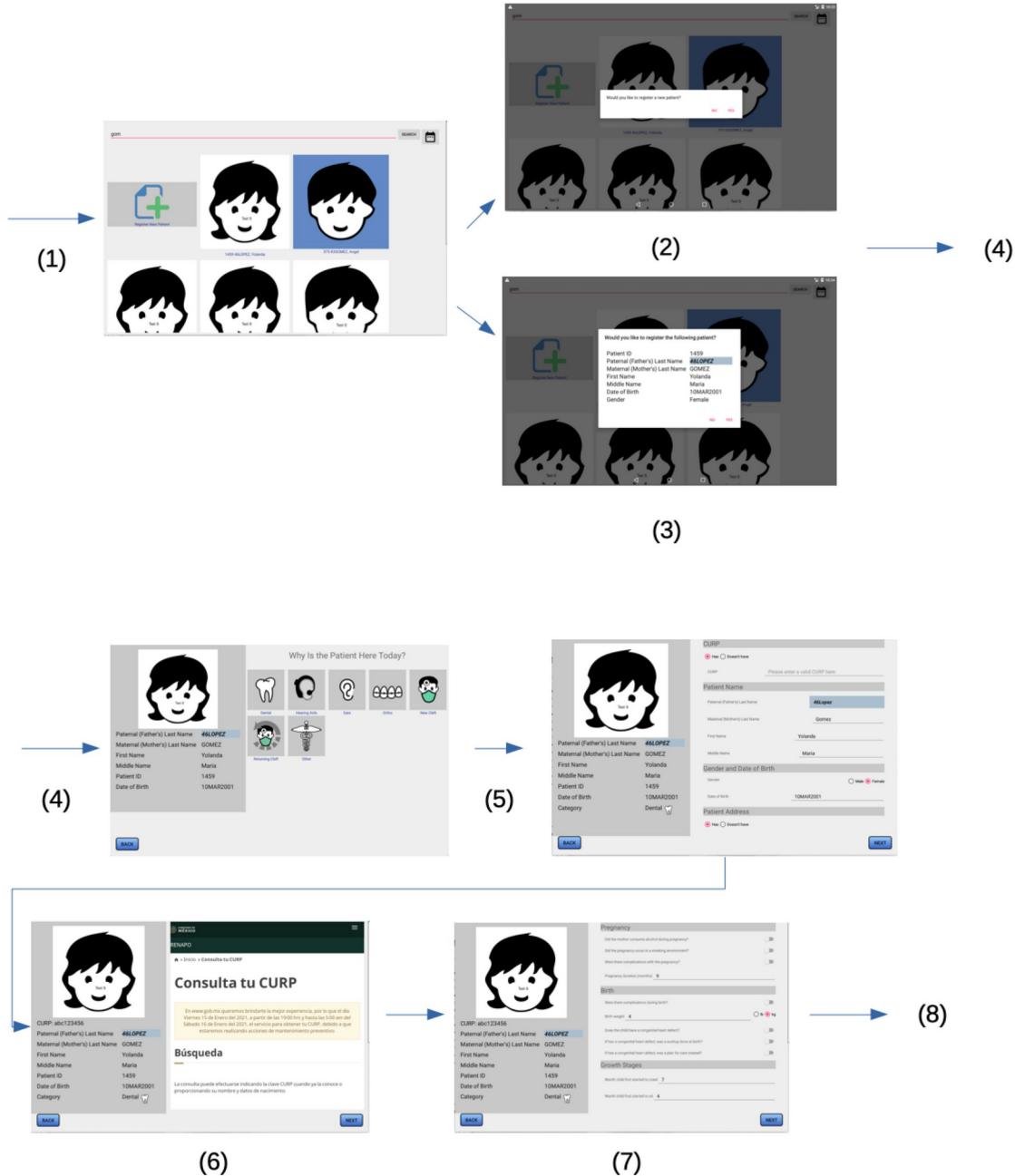


Figure 3.7 Swipe the minimized application left or right with your finger to exit.

## 4. Patient Registration

### 4.1 Registration Flow

The following depicts the order of screens presented in the registration process. Each screen will be described in detail in sections to follow.



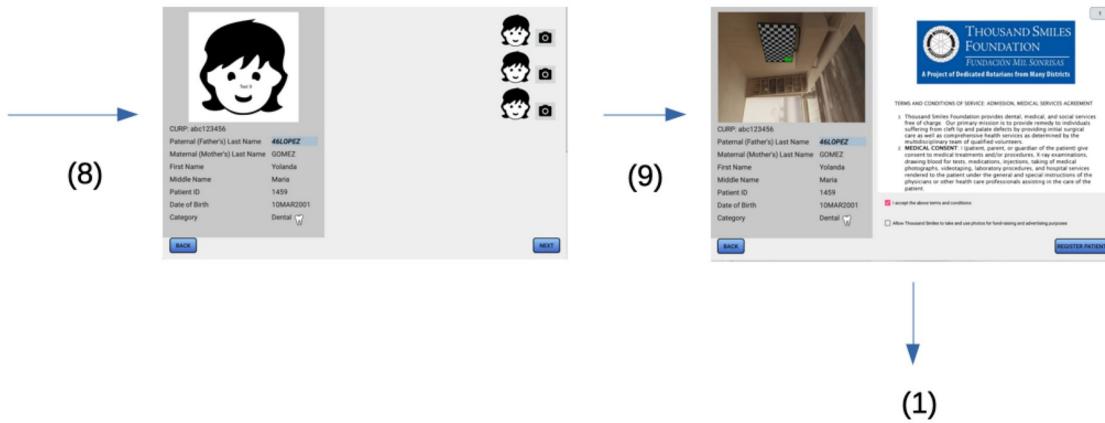


Figure 4.1 Registration Flow

The above depicts the following flow. Each screen of this flow will be described in subsequent sections. Notice that in most screens, a NEXT button is used to take you to the next screen in the flow. A BACK button can be used to return to the previous screen in the flow.

(1) *Patient Search.* Here, the patient is located in the database. Details are provided in Section 4.2.

(2) If the search is negative, and the Register New Button screen is clicked, this screen allows you to verify that you'd like to register a new patient. Start the registration process of the new patient by clicking "YES". Otherwise, click NO to return to the search results (1)

(3) If the search was positive, clicking on a headshot takes you to this screen, which you can use to verify the patient using details including patient's gender, full name, and date of birth. If the patient data shown matches, start the registration process of the returning patient by clicking "YES". Otherwise, click "NO" to return to the search results (1).

*Note: In both (2) and (3), clicking "NO" returns you to the search screen (1).*

(4) *Patient Characterization.* Here you decide why the patient is here and click the appropriate button. Selecting a category allows you to confirm then continue to (5). Details are provided in Section 4.3.

(5) *Patient Demographics.* This screen is used to enter address, phone, e-mail, parent names, emergency contact info. Be sure to carefully ask for and enter the patient CURP. Click NEXT to continue to (6). See Section 4.4 for details.

(6) *CURP search.* Use this screen to connect to the Mexican Govt. website to confirm the CURP entered in (5), or to search for the CURP if the patient was unable to provide it. Use the prompts to confirm the CURP and continue on to (7). See Section 4.5 for detailed explanation of locating and recording the CURP.

(7) *Medical History.* Here, data about the health of the patient, conditions of birth, and both current and allergy medications are entered. This screen allows for the easy search of the FDA drug database for selecting medications. Section 4.6 describes the medical history form in more detail.

(8) *Patient headshot.* Using the built-in camera of the tablet, take up to three (3) headshots, and select one of these to include in the database. Patient headshots and the operation of the built-in camera are detailed in Section 4.7.

(9) *Consent and registration.* The parent or patient reads the terms and conditions, and consents. If consent is obtained, the Register Patient button becomes enabled, clicking it registers the patient, and returns the tablet to the search screen (1) for processing the next patient. See Section 4.8 for details.

The remainder of this document describes each of these screens in detail.

## 4.2 Patient Search

Patient search is an extremely important first step in properly registering patients at the clinic. A failure to accurately find a patient that is already in the system may lead to duplicate records in the database for the patient. Duplicate records will lead to difficulties in locating chart data from previous clinics for the patient by others in the clinic. For this reason, this screen was carefully designed to aid in the accurate search and identification of patients in our database.

Figure 4.2.1 shows the layout of the search screen.

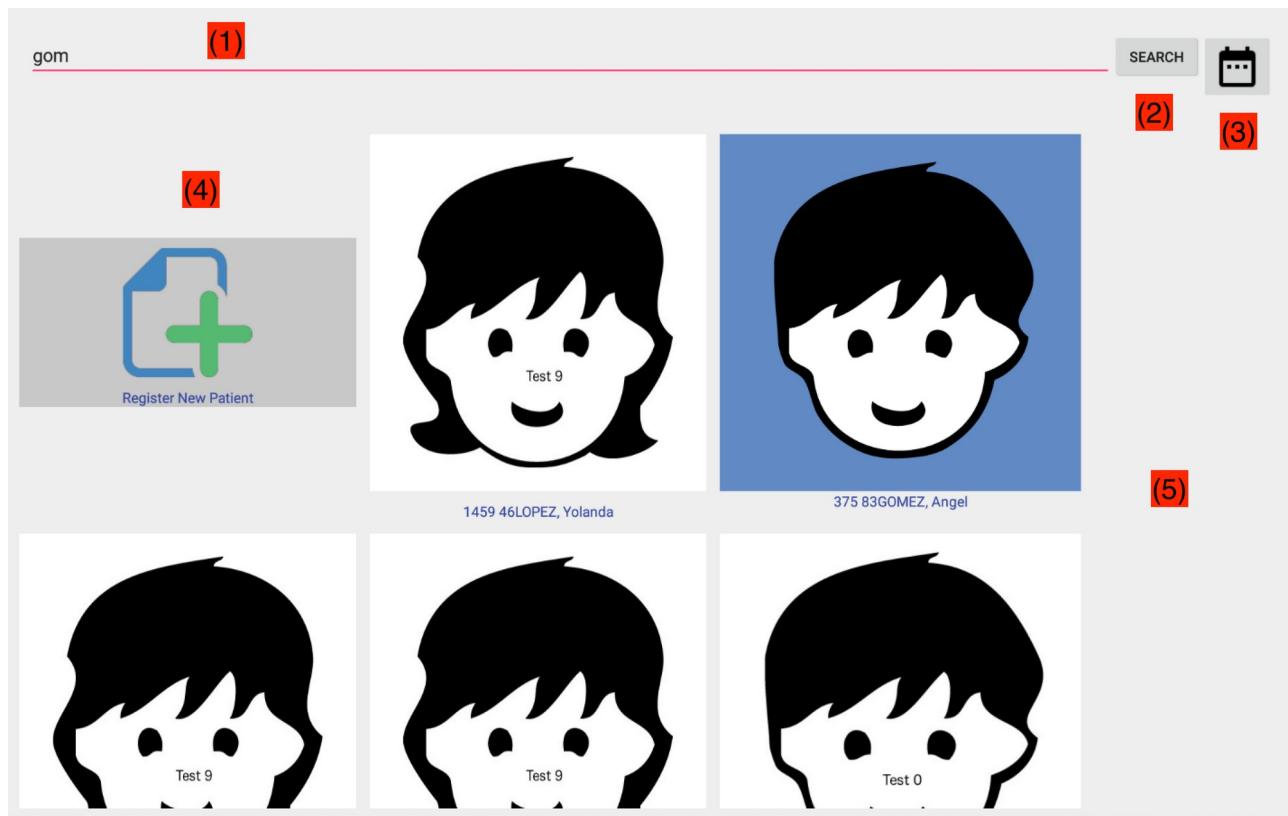


Figure 4.2.1 Search Screen

(1) is the search area. Click here to enter search terms. (2) is the search button, click to begin a search based on the search term. (3) is the date of birth calendar picker. Use this to select the date of

birth of the patient and to format it properly for search. (4) is the *Register New Patient* button. Click this to register a first time patient when the search results do not contain the patient being registered. (5) is the search results. Use this to identify the patient search results. Click on a headshot in this area to see details of the patient, and to register that patient if the patient being registered is a match.

**Important!** Either you will search for patients based on date of birth, *or* based on name, but never both. It is suggested that you first try to search based on date of birth, since that will most quickly lead to a match and the number of matches will be small, perhaps no more than 2 or 3 patients. If a search based on date of birth fails, then try to search based on name. If that fails, the patient is a new patient and should be registered using the Register New Patient button.

#### 4.2.1 Finding a Patient based on Date of Birth

Follow these steps to search by patient date of birth.

- 1) Click on the Calendar Icon (Figure 4.2.2 (1)), and use it to locate and select the patient DOB (Figure 4.2.3 – 4.2.4).
- 2) After dismissing the date selector, the DOB will display in the search field (Figure 4.2.5).
- 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. If no matches are found, no headshots will be displayed. 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 4.2.6.
- 5) Click on the matching photo to get more details and verify the patient and begin the registration process.
- 6) Repeat steps 1 – 5 until you are able to find the patient.



Figure 4.2.2 Location of the Calendar Icon

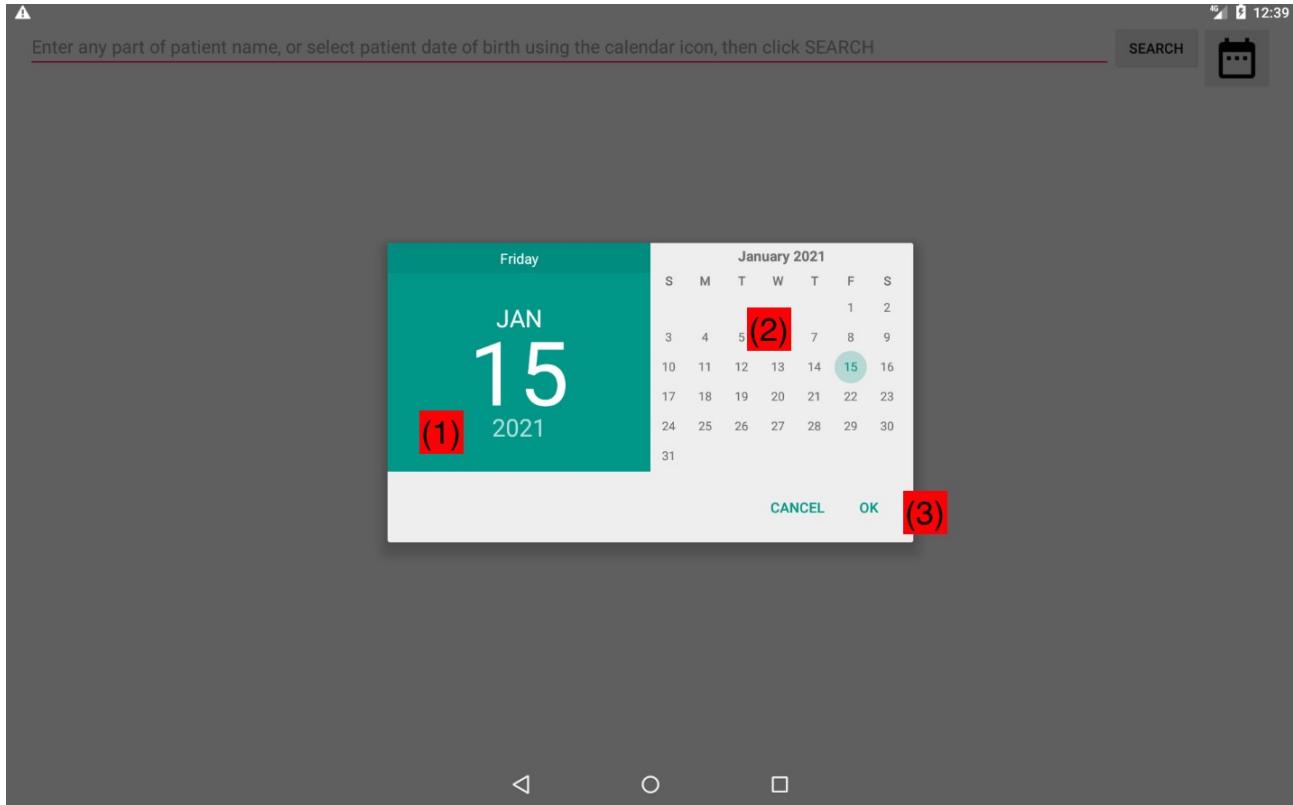


Figure 4.2.3 Date of Birth Selector

In Figure 4.2.3:

- Click on the year in area (1) to change the birth year. The control will change as shown in Figure 4.2.4. Scroll the years shown and select the correct year by touching it.
- Once the year is selected, area (2) can be scrolled with your finger to find the month of birth.
- Once the calendar for the month of birth is visible in area (2), click on the day of the month in area (2).
- Verify the date shown on area (1), repeat above steps if date is not correct.
- Click OK (3) to accept the patient date of birth.

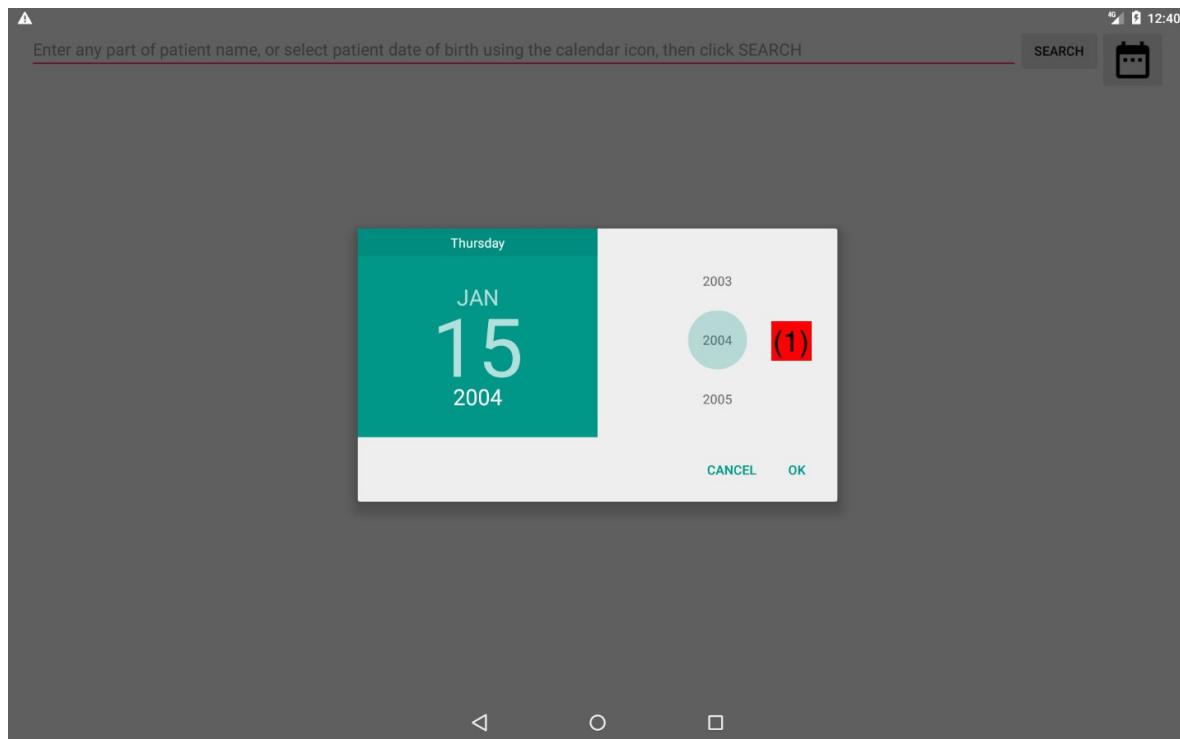


Figure 4.2.4 Select the year of birth in area (1)

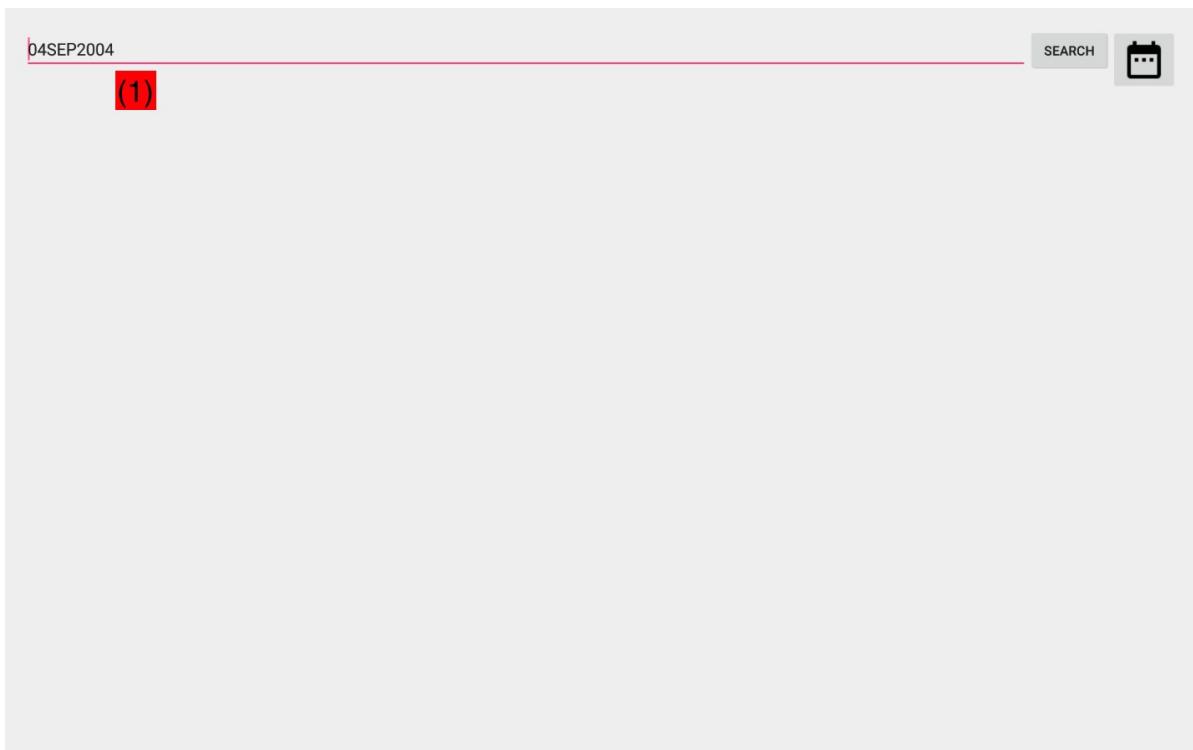


Figure 4.2.5 Search Field (1) set to patient date selected in calendar control

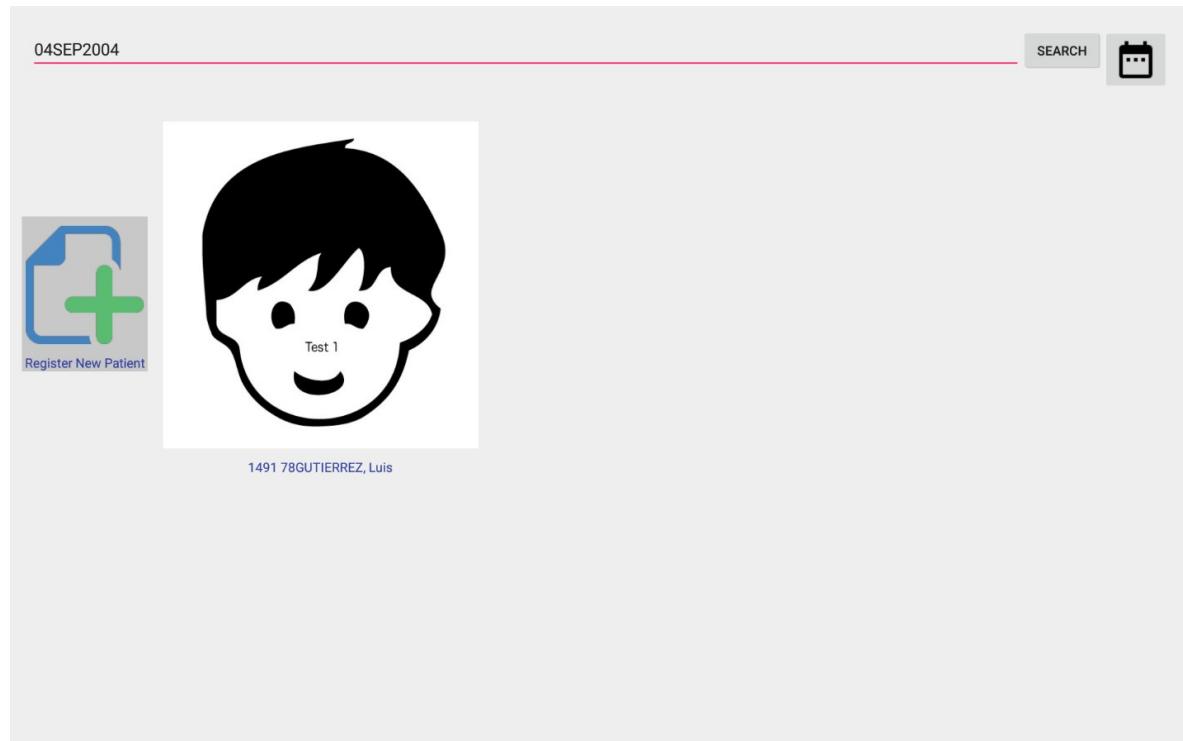


Figure 4.2.6 Returning patient that matches entered DOB

Once you have performed the search, click on the headshot to display additional information about the patient, and allow you to start the registration process. See Figure 4.2.7

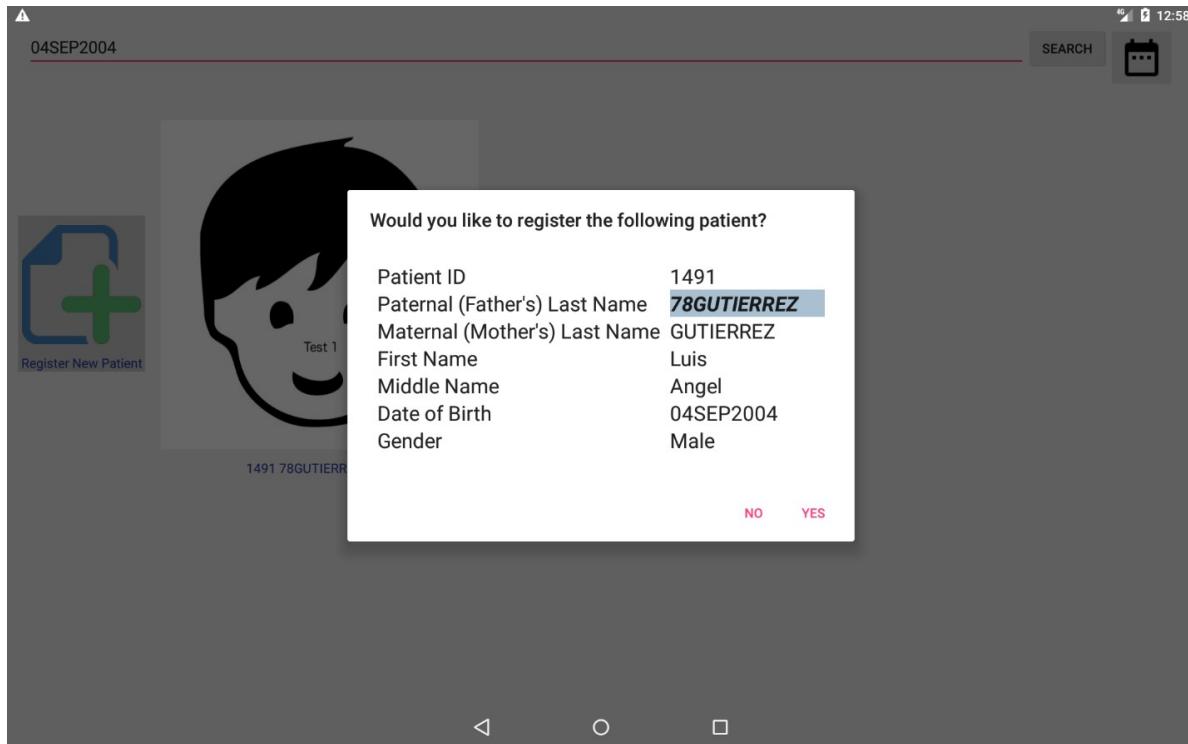


Figure 4.2.7 Verifying the Patient. Click YES to begin registration. Click NO to resume search.

Verifying the patient by clicking the YES button will begin registration, starting with the characterization of the patient as described in Section 4.3.

#### 4.2.2 Search for Patient by Name

The following shows steps that can be used to find a patient based on matching part of the patient name. Here, we try and find a patient with the father's last name is "Gomez".

- 1) Enter "gom" into the search field. See Figure 4.2.8. Note that the search is case-insensitive. Enter no more than 5 characters, and no whitespaces.
- 2) Hit the Search button.
- 3) Using your finger, scroll through the headshots looking for a match based on the photo, or name of the patient. See Figure 4.2.9. This list will include patients that matched "gom" in first, middle, mother's last, or father's last name. Only the father's last name and first name are shown in the headshot list.
- 4) Click on the matching photo (Figure 4.2.10) to get more details. If the patient matches, click YES to begin registration.
- 5) If the patient does not match, click NO in Figure 4.2.10. Repeat steps 1 – 4 until you are able to find the patient.

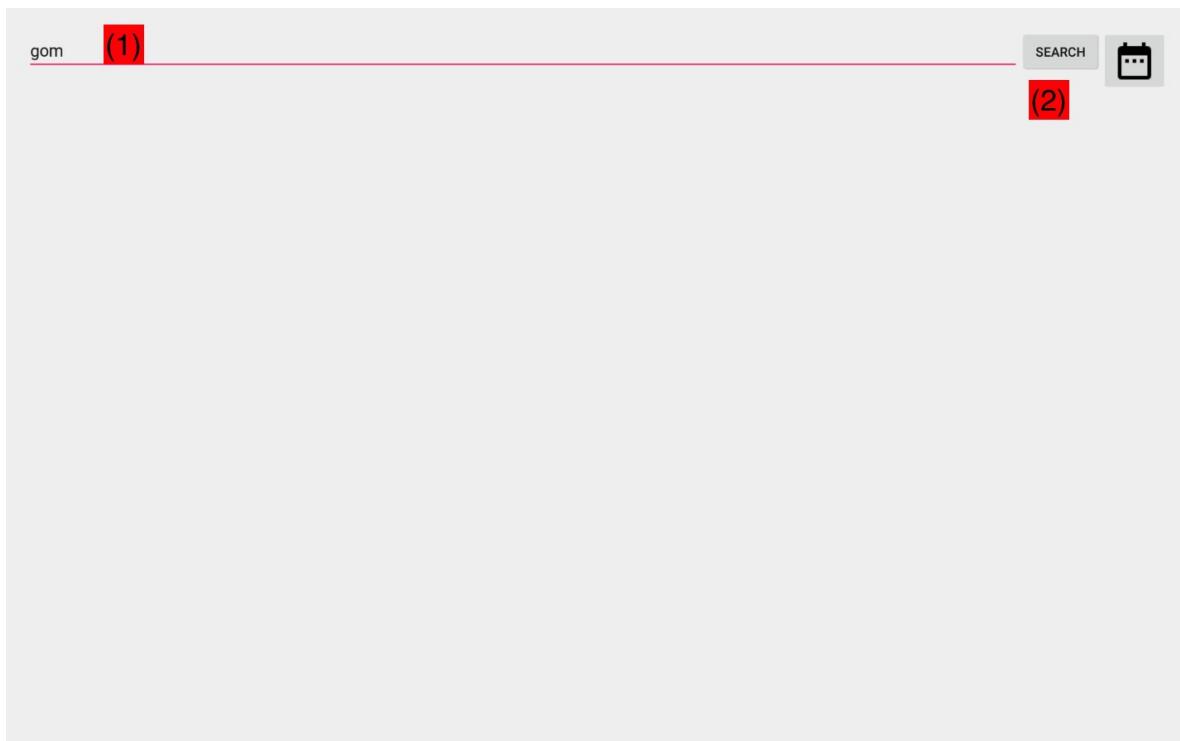


Figure 4.2.8 Entering Search Term “gom” (1). Click (2) to search.

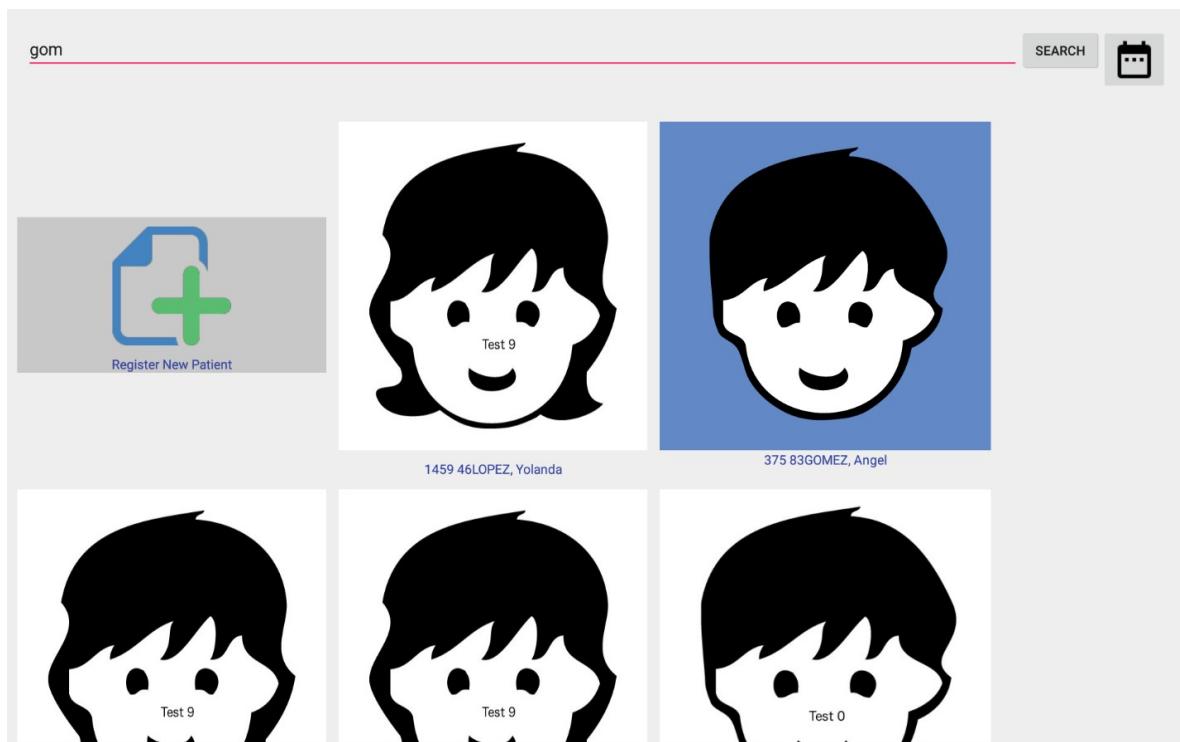


Figure 4.2.9 Search Results

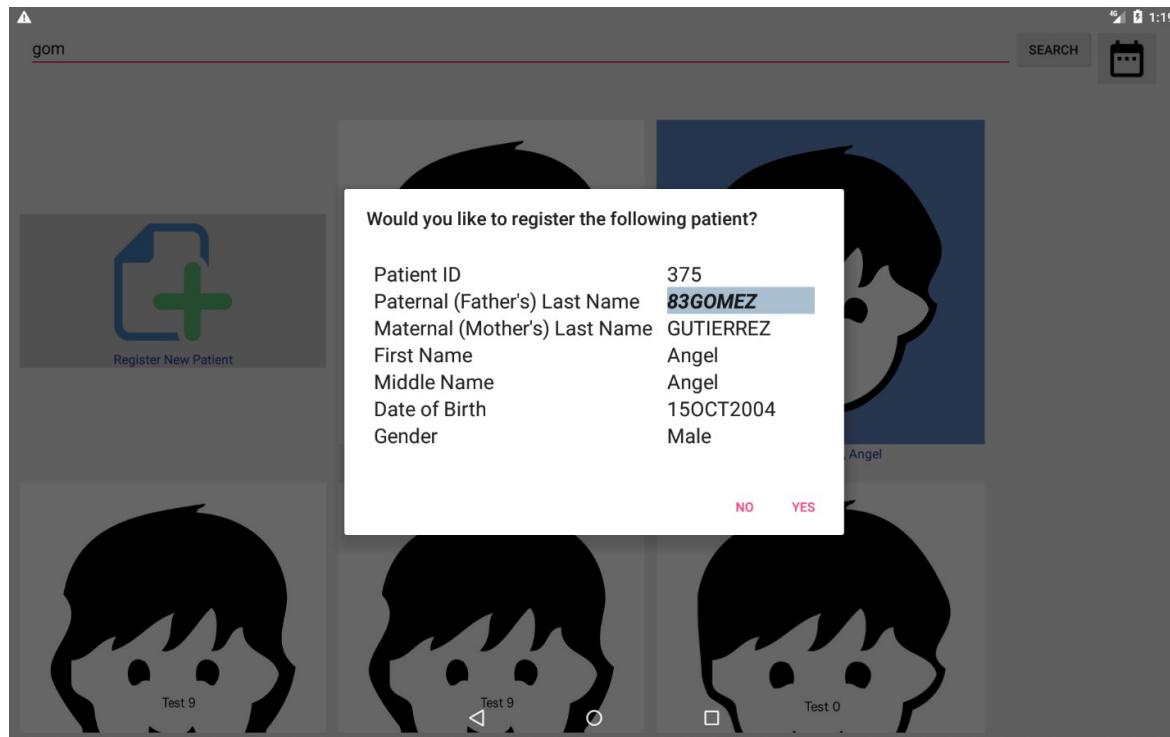


Figure 4.2.10 Clicking on headshot leads to details and option to begin registration.

By clicking on YES, you will begin the registration process for the patient by characterizing the patient, as described in Section 4.3.

If you enter a search term that contains whitespace characters, or more than 3 or 4 characters, you will see the following error message dialog. Dismiss the dialog, and try again.

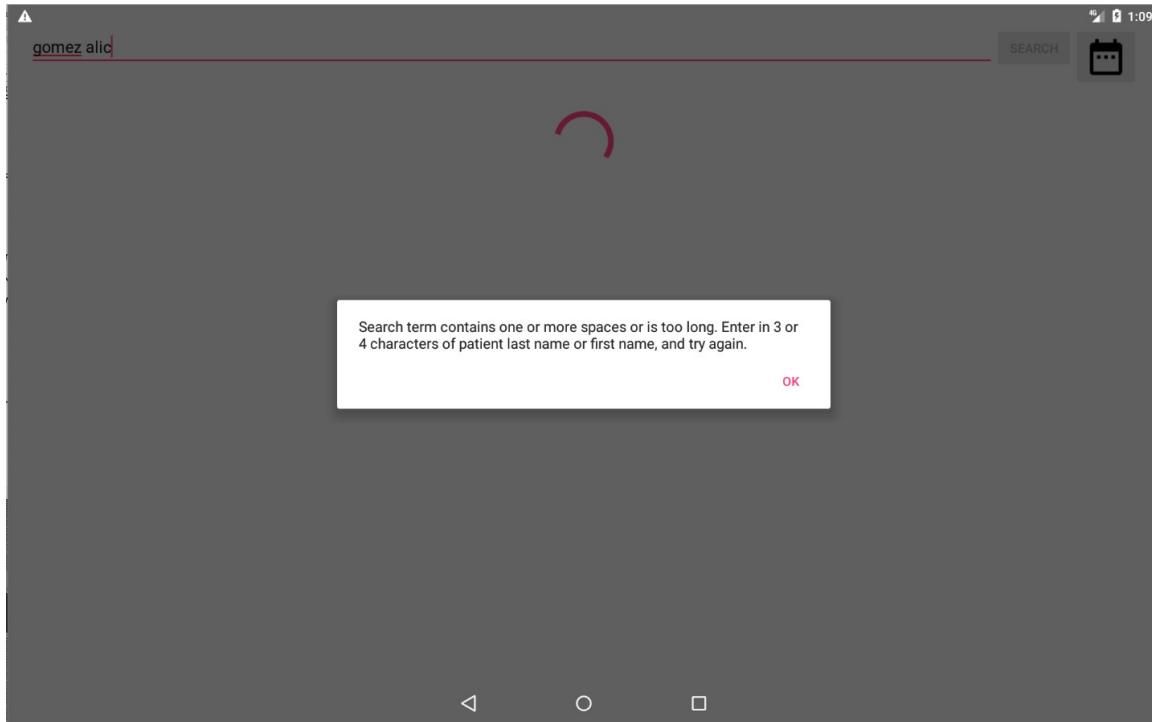


Figure 2.4.11 Search string is too long or has whitespace characters dialog.

### 4.3 Patient Characterization

Patient characterization defines the routing slip for the patient. The routing slip consists of a number of stations that can be visited by the patient, including:

- Speech
- Dental
- Hygiene
- X-Rays
- ENT
- Audiology
- Surgery Screening
- Orthodontics

Runners indirectly use the routing slip to find patients to take to the above stations. When they search for a patient, they not only search based on name or date of birth, but also by the content of the routing slip.

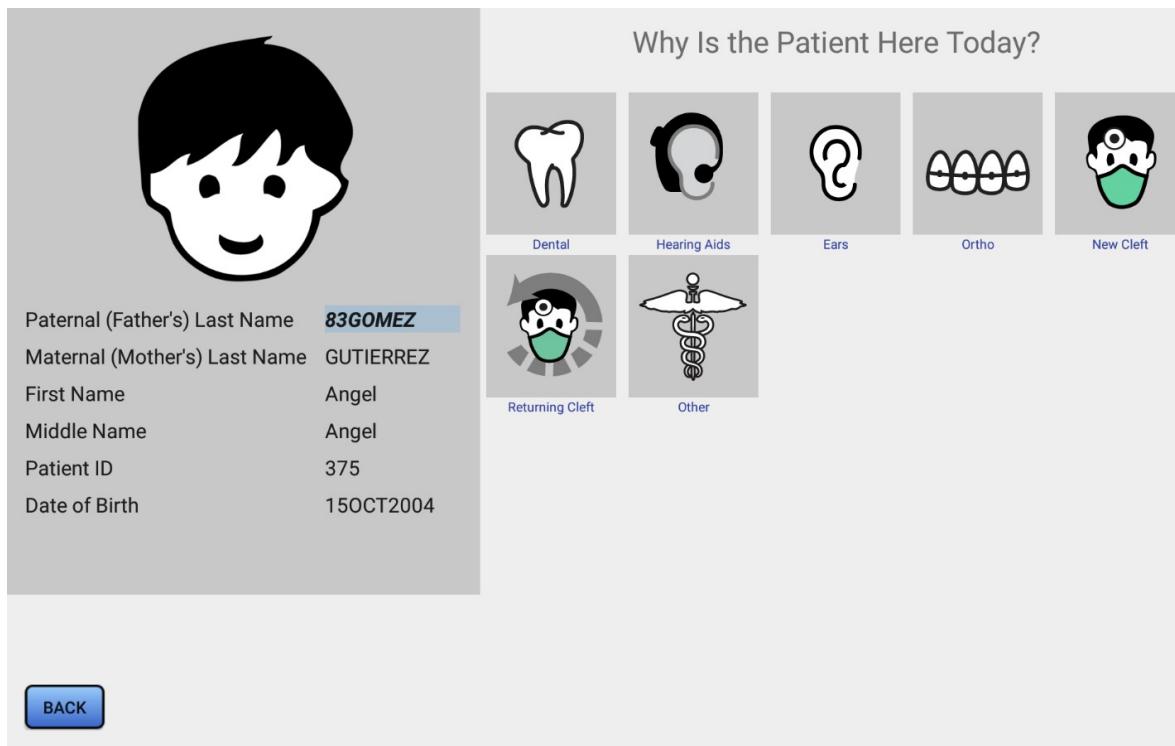


Figure 4.3.1 Patient Characterization Screen (Reason for Visit).

Figure 4.3.1 shows the patient characterization screen which is used at registration to select the reason the patient is here today. You can determine the purpose of the patient visit by asking the patient. Often, patients are organized into lines at the registration area based on their reason for visit. You must still ask the patient or parent of the patient why they are here, to ensure that they are in fact in the line that they are supposed to be in. This will ensure the characterization of the patient is accurate.

Using the screen is easy. Just click on the icon representing the reason for their visit. A dialog will display confirming your choice. Confirming this dialog will take you to the Patient Demographics form, which is described in Section 4.4.

The following table lists the possible categories. The routing slip entries will be added automatically by the system when the patient is registered, there is no need for registration helpers to edit the routing slip.

Category	Description	Routing Slip Entry
Dental	Patient is here to see a dentist, or for X-rays. Patients coming from orphanages are typically Dental	Dentist, X-Rays. Runners may remove X-Rays if the patient has had them in past year. Hygiene may be added to routing slip by Dentists.
Hearing Aids	Patient is here because in a previous visit, hearing aids were prescribed, and they are now ready to be dispensed.	Audiology
Ears	Patient is having problems hearing.	Audiology
Ortho	Orthodontics – Braces. Patient is only here to see ortho. If the patient is here to see multiple stations including ortho, select Returning Cleft.	Orthodontics
New Cleft	Cleft surgery candidate – first visit. Typically an infant < 1 year of age.	Surgery Screening and ENT. These stations will assess the patient and may add others stations to the routing slip.
Returning Cleft	Cleft patient that is returning for additional procedures, surgery, or evaluation.	Surgery Screening and ENT. These stations may add others to the routing slip.
Other	None of the above or unknown. Will be routed to Surgery Screening and ENT to determine purpose of visit.	Surgery Screening and ENT. These stations may add others to the routing slip.

Table 4.3.1 Patient Categories

Broadly speaking, we see two types of patient – *Dental* and *Cleft*.

- *Dental*: Categorizing a patient as *Dental* is straightforward, ask the patient if they are here for their teeth, or to see a dentist, and select *Dental* if so. X-Ray will automatically be added to the routing slip.
- *Cleft*: Most non-dental patients should be categorized as *Cleft* if here for a first visit and patient is less than 1 year of age, or *Returning Cleft* for all other cases.

The above two categories will make up the bulk of the patients. However, there are a few exceptions:

- *Ortho*: These patients are here to see only Orthodontics. They are typically patients who had cleft work done at an early age, are older, and only have to see an orthodontist. Select *Ortho* for these patients. If a patient is here to see other stations besides Orthodontics, select *Returning Cleft* and ENT or Surgery Screening will add Ortho to the routing slip.
- *Ears*: These are non-cleft patients with hearing issues who were referred to the clinic. They will be routed directly to Audiology.

- **Hearing Aids:** These are patients who have been notified that their hearing aids are ready for pickup. They will be routed directly to Audiology

Note: If you are not sure how to categorize the patient, and are sure the patient is not *Dental*, choose *Returning Cleft*. ENT or Surgery Screening will then make a determination and modify the routing slip appropriately.

## 4.4 Patient Demographics

Once the patient has been characterized (Section 4.3), the tablet will display the demographics form. This form is used to enter:

- CURP – this is a unique number assigned to citizens in Mexico.
- Patient Name
- Patient Gender and Date of Birth
- Patient Address
- Patient Contact Information – phone numbers, e-mail address.
- Emergency Contact Information

Figure 4.4.1 illustrates this form.

 <span>(1)</span>	
Paternal (Father's) Last Name <b>83GOMEZ</b> Maternal (Mother's) Last Name <b>GUTIERREZ</b> First Name <b>Angel</b> Middle Name <b>Angel</b> Patient ID <b>375</b> Date of Birth <b>15OCT2004</b> Category <b>Dental</b> 	
<b>CURP</b> <input checked="" type="radio"/> Has <input type="radio"/> Doesn't have <span>(3)</span> CURP <span>Please enter a valid CURP here.</span> <b>Patient Name</b> Paternal (Father's) Last Name <b>83Gomez</b> Maternal (Mother's) Last Name <b>Gutierrez</b> First Name <b>Angel</b> Middle Name <b>Angel</b> <b>Gender and Date of Birth</b> Gender <input checked="" type="radio"/> Male <input type="radio"/> Female Date of Birth <b>15OCT2004</b> <b>Patient Address</b> <input checked="" type="radio"/> Has <input type="radio"/> Doesn't have <span>(4)</span> <span>(5)</span> BACK NEXT	

Figure 4.4.1 Demographics Form

In Figure 4.4.1, (1) indicates known information about the patient, and headshot. (2) is a scrollable area that contains the form. Use your index finger to scroll up and down to complete the form. (3) is the CURP form. It is important to make every effort to accurately record the CURP. Verification of

CURP occurs after this form is filled in, as described in Section 4.5. Some portions of this form allow you to opt out if the patient or parent cannot provide the required data (4). Click “Doesn’t have” radio button to opt out. (5) is the NEXT button. Click on this button when you are done with the form. Verification of the required fields is performed and errors will be displayed indicating any corrections that are required. See Figure 4.4.2 for an example screen showing fields which are in error and in need of correction.

Clicking on the Date Of Birth field will display a calendar picker. Use that to enter the patient date of birth. Figures 4.2.3 and 4.2.4 illustrate and describe the use of the calendar picker control.

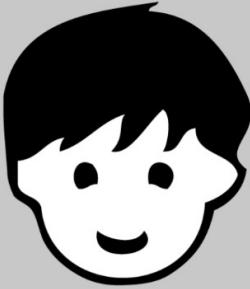
	
Paternal (Father's) Last Name	<b>83GOMEZ</b>
Maternal (Mother's) Last Name	GUTIERREZ
First Name	Angel
Middle Name	Angel
Patient ID	375
Date of Birth	15OCT2004
Category	Dental 
<input checked="" type="radio"/> Has <input type="radio"/> Doesn't have	
CURP	
Please enter a valid CURP here.	
Patient Name	
Paternal (Father's) Last Name <b>Gutierrez</b>  <small>This field is required</small>	
Maternal (Mother's) Last Name <small>Angel</small>	
First Name <small>Angel</small>	
Middle Name <small>Angel</small>	
Gender and Date of Birth	
Gender <input checked="" type="radio"/> Male <input type="radio"/> Female	
Date of Birth <small>15OCT2004</small>	
Patient Address	
<input checked="" type="radio"/> Has <input type="radio"/> Doesn't have	
<input type="button" value="BACK"/> <input style="float: right; border: 1px solid black; border-radius: 5px; padding: 2px 10px; background-color: #0070C0; color: white; font-weight: bold; cursor: pointer;" type="button" value="NEXT"/>	

Figure 4.4.2 Validation failures. Click on the red “!” icon(s) for an explanation of each error.

#### 4.4.1 Detecting Duplicate Patients

It is important that we eliminate duplicate records in the database. Failing to find a returning patient at search time and creating a new patient will result in losing data about the returning patient which was gathered at earlier clinics, possibly leading to errors in the care of the patient. It is imperative that the search be performed with accurate data, based on verifiable patient date of birth, and if that fails to find the patient, a correct search string. Be sure that the headshot selected after search matches the patient. It is also important to be extra careful when entering in patient name and date of birth information in the demographics screen described above.

However, to further help with this potential problem, when the Next button (see Figure 4.4.2) is pressed for new patients only, the tablet will search the database for a match of patient based on the father and mother’s last name, patient first name, and date of birth. If a match is made, the following dialog will displayed.

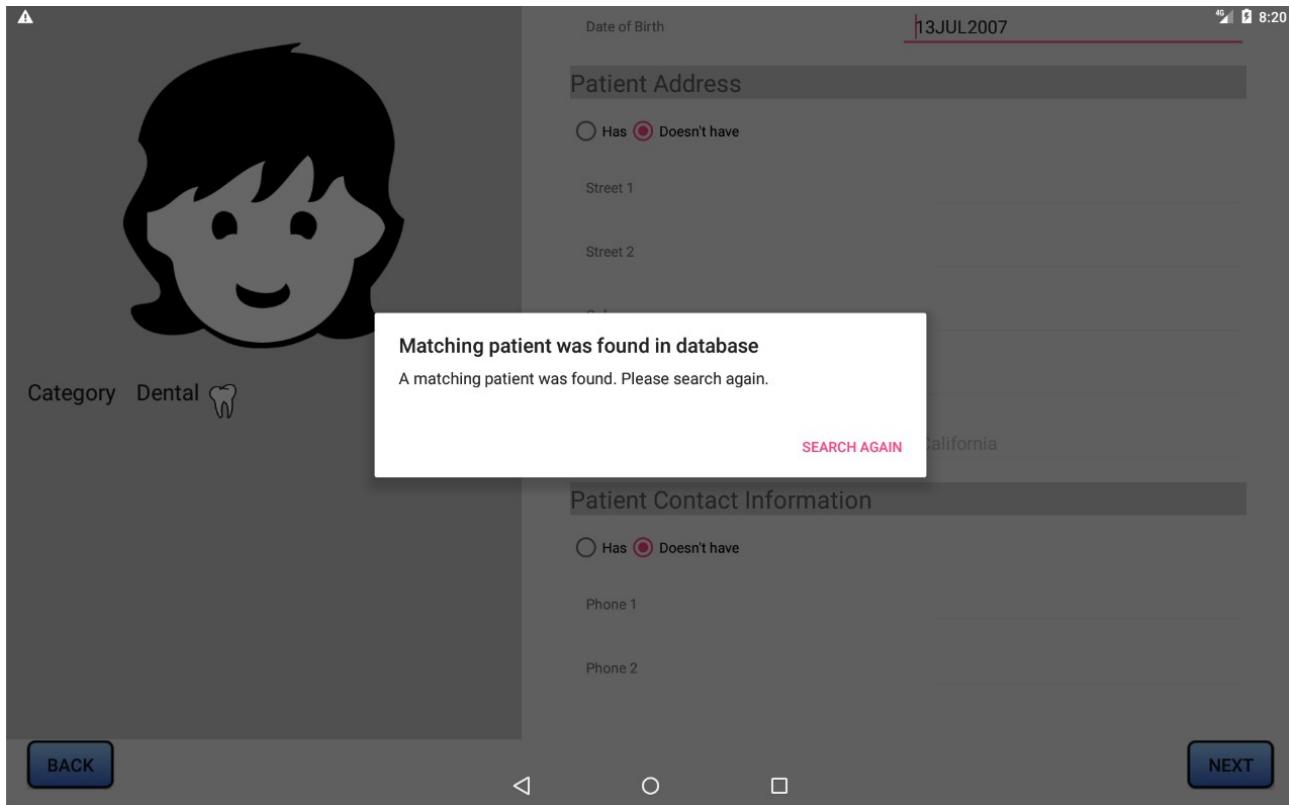


Figure 4.4.3 A duplicate patient was found in the database.

Should you see this dialog, click on “SEARCH AGAIN” and re-conduct a patient search, and register that patient instead of creating a new patient.

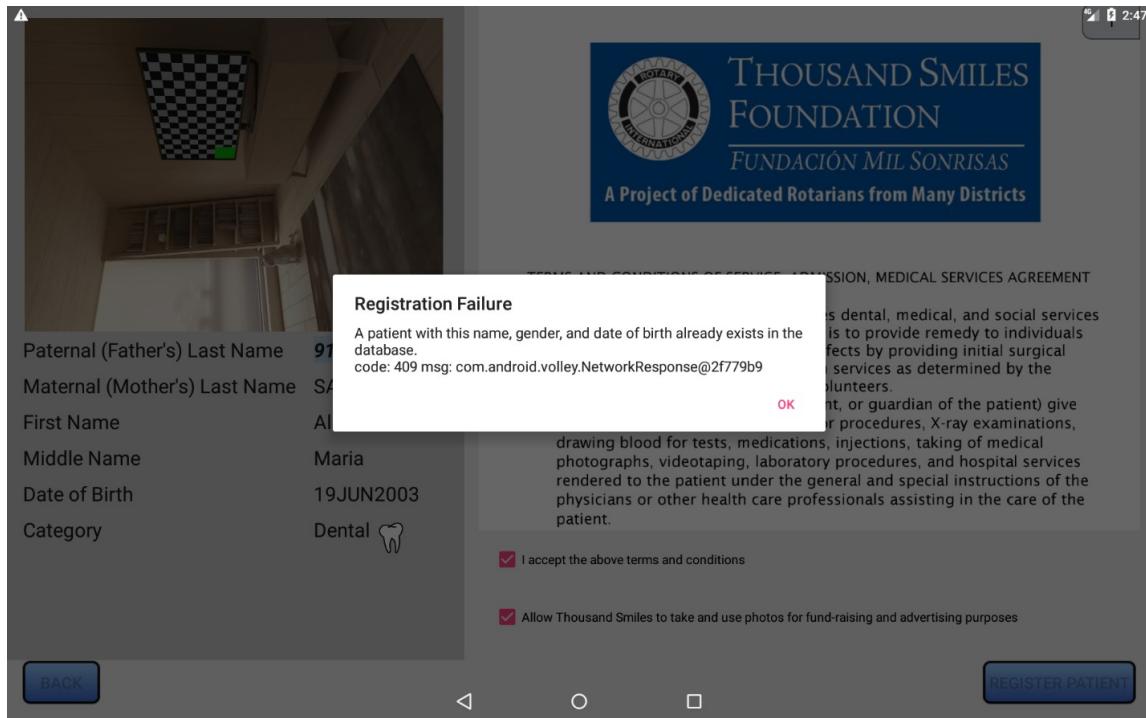


Figure 4.4.4. Attempting To Register a Duplicate Patient will lead to failure.

Should you somehow get to the point where a new patient added is detected as a duplicate, you will see the dialog in Figure 4.4.4. Dismissing the dialog in Figure 4.4.4 will take you back to patient search so you can start the registration process over for this patient.

## 4.5 CURP Verification

Verification (or lookup) of CURP occurs after the demographics have been entered (Section 4.4).

There are three possibilities at this stage of registration:

1. If CURP was entered during demographics entry, you will be taken to a web page where the CURP is pre-filled and you can issue a search to verify the number and see that it matches the patient being registered.
2. If CURP was not entered during demographics entry, you will be taken to a different web page where you can search for the CURP. This page will be pre-filled with the name and other patient data taken from the demographics previously entered.
3. If the Internet is down (the EMR runs on its own network, so except for this feature, access to the Internet is not required), or the website is down, then neither page will display and there may be an error message displayed to indicate failure.

The following sections describe each possible outcome and what to do.

#### 4.5.1 CURP was Entered on the Demographics Form

If CURP was entered on the demographics form, you will be taken to a page where the CURP entered is pre-filled on a form that you can use to search. See Figure 4.5.1

CURP: 1234567890abcdefg

Paternal (Father's) Last Name **GOMEZ**

Maternal (Mother's) Last Name **GUTIERREZ**

First Name Angel

Middle Name Angel

Patient ID 375

Date of Birth 15OCT2004

Category Dental

GOBIERNO DE MÉXICO

RENAPo

proporcionando su nombre y datos de nacimiento.

Clave Única de Registro de Población Datos Personales

Clave Única de Registro de Población (CURP)\*:

1234567890abcdefg (1)

[¿No conoces tu CURP?](#)

(2)  I'm not a robot Privacy - Terms

\* Campos obligatorios (3) Buscar

BACK NEXT

Figure 4.5.1 CURP Search Form

In Figure 4.5.1, (1) is the CURP that was entered. You cannot modify this value. Click (2) to verify that you are not a robot. You may be asked a series of image recognition questions. Finally, click on the button labeled “Buscar” to perform the search.

If the CURP is invalid, you will see a screen indicating the failure like this (Figure 4.5.2):

The screenshot shows a mobile application interface for the RENAPO demographic form. On the left, there is a placeholder image of a smiling child's face. Below it, a table displays the following demographic information:

CURP:	1234567890abcdefg
Paternal (Father's) Last Name	GOMEZ
Maternal (Mother's) Last Name	GUTIERREZ
First Name	Angel
Middle Name	Angel
Patient ID	375
Date of Birth	15OCT2004
Category	Dental

At the bottom left is a blue "BACK" button. On the right side, there is a "RENAPO" header with the Mexican government logo, a "proporcionando su nombre y datos de nacimiento." message, and tabs for "Clave Única de Registro de Población" (selected) and "Datos Personales".

In the center, a red box labeled (1) contains the message "Algun campo es inválido. Por favor verifica." Above this, an error message states "El formato del CURP es inválido" and provides a link "¿No conoces tu CURP?".

At the bottom right, a red box labeled (2) contains a reCAPTCHA verification message: "Verification expired. Check the checkbox again." followed by a checkbox labeled "I'm not a robot". Below the reCAPTCHA are links for "Privacy - Terms" and "reCAPTCHA".

At the very bottom right is a blue "NEXT" button.

Figure 4.5.2 Failed Lookup.

In Figure 4.5.2, (1) is the message indicating failure. Click the NEXT button (2) to continue. You will be prompted “Were you able to verify the CURP?” Click NO. You will be returned to the demographics form, where you can re-enter the CURP. See Section 4.4 for instructions on filling out and submitting the demographics form.

If the CURP was valid, you will be shown a screen verifying this. See Figure 4.5.3:



Figure 4.5.3 Validated CURP

Once validated, click NEXT. This will take you to the next step in registration, Medical History.

#### 4.5.2 CURP was NOT Entered on the Demographics Form (Unknown CURP)

If you selected ‘Doesn’t have’ for the CURP on the demographics form, clicking NEXT from the demographics form will force you to lookup the patient on the Mexican CURP website. The name of the patient on this form will be pre-filled with the name, date of birth, and gender of the patient obtained earlier in the registration process. You may edit this name as necessary in order to perform a successful lookup. You must select the state of residence of the patient. Figure 4.5.4 shows the lower portion of this screen. You can use your index finger to navigate the entire form.

Paternal (Father's) Last Name **83GOMEZ**

Maternal (Mother's) Last Name GUTIERREZ

First Name Angel

Middle Name Angel

Patient ID 375

Date of Birth 15OCT2004

Category Dental

**BACK**

GOBIERNO DE MÉXICO

RENAPO

10

Año de nacimiento\*:  
2004

Sexo\*: (1)  
Hombre

Estado\*: (2)  
Selección el estado

(3) I'm not a robot Privacy - Terms

\* Campos obligatorios (4) Buscar

NEXT

Figure 4.5.4 Patient Lookup Screen

In Figure 4.5.4, (1) is the patient search form. Once again, the fields will be pre-filled by the tablet with whatever information was gathered so far during registration. You may edit this data as necessary to obtain a match, however, realize that changing this form will not change the data we recorded in the database. Verify the content in the form, use (2) to select the patient state of residence, and use (3) to verify you are not a robot. Then, click the “Buscar” button (4). Once you have obtained a CURP, write it down and then click the NEXT button. You will be asked to verify you have obtained a CURP. Answering YES will take you back to the demographics form where you MUST enter the CURP manually obtained from the search. You SHOULD also change any of the patient name, DOB, and gender if it does not match what was required to obtain a successful CURP lookup. Unfortunately, there is no way to copy this CURP value from the website.

Once you have entered the CURP that was obtained from the website search, click NEXT on the demographics form. You will then be asked to re-validate the CURP as described in Section 4.5.1, above. If you entered the CURP correctly, this lookup will be successful, and then you can continue on to the Medical History form by clicking NEXT and confirming the CURP lookup was successful.

If the above seems complicated, don't worry – the tablet will prompt you each step of the way. If you really can't find the CURP, or the Internet is down, answer SKIP when prompted to continue with the registration (Figure 4.5.5). While not ideal, the most important thing is to get the patient registered and seen by our caregivers.

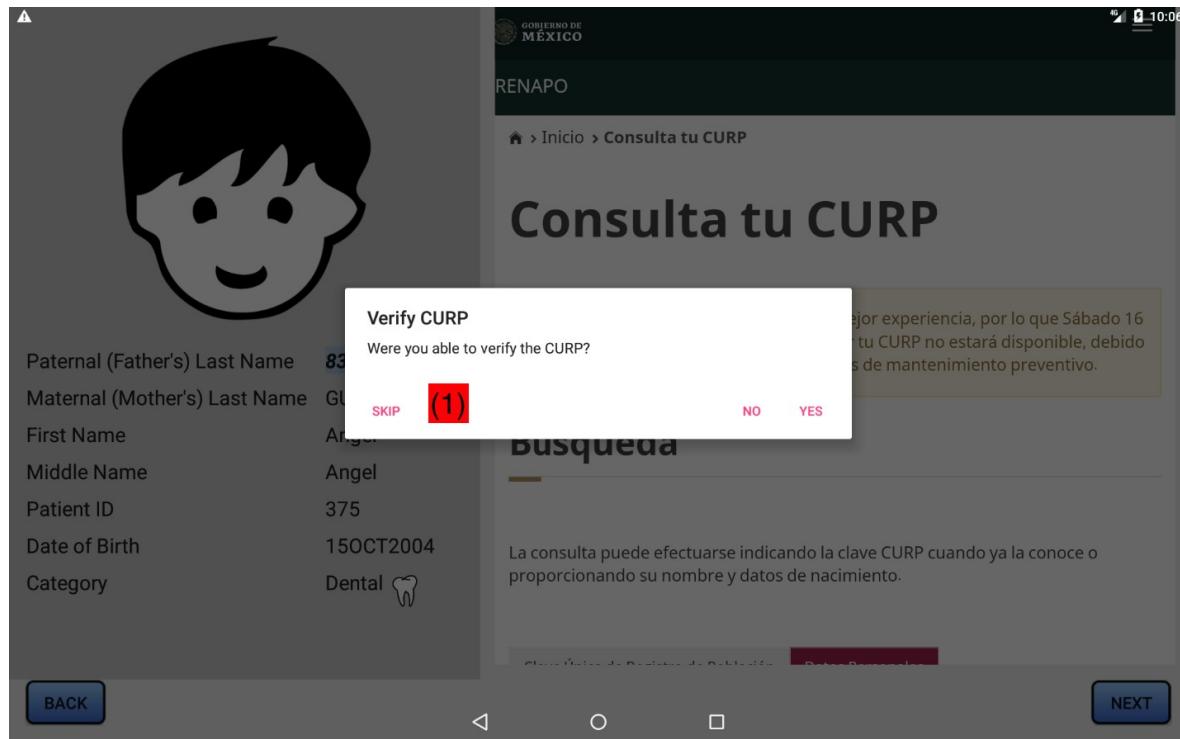


Figure 4.5.5 Use the Skip Button (1) After Clicking NEXT in the CURP Form to Bypass Lookup

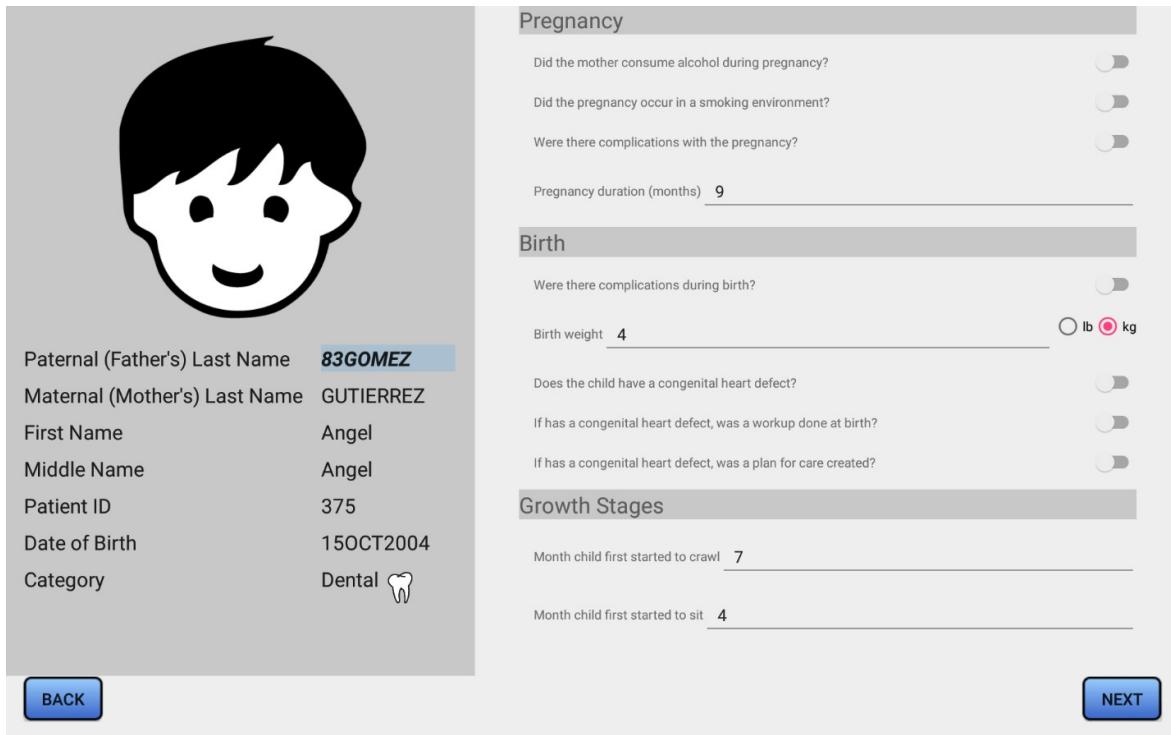
#### 4.5.3 Notes

- The CURP website is not connected to our database, and we cannot read the CURP search result from the website once it has been found (this is a security feature of the tablet and cannot be worked around). This is why we require you to enter the CURP on our demographics form, and unless this is done, it will not be stored in our database. Doing this correctly will make registration of the patient at subsequent clinics much faster and easier.
- However, if the website (or Internet) is down, or you simply cannot find a search result, click the NEXT button. When prompted if a CURP was verified, click SKIP to bypass the validation process (Figure 4.5.5) and continue with patient registration.

## 4.6 Medical History

### 4.6.1 Overview

After demographics and CURP validation, you will be sent to the Medical History form. This form is shown in Figure 4.6.1.



The screenshot shows a mobile application interface for a medical history form. On the left, there is a placeholder image of a child's face. Below it, the user's demographic information is listed:

- Paternal (Father's) Last Name: **83GOMEZ**
- Maternal (Mother's) Last Name: GUTIERREZ
- First Name: Angel
- Middle Name: Angel
- Patient ID: 375
- Date of Birth: 15OCT2004
- Category: Dental 

On the right, the form is divided into sections:

- Pregnancy** section contains three toggle switches for questions about alcohol consumption, smoking environment, and pregnancy complications. A text field for "Pregnancy duration (months)" shows the value "9".
- Birth** section contains a toggle switch for birth complications, a text field for "Birth weight" showing "4", and a radio button group for "lb" (unchecked) and "kg" (checked).
- Growth Stages** section contains two text fields: "Month child first started to crawl" showing "7" and "Month child first started to sit" showing "4".

At the bottom, there are "BACK" and "NEXT" buttons.

Figure 4.6.1 Medical History Form

This form contains reasonable default values. All conditions (e.g., Has a Fever?) are unchecked. If a condition is present, touch the button to enable that condition. Clicking in an editable field will result in the soft-keyboard being displayed to enter values. Once the form is completed, click the NEXT button to continue registration.

### 4.6.2 Editing Current and Allergy Medications

To edit current and allergy medications, click on the field. A dialog such as the one shown in Figure 4.6.2 is displayed.

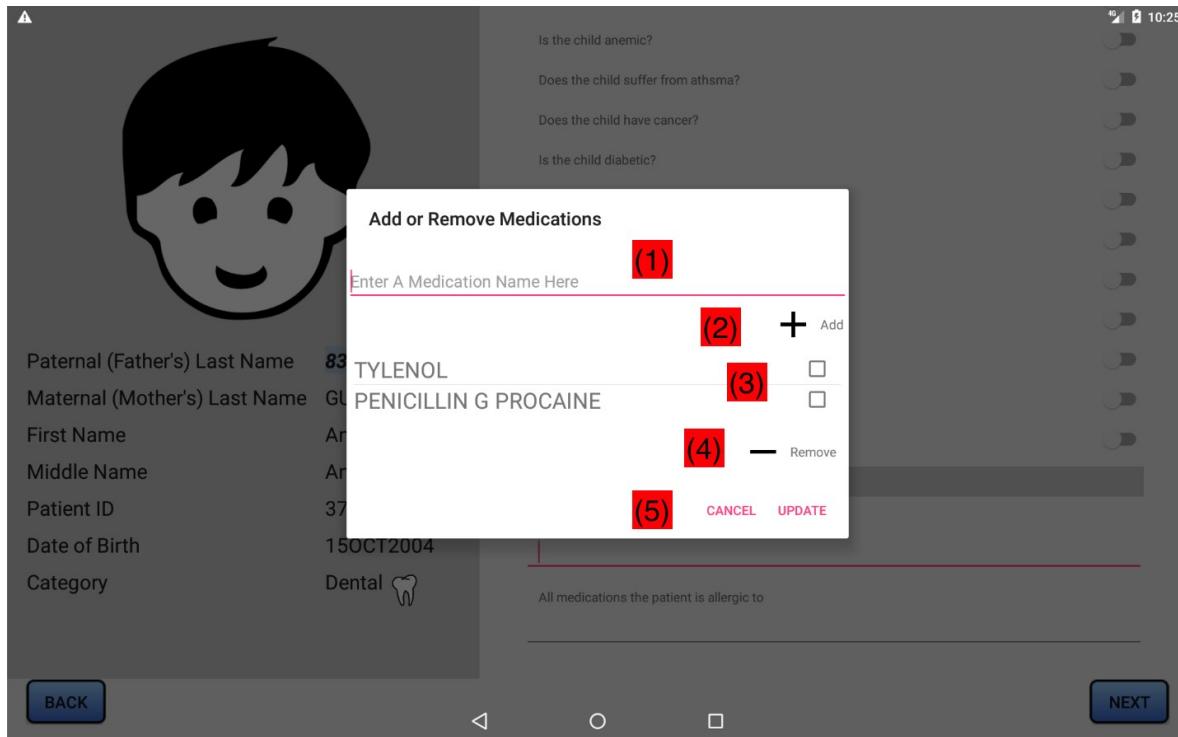


Figure 4.6.2 Medications Editor

In (1), start typing the a few letters found in any drug name. Matches will display in a popup menu (see Figure 4.6.3). Select the matching medication. There are over 7000 drugs from the FDA database stored in our system, ensuring that a match is likely. Then click the “Add” button (2) and the drug will be added to the list below. To remove a drug(s), select the drug using the checkbox(es) in (3). Then click Remove (4). When you are done with your changes, click UPDATE to save, or CANCEL to cancel (5). You will then return to the Medical History form. Any changes made will display on the medications field as a comma-separated list of names (Figure 4.6.4).

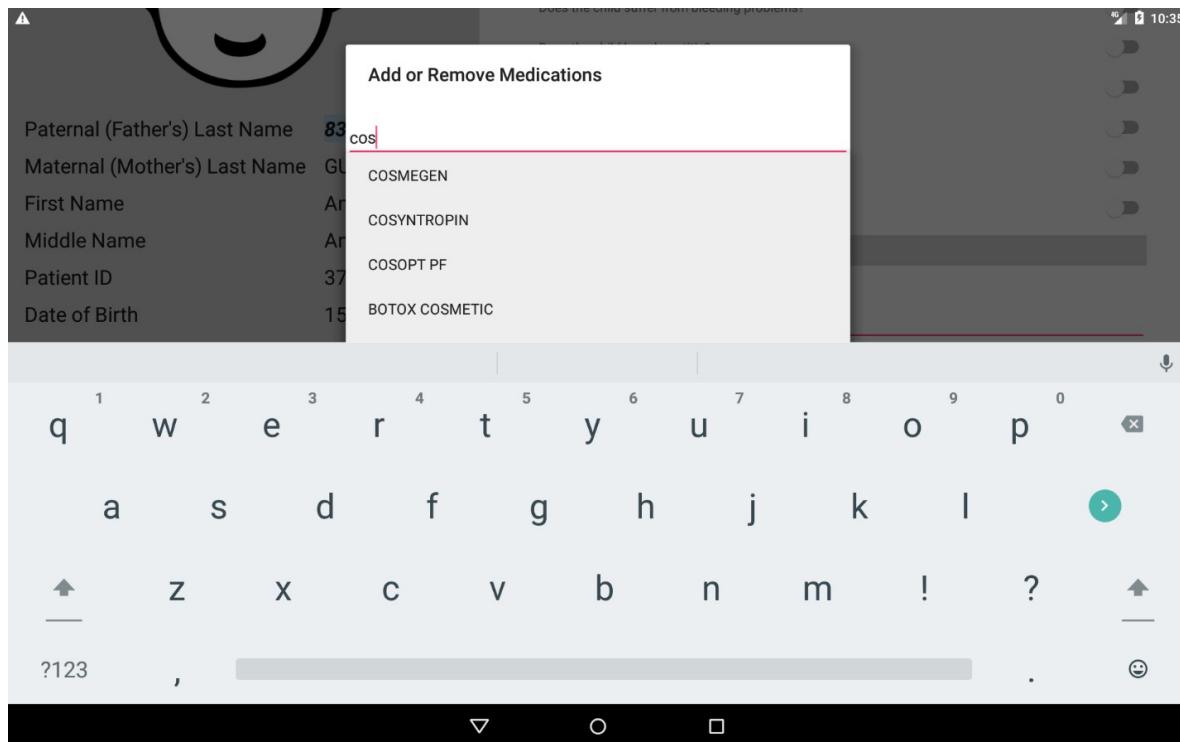


Figure 4.6.3 Drug Lookup and Selection – Touch the Matching Drug in the List to Select

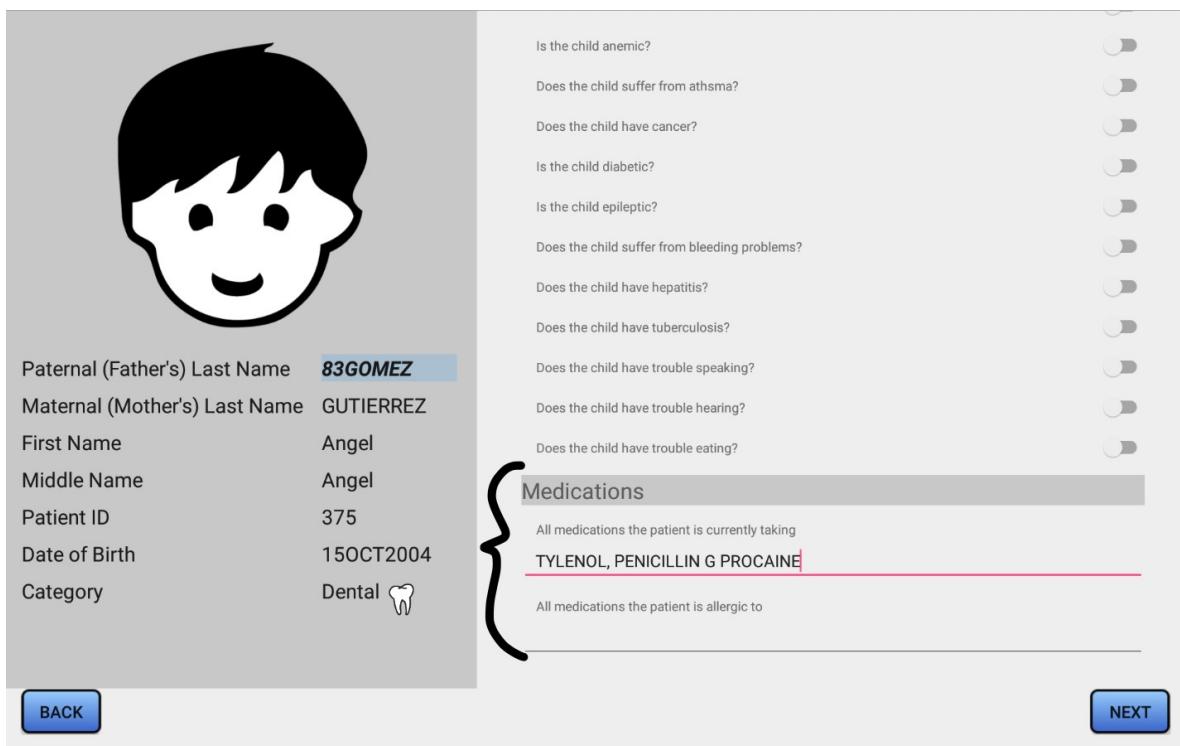


Figure 4.6.4 Medications Fields

#### 4.6.3 Form Validation

When the NEXT button is clicked, the form will be validated. If there are any errors, such as missing data, or data out of range, a dialog will be displayed as shown in Figure 4.6.4

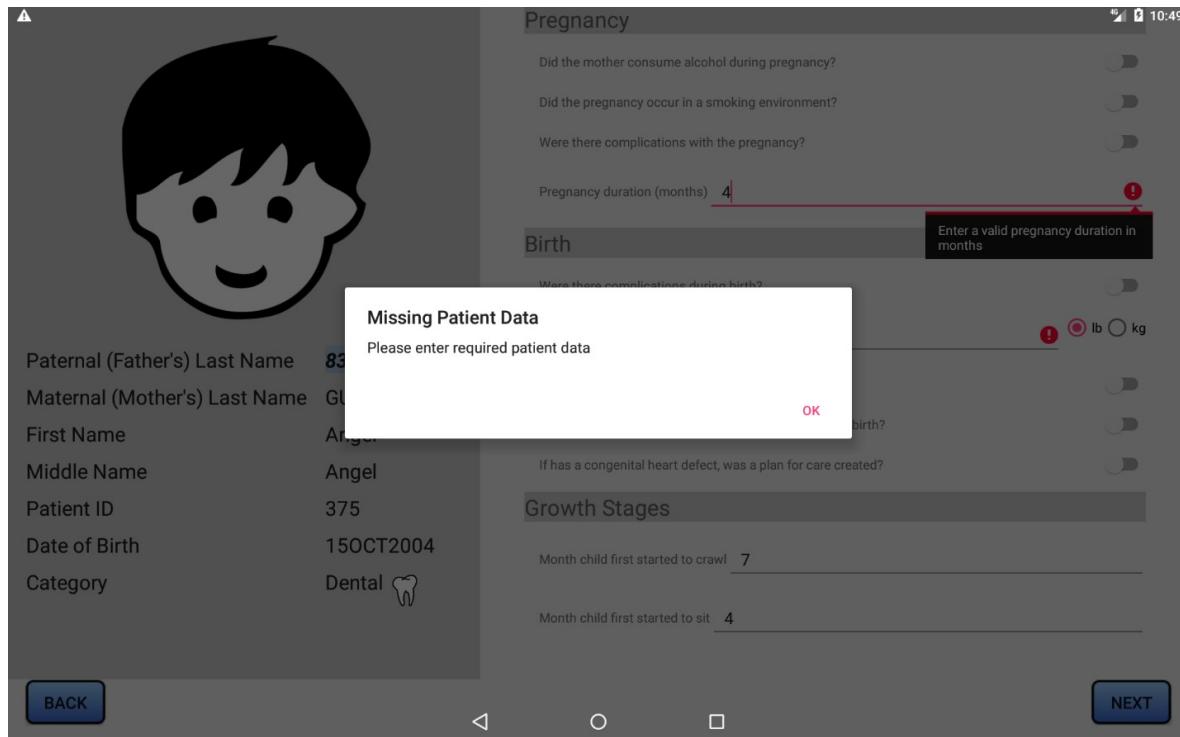
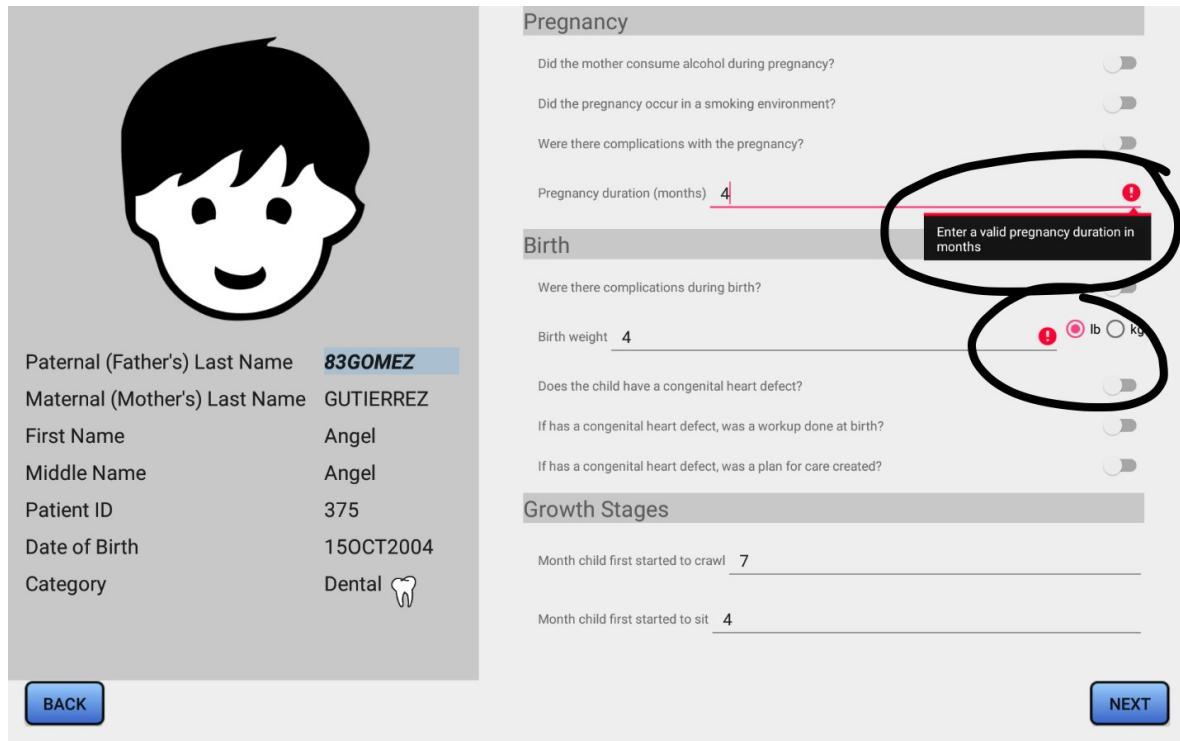


Figure 4.6.5 Validation Error Dialog

Click OK. You will be returned to the Medical History form. Look for fields that show a red “!” icon (Figure 4.6.6), and correct the errors. Then hit NEXT to revalidate and continue with registration.



The screenshot shows a medical history form for a child named Angel Gomez Gutierrez. The form includes sections for Personal Information, Pregnancy, Birth, and Growth Stages. Two errors are highlighted with red exclamation marks and circled by a black oval.

**Personal Information:**

- Paternal (Father's) Last Name: **83GOMEZ**
- Maternal (Mother's) Last Name: GUTIERREZ
- First Name: Angel
- Middle Name: Angel
- Patient ID: 375
- Date of Birth: 15OCT2004
- Category: Dental 

**Pregnancy:**

- Did the mother consume alcohol during pregnancy?
- Did the pregnancy occur in a smoking environment?
- Were there complications with the pregnancy?
- Pregnancy duration (months): **4** 

A red box with the text "Enter a valid pregnancy duration in months" is overlaid on the pregnancy duration field.

**Birth:**

- Were there complications during birth?
- Birth weight: **4**   lb  kg
- Does the child have a congenital heart defect?
- If has a congenital heart defect, was a workup done at birth?
- If has a congenital heart defect, was a plan for care created?

**Growth Stages:**

- Month child first started to crawl: **7**
- Month child first started to sit: **4**

**Navigation:**

- BACK 
- NEXT 

Figure 4.6.6 Medical History Form with Two Errors

Click on the red “!” icons for a message that provides hints as to what the error is, and how to correct it. In Figure 4.6.6, we see that a pregnancy duration of 4 months has been flagged as invalid.

## 4.7 Patient Headshots

### 4.7.1 Overview

The next step in the registration process is the patient headshot. This headshot is important in that it is used to help identify patients in search results. Taking a new headshot is required, even if there is a headshot in the database for the patient from the previous clinic. This is a reason that during registration, it is important to have the patient close by so that the headshot can be taken.

### 4.7.2 Guidelines for the Headshot

Follow these guidelines for a great headshot.

- Make sure the lens of the tablet camera is clean and unobstructed. The camera is located on the back of the tablet (Figure 4.7.1). A microfiber cloth is the best way to clean a dirty lens. A clean lint free cloth or t-shirt will do in a pinch.
- Hold the camera horizontally, not vertically. Ensure the camera is located in the upper corner. See Figure 4.7.2.
- Hold the camera to ensure that no part of your hand is obstructing the lens. We want a picture of the patient, not your finger!
- Position the camera so that the entire head and neck of the patient, and a small amount of the upper shoulder area is in the frame. See Figure 4.7.3 for an example. An extreme case of a poorly cropped photo is shown in Figure 4.7.4. Here, the image contains more than just the head and neck area of the patient, and it is virtually impossible to tell which of the persons photographed is the actual patient. *With infants, however, it might be difficult to include just the head. Take your time, work with the parents, and try your best to isolate the photo to the head and neck area.*
- Take a few shots, and let the parent or patient participate in selecting the best of these shots.
- Make sure the sun is behind you, the photographer. If necessary, position the patient or yourself accordingly. This is less important on overcast days when the light is more evenly distributed, in which case, the position of the sun is of less importance. Figure 4.7.5 illustrates what can happen when the sun is not coming from behind the photographer on a sunny day.



Figure 4.7.1 Camera Position



Figure 4.7.2 Holding the tablet



Figure 4.7.3 Example of Good Headshot



Figure 4.7.4 Example of Poor Headshot



Figure 4.7.5 Sun positioned behind subject

#### 4.7.3 Layout of the Headshot Screen

Figure 4.7.6 illustrates the layout of the headshot screen.

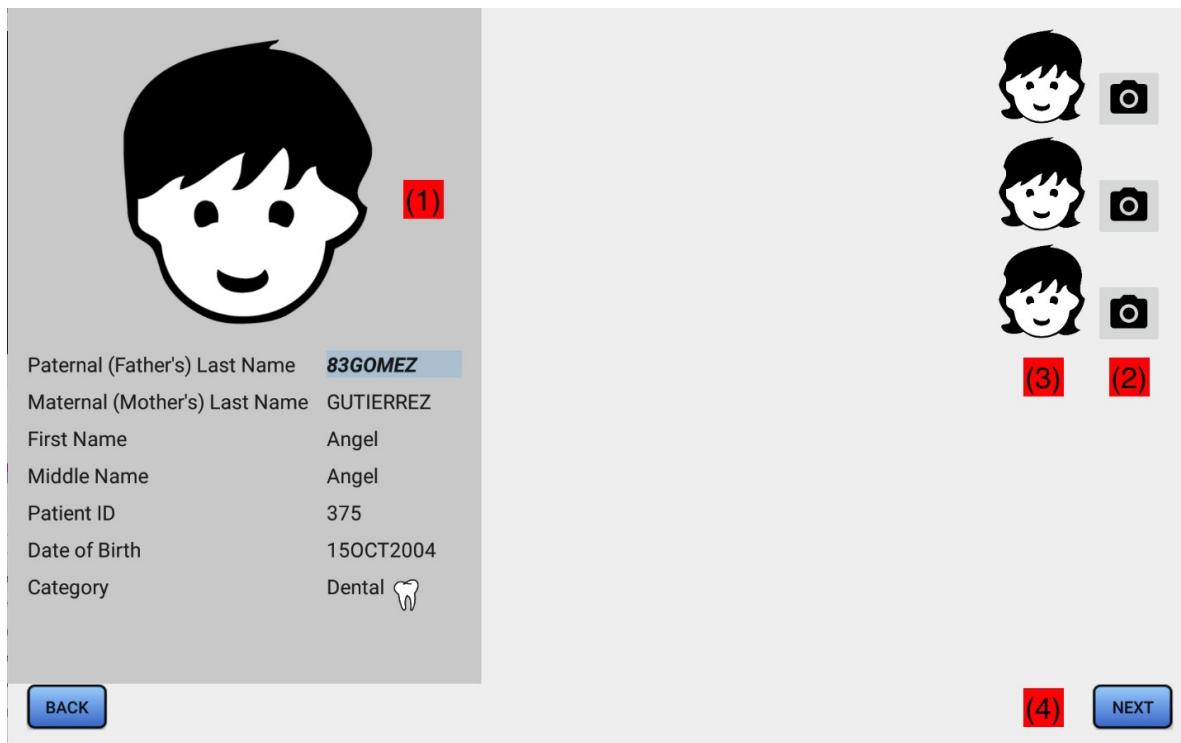


Figure 4.7.6 Headshot Screen

(1) is the headshot of the patient taken at the previous clinic. For new patients, a cartoon rendering based on the gender will display here as seen in the image. (2) and (3) depict the camera controls. Each row is a pair consisting of a thumbnail of an image you have taken plus a camera icon. Click on the camera icon (2) to launch the built in camera and take a headshot. The resulting image (3) will be displayed next to the camera icon that was used to launch the camera. You can click on any image in (3) to see how it will be displayed in area (1). Once the image you desire is displaying in area (1), click NEXT (4) to go to the final registration screen.

Note that the final image displayed in area (1) will be saved to the database and become the current headshot for the patient. The unselected images in (3) will be discarded.

#### 4.7.4 Camera Controls

When you launch the camera, you will see the following in Figure 4.7.7 (note, this is subject to change based on updates to the tablet OS, but should it be similar).

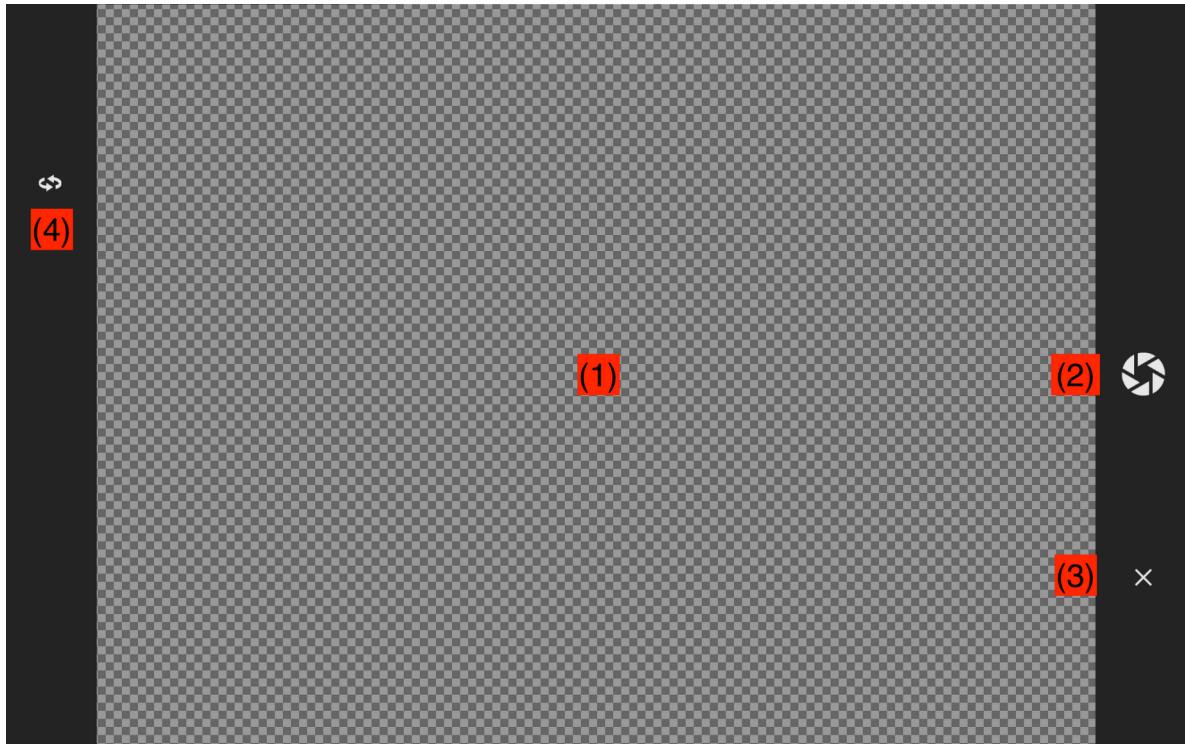


Figure 4.7.7 Initial Camera Screen

(1) is used to frame of the image. Position the patient headshot in this area. (2) is the shutter button, click this to take a picture once the patient is properly framed in (1). Figure 4.7.8 describes the changes that occur when the shutter is clicked. (3) can be used to cancel the camera and return to the registration app. (4) can be used to switch from the back camera (which is default) to the forward facing camera (for selfies). If the patient wants to take their own picture as a selfie, (4) may be used for this purpose. However, this is not recommended.

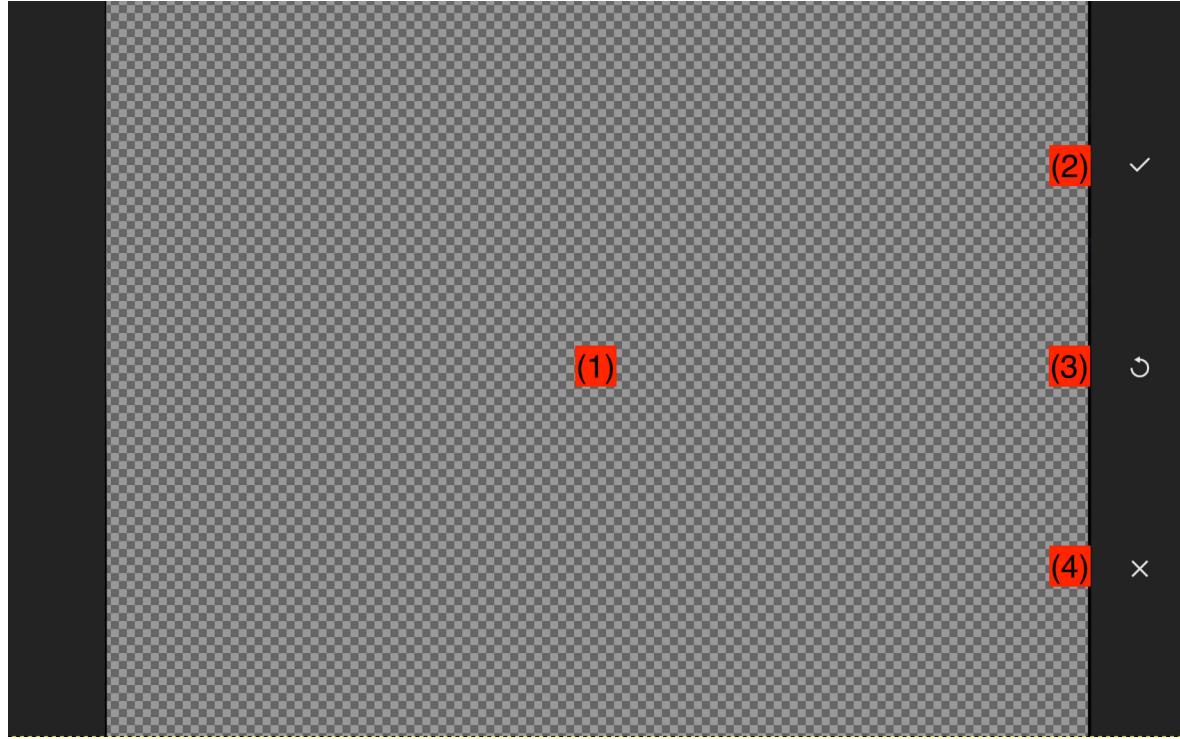


Figure 4.7.8 Camera Screen After Taking a Picture

Once you click the shutter icon (2) in Figure 4.7.7, the screen will display the image and the controls will change to those shown in Figure 4.7.8. (1) will show the image taken. Click (2) to accept the photo and return to the registration app. (3) can be used to return to the camera to take another picture. (4) cancels and returns you to the registration app without taking a picture.

## 4.8 Consent and Registration

The final screen in the registration app is Consent and Registration. See Figure 4.8.1.

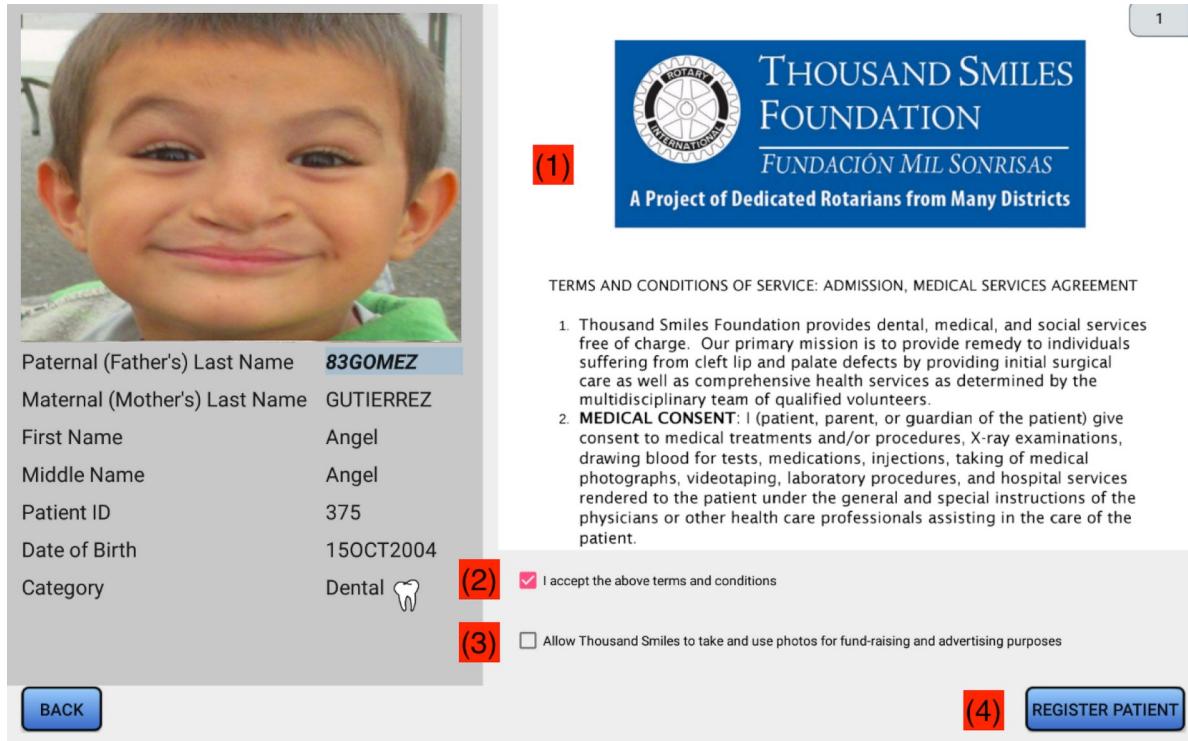


Figure 4.8.1 Consent and Registration

(1) Contains the terms and conditions. (2) must be checked in order for the patient to be registered. Optionally, (3) can be checked to give Thousand Smiles permission to use photos taken during the clinic for fundraising and advertising purposes. Once the agreement in (1) is read and (2) is clicked, the REGISTER PATIENT button (4) will be enabled, allowing it to be clicked to complete the registration of the patient.

Note: the agreement in (1) will be in Spanish if the tablet has been configured for the Spanish language. The tablet should be handed to the patient to allow them to review the agreement. This agreement can be scrolled by placing the index finger on the agreement and swiping up and down.

Note: The parent or patient should be the one clicking checkboxes (2) and (3) whenever possible. It is they who are agreeing to the terms set forth, allowing them to check these boxes will make it clear to them that it is their choice.

Once (4) is clicked, a verification dialog is displayed. Agreeing to that will register the patient, and return the tablet to the search screen so that the next patient can be registered.