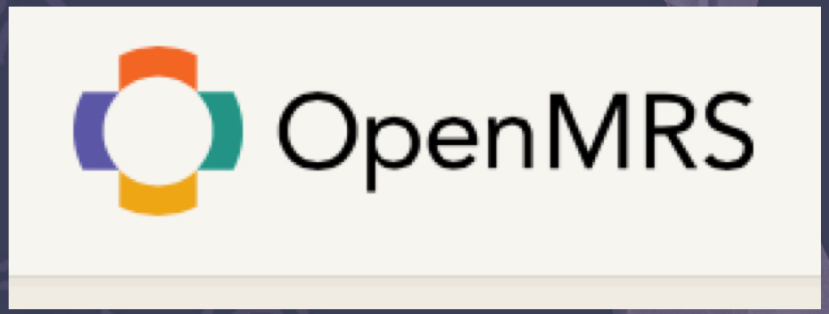
Università degli Studi di Trieste

Corso di Laurea Magistrale in
INGEGNERIA CLINICA



OpenMRS: OVERVIEW

Corso di Informatica Medica

Docente Sara Renata Francesca MARCEGLIA

Dipartimento di Ingegneria e Architettura

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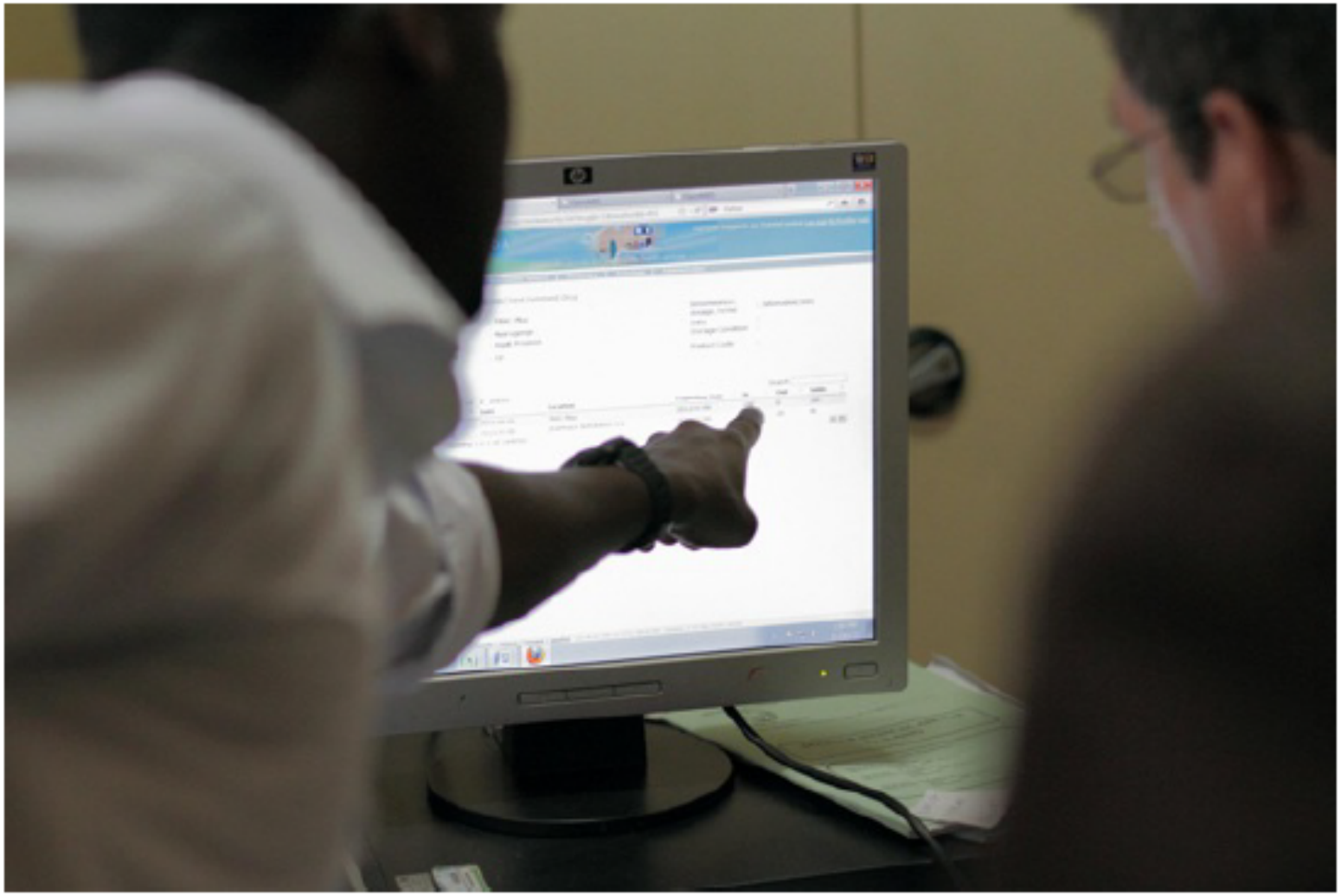
OPENMRS: LOCATIONS AROUND THE WORLD

OpenMRS clinical and research locations as of 2011.

OPENMRS WAS CREATED FOR THE DEVELOPING COUNTRIES



OpenMRS in use at TRAC Plus Clinic in Kigali, Rwanda.

OPEN SOURCE: IMPLEMENTATION VS DEVELOPMENT

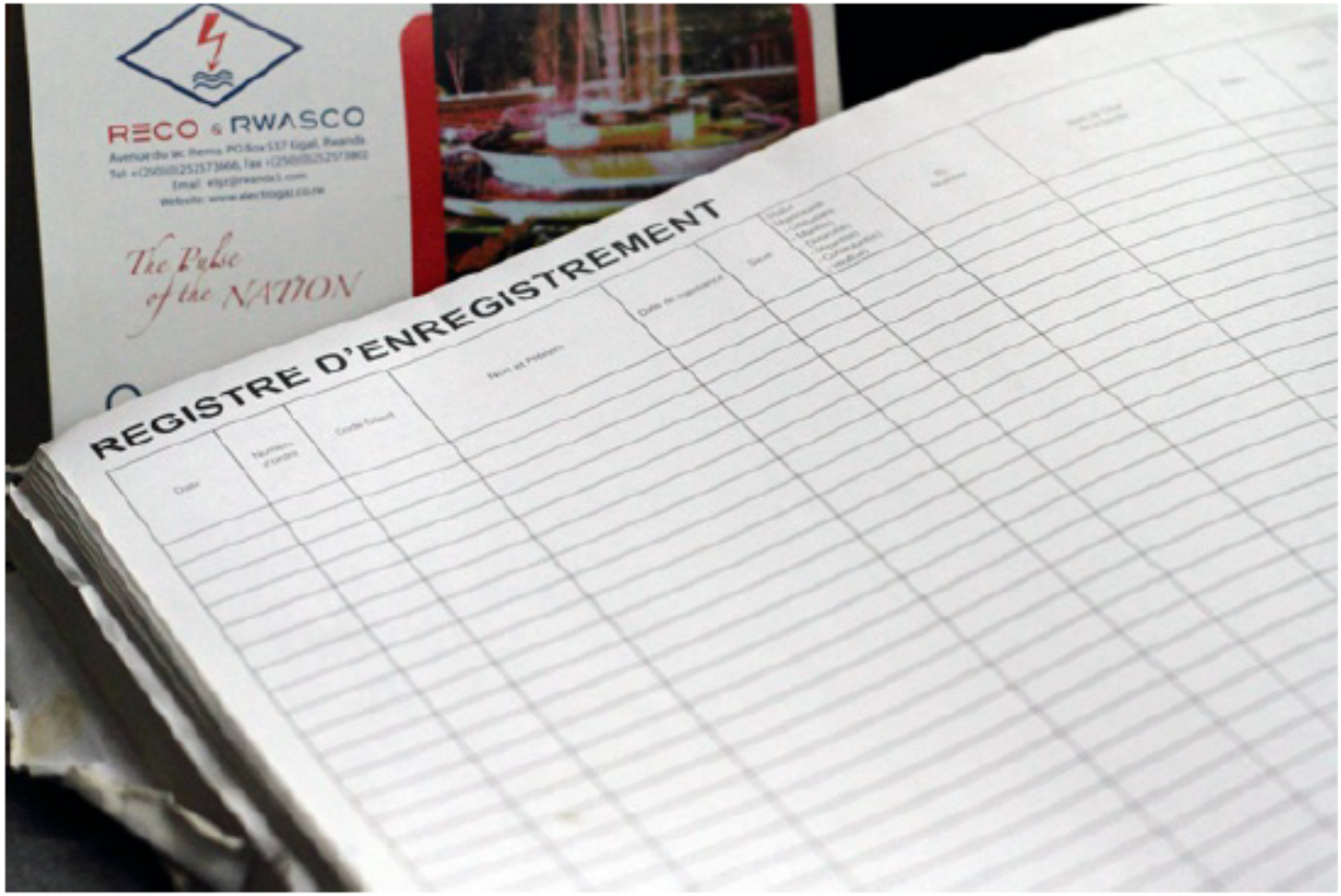
IMPLEMENTERS

- Clinics/Hospitals in need of the EHR system
- Install OpenMRS and Use it
- Create the dictionary and the forms useful for their implementation
- Rely on the development community for new features → use modules

DEVELOPERS

- Information scientists who develop the source code
- Work independently or after being committed to a project
- The source code is available
- There is a large developer community around the world
- Develop modules

FROM PAPER-BASED RECORDS… TO THE EHR



A paper-based patient register book at an African OpenMRS clinic.

THE DEVELOPMENT PROCESS: IDENTIFYING YOUR NEEDS

YOUR ORGANIZATIONAL GOALS AND PRACTICES

For now, forget about technology and instead think about your organizational goals and processes. Here's a list of questions to start:

- What are the high level goals of your organization?
- What are the teams and staff in the clinic? What roles exists? What functions does each role perform?
- What tasks are staff involved with on a day to day basis?
- What services does the clinic provide to your patients? What activities are involved?
- What other 3rd-party or government organizations do you report to? What information is included in each of these reports?

TAKE ADVANTAGE OF INSTITUTIONAL KNOWLEDGE

As you think about your patients and how they interact with your organization, talk to your clinical and administrative staff -- both those who have been around a long time, and those who have just joined. Talk to as many people as you possibly can to get a complete picture of every service provided to patients.

MAP YOUR NEEDS TO OPENMRS

THE OPEN SOURCE COMMUNITY

DO NOT "REINVENT THE WHEEL"

The open source ethos of OpenMRS extends beyond just the application, to a much larger open community where ideas and experiences are shared. There are many existing resources available in the form of pre-built OpenMRS features (modules) and content that a new implementer should take advantage of. You should explore the following resources before building anything new.

Reuse an existing concept dictionary

Adapt existing forms

Implementers should evaluate data collection forms built by other OpenMRS users before creating new custom forms for their specific needs.

Explore the module repository

Implementers should consult the OpenMRS Module Repository at http://modules.openmrs.org/ before considering customization through software development.

…AND THEN IMPLEMENT…

An OpenMRS server in Uganda.

THE INFORMATION MODEL

- DATA
  - Person
  - Encounter
  - Visit
  - Observation
  - Order
  - Workflow
- METADATA
  - Locations
  - Concept Dictionary
- FORMS

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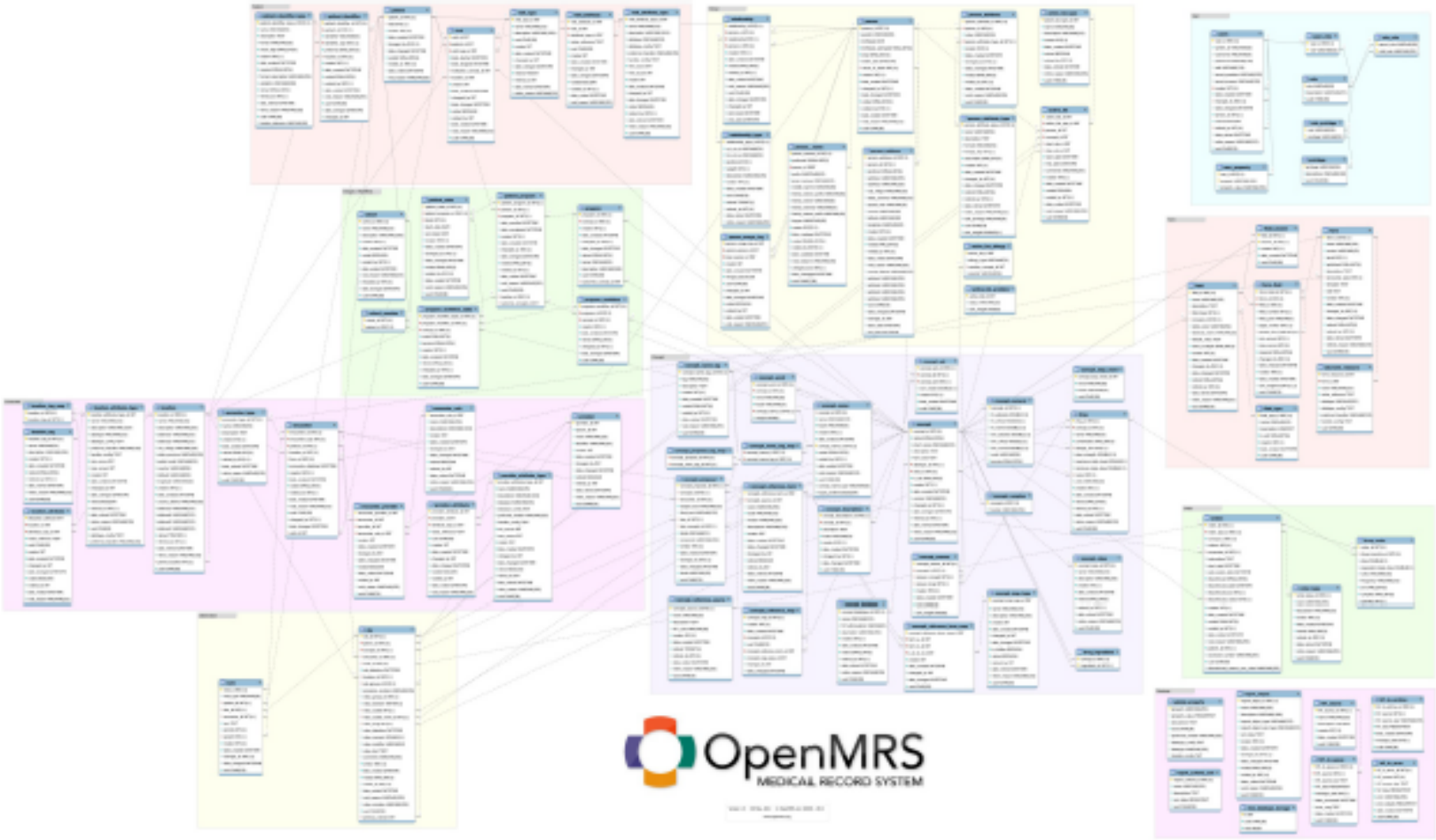
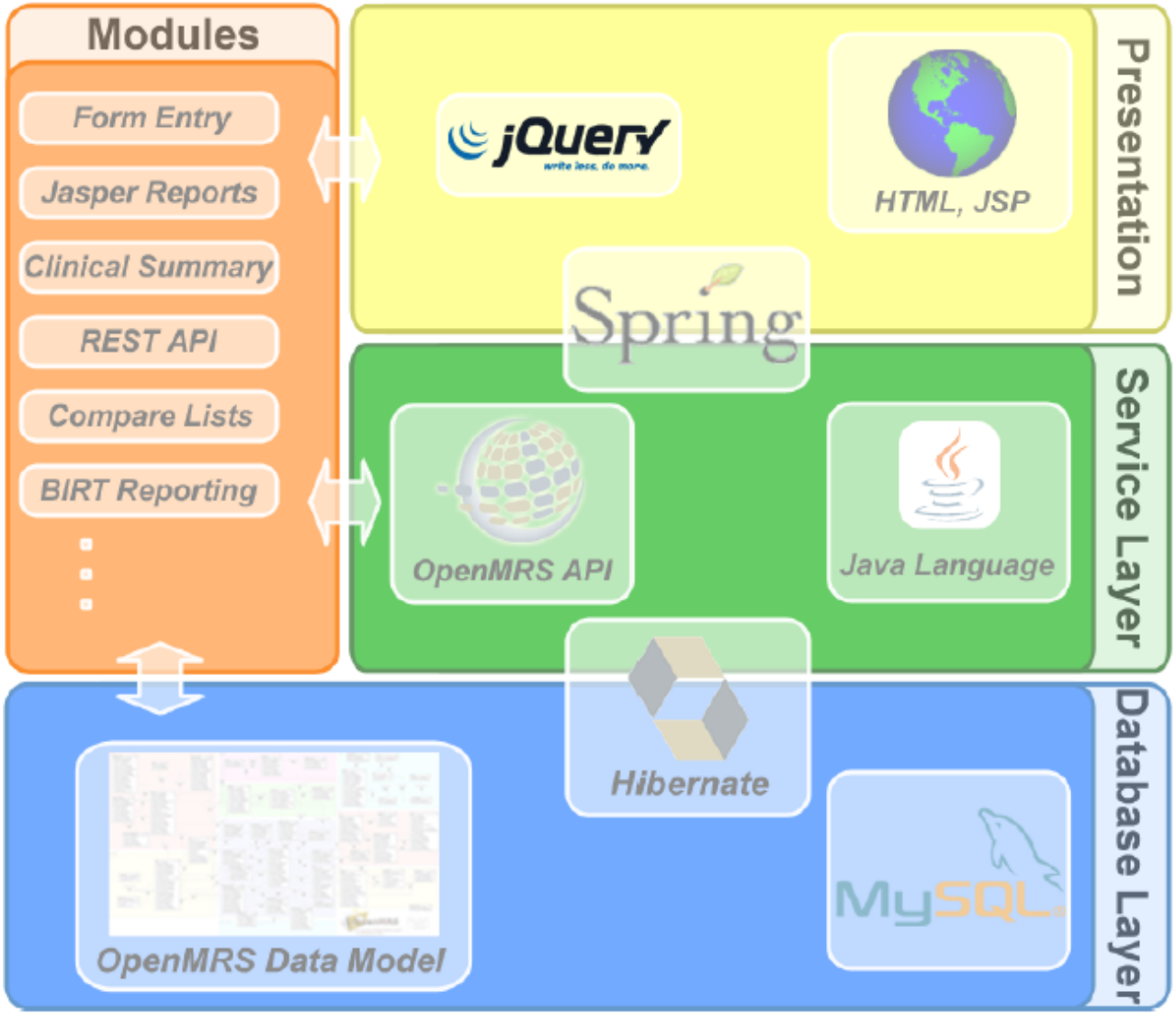
THE DATA MODEL



OpenMRS data model version 1.9. Details at http://go.openmrs.org/newdev-data

ARCHITECTURE



An overview of OpenMRS

GET INVOLVED

The OpenMRS Community, circa 2013

DOWNLOAD OpenMRS

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http://openmrs.org/download/

Reference Application 2.5

Standalone Edition

412.1 MB at sourceforge.net · Released 10-November-2016
Linux, Mac OS X, Windows · Release Notes

Recommended for new people exploring OpenMRS. A self-contained ZIP archive that includes an embedded database and application server, as well the option to install demo data for sample patients. Expand the ZIP archive and run the .jar file to start the Reference Application. Log in with username: **admin**, password: **Admin123**.

This is not intended for production use.

Download Standalone

Reference Application 2.5

Individual Components for Advanced Installation

Released 10-November-2016
Linux, Mac OS X, Windows · Release Notes

For production use of the Reference Application, you must install an OpenMRS Platform WAR, which requires an existing Java servlet container such as Apache Tomcat, and an existing database such as MySQL. Download these individual components here:

Download Platform 2.0.1 WAR | Download Reference Application 2.5 Modules & Data

Platform 2.0.4.1

WAR (for Enterprise)

71.2 MB at sourceforge.net · Released 7th February 2017
Multi-platform Java webapp · Release Notes

Recommended for advanced users using Reference Application 2.x or Platform in production. Requires an existing Java servlet container such as Apache Tomcat, and an existing database such as MySQL. Separate demo data is available for download below.

Download

THE DEMO ENVIRONMENT

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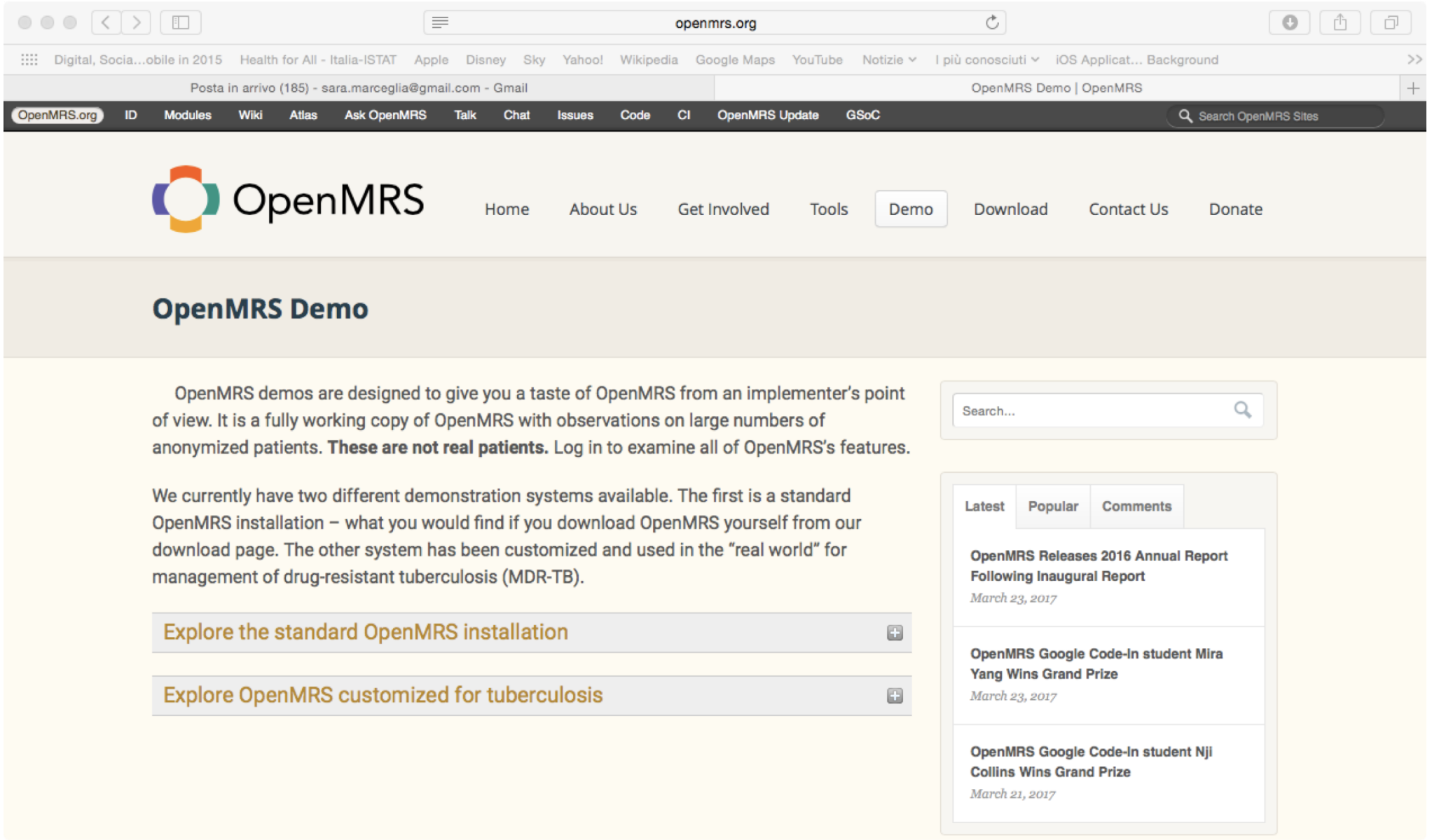

THE STANDALONE EDITION

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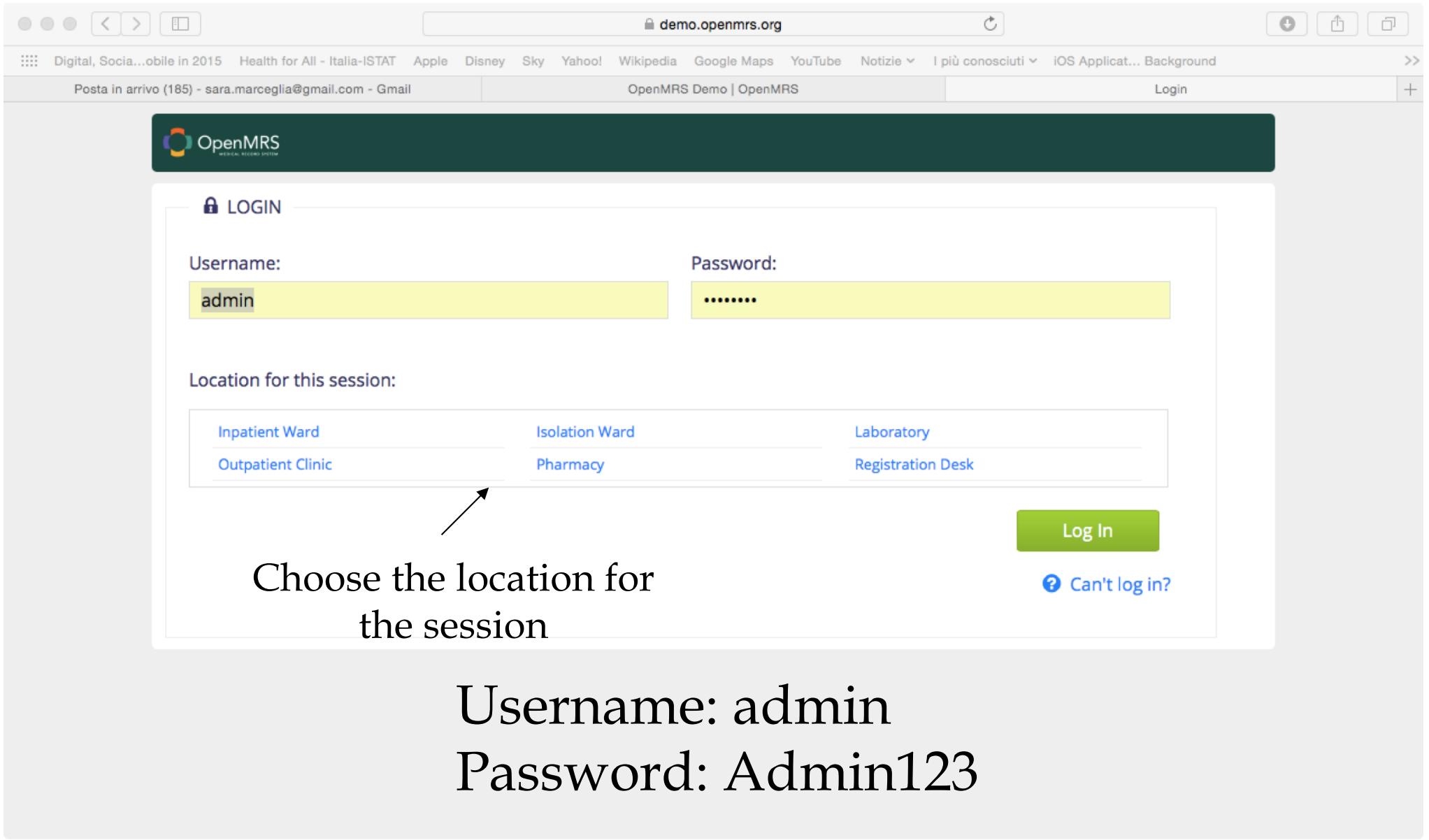

Choose the location for the session

Username: admin
Password: Admin123

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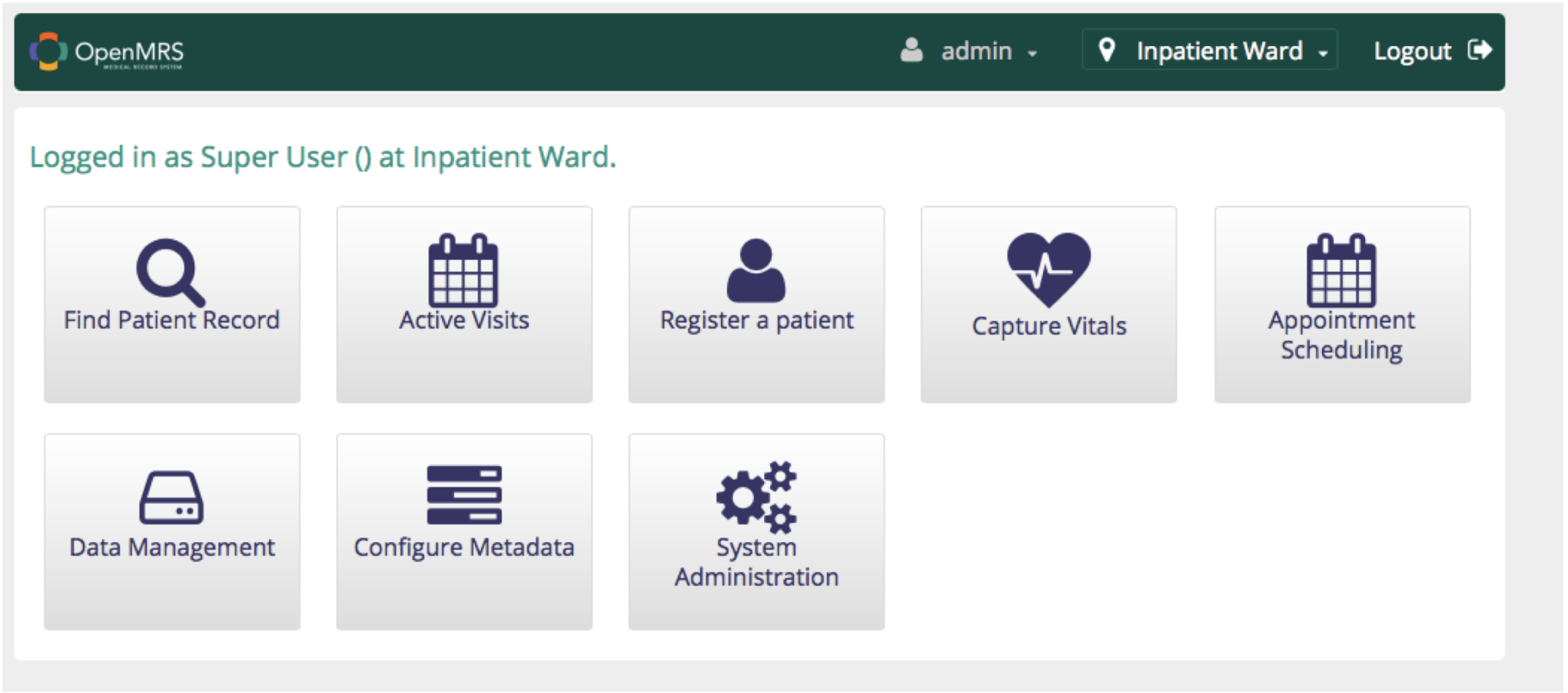

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OpenMRS admin Inpatient Ward Logout

Find Patient Record

Find Patient Record

smith

Identifier	Name	Gender	Age	Birthdate
100397	Brian Smith	M	58	17 Jun 1958
100199	Jessica Smith	F	40	02 Jan 1977
1001MH	John Smith	M	47	19 Jun 1969
100694	Joseph Smith	M	42	09 Jan 1975
1001LK	Lisa Smith	F	76	04 May 1940
100GHA	Mary Smith	F	61	18 Jun 1955
1005HM	Michelle Smith	F	30	14 Apr 1986
10064F	Paul Smith	M	51	04 Jul 1965
10080M	Paul Smith	M	39	12 May 1977
100DEM	Robert Smith	M	77	13 Apr 1939
10017E	Thomas Smith	M	18	25 Mar 1999

Showing 1 to 11 of 11 entries

First Previous 1 Next Last

[redacted]

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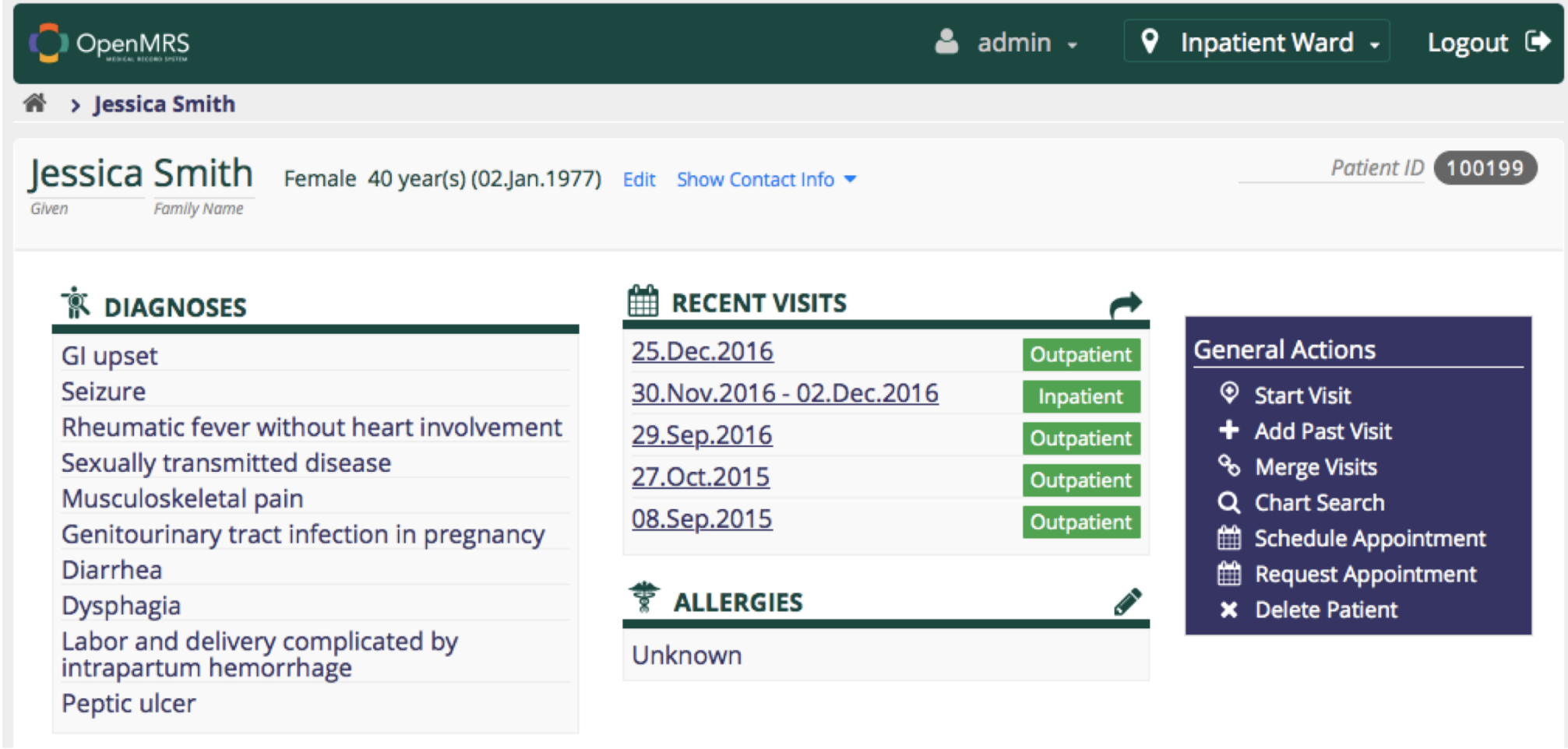

START VISIT

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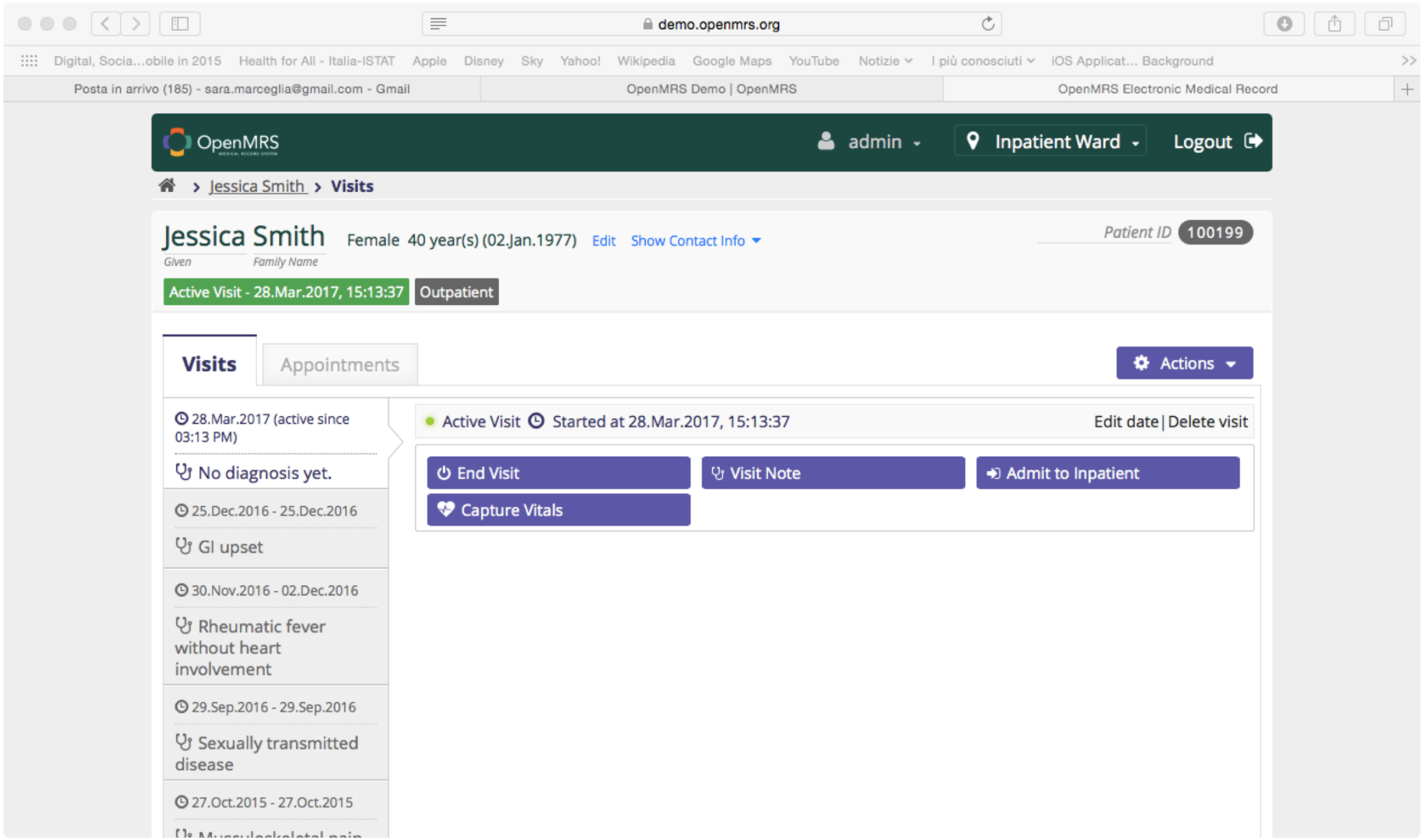

CAPTURE VITALS

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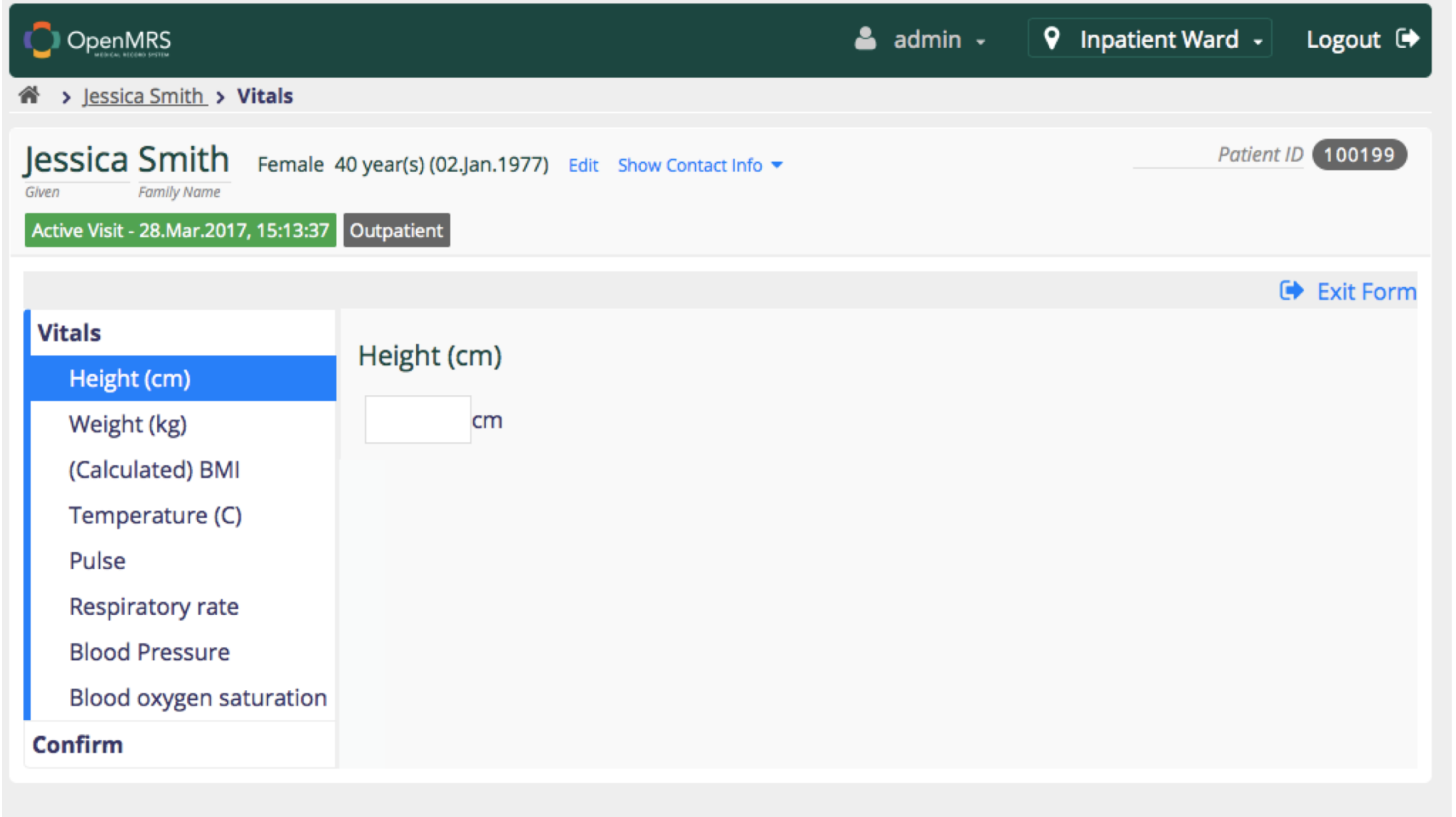

VISIT REPORT

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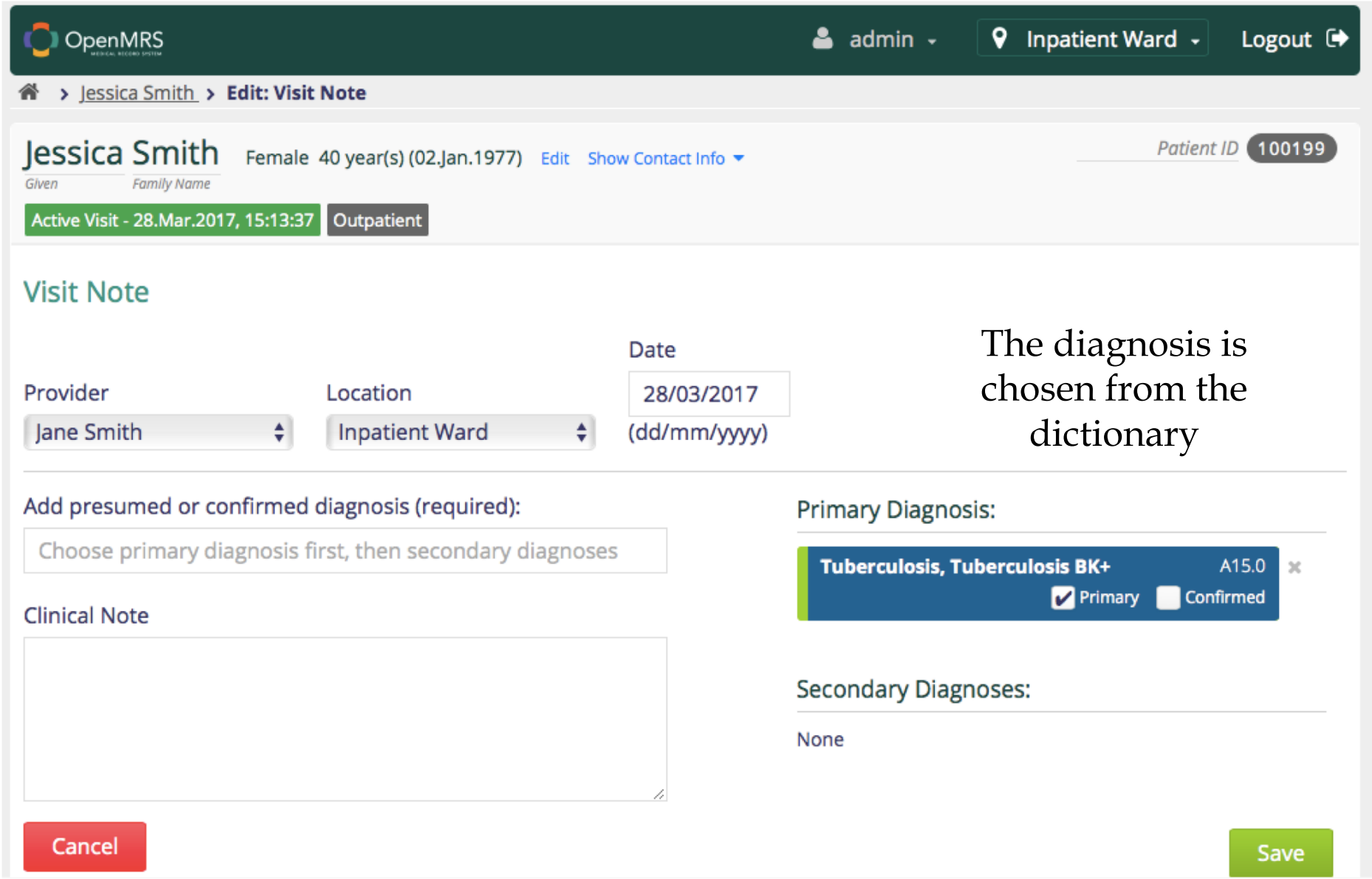

The diagnosis is chosen from the dictionary

ADMINISTRATION SECTION

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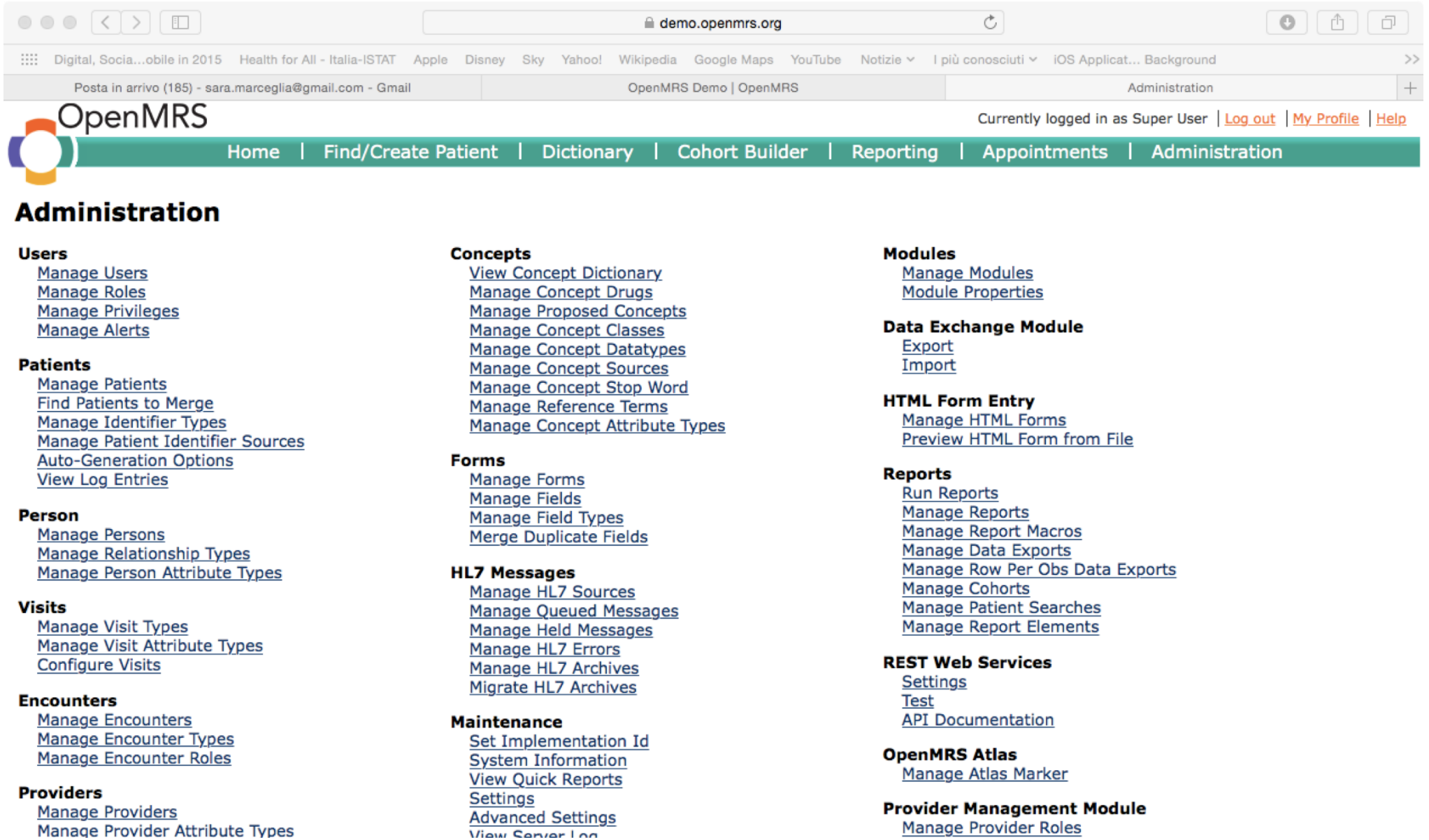

CONCEPT DICTIONARY

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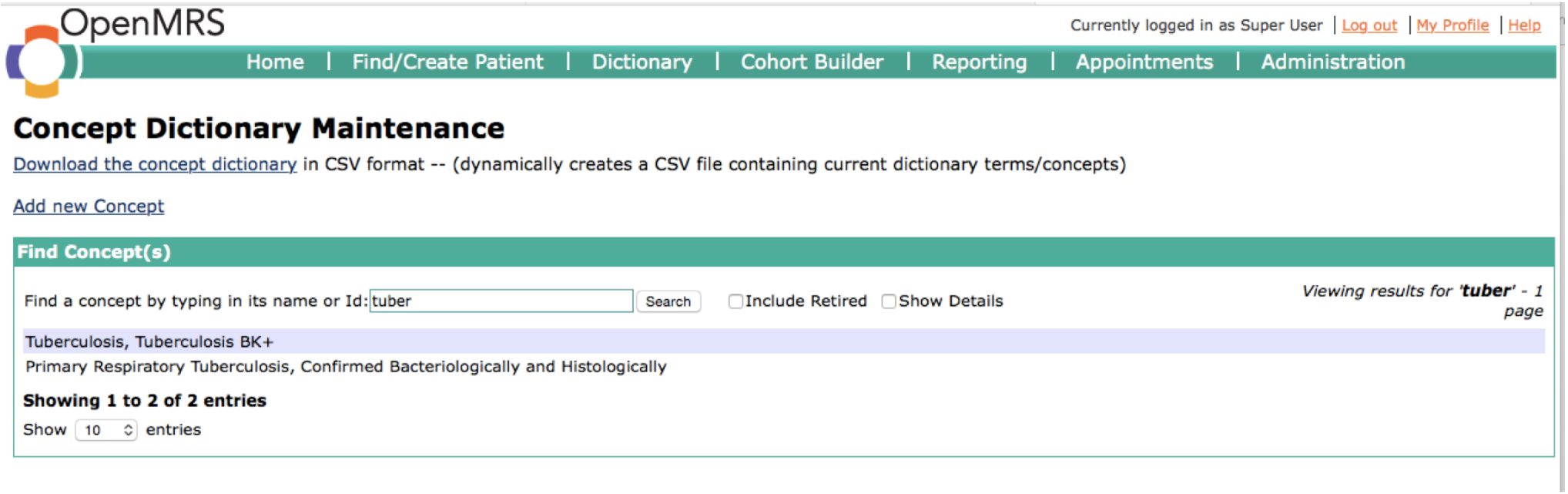

CREATE NEW CONCEPT

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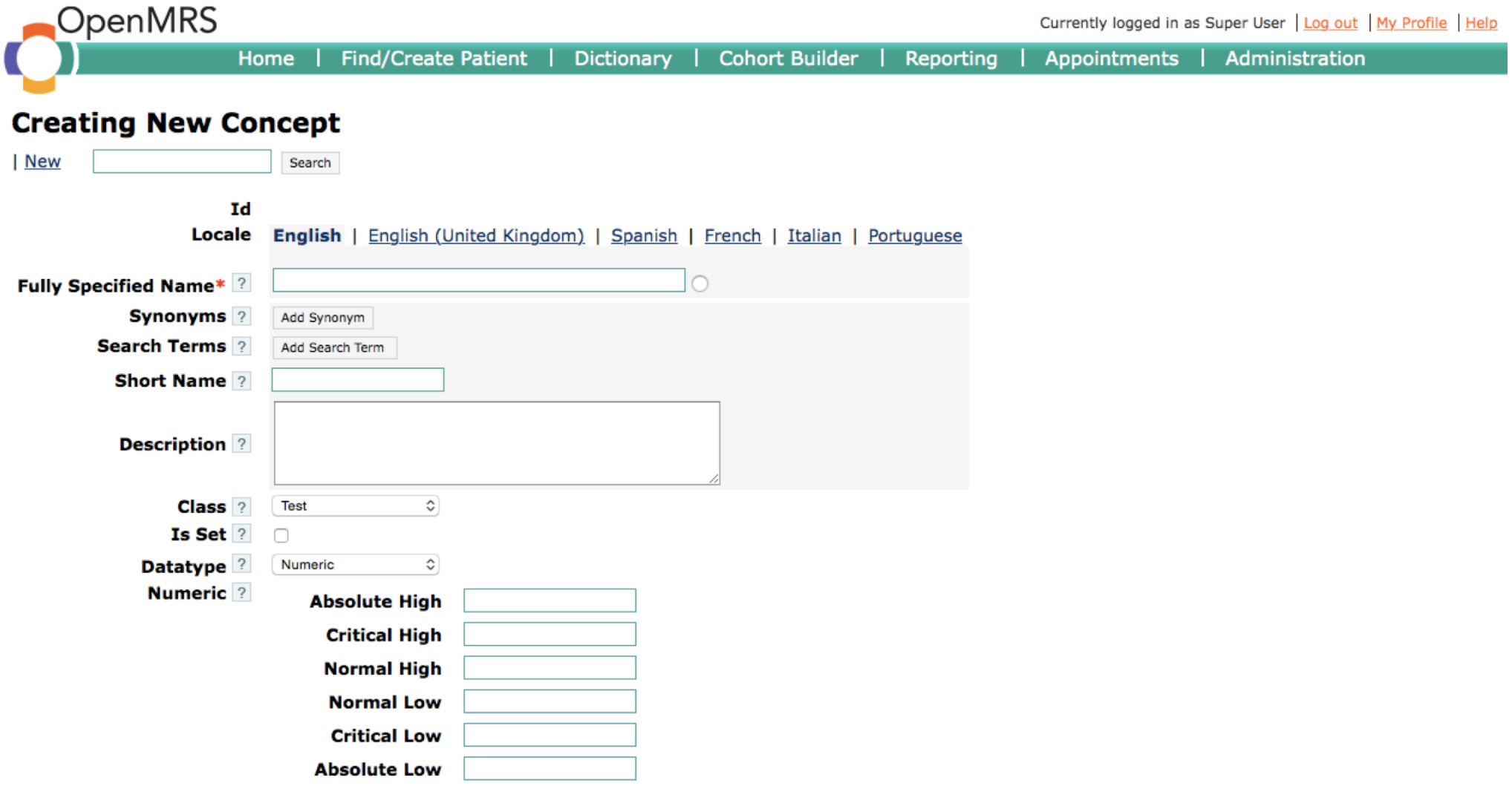

QUESTION&ANSWER CONCEPTS

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OpenMRS

Currently logged in as Super User | Log out | My Profile | Help

Home | Find/Create Patient | Dictionary | Cohort Builder | Reporting | Appointments | Administration

Concept saved successfully

Viewing Concept Diagnosis

Previous | Edit | Stats | Next | New Search

Id	163140
UUID	063290b6-fe5f-460e-83a8-3d3cacc99d2b
Locale	**English** | English (United Kingdom) | Spanish | French | Italian | Portuguese
Fully Specified Name	Diagnosis
Synonyms	
Search Terms	
Short Name	
Description	
Class	Question
Datatype	Coded
Answers	Epilepsy (155) Tetanus (124957) Poliomyelitis (5258)
Mappings	
Version	
Created By	Super User - 28 March 2017 16:09:02 UTC
Changed By	Super User - 28 March 2017 16:15:47 UTC

Resources

Similar Concepts
Merriam Webster®
Google™
UpToDate®
Dictionary.com®
Lab Tests Online
Wikipedia

Concept Usage

Obs for this concept: 0

CREATE A NEW FORM

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- We want to create a form that contains:

CASE DETAILS

Age:_____

Gender:

□ Male

□ Female

Diagnosis:_____

Years of disease history:_____

Predominant side:

□ Left

□ Right

Date of implant:_____

Target structure:_____

CREATE THE CONCEPTS

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- Age →
  - question with numeric answer
  - Equivalent to SNOMED CT “current chronological age “ code: 424144002
- Gender →
  - Question with answers “male” and “female”
  - First you have to create the concepts for the answers
- Diagnosis →
  - Question with either open answer or coded answer (set of diagnoses)
- Years of disease history →
  - question with numeric answer

CREATE THE NEW FORM

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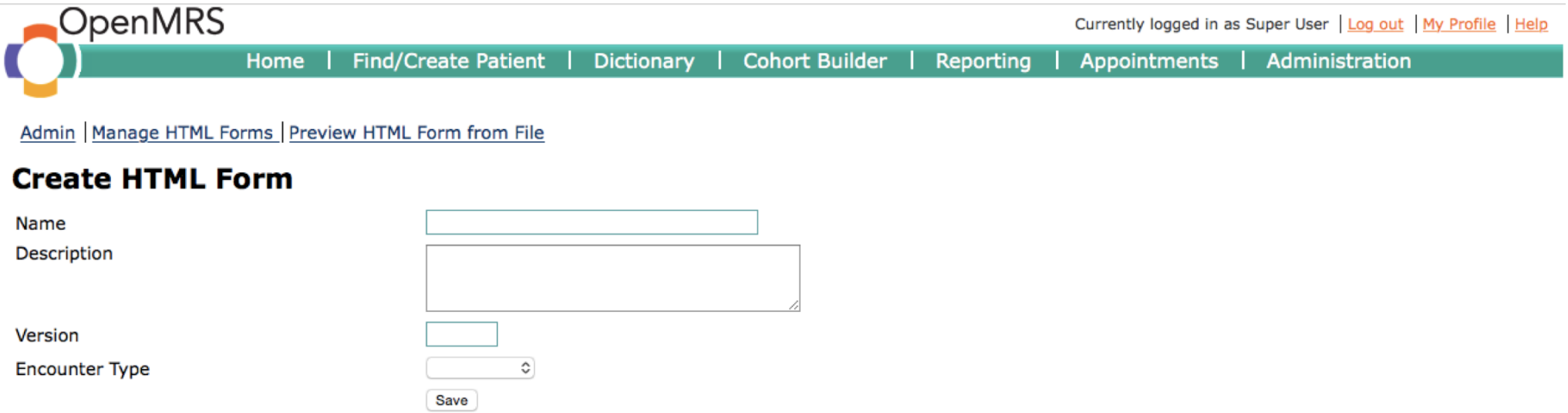

EDIT THE NEW FORM

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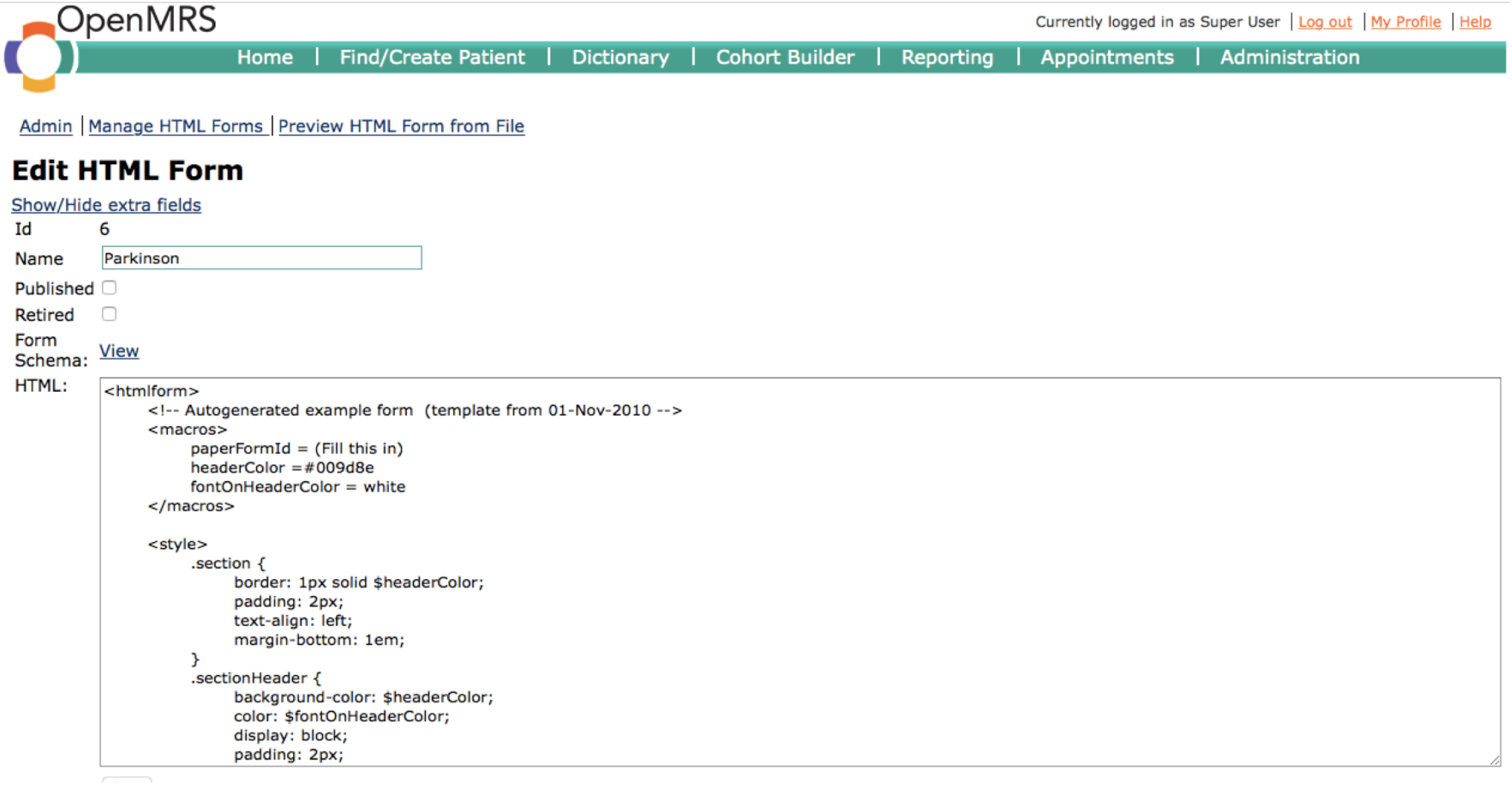

CREATE THE CODE

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```
<tr>
    <td>Diagnosi neurologica:</td>
    <td>
    <obs conceptId="163140" labelText="" style="radio"/>
    </td>
</tr>
<tr>
    <td>Genere:</td>
    <td>
    <obs conceptId=“163143” labelText="" answerConceptIds="163141,163142”
     answerLabels=“Maschio, Femmina” /></td>
</tr>
```

PREVIEW THE NEW FORM

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Preview

Parkinson (v0.0)

Paper Form ID: (Fill this in)

1. Encounter Details

Date: 29/03/2017 (dd/mm/yyyy)

Location: Choose a Location...

Provider: Choose a Provider

2. Demographic Information

Name: **Demo The Person**

OpenMRS ID:

OpenMRS Identification Number:

Gender: **F**

Birthdate: **29/Mar/1986** (Age: **31**)

Diagnosi neurologica: ◯Epilepsy ◯Poliomyelitis ◯Tetanus

Genere:

Enter Form