

# endTB EMR

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## endTB EMR

Login

Choose language

en



Username \*

Enter your username

Password \*

Enter your password

Location \*

Select Location



Login

# The endTB EMR

- The endTB project developed an open source medical record system which:
  - Facilitates electronic data capturing
  - Creates strong links between data and clinical teams
- This system is easy to use, and it is an open source system





## Functions of the EMR

- Used as an M&E tool to follow the cohorts of patients receiving the AOS regimen under operational research
- Used as a clinical chart
  - Provides an up to date patient summary
  - Allows for all patient encounters to be captured (Enrollment forms, lab forms, culture results, ...)
  - Patient monitoring and management
- Programmatic planning, forecasting, tracking progress and reporting results
- Generates evidence and produces simple analysis (for example, treatment outcome on cohorts of patients)

# Installing the endTB EMR

- The endTB EMR is relatively easy to install
- Requires Internet during installation, hardware/server (can be a laptop with 8 GB memory and 500 GB hard disk)
- Designed to be a **one click installation**
  - Once you have your server running CentOS 6.9 OS, all that is needed is to download the required software.
  - Required software are published on github
    - Installation steps are published on the multiples wikis
    - Github: <https://github.com/endtb/endtb-config/wiki/Deployment-Steps>
    - Bahmni wiki (documentation):
      - <https://bahmni.atlassian.net/wiki/spaces/BAH/pages/91455542/endTB+documentation>
- Community using the open source EMR ready to help if you have any questions

# endTB EMR Options

- Presently there is only one endTB EMR option for download (see github link from previous slide) based on the endTB observational study
- A **simplified version** of the endTB EMR for the all oral shorter regimen will be posted on github in the near future based on the AOS regimen distributed forms



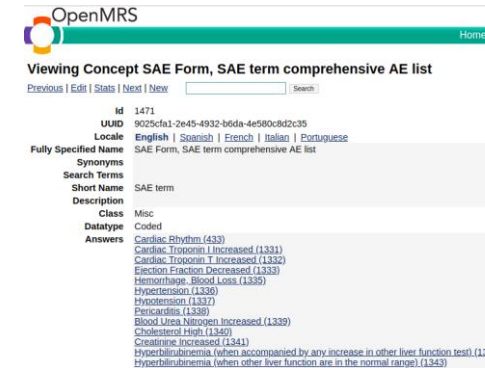
# Configuring the EMR

json files: for configuring locales, dashboards

OpenMRS GUI

```
"serologystatus": {
  "isObservation": true,
  "displaytype": "Full-Page",
  "dashboardConfig": {
    "showGroupDateTime": false,
    "conceptNames": [
      "Baseline, HIV serostatus result",
      "Date of HIV diagnosis",
      "Baseline, Hepatitis B",
      "Baseline, Hepatitis C",
      "Lab, HIV test result",
      "Lab, Hepatitis B antigen test result",
      "Lab, Hepatitis C antibody test result"
    ],
    "scope": "latest"
  },
  "displayOrder": 3,
  "translationKey": "SUMMARY_TITLE_SEROLOGY_STATUS"
},
"coMorbidities": {
  "type": "custom",
  "displayOrder": 4,
  "displaytype": "Full-Page",

```



Javascript: for configuring form conditions

Groovy scripts: for autocalculations e.g BMI

```
'Baseline, Drug resistance': function (formName, formFieldValues) {
  var conditions = {enable: [], disable: []};
  var conditionConcept = formFieldValues['Baseline, Drug resistance'];
  if (conditionConcept == 'Confirmed drug resistant TB') {
    conditions.enable.push('Baseline, Subclassification for confined drug resistant cases');
  } else {
    conditions.disable.push('Baseline, Subclassification for confined drug resistant cases');
  }
  return conditions;
},
'Baseline, Drug Allergies': function (formName, formFieldValues) {
  var conditions = {
    enable: [],
    disable: []
  };
  var conditionConcept = formFieldValues['Baseline, Drug Allergies'];
  if (conditionConcept == 'True') {
    conditions.enable.push('Baseline, Which Drug Allergies');
  } else {
    conditions.disable.push('Baseline, Which Drug Allergies');
  }
  return conditions;
},
```

```
public class BMIExtension extends BaseTableExtension<PivotTable> {
  public void update(PivotTable pivotTable, String patientUuid, String patientProgramUuid) {
    this.bahmniBridge = BahmniBridge.create()
    .forPatient(patientUuid)
    .forPatientProgram(patientProgramUuid);
    Date startDate;
    try {
      Obs latestObs = bahmniBridge.latestObs("TUBERCULOSIS DRUG TREATMENT START DATE");
      startDate = latestObs != null ? latestObs.getValueDatetime() : null;
    } catch (Exception e) {
      e.printStackTrace();
    }
    return;
  }
}
```

# Configuring the EMR (II)

mysql: for writing reports.

```
SELECT
  p.patientProgramId AS patientProgramId,
  p.patient_id AS patientID,
  p.startDate AS startDate,
  p.drugName AS drugName
FROM
  (SELECT
    pp.patient_program_id AS patientProgramId,
    pp.patient_id AS patient_id,
    IF(drug_order.drug_non_coded IS NULL, drug.name, drug_order.drug_non_coded) AS drugName,
    MIN(IF(orders.scheduled_date IS NULL, Date(orders.date_activated), Date(orders.scheduled_date))) AS startDate
    FROM
      patient_program pp
    INNER JOIN episode_patient_program epp ON epp.patient_program_id = pp.patient_program_id AND pp.voided = 0
    INNER JOIN episode_encounter ee ON epp.episode_id = ee.episode_id
    INNER JOIN orders orders ON ee.encounter_id = orders.encounter_id AND orders.order_action != 'DISCONTINUE' AND orders.voided = 0
    INNER JOIN drug_order drug_order ON orders.order_id = drug_order.order_id
    INNER JOIN drug drug ON drug_order.drug_inventory_id = drug.drug_id AND drug.retired = 0
    GROUP BY pp.patient_program_id, drug.name
  ) p
WHERE
  p.startDate <= "#endDate#"
  AND
  p.startDate >= "#startDate#"
  AND
  (cast(p.startDate AS DATE) >= "2015-04-01");
```

Mysql: for writing reports.

- openmrs gui: for user management

Admin | Manage Users | Manage Roles | Manage Privileges | Manage Alerts

### Add/Edit User

Demographic Info

Given \*

Middle

Family Name \*

Gender \* ☐ Male ☐ Female

Provider Account

☐ Create a Provider account for this user

Login Info

System Id (System Id will be generated after saving)

Username  User can log in with either Username or System Id

User's Password \*  Password should be 8 characters long and should have

Confirm Password \*  Retype the password (for accuracy)

Force Password Change ☐ Optionally require that this user change their password on next login

Roles

<input type="checkbox"/> Admin-App	<input type="checkbox"/> Admin-Role
<input type="checkbox"/> Anonymous	<input type="checkbox"/> Authenticated
<input type="checkbox"/> Bahmni-App	<input type="checkbox"/> Bahmni-App-User-Login
<input type="checkbox"/> Bahmni-User	<input type="checkbox"/> Clinical-App
<input type="checkbox"/> Clinical-App-Bacteriology	<input type="checkbox"/> Clinical-App-Common
<input type="checkbox"/> Clinical-App-Diagnosis	<input type="checkbox"/> Clinical-App-Disposition
<input type="checkbox"/> Clinical-App-Observations	<input type="checkbox"/> Clinical-App-Orders
<input type="checkbox"/> Clinical-App-Read-Only	<input type="checkbox"/> Clinical-App-Save
<input type="checkbox"/> Clinical-App-Treatment	<input type="checkbox"/> Clinical-Read-Only
<input type="checkbox"/> Clinical-FullAccess	<input type="checkbox"/> Clinical-ReadOnly

# Configuring the EMR (III)


- Assign different users different permissions (read only, read/write, ability to export data)
- Customize units for laboratory tests
- Choose which modules are active
- Select reports and data exports
- Develop dashboards

# Maintaining the endTB EMR

- It is recommended that when there is a new version of the EMR software you upgrade to this version
  - Fix software bugs
  - Introduce new features
- In addition to installing new versions, the OS should always be up to date to patch security flaws
- Backups should also be done regularly to avoid data loss
- Other maintenance tasks like logrotate
- All the above can be automated with the one click installation process

# Limitations

- Features which aren't yet built in:
  - Interoperability with other devices, for example lab machines like geneXpert
  - Sending alerts
- Installation and maintenance best supported by an IT expert
- Data entry often happens after clinical encounters, so need to establish a system to ensure that clinicians receive results, alerts, and patient summaries



## endTB EMR

Login

Choose language en

Username \*

Enter your username

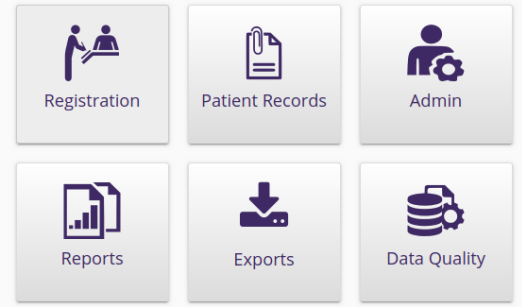
Password \*

Enter your password

Location \*

Select Location

Login



Search + Create New

NEW PATIENT

Patient Identifier

New patient identifier type

Patient Name

Given Name

Surname

Gender

Select Gender

Date of Birth

mm/dd/yyyy

Estimated

Age

Years

Months

Days

Other Information

National Identification Number

Additional Patient Information

Address Line 1

Address Line 2

District of Residence

Country of Residence

Telephone Number

Relationships

Select Relationship Type

Enter Name or ID

Till

mm/dd/yyyy

Save

Treatment Registration

Search + Create New

ID

Enter ID

Search

Name

Enter Name

Registration Number

Enter Reg Number

Search

General Patient Summary Documents Patient Monitoring (T) Patient Monitoring (D)

Print Enter Data

Demo Patient (WBA143267891) Female 24 Years 1 months 7 days Registration Facility: Facility1, City1, Country1

All active TB Drugs

No Drugs to show for this patient

All active Non-TB Drugs

No Drugs to show for this patient

Baseline

No data captured.

Follow-up

No data captured.

Hospitalization

No data captured.

Outcome

No data captured.

Labs and Test Results

No data captured.

Bacteriology Results

No specimen for this patient

Adverse Events Forms

No data captured.

Adverse Events

No data captured.

Serious Adverse Events

No data captured.

Reports My Reports

Name	Start Date *	End Date *	Format *		
Demo - UNITAID-New drug enrollment (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug AEI in first 6 months (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug SAE in first 6 months (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug interim outcome at month 6 (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-Interim Outcome Culture Results (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug final outcome (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug enrollment - Study Cohort (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug SAE in first 6 months - Study Cohort (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug interim outcome at month 6 - Study Cohort (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-Interim Outcome Culture Results - Study Cohort (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - UNITAID-New drug final outcome - Study Cohort (Custom Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - Patient Information Report (Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - Basic Register (T) Report (Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - Basic Register (D) Report (Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue
Demo - Adverse Events Report (Excel)	mm/dd/yyyy	mm/dd/yyyy	Choose Format	Run Now	Queue