TB Tracker
System design
Background

- Reference configuration of DHIS2 tracker for TB
- Based on WHO TB framework (2013)
- Developed as a collaboration between WHO TB and UiO
Design

- Case-based surveillance with some patient management support
- Configuration enables aggregation to quarterly/annual TB reports, as well as additional indicators
- Configured for drug susceptible (DS) and (multi) drug resistant (MDR) TB in one program
Feedback

• Programme produces relevant information about the case to user
Integrated DS and MDR

- One programme that can be used for DS and MDR TB
- Changes in regimen can be recorded, and patients are recorded in the appropriate registers based on this
BMU register

Second-line treatment register

Quarterly report (case registration)

Quarterly report (treatment outcomes)

Combined annual report (treatment outcomes)

Patient registered

Patient started on first-line treatment

DST result from laboratory showing patient has RR-TB or MDR-TB

[no confirmation that second-line treatment started]

Outcome evaluated at the end of first-line treatment

Patient included in report totals

Patient included in report cohorts

Patient included in Block 1 cohorts only

Patient included in Block 2 cohorts only
Patient registered

[confirmation]

Patient registered and treatment category recorded as Second-line treatment regimen

Outcome evaluated at the end of second-line treatment

Patient included in report totals

Patient excluded from report cohorts

Patient included in Block 2 cohorts only
Patient registered
Patient started on first-line treatment
DST result returned from laboratory showing patient has RR-TB or MDR-TB

[confirmation]

Patient registered and started on second-line treatment
Noted that patient has moved to the second-line treatment register
Outcome evaluated at the end of second-line treatment

Patient included in report totals

Patient excluded from report cohorts

Patient included in Block 2 cohorts only
Aggregate outputs

- Aggregate outputs (program indicators) based on 2013 version of WHO reporting framework included
  - Notification by previous status, configuration, age, sex
  - Treatment outcomes for first line treatment
  - Treatment outcomes for second line treatment
### Additional indicators

- Draft indicators for DR-cases and lab - not yet implemented

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
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<tbody>
<tr>
<td>Confirmed cases with DST for rifampicin (%)</td>
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<tr>
<td>RR cases with DST results for fluoroquinolones and second line injectables (%)</td>
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<tr>
<td>Confirmed RR/MDR-TB cases detected among TB patients tested for rifampicin (%)</td>
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<tr>
<td>Confirmed XDR-TB cases detected among TB patients tested for fluoroquinolones and second line injectables (%)</td>
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<td>RR-/MDR-TB confirmed cases enrolled on MDR-TB treatment (%)</td>
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<td>RR-/MDR-TB confirmed cases enrolled on short regimen MDR-TB treatment (%)</td>
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<td>Interval between RR-/MDR-TB diagnosis and start of MDR-TB treatment</td>
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<td>RR-/MDR-TB cases on MDR-TB treatment regimen who died by six months</td>
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<td>TB cases bacteriologically confirmed by sputum smear (%)</td>
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<td>TB cases bacteriologically confirmed by GeneXpert (%)</td>
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<tr>
<td>TB cases bacteriologically confirmed by Culture (%)</td>
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<tr>
<td>Smear positive TB cases confirmed by GeneXpert (%)</td>
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<td>Smear negative TB cases confirmed by GeneXpert (%)</td>
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<td>TB cases confirmed by GeneXpert (%)</td>
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<tr>
<td>Previously treated notified TB cases confirmed by GeneXpert (%)</td>
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<td>TB-HIV cases confirmed by GeneXpert (%)</td>
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<td>Rifampicin resistant TB cases detected by Xpert MTB/RIF (%)</td>
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<tr>
<td>New rifampicin resistant TB cases detected by Xpert MTB/RIF (%)</td>
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<tr>
<td>Previously treated rifampicin resistant TB cases detected by Xpert MTB/RIF (%)</td>
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<tr>
<td>Time from specimen collection to initiation of treatment, drug resistant TB patients [median number of days or line graph of number of days]</td>
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<tr>
<td>Time from specimen collection to initiation of treatment, drug susceptible TB patients [median number of days or line graph of number of days]</td>
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<tr>
<td>Confirmed TB patients receiving DST (%)</td>
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<td>DST coverage for TB patients (%)</td>
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<td>Rifampicin-resistant TB cases with DST results for fluoroquinolones and second-line injectable agents (%)</td>
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<tr>
<td>Rifampicin susceptible TB cases detected by Xpert MTB/RIF that were initiated on first line regimen (%)</td>
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Search and referral

- Two options
- Wide search scope with "break the glass" security
- Referrals
Users

• User groups/sharing included:

  • Regular data entry - edit data for all program stages
  • Lab data capture - edit data for Baseline, Lab and DST
  • Access - view metadata and data
  • Administrator - view and edit metadata
Status

✓ Draft can be downloaded and used as starting point

✓ Captures DS, DR and Lab data (registers), with data validation

✓ Basic program indicators included (can be linked to aggregate TB package/dashboards)
Outstanding issues

• Functionality
  • Finalise and test user group/access configuration
  • Linking of program indicators with aggregate data elements
  • Implementing additional program indicators
  • Scheduling events based on programmatic data - need additional program rule function, on roadmap for 2.33
  • Unsupported indicators - need additional program indicator functions, on roadmap for 2.33
  • Line listing of cases (across stages) - backend support on roadmap for 2.33
Outstanding issues

• Design issues (under consideration)
  • Capturing "Initial lab results" in Lab rather than Baseline stage
  • How to capture location of residence (orgunit hierarchy, dropdowns with admin areas, geo-coordinates)

• Testing
  • No testing yet with Android apps
  • No real-world testing/pilot of complete configuration

• Documentation:
  • Finalise design document
  • Develop implementation guide
  • Procedures for routinely aggregating data

• Translations
https://who.dhis2.org/documentation/work_in_progress.html