Notification through WiFi TB application for private providers:
Update and expansion plan
Background

The number of TB cases found and treated in Indonesia in the last 10 years is around 3 million patients. However, case-finding coverage has been only 32% per year. In the last three years, TB case notification was around 320,000 per year with more than 650,000 per year not being notified. According to the 2013 prevalence survey and the rapid patient pathway analysis in 2017, 21% of TB patients are under treatment by GPs and GP "klinik", while only 1% was notified, making this an important target group for the introduction of Mandatory Notification.

The Minister of Health Regulation no. 67 of 2016 on TB Control established mandatory notification (MN) for both the public and private sectors. Any health facility must record and report identified TB cases using standardized recording and reporting formats. Doctors in private health facilities complain about the additional burden to fill TB reporting forms. This partly explains the low TB patient notification from the private sector. Given the limited resources at primary health facilities (clinics and self-employed physicians), Challenge TB supported the National TB Program (NTP) to develop an android smart phone application to facilitate the reporting of TB patients. The application is called Wajib Notifikasi TB (mandatory notification TB) – or WiFi TB.

Description of WiFi TB

WiFi TB was developed using the open source Java programming language, and is available for Android phones and as a website interface. The source code is owned by Challenge TB and will be handed over to the NTP during the project. WiFi TB version 1 is a mobile app that allows Private Practice Doctors and primary care clinics to notify TB patients. Doctors can see details of TB patients who are either referred or treated by themselves. WiFi TB also provides reminders to doctors to update the clinical progress of patients and treatment outcomes. Public primary health care (PHC) centers and District Health Offices, responsible for monitoring TB notification, can see these notification reports through the WiFi TB website. Based on these notifications, PHC centers and private providers can make local arrangements about drug supplies and other logistics in relation to patient care.

WiFi TB was developed in APA2 and APA3 of Challenge TB (October 2015 - September 2017). The implementation guideline and user guidance for the MN application was finalized in March 2017 through coordination meetings with the NTP. The MN application was officially launched by the Minister of Health on World TB Day celebrated on the 1st of April 2017.

WiFi TB Pilot

Prior to nationwide implementation in Indonesia, the WiFi TB application was tested in four priority districts of CTB in West Jakarta, East Jakarta, Tulung Agung Regency and Medan City between April to September 2017. The evaluation was conducted in mid-September 2017 and the result was used to develop an improved version of WiFi TB, including linkage to SITT (the national TB surveillance system).
This is in its final stage and will be tested in April 2018. Its formal introduction is expected in May 2018 during the National M&E meeting.

Figure 1 shows the schematic data flow in the pilot sites.

Figure 1: Schematic data flow of TB cases notification in 80 pilot sites
Results

Over the period April – July 2017 the WiFi TB app was introduced in 4 Districts involving 80 Puskesmas (PKM). WiFi TB was introduced to 562 GPs, of whom 271 subsequently opened a WiFi TB account (48% acceptance rate), with a total of 138 GPs eventually reporting at least one TB patient. Figure 2 shows TB patient notification from GPs at baseline (Jan-Mar 2017), during the introduction phase (Apr-June) during the full implementation of the pilot (Jul-Sep), and after the pilot (Oct-Dec 2017) across the 80 pilot areas. The use of WiFi TB yielded significant numbers of notified patients under treatment from GPs during the pilot period. After the pilot, and without further intervention from CTB, 28 GPs (out of 271 who have WiFi TB account) notified 29 TB patients through WiFi TB, representing a sustained 48% increase in notification in that period from GP’s in the 80 pilot areas. They each reported on average 1-2 patients per quarter, which may be in line with the expected incidence among their catchment populations.

Over the second half of 2017, WiFi TB by GPs added 2,7% to the TB notifications in the pilot areas. Roll-out of WiFi TB under the District PPM approach is expected to achieve a higher participation rate and yield, as introduction of WiFi TB is part of that approach.

![Figure 2: TB case notifications from GPs in SITT and through WiFi TB (80 sites), quarterly between Jan-Dec 2017 (left-hand scale) and number of GPs reporting TB patients through WiFi TB application (right-hand scale).](image-url)
In September 2017, an evaluation survey amongst private providers, PHC centers, and district health offices on the ease of using WiFi TB found the following:

- **all GPs** thought that WiFi TB was helping to monitor the treatment period of TB patients, WiFi TB is suitable for notification, they would continue using WiFi TB after the pilot period.

- **the PHC centers**, using the WiFi website, said the website was easy to navigate, but that verification of GP accounts was experienced as an additional workload (40% of respondents).

- **the district health office respondents** were happy to see increased case notification from the GPs, which could now be monitored, while suggesting further simplifications of the system and automated interlinkage with SITT.

### Recommendations and WiFi TB version 2

The results of the WiFi TB implementation pilot show that it helped to increase TB case notification from GPs. Based on the evaluation, which included focus group discussions with various stakeholders, the following recommendations were made:

1. The National TB program should integrate WiFi TB into SITT before nation-wide expansion

2. The features of version 2 of WiFi TB should accommodate the recording of presumptive TB, follow up test results, treatment outcomes, and an option to (automatically) send patient reminders for the next appointment through SMS/email

3. The following steps are recommended in the implementation of TB implementation of Mandatory Notification using WiFi TB:
   - Coordination between District Health Offices (DHOs) and related stakeholders (professional associations, BPJS, primary care associations) prior to the implementation of MN.
   - Official Letter from each DHO to the puskesmas, professional organization and all health providers in the area concerning the implementation of MN using WiFi TB.
   - Mapping of primary health providers by the puskesmas, followed by a workshop to agree on the puskesmas-PPM network in their catchment area, and to identify roles of each stakeholder (puskesmas, DHO, GPs, Clinics, cadres, and professional associations) as follows:
     - WiFi TB account verification by DHO and puskesmas
     - Agreement on logistics (Drugs/consumables to be made available to GP’s and their patients)
     - Patient support by cadres/community (e.g. contact investigation, adherence support, follow up of patients who miss appointments, and communication and TB literacy)
     - Supportive supervision, monitoring, and mentoring mechanism from NTP, PHO, DHO to the puskesmas in collaboration with professional societies
     - The appointment of a TB coordinator in the puskesmas
The recommendations from the evaluation suggest to use the *puskesmas*-PPM network as the mechanism for implementation of Mandatory Notification using WiFi TB. The WiFi TB version 2 includes the recommended elements (see figure 3), and is expected to be introduced in May 2018 during the National M&E meeting.

### WiFi TB Mobile App

**Version 1**
- Features to record TB patients (referred and treated).
- Alarm alert feature. In this version the alarm is manually set by the physician as a reminder to update patient status during follow-up and treatment outcome.
- SMS alerts to *puskesmas* staff to report on TB patient notification.
- View the list of TB patient details, with the option to edit records.

**Version 2 (in addition to features of version 1)**
- Features to record presumptive TB.
- Feature to change status from presumptive TB to TB patient.
- Feature to refer patients who were previously treated by the physician.
- Improvements in user interface.
- Added variable of BPJS registration number (optional), mobile number (mandatory) & address (optional) of presumptive TB or patient.
- Several bug fixes.
- Draft feature to save incomplete forms.
- Changes in alarm alert feature. In version 2 it is auto-set by the system to remind doctors to update the patient’s lab results (1st month, 2nd month, 3rd month, 5th month), monitor drug side effect (2nd week) and treatment outcome at 6th month.
- Option to send SMS & notification emails to patients to remind treatment schedules, to *puskesmas* and DHO on report of presumptive TB and TB patients.

### WiFi TB Website

**Version 1**
- Feature of viewing reports on the total number of GPs reporting and TB patients reported at each level (National, Provincial Health Office, District Health Office and *puskesmas*).
- Feature to view the details of TB patients.
- GPs account verification feature that can only be accessed by *puskesmas*.
- User management features.

**Version 2 (in addition to features of version 1)**
- Function to delete patient information.
- Search filter of patient or presumptive TB data by period (Month & year) for each user access level.
- Monthly dashboard each year to display info on:
  - Total presumptive / TB patients reported via WiFi TB.
  - Total presumptive / TB patients treated by GPs.
  - Total presumptive / TB patients being referred.
- Export feature to Excel format.
- Link to SITT.

Figure 3. Features improvement in WiFi TB Ver.2, on the website and mobile application
Nationwide expansion plan

CTB, in close collaboration with NTP, plans to roll-out implementation throughout the CTB supported areas as element of establishing the puskesmas-PPM networks under the District-based Public Private Mix (DPPM) approach. Global Fund sub-recipients who are working on DPPM are required to implement mandatory notification (including WiFi TB) at all levels, outside the CTB-assisted districts. The main improvement in WiFi TB version 2 is the linkage of the WiFi TB database to SITT. This linkage depends on verification of accounts of GPs/clinics by DHO/Puskesmas staff, a process that will be accommodated during the establishment of the puskesmas-PPM networks.

In general, the national expansion plan of WiFi TB will be implemented by the following methods:

1. The implementation of WiFi TB as integral element of the expansion of the DPPM strategy funded through GF (district comprehensive package) and domestic resources; therefore the nationwide introduction of the WiFi TB ver. 2 application and website including its video tutorials is planned during the national and provincial TB M&E meetings, starting in May 2018;

2. Promotion of the implementation of TB notification using WiFi TB in the GF Catalytic Funding supported areas; CTB is offering introduction and training for the implementation of WiFi TB to the relevant GF subrecipients;

3. Monitoring the WiFi TB website regularly by national, provincial and district teams, initially with CTB TA to:
   a. monitor the use of WiFi TB applications by GPs / Clinics. If there are new accounts of GPs that have not been verified, reminders should be sent to respective province/districts;
   b. monitor possible constraints and assist provincial teams in trouble-shooting on technical issues and if necessary provide hands-on mentoring to provincial teams.
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