



DIGITAL ADHERENCE TECHNOLOGY IN ACTION: 99DOTS AS A PLATFORM FOR QUALITY TB TREATMENT BY PRIVATE PROVIDERS IN THE PHILIPPINES

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Background

The private health sector in the Philippines manages tuberculosis (TB) using various unstandardized approaches, ranging from facility-based directly observed treatment (DOT) to self-administered medication with minimal patient support. Monitoring adherence and defaulter tracing are often inadequate, and missing a few doses or interrupting treatment can lead to drug resistance or relapse. A new patient-centered approach for supporting adherence and improving dosing information within the private sector is warranted.

Intervention

KNCV Tuberculosis Foundation implemented a digital adherence technology (DAT) called 99DOTS to support adult drug-sensitive TB patients and their health care providers in three highly urbanized cities in Metro Manila. KNCV assessed the practicalities and scalability of implementing 99DOTS, and its impact on improving treatment outcomes. The 99DOTS demonstration project focused on the urban poor, the elderly, and people living with HIV (PLHIV), all with a high risk of TB and needing support to complete treatment.

Methodology

Healthcare workers (HCWs) provided patients with two weeks worth of anti-TB drugs in customized paperboard sleeves, designed for supporting at-home dosing. When a pill is pushed out, the sleeve reveals a code that patient sends to a toll-free number via text/SMS. The system records the code and sends a confirmation message to patients. If a patient did not log their dose before 6pm, they receive a reminder message. HCWs monitored patient adherence via online dashboard and Android app, and also received daily SMS reports on nonadherent patients. Patients who did not log their dose for one day received a phone call follow up by HCW; two or more days and they were paid a home visit to offer support. In all,

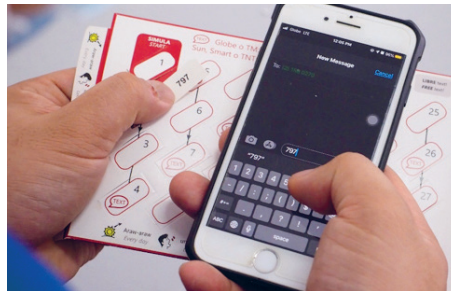


Photo: Red Santos

Patient sends code to toll-free number via SMS/text.

396 (289 male and 107 female) DS-TB patients were enrolled in the 99DOTS between December 2018 and June 2020.

Results

Treatment success rates registered 83.41% in the December 2018–December 2020 cohort of 99DOTS patients, compared with 76.61% among patients in control facilities. Daily adherence rate for patients on 99DOTS was 93.41%. IsoScreen urinalysis tests confirmed the accuracy of 99DOTS in monitoring adherence in a sampling of patients by detecting the presence of the anti-TB medication isoniazid.

Surveyed patients and HCWs found 99DOTS acceptable for use. Patients agreed that the DAT helped them complete their treatment, and that the reminder messages helped prompt them to take their pills. HCWs reported that the various dashboard, app and SMS tools helped them identify patients needing follow up. While access to a basic cellphone was a minimum

patient requirement for 99DOTS use, reduced expenses from less frequent travel to facilities point to cost efficiencies of 99DOTS-supported treatment.

Conclusion

Using 99DOTS helps improve treatment success rate, accurately monitors treatment adherence, and is acceptable to both patients and health providers. This DAT intervention improves provision of patient-centered care, and initial findings suggest it may reduce patient costs of accessing TB treatment. Based on this and the results of similar DAT projects, the Philippines NTP will be expanding 99DOTS to additional settings.

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Patient perspective:

Juan (27) is a PLHIV who enrolled in 99DOTS and completed his treatment successfully with 100% adherence:

“Running a small eatery starts with going to the market at 4:00 AM to buy fresh produce. With my day as busy as it is, I found the daily reminders very helpful. These cued me to take my medication amid the frenzy of making a living. And every time I got a response that the code I texted was recorded, I felt one step nearer to winning my battle with TB. And win I did!”

Treatment Adherence Rates in 99DOTS Implementing Facilities December 2018 – June 2020

