Initial loss to follow up among tuberculosis patients: The role of Ward-Based Outreach Teams and short message service (SMS) technology

Introduction: In South Africa, tuberculosis (TB) is still a serious public health problem with rates of initial loss to follow up (initial LTFU) varying between 14.9% and 22.5%. Poor clinician-patient communication resulting in lack of clarity on next steps, patients not prioritizing their healthcare and patients not knowing that their results are ready at the clinic are some reasons for initial LTFU. This PhD aimed to assess the effectiveness of Ward-based Outreach Teams (WBOTs) or Short Message Service (SMS) technology in reducing TB initial LTFU in Johannesburg, South Africa between 2018 and 2020.

Methods: A mixed methods approach comprising two phases (formative and intervention) was employed. In the formative phase, secondary data were analyzed for frequency distributions to determine the rates of initial LTFU in the study area. In addition, in-depth interviews with WBOT Managers and with TB Program Managers were conducted to determine their perceived reasons for TB initial LTFU. In the intervention phase, two interventions (WBOTs/SMS technology) were tested using a 3 arm randomized controlled trial (RCT) comparing each of the interventions to standard of care (SOC). The WBOTs delivered paper slip reminders while SMS intervention entailed sending reminder SMS messages to patients as soon as TB results were available. Chi square statistics, Poisson regression and Kaplan-Meier estimates were used to analyze the data. The RCT was followed by in-depth interviews with WBOT members and with some of the trial participants who had tested TB positive and had received reminder messages. To identify themes in the qualitative studies, both inductive and deductive coding were used in the hybrid analytic approach.

Results: From the formative phase, the TB initial LTFU among the 271 patients was found to be 22.5% and the overall time to treatment initiation was 9 days. Interviews with managers revealed that relocation and "shopping around" were the main patient related factors found as the reasons for initial LTFU. Health system related factors for initial LTFU were communication and staff rotations. In terms of TB related work, WBOTs screened household members for TB and referred them for TB testing. The services of the WBOT/TB programs which were found to be integrated were: referral of symptomatic patients for TB testing and adherence monitoring in patients already on TB treatment. There was minimal involvement of the WBOTs in the treatment initiation of patients diagnosed with TB. Findings from the trial were that 11% (314/2850) of the participants tested positive for TB. The 314 TB patients were assigned to one of the 3 arms (SOC=104, WBOTs=105, and SMS=105). Overall, 255 patients (81.2%) were initiated treatment across all study arms. More patients in the SMS arm were initiated TB treatment than in the SOC arm (92/105; 88% and 81/104; 78% respectively; P=0.062). Patients in the SMS arm also had a shorter time to treatment initiation than those in the SOC arm (4 days versus 8 days; P<0.001). A comparison of the WBOTs arm and the SOC arm showed similar proportions initiated on treatment (45/62; 73% and 44/61; 72% respectively) as well as similar times to treatment initiation. Findings from the post-trial interviews showed that delivery of the reminder paper slips by the WBOTs during the trial was something new, but possible to incorporate into their daily schedule. The patient interviews revealed that various emotions (happiness, fear, worry etc.) were experienced upon receipt of the reminder messages. Participants also reported that receiving the reminder message did influence their decision to go back to collect the results.

Conclusion: Reminder messages to patients are beneficial in TB treatment initiation. National TB programs can use SMS messaging because it is an affordable and feasible method. Although

implementation of the WBOTs intervention was suboptimal, findings show that with proper integration of TB and WBOT programs, WBOTs have the potential to contribute to improved treatment initiation.