

Project Extension for Community Healthcare Outcomes (Project ECHO) Improves Care and Treatment for Multidrug-resistant Tuberculosis Patients in Tanzania

Daud Dunstan Peter^{1*}, Shabani Ramadhani Mziray¹, Isack Lekule², Riziki Kisonga¹, Bruce Baird Struminger⁴

¹Kibong'oto Infectious Diseases Hospital (KIDH), Siha, Kilimanjaro, Tanzania

²National Tuberculosis and Leprosy Program (NTLP), Dodoma, Tanzania

⁴The ECHO Institute, University of New Mexico Health Sciences Centre, New Mexico, United States

Background: Project Extension for Community Healthcare Outcomes (Project ECHO) brings favorable treatment outcomes on a wide range of diseases and conditions. Since 2017, Tanzania hosts multidrug-resistant tuberculosis (MDR-TB) ECHO with the Kibong'oto Infectious Diseases Hospital (KIDH). However, little is known on outcomes of MDR-TB ECHO. The study aims to describe outcomes of MDR-TB ECHO in managing MDR-TB patients in Tanzania.

Methods: This was a retrospective study conducted at the MDR-TB ECHO hub (KIDH) in Tanzania. MDR-TB ECHO is a weekly telementoring, video conferencing-based model connecting experts in the hub and primary care clinicians (PCC) in the spokes (MDR-TB treatment centers). Telementoring provides a platform for MDR-TB case presentations by PCC, discussions, recommendations, and didactic training on MDR-TB diagnosis and management. This study describes the outcomes of MDR-TB ECHO in facilitating the PCC on managing three selected MDR-TB cases. Case 1 was a child with MDR-TB presenting with neck abscess and anemia secondary to chronic illness. Case 2 was an adult with MDR-TB/End-stage renal disease co-morbidity. Case 3 was an adult failing standard MDR-TB treatment.

Results: Through recommendations from MDR-TB ECHO, MDR-TB treatment was initiated in all three cases. Anemia was managed and resolved (Haemoglobin 5 g/dl to 13 g/dl) in case 1, surgical dressing to neck abscess was done, and the neck healed. Case 2 was initiated with end-stage renal disease management, uremic encephalopathy, and lower limb edema resolved. Serum creatinine dropped from 722 to 350 $\mu\text{mol/L}$ while TB smear converted from positive to negative at month 3 of MDR-TB treatment. Individualized MDR-TB treatment was initiated to case 3, TB smear converted from positive to negative from Month 2 to 12 of treatment. TB culture converted from positive to negative at Months 10 and 11. All three cases continue with MDR-TB treatment.

Conclusion: To our knowledge, this is the first report on the effectiveness of project ECHO in supporting the PCC in bringing favorable treatment outcomes to MDR-TB patients. We recommend a scale-up of the ECHO model in managing MDR-TB and other infectious diseases.

