The Use of Videophone for Directly Observed Therapy for the Treatment of Tuberculosis

Dear Editor:

To prevent the spread of tuberculosis (TB) and limit the development of drug-resistant strains, the World Health Organization and the Canadian TB Standards recommend Directly Observed Therapy (DOT) for TB patients.^{1,2} In Toronto, DOT is conducted by Toronto Public Health (TPH) staff who visit patients with active TB 3 to 7 days/week over the course of their treatment (i.e., 6 to 24 months) to monitor their adherence and response to medications and to support the patient to complete treatment successfully. For medically stable and compliant patients with active TB, TPH has initiated the use of Videophone DOT (VDOT) as a supplement to Community DOT (CDOT). In VDOT, DOT visits are conducted using videophones, which are telephones with a small video screen streaming real-time video and audio. A secure virtual link is established over the internet with videophones located in both the patient's home and the public health office. To be eligible for VDOT, patients must meet stringent criteria, including medical stability, adherence to treatment, access to high-speed internet, and completion of at least four weeks of CDOT treatment. The VDOT program was developed to increase our capacity, flexibility, and efficiency of providing DOT.

TPH conducted a VDOT pilot project with 13 patients in the fall of 2011. Time (for travel, visit, and documentation) and kilometrage requirements were tracked first for five weeks on CDOT (n=278 visits), then for five weeks on VDOT (n=266 visits) with the same patients. Nurses also recorded any technical issues. At the end of the trial, a patient telephone survey was administered by evaluators independent of the TB program. In-depth interviews were conducted with TPH nurses, information technology staff, and management involved in the project.

Results demonstrated that VDOT is a patient-friendly, practical, flexible, and cost-effective method of delivering DOT to carefully selected patients with TB. In this highly selected group, treatment compliance rates were similar for both CDOT and VDOT (~ 98%).

The time required to conduct a VDOT visit (including visit time, travel, and documentation) is 10 minutes, on average, which is significantly less than the 36 minutes for a CDOT visit (ratio = 3.60 VDOT visits: 1 CDOT visit). Both patients and health unit staff report high satisfaction with VDOT, in particular flexibility, privacy, and more efficient visits.

A drawback of VDOT, reported by both patients and staff, was diminished interpersonal interaction. In addition, conducting a physical assessment over a videophone can be difficult, particularly if picture quality is poor. Most technical issues were concentrated among a few patients, indicating that the quality of an individual patient's internet connection plays a significant role in the quality of transmission.

Based on these overall positive results, TPH has made technical improvements and expanded VDOT to approximately 35 patients (25% of total cases). In conclusion, for stable, adherent patients, we believe that VDOT is a very useful mode of service delivery that facilitates patient support throughout treatment while enhancing privacy and flexibility. In the upcoming year, we plan to investigate other possible solutions to keep pace with changing technology and facilitate increased access to VDOT for eligible patients.

Margaret A. Gassanov, PhD,¹ Linda J. Feldman, MScN,¹
Adrian Sebastian, BScN, RN,² Marnie J. Kraguljac, BScN, RN(EC),³
Elizabeth Rea, MD, MSc, FRCPC,⁴ Barbara Yaffe, MD, MHS, FRCPC⁵

Toronto Public Health, Toronto, ON

1. Program Evaluator

2. Manager, Tuberculosis Prevention and Control

3. Associate Director, Tuberculosis Prevention and Control

4. Associate Medical Officer of Health, Tuberculosis Prevention and Control

5. Director, Communicable Disease Control and Associate Medical Officer of Health

REFERENCES

1. World Health Organization. Treatment of Tuberculosis Guidelines, 4th edition, 2010. Available at: http://www.who.int/tb/publications/tb_treatment-guidelines/en/index.html (Accessed February 24, 2012).
2. Minister of Health. Canadian Tuberculosis Standards 6th Edition – 2007. Available at: <http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tbstand07-eng.php> (Accessed January 25, 2012).