

Point-of-Care Monitoring Devices for Long-Term Oral Anticoagulation Therapy: Clinical and Cost Effectiveness

Technology

Point-of-care (POC) devices that measure the international normalized ratio (INR) for monitoring oral anticoagulation therapy (OAT).

Condition

Patients who are at an elevated risk of experiencing thromboembolic events or complications from blood clots, and require long-term (more than three months) OAT.

Issue

The availability of portable POC devices makes it possible for patients on long-term OAT to be monitored without having to visit a hospital or laboratory. This is especially relevant for rural or remote patients not living near a laboratory, or for patients wishing to travel for extended periods. The utility of these devices in the monitoring of OAT is uncertain. To make informed decisions regarding funding, those who administer anticoagulation programs need to know how POC devices used by patients and anticoagulation clinics compare with standard laboratory testing in clinical and cost effectiveness.

Methods and Results

A systematic review of the clinical and economic literature was performed. For the clinical review, multiple databases were searched. Two reviewers independently assessed quality, after extracting data from the 16 eligible articles. A meta-analysis was conducted. In conducting an economic analysis, seven articles describing six unique studies were

reviewed, and a primary economic evaluation was performed.

Implications for Decision Making

- **POC devices can improve health.** Using POC devices to manage OAT results in significantly fewer deaths and thromboembolic events, and better INR control than conventional laboratory testing, with no significant difference in hemorrhagic events.
- **POC devices can reduce costs.** Compared to laboratory testing, using POC devices in anticoagulation clinics is cost-saving compared with conventional testing for health care payers. It is also cost effective if society is willing to pay \$50,000 for a quality-adjusted life-year (QALY). Self-testing by patients compared to laboratory testing does not seem to be cost effective from a publicly funded health care perspective.
- **Additional resources are required.** Up to 24% of OAT patients in Canada could be eligible for self-testing or self-management with POC devices. The capital outlay for these patients would be \$50 million and the annual costs for consumables would be \$18 million.

This summary is based on a comprehensive health technology assessment available from CADTH's web site (www.cadth.ca): Brown A, Wells P, Jaffey J, McGahan L, Poon M-C, Cimon K, Campbell K. *Point-of-care monitoring devices for long-term oral anticoagulation therapy: clinical and cost effectiveness*