Low-Molecular-Weight Heparins versus Warfarin for Long-Term Prevention or Treatment of Venous Thromboembolism

Context
Venous thromboembolism (VTE) is a collective term that refers to both deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT is the formation of a blood clot in a vein, usually in the legs. When a clot dislodges and travels to the lungs, it causes PE, which is associated with increased morbidity and mortality.

Technology
Anticoagulant drugs, such as low-molecular-weight heparins (LMWHs) and warfarin, are used for primary prevention of VTE in patients who are at higher risk of developing this condition. These drugs are also used for the treatment of VTE and subsequent secondary prevention. However, anticoagulant drugs increase the risk of bleeding. In most cases, anticoagulation through oral means using warfarin is recommended after initial anticoagulation is achieved intravenously using LMWHs, fondaparinux, or unfractionated heparin.

Issue
There are some populations, such as cancer patients or those unable to use warfarin, for which extended anticoagulation with LMWHs is the preferred treatment option. Extended LMWH therapy for treatment of VTE and subsequent prevention lasts for a minimum of three months. Extending therapy beyond that time can be beneficial for patients with persistent risk factors, or who are experiencing recurrent or unprovoked idiopathic VTE. A review of the comparative clinical and cost-effectiveness of LMWHs versus warfarin for long-term primary prevention or treatment and secondary prevention of VTE will help decision-making about LMWHs.

Methods
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
For patients requiring long-term (> 35 days) primary prevention of VTE:
- No evidence on LMWHs versus warfarin was identified.

For patients requiring long-term (> 35 days) treatment and secondary prevention of VTE:
- LMWHs may be as effective as warfarin in preventing mortality and recurrent VTE.
- LMWHs may be more effective than warfarin for some cancer patients.
- LMWHs and warfarin likely carry a similar bleeding risk.
- No economic evidence was identified for individual drugs, with the exception of dalteparin, which may be more cost-effective than warfarin in cancer patients.

Results
The literature search identified 259 citations. Of these, 29 were deemed potentially relevant. Although 10 publications met the inclusion criteria, 6 were referenced in at least one selected systematic review and were excluded. Therefore, 4 publications were included in this review: 2 clinical systematic reviews and 2 economic evaluations.