

How Much Would We Save if We Switched to Aspirin for Thromboprophylaxis? A Multi-Perspective Budget Impact Analysis

Joseph Levy¹, Robert V O'Toole, Katherine Frey², Joshua Layne Gary³, William T. Obremskey⁴, Deborah M. Stein, Renan C Castillo⁵, Nathan N O'Hara⁶

¹Johns Hopkins Bloomberg School of Public Health, ²Johns Hopkins University, ³Keck School of Medicine of USC Department of Ortho, ⁴Vanderbilt Ortho Inst, ⁵John Hopkins Bloomberg School of Public Health, ⁶University of Maryland

INTRODUCTION:

Clinical guidelines recommend low-molecular-weight heparin (enoxaparin) for thromboprophylaxis in orthopaedic trauma patients. Recently, a large clinical trial found aspirin to be non-inferior to enoxaparin for thromboprophylaxis in this patient population. We modeled the budget implications if aspirin were adopted as the standard of care for thromboprophylaxis in orthopaedic trauma patients in the United States.

METHODS:

We constructed a 1- year budget impact model comparing two scenarios: 1) current spending on thromboprophylaxis in this patient population, assuming widespread enoxaparin use, and 2) the spending if aspirin were utilized instead. The model included fracture incidence estimates from the National Inpatient Sample, dose, duration, and rates of adverse events (death, pulmonary embolism, deep vein thrombosis, and bleeding events) data from the clinical trial, as well as costs from national claims data. We derived medication costs from current market prices across payer types and care settings (i.e., inpatient and post-discharge). The model incorporated uncertainty around each parameter based on calculated standard errors and generated bootstrapped estimates of costs and cost savings disaggregated by payer type.

RESULTS:

We estimated that in the US, thromboprophylaxis is prescribed after orthopedic trauma for over 638,065 patients per year. The cost of care, including thromboprophylaxis, initial hospitalization, and post-discharge care for the enoxaparin scenario, was \$21.5 billion and \$21.2 billion using aspirin. The cost savings from switching from enoxaparin to aspirin thromboprophylaxis would be \$298 million per year (95% CrI: \$60 million to \$1,102 million). Of the cost savings, 87% would accrue to insurers, 10% to patients, and 3% to hospitals. However, an uninsured patient would realize the insurer's cost savings. When accounting for the uncertainty of all parameters, the strategy using aspirin versus enoxaparin reduced overall costs in 99.8% of simulations.

DISCUSSION AND CONCLUSION:

Our findings suggest a widespread switch from enoxaparin thromboprophylaxis to aspirin would lead to over a quarter billion dollars in annual cost savings in the US alone. Insurers stand to benefit most from this practice change. However, patients, especially those without insurance, would realize considerable savings from aspirin thromboprophylaxis. The impact of the change on hospital budgets would be negligible.