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## Time driven activity-based cost analysis for outpatient anticoagulation therapy: Direct costs of anticoagulation in a primary care setting with optimal performance

**Rohit Arvind Bobade** Mayo Clinic, USA

**Objective:** To determine how overall cost of anticoagulation therapy for Warfarin compared with that of Novel Oral Anticoagulants (NOACs). Also, to demonstrate a scientific, comprehensive and an analytical approach to estimate direct costs involved in monitoring and management of anticoagulation therapy for outpatients in an academic primary care clinic setting, post-initiation of therapy.

**Method:** A population based cross-sectional study was conducted in conjunction with observations of patient care processes between August 2014 and January 2015. The study was conducted in an academic primary care outpatient setting at Mayo Clinic's Warfarin Anticoagulation Clinic, Rochester, MN. The Anticoagulation Clinic serves patients 18 years of age or older in Warfarin therapy management for any indication after referral from the patient's primary care provider. The study included Anticoagulation Clinic enrollment data on a population of 5,526 patients. Time-Driven Activity-Based Costing (TDABC) technique was applied. Detailed process flow maps which showed process steps for all the anticoagulation program components and care continuum phases were created. Staff roles associated with each of the process steps were identified and displayed on the maps. Process times and costs were captured and analyzed. The main outcome was direct cost of monitoring and management of anticoagulation therapy, post-initiation of therapy.

**Results:** The cost of Warfarin management for patients who display unstable International Normalized Ratio (INR) is more than three times those who display stable INR over time. (Comparator to distinguish stability: Frequency of point-of-care visits needed by patients.) For complex anticoagulation patients, total cost of medication and monitoring for Warfarin anticoagulation therapy is similar to that for NOACs.

**Conclusion:** Despite Warfarin being significantly less expensive to purchase than NOACs, overall Warfarin management incurs higher costs due to laboratory monitoring and provider time than NOACs. NOAC treatment, therefore, may not be more expensive than Warfarin therapy management for complex anticoagulation patients.

## **Biography**

Rohit Arvind Bobade is currently working as an Operations Manager at Mayo Clinic, USA. He completed his Master of Science in Industrial Engineering from University of Wisconsin-Madison, USA and Bachelor of Engineering from India.

Bobade.rohit@mayo.edu bobade.rohit@uwalumni.com

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