Oral Defense Announcement
University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree
Doctor of Philosophy in Business Administration with an emphasis in Logistics & Supply Chain Management

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Optimizing Healthcare Strategic Sourcing with Consideration of Physician Preference and Vendor Scorecards in the Supply Chain

Date: September 28, 2018
Time: 1:00 p.m. to 3:00 p.m.
Place: 212 Express Scripts Hall

Abstract
This research focuses on the design of a procurement model for expensive medical supplies in a healthcare supply chain. A deterministic optimization model generates recommendations for optimal purchases of products in a given planning period. The model combines common concepts of supply chain procurement such as leveraging tiered pricing, ensuring supply base diversity with phenomena unique to healthcare supply chain such as consideration of physician preference for products.

The deterministic optimization model minimizes total spend over a chosen planning period with consideration of four key decision parameters:

- Physician preference requirements (which are imposed as rules on product substitutability),
- Upper limits on vendor market share to ensure a suitably diverse supply base
- Vendors’ performance scores to impose standards for product pricing, quality, service, etc.
- Quantity discount rebate parameters for bulk purchasing to help contain medical costs

The optimization model reveals the extent to which higher product substitutability and lower supply base diversity may help hospitals reduce total procurement costs. Experiments with the optimization model also reveal the potential consequences of rater biases in vendor scorecards on procurement cost. The various parameter combinations listed above may be used in negotiating contracts for better pricing.

In summary, this research addresses questions pertinent to healthcare supply chains concerning the possible cost of physician preference for products, the impact of subjective scorecards on procurement costs, the effect of planning period on procurement plans, and the cost of vendor diversity.

Defense of Dissertation Committee
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