Title: Pharmacoeconomic Analysis of Safety Interventions by a Pharmacist-Adjudicated Prior Authorization Consult Service

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ABSTRACT

Purpose/Background: The establishment of a centralized formulary management system ensures that health care professionals work together to form an integrated patient care process to promote clinically sound, safe, and cost-effective medication therapy. Pharmacists have a foundational role in supporting a formulary management system. A pharmacist-adjudicated prior authorization drug request (PADR) consult service has the potential to optimize drug therapy by decreasing medication misuse, minimizing adverse drug events (ADEs), and preventing medication errors.

Objective: The primary objective for this study was to determine the cost avoidance associated with a pharmacist-adjudicated PADR safety review within a Veterans Affairs (VA) health care system. The secondary objectives included evaluating the cost savings associated with PADRs not approved by a pharmacist due to a safety intervention and characterizing the severity of avoided ADEs.

Methods: A retrospective chart review using the VA Computerized Patient Record System was conducted to identify PADRs adjudicated by a pharmacist within the Durham VA Health Care System between July 1, 2016 and June 30, 2017. Only PADRs that were not approved due to a safety intervention were included in the study; PADRs that were approved, incomplete, or not approved due to other rationale (e.g. formulary alternative) were excluded. Cost avoidance was calculated by assessing the probability of an ADE occurring in the absence of the PADR safety intervention and multiplying by the estimated cost avoided per recommendation respective to the clinical setting of the PADR. Cost savings were calculated by subtracting the costs of both the recommended alternative therapy, if applicable, and the cost of pharmacist PADR review from the cost of the requested medication. Severity estimates for avoided ADEs were also assessed.

Results: A total of 1001 PADRs were identified by pharmacists during the study period. Of these, 96 PADRs met criteria for inclusion and were adjudicated in the following clinical practice areas: anticoagulation (49.0%), formulary management (28.1%), oncology (9.4%), infectious diseases (9.4%), and inpatient (4.4%). Overall, pharmacist-adjudicated PADR safety interventions resulted in a total cost avoidance of $24,491.01 (mean: $255.11; median: $289.68) and a direct cost savings of $288,695.63 (mean: $3,007.25; median: $968.77) over the 12-month study period. Anticoagulant PADRs represented 50.9% of the total cost avoidance. Infectious diseases PADRs represented 78.4% of the total cost savings. The majority of PADRs were not approved due to likelihood of ADE occurring (49.3%), lack of evidence supporting use (29.2%), and significant drug interaction potential (29.9%). The severity levels of the ADEs avoided were classified as minor (7.3%), moderate (24.0%), major (64.6%), and catastrophic (4.2%).

Conclusion: Safety-related interventions by a pharmacist-adjudicated PADR consult service resulted in substantial cost avoidance and cost savings and the majority of interventions had the potential to prevent major ADEs. The role of pharmacists in a formulary management system led to clinically sound, safe, and cost-effective medication therapy. This economic analysis and safety review has the potential to justify a pharmacist-adjudicated PADR consult service within a health care system.