

# **Demonstrating Pharmacists' Impact on Therapeutic, Safety, Humanistic and Economic Health Outcomes: A Systematic Review and Meta-analysis**

## **1. Abstract of proposal**

Background: Pharmacists in the United States (US) have been experiencing growing patient care demands and expanded roles in various practice settings. Numerous studies have been published assessing diverse aspects of pharmacist-provided care. However, no systematic review has been conducted to comprehensively evaluate the existing evidence regarding the value of pharmacist-provided services that can offer future directions for the profession as it continues to evolve.

Objective: The overall objective of this study is to conduct a systematic review of evidence demonstrating pharmacists' impact on health outcomes in the US supplemented with focused meta-analyses.

Key scientific questions: This review will address the following key scientific questions:

1. What is the evidence of pharmacists' impact on therapeutic outcomes among patients across practice settings in the US?
2. What are the contributions of pharmacists' services to improving medication safety in patient care arenas in the US?
3. What are the effects of pharmacists' interventions on health-related humanistic outcomes in the US patient population?
4. What types of pharmacist-provided care in the US result in economic benefit (cost effective and/or cost saving) to patients, providers and payers?

Search strategy: The search team will obtain studies using multiple electronic bibliographic databases (e.g., NLM PubMed, Ovid/MEDLINE) supplemented with hand searches of references and consultation with pharmacy experts.

Selection criteria: Studies that describe pharmacists' services and use comparison groups to report health and other outcomes such as economics and quality of life will be included in this review. Based on the availability of data, specific selection criteria will be developed to perform focused meta-analyses.

Data collection and analysis: Data will be extracted from included studies, analyzed, and interpreted by multidisciplinary teams of reviewers to promote the accessibility of results across disciplines (team member disciplines include pharmacy, medicine, nursing, economics, law, public health, and social work). Supplemental data extraction will be conducted for meta-analysis following a similar procedure. Systematic review data will be analyzed by reporting summary statistics for characteristics and evidence (assessed using the level of evidence hierarchy) of pharmacists' impact on each health-related outcome category. Data for the meta-analyses will be analyzed by constructing: (1) forest plots to determine overall estimate of effect and statistical significance of outcomes measured; and (2) funnel plots to assess publication bias.

Anticipated results and implications: This study will determine the impact of pharmacists serving in various patient-care arenas in the US. Furthermore, it will lead to better understanding of ongoing needs in pharmacy practice research and publication. The Evidence Report produced from this study will serve as a summarizing document that will be available in a format useful to key decision-makers in the design, development, implementation, and funding of health policy and programs. Overall, the findings will have important implications for patients, health policy makers, third-party payers, executives in health care provider organizations, and pharmacy practice leaders.