

Title: A systematic review of economic evaluations of clinical pharmacy services in the United States: 2018-2022

Authors: Bertha De Los Santos PharmD MS, Michael Kim PharmD, Abdullah Alsharif PharmD, Daniel Touchette PharmD MA, Alexandra Perez PharmD MS

Background: Our objective was to identify, evaluate and synthesize evidence on the economic impact of clinical pharmacy services (CPS) compared to usual or alternative care in the United States.

Methods: We searched Ovid MEDLINE, PubMed, IPA, Embase, and CINAHL in September 2023 for US-based pharmacist-led clinical interventions published between January 2018 and December 2022. We excluded articles with a team-based intervention where the pharmacist's individual economic impact couldn't be determined. Risk-of-bias was assessed using the Quality of Health Economic Studies (QHES) instrument for full economic evaluations. Descriptive statistics were used to summarize CPS characteristics.

Results: Out of 106 articles, 27.4% (N=29) focused on general pharmacotherapy monitoring, 35.8% (N=38) on disease management, and 27.4% (N=29) on targeted drug programs. Intervention settings were 33.9% (N=36) in hospitals, 29.2% (N=31) in ambulatory care, and 9.4% (N=10) in community pharmacies. Nearly half 45.3% (N=48) of the interventions involved medication therapy management or comprehensive medication management. According to ACCP's care components, 58.5% (N=62) included patient assessment, medication evaluation, care planning, and follow-up. Economic evaluations varied, with 33.0% (N=35) descriptive studies, 41.5% (N=44) partial evaluations with a comparator, and 16.9% (N=18) full evaluations. The median (range) QHES score for full evaluations was 68(8-99). Seven studies reported CPS as cost-effective.

Discussion: Few included articles were full economic evaluations. While some partial economic evaluations reasonably assessed billing or return on investment, others were incomplete assessments without control groups and with substantial bias. Using these partial reports to justify clinical services is not recommended.