An Overview of Systematic Reviews of Economic Evaluations of Pharmacy-based Public Health Interventions: Addressing Methodological Challenges

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Background
Pharmacy interventions are a subset of public health interventions and its research is usually performed within the scope of a trial. The economic evaluation of pharmacy interventions requires certain considerations which have some similarities to those of public health interventions and to economic evaluations alongside trials. The objective of this research is to perform an overview of systematic reviews of economic evaluations of pharmacy services and triangulate results with recommendations for economic evaluations of both public health interventions and alongside trials.

Methods
(1) Exploratory review of recommendations on the economic evaluation of public health interventions, (2) exploratory review of recommendations for conducting economic evaluations alongside trials, (3) overview of systematic reviews of economic evaluations of pharmacy interventions (protocol registered with PROSPERO 2016 outlining information sources, inclusion criteria, appraisal of reviews and synthesis methods).

Results
Fourteen systematic reviews containing 75 index publications were included. Reviews reported favorable economic findings for 71% of studies with full economic evaluations. The types of economic analysis are diverse. Two critical quality domains are absent from most reviews. Key findings include the following: certain types of risk of bias, wider scope of study designs, and most economic quality criteria met but some issues unresolved or unclear. Triangulation revealed additional gaps. Limitations include choice of critical quality domains and potential biases in the overview process.

Conclusions
Economic evaluations of pharmacy-based public health interventions seem to follow most economic quality criteria, but there are still some issues in certain key areas to improve. These findings may assist in improving the design of pilot trials of economic evaluations in pharmacy, leading to robust evidence for payers. Based on the findings, we propose a methodological approach for the economic evaluation of pharmacy-based public health interventions.