Author’s response to reviews

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

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Response to Reviewers of Systematic Reviews

Reviewer Reports

Response to Reviewer #1: Thank you for your review of our paper and for the encouraging general comments provided. We have answered each of your points below. Changes are highlighted in yellow in the manuscript (except for reordering of paragraphs).

Abstract

1. The triangulation of recommendations for economic evaluation of public health interventions alongside clinical or pragmatic trials / pharmacy services is very well appropriate. However, I propose to reinforce the rationale and mostly the link between the three themes. The objectives cited in the background section seems to be more clear.

REPLY: According to your suggestion, we have changed the sentence as follows: 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. 2. The abbreviation AMSTAR-2 could be deleted in this part unless the authors consider it trivial.

REPLY: According to your suggestion, we have deleted the abbreviation AMSTAR-2 in abstract. It now reads as follows: Two critical quality domains are absent from most reviews.

Background

3. The first six little paragraphs presenting different themes and concepts are not easy to link. The authors should better bring together the ideas to naturally conclude the objectives. Moreover I find the first sentence is not catchy, while the paper is really interesting. I will strengthen the rationale of the objectives.

REPLY: Thank you for this remark. As we read it again it does indeed appear somewhat disconnected. We have revised these first paragraphs as per you suggested, in attempt to make the linkage of concepts and objectives clearer. It now reads as follows: Pharmacy-based public health
interventions can be defined as complex health interventions, provided by pharmacists to patients in the community pharmacy setting, which are beyond, but do not necessarily exclude, the medication supply role. These interventions include health promotion and support on self-monitoring, disease prevention, screening, disease and medication management, and cover a wide spectrum of areas, including the main public health areas of interest as defined by the National Institute for Health and Care Excellence (NICE): cardiovascular disease; chronic illness; diabetes; drugs; mental health; obesity; physical activity; screening; sexual health; smoking and tobacco; and vaccine preventable diseases [1], to name only the more relevant. Complex health interventions require several interacting components, including behavioral changes from providers and patients, factors influencing multiple levels, and some degree of flexibility of interventions [2]. All these features have also been identified in pharmacy interventions [3, 4] The strategies used to operate pharmacy-based complex health interventions at multiple levels seem to be consistent with the diffusion of innovation theory [5]. At the patient level, behavioral changes seem to be consistent with the theory of planned behavior [6] for screening; the information-motivational-behavioral skills model for medication adherence [7]; and social cognitive theory, the transtheoretical model, and the theory of planned behavior for disease management [8]. Behavior changes in pharmacists and in patients then lead to improved health outcomes [4]. The conceptual logic framework, used by Blalock et al, and a logic model, as per the MRC, are interesting avenues to explore [4, 9]. These interventions fall under the umbrella of prevention interventions, as opposed to treatment interventions. However, according to the Organization for Economic Co-operation and Development (OECD), in 2010, only 3% of health budgets in the European Union (EU) were spent on prevention, yet a good balance in financing of treatment and prevention was found to be cost-effective to improve health outcomes [10]. Financing prevention interventions requires economic evaluations which should be a routine and consistent part of all public health interventions [11], including pharmacy-based public health interventions. In fact, the original definition of pharmacoeconomics clearly identified the description and analysis of the costs and consequences of pharmacy services as a domain of pharmacoeconomics [12]. However, the economic evaluation of pharmacy services requires certain unique considerations [13]. Many of these challenges seem to involve comparators, selection bias, social interaction threats, outcome measures, study design, effect of interventions, type of economic evaluation, and study site [13, 14]. Some of these issues do not seem to be exclusive to pharmacy; they also exist in public health interventions [15]. For instance, the Centers for Disease Control and Prevention (CDC) and NICE have acknowledged these major specificities [1, 16]. The Medical Research Council (MRC) also underlines that the economic evaluation is one of the key components of the development and evaluation of complex health interventions [2]. In addition, there are also methodological recommendations for conducting economic evaluations alongside clinical or pragmatic trials, which may be useful to explore [17,18]... Objectives The objectives of this paper are as follows: to review the methods and issues in systematic reviews of economic evaluations of pharmacy services compared with usual care or other alternatives in multiple population groups; to compare these with recommendations on the economic evaluation of public health interventions and conducted alongside clinical and pragmatic trials; to propose a system for the measurement and valuation of costs and health effects feasible for the economic evaluation studies of pharmacy services; and to contribute to the methods in the economic evaluation of pharmacy services and of public health interventions. Methods The method of the selection of the systematic reviews on pharmacy interventions is