Review

A bibliometric analysis of systematic reviews on vaccines and immunisation

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ABSTRACT

Introduction: SYSVAC is an online bibliographic database of systematic reviews and systematic review protocols on vaccines and immunisation compiled by the London School of Hygiene & Tropical Medicine and hosted by the World Health Organization (WHO) through their National Immunization Technical Advisory Groups (NITAG) resource centre (www.nitag-resource.org). Here the development of the database and a bibliometric review of its content is presented, describing trends in the publication of policy-relevant systematic reviews on vaccines and immunisation from 2008 to 2016.

Materials and methods: Searches were conducted in seven scientific databases according to a standardized search protocol, initially in 2014 with the most recent update in January 2017. Abstracts and titles were screened according to specific inclusion criteria. All included publications were coded into relevant categories based on a standardized protocol and subsequently analysed to look at trends in time, topic, area of focus, population and geographic location.

Results: After screening for inclusion criteria, 1285 systematic reviews were included in the database. While in 2008 there were only 34 systematic reviews on a vaccine-related topic, this increased to 322 in 2016. The most frequent pathogens/diseases studied were influenza, human papillomavirus and pneumococcus. There were several areas of duplication and overlap.

Discussion: As more systematic reviews are published it becomes increasingly time-consuming for decision-makers to identify relevant information among the ever-increasing volume available. The risk of duplication also increases, particularly given the current lack of coordination of systematic reviews on vaccine-related questions, both in terms of their commissioning and their execution. The SYSVAC database offers an accessible catalogue of vaccine-relevant systematic reviews with, where possible access or a link to the full-text.

Conclusions: SYSVAC provides a freely searchable platform to identify existing vaccine-policy-relevant systematic reviews. Systematic reviews will need to be assessed adequately for each specific question and quality.

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1. Introduction

The global landscape of immunisation has changed considerably during the past two decades. New and considerably more expensive vaccines are becoming increasingly available in high-income countries (HIC) while adoption patterns are accelerating in low- and middle-income countries (LMIC). In LMIC this has been aided by substantial donor support, such as funds from Gavi, the Vaccine Alliance, for both strengthening the Expanded Programme for Immunisation (EPI) and for adopting new and underutilised vaccines [1]. However, decision-makers in both HIC and LMIC face an array of questions about which vaccines to prioritise given their limited budgets. WHO recommends that national vaccine policy is guided by National Immunisation Technical Advisory Groups (NITAGs) [2]. However, NITAGs also face difficulties in assimilating an ever-increasing amount of information. Hence, the need for collating and synthesising the available evidence to support decision-making in vaccine-related policy.

During the past decade, the number of scientific research articles and systematic reviews on vaccines has risen substantially. Consequently, there is a need for tools to filter this evidence and present it on an accessible platform. Systematic reviews are a particularly efficient means of summarising evidence for decision-makers because they use clear, transparent methods for combining evidence from multiple studies. This means decision-makers do not need to identify, appraise and synthesise findings from numerous individual studies themselves [3]. Systematic reviews aim to answer specific questions in order to minimise bias and present pre-filtered evidence for researchers and decision-makers [4,5].

At present, systematic reviews on vaccine-related questions are not coordinated, either in terms of commissioning or dissemination. Unless decision-makers specifically commission a review, there is currently no process to ensure that proposed systematic review topics respond to their information needs, which may differ from one decision-maker to another. This not only leads to gaps in knowledge if particular questions are neglected, but also to duplication and overlap. Therefore, many NITAGs commission reviews to inform them, which leads to duplication [6–11]. At present, there is no common understanding of what vaccine-relevant systematic reviews have, or have not, been conducted. It is therefore unclear where duplication is a risk, or which areas have been neglected. Ideally, NITAGs should be able to ensure prior to commissioning that no similar reviews are planned, ongoing or have been published.

To date there is no singe repository where decision-makers can find systematic reviews conducted on topics relevant to vaccination policy. Identifying reviews on a specific topic requires time, skills in literature searching and access to academic databases. To facilitate this, the London School of Hygiene and Tropical Medicine, with funding from the National Institute for Health Research (NIHR), has created a database of vaccine policy-relevant systematic reviews (including both completed reviews and protocols) (SYSVAC). The database is hosted by the World Health Organization (WHO), who took over the NITAG resource centre (www.nitag-resource.org) from the Agence de Médicine Préventive (AMP) and is updated quarterly.

This paper presents a bibliometric analysis of the reviews included in this database. Bibliometric analysis aims to quantitatively characterise the literature, rather than to examine its findings [12]. The objectives of this paper are: (i) to describe the development of the SYSVAC database, (ii) to provide an overview of the vaccine-related systematic review literature by describing the trends in time, topic, area of focus, population and geographic location of published systematic reviews relevant to vaccine policy published between 1 January 2008 and 31 December 2016.

2. Material and methods

In the remaining text the word systematic review will be used for both completed systematic reviews as well as systematic review protocols.

2.1. Development of the SYSVAC database

Systematic reviews on vaccine- and immunization-related topics were identified through searches carried out in MEDLINE, Embase, the Cochrane Library (systematic reviews and Health Technology Assessments only), Scopus, Web of Science, Global Health and the PROSPERO International prospective register of systematic reviews [13]. PROSPERO is unique in that it includes the description of not only completed but also ongoing and planned systematic reviews. The final search was conducted in January 2017. Search terms specific to vaccines and immunisation were combined with filters designed to retrieve systematic reviews. The entries were restricted to a publication date from 1 January 2000 to 31 January 2017. Vaccine-related search terms were adapted to each database from the filters used in the National Institute of Health and Care Excellence Guidelines PH21 [14]. Search filters specific to systematic reviews were adapted from the Canadian Agency for Drugs and Technologies in Health strategy for searches on the Ovid platform [15] in the initial search. However, for the updates, the more specific BMJ search filter was used for Medline and Embase [16] and adapted for the other databases. The reason for this change was that the updates aimed to retrieve the more recent systematic reviews only, so a broader filter was no longer needed. In contrast to the early days of systematic reviewing, when a range of terms may have been used to describe the method, there is now a greater consensus on how to present, report and describe systematic reviews so omitting less specific terms does not lead to a loss in sensitivity. Wherever possible, searches were limited to title, keyword and abstract fields and to research