Strengthening global health security: a systematic review of lessons learnt from national implementation of the International Health Regulations

Introduction

The epidemiological transition has contributed to an increased global population [1]. More people are living in close proximity of one another in urbanised settings [2]. Habitation of new geographic areas and changes in ecosystems have created additional opportunities for animal-human interaction [3]. International trade and migration continue to grow [4, 5]. Moreover, the threat of bioterrorism is increasing [6]. In the last few decades HIV/AIDS, severe acute respiratory syndrome, and novel influenza strains were some new infectious diseases that emerged in this environment. Their social, health, and economic impact have reminded the world that solidarity is needed to prevent, detect, and control epidemics.

While bi- or multi-lateral communication is one important approach for national collaboration on disease control, global legislation could be more effective. The 1969 International Health Regulations (IHR) was the first law with this mandate [7]. These regulations were designed to control cholera, plague, yellow fever, smallpox, relapsing fever, and typhus. Given the global trends outlined above, the need to expand the scope to include new epidemics, and the need for improved global coordination, IHR was revised in 2005 [8]. One of the key changes was the requirement for countries to notify WHO of all events that may constitute a public health emergency of international concern and to respond to requests for verification of information of these events [8]. Since IHR (2005) was implemented H1N1 pandemic influenza (2009), wild poliovirus (2014), Ebola virus disease (2014), and Zika virus (2016) have been declared public health emergencies of international concern.

IHR (2005) also requires all countries to develop, strengthen, and maintain core public health capacities for surveillance and response [8]. IHR (2005) national core capacities include (1) national legislation, policy, and financing, (2) coordination and communications, (3) surveillance, (4) response, (5) preparedness, (6) risk communication, (7) human resources, and (8) laboratory [9]. Given varying levels of health and socioeconomic development, there have been challenges in implementing these requirements. In 2014, although substantial progress in some areas (e.g. establishing a twenty-four hour presence of national focal points, increased transparency in reporting events, using early warning systems more systematically, and better communication and collaboration between the animal and human health sectors), the majority of countries did not meet all IHR (2005) core capacity requirements [10]. There is a need to evaluate and share the lessons learnt from countries that have successfully implemented IHR (2005) [11]. While country exchanges and regional meetings are one

mechanism to achieve this, we will systematically evaluate published literature and reports for country experiences in implementing IHR (2005).

Methods

Conduct

This systematic review will be conducted in accordance with ENTREQ guidelines for synthesis of qualitative research [12]. The PubMed, Embase, Global Health, Scopus, and WHO Index Medicus databases will be systematically searched without language, publication, date, or any other limits (Appendix). Experts in the field will be contacted to identify unpublished research and on-going studies. Selected websites and conference databases will also be searched for abstracts or unpublished reports. Studies will be included when they summarised national experiences in implementing IHR (2005) core capacities.

Study screening and extraction

Two of the team members will independently screen abstracts of all identified articles and then match the full texts of all articles selected during screening against the inclusion criteria. The reference lists of relevant articles and reviews will also be searched for additional studies. Articles meeting the inclusion criteria will be included in the review. Three investigators will complete the data extraction using a standardised extraction spread-sheet comprising nine tables. The first table will summarise the characteristics of the study. Tables two-nine will be dedicated to each of the core capacities.

Quality assessment

Two reviewers will independently read and assess the quality of included studies by utilizing the Quality Assessment and Review Instrument checklist [13]. Disagreements in quality assessment between reviewers will be resolved through discussion. Since new insights, grounded in data, might be generated in studies classified as low methodological quality, no studies will be excluded on the basis of the quality assessment [14, 15].

Synthesis

Meta-ethnography [16] and meta-synthesis [17] will be used for qualitative synthesis. Cochrane review methodology will be used for meta-synthesis for qualitative research [18] since it has been widely used and validated [14, 19, 20]. A list of themes and subthemes will be created, compared, and juxtaposed. Tables and grids will be used to determine their

relationships [16]. Thematic analysis will be used to identify major categories based on the qualitative data rather than prior knowledge [14, 20].

References

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Appendix

Search strategy for all databases: (IHR) or (“international health regulations”)