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🌐 Lessons learned from the resilience of public health systems, hospitals and their personnel to the COVID-19 pandemic: a scoping review protocol. V.2

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We are still developing and optimizing this protocol

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Title and author identification

1 **Lessons learned from the resilience of public health systems, hospitals and their personnel to the COVID-19 pandemic: a scoping review of empirical literature.**

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Rationale

2 Beyond essential biomedical research, it is imperative that the COVID-19 pandemic be studied in terms of its impact on public health, health care systems, and professionals. There is an urgent need to understand how public health institutions, hospitals and their staff have faced the current crisis. Understanding the resilience of health care and public health systems is central to this study and to the HoSPiCOVID research project¹ within which this study is being conducted. The notion of resilience refers to the capacity to adapt and transform in order to maintain functioning and (public health and health systems) services for all in the context of such a crisis^{2,3}.

Review objective

3 The purpose of this scoping review is to study and compare the resilience of public health systems, hospitals and their staff to the COVID-19 pandemic, and to draw lessons from international experiences with a view to improve responses to this crisis and future ones.

Search strategy

4 **Search strategy**

4.1 **Data selection:**

1- We will base our researches on a collection of articles related to the COVID-19 pandemic published on the Stephen B. Thacker CDC Library of the Center for Disease Control (CDC) of the

the United States website⁴. These articles were collected on the following databases : Medline (Ovid and PubMed), PubMed Central, Embase, CAB Abstracts, Global Health, PsycInfo, Cochrane Library, Scopus, Academic Search Complete, Africa Wide Information, CINAHL, ProQuest Central, SciFinder, the Virtual Health Library, LitCovid, WHO COVID-19 website, CDC COVID-19 website, China CDC Weekly, Eurosurveillance, Homeland Security Digital Library, ClinicalTrials.gov, bioRxiv (preprints), medRxiv (preprints), chemRxiv (preprints), and SSRN (preprints). The search strategy used to select the data is updated daily (on working days) and available on the same website.

2- We will download, every day (until the end of June 2020), the CDC collection and will import it on Zotero to sort the data with a request in English (Table 1). Requests in other languages (French and Spanish) have not proven to be relevant or effective. The request in English will be designed in consultation with two librarians from the University of Montreal.

Concept	Hospitals and professionnals	Resilience
Keywords	healthcare ; health care ; health system ; hospital ; health facilit ; health center ; medical center ; health service ; worker ; staff ; clinician ; personnel ; human resource ; professional ; volunteer ; physician ; nurse ; paramedic ; doctor_ ; doctors ; workforce ; trainee	resilienc ; shock ; crisis ; crise ; challenge ; emergenc ; disturbance ; capacit ; respons ; strength ; adapt ; strateg ; prepar ; readiness ; sustain ; effectiv ; stress ; impact ; effect ; surge ; extraordinary ; organization ; organisation ; optimi ; restructur ; communicat ; collaborat ; coordinat ; partner ; essential function ; basic function ; logistic ; service ; structural measure ; access ; resource ; equipment ; supply ; supplies ; medication ; drug ; policy ; policies ; governance ; leader ; manag ; financ ; funds ; funding ; training ; recruit ; innovat ; regulation ; triage ; evaluat ; support ; hopeless ; helpless ; efficien ; opportunit ; solution ; frontline ; engagement ; coping ; priorit

Table 1: English request on Zotero

3 - The selected data will then be classified by the ATCER tool^{5,6}. In view of the large number of data, we decided to only retain data with an empirical degree greater than or equal to 90.

4.2 Inclusion and exclusion criteria:

Articles were included in the review if they:

- have been published between December 2019 and June 2020;

- have been published in English or in French;
- focus on the resilience of public health systems, hospitals and professionals to the COVID-19 pandemic;
- are empirical according to the ATCER tool (empirical degree ≥ 90);
- use quantitative, qualitative data or mixed methods.

Articles were excluded of the review if they:

- are not empirical (grey literature i.e. press articles, letters, editorials...) or have an empirical degree lower than 90 according to the ATCER tool;
- do not focus on resilience of public health systems, hospitals or professionals to the COVID-19 pandemic;
- are not accessible or available in full PDF version.

Exclusion criteria will be further defined once the screening will be done.

4.3 **Main outcomes:**

- Study of the resilience of public health and health care systems to the COVID-19 pandemic.
- Comparison of the processes/measures/actions that have been and are still implemented in different countries and at different levels (public health systems, hospitals, professionals) to face the crisis.
- Understanding of the effects of these processes on people's use of care.
- Understanding and study of the determinants of resilience.

Data extraction (selection and coding)

- 5 The selected articles will be then imported into Covidence⁷ for the title, abstract and full text screening of the articles. Covidence will automatically remove all the duplicates. Four reviewers will independently proceed to the title and abstract screening. Irrelevant articles will be excluded. The four reviewers will then independently proceed to the full text screening. They will also extract data from the included articles, assess the quality of studies, and undertake the evidence synthesis.

Data extracted will include:

- study characteristics: title, author(s), year of publication, country of publication;
- study design;
- main results of the study according to our conceptual framework about health system resilience.

Risk of bias (quality) assessment

- 6 The quality of the studies will be assessed using the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al.⁸.

Strategy for data synthesis

- 7 The synthesis of the articles will follow the recommendations of the PRISMA method⁹. The criteria for the data synthesis will be based on the number of studies that have reported the outcomes of interests, i.e. resilience of public health systems, hospitals, and professionals to the COVID-19 pandemic. According to the number of studies retained, the team will decide to write one or several scoping reviews. The outcomes will be reported in a descriptive manner and will also be subject to thematic analysis. As part of the HoSPiCOVID research project, workshops in each of the five countries and a final international workshop in the summer/fall of 2021 will bring together policy and decision makers, hospital and public health professionals, researchers, and civil society organizations to collectively produce operational recommendations based on the lessons learned between countries. This knowledge transfer strategy, based on the project's evidence and the expertise of the participants, will enable the sharing of lessons about resilience at an operational level.

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