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Mass testing equity during infectious disease outbreaks: a scoping review. V.1

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1 **Mass testing equity during infectious disease outbreaks: a scoping review.**

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Rationale

2 It is essential to understand how COVID-19 testing services are being offered in the current pandemic situation, in order to improve their equitable implementation. It has been shown that racialized and marginalized communities have been disproportionately affected by COVID-19, and improving equitable access to COVID-19 testing would be a vital step in reducing disease propagation (1). Mass testing is instrumental for surveillance, directly informing prevention and control of measures of infectious diseases (2–5). The goal of mass testing interventions is to reduce transmission rates through detection, leading to treatment (when available), isolation, or other control and prevention measures (6). Mass testing programs often act as a link to care and support programs, which should be provided equitably, based on risk of infection (7). There is also the potential that mass testing interventions can further health inequities by failing to incorporate proportionate universalism - action that is proportionate to needs and levels of disadvantage in a population - into their delivery (8,9). Understanding the way in which health inequities are taken into account (or fail to be taken into account) in the design of mass testing programs is central to this review, and is a central aim of the HoSPiCOVID research project (10).

Review objective

3 The purpose of this scoping review is to study how equity of access to testing is currently being incorporated into the design of mass COVID-19 testing interventions but also historically, how equity of access was considered with other infectious disease testing and screening programs in endemic, epidemic, and pandemic situations.

Search Strategy

4 We will conduct a rapid literature search of PubMed and Web of Science [v.5.35]. The searches will be conducted in French and English. All study designs will be included in the searches.The search strategies for each database will be designed in consultation with a librarian from the French National Research Institute for Sustainable Development (IRD). We will follow the PRISIMA extension for scoping review (11).

4.1 Search terms:

- (Testing), (Mass testing), (Dépistage), (Screening);
- (TB), (Tuberculosis), (Tuberculose);
- (HIV), (VIH), (Human immunodefficiency virus);
- (COVID-19), (SARS-CoV-2), (coronavirus);
- (Design), (Planification), (Planning);
- (Equit*), (Equal*), (Inégalités), (Inégalités sociales en santé), (ISS), (Social inequities in health);
- (Pandemi*), (Epidemic), (Outbreak), (Endemic);
- (Infectious disease), (Maladie infectieuse).

4.2 Inclusion and exclusion criteria:

We will include publications that meet these criteria:
- peer reviewed publications;
- mass testing program descriptions
- published in English or French;
- focus on the design of mass testing or screening interventions in the context of an infectious disease;
- empirical according to the ATCER tool (empirical degree ≥ 90).

We will exclude publications that not meet these criteria:
- articles that do not focus on infectious diseases;
- publications which are not based on scientific research (e.g. letters and editorials);
- articles which do not describe the design of testing or screening programs.

4.3 Main outcomes:

- Whether or not health inequities were considered in the design of an infectious disease screening or testing intervention.
- If health inequities were considered in the design of a mass testing intervention, which inequities were considered and how were incorporated into the intervention, including the use of a specific theory.

Data extraction

5 All identified studies will be imported from PubMed and Web of Science into Rayyan QCRI, a systematic review application, for screening of the titles, abstracts and full texts. Two reviewers will independently assess the relevance of titles and abstracts based on the inclusion and exclusion criteria, and when there is discordance between the two reviewers, a third reviewer will review the titles and abstracts of the discordant results. The second stage of review will involve each reviewer independently identifying potentially relevant publications based on a full article review, any discordance will involve a third reviewer, and data abstraction will occur for articles that meet the inclusion criteria.

The information that will be extracted from the articles will include:
- characteristics of the paper (title, authors, year);
- context of the paper (country, epidemic);
- characteristics of the testing/screening program implementation;
- whether or not health inequities/inequalities were considered in the design or implementation of the program or intervention;
- if health inequities were considered; which inequities were considered, how, and any use of a specific theory;
- main results of the study.

Risk of bias (quality) assessment

6 The quality of the studies will be evaluated using the Mixed Method Appraisal Tool (MMAT)(12).

Strategy for data synthesis

7 We will follow the recommendations of the PRISMA method for the synthesis of articles (1). The criteria for the data synthesis will be based on the number of studies that have reported the outcomes of interests. The outcomes of the anlaysis will be reported in a descriptive manner in addition to being subject to thematic analysis. Workshops involving five countries participating in the HoSPiCOVID project (10) will take place in the fall of 2021. These multidisciplinary meetings will bring together researchers and decision makers to produce recommendations based on the experiences of the individual countries. This knowlege transfer strategy will promote lesson sharing about equitable testing and screening design at an operational level.

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