



Republic of Tunisia
Ministry of Health

Health Technology Assessment report

COVID-19 PANDEMIC RAPID RESPONSE

DISINFECTION CHAMBERS/TUNNELS IN THE CONTEXT OF COVID-19 PANDEMIC

SUMMARY

HEALTH TECHNOLOGY ASSESSMENT
DEPARTEMENT



OBJECTIVES

Recently, industries have made various claims on the effectiveness of using disinfection delivered on humans in a particular confined space such as chamber (tunnel, booth, gate, box....) to reduce the transmission of COVID-19. The disinfection procedure is usually performed by automated dispersion of disinfectant on individuals when he or she passes through the disinfection box.

This Health Technology Assessment report aims to inform and to facilitate decision-making. It was elaborated following a request from the Directorate of Environmental Hygiene and Protection of the Environment (DHMPE) of the Ministry of Health in order to explore the relevance of using this procedure. This document synthesizes available evidence on the efficacy, safety, and fit of using this procedure as a preventive measure at the entrance of several buildings to limit the transmission of SARS-CoV-2.

METHODS

A systematic literature review was performed using the following databases: Pubmed, Web of Science, INAHTA (International Network of Agencies for Health Technology Assessment) and GIN (Guidelines International Network) from inception to June 4, 2020. Search terms included: disinfection, sanitization, box, chamber, tunnel, booth, partition, gate, COVID-19 and SARS-CoV-2. No language restriction was imposed. After removing duplicates, two reviewers independently selected eligible studies. Screening process and reasons for exclusion/inclusion are depicted in PRISMA flow diagram (figure 1). Two reviewers independently extracted and synthesized the evidence. The search was expanded to include relevant scientific data on disinfectants and disinfection processes. The synthesis was submitted to a multidisciplinary group of experts representing the Tunisian Association for Health Risk Management (ATUGERIS), the Tunisian Society for Education and Promotion of Hospital Hygiene (SOTEPHH) and the Tunisian Society of Occupational Medicine (STMT) in order to verify the accuracy of the content, enrich the document according to their areas of expertise, and make recommendations to facilitate decision-making in Tunisia regarding authorizing disinfection boxes.

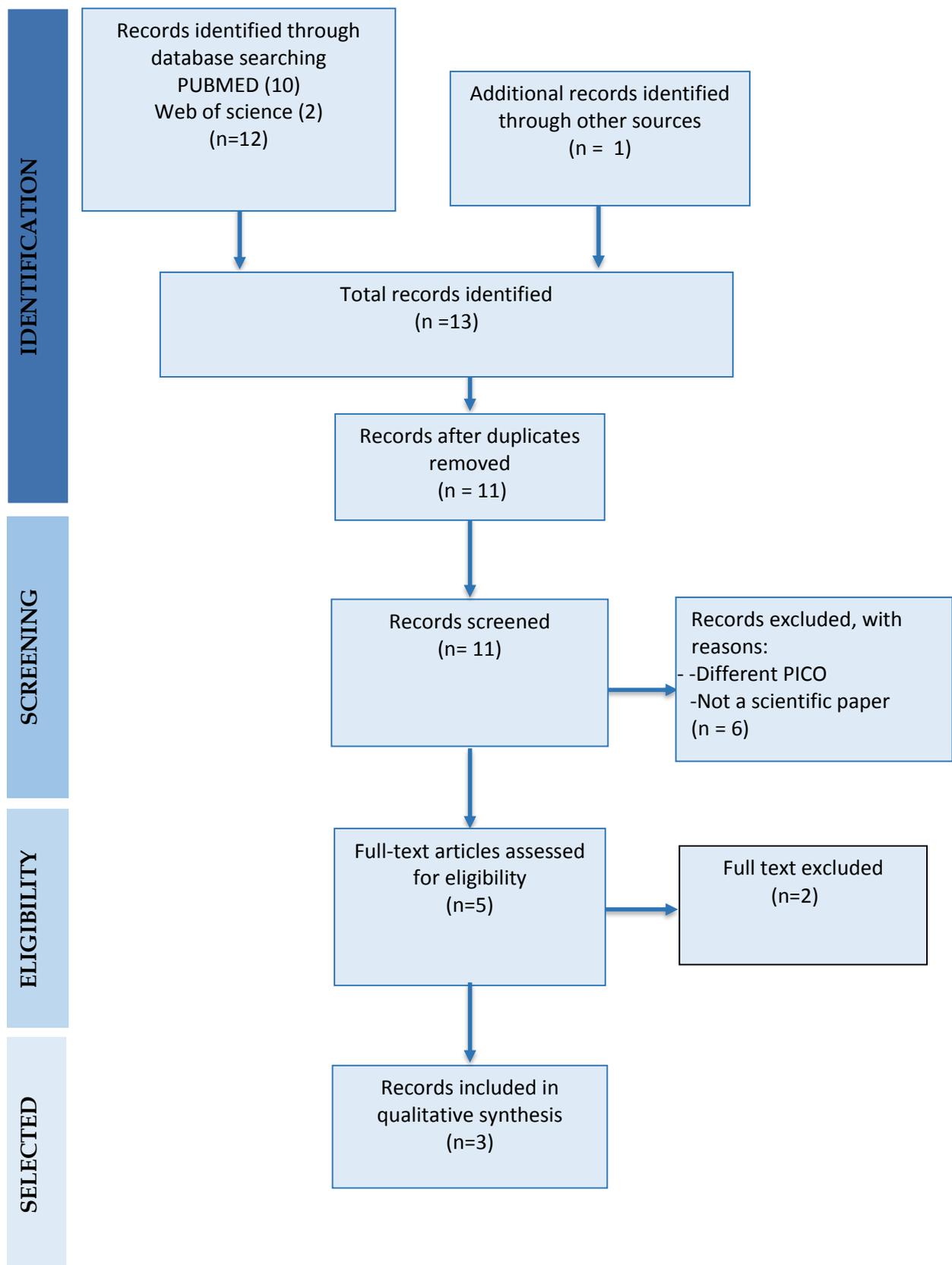


FIGURE 1: PRISMA flow chart

RESULTS

Two scientific papers and an HTA report from Mahtas (the Malaysian HTA body) were included in data synthesis. Our research concluded that the disinfection procedure through booth is not effective in limiting the spread of CoV-2-SARS and could be harmful for the following reasons:

- Spraying a disinfectant on the outside of the body does not kill the virus inside an infected person's body.
- The disinfectants sprayed in these booths are intended for use on surfaces, not on living tissues. When they come into contact with human tissue or are used outside the manufacturer's recommendations, they can become toxic. In addition, spraying and repeated passage through the booths significantly increases the exposure time and the risk of absorption and inhalation of these chemical agents. These disinfectants can react with mucous membranes causing damage and/or enter the bloodstream and affect distant organs.
- The few disinfectants suitable for porous materials (textile) such as quaternary ammoniums or hydrogen peroxide have special use conditions. The use of quaternary ammoniums requires a five to ten-minute soak to deactivate the SARS-CoV-2. As for hydrogen peroxide, it is used for porous surfaces in the form of vapor generated by a specific device. WHO and ECDC recommend that cleaning and disinfection of textiles should be carried out using hot water and detergent at a temperature of 60-90°C, supplemented by complete drying in the sun.
- The flammable nature of disinfectants increases the risk of fire inside the cabin.

EXPERT PANEL'S RECOMMENDATIONS

Spraying disinfectants on the human body in booths is not effective and can be toxic. Disinfectants sprayed in these booths are intended for use on surfaces, not on living tissue and they can become toxic when they are used outside the recommendations of manufacturers. In addition, spraying a disinfectant on the outside of the body does not kill the virus inside an infected person's body. On the other hand, going through a disinfection tunnel may give individuals a false sense of security, thus increasing the risk of neglecting other effective measures like social distancing, hand hygiene and wearing protective masks. It is therefore recommended to prohibit the use of disinfection tunnels in all common structures and to increase awareness of the hygiene measures already mentioned. It is recalled that, ethically, humans cannot be sprayed with potentially dangerous products.