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# 🌐 Use of Interviewer-Administered Telephone Surveys during Infectious Disease Outbreaks, Epidemics, and Pandemics: A Scoping Review Protocol

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**Introduction:** Emergence of modern technology and digitalization has influenced public health research, including data collection methods. The existing literature describes telephone as a useful tool whereby qualitative and quantitative data can be gathered remotely, particularly when traditional face-to-face methods are inappropriate or unfeasible.

**Objective:** This scoping review aims to identify characteristics, challenges, and strengths of interviewer-administered telephone surveys conducted in the time of infectious disease outbreaks, epidemics, and pandemics. Additional questions are set as a guide to explore the methods used in this type of survey and data collection modality.

**Inclusion criteria:** This review will include any interviewer-administered telephone surveys conducted during infectious disease outbreaks, epidemics, and pandemics. Any studies using data collection devices other than landlines and cell phones as well as self-administered survey methods will be excluded.

**Methods:** The authors follow the JBI Manual for Evidence Synthesis for scoping reviews to develop this protocol. This review will follow the Arksey and O'Malley's methodological framework to perform a scoping review. This scoping review will intend to include all interviewer-administered telephone surveys conducted during infectious disease outbreaks, epidemics, and pandemics in English, French, Spanish, and Japanese. Unpublished literature will also be considered. From the selected studies, data related to the review questions, such as study design categories based on Mixed Methods Appraisal Tool (MMAT), methods for sampling, phone number verification, contacting informants, languages spoken by interviewers, incentives, as well as challenges and lessons learned will be extracted and presented in a narrative way in this scoping review. Results and discussion will be structured in accordance with the PRISMA extension for scoping reviews (PRISMA-ScR) check list.

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Infectious Disease Outbreak, Interview, Public Health Crisis, Remote Data Collection, Telephone

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## Introduction

### 1 Introduction

**Public health research and data collection.** Public health intends to ameliorate the health status of individuals as a whole or the public.<sup>1</sup> To achieve this goal of protect and improve population health, the scope of public health includes responding to infectious diseases,<sup>2</sup> and research is crucial when preparing for and responding to infectious disease outbreaks.<sup>3</sup> Examples of infectious disease which recently emerged as outbreaks include 2009 influenza A (H1N1), Ebola virus disease, and Zika virus.<sup>4</sup> Depending on their objectives and available resources and while accommodating the local context and restrictions, public health researchers choose data collection methods, such as surveys, questionnaires, interviews, observations, and focus group discussions.

The exponential development and expansion of modern technology has influenced the way public health research is conducted and data is obtained. For instance, mobile and wireless technologies serve as a communication means to connect health institutions with individuals, such as call centers, appointment reminders, databases and platforms providing educational and professional contents, and monitoring and surveillance.<sup>5</sup> Applications and even combination of these technologies are becoming more common. For example, a recent study in Burkina Faso shows that a toll-free call service together with an interactive voice server can be used to “strengthen health system responsiveness in one of the world’s poorest countries.”<sup>6</sup>

**Remote data collection during infectious disease outbreaks.** Digitalization has enabled remote data collection, which is particularly relevant during infectious disease outbreaks, when traditional face-to-face modalities are inappropriate, unfeasible, or suspended. For example, the SARS-Cov-2 pandemic seems to have appeared as an obstacle which forces researchers to avoid physical contacts. Many countries have implemented measures such as physical distancing, lockdowns, and travel restrictions to contain the virus. A lot of public health researchers respond to these measures by shifting from face-to-face to remote data collection to continue their research.<sup>7</sup> A number of activities in non-COVID-19 related research are interrupted and suspended, and many studies take alternative methods, including remote data collections by telephone and online conferences, into consideration.<sup>8</sup> Particularly during lockdowns, researchers were obliged to collect data remotely, and even after a series of confinement, remote data collection methods continue to be used for convenience. When COVID-19 is present, there is a need for remote data collection provide information related to pandemic response and other problems in public health.

**Data collection by telephone.** Among several tools allowing remote data collection, the telephone is especially useful. The telephone interview permits to gather qualitative and sometimes quantitative data from informants at some distance or without sufficient time for in-person contacts with researchers.<sup>9</sup> Use of mobile phones is appropriate when quick data collection is required without incurring heavy expenses as well as when classic face-to-face interviews are not feasible.<sup>10</sup> The COVID-19 pandemic is a good example during which in-person methods need to be avoided. Indeed, there are studies to examine the impact of COVID-19 in different countries by using mobile phones to gather data.<sup>11</sup> Furthermore, telephone surveys are effective “for research topics in which the temporality and social context within which the questions are being asked (and answered) is especially important, such as data collection conducted in the immediate aftermath of an epidemic outbreak or natural disaster.”<sup>12</sup> Despite technical challenges, telephone can play an important role in contact tracing as well, but in this type of interventions, there is a lack of adaptation to accommodate the needs of subgroups, such as low literacy, language barriers, and disabilities.<sup>13</sup>

**Interviewer-administered telephone surveys.** In addition to the suitability for an emergency, telephone surveys involving interaction between live interviewers and informants (hereinafter interviewer-administered telephone surveys) can contribute to gathering in-depth, qualitative data. For example, while being less expensive or time consuming, this modality enables clarification and tends to have higher response rates.<sup>14</sup> While some might find interviews less convenient when they do not wish to continue, respondents tend to have more freedom in answering questions during interviews. Although face-to-face interviews has been the norm in health care research, qualitative interviews through video, telephone, and online can be reliable alternatives and practical to include people who would otherwise be excluded because of physical distance or potential harms and dangers, such as war zones and spread of infectious diseases, or unstable.<sup>15</sup>

Unlike self-administered surveys, probing and informal conversations are possible in phone-based interviews, and considering the high and growing mobile phone penetration rates, cell phones are likely to keep playing an important role by easily allowing interviewers to develop rapport and build trust.<sup>16</sup> Good interviewers can not only establish rapport with the participants but also ask detailed, complex, qualitative questions which sometimes need explanation.<sup>17</sup> Establishing rapport and trust is specifically important in international public health studies given the gap between low- and middle-income countries (LMICs) and high-income countries (HICs) regarding moral standards in public health research. In many cases, given that LMICs are more vulnerable and exposed to infectious diseases,<sup>18</sup> HICs fund and carry out studies in LMICs. Informants in resource-scarce nations may be vulnerable due to their poverty, high illiteracy rates and linguistic barriers.<sup>19</sup> Furthermore, in many LMICs, several languages and dialects, which often differ from region to region within a country, are spoken.<sup>20</sup> Hence, choosing the most appropriate language strategy is ethically crucial for both gathering representative data and making sure participants comprehend the study, including why they are invited.<sup>21</sup> Telephone surveys administered by multilingual interviewers with

knowledge of local cultures can not only facilitate communication between informants and interviewers in a more personal and direct manner but also contribute to minimizing miscommunication and misunderstanding. Live interaction enabled in this modality accommodates these specific needs in international public health research.

**Rationale.** Despite the convenience and suitability during epidemics and pandemics, there is limited literature on interviewer-administered telephone. Existing reviews found during an initial search of MEDLINE, the Cochrane Database of Systematic Reviews, and Joanna Briggs Institute (JBI) Evidence Synthesis cover a limited range of related topics. For instance, a review illustrates challenges in telephone survey research, such as contacting informants, response rates, as well as accuracy and consistency of responses.<sup>22</sup> Another review looks at remote data collection in LMICs.<sup>23</sup> More specifically, a scoping review mentions the telephone as a tool to include people from a broader range of socioeconomic backgrounds in sub-Saharan Africa.<sup>24</sup> More broadly, the impacts of electronic data collection tools like smartphones and tablets on data quality and cost-effectiveness in interviewer-administered surveys are also studied.<sup>25</sup> A self-administered method often practiced in telephone surveys, interactive voice response, is also systematically reviewed.<sup>26</sup> Mentioning applications on smartphones and tablets, different modes of survey delivery are also reviewed.<sup>27</sup> In terms of response rates of postal and electronic questionnaires, a variety of methods, including incentives, telephone follow-ups, as well as SMS and postcard reminders, are compared and reviewed.<sup>28</sup>

These reviews touch upon telephone surveys and remote data collection methods, but no review is dedicated to interviewer-administered telephone surveys during infectious disease outbreaks, epidemics, and pandemics. It is unclear in what context and how interviewer-administered telephone surveys are performed during infectious disease outbreaks during which classic face-to-face methods are not appropriate.

**Objectives.** This scoping review aims to explore and map the available literature on interviewer-administered telephone surveys under infectious disease outbreaks, epidemics, and pandemics. The objective of this research is to identify characteristics in interviewer-administered telephone surveys when an infectious disease outbreak/epidemic/pandemic is present.

## Review questions

## 2 Review questions

The following research question was formulated: What are some main characteristics of interviewer-administered telephone surveys during infectious disease outbreaks, epidemics, and pandemics? The additional questions are set to explore the methods and implementation challenges in interviewer-administered telephone surveys:

- Where are interviewer-administered telephone surveys conducted?
- At what scale and during which infectious disease outbreak have these surveys performed?

- What methods are used to draw a sample?
- What techniques are devised to ensure representativeness of these surveys?
- What are common topics investigated with this remote data collection method?

## Keywords

### 3 Keywords

Infectious Disease Outbreak; Interview; Public Health Crisis; Remote Data Collection; Telephone

## Eligibility criteria

### 4 Eligibility criteria

As recommended by the JBI for scoping reviews, the PCC (Population/Participants, Concept, Context) framework is used in this protocol to identify eligibility criteria.

**Participants.** This review includes telephone surveys distributed to and responded by adults, anyone at least 18 years old, during which human interviewers ask questions to informants at the time of an infectious disease outbreak, epidemic, or pandemic. There is no universally agreed age to be considered adults. The World Health Organization, for instance, defines an adult as a person aged 19 years or older.<sup>29</sup> However, in many countries, anyone over 18 years old is considered an adult,<sup>30</sup> and most of the studies found during an initial search include adult participants aged 18 or older. It is also assumed that children are not enrolled in surveys without their parents' or guardians' consent.

**Concept.** Aiming to learn more about remote data collection, which is appropriate during the time of infectious disease outbreaks, telephone surveys, including both landline and mobile phones, will be included. This review will be limited to studies which relied on single method of interviewer-administered telephone surveys. Thus, studies using any of the following methods will be excluded as these are self-administered and/or in-person: face-to-face, interactive voice response (IVS), short message service (SMS), self-administered questionnaire, web on mobile phone and personal computer.<sup>31</sup> In addition, studies using telephone only as a means to send reminders and monitor patients will be excluded as this review is dedicated to surveys administered by interviewers over telephone.

**Context.** This review focuses on telephone surveys during infectious disease outbreaks, epidemics, and pandemics. According to Gordis, epidemic is "the occurrence in a community or region of a group of illnesses of similar nature, clearly in excess of normal expectancy, and derived from a common or from a propagated source," and pandemic is a global epidemic.<sup>32</sup> While having the same meaning as epidemic, outbreak often refers to "a more limited geographic area."<sup>33</sup> Presence of infectious disease outbreaks/epidemics/pandemics can be described as a context in which conducting face-to-face contacts are deemed inappropriate or unfeasible. Therefore, this scoping review will include the telephone surveys whose data is collected during infectious disease outbreaks, epidemics, and pandemics.



**Type of sources.** In addition to published studies, gray literature, including reports, working papers, preprints, white papers, and policy documents, will be considered.

## Methods

### 5 Methods

The JBI Manual for Evidence Synthesis for scoping reviews<sup>34</sup> is referred to while developing this protocol. This scoping review will follow the Arksey and O'Malley's methodological framework to perform a scoping review.<sup>35</sup> The Preferred Reporting Items for Systematic Review and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)<sup>36</sup> guidelines will be followed to report the results.

**Search strategy.** The search strategy will intend to include both published and grey literature. An initial limited search of MEDLINE was conducted to identify articles on the topic. The text words found in relevant articles as well as Medical Subject Headings (MeSH) terms.<sup>37</sup> Using these words, a full search strategy on PubMed and EBSCO (Academic Search Premier) for English was established (see Appendix 1). The search strategy will be an iterative process and reviewed by at least one librarian.

Studies published in English, French, Spanish, and Japanese will be included, and the language restrictions are set due to the reviewers' language proficiency. The databases to be searched include PubMed and EBSCO (Academic Search Premier) without setting any limit on publication year or excluding grey literature. When documents are not made available online, the main author will contact corresponding authors via email and ask for soft copies. Otherwise, studies which are not fully available or accessible will be excluded. Additional relevant documents identified during the initial search and development of this protocol will be considered if they are not found from the database search.

**Study/source of evidence selection.** Following the search, all identified citations will be collated and uploaded into Covidence. Covidence is a web-based platform, which allows reviewers to import citations, identify duplicates, screen documents independently and easily, and upload as well as store references online,<sup>38</sup> and this platform was chosen to enable the reviewers to work easily while working remotely. Duplicates will be removed automatically on Covidence as well as manually if the reviewers identify any other duplicates. After a pilot test, titles and abstracts will be screened by at least two reviewers to evaluate based on the inclusion criteria for the review. Potentially relevant sources will be kept with their citation details and examined on Covidence. The reviewers will also assess the eligibility of the manually added documents independently. The reviewers will use the inclusion criteria to examine the full text of selected citations in detail. When sources of evidence at full text do not meet the inclusion criteria and therefore are excluded, reasons will be recorded and reported in the scoping review. Any disagreements between the reviewers at each stage of the selection procedure will be solved through discussion, or a third reviewer can make a final decision.<sup>39</sup>

**Data extraction.** One reviewer will extract data using a data extraction form (see Appendix 2) in Microsoft® Excel. This form will be modified and revised if needed, and modifications will be reported in the scoping review. Other reviewers will verify the accuracy of the extracted data, and a consensus will be achieved through discussions. The data extracted will include specific details regarding the participants, concept, context, study methods and key findings related to the review questions.

**Data analysis and presentation.** The results of the search and the study inclusion process will be reported in full in the final scoping review. The study selection process will be presented in a PRISMA flow diagram<sup>40</sup> (see Appendix 3). The findings will be presented in a narrative matter, in tabular form for example, while attempting to answer the review questions. The PRISMA-ScR<sup>41</sup> guidelines will be followed to write this scoping review.

Furthermore, although defined as an optional stage,<sup>42</sup> a consultation exercise might be performed, and when appropriate and possible, authors of included studies will be contacted and invited for interviews. These interviews aim to comprehend in-depth perspectives of authors and the findings of this scoping review. Informed consent will be obtained for all the interviews, and the data will be anonymized. The objectives and process of the consultation will be set out after the scoping review.

## Acknowledgements

### 6 Acknowledgements

This review is to contribute towards a degree award for SA.

**Ethical approval/clearance.** A request for opinions by the Comité d’Ethique et de Recherche à Université Paris Cité was submitted.

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### 7 Funding

As required to complete the Master of Public Health program at l’École des Hautes Études en Santé Publique, SA works as a paid intern at CloudlyYours and l’Institut de Recherche pour le Développement at the time of this scoping review.

## Conflicts of interest

### 8 Conflict of interest

CloudlyYours is a for-profit business, which provides data management solutions, including technological support for telephone surveys, with its expertise in digital transformation and development.

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## Appendices

# 10 Appendices

## Appendix I: Search strategy

### Appendix I: Search Strategy

Databases	PubMed EBSCO (Academic Search Premier)
<i>Dimensions of search terms</i>	
1. Survey modality of interest: Interviewer-administered telephone surveys	<b>1 = ((1.1 AND 1.2) OR 1.3)</b> 1.1 'telephone*' OR 'cellular phone*' OR 'phone*' OR 'cell phone*' OR 'mobile phone*' OR 'mobile telephone*' 1.2 'survey*' OR 'interview*' OR 'cross-sectional survey*' OR 'longitudinal survey*' 1.3 'interviewer-administered survey*' OR 'interviewer administered survey*' OR 'computer-assisted telephone interviewing' OR 'computer assisted telephone interviewing'
<b>AND</b>	
2. Context of interest: Communicable disease outbreaks	<b>2 = (2.1 AND 2.2)</b> 2.1 'outbreak*' OR 'epidemic*' OR 'pandemic*' 2.2 'infectious disease*' OR 'communicable chronic disease*' OR 'communicable infectious disease*' OR 'infectious illness' OR 'infectious virus*'

# 11 Appendix II: Data extraction instrument

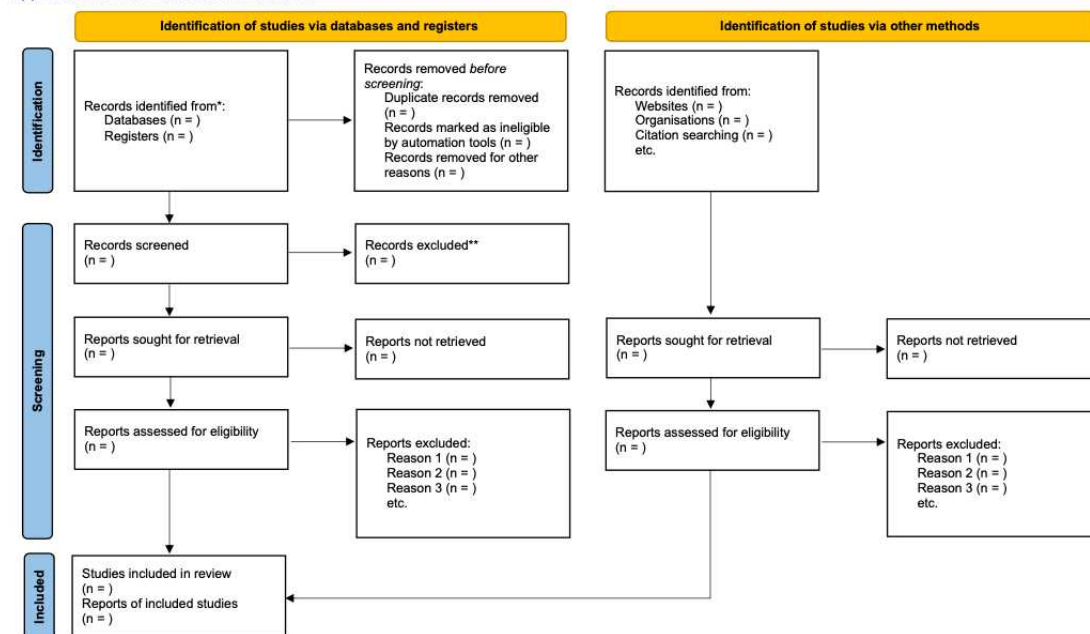
## Appendix II: Data Extraction Instrument

Basic information	Description
Authors	When co-authored, corresponding author(s) followed by "et al."
Year of Publication	
Title	
Journal	Journal in which the study is published
Origin	Country/countries in which the data is collected
Purpose	
Sample Size	Number of observations included in the final analysis
Study Design	Categories based on Mixed Methods Appraisal Tool*
Details	
Scale	International, national, regional, or local
Target Population	Adult individuals, HCPs, patients, households, or other
Duration	Data collection period in days
Infectious Disease	Infections disease(s) present during data collection
Telephone Type	Landline, mobile, 50-50, or not specified
Sampling Method	When RDD or CATI is used, followed by an asterisk (*)
Language	Number of languages spoken by interviewers
Length	Length of telephone survey/interview in minutes
Interviewer	Number of interviewers who conducted telephone surveys
Incentive	Type of incentive (voucher, airtime etc.) and the value in USD

\*Studies will be categorized in accordance with MMAT, version 2018<sup>43</sup>. There are five designs: 1) qualitative, 2) quantitative randomized controlled trials, 3) quantitative non-randomized, 4) quantitative descriptive, and 5) mixed methods.

## 12 Appendix III: Study selection process

Appendix III: Data Extraction Instrument



\*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

\*\*If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.