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# Assessment of Public-Private Partnership (PPP) Models in Health Systems in Least Developed, Low Income and Lower-Middle-Income Countries and Territories: A Protocol for a Systematic Review

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## ABSTRACT

**Background:** Private sectors play a significant role in health provision along with the public sector in both developed and developing countries. Given the limited resources of the public sector, public-private partnerships (PPPs) are considered as a good solution to address the growing public health challenges. But inadequate assessment of various health-related PPPs has resulted in a failure to gather knowledge and evidence that would facilitate the establishment of effective partnerships, sustain, and systematize them over time, as well as determine the role of PPPs in health system strengthening, particularly in terms of urban health provision. The objective of this research is to systematically review the effectiveness of PPPs on the utilization of urban health provision to achieve health outcomes in the urban contexts of least developed, low income, and lower-middle-income countries and territories.

**Methods:** This systematic review will follow PRISMA-P guidelines for reporting. Relevant databases-EMBASE, MEDLINE, Health Management Information Consortium, Social Sciences Citation Index, Science Citation Index, Emerging Sources, CENTRAL, i.e., Database of disability and inclusion information resources, and WHO Library Database-will be searched for published articles in the urban context. Reference lists of relevant systematic reviews and commentaries and citations of key included studies will be checked for additional studies. Two reviewers will independently screen the studies in evidence following the exclusion and inclusion criteria. Data will be thematically analysed and narratively synthesized.

**Discussion:** This review will comprehensively assess and appraise all the existing PPP models for urban health provision in the least developed, low income, and lower-middle-income countries and territories. The findings of the review will help to understand the modalities of the existing health related PPPs in urban areas, their functionalities, and their contribution in achieving health outcomes.

**Protocol registration:** This protocol is registered with the International Prospective Register of Systematic Reviews, PROSPERO (ID-CRD42021289509, 23 November 2021).

**Keywords:** Urban health care; Disease; Public-private partnership models; Territories

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**Abbreviations:** AIDS: Acquired Immunodeficiency Syndrome; ALG: Action Learning Group; CHORUS: Community-led Responsive and Effective Urban Health System; FCDO: Foreign, Commonwealth and Development Office; COPD: Chronic Obstructive Pulmonary Disease; DAC: Development Assistance Committee; HIV: Human Immunodeficiency Virus; HMIC: Health Management Information Consortium; LMIC: Lower-Middle-Income Countries; MMAT: Mixed Methods Appraisal Tool; OECD: Economic Co-operation and Development; PPP: Public Private Partnership; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SCI: Science Citation Index; SSCI: Social Sciences Citation Index; SWiM: Synthesis without meta-analysis; WHOLIS: WHO Library Database.

## INTRODUCTION

Traditionally, it is the government that has been responsible for delivering health care to its population with support from tax and non-tax revenue [1]. In most of the Lower-Middle Income Countries (LMICs), health sector receives relatively lower funding compared to other development sectors [2]. This trend as well as underperformance of the public health sector resulted into gaps in health care service delivery, attracting private sector to play a role in the healthcare market [3]. Following this situation, private sector started to grow gradually and has become popular in health service delivery [4]. Since last two decades, private sector is playing a major role in health service provision along with public sector in both developed and developing countries. But private health providers are highly concentrated in urban areas due to rapid urbanization, larger scope compared to rural areas, and the need to make a profit from a relatively wealthier urban population. Besides, private health care is much more expensive than public health care because private providers have motives to make a profit out of health service provision. Thus, given the limited resources and inefficiencies of the public sector and the business approach of the private sector resulting in a higher level of out-of-pocket expenditure, it has been well understood that neither the public sector nor the private sector alone is in the best interest of any health system. In recent years, consequently, Public-Private Partnerships (PPPs) are progressively being considered as a straightforward mechanism to address the growing public health problems [5]. Governments from both developed and developing countries are increasingly trying to implement Public-Private Partnership (PPP) based health care models as a way to expand access and improved quality of health care [6].

The World Health Organization (WHO) describes PPPs for health as “public sector programs with private sector participation” [7]. PPPs require the public and the private sector to share the risk, responsibility, benefits and to synchronize resources and expertise of both sectors [8]. In PPPs, usually, the role of government changes from the investor, implementer, and beneficiary to policymaker, regulator, and supervisor of the quality and quantity of services provided [9,10] while the private groups contribute to the process of service provision. Thus, various models of PPPs have been developed and trialled around the world in health service delivery. Some of them have produced highly encouraging results and some are challenging [11,12]. Nevertheless, inadequate assessment of these initiatives has resulted in failure to gather knowledge and necessary evidence that would facilitate the establishment of evidence-based effective models sustain and systematize them over time and facilitate transfer of successful programs [13]. Besides, there is lack of evidence on the role of PPPs in health system strengthening, particularly in terms of delivering urban primary and secondary health care services. Although several reviews have been taken place discussing the types and rationale of PPPs in health

sector, evidence lack on the effectiveness of different PPP models in achieving health outcomes in the context of growing urban system needs. The objective of this research is therefore to systematically review the existing PPP models in urban health systems in the context of least developed, low-income, and lower middle-income countries and to explore their contributions and effectiveness in bringing changes in urban health services and outcomes.

### Defining Public Private Partnerships (PPP)

Overall, this study will deal with urban health provision in the context of PPPs. For the purpose of this review, we draw on the definitions of PPPs given by Tabrizi et al. [13] and by Hellowell [14], whereby PPP is any long term partnership (i.e. not a one-off event), including both formal and informal arrangements, where the public sector (government and other governmental entities) uses the capacity of the private sector (private companies, cooperatives, charities, non-governmental organizations and informal private providers) in order to improve and protect the health of populations. Besides, by the term ‘urban’, we refer to all the semi-urban, peri-urban, sub-urban, urban slum areas in least developed, low-income and lower middle-income countries.

### Objectives

The study aims to assess the existing PPP models in urban health systems in least developed, low-income, and lower middle-income countries and to explore their contributions in bringing changes in urban health services and outcomes. The specific objectives are the following:

1. To investigate different types of PPPs (formal and informal contractual arrangements) that exist in the urban health context of least developed, low-income, and lower middle-income countries and territories.
2. To understand the specific roles of government and private sector or NGOs within the partnerships or contractual arrangements.
3. To understand the target populations being covered in the service provision of existing PPPs.
4. To study the level of access, coverage, and utilisation of services in existing PPPs.
5. To explore effectiveness of PPPs in increasing access/coverage/ utilization of urban health services and improving health outcomes.

This systematic review will be conducted as part of the Community-led Responsive and Effective Urban Health System (CHORUS) Research Program Consortium, funded by Foreign, Commonwealth and Development Office (FCDO). The consortium aims to develop and evaluate health systems interventions to improve urban health in Bangladesh, Nepal, Nigeria, and Ghana. This review forms a part of the activities carried out by the CHORUS Systematic

Review Action Learning Group (ALG) which aims to engage and develop capacity of researchers across CHORUS partners related to systematic review.

## METHODOLOGY

### Reporting of review findings

This systematic review will use the reporting items for systematic reviews and meta-analyses protocols (PRISMA-P) guideline for reporting [15]. The PRISMA-P checklist 2020 is provided at Supplementary Table 1. Besides, a completed reporting checklist for the systematic review protocol has been added (Supplementary Table 2).

### Search strategy and data sources

The search strategy will aim to identify studies examining different PPP models existing in urban health sectors in least developed, low income and lower middle-income countries and territories. A search strategy (Supplementary Table 3) has been developed by an information specialist based on the eligibility criteria indicated in Table 1.

Relevant published articles on health sector PPPs in the urban context of least developed, low income and lower middle-income countries and territories will be identified by searching a number of electronic databases-EMBASE, MEDLINE, Health Management Information Consortium (HMIC), Web of Science: Social Sciences

Citation Index (SSCI), Science Citation Index (SCI), Emerging Sources, CENTRAL (via The Cochrane Library, includes EPOC search register), i.e., Database of disability and inclusion information resources, and WHO Library Database (WHOLIS). No language or date restrictions will be applied to the searches.

Besides, reference lists of relevant systematic reviews and commentaries will be checked for identifying any additional relevant research. In addition, citations of key included studies will be screened.

### Search terms

Private public mix/, Public adj2 private adj2 partnership\$, Public adj2 private adj2 mix, public sector\$ and private sector\$, Private adj2 public adj2 collaboration \$, Private adj2 public adj2 cooperation \$, Public-Private Sector Partnerships/, LMICs.

### Eligibility criteria

**Data screening:** Two reviewers will independently screen the studies, first by title and abstract, and then full-texts following the pathway of exclusion and inclusion indicated in Figure 1. The number of records identified, duplicates removed, titles and abstracts screened, studies retrieved and included in the review will be recorded in a PRISMA flow diagram for systematic reviews. Covidence will be used to manage the screening of all identified studies (Figure 1 and Table 1).

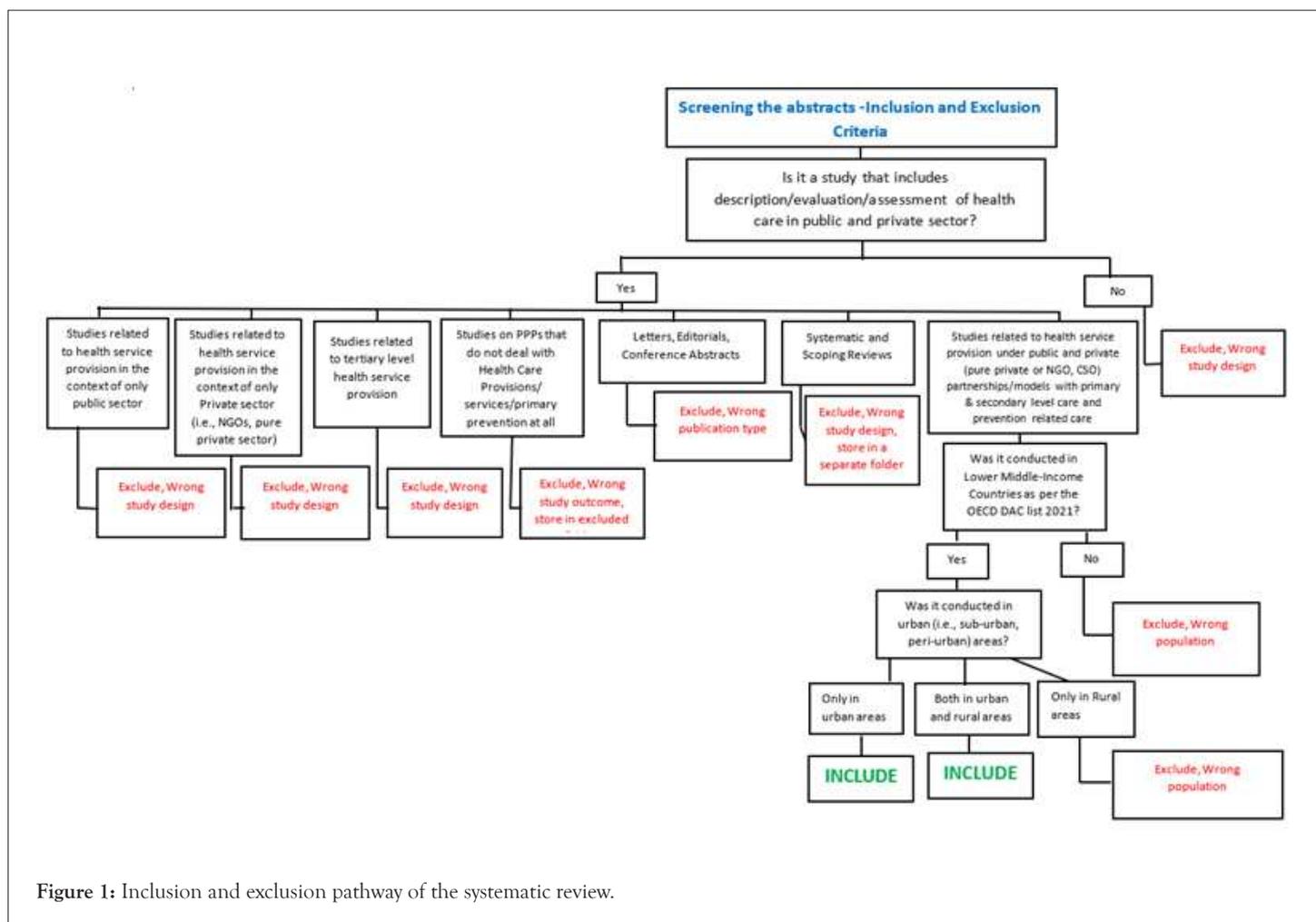


Figure 1: Inclusion and exclusion pathway of the systematic review.

**Table 1:** Inclusion and exclusion criteria [PICO].

Criteria	Inclusion	Exclusion
Participants/population	All urban populations in least developed, low income and lower middle-income countries and territories.	All rural populations
Intervention	Urban health provision in the context of PPPs (i.e., primary/secondary/tertiary healthcare provision, or diagnostic service provision, or provision of primary/secondary/tertiary prevention services) in any healthcare or non-healthcare setting.	PPPs that do not deal with health provision/ services/ prevention related care
Comparators	General urban health provision systems (for studies showing comparison); No comparison for descriptive or narrative studies on urban health related PPPs.	Not applicable
Outcomes[1]	<p>Primary Outcome</p> <ul style="list-style-type: none"> <li>– Access, coverage and utilization of PPP related urban health provision in relation in any of the secondary health outcomes as well as process outcomes</li> </ul> <p>Secondary Outcome</p> <p>Any health outcomes reported by the included studies (as long as they are for urban populations). These outcome(s) are likely to include the following health domains:</p> <ul style="list-style-type: none"> <li>• Sexual, reproductive and maternal health <ul style="list-style-type: none"> <li>– Maternal deaths</li> <li>– Maternal mortality rate</li> </ul> </li> <li>– Number or proportion of birth attended by skilled health personnel <ul style="list-style-type: none"> <li>– Uptake of antenatal and postnatal care</li> <li>– Uptake of family planning</li> <li>– Total fertility rate</li> </ul> </li> <li>• Child Health <ul style="list-style-type: none"> <li>– Level and status of infant nutrition</li> <li>– Infant and child mortality rate</li> <li>– Level of Immunization coverage</li> </ul> </li> <li>• Communicable diseases, e.g. Tuberculosis, Malaria, HIV/AIDS</li> <li>• Non-communicable diseases and chronic conditions, e.g. diabetes, cardiovascular disease, cancers, COPD, asthma, mental health, injuries <ul style="list-style-type: none"> <li>• Geriatric care</li> <li>• Genetic disease care</li> </ul> </li> </ul> <p>Process Outcomes</p> <ul style="list-style-type: none"> <li>• Effectiveness of partnership agreements, governance and contracting <ul style="list-style-type: none"> <li>• Cost of care and health care financing</li> <li>• Quality of care</li> <li>• Patient satisfaction</li> <li>• Staff competence/motivation</li> <li>• Responsiveness of care</li> <li>• Targeting of services to urban poor</li> </ul> </li> </ul>	Not applicable
Study design and publication type	Published Journal Articles reporting primary research of any of the following types: qualitative and mixed-methods evaluations, cohort study, cross-sectional study, randomised control trial, observational study, retrospective study, intervention study	Systematic or scoping reviews; letters, editorials, conference abstracts
Aspect of health care	Primary/secondary/tertiary healthcare provision, or diagnostic service provision, or provision of primary/secondary/tertiary prevention services	
Time period	Since 1990 (year of inception of the databases)	
Language	All languages (relying on the team's own language skills/google translate)	None
Place of study	Least developed, low income and lower middle income countries and territories following the defined DAC list of OECD 2021 ( <a href="https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/DAC-List-ODA-Recipients-for-reporting-2021-flows.pdf">https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/DAC-List-ODA-Recipients-for-reporting-2021-flows.pdf</a> )	Upper middle-income countries as per OECD DAC list
Geographical limitation	Urban (i.e., Semi-urban, peri-urban, sub-urban, urban slums)	Rural or remote areas

**NOTE:** [1] The effect measures of the outcomes will be specified through reporting of change in access, coverage and utilization of PPP related urban health provision/services; in addition, any inequalities in access/coverage/utilization by subgroups - e.g. background, socioeconomic status, ethnicity, etc. will be reported.

## Data extraction and management

- Roles and responsibilities of various partners/actors (providers; purchasers/payers; financiers) in the partnership
- Infrastructure, function and processes built for the partnership
- Extent and types of investment of the partners
- Regulatory and quality assurance/improvement measures
- Any aspects of market failure in health care addressed
- Health service package delivered
- Costs of care to each partner and any cost recovery measures (e.g., from health insurance etc.).

## Risk of bias (Quality) assessment

For quality assessment, we will use the Mixed Methods Appraisal Tool MMAT which covers mixed methods, qualitative and quantitative (subdivided into three sub-domains: Randomised controlled, non-randomised, and descriptive [16]. The MMAT facilitates critical appraisal of studies within systematic reviews by providing methodological quality criteria for different study designs/methods within a single tool. Two authors will conduct the quality appraisal independently and discrepancies will be identified and resolved by consensus between them, or where disagreements persist, by discussion with a third reviewer.

## Data collection

Data collection was done with the use of a structured questionnaire with open and closed ended questions. The questionnaire was divided into four sections. Section A contained the demographic data, section B was the challenges face by HIV patients, section C contained sexual behavior and section D was the traditional beliefs of the participants. The questionnaires were inserted into envelopes with pens for confidentiality and were self-administered.

## Data synthesis

**Quantitative findings:** We will present several 'summary of findings' tables based on extracted data, and an additional table of detailed quality appraisal. It is anticipated that included studies will have a variety of research designs and we will order studies by study design and within design type by quality/risk of bias. We anticipate grouping quantitative studies by: Type of PPP model, Health outcomes (e.g., maternal health, child health, etc.), process outcomes (e.g., cost, quality, staff competency, etc.). We may need to revise these groupings after extraction, noting any deviations from the protocol in our report. We will identify if we can calculate a standardised metric for different outcome groups, referring to methodological guidance (e.g., Cochrane Handbook) as appropriate. We will assess the level of heterogeneity across studies using the  $I^2$  statistic to assess the appropriateness of conducting a meta-analysis. Given the wide variety of outcomes we consider a meta-analysis unlikely. We will report our narrative synthesis of quantitative findings using the SWiM Guidelines [17].

**Qualitative findings:** Following the extraction of themes from qualitative papers, two reviewers will code the themes according to an adaptation of the RE-AIM framework: Facilitators and barriers to Reach, Effectiveness/impacts, Adoption by target staff, settings, systems and communities, Implementation, and Maintenance/sustainment over time for the PPP models [18].

**Result-based convergent synthesis:** Following the separate synthesis of qualitative and quantitative results, we will compare findings and explore the descriptions of context and models to help explain any differences in findings. This will allow us to present overall findings on the types of PPP models, the barriers and facilitators to their implementation and the resultant process and health outcomes [19].

## RESULTS AND DISCUSSION

In many cases, PPPs have been discussed as a better way to address the challenges of accessing health care services by providing cost-effective, efficient and quality healthcare. However, there is little clarity about the role of PPPs in achieving health outcomes in the context of urban health systems. This review will comprehensively assess and appraise all the existing health care models in the least developed, low income, and lower-middle-income countries and territories in the urban context.

## CONCLUSION

The findings of the review will help to understand the modalities of the existing health related PPPs in urban areas, their functionalities and their contribution in achieving health outcomes. Besides, the review will also explore the roles and responsibilities of different players (i.e., government, private sector, NGOs) within the partnerships and their collaboration mechanisms. In addition, this review is expected to help policymakers by informing the effectiveness of PPPs in increasing access/coverage/utilization of urban health services.

## DECLARATIONS AND ACKNOWLEDGEMENTS

The mentors of CHORUS Systematic Review Action Learning Group (Zahidul Quayyum, Helen Else, Bassey Ebenso) have developed this protocol along with ALG members (the reviewers). One of the reviewers, Su Golder developed the search strategy following eligibility criteria and another reviewer, Aishwarya Vidyasagan is coordinating the screening of the studies with the use of COVIDENCE. In addition, we would like to thank Tolib Mirzoev, Professor, Department of Global Health and Development, London School of Hygiene and Tropical Medicine for his guidance and suggestions in the study design.

## FUNDING

This systematic review will be conducted as part of the Community-led Responsive and Effective Urban Health System (CHORUS) Research Program Consortium, funded by Foreign, Commonwealth and Development Office (FCDO) with Grant Number: 301132 (Supplementary Table 4).

## AVAILABILITY OF DATA AND MATERIALS

Not applicable.

## AUTHOR'S CONTRIBUTIONS

ZQ, HE, BE, AV will be part of the core group and are responsible for developing the main activities of the systematic review, such as screen and select the manuscripts, extract the data and data analysis and writing the manuscript and reports. The CHORUS Systematic Review ALG members BN, JT, DB, MA, FK, DJ, SK, FS, JO, CA, CO, PA, PAO, AE will participate in the whole review

process under the guidance and mentorship of the participants from the core group.

## CONFLICT OF INTERESTS

None declared.

## CONSENT FOR PUBLICATION

All the authors of this systematic review have confirmed their interest for publishing this protocol.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

## DISSEMINATION

We will disseminate the results of this review alongside the events organised by CHORUS RPC, such as project meetings, seminars, webinars and SR ALG sessions. Additionally, we will produce policy briefs including key results of the review, priority actions for policy-makers, stakeholders of CHORUS partner countries. Final manuscript will be submitted to an Open Access international peer reviewed journal to reach a larger audience and the results will also be presented in a relevant conference.

## PROTOCOL REGISTRATION

This protocol has been registered in the Prospective Register of Systematic Reviews international registry, PROSPERO (ID CRD42021289509, 23 November 2021) and available at: [https://www.crd.york.ac.uk/prospero/display\\_record.php?RecordID=289509](https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=289509).

## SUPPLEMENTARY FILES

Supplementary table 1: PRISMA P guideline.

Supplementary table 2: Reporting checklist for protocol of a systematic review.

Supplementary table 3: Search strategies.

Supplementary table 4: Funding related information.

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