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Health Care Management Science for Underserved Populations

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Introduction

The global health landscape is marked by persistent inequities and access barriers that disproportionately affect underserved populations [1]. Despite the ambitious targets set by the United Nations' Sustainable Development Goals (SDGs), particularly SDG 3, which aims to ensure "Good Health and Wellbeing" for all, progress remains uneven. While some countries are on track to meet their under-5 mortality targets, a quarter of them are not, and a staggering 800 women still die every day from preventable causes related to pregnancy and childbirth [2]. This stark reality underscores the need for action to improve both access to healthcare and health equity.

To effectively address these health inequities, it is essential to identify and focus on populations that are most affected by these disparities. These groups, often referred to as "underserved populations," face unique challenges in accessing quality healthcare. In the context of this special issue, we define "underserved populations" in the broadest terms, referring to groups facing significant barriers to accessing healthcare services due to factors such as socioeconomic status, economic stability, geographic location, social and community context, age, gender, disability, or other characteristics. These populations may include low-income communities, rural populations, racial and ethnic minorities, immigrants, and other marginalised groups.

The role of management science

Management science or operational research, terms we will used interchangeably to describe the discipline, apply analytical methods, both qualitative and quantitative, to help improve decision-making and optimise systems in various domains. In the context of this editorial and the special issue, we focus on the discipline's application to addressing health inequities and expanding access to healthcare for underserved populations. By focusing on the decision problem and providing tools for addressing both operations and strategy, management science can play an important role in tackling these challenges at different levels [3].

Qualitative and quantitative operational research methods and tools can help us better understand systems that involve the interaction between healthcare services and underserved populations, elucidate barriers to that interaction, and develop solutions to optimise or address stakeholder goals [4]. By incorporating key system constraints and considering the dynamics of patterns of behaviour over time, operational research methods can provide valuable insights that enhance findings from methods used in other disciplines, such as health economic evaluations, when assessing the implementation of health interventions [5]. Understanding the operational aspects of introducing or scaling up new interventions is crucial as they can significantly affect elements such as the success and costs of implementation in the real world. Optimisation and simulation methods that management scientists use can capture the constraints in health systems that affect implementation. Operational research simulation methods, qualitative system dynamics, and scenario analysis can also help us understand potential unintended consequences of changes to these systems, including for health outcomes [6]. Additionally, problem structuring methods and multi-criteria decision analysis engage stakeholders and incorporate their perspectives on decision problems. With underserved population perspectives also likely being underrepresented in addressing problems, this could be particularly useful.

While our focus is on management science, we are also interested in work from related fields that sometimes conduct similar research but use different terminology, such as health services

research and implementation science. However, analyses in these fields (health services, health economic evaluation, statistical analyses), should address operational-related questions with a core concern that is operational in nature.

Examples of potential areas for research questions and impact, with some examples cited:

- Using qualitative operational problem structuring and research methods to work with stakeholders to understand the key barriers to access for an underserved population and levers to alleviate these barriers [7].
- Optimising the location and routing of resources, such as point-of-care diagnostic technologies for early infant HIV testing [8] and emergency response vehicles [9], in low- and middle-income countries.
- Modelling lean healthcare delivery models or improved resource allocation suitable for low-resource settings to increase access and improve health outcomes [10].
- Modelling to forecast healthcare needs for hard-to-access populations to inform resource allocation.
- Developing resource allocation models that ensure fair distribution of funds [11].
- Assessing the cost-effectiveness of targeted interventions or interventions that address the distinctive healthcare needs of marginalised groups (e.g., cholera vaccination for slum-dwellers, addiction services for intravenous drug users) using operational research/management science methods [12,13].
- Employing systems modelling approaches to understand how marginalised groups can become trapped in, and escape from, poverty and disadvantage.
- Modelling to compare health systems strengthening strategies with vertical interventions that reach underserved populations [14,15].
- Developing models for prioritising healthcare funding that account for decision-maker objectives or criteria [16].
- Modelling to contextualise intervention implementation to underserved populations, taking into account behavioural differences and local constraints [17].

Conclusion

The Management Science community has a unique opportunity to bring its perspective, knowledge, and ideas to address problems of access and equity in healthcare. By harnessing the knowledge base of our discipline and power of its methods, we can develop innovative solutions, inform policy decisions, and drive positive change for underserved populations.

The upcoming special issue of Health Care Management Science, titled “HCMS special issue for Underserved Populations,” aims to showcase Management Science studies that exemplify what the discipline can do in tackling health inequities and access barriers. We also hope to showcase existing collaborations and encourage future collaborations between Management Scientists, healthcare professionals, and policymakers.

Authors submitting research from international partnerships between high-income countries and low- and/or middle-income countries or with underserved populations are required to include an author reflexivity statement in the Appendix to the manuscript. Please provide answers to the questions in Table 2, guided by the example in Appendix S1 of the Consensus statement on measures to promote equitable authorship in the publication of research from international partnerships [18] (additional examples of reflexivity statements are available in Appendices in [19,20]). Please also see the editorial on Using scientific authorship criteria as a tool for equitable inclusion in global health research [21].

We encourage researchers and practitioners to submit their work to the special issue. We hope that this special issue will inspire further research and action, fostering collaborations and knowledge exchange across disciplines.

The manuscript submission deadline is Feb 3rd, 2025. Accepted articles will be published online when their review and production process is complete. The special issue target publication date is February 2026.

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