A rapid review of measuring tools to assess the distribution of hospital-based physicians to ensure an equitable healthcare delivery

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ABSTRACT

Introduction: Equitable healthcare delivery is essential and requires resources to be fairly distributed. However, there is no gold standard for measuring the correct number of physicians to healthcare needs. This study aimed to explore diverse measurement tools used globally to measure the distribution of hospital physicians. **Methods:** A literature search was performed across PubMed, EMBASE, Emerald Insight and grey literature sources. The search used key terms including "distribution", "method", and "physician", focusing on research articles published in English from 2002 to 2022 and describing methods or tools to measure hospital-based physicians' distribution. Relevant articles were selected through a two-level screening process and critically appraised. The extracted data were synthesised narratively. **Results:** The literature search yielded 7,199 potential studies. However, only 13 studies were eligible and included in the review. Among the included studies, twelve were conducted in Asia, and one was conducted in Africa. The review identified eight measurement tools to guide hospital-based physician distribution: Gini coefficients and Lorenz curve, Robin Hood index, Theil index, concentration index, Workload Indicator of Staffing Need method, spatial autocorrelation analysis, mixed integer linear programming model, and cohort-component model. All measurement tools require similar fundamental data on population and physician numbers to generate output. Five studies used the measurement tools in combination to obtain a more comprehensive understanding of the dynamics of physician distribution within a population. **Conclusion:** Various measurement tools exist to optimize the distribution of hospital physicians and potentially enhance equitable health services. However, each tool has its pros and cons, necessitating further evaluation to accurately assess their effectiveness and feasibility.