Background Access to healthcare varies significantly across urban areas due to the uneven distribution of healthcare providers and consumers, as well as variations in the socioeconomic and demographic characteristics of different population groups. To date, GIS-based assessment of geographic accessibility to emergency health care services in urban areas of Bangladesh has been hindered by the lack of a comprehensive, georeferenced dataset of health facilities. Moreover, previous studies have overlooked the impact that the unregulated traffic conditions typical of Bangladesh urban areas are likely to have on geographic accessibility to health services.

Objectives This study provides the first GIS-based evidence of the geographic accessibility of emergency health care services in Dhaka city, using a unique georeferenced survey of health facilities conducted in 2013.

Methods The impact of variable traffic conditions on geographical accessibility was quantified using statistical distributions of travel times for different time of the day and week measured in previous traffic surveys. Measures of geographic accessibility were overlapped with population distribution from census data as well as maps of urban poor settlements, in order to identify disadvantaged population groups suffering from poor accessibility.

Result The main outcomes of this study are maps of the geographic coverage of emergency services in Dhaka, and quantification of the proportion of the population lacking timely access to emergency services. Variable traffic conditions are expressed in terms of probability spatial maps expressing the odds that a particular area will have insufficient access to emergency services. This results in the identification of geographic areas with persistent lack of accessibility to emergency services, with particular focus on disadvantaged population groups.

Conclusion The evidence provided by this study will inform targeted policy interventions aimed at reducing travel time to emergency health care services.

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