**TITLE: Hospital scarcity in Bihar**

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**Introduction**

Bihar is the third most populous state in India with 83 millions where 40% of the population is below poverty line. According to the report of DLHS, 2002-04, the state ranks 35th based on indicators related to primary healthcare infrastructure, reproductive and child health care. The joint report also says that rural primary health care infrastructure indicated substantial gaps in sub centres, primary and community health centres and also shortage in manpower, equipment, drugs and consumables.

**Methodology**

Bihar’s Municipal Corporations/ Towns/Nagar Parishads and hospitals in each district of Bihar has been mapped and analysed using open-source software i.e., QGIS 3.16.2. Various datasets such as the 2011 census were used for total population, total homeless. Density has been calculated using different measurements, such as persons per square kilometre (ppkm2).

Data of total number of older adults, prevalence of acute, chronic illness, severe anaemia in women aged 15-49 years is are collected by household survey. Google Earth Pro is used to map the hospitals in each district and Municipality Corporation (MC)/ Towns/ Nagar Parishad (NP).

**Specific Steps**

1. Population and other data related to census are taken from 2011 census.

2. Bhuvan ISRO data was used in QGIS.

3. Number of hospitals in each Nagar Parishad (NP)/ Municipal Corporation (MC) were obtained from Google Earth.

4. By combining all the data with the help of QGIS, a visual representation of Bihar was created.

5. By using the formula: , a statistical map is generated on district level.

6. By finding accessible zones, areas with scarcity of hospitals were found.

**Complexities**

Data was not easily available from local authorities, all data was mapped by the author itself.

**Application**

The hospital data map can be used to study the number of hospitals present per district and identifying health trends and management of health care facilities.

Using a GIS-based proximity analysis, the major health challenges can be prioritized to make health care accessible to the population present. It can also be used to identify the potential areas for new hospitals to emerge for public health benefits.