Tuberculosis

124. Effective Implementation and Management of DOTS Using GIS: A Study at Jhunjhunu District

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Tuberculosis (TB) kills about 2 million people each year. This global epidemic is growing and becoming more dangerous due to the burden on health services, the spread of HIV/AIDS, and the emergence of Multi Drug Resistant strains. It is projected that between 2000 and 2020, nearly one billion people will be newly infected, 200 million people will get sick, and 35 million will die from TB - if control is not further strengthened.

Since 1997 the Directly Observed Treatment Short course strategy (DOTS) is being used by WHO for the control of TB. The objective of this programme is to reduce mortality, morbidity and disease transmission, while avoiding the development of multi-drug resistant TB. The Government of India adopted the Revised National Tuberculosis Porgram (RNTCP, the Indian version of DOTS). The infrastructure is well planned with District Tuberculosis Centre (DTC) as the nerve centre for all operations.

The aim of this paper is to study the location of DOTS centers and the patients being covered by each unit using Geographical Information System (GIS). GIS is a planning tool, which is commonly used in engineering applications. However, it has great potential to benefit the health care sector by harnessing the data integration and spatial visualization power. This study gives a detailed analysis of the current situation of TB and DOTS pertaining to the Jhunjhunu district of Rajasthan. We selected all the four Treatment Units namely Jhunjhunu, Navalgarh, Chirawa and Khetri for the study.

IDRISI (GIS software) is used for digitization of villages, DOTS centers, and the number of patients attended at each center. The methodology involves exact location of the centers using topographical mapping. Map images are converted to IDRISI image and vector files are created to mark every village on the map of Jhunjhunu district. Data are analyzed after adding the vector layers. Patients’ data for one year (2002-03) are entered in the database. In-built functions of software like, geo-referencing, resampling, reclassification, and distance analysis were carried out.

The analysis indicates that GIS could be used to relocate the existing Treatment centers using varying patient density, distance to travel, and the capacity of the Treatment centers. The methodology can be used in other new places to fix the location of DOTS centers and its effective implementation.

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