Improving GIS in Health Care

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Abstract—*Information and communication technologies are playing a pivotal role in all areas of life. The applications of information and communication technologies find a lot of purview in the field of health care management. Expeditious advancements in the last decade have made it possible to improve the health care by introducing various methods for the solution of health care issues. These include the use of a wide spectrum of techniques like "mobile-health", Geographic information Systems, In clinic patient identification systems, Low cost communication systemsetc..This paper will focus on the use of cartograms forGIS (Geographical Information Systems) in public health management. This technique involves the linkages to an electronic medical record. The database will be managed in order to allow for an easier access to the health care data that can be used by various government organizations while making their health related policies.*

1. INTRODUCTION

A cartogram is a chart that depicts the an area under consideration depending upon a variable (other than equal land area as in ordinary maps).The cartograms are a shift from the conventional size based considerations to population based or any other variable based. A requirement for cartograms arose as the normal maps based upon the geographical sizes couldn't relate the data of the regions that have a higher population density. For example on a normal the cities where the density of population is much higher than other areas are depicted very small on the map because the normal maps are based on the size rather than the population of a geographic area. Hence the use of cartograms find an essential role when GIS are used for health related purposes.
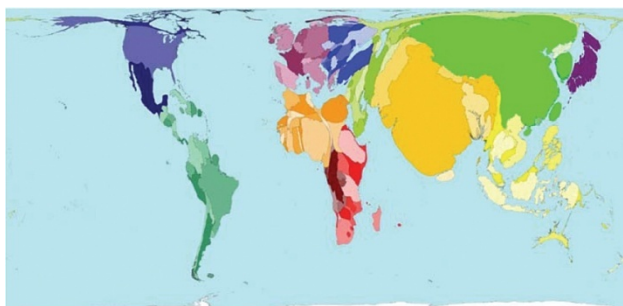

Fig. 1: Cartogram based on the world population (Source-World Mapper Population Map)

Using GIS as a health improving tool

Geographical information system is very good method for strategy planning. Strategy planning involves the framing of approach towards health care. Every patient requires diagnosis and treatment, the first step in this process is localized as the patient first approaches the nearby health care facility. This step is very important for the policy makers as they can use the data at the localized level and through the techniques of database management maintain the records of the patients .These records can be maintained in the form GIS. GIS technique is more inclined towards the health of the community rather than that of an individual; its main aim is preventing the occurrence of a disease rather than curing it.
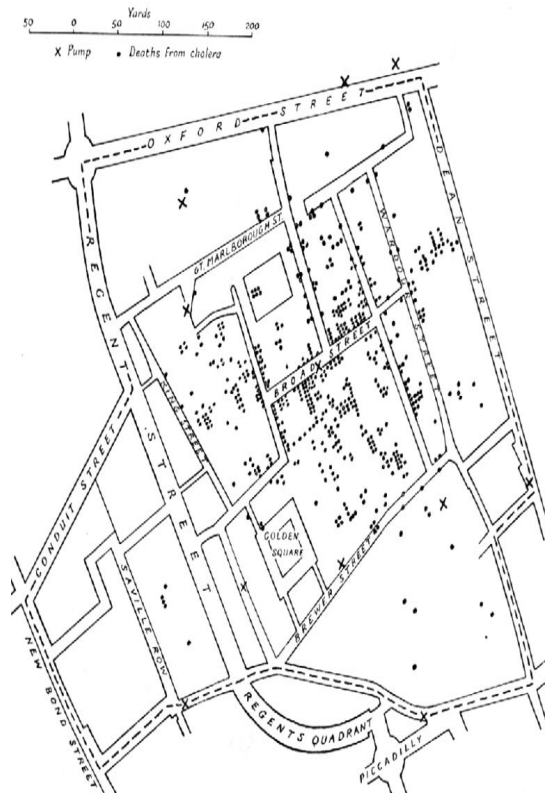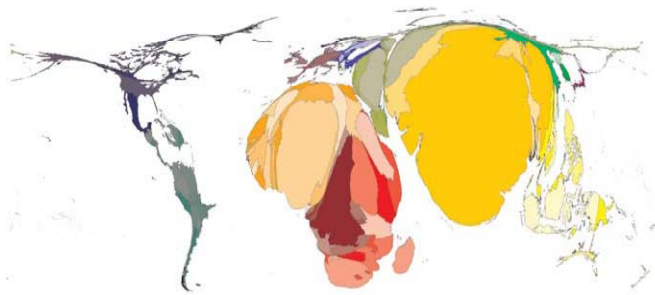

Fig. 2: Map by Dr. John Snow of London, showing clusters of cholera cases in the 1854 Broad Street cholera outbreak (Source WIKIPEDIA)

The above shown picture was one of the initial use geographically quarantining based on the disease .Since then the use of GIShas been done at various levels of health care ,modern practitioners use this technique for preventing the occurrence of a disease rather than curing it since the GIS is aimed at a population of a particular area rather than the
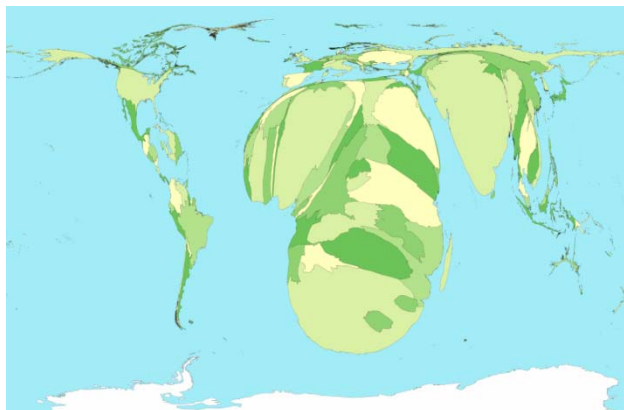
Cartograms to improve GIS

As said above the GIS can be improved with the use of cartograms .Reports have showed that the most number of unimmunized children across the globe are in African and south Asian countries. 70% of the total number of unimmunized children is from only 3 countries India, Nigeria and Republic of Congo. This is a matter of deep international significance, but while depicting the problem of such magnitude on a normal area based cartogram (our normal maps) the understanding is prevented due the fact that larger areas have more visual effect .The cartogram published looked like

Fig. 3: Depiction of the country sizes according to the Unimmunized Children (Source-"The World Mapper Project")

The above depiction is a perfect example of a cartogram being used in to portray a major health issue. Now this kind of showcasing is very helpful as the U.N or any other international body can frame their policies on a health related issue pertaining to the area affected the most.

Fig. 4: Depicting the People Living HIV/Aids across the globe (Source-The World mapper Project)

2. CONCLUSION

With the increasing number of health care issues around the globe ,a modern and a better approach to the addressing of these issues .GIS is a good way to address to these issues. Cartograms are a way to improve the unevenness in the GIS that is currently constrained due to the structural hazards. The use of cartograms in health provides much better approach to the interpretation of real time data.

REFERENCES

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