STATUS OF HEALTH CARE FACILITIES IN URBAN MASSES OF NORTHERN ETHIOPIA: A CASE STUDY

Mushir Ali∗

Abstract

The prevailing inequitably distribution of the health related services, is a common problem the in urban society in sub-saharan countries. The present work was attempted to identify distribution of health care centers in relation of population growth, to describe availability of health care facilities per households, and to assess the problem related to health care system and find the suggestions. On basis of random sampling four sub-cities (57% of the total) were selected where 240 households as sample size were determined. The health care facilities were not proportionally increased as population growth. Availability of hospitals, doctors, and paramedical staff shows a poor picture of the study region. Suggestions are incorporated to enhance and develop the health care services, to control corruption and high growth of population.

Key words: Health, society, population, medical staff, distance and spatial distribution.

∗ Dr Mushir Ali, Assistant Professor, Department of Geography and Environmental Studies, Mekelle University, Ethiopia.

Introduction

Health is necessary for quality of human life. It is a state of entire physical, mental and social well-being and not merely the absence of disease or infirmity. Health is measured as one of the vital indicators of the social well-being and a major component towards the better quality of human life (Broome 2002).

Health care is the treatment and management of illness, and the preservation of health through services offered by the medical, dental, complementary and alternative medicine systems, pharmaceutical, and nursing and allied health professions. The preservation and promotion of health is one of the most basic human rights, as declared in the Universal Declaration of Human Rights (Article 25). Development of the health care facilities to enhance the well-being of population has been done by WHO on priority basis in the backward countries of Africa, Asia and Latin America (Chatterji et al 2002). Integration of preventive, curative and promotive health services was included. Although health is one of most the important components of social well-being, it is unsatisfactory among the developing countries, in the turn 21th century due to lack of health-care facilities and their unfair distribution without spatial and accessibility plans. The proper availability, accessibility and affordability of health care services are not only major determinants for well-being of people but also essential for their survival. It is considered as the fundamental right of any society (Sadana et al. 2001).

Now-a-days many countries of the world are experiencing high population growth at an alarming rate. It influences the many aspects of human life among which affects infrastructural arrangements, employment matters, insufficient of farmlands, overcrowded housing and other related matters. Population growth those are mostly seen in developing countries like Ethiopia which have tiny level of family planning and strategies as rapid population growth and its negative consequences on access to health facilities and other related services (Salomon et al. 2001).

The distribution of health facilities is positively related to the health standard of the population in Florida. The distribution and accessibility of health centres depends upon the management if it is well-organized then their functions as useful health services. According to the behaviour of organization related to the health system exists in a hierarchical order (Ronald et al. 1988). Even after a high investments on health services in rural area of Botswana, the number of visits for

medical care per rural inhabited were very less. The individual may develop poorly because of inadequate nutrition or due to the poor genes and only appropriate observations of relations of different plans of nutrition can finally distinguish these causes (WHO 2004). Health services and other social services and economic considerations that influence the health status of a community are considerably influenced by the nature of the political system of a community. With a national society, the hierarchy is highly and positively co-related to the socio-economic conditions of the people. The people due to their peculiar and distinctive economic environment and inhibitions are reluctant to travel distances to obtain medical aid in the cities (Sverdlik 2011). There is a positive association between education and health but their explanations fall into three categories, work and economic conditions social-psychological resources and health life-style (Barrett 2010). Public health services, which reduce a population's exposure to disease through sanitation and vector control, are an essential part of a country's development infrastructure. The two important aspects of health care delivery are adequacy and accessibility (UNICEF 2010).

The rapid population growths in developing countries like Ethiopia unequal distribution with the health facilities, causes serious problems in cities. In addition to this a huge number of population demands a high number of health facilities which is proportional to in to this can be achieved in the few. So rapid grow of population influences the health facilities in negatively ways (Tigray Regional Health Bureau 1997, Kyobutung 2008).

The utilization of medical care services has changed greatly since the implementation of the health care delivery system to use all health and medical facilities distributed without any restriction except for territory hospitals. But visiting territory hospitals or using medical facilities requires referral request from a primary care physicians and the utilization pattern of medical care distribution based on consumer needs (Bitran 2005). The unequal distribution of medical resources in each health service due to increase in population by passing medical facilities in problems such as lack of access rooms, beds, nurses, doctors, equipments, medicine to meet in patient care service needs (Ruel et al. 2008). In absence of general hospitals largely determines the rate where a chunk of poor population residing in cities or towns (National Research Council 2003).

Objectives

Keeping in the view of importance health care facilities in urban society, the study was conducted in Mekelle town, Tigray Zone of Ethiopia, with the objectives, i.e.

- To identify distribution of health care centers in relation of population growth,
- To describe availability of health care facilities at household level, and
- To assess problems related to health care system and find out suggestions

Study area

Mekelle is one of the ancient cities of northern Ethiopia and regional capital city of Tigray state, situated about 780 km from Addis Ababa near border of Ethiopia and Eretria at 39^0 25' 21''- 39^0 33' 35'' E and 13^0 34' 29''-13^0 26' 21''N. The eastern side of the city is bounded by Enda-Eyesus ridges; a fault block mountain tiled the river Ellala by north. Average annual temperature and rainfall of the city is 14^oC to 34^oC and 575-650 cm (Tigray Regional Office, 2010). The relief of the city is young interior scarped plain (plateau) by average elevation range 2000 to 2200 masl. Population of city is 215,456 consisting 104,758 males and 110,788 females, residing in seven sub-cities, i.e. Hawelti, Ayder, Adi-haki, Semien, Hadnet, Kedamey and Quiha (CSA 2007). Growth of population is associated with rural to urban as well as cross-border migration form Eretria (Dessalegn and Aklilu 2003). Here, livelihood and main occupation are based on the agro-processing, small and household level industries by formal and informal sectors. Recently, the city has been popular for rapid political and economical development.
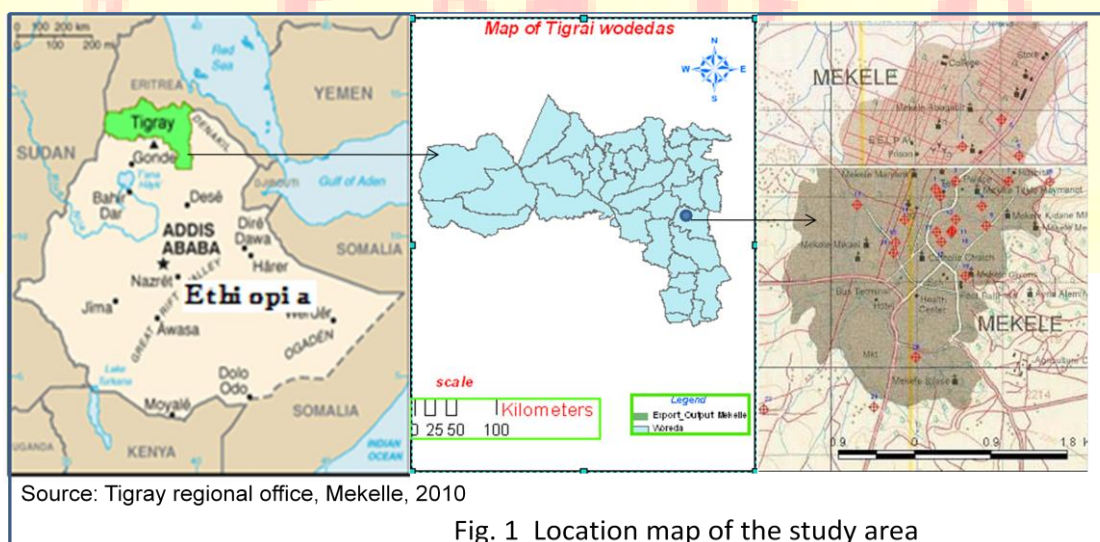

Source: Tigray regional office, Mekelle, 2010

Fig. 1 Location map of the study area

Data and Methods

The study is based on primary and secondary sources of the data. Primary data were gathered by field survey through questionnaire/schedule focused on health care services among urban population. On the basis of random sampling out of seven, four sub-cities (57% of the total) were selected those consist 29527 households (52% of total). A list of identified households' heads was arranged in alphabetical order. Sample size of 240 households was determined on the basis of purposive sampling. Excluding the health officers, and three individuals related to medical services those were interviewed purposely as support group.

The share of households in each sub-city was determined by Bhan (1989) recommended; cited in Birhane (2010) model sample size of target population is enough to serve an adequate representative and small enough to be chosen cost-effectively in terms of both time and difficulty of analysis. After determining sample homeless population, the sampling was conducted by calculating the proportion of sampled households existing in each sub-city on the basis of the following formula.

$$S = \frac{th}{TH}$$

Where,

S = samples to be taken

th = target homeless population heads

TH = total homeless population heads in all sub-cities

Table 1 Procedure for selection of female-headed households

Target kebeles	Calculation	Sample proportion	Absolute samples
Hawelti	$240 \times \frac{8809}{29527}$	=71.6	72
Kedamay	$240 \times \frac{6352}{29527}$	=51.63	52
Hadnet	$240 \times \frac{5694}{29527}$	=46.28	46
Ayder	$240 \times \frac{8672}{29527}$	=70.48	70
Total	$29527 \times \frac{100}{56754}$	=50.02	240

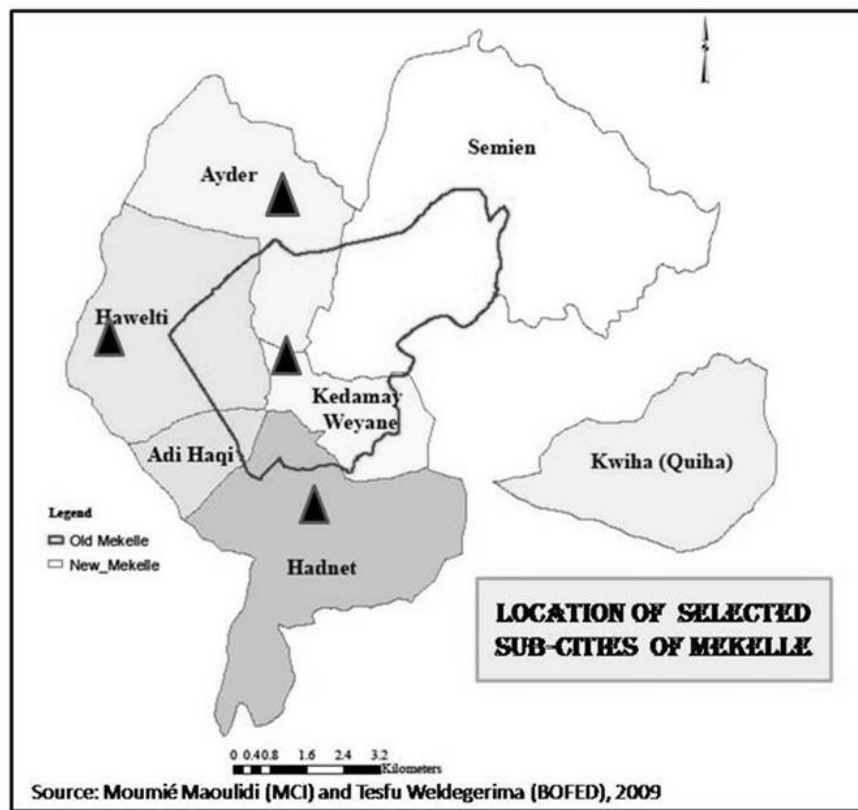Source: Based on Central Statistical Agency and Field survey, 2012

Fig 2 Location of selected sub-cities

Results and Discussion

It is expected that fast growing population influences services particularly in urban masses of developing countries. As there is a demand and supply type relationship. An increasing population leads to decrease on the other since health facilities which is going to be consumed continuously. An increasing population tends to increase the demand over specially, number of health facilities those inverse to population growing, indicates a problem regarding the usages (National Research Council 2003).

Fig.1 shows that population and health facilities, and time factor on the other hand. It assesses the population growth rate and development of health facilities in Mekelle city by 20 years (1992-2012). At the first stage (1992) population was 65583 in Mekelle city and there was only one health centre and a hospital at the same time. At the second stage (1992-1997) population increased by 12542 (from 65583 to78125) within five years time-gap. But, there was no change recorded among the number of health centres and hospitals. To get the third stage (1997-2002) population increased by a fast rate than that of the second stage, i.e. 18813 persons.
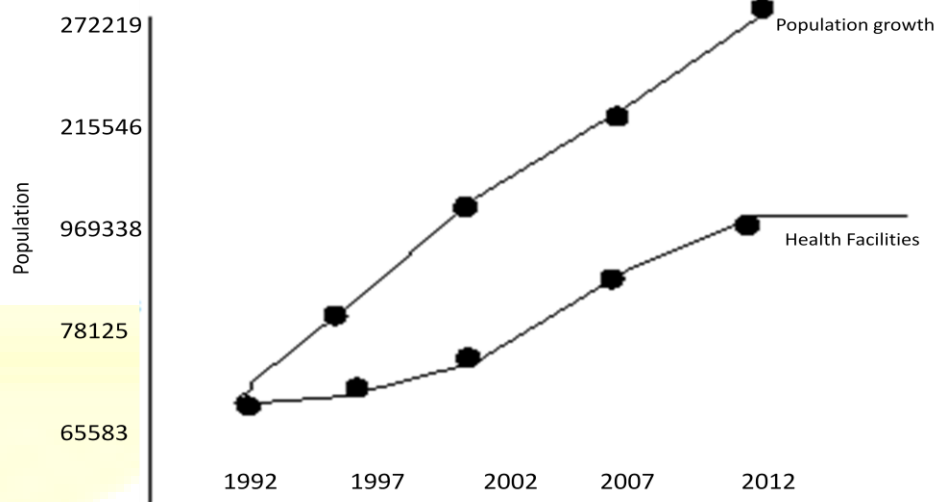
_____

Fig 3: Population and Health Facilities and Time Relationship

Source: Stastical and Health office records, 2012

Similarly, the health centres and hospitals increased from 1 to 3 that means within this stage of 5 years, Mekelle got 3 health centres and 3 hospitals with enhancement 96938 population. At coming up to the fourth stage (2002-2007) population increased rapidly by 118608. Similarly, health centres were opened upto 9 but hospitals did get any increment. During last 5 years (2007-2012) population of the city enhanced upto 56673, but health centres and hospitals were stagenent. It shows that population increased rapidly within the 20 years, but the health facilieties have either been constant or increased slowly. This inverse relationship indicate deterioration in heath services and creates social problems for Mekelle dwellers.

Spatial Distribution of health care facilities

The status of health care facilities in urban area were analyzed by the asking the questions from the related offices and observed during the field survey.

Table 2 Spatial distribution of health care facilities

Target sub-cities	Health centres	Hospitals	Medical officers	Paramedical Staff	Beds
Hawelti	1	1	06	14	48
Kedamay	2	0	11	25	46
Hadnet	1	1	10	23	49
Ayder	2	1	12	27	135
Total	6	3	39	89	278

Source: Field survey and Health office records, 2012

Table 2 shows the status of health care facilities in urban area analyzes that total health care centres including hospitals were 9 in the selected study zones. There was 39 medical and 89 paramedical staff to provide health related services. The status of beds was not satisfactory in the study area where 278 beds were among the health centres and hospitals. However, the highest number of beds was counted in Ayder locality where Ayder referral hospital is situated.

Health Centres and Hospitals

Sources: Field survey & Health office records , 2012
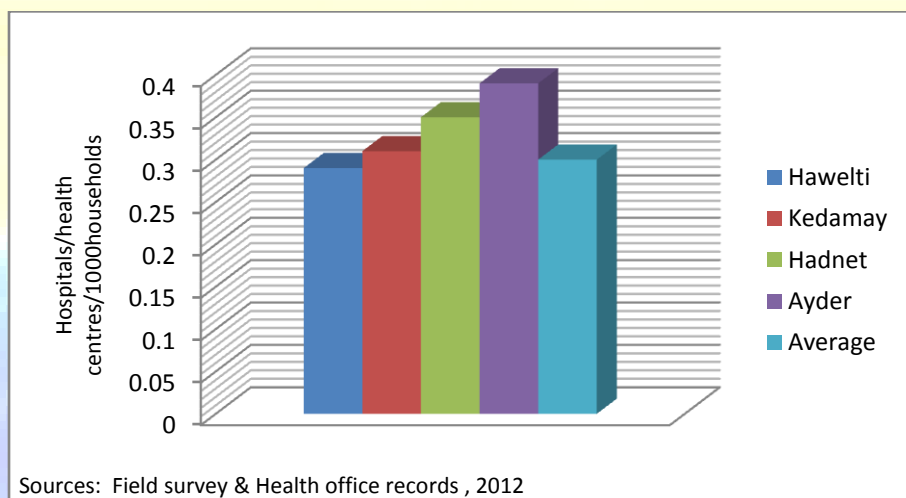
Fig 4 Availability of Health Centres and Hospitals

Fig 4 shows availability of hospitals and health care centres that was in miserable conditions in the selected urban area (average 0.3 per 1000 households). However, distribution of heath care institution was not homogenous in the sub-cities. It was the highest (0.4 per 1000 households) in Ayder followed by Hadnet (0.35 per 1000 households), Kedemay (0.31 per 1000 households) and Hawelty (0.29 per 1000 households).

Availability of Medical Staff (doctors)

Source: Field survey & Health office records, 2012
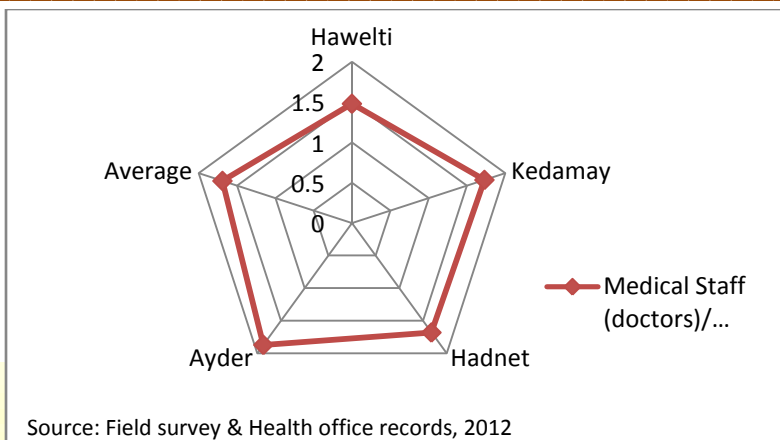
Fig 5 Status of Availability of Medical Staff (doctors)

Fig 5 depicts that average availability of medical staff (1.69 doctors) was on 1000 households. It shows poor availability of medical officers for health services that varies from one zone to another. It was the highest in Ayder Zone which followed by Kedamay, Hadnet and Hawelti respectively.

Availability of Paramedical staff

Source: Field survey & Health office records 2012
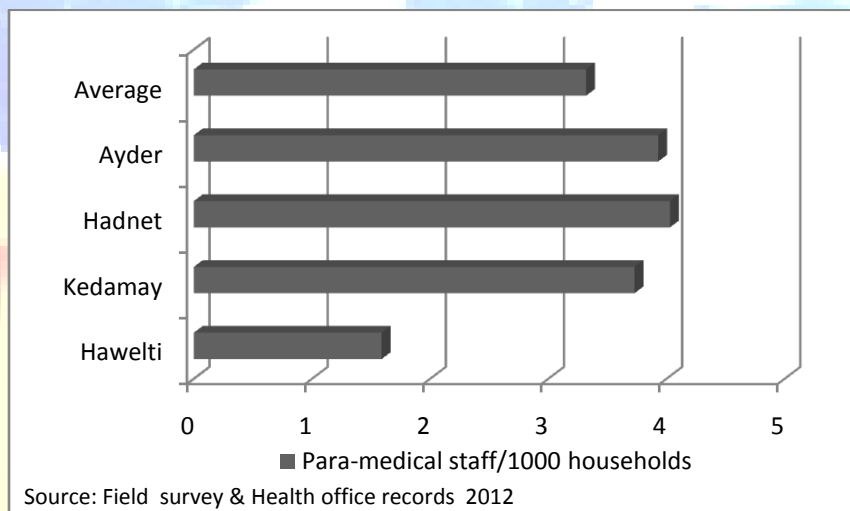
Fig 6 Health Care Facilities by Availability of Para-Medical Staff

In the study area the health care facilities are not capable regarding hospitals and doctors. However, a big share of population is dependent on para-medical staff for health related services in the absence of doctors and medical officers. A little satisfaction was found in availability of para-medical staff was 3.32 per 1000 households. Out of four urban localities among three, they were working in more number to facilitate health care services than that of average (Fig 6).

Availability of Beds in Hospitals and Health Care Centres

Source: Field survey & Health office records, 2012
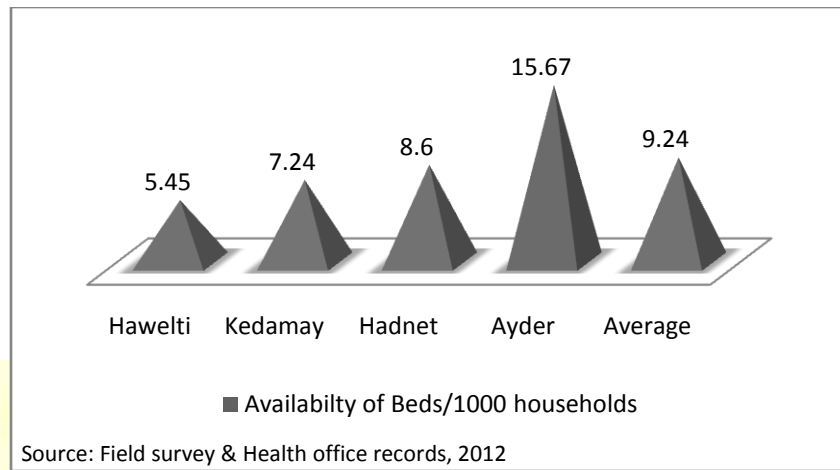
Fig 7 Availability of Beds in Health care centres

Fig 7 indicates that availability of beds was 9.24 on 1000 households which have spatial variation from 5.45 to 15.67. The highest availability of beds (15.67/1000 households) were recorded in Ayder urban area because there is a regional referral hospital under Mekelle University that provides a better health care facilities, particularly availability of beds for fast medical treatment of the patients. However, the lowest availability of beds was in Hawelti zone where availability of health centres and hospitals was poor. This zone has been comparatively recent established locality for residence where a chunk of homeless and cross-border immigrants is living.

Distance Travelled by Patients for Health care Facilities

Source: Field survey, 2012
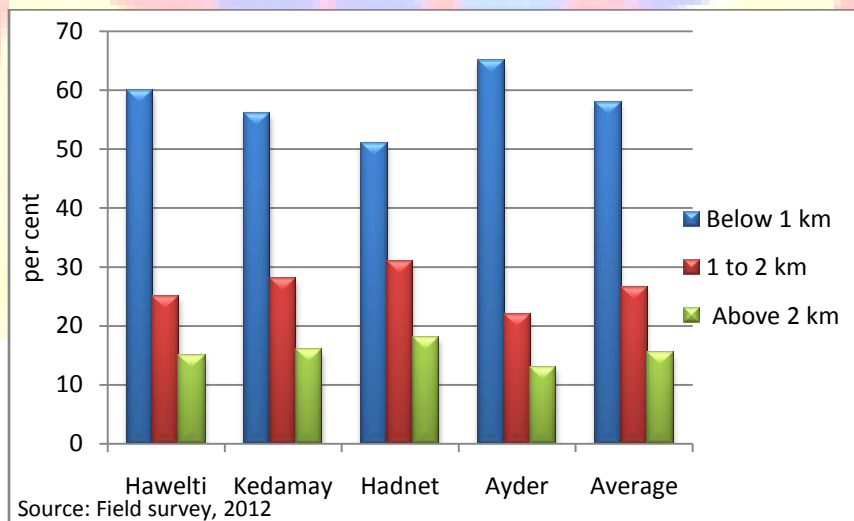
Fig 8 Health care facilities by distance

Fig 8 shows that more than 58% population of selected households travelled less than 1 km for getting advice and medical treatment followed by 1-2 km (26.5%) and above 2 km (15.5%)

respectively. The highest share of less than 1 km covering distance for healthcare facilities shows their accessibility at optimum distance that varies 51% to 65% in surveyed localities. At least 60% households of Ayder locality enjoyed the nearest distance to get health care facilities and 51% households of Hadnet locality respectively. There was 15.5% population of the sampled households travelled more than 2 km for health care facilities in the study region that indicates their measurable situation.

Problems related to health care facilities reported by respondents
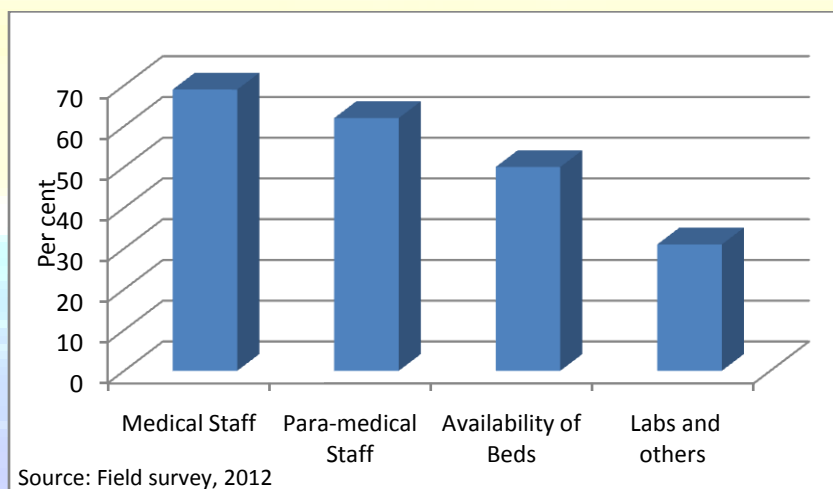

Source: Field survey, 2012

Fig 9 Health care facilities by reporting the problems

Fig 9 highlights problems related to healthcare facilities those were recorded during the field survey that 78% respondents complained about lack of hospitals and health care centres. Shortage of medical and paramedical staff was 69% and 62% respectively. The respondents reported that average out of 5 times visiting the hospitals, 3 times doctors, nurses and other supporting staff were presence. However, related availability of beds 50% respondents accepted as problem, and 41% complained for insufficient equipments by which the prevailing diseases, i.e. TB, Malaria and HIV/AIDS have not been controlled.

Suggestions to improve the health care services

Table 3 How to solve problems related to health care facilities	%
1. To open new hospitals and extent facilities in existed health care centres	29.33
2. To appoint medical and paramedical staff for speed up relief	23.00

3. To enhance no of beds in the hospitals for fast recovery of health related problems	20.67
4. To establish labs and to make availability of equipments for accurate results and fast diagnosis	16.67
5. To control corruption in health care related bodies and improve ability of health workers	10.33

Source: Field survey, 2012

Table 3 indicates that the majority of the respondents suggested to open new hospitals and extent medical facilities in existed health care centres to provide cheap and easy access of health services (29.33%), to appoint medical and paramedical staff to speed up relief (23%), to enhance number of beds for fast and sound diagnosis of health related problems (20.67%), to establish labs and make availability of equipment for accurate diagnosis (16.67%), and to control corruption in health care related bodies and to improve the ability of health workers (10.33%) respectively.

Conclusion and Suggestions

Analysis of the study shows that status of health care facilities in Mekelle town has either been constant or increased with little pace in comparision to population since 20 years. The hospitals and health care cenres were situated in different localities, where number of medical officers (doctors), paramadical staff and beds varied one zone to another. The average availability of heath care facilities was 0.3 per 1000 households. It was higher in three zones than that of average. However, the lowest availability was recorded in Hawelti (0.29 per 1000 households). Poor availability of medical care officers was also calculated as 1.69 working doctors on 1000 households. A chunk of the population is served by paramedical staff in the studied heath care centres in the absence of doctors and medical officers. The availability of paramedical staff was 3.32 per 1000 households. The spatial distribution of health care facilities was noted in Ayder sub-city where a regional referral hospital is situated that provides serious and sound medical treatment. There is numbers of medical, paramedical staff and particularly beds for the patients were the highest (15.67 per 1000 households). Less than 1 km journey for health care services

was travelled by 58% population, 1-2 km by 26.5% and above 2 km by 15.5% population of households

Scarcity of sufficient hospitals/health care centres was complained by 78% respondents. The shortage of medical and paramedical staff was recorded as patients visited more than two times hospitals/healthcare centres to meet for diagnosis. Regarding availability of beds 50% respondents accepted as problem and 41% complained about lack of labs and equipments. The suggestions to improve the conditions of healthcare facilities were collected from respondents as to open new hospitals and extent facilities in existed health care centres, to enhance number of beds for fast recovery of health related problems, to appoint medical and paramedical staff to speed up relief, to establish labs and make availability of equipments to get precise results for diagnosis, to control corruption in health related bodies, and to improve the ability/skill of health workers. However, all the above measures will not be effective until if high growth rate of population is controlled.

References

➢ Barrett, JR. (2010). A Marked Disadvantage: Rapid Urbanization and Mortality of Young Children in Nigeria', Environmental Health Perspectives, vol. 118 (5), pp. 118-259.

➢ Birhane, K. (2010).Water Supply and Factors Affecting Consumption Level: The Case of Mekelle Town, Tigray Region, Ethiopia: Unpublished thesis, Addis Ababa University,

➢ Bitran, J. (2005). Keeping Health in an Urban Environment: Public Health Challenges for the Urban Poor, in The Urban Poor in Latin America, edited by M. Fay, The World Bank, Washington, D.C., pp. 179-194.

➢ Broome, J. (2002).Measuring the Burden of Disease by Aggregating Well-Being. In: Murray CJL, Salomon JA, Mathers CD, Lopez AD, editors. Summary measures of population health: Health Policy. Geneva, WHO

➢ Chatterji, S., Bedirhan, LU., Ritu, S., Joshua, AS, Colin, DM., Murray, CJL. (2002). The conceptual basis for measuring and reporting on health, Global Programme on Evidence for Health Policy Discussion Paper No. 45, World Health Organization 2002.

➢ CSA (2007). Population Dynamics, Central Statistical Agency, Addis Ababa

➢ Dessalegn, R. and Aklilu, K. (2003). Vulnerable Livelihoods: People's Security Survey of Urban Households in Ethiopia, Forum for Social Studies and Miz-Hasab Research Center, Ethiopia.

➢ Kyobutungi, C. (2008). The Burden of Disease Profile of Residents of Nairobi's Slums: Results from a Demographic Surveillance System, Population Health Metrics, vol. 6 (1), pp. 1-8, www.ncbi.nlm.nih.gov/pmc/articles/ PMC2292687, accessed 22 February 2011

➢ National Research Council (2003). Cities Transformed: Demographic Change and its Implications in the Developing World, edited by Panel on Urban Population Dynamics et al., National Academies Press, Washington, D.C., in Montgomery, Urban Poverty and Health in Developing Countries.

➢ Ronald. D, Lyons, B. and Edward J. (1988). Medicaid: Health Care for the Poor in the Reagen Era, Annual Review of Public Health, vol. 9, pp. 427-50.

➢ Ruel, MT., James, L., Garrett and Lawrence H. (2008). Rapid Urbanization and the Challenges of Obtaining Food and Nutrition Security, in Nutrition and Health in Developing Countries, 2nd ed., edited by Richard D. Semba and Martin W. Bloem, Humana Press, Totowa, N.J.

➢ Sadana, R., Tandon A., Chatterji S., Ustun TB., Murray CJL. (2001). Describing Population Health in Six Domains: Comparable Results from 66 Household Surveys. GPE Discussion Paper No. 43. Global Programme on Evidence for Health Policy, Geneva: WHO.

➢ Salomon, JA., Murray, CJL., Ustun TB, Chatterji S.(2001).Health State Valuations in Summary Measures of Population Health. GPE Discussion Paper. Global Programme on Evidence for Concepts, Ethics, Measurement and Applications, Geneva: WHO.

➢ Sverdlik, A. (2011). Ill-Health and Poverty: A Literature Review on Health in Informal Settlements, Environment and Urbanization, vol. 23 (1), p. 126.

➢ Tigray Regional Health Bureau (1997). Basic Criteria for Hygiene and Environmental Health service for Establishments.

➢ Tigray Regional Office (2010). Mekelle Town Information Bureau, Mekelle, Ethiopia

➢ UNICEF (2010). Slum Under-Five Mortality Rate: 95 per 1,000 Live Births. See United Nations Children's Fund Bangladesh, 'Understanding Urban Inequalities in Bangladesh: A prerequisite for achieving Vision 2021-A study based on the results of the 2009 Multiple Indicator Cluster Survey, www.unicef.org/bangladesh/Urban_paper_lowres.pdf>, accessed 25 September 2011.

➢ WHO (2004). Epilepsy in the WHO African Region: Bridging the Gap, World Health Organization Regional Office for Africa, Cité du Djoué, BP 6, Brazzaville, Congo.