

Review Article**Responding to demand for inpatient care in the process of health development**

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**ABSTRACT**

During recent decades, many changes are happening in health sector and countries are trying to respond to the increasing health demands of people. Although hospitals have important role in health delivery system of any country, numerous factors have to be taken into account before establishing a new hospital in certain area. During recent decades, in many developing countries, new hospitals are built and equipped with sophisticated plant, without any scientific investigation. This means wastage of scarce resources.

This paper aims to introduce need assessment methodology to establish hospitals and discuss the criteria to be met prior to their construction in the process of health care development.

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Changes are under way that need to be taken into account in considering the prospect for development of health services in this decade. Various changes in policy, with particular regard to equity and intersectional cooperation, new resources, better use of existing rare resources, and increased productivity, as well as new technologies, new methods of financing, and the economic downturn of most developing countries provide a complex background to the further development of hospitals, at first referral level and their relationship to the communities they serve<sup>1</sup>.

One or two decades ago, it was optimistically expected that progressive development round in all regions of the world. However, this expectation has not been realized. While Western Europe, the Americas, and parts of Asia have witnessed growth, some regions have been stagnant and many areas in the African Region have actually deteriorated.

Dwindling economic strength has been accompanied by the high cost of new technologies and significant demographic changes, such as population growth and the increasing proportion of older people in some countries.

Rural-urban shifts have created pressures on urban centers. Sociopolitical, ecological, and economic migrations are on a larger scale than ever

before as a result of civil strife, famine, drought, and the movement of skilled workers from less prosperous to more affluent areas<sup>1,2</sup>.

More countries are defining and strengthening their population policies as high fertility rates in the developing world, diminish per capita incomes and worsen the effects of poverty. There is therefore growing concern about poverty, population pressures, and their attendant consequences.

The policy of building health centers rather than hospitals is now being reviewed and, where sufficient health centers exist or there is a shortage of hospital care, some health centers are being transformed into hospitals. Increasing attention is being given to ethical considerations in both hospital-based curative services and community-based health service development.

Generally, health demands in most regions outweigh supplies, and contributions are therefore required from the users or beneficiaries. There is a further need to examine various methods of cost-sharing, such as health insurance and social security, though a caution is necessary against the practice of open-ended social security, which has proved very expensive<sup>1</sup>. Social security, though a caution is necessary against the practice of open-ended social security, which has proved very expensive<sup>1</sup>.

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New technologies have strongly influenced treatment and diagnostic support and made positive contributions to the development of primary health care services.

In the future, there will be further changes and pressures occasioned by changes in disease patterns, by action-oriented health service research, by increased costs, by demographic pressures, and by social demand. Considering these issues we should think; do our hospitals work efficiently? and do we need to build up new hospital?

Numerous factors have to be taken into account before establishing a new hospital in a certain area. Unfortunately, in many developing countries, new hospitals are built and equipped with sophisticated plant, without conducting the thorough investigation that is necessary before such a project is laid down.

A hospital at any level, whether serving an urban or a rural population, is an integral part of the health system, with a key role to play in achieving health for all <sup>1,3</sup>.

Hospitals have important role in treatment of patients, education of health personnel, medical research and health promotion <sup>4</sup>. Important variables such as geographic, demographic, economic, socio-cultural and epidemiological factors, as well as health status, can affect the role and performance of a hospital. Therefore, the relevant data have to be gathered, reviewed, analyzed and evaluated in order to assess the real need of a population for inpatient services.

In recent decades, it has been frequently obscured in developing countries, that modern or large hospitals and other health facilities are mainly concentrated in capitals or metropolitan areas-leaving other parts of country with poor access to medical services. Many different organizations often provide inpatient services in the same vicinity. This leads to duplication and overlap, which in turn leads to waste of capital resources, where there is already serious lack of funds. Once built, hospitals are extremely difficult to close down <sup>5</sup>.

It is rational that a body of health policy makers, health strategists, hospital planners and health economists discuss following issues: current inpatient problems, the demand for inpatient services, major obstacles and most likely alterna-

tives to tackling the difficulties in the region, before any design made or put into action. It is also recommend that the health traders of countries depict the health care future in general to predict the need in progress <sup>6</sup>.

### Conceptual framework

As part of a unified approach to socioeconomic development, the aim of health policy is to secure a fundamental change in the health status, both to help break the cycle of poverty and to enable the population to effect the changes they have chosen and in which they participate. Sound health strategies and policies aim to distribute all accessible resources and facilities among the various groups of people living in different geographical areas of country; the ultimate goal is to secure the health of individuals as part of social justice; as stated by WHO:

The tendency towards more democratic forms of government will lead to increasing calls by the people for more equitably distributed, better quality services, for a strong voice in decisions on priorities and for the means of obtaining health services. The spread of education in combination with the trend towards more democracy and participation in decision-making will intensify demands for more objective and understandable information about health, health technology and necessary health services, and pressure to complete the role of health professions in health care decision-making <sup>7</sup>.

A hospital - an expensive health resource - is a combination of human and other resources. Such as building, hardware, technologies, materials etc. This resource is presumably established to satisfy the needs of the people. In recent decades developing countries have invested heavily in health. They have constructed hospitals and other buildings and purchased equipment to fill them. Worldwide, the number of hospital beds rose from 5 million to almost 17 million between 1960 and 1990, which was more than doubled per capita supply.

Such investment has also led to new problems. Virtually, in every developing country the facilities, equipment, human resources and drugs are skewed towards the tertiary ( specialized ) hospitals - at the top of the health system pyramid; Yet cost - effective public health and clinical interven-

tions are best delivered at the level of district hospitals or below. That they are often delivered through specialized hospitals simply increases costs and consumes a large proportion of available resources for health, without improving quality<sup>5</sup>.

More effective and effective and efficient utilization of the limited resources leads to the establishment of economic hospitals in order:

- to cover the optimum inpatient treatment needs of the people, especially those at risk;
  - to locate them in the best catchment's area;
  - to avoid parallel or overlapping services produced by other hospitals or health centers in the region, so that costs can be minimized;
  - to involve them in the training of health human resources;
  - to involve them in conducting health and medical research;
  - to support the referral health network;
  - to support the health of the community.
- assessment by the health authorities to determine the needs of the population. It should begin with questions formulated by the health decision-makers, such as the following:

1. what are the health priorities of the people?
2. what are the objectives of establishing a new hospital?
3. how many hospitals are functioning in the geographic area?
4. do they cover the target populations effectively?
5. what is the bed-occupancy rate? if it is low, what are the reasons?
6. do the existing hospitals work economically?
7. do they have the potential for development? are their functions in line with the goals of the health system, especially primary health care and the referral system?
8. how can their services be optimized?

9. what geographic areas are supposed to be covered? can the hospital be reached in a timely fashion?

10. are there outpatient services working effectively enough to replace unnecessary inpatient services?

These questions and others, especially those concerning the socioeconomic status, should be addressed to evaluate and predict both the present, future and long-term hospital needs of the population. Population-based socioeconomic, cultural, demographic and epidemiological information is vital for defining priority areas for action, planning public health interventions and evaluating progress<sup>8</sup>.

So, prior to any other step, gathering reliable information on all factors related to hospital planning is essential.

### Methodology of situation analysis

The availability of reliable and comprehensive data on socioeconomic and health status of the population varies from country to country. However, ad hoc or routine data collection may be used in this respect<sup>9</sup>.

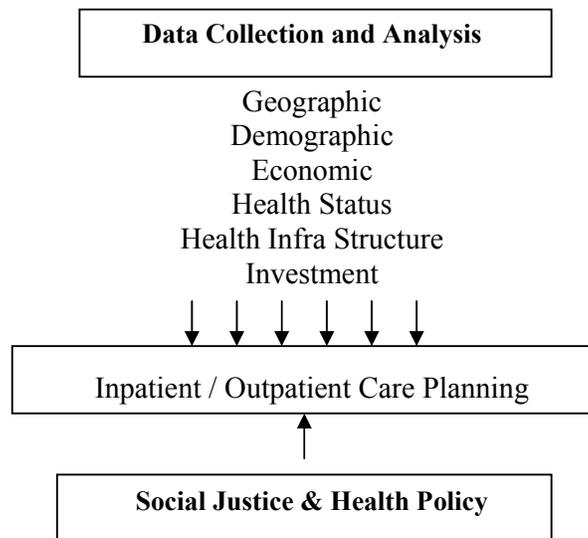
Where information is doubtful, as in most developing countries, cross-sectional studies within the target population and existing health organization would be helpful. Trend studies are also possible to predict the future hospital needs of the people by referring to existing data such as medical records, epidemiological reports and periodical censuses. The depth of surveys depends on the dimensions of health programs.

Where the procedure of data collection encounters restrictions or difficulties, such as shortage of time or money or lack of qualified personnel, expertly estimations can be helpful and are much better than having no information<sup>9</sup>. However, the method of data collection pursued should be appropriate to the conditions prevailing. Data collection programmes require the collaboration of a team consisting, say of a health administrator, a doctor, a statistician, a data analyst and a health economist. The collaboration of academic staff in public health schools or universities, in harnessing information is quite useful<sup>10</sup>.

The following data should be collected and analyzed:

- I) Geographical information on the region to be covered by the new hospital (s) such as:
- 1- Area
  - 2- Population density, in urban and rural areas
  - 3- Numbers of cities, towns, environs and villages up to 60 km from the location of the hospital
  - 4- Traffic networks in cities
  - 5- Traffic networks in rural areas, and travel time
  - 6- Natural situation of the region (mountainous, plain, coastal, climate, etc.)
- II) Demographic and social data:
- 1- Number of people to be covered by hospital services in the region
  - 2- Distribution of urban and rural population by sex and age
  - 3- Spatial distribution of the population
  - 4- Annual population growth rate
  - 5- Birth and mortality rates
  - 6- Literacy/illiteracy rates
  - 7- Cultural values, social characteristics and political aspects which may affect the services rendered by the hospital
  - 8- Migration
  - 9- Ethnic groups, pressure group and occupational associations that may influence decision-making
- III) Economic data: There is a general consensus that health and economic development are closely dependent on each other <sup>11</sup> . Appropriate data help planners to evaluate the economic status of the population, their purchasing power with respect to health services, the occupational health hazards, the economic resources available for developing hospital services, insurance mechanisms, and economic crises, which influence hospital functions directly or indirectly.
- Therefore, economic data should include :
- 1- Number of industrial centers, factories, and manufacturers
  - 2- Agricultural and farming areas
  - 3- Business centers
  - 4- Per capita income per year
  - 5- High-income/low- income ratio
  - 6- Employment rate
  - 7- Economic inflation rate
  - 8- Population distribution by economic sectors in the region
  - 9- Interest rate for health insurance investments.
- IV) Health status of the population and its trends would cover:
- 1- Basic epidemiological data
  - 2- Morbidity rates
  - 3- Major causes of deaths
  - 4- Vulnerable groups
  - 5- Vulnerability to common diseases in the region
  - 6- Life expectancy
  - 7- Inpatient-outpatient rates
- V) Health facilities and organizations include <sup>4, 10, 12</sup> :
- 1- Number of practitioners
  - 2- Number of rural and urban health centers
  - 3- Number of hospitals and beds ( by department or ward )
  - 4- Number of clinics, polyclinics, Para clinics-private and public.
  - 5- Bed-occupancy rate
  - 6- Bed index
  - 7- Rate of turn-over ( admissions per bed per year)
  - 8- Average length of stay ( for turn-over rate and average length of stay, Pabon-Lasso analysis method is useful <sup>13</sup> )
  - 9- Turn-over intervals

- 10- Waiting lists and waiting time
  - 11- Hospital mortality rates
  - 12- Facilities for emergency services (both community – based units and hospital- based units )
  - 13- Number of intermediate ( secondary) and specialist (tertiary ) hospitals in nearby regions ( by capacity and distance)
  - 14- Number of referrals from/to other hospitals
  - 15- Development potential of existing hospitals
  - 16- Number of teaching hospital
  - 17- Available resources to establish new hospital departments
  - 18- Available technologies and the existing health technology status <sup>14</sup>
  - 19- Medical schools
  - 20- Material, organizational and political constraints <sup>10</sup> .
- VI) Investment rate needed to evaluate the risks and benefits :
- 1- Resources necessary for development or modernization of existing hospitals
  - 2- Cost-effectiveness analysis ( preventive versus curative care)
  - 3- Cost- benefit analysis of inpatient care
  - 4- Average cost of bed/ day per existing hospital per year
  - 5- Investment needs for the establishment of new hospitals
  - 6- Internal interest rate
  - 7- Methods of obtaining resources
  - 8- Health market variables ( such as number of agencies which provide hospital services, number of health insurance institutions, pricing system for inpatient services, number of public and private providers). Figure 1 shows the above process in data collection and analysis.



**Figure 1.** The data collection and analysis of the factors affecting in-patient planning

**Conclusion**

A proposal for any new health system should include in its policy: equity in distribution of health resources and facilities throughout the geographic areas to support people's needs and satisfaction,

community partnership in policy-making and coordination with the health policy of the country <sup>15,16</sup>.

Since new trends, concepts and sensitivities are involved in the financing of the health sector, there is a need to encourage cost-effectiveness studies and population-based cost analyses<sup>2</sup> , and

so planning to construct a new hospital in a given region must receive much thought in all its aspects. These aspects should preferably be studied within a research proposal<sup>15,17</sup>. This proposal should depict the real needs of the community for better inpatient cares<sup>18</sup>.

A framework is essential to clarify bottlenecks and shortages, and to estimate effective demands in the health market. An ad hoc committee should make decisions compatible with the national health strategies.

A comprehensive survey clarifies the priority of inpatient services in the region, the possibility of improvement and development of existing hospitals, the location, the capacity, the services of new inpatient cares and the needed investment. Once the data gathered and analyzed satisfactorily and the need for establishment of new hospital is evidenced, it will be designed according to the regional or national standards considering the "future prospects".

In the "future", there will be further changes and pressures occasioned by changes in disease patterns by action-oriented health service research, by increased costs, by demographic pressures, and by social demand. It is likely that the more technologically advanced countries will need fewer hospital beds, thanks to an increase in "ambulatory" (walk-in/walk-out) and day-care services due to changing patterns of care and technological advances. Where possible, hospital will be "horizontal" rather than "vertical", both in their structure and in their relations with other health services, and maximum flexibility will be built into their design<sup>1,3</sup>.

On the other hand, many developing countries will continue to try to catch up with their requirements as regards essential hospital services. They will none the less benefit from provisions for the more efficient use of such services and of hospital beds.

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