Hospital Planning: the risks of basing the future on past data

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Hospital Planning Process

1. Clinical Services Plan
2. Functional Analysis
3. Physical Area Analysis
4. Cost Analysis of Capital Development
Clinical Service Planning steps

1. Population Data
2. Policy Data
3. Demographic Service Data
4. Services Analysis
Problem with the planning process

Forecasting >2 years into future is “notoriously inaccurate”

- Data of existing clinical services not complete
- Focus on actual service utilization for admitted patients
- Combine with population data → project for the future need for health care services

→ Do not address unmet need

→ change in technology, clinical practice, population health status in-between data analysis for service planning & the construction of hospital
Problem with the planning process

- Focus only on quantitative data rather than qualitative data

- New hospital for political gain rather than patient needs

  ➞ Many hospitals in inner city areas and too few beds in developing suburban areas
Other influencing factors

1. Potential for hospital to co-locate & share services
2. Change in catchment boundaries
3. Change in service standards
4. Anticipated changes in services’ practices
5. Potential for development of new services
6. Advancement in clinical and admin technologies
7. Change in service delivery (community care instead of hospitalization)
8. Availability of complementary services and resources to support new needs
9. Changes in legislation and community expectations
10. Method of containing or channeling demand to other services etc
This rational planning process assumes that future practice can be forecast from past practice.

“driving a car by looking at the rear mirror”
Better understanding
the demand for hospital services

1. More complete data set (i.e. more than hospital bed-based activities like primary care, ambulatory outpatients and community health services data)

2. Beware of those outlier data over-influencing the result generated by linear regression model

3. Forecasting models need to be based on retrospective data over a number of years (say 10 year period) instead of current year utilization
Accounting for unmet needs

- May result in under-planning
- Past referral pattern may ignore the needs of those unable to access the healthcare system, e.g. immigrant population, communities with lower socioeconomic status

Solutions:

\[ \text{Population based needs assessment} \]
Accounting for variation in utilization

- Hospital utilization more closely related to the number of beds and health professionals employed than the characteristics of population being served (i.e. provider-induced demand instead of genuine need of patients)
- Need to critically appraised the admin databases? Over serving / ? under serving / ? “best treatment”
- In other words, a value judgment as to whether the utilization was appropriate or not

Implications:
- Outcome of projecting future hospital capacity on past utilization may perpetuate poor clinical practice at the expense of providing essential health services, given the resources are always limited

Solutions:
- Data that link practice to health outcomes
Changes in government policy

- Service planning based on the declining birth rate &
- Change in government policy: “Baby Bonus scheme”
- More Public-Private Partnership initiatives, more ambulatory care services etc

→ May not be possible in the planning process to identify all possible policy changes

Solutions:

→ Clear documentation of the planning assumptions is essential
→ Development of utilization scenarios and sensitivity analysis
→ Ensure flexibility in the design & construction process
Changes in the services in other hospitals

- Change in service capacity in a neighbouring hospital
  → significant implication for other hospital serving the same population and therefore future hospital utilization

- Positioning of public vs. private hospitals
Recommendations


**Multiple approaches & sources of data in the planning process**

1. Complete data set based on current utilization, marring current age sex utilization rates by major clinical group / DRG with population projection

2. Identify current and future drivers of demand for hospital services (social, economical, political, environmental, technological factors and complete trend analysis for these factors) → Develop scenario planning with explicit core assumptions on future drivers

3. Benchmark with relevant utilization data from other jurisdictions and forecast utilization rate, looking for outliers

4. Complete epidemiological, comparative and corporate needs assessment

5. Adjust baseline forecast to reflect expected changes in demand from both driver and benchmarking analysis

6. Test the sensitivity of adjusted forecast. Explore how the forecast would vary with changes in major documented assumptions