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Hospital capital planning module

Principles

The process set out in this guideline is informed by two principles.

1. That a benchmark must be applied to a known input to accurately specify an output. For example, if the benchmark throughput requirement for an operating theatre is 1,500 procedures per annum (input), two operating theatres (output) will be required to provide 3,000 procedures per annum (refer figure: Planning principle one).

2. That there is a specific, linked sequence of events in the capital planning process in which the output for each planning phase establishes the input for the next phase (refer figure: Capital planning process - sequence of activities).

The benchmarks provided by the hospital benchmarking guideline study translate service requirements identified during service planning into the number of functional unit outputs required to deliver those services, the gross departmental area (GDA) required to accommodate those functional units, and the capital cost of providing that accommodation.

Planning Units

Hospitals are comprised of complex sets of spaces that accommodate many and varied activities. For planning purposes, the overall space of a hospital has been subdivided and grouped conceptually into a number of planning units (PUs) according to either the type of activity carried out within them or an organisational relationship.

A standard set of ten PUs was developed to enable a common approach to the capital planning process for hospital projects and to enable comparisons to be made between different hospital capital projects (refer table: Standard planning units for hospital projects). All documentation for hospital capital projects must use this standard set of PUs.

Standard planning units for hospital projects

<table>
<thead>
<tr>
<th>PU Code</th>
<th>Planning unit (PU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inpatient</td>
</tr>
<tr>
<td>2.</td>
<td>Administration</td>
</tr>
<tr>
<td>3.</td>
<td>Clinical</td>
</tr>
<tr>
<td>4.</td>
<td>Day areas</td>
</tr>
<tr>
<td>5.</td>
<td>Education and research</td>
</tr>
</tbody>
</table>
6. Child care and community health
7. Commercial
8. General support
9. Plant and travel
10. Discretionary units

Functional Units

Each PU is comprised of a subset of smaller Functional Units (FUs). For example, the PU of “I. Inpatient” includes the functional units of “I.A Ward Acute/Medical/Surgical”, “I.B Ward Sub Acute” etc (Refer to Planning & Functional Units).

The list of FUs is not intended to be an exhaustive list of all areas within all hospitals. The list has been formulated taking into account the following:

- Information that is normally provided within a Service Plan.
- The functions carried out within a hospital.
- The varying levels of complexity encountered between and within hospitals.
- Differences in throughput, area, or cost benchmarking.
- The format for hospital reporting on service throughput.

It is possible if required, to divide FUs into sub-units. This has not been attempted in this guideline.

Level of Complexity

For the purposes of benchmarking, public Hospitals in Victoria have been allocated a role level ranging from 1 to 6 using the NSW Health Guide to the Role Delineation of Health Services (Refer to Role Delineation of Victorian Public Hospitals). Use of the NSW Health role delineation levels provides a common language when describing services and enables interstate comparisons to be made on costs of capital projects and facility performance measures.

The role level assigned to each hospital describes the level of complexity of clinical activities undertaken by a hospital, with Level 1 hospitals undertaking the least complex clinical activity and level 6 hospitals providing the most complex clinical activity.

Benchmarks

For the purposes of this study, benchmarks have been developed at the level of the FU. Area and Cost Benchmarks therefore refer to Gross Departmental Area (GDA).

Functional, area and cost benchmarks have been developed for each level of role delineation to reflect the difference in the level of service complexity and the resultant variation in functional and area requirements and cost.

Users of this Guideline should note that the benchmarks for capital planning of hospital projects are subject to change due to the impact of a number of factors including changes to models of care and the impact of new technologies and equipment. While the benchmarks provided in this Guideline are current at the time of publication, users of this Guideline should always contact Capital Projects and Service Planning to ensure that they have the current benchmarks.

1 Not all clinical services are provided at all levels of role delineation due to the degree of complexity required to perform those services. Where this applies, benchmarks for these services are only provided for the role delineation levels anticipated to provide those services.

Functional

The Functional BMs provided in this Guideline convert the number of services to be provided into the number of functional unit outputs or ‘space drivers’ required to deliver those services, eg the number of beds required in a ward to enable the projected number of multi-day stay separations that will be accommodated in that ward or the number of EFT staff required to deliver those services (Refer to Functional Benchmarks).

The Functional BMs provided are based upon a number of assumptions. In most instances they have been developed from service delivery data including: average length of stay for the type of service activity undertaken, the hours or days per annum that the service is provided and the average occupancy rate allowed for that type of FU. Service planning assumptions should be clearly stated early in the capital planning process as changes to any of the underlying assumptions can have a significant impact on the number of functional units ‘space drivers’ required, the area required and consequently the cost of a project.

Area

The area BMs provided in this Guideline were developed following a review of recent hospital capital projects and generic briefs for health facilities. The BMs are considered reasonable targets for designers and planners to aim for rather than prescriptive minimum or maximum areas.

Cost

This section of the guideline is intended as an aid to the preparation of capital budgets for hospital projects. It covers both the building and equipment components. More detailed description of cost planning is contained in Appendix E.

The capital cost of a new hospital development can vary from $200,000 to over $500,000 (current costs) per bed inclusive of design cost, loose
furniture and equipment. The overall rate per m² of floor area can similarly vary from $2,500 to over $4,000 per m² (current costs).

The main factors which impact on cost in hospital developments, in addition to the size of the hospital, expressed in floor area or bed numbers, are:

1. Hospital Role Delineation (i.e. the complexity of services provided)
2. Functional make-up (i.e. More expensive departments such as Operating Theatres, Laboratories or less expensive departments such as Clinics, Engineering and Stores
3. Building configuration (i.e. single storey, low rise or medium rise)
4. Site locality (i.e. CBD, Metropolitan, Rural)
5. Site specific factors (i.e ground conditions)
6. Carparking (i.e on-grade, low rise, multi-level or basement).

Redevelopment of an existing hospital will typically cost 30-90% of an equivalent new hospital, dependent on age and quality of the building stock, services and other infrastructure².

An individual project may comprise a partial redevelopment of specific departments or a total new greenfield development. The Cost BMs included in this Guideline have been developed to permit an analysis of any combination of the above factors.

² In exceptional circumstances where the building requires extensive upgrade to meet current regulations, it may be cheaper to demolish and build from new.