80 GENERAL REQUIREMENTS

Planning

80 .1.00 The planning of Hospitals and Day Procedure Centres requires general knowledge of the appropriate relationships between the various components. Certain components (also referred to as Hospital Planning Units or HPUs) need to be adjacent or close to other components. Most components must be accessible independently without having to go through other components. In short, the planning of a Health Facility requires a certain logic which is derived from the way the facility functions.

80 .2.00 Good planning relationships:
- Increase the efficiency of operation
- Promote good practice and safe health care delivery
- Minimise recurrent costs
- Improve privacy, dignity and comfort
- Minimise travel distances
- Support a variety of good operational policy models
- Allow for growth and change over time.

Inappropriate planning relationships:
- Result in duplication and inefficiency
- May result in unsafe practices
- Increase running costs
- May result in reduced privacy, dignity and comfort
- Increases travel distance or force un-necessary travel
- Result in lack of flexibility to respond to future growth and change
- May limit the range of operational possibilities.

Planning Models

80 .3.00 Planning of a complex Hospital of Day Procedure Centre depends on commonly recognised "good relationships" as well as site constraints and conformity with various codes and guidelines.

In theory it is possible to go back to the basics every time. In practice, however, designers soon discover that this is an inefficient way of arriving at appropriate planning solutions.

Just as in other buildings types eg Hotels and Shopping Centres, Hospitals and Day Procedure Centres have overtime evolved around a number of workable Planning Models. These can be seen as templates, modules, prototypes or patterns for the design of new facilities. Typically each model will best suit a certain facility size and site condition.

80 .4.00 These Guidelines include a number of flow diagrams which represent Planning Models for various Hospital Planning Units (HPUs). The diagrams are included in the enclosures.

The flow diagrams are referred to in the appropriate sections of these Guidelines. They may cover not only internal planning of HPUs, but also relationships between HPUs. Designers may use these diagrams to set out the various components and then manipulate them into the appropriate shapes to suit the site constraints.

80 .5.00 Designers are encouraged to see the overall design as a model. A good Health Facility Plan is usually reducible to a flow diagram. If the diagram has clarity, simplicity and logic, as demonstrated in the enclosures to these Guidelines, it probably has good potential for development.

If on the other hand the model is too hard to reduce to a simple, clear and logical flow diagram, it should be critically examined.

It is not sufficient to satisfy immediate or on-off relationships. Similarly, it may not be sufficient to satisfy only a limited, odd or temporary operational policy. It is more important to incorporate planning relationships that can satisfy multiple operational policies due to their inherent simplicity and logic.

Some of the typical planning policies which may be adopted to achieve these goals are covered under Planning Policies in these Guidelines.

Masterplanning

80 .6.00 MASTERPLAN

In the health care industry, Masterplan has different meanings in different contexts. The most common use of the term Masterplan refers to words, diagrams and drawings describing the "global arrangement of activities" in a health facility with particular emphasis on land use, indicating growth and change over time.

Under the above definition, a Masterplan is a fundamental planning tool to identify options for the current needs as well as projected future needs. Its purpose is to guide decision making for clients and designers,

Health facility owners and designers are encouraged to prepare a Masterplan before any detailed design. A Masterplan can be prepared in parallel with detailed briefing, so that valuable feedback can be obtained regarding real-world opportunities and constraints. Ideally, a successful Masterplan will avoid wrong long term strategic decisions, minimise abortive work, prevent future bottlenecks and minimise expectations that can not be met in the given circumstances.

A Masterplan diagram or drawings is typically a simplified plan showing the following:

- The overall site or section of site relating to the development
- Departmental boundaries for each level related to the development
- Major entry and exit points to the site and the relevant departments
- Vertical transport including stairs and lifts
- Main inter-departmental corridors (arterial corridors)
- Location of critical activity zones within departments but without full detail
- Likely future site development
- Areas (if any) set aside for future growth and change
- Arrows and notes indicating major paths of travel for vehicles, pedestrians, goods and beds
- Services masterplan showing the engineering impact, plant locations, availability of services and future demand.

Refer also to Department of Human Services Capital Management Guidelines.

80 .7.00 Masterplan diagrams and drawings should be prepared for all logical options (typically 3) to an equal level of resolution and presentation so that each option reaches its maximum potential. Only then a decision maker is in a position to compare options on equal terms. The above diagrams and drawings are typically accompanied by a report covering the following headings as a minimum:

- Project description
- Outline brief
- Opportunities and constraints

- Options considered
- Evaluation criteria
- Evaluation of the options including cost impact (if any)
- Recommended option
- Executive summary and recommendation

80 .8.00 Depending on the nature of the project, the exact deliverables for a Masterplan can be fine tuned. The most typical additional deliverables are listed so that clients may refer to them by name and by reference to these Guidelines.

Stacking Plans- This is typically used for locating departments in major multi-storey developments where the shell is already well defined

Master Concept plan - This is typically used as a further development of the preferred masterplan option so that the design implications can be further tested and costed

Staging Plan - A staging plan shows a complete Masterplan defined for each stage of the development rather than simply a zone allocation for future works

Strategic Plan - A Strategic Plan refers to higher level "what if" studies, providing a range of development scenarios. These may include the use of alternate sites, private-public collocation, purchase vs lease, alternate operational policies etc.

Planning Policies

80 .9.00 Planning Policies refer to a collection of non-mandatory guidelines that may be adopted by Health Facility designers or owners. These policies generally promote good planning, efficiency and flexibility.

The planning policies are included in these Guidelines so that in the process of briefing, designers or clients can simply refer to them by name or require compliance from others.

80 .10.00 LOOSE FIT

Loose Fit is the opposite of Tight Fit. This policy refers to a type of plan which is not so tightly configured around only one operational policy that it is incapable of adapting to another.

In Health Care, operational policies change frequently. The average cycle seems to be around 5 years. It may be a result of management change, Government policy change, turn-over of key staff or change in the market place. On the other hand, major health facilities are typically designed for 30 years but tend to last more than 50 years.

This immediately presents a conflict. If, for example, a major hospital is designed very tightly around the operational policies of the day or the opinion of a few individuals (who may leave at any time), then a significant investment may be at risk of early obsolescence.

The Loose Fit Planning Policy refers to planning models which can not only adequately respond to today's operational policy but have the inherent flexibility to adapt to a range of alternative, proven and forward looking policies.

At the Macro Level, many of the commonly adopted Hospital Planning Models, including those in the enclosures to these Guidelines, have proved flexible in dealing with multiple operational policies.

At the micro level, designers should consider simple, well proportioned, rectangular rooms with good access to simple circulation networks that are uncomplicated by a desire to create interest. Interior features should not be achieved by creating unnecessary complexity.

80 .11.00 CHANGE BY MANAGEMENT

This concept refers to plans which allow for changes in operating mode as a function of management rather than physical building change. For example, two Inpatient Units can be designed back to back so that a range of rooms can be shared. The shared section may be capable of isolation from one or the other Inpatient Unit by a set of doors. This type of sharing is commonly referred to as Swing Beds. It represents a change to the size of one Inpatient Unit without any need to expand the unit or make any physical changes.

The same concept can be applied to a range of planning models to achieve greater flexibility for the management. Also see other planning policies in this section.

80 .12.00 OVERFLOW DESIGN

Some functions can be designed to serve as overflow for other areas that are subject to fluctuating demand. For example, a waiting area for an Emergency Unit may be designed so that it can overflow into the hospital main entrance waiting area.

An Emergency Unit Procedure Room or a Birthing Room may be designed specifically to provide an emergency operating room for caesarean sections in case the standard allocated operating room is not available.

Any area that includes bed bays such as an Emergency Unit may be designed to absorb the available open space and provide room for additional beds in case of natural disasters.

80 .13.00 PROGRESSIVE SHUTDOWN

Even large facilities may be subject to fluctuating demand. It is desirable to implement a Progressive Shutdown policy to close off certain sections when they are not in use. This allows for savings in energy, maintenance and staff costs. It also concentrates the staff around patients and improves communication security. In designing for progressive shutdown, designers must ensure:

- None of the requirements of these Guidelines are compromised in the remaining open sections
- The open sections comply with other statutory requirements such as fire egress
- The open patient care sections maintain the level of observation required by these guidelines
- In the closed sections, lights and air-conditioning can be shut off independently of other areas
- The closed sections are not required as a thoroughfare for access to other functions
- Nurse Call and other communication systems can adapt to the shut-down mode appropriately
- The shut-down strategy allows access to items requiring routine maintenance.

80 .14.00 OPEN ENDED PLANNING

A hospital facility designed within a ‘finite’ shape, where various departments

and functions are located with correct internal relationships, may look and function very well at first; however, any expansion will be difficult. Some expansion requirements can be accommodated in new external buildings with covered links; but over time the site will become complicated with random buildings and long walkways.

The opposite of this scenario is to use planning models and Architectural shapes that have the capability to grow, change and develop additional wings (horizontally or vertically) in a controlled way. Here are some of the concepts involved in Open Ended Planning Policies:

- Major corridors should be located so that they can be extended outside the building.
- As far as possible, HPUs should have one side exposed to the outside to permit possible expansion.
- If a critical HPU must be internal, it should be adjacent to other areas that can be relocated, such as large stores or administration areas.
- External shapes, should not be finite.
- External shapes should be capable of expansion.
- Finite shapes may be reserved for one-off feature elements such as a Main Entrance Foyer.
- Roof design should consider expansion in a variety of directions.
- Avoid HPUs that are totally land-locked between major corridors.
- Stairs should not be designed to block the end of major corridors.
- The overall facility flow diagram should be capable of linear or radial expansion whilst keeping all the desirable relationships intact.
- Fixed internal services such as plant rooms, risers, service cupboards should be placed along major corridors rather than in the centre of HPUs.

Open Ended Planning Policies can be applied to entire facilities as well as individual HPUs.

Note: Also refer to Enclosure-B21 for an example of a Hospital Flow Diagram which promotes open ended planning.

80 .15.00 MODULAR DESIGN

This is the concept of designing a facility by combining perfectly designed standard components. For example a designer may create a range of Patient Bedrooms, a range of utility rooms and other common rooms that are based on a regular grid such as 600mm. These rooms can then be combined to create larger planning units such as an Inpatient Unit. The Inpatient Unit can then be used as a module and repeated a number of times as required.

This approach, in the hands of a skilled designer has many benefits. Modules can be designed only once, to work very well. No redesign is necessary to adjust to different planning configurations. Instead the plan is assembled to adapt to the modules. Errors in both design and construction can therefore be minimised.

The opposite to this approach is to start from a different Architectural shape for each HPU, divide it into various shapes for the rooms, then design the interior of each room independently. This approach, in the hands of a skilled designer can also result in satisfactory solutions, but at a higher risk of errors and at a greater cost. For example, in a typical hospital, one might find 10 Dirty Utility Rooms which are entirely different.

Modular Design should not necessarily be seen as a limitation to the designer's creativity, but a tool to achieve better results. Designers are encouraged to consult with clients and user groups to agree on perfect modules, then adopt them across all HPUs.

Planning Policies

80 .16.00 UNIVERSAL DESIGN

This concept is similar to Modular Design. Universal Design refers to Modules (or standard components) designed to perform multiple functions by management choice.

For example, a typical patient single bedroom can be designed to suit a variety of disciples including Medical/ Surgical/ Maternity and Orthopaedics. Such a room can be standardised across all compatible Inpatient Units. This will permit a change of use between departments if the need arises. Such Universal Design must take into account the requirements of all compatible uses and allow for all of them. The opposite of this policy is to "specialise" the design of each component to the point of inflexibility.

Other examples of Universal Design are as follows:
- Universal Operating Rooms which suit a range of operations
- Bed cubicles in Day Surgery which suit both Pre-op and Post-op
- Offices which are standardised into only a limited number of types for example 9 m2 and 12 m2
- Toilets may all be designed for disabled access or as unisex.

The main point of Universal Design is to resist unnecessary variation in similar components, where the change in functionality can be accommodated in one standard design.

80 .17.00 SINGLE HANDING

It is common design practice to design identical and adjoining planning modules in mirror image. This is most common in the assembly of Patient Bedrooms with Ensuites. It is commonly believed that this is also more economical.

The concept of Single Handing is the exact opposite. Single Handing refers to situations where mirror image (Handing) may not be necessary.

In areas requiring a high level of staff training, such as in operating suites, it may be more appropriate to "hand" all key rooms in identical manner. This makes the task of staff training easier and may also reduce the possibility of mistakes.

In a hypothetical example, a staff member entering any operating room, regardless of its location and approach from corridor will find the service panel on the left, X-ray viewer on the right and the door to the Sterile Stock Room in the front.

In another example, at micro level, medical gases may always be located to the left side of patients bedhead regardless of the direction of approach.

Note: Single Handing is a matter of individual choice and may not suit all conditions.

Natural Disaster

80 .18.00 All hospital facilities should be capable of continued operation during and after a natural disaster, except in instances where a facility sustains primary impact. This means that special design consideration is needed to protect essential services such as emergency power generation, heating systems, water (if applicable), etc. Typical problems such as disruption to public utilities such as water or sewer mains and energy supplies, may affect the operation of onsite services.

Appropriate construction detailing and structural provision shall be made to protect occupants and to ensure continuity of essential services in areas where there is a history of earthquakes, cyclones, flooding, bushfires or other natural disasters.

80 .19.00 Consideration shall be given to possible flood effects when selecting and developing a site. Where possible, facilities shall NOT be located on designated flood plains. Where this is unavoidable, take extra care when selecting structural and construction methodology, and incorporate protective measures against flooding into the design.

80 .20.00 Facilities shall be designed and constructed to withstand the force assumptions of AS1170 Part 4 - Minimum design loads on structures - Earthquake loads.

In cyclonic areas, special attention shall be given, not only to protection against the effects of the direct force of wind (structural detailing, special cladding fixings, cyclonic glazing etc.), but also against such things as wind generated projectiles (trees, cladding, fencing etc.) and localised flooding.

80 .21.00 Facilities shall be designed and constructed to conform with AS3959 - Construction of buildings in bushfire prone areas.

Protection against bushfires shall be addressed in site selection, creation of firebreaks, fire resistant construction, sufficient water supply and building sprinkler systems (external).

80 .22.00 In all cases, effective long range communications systems, which do not rely on ground lines to function, are essential.

Consultation with the State Emergency Service is recommended to ensure arrangements are in place for emergency long range communications assistance in the event of emergency situations or a major disaster.

Functional Relationships Diagram/s

80 .23.00 Refer to attached Enclosures for the Functional Relationships Diagram for a typical Hospital.

FUNCTIONAL RELATIONSHIPS DIAGRAM - TYPICAL HOSPITAL

NOTE: ALL FACILITIES MAY NOT BE PRESENT IN EVERY HOSPITAL