Chapter 2

Grace Hospital

Grace Hospital, located in Vancouver, B.C., is a unique special-purpose health care institution administered by the Salvation Army as delegated by the British Columbia Ministry of Health. Grace is the only tertiary obstetric facility in B.C. and as such has critical responsibilities in service, education, and research. It serves as a referral centre in the province for the most complex conditions of pregnancy, along with sharing the responsibility of caring for conditions of pregnancy of intermediate complexity with a number of other facilities in the lower mainland. In addition, Grace collaborates with St. Paul's hospital to provide general maternal and newborn care for the Vancouver community. Since opening its new facility in 1982, the hospital has experienced workloads much higher than its design originally intended. It is now the busiest obstetric hospital in Canada with over 8000 births per year. Grace, as a special-purpose maternity hospital, is a progressive care facility since patients move through the different units of the hospital as their pregnancy progresses. Grace also has strong bed typing since patient care and location are intimately related. As a result, there is little flexibility in terms of policies to deal with overflows. A simulation model was needed to help administrators evaluate the various policies that may help alleviate the crowding.

This chapter explains the physical division of Grace into three areas: antepartum, delivery suite, and postpartum, and some special admissions and discharge policies unique to Grace. In addition, an illustrative example showing the usually progression of patients is given.
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2.1 Antepartum

The antepartum (AP) section provides health care and psycho-social, socio-economic and life skills programs to assist high risk acute and long-term care patients during their pregnancy. Antepartum consists of 2 modules, Holly with 26 beds in 13 double rooms and Dogwood with a variable number of beds, depending on the load, up to a maximum of 16.

2.2 Delivery Suite

The delivery suite (DS) provides care to women throughout the labour and delivery process, in addition to caring for those patients requiring perinatal intensive care, surgery and post anaesthesia recovery. The delivery suite consists of 4 areas: low risk delivery, high risk delivery, the operating rooms, and the post anaesthetic recovery rooms.

2.2.1 Low Risk

The low risk delivery suite is for patients with no complications. It consists of 11 birthing rooms (labour and delivery occurs in the same room), and 4 rooms used for assessment.

2.2.2 High Risk

The high risk delivery suite is for patients who have some complication but do not require any surgery. High risk has 4 regular birthing rooms, and 4 intensive care rooms.

2.2.3 Operating Rooms

There are 3 available operating rooms at Grace (a 4th is currently used for storage). These operating rooms are used for Caesareans, sterilizations, and all antepartum complications,
and postpartum complications requiring surgery. Two of the operating rooms are reserved for emergencies, and the other handles all elective surgery.

2.2.4 Post Anaesthetic Recovery

The post anaesthetic recovery room is used for recovery after surgery and has 4 beds.

2.3 Postpartum

The postpartum (PP) area provides care for mothers and newborns recovering from the delivery process. Postpartum consists of 6 modules: Arbutus, Balsam, Cedar, Dogwood, Evergreen, and Fir, and the observation nursery. Each postpartum module consists of 15 or 16 beds (2 double rooms and 11 or 12 single rooms) for mothers, and 15 or 16 bassinets for newborn.

1. Arbutus - 16 beds and 16 bassinets

2. Balsam - 15 beds and 15 bassinets

3. Cedar - 16 beds and 16 bassinets

4. Dogwood - 16 beds and 16 bassinets (this module is shared with AP patients)

5. Evergreen - 15 beds and 15 bassinets

6. Fir - 16 beds and 16 bassinets

2.3.1 Observation Nursery

The observation nursery has 10 bassinets and provides care for both infants requiring additional observation the first few hours after birth, and infants needing extended secondary level care (tertiary level care for newborn is provided at Sick Children’s Nursery
2.4 Special Admissions and Discharges Policies

Grace Hospital uses a preregistration system in an attempt to limit the number of mothers coming to deliver each month. Patients must register months ahead of time to request a place at Grace. Because of Grace's position as a tertiary care facility, all "high risk" patients are automatically granted a place. The remainder is filled up by "low risk" patients. In this manner the number of mothers coming to Grace to deliver is effectively limited to about 625 per month. Grace's preregistration system affects the whole region of Vancouver since the patients not admitted to Grace must go elsewhere. See the chapter on experiments for more analysis on this interesting situation.

Grace has implemented a discharge flag system to inform doctors of the utilization of the PP modules. The flag condition is visibly displayed around the hospital and updated at 8 a.m., 12 noon, 4 p.m., and 10 p.m. A red flag situation means there are fewer than 15 beds unaccounted for in the PP modules, and doctors are strongly encouraged to immediately discharge any patient who can safely go home. A yellow flag means there are between 16 and 19 beds available, and a green flag signifies no crowding problem with more than 20 beds available. Beds are considered free if they are both presently unoccupied, and not assigned to a patient presently in the delivery suite. Hospital administrators feel that 15 beds is the minimum that ideally should be available at any time to insure adequate flexibility in case of a sudden large influx of patients.

2.5 Normal Flow Through Grace

A typical patient preregisters before her 20th week of gestation. All the patients accepted will deliver in the delivery suite. Patients who have a vaginal delivery stay on average
8-11 hours in low or high risk. Patients who have caesareans (about 22% of the total) deliver in the operating room, staying on average 1-2 hours in the operating room, and 2-3 hours in the post anaesthetic recovery area. The typical postpartum stay is 3 days for vaginal deliveries, and 5 days for caesareans. In addition to this, a third of the patients at Grace at any time are there for an antepartum complication, staying an average of 5-6 days if they are discharged before delivering (they are later re-admitted to deliver), and 2-3 days if they deliver before being discharged. The major adult patient flows are shown in Figure 2.1 Babies proceed from the delivery suite to either a postpartum nursery or the observation nursery, staying usually only until their mothers are ready to be discharged.