

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

4.2.1. PURPOSE AND SCOPE:

This section specifies the space planning criteria for labor, delivery services and the obstetric unit of a military hospital. These units provide the facilities and services associated with birthing, the care of newborn infants and their mothers.

4.2.2. DEFINITIONS:

Average Length of Stay (ALOS): The amount of time between arrival and departure of patient.

Birthing Equipment Storage: Numerous items of equipment are used during the birth of an infant. Traditionally, in the LDRP concept, the equipment needed at the time of birth can be shared between two rooms and kept in a common equipment room/alcove. In a traditional LDR concept, an area of the room provides storage for equipment dedicated to that room. However, in both the LDR and LDRP revised concepts, equipment storage is provided in the same manner. Equipment storage for both LDR's and LDRP's is provided in a dedicated enclosed closet for each room. Additionally, there is a requirement for common storage space for equipment on the unit.

Exam/Prep Room: Birthing patients are initially seen and evaluated in an exam/prep (triage/pre-admission) room. This process is to determine if the patient is truly in labor and if there are any complications. The process of exam/prep can result in the patient being sent home (false labor for example), the patient being sent to a room for the labor to progress, or to a cesarean section room (high risk patient or scheduled cesarean section). Exam/prep does not always lead to an immediate admission or release. It may take a couple hours of observation to R/O active labor, fetal or maternal distress before the admission or release to home decision can be made. It is also in this area that admission data is gathered.

High Risk Pregnancy: This term is used to describe the state of a mother prior to delivery. A high-risk pregnancy is one in which additional health concerns are capable of complicating the natural course of a pregnancy. These conditions include an expectant mother who has had a problem pregnancy before, a current obstetrical problem such as: pre-eclampsia or placenta previa, a medical problem such as: diabetes or hypertension, a genetic problem. A woman who has a problem such as these is likely to experience a worsening of that condition as pregnancy progresses. Although pregnancy is a normal, natural state, it represents a stress on a healthy body because of changes in blood volume, hormone balance, mechanical pressures, and other conditions. For programming purposes, the number of "high risk pregnancies" can be projected from a count of those births, which were classified upon discharge into the following DRG's:

- 370 Cesarean Section with CC
- 371 Cesarean Section without CC
- 372 Vaginal Delivery with Complicating Diagnoses
- 375 Vaginal Delivery with OR procedure Except Sterilization and / or D&C

Labor and Delivery Unit: A nursing unit for the care of mothers and babies during labor and delivery, which can include the use of LDRs (labor, delivery, recovery), LDRPs (labor, delivery, recovery, postpartum), and/or obstetric beds.

Labor, Delivery, and Recovery (LDR): A maternity care program which provides labor, delivery, and recovery for a mother in a single room. Rooms must include facilities for care of the infant during delivery and immediately after birth. The use of this concept requires a postpartum or obstetric unit

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

Labor, Delivery, Recovery, and Postpartum (LDRP): A maternity care program which provides labor, delivery, recovery, and postpartum care for mother in a single room. Rooms must include facilities for care of the infant during delivery and after birth. Such rooms also include facilities for mother-baby care.

Low Risk Pregnancy: This term applies to those pregnancies, which are not high risk and generally can be considered those normal deliveries which after the fact are classified into DRG 373, Vaginal Delivery without complicating diagnoses.

Mother-Baby: This is also described as “Rooming In” and “Mother-Infant Couplet Care.” This is when the infants stays in the same bedroom as the mother following delivery and during the infant and mother’s stay in the hospital. Mother and Baby may stay in an LDRP or on an Obstetrical or Postpartum Unit.

Postpartum: This is the period of time following birth.

Obstetric Unit: A postpartum or obstetric unit is the inpatient area of women following health care events associated with pregnancy. This unit may also be used for antepartum, female surgery, and other OB or GYN related patients.

Unit: A unit is an area of patient care which includes a number of patient rooms and all of the support functions necessary to provide care to the patients on that unit. Examples include an obstetric ward (unit), an LDR unit or an LDRP unit. The number of units varies and is provided in the formula paragraph 4.2.6.

4.2.3. POLICIES:

LDRP's will be programmed into all DoD MTF's unless workload exceeds 250 births per month. The only exception will be for renovation project where it is documented that the existing facility will not accommodate LDRP's. LDRP's are recommended for all DoD MTF's unless the workload exceeds 250 births per month. Exceptions for MILCON will be considered when significant complexity of care and staffing issues exist. In addition exceptions will be made for renovations projects where it is documented that the existing facility will not accommodate LDRP's. In these cases, the LDR concept with an obstetric unit will be programmed.

An economic analysis should be accomplished when obstetric services are included in a MILCON project to determine the desired capacity and resources. The analysis may be accomplished with in-house resources or through a commercial contract. This analysis must consider population served and future trends for that population, fertility rates in the population by segments both past and future, obstetric service staffing projections, availability and cost of obstetric services in the geographic area and concepts of care. The analysis must include the Poisson process calculation for determining required number of beds. The analysis may include a simulation evaluation that demonstrates the expected birth volume associated with the number of labor/delivery rooms proposed, given the targeted clinical practices and expected nurse staffing.

When annual deliveries per year are projected to be less than 360 births; special justification of OB services is required. The following factors should be taken discussed as part of the justification: (1) location (2) availability of local OB services (3) readiness/quality of life issues.

Although Public Law (Statute), “Standards Relating to Benefits for Mothers and Newborns” does not apply to DoD facilities, nor to care provided via CHAMPUS and TRICARE, the standards set forth should be followed for planning purposes. These standards state that mothers shall receive a minimum of 48 hours of inpatient care following vaginal delivery and 96 hours following cesarean

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

section, if they so desire. The direction of this legislation is to assure that mothers, not HMO's or third party payers, have control over their minimum length of stay. In most hospitals, including DoD, the mother may elect to be discharged in less than the minimum times stated.

4.2.4. CONSIDERATION OF PROGRAMMING OPTIONS

Concepts of Care:

In DoD facilities, there are currently only two accepted concepts of care for the birthing of infants.

- A. The Labor Delivery Recovery (LDR) Room model.
- B. The Labor Delivery Recovery Postpartum (LDRP) room model.

Renewal/renovation projects can implement LDR's if space allocation/constraints don't allow an LDRP design, or if workload exceeds 250 births per month.

Inpatient obstetrical facility space requirements are a function of (a) birth volume and (b) provider practice patterns at the facility of interest. These items must be analyzed in detail.

- (a) The primary purpose of the birth volume analysis is to forecast the number of mothers who will give birth from the subject hospital beneficiary population during each of the next several (five) years. The analysis of birth volume must consider the current and any projected changes in the beneficiary population at risk for obstetrical services. The population at risk is generally considered to be women between the ages of 15 and 45. The analysis of the beneficiary population must include beneficiary category, single year age group and marital status. The analysis of birth volume must also consider historical and projected changes in fertility of the population at risk. The unit of analysis for the fertility rate analysis must be mothers giving birth as defined by patients discharged from DRG's 370 through 375. The fertility rate information must be beneficiary category and single year age group specific, i.e. 18 year old, 19 year old and etc. Analysis of historical fertility rate data from the catchment area population for a period of not less than three years is necessary. This analysis should include an assessment of seasonality trends in the birth volume data.
- (b) The primary purpose of the provider practice pattern analysis is to translate the birth volume forecast into clinic and hospital workload. There are five key obstetrical practice pattern parameters that have been shown to determine inpatient obstetrical facility resource requirements. These parameters are:
 - (1) Cesarean delivery rate, DRG's 370, 371
 - (2) Cesarean delivery ALOS.
 - (3) Vaginal birth delivery rate (DRG's 372-375).
 - (4) Vaginal birth ALOS (Average Length of Stay).
 - (5) Discharge rate to non-birth related obstetrical patients (as defined by patients discharged from DRG's, 378, 379, 380, 382, 383 and 384, (376, 377 can also be used, if they were not postpartum patients).

At some locations, GYN surgical patients may be collocated with or cared for on this unit. In a women's health model the outpatient OB/GYN clinic may also be located adjacent to this unit with routine antepartum testing completed on the OB unit (due to the expertise of nursing staff and best use of resources).

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

If the concept of operation is to include non-birth related GYN patients on the same ward with postpartum patients, then the following practice patterns must be considered:

- (6) Non-birth related obstetrical patient ALOS.
- (7) Surgical GYN Patients (DRG's 353-369), when these patients are placed on an obstetrics unit.
- (8) Surgical GYN Patients (DRG's 353-369) ALOS when these patient are placed on an obstetrics unit.

NOTE: Consideration must be given to DRG's 376, and 377 Postpartum and Post abortion Diagnoses with (377) or without (376) OR Procedure. A birth may or may not be associated. The number of discharges and the AOL of each must be captured. This is also true for the DRG's 353-369 (diseases & disorders of the female reproductive system, surgical), when these patients are placed in the obstetric unit.

Analyses of these practice pattern parameters from both institutional and an individual provider perspective is necessary. Historical performance data should be compared with normative source data. Guidance from the Chief of Obstetrics at the subject hospital should be provided regarding the target planning values for these five parameters. The target values for these five parameters should be used for inpatient obstetrical facility planning purposes.

The analysis must consider clinical practice patterns, nurse allocation, scheduling, and staffing practices.

For hospitals with less than 3,000 mothers giving birth each year (250 births per month) there is a substantial savings in nursing and support personnel associated with implementation of the LDRP concept of care and a fully cross-trained staff. For very small facilities of less than 1,800 births per year (150 births per month) the support staff savings associated with implementation of LDRP care is on the order of 20 percent.

Staff savings of this magnitude can justify the entire building renovation or construction project cost. The savings cannot be realized using the LDR and postpartum concept of operations. Therefore, the LDRP model is clearly more efficient in terms of support staffing costs than the LDR care concept in hospitals with less than 3,000 births per year.

For inpatient obstetrical facilities with a forecast birth volume of less than 3,000 births per year (250 births per month), as defined by patients discharged from DRG's 370 through 375, the preferred concept of care is LDRP. For facilities with a forecast birth volume greater than 3,000 births per year the preferred concept of care is LDR with a separate postpartum unit. Exceptions to these guidelines will be made on a case-by-case basis following submission of appropriate documentation.

4.2.5. PROGRAM DATA REQUIRED:

What is the model or concept of care that will be used? (LDR, LDRP)

Will "Mother-Baby" care be provided on a 24-hour basis?

Project annual number of births.

Project annual percent of births that are cesarean sections (DRG's 370 & 371)

Projected Average Length of Stay (ALOS) for vaginal birth patients,

Projected Average Length of Stay (ALOS) for cesarean section patients

Project annual number of OB admissions that are for each of the following DRG's:

376 & 377 (separate DRG's 376 & 377 into birth related and non-birth related), 378, 379,

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

380, 381, 382, 383 & 384.

Project annual number of Surgical GYN patients when these patients are kept on the obstetric unit. (DRG's 353-369) and associated ALOS for each DRG.

Average occupancy rate for LDR's, based on Poisson process or historical information.

Average occupancy rate for LDRP's, based on Poisson process or historical information.

Projected number of infants on an LDRP unit.

Maximum number of obstetricians who require sleeping space at one time.

Peak FTE's on a shift for Labor & Delivery, and Postpartum areas distributed by sex.

Total number of FTE for Labor & Delivery, and Postpartum areas distributed by sex.

Projected female population in the hospital catchment area of child-bearing age.

Projected fertility rate of population supported.

Will the OB/GYN clinic be collocated with the inpatient obstetrics and will routine antepartum testing be completed on this unit?

Projected number of routine antepartum test?

Will other GYN patients be cared for on this unit?

Diagnostic Related Groups for this section:

353	Pelvic Evisceration, Radical Hysterectomy and Radical Vulvectomy
354	Uterine and Adnexa Procedures for Nonovarian/Adnexal Malignancy with CC
355	Uterine and Adnexa Procedures for Nonovarian/Adnexal Malignancy without CC
356	Female Reproductive System Reconstructive Procedures
357	Female Reproductive System Reconstructive Procedures for Ovarian or Adnexal Malignancy
358	Uterine and Adnexa Procedures for Nonmalignancy with CC
359	Uterine and Adnexa Procedures for Nonmalignancy without CC
360	Vagina, Cervix and Vulva Procedures
361	Laparoscopy and Incisional Tubal Interruption
362	Endoscopic Tubal Interruption
363	D and C, Conization and Radioimplant for Malignancy
364	D and C, Conization Except for Malignancy
365	Other Female Reproductive System OR Procedures
366	Malignancy of Female Reproductive System with CC
367	Malignancy of Female Reproductive System without CC
368	Infections of Female Reproductive System
369	Menstrual and Other Female Reproductive System Disorders
370	Cesarean Section with CC
371	Cesarean Section without CC
372	Vaginal Delivery with Complicating Diagnoses
373	Vaginal Delivery without Complicating Diagnoses
374	Vaginal Delivery with Sterilization and/or D and C
375	Vaginal Delivery with OR Procedure Except Sterilization and/or D and C
376	Postpartum and Post abortion Diagnoses without OR Procedure
377	Postpartum and Post abortion Diagnoses with OR Procedure
378	Ectopic Pregnancy
379	Threatened Abortion
380	Abortion without D and C
381	Abortion with D and C, Aspiration Curettage or Hysterotomy
382	False Labor
383	Other Antepartum Diagnoses with Medical Complications
384	Other Antepartum Diagnoses without Medical Complications

DoD Space Planning Criteria for Health Facilities
Labor & Delivery/Obstetric Unit

4.2.6. SPACE CRITERIA:

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	

LDR CONCEPT OF OPERATION			The following provides function(s) which are unique to the LDR concept of operation.
---------------------------------	--	--	---

Labor/Delivery/Recovery (LDR) Room (incl. equip. stor. and circulation areas)	40.41	435	See formula in para. 4.2.7 to determine quantity of rooms.
LDR Toilet	5.57	60	One per each LDR Room

LDRP CONCEPT OF OPERATION			The following provides function(s) which are unique to the LDRP concept of operation.
----------------------------------	--	--	--

Labor/Delivery/Recovery/Postpartum (LDRP) Room (incl. equip. storage and circulation areas)	40.41	435	See formula in para. 4.2.7 to determine quantity of rooms.
LDRP Toilet	5.57	60	One per each LDRP Room.

LDR & LDRP ASSOCIATED FUNCTIONS			The following provides function(s) which support and are common to both the LDR and the LDRP concepts of operation.
--	--	--	--

Control Station	18.58	200	One per Labor & Delivery Unit, increase by 100 nsf if over 2,500 annual births.
Exam/Prep Room	11.15	120	One per each 1,000 projected annual births.
Exam/Prep Room Toilet	5.57	60	One per each Exam/Prep Room.
Early Labor Lounge	22.30	240	One per Labor & Delivery Unit.
Early Labor Room Toilet w/ shower	8.36	90	One per every Early Labor Lounge.
Non Stress Testing (NST) Room	22.30	240	Minimum one per every labor & delivery unit. Add second NST room if workload exceeds 250 births per month.
Toilet	5.57	60	One per Non Stress Testing Room

DoD Space Planning Criteria for Health Facilities
Labor & Delivery/Obstetric Unit

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
C-SECTION AREA FUNCTIONS			These are functions which are necessary for any hospital which provides obstetric services. Note that some hospital may provide these functions in the operating suite.
Area Control Station	5.57	60	One per C-Section area, in Recovery.
Cesarean Birth Room	37.16	400	See formula in para. 4.2.7.
Recovery Room	22.30	240	Minimum 2 bed recovery room for one cesarean section room. Add 240 nsf for each additional cesarean section room, i.e. two recovery beds for each cesarean birthing room.
Scrub / Gown Area	3.72	40	One per every two cesarean birth room.
Sterile Supply	9.29	100	One per every four or fraction of four cesarean birth rooms.
Equipment Cleanup / Soiled Utility	7.43	80	One per every four or fraction of four cesarean birth rooms.
Anesthesia Workroom	11.15	120	One per C-Section area.
Anesthesia Storage	3.72	40	One per anesthesia workroom.
Dedicated Janitor's Closet	5.57	60	One per C-Section area. See Section 6.1.
PATIENT/FAMILY AREAS			Supports all Labor and Delivery areas, except OB Unit.
Family Dressing Room	11.15	120	One per labor and delivery unit, dressing booths in this room two at 30 nsf each, place lockers in room, two lockers per C-section room.
Family Waiting Room	11.15	120	Minimum of 120 nsf, 20 nsf per LDR or LDRP.
Family Waiting Room Toilet	5.57	60	One per Family Room.
Family Teaching Room	11.15	120	Minimum of 120 nsf, 20 nsf per LDRP. If LDR concept of operation, then this function should be placed on the obstetric unit.
STAFF AND SUPPORT AREAS			Supports all Labor and Delivery areas, except OB Unit.
Anesthesia Work Room	11.15	120	One per LDR and/or LDRP area.
Anesthesia Storage	3.72	40	One per anesthesia workroom.
	7.43	80	When also supporting 10 or more LDR's and/or LDRP's.
Nourishment Room	11.15	120	One per labor and delivery unit
Medication Preparation	5.57	60	One per labor and delivery unit. May need more for a very large unit (Balboa, Portsmouth, etc)

DoD Space Planning Criteria for Health Facilities
Labor & Delivery/Obstetric Unit

STAFF AND SUPPORT AREAS (Continued)			Supports all Labor and Delivery areas, except OB Unit.
Consultation Room	11.15	120	One per labor and delivery unit. May need more for a very large unit.
NCOIC/LCPO/LPO Office	11.15	120	One per Labor and Delivery unit.
Nurse Supervisor Office	11.15	120	One per Labor and Delivery unit.
Physician Charting & Dictation	7.43	80	One per labor and delivery unit.
Conference Room	27.87	300	One per Labor/deliver unit. Add 7 nsf for each FTE on the peak shift above 20.
Equipment Storage for LDRP /LDR Rooms.	5.57	60	Minimum. 15 sf for each LDRP/LDR. In addition to in-room storage.
Clean Supply	16.72	180	One per each 1,000 project annual births.
Soiled Utility	13.94	150	One per labor and delivery unit.
Stretcher and Wheelchair Storage	7.43	80	One per labor and delivery unit.
Janitors' Closet	5.57	60	One janitor's closet per 10,000 nsf. See Section 6.1.
Female Locker Room	9.29	100	Minimum. Add 7 nsf for each projected female FTE over 10, on all shifts combined.
Female Shower Area	5.57	60	Minimum: provides area for one shower. Increase by one shower for each increment of 15 females on peak shift over 10 FTE's. Add 20 nsf for each additional shower.
Male Locker Room	9.29	100	Minimum. Add 7 nsf for each projected male FTE over 10, on all shifts combined.
Male Shower Area	5.57	60	Minimum: provides area for one shower. Increase by one shower for each increment of 15 males on peak shift over 10 FTE's. Add 20 nsf for each additional shower.
Staff Lounge	9.29	100	Minimum, add 5 nsf for each FTE above ten on duty during the peak shift (normally days).
Staff Toilets (see also Section 6.1)			
Female		varies	One wc @ 30 nsf, for each 15 female FTE's projected per maximum shift, plus one lavatory @ 30 nsf for each 15 female FTE's projected per maximum shift.
Male		varies	One urinal @ 30 nsf for each 40 male FTE's projected per maximum shift plus one wc @ 30 nsf, for each 20 male FTE's projected per maximum shift, plus one lavatory @ 30 nsf for each 20 male FTE's projected per max. shift.
On-Call Sleeping Room	11.15	120	One per projected "on-call" staff member per shift required to sleep in the unit.
On-Call toilet & shower	8.36	90	One per On-Call Sleeping Room

DoD Space Planning Criteria for Health Facilities
Labor & Delivery/Obstetric Unit

Obstetrics Unit: NOTE: This may be a small area in a unit that has solely LDRPs. This unit will also include “other” OB beds.	Recommended Maximum size unit is 23 beds.
--	---

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	

PATIENT/FAMILY AREAS			
-----------------------------	--	--	--

Private Room with Toilet and Shower (include one lav. In the toilet and one in the patient room)	18.58	200	See formula in para.4.2.6.
Nursing Station	18.58	200	One per obstetric unit
Family Teaching Room. This room should be larger if there is no Level II or III nursery, which has a large classroom.	11.15	120	Minimum of 120 nsf, 20 nsf per LDR. If LDRP concept of operation, then this function should be placed on the LDRP unit.
Treatment Room	11.15	150	One per obstetric unit. Add a second treatment room if the obstetric unit is collocated with OB/GYN clinic and routine antepartum testing is completed on the obstetric unit.
Public Toilets (male and female)	5.57	60	One per obstetric unit.
Patient Lounge	18,58	200	One per obstetric unit.

STAFF AND SUPPORT AREAS			
--------------------------------	--	--	--

Medication Preparation	7.43	80	One per obstetric unit.
Nurse Supervisor’s Office	11.15	120	One per obstetrics unit.
NCOIC/LCPO/LPO Office	11.15	120	One per obstetric unit.
Physicians’ Charting / Dictation	3.72	40	One per obstetric unit.
Consultation Room	11.15	120	One per obstetric unit.
Clinical Specialist/Lactation Support Office	11.15	120	One per obstetric unit.
Equipment Storage	5.57	60	Minimum. 10 nsf of storage per each obstetric room.
Nourishment Room	11.15	120	One per obstetric unit.
Clean Supply	14.86	160	One per obstetric unit.
Soiled Utility	11.15	120	One per obstetric unit.
Stretcher and Wheelchair Storage	5.57	60	One per obstetric unit.
Staff Toilets (male and female)	5.57	60	One per obstetric unit.
Staff Locker			Consolidate Locker requirements with Labor and Delivery Unit if collocated with Labor and Delivery area. See criteria above.

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

4.2.7. FORMULAS:

Discussion. The vast majority of patients arriving at a hospital in need of obstetrical care are not scheduled in advance. Rather, these patients arrive in an unscheduled or random way (scheduled cesarean deliveries and scheduled induction patients are exceptions that do not arrive at the hospital randomly). A great deal of work has been done on the mathematics of random processes. Queuing theory, for example, is a branch of mathematics that studies people waiting in lines or queues. The mathematical model, the Poisson process, has been used to accurately describe many random processes. The Poisson process has been shown to accurately describe obstetrical facility occupancy in a number of studies dating from 1960.

There are two required inputs to the Poisson process, the arrival rate (admission rate) and the service time (average length of stay - ALOS). The Poisson process assumes that admissions are random events with respect to day of week and time of day. If a significant proportion of admissions are scheduled, use of the Poisson process will over estimate the requirements for rooms and beds. Therefore, the Poisson process should be considered a conservative estimate (overestimate) of room and bed needs.

The Poisson process calculates the occupancy rate and probability that a bed will not be available (patient turn-aways). The calculation of this probability explicitly illustrates the trade-off between desired occupancy rate and the probability that a bed will not be available. There is no consensus on the “right” level that demand exceeds the facility capacity (percent of patient turn-aways). Estimates of the appropriate demand level for planning purposes range from 90 to 99.9 percent. The determination of the trade-off between occupancy rate and turn-away probability is a responsibility of the facility planners. The ability of the facility to accommodate patients in other rooms in the obstetrical unit or in other hospital units for short periods or to limit the number of scheduled procedures during periods of peak demand are important considerations when making this decision.

Normative formulas are provided below for the purpose of both quick and comparative program development. The Poisson process will be used to provide the accepted quantity solutions. An example Poisson distribution example is provided following the formulas. An interactive, electronic spreadsheet which graphs this distribution is available on the website <http://www.tricare.osd.mil/ebc/m>.

Common Planning Factors: Actual experience rates are more desirable and should be obtained from the historic workload for the facility. The following factors are provided for comparative purposes.

Minimum mother’s ALOS for normal vaginal birth = 2.0 days
 Minimum mother’s ALOS for cesarean section birth = 4.0 days
 Infant’s ALOS for a normal vaginal birth = 1.5 days
 Infant’s ALOS for Cesarean Birth = 3.5 days
 Cesarean Birthrate is 20% nationally

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

Formula for LDR's:

$$\text{Total number of LDRs} = \frac{\text{Projected LDR Events Number} \times \text{ALOS}}{365 \times \text{desired percentage occupancy}}$$

Note: A rule of thumb is that LDR are provided at a ratio of one per 350 non-cesarean births. The above formula is more precise.

Cesarean Section Birth are DRG's 370 and 371.
Normal Deliveries are DRG 372, 373, 374 and 375.

Note: DRG 375 may require additional review since it is described as a vaginal delivery with OR procedure except sterilization and/or D&C.

- Step 1. Determine the projected number of LDR events, which equals the number of vaginal births (project the annual number of births minus the annual projected number of cesarean births).
- Step 2: Add to this the number of cesarean births less the number of "scheduled cesarean births." The purpose of adding the unscheduled C-sections is to provide LDR space for the woman who goes to an LDR room to attempt vaginal delivery and after some period of labor time, is taken to an operating room for an emergency cesarean section
- Step 3. Project the Average Length of Stay in an LDR for a normal vaginal birth. This number on average is .5 days or 12 hours (6-hrs. labor, 2-hrs. delivery, 3-hrs. recovery and 1 hr. room cleanup). A description of how to determine ALOS by DRG is provided at the end of this section. Step 4. Determine the desired percentage of occupancy in the LDR's. The most widely used number in the private sector is 70% or .70.
- Step 4. Insert the numbers attained in steps one through three into the formula and calculate the number of LDR's required.

Formula for LDRP's:

$$\text{Total number of LDRP's} = \frac{\text{Projected LDRP Events} \times \text{ALOS}}{365 \times \text{desired percentage occupancy}}$$

Note: There is no difference in the LDR and the LDRP formulas. The results are different because of different variables, most notably the ALOS (average length of stay).

- Step 1. Determine the projected number of LDRP events, which equals the number of births
- Step 2. Project the Average Length of Stay in an LDRP for a normal vaginal birth. This number on average is 2 days. A description of how to determine ALOS by DRG is provided at the end of this section.
- Step 3. Determine the desired percentage of occupancy in the LDRP unit. The most widely used number in the private sector is 70% or .70.
- Step 4. Insert the numbers attained in steps one through three into the formula and calculate the number of LDRP's required.

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

Formula for Cesarean Room:

$$\text{Total number of Cesarean Rooms} = \frac{\text{Projected \# of Annual Cesarean Deliveries}}{500 \text{ deliveries per room}}$$

- Step 1. Project the number of annual cesarean deliveries. A rule of thumb is that 20% of all deliveries will be cesarean, however there is considerable variation between hospitals.
- Step 2. Divide the projected number of cesarean deliveries by 500 to determine the total number of cesarean rooms required. Always round up to the next highest number. The minimum number of rooms must be one.

Note: In smaller facilities, the Cesarean Room(s) may be located in the Surgical Suite, if it is near the Obstetric Unit.

$$\text{Number of Postpartum Beds} = \frac{\text{Projected number of Annual Births} \times \text{Project ALOS}}{365 \times \text{Planned Occupancy Rate}}$$

Note: Postpartum beds are not required in a unit with a solely LDRP service. An obstetrics unit may also be provided in a hospital with a very large OB service (more than 250 births per month). In this case, a special study is needed using a Poisson process to determine beds needed.

This formula will need to be calculated twice: once for projected low-risk births using the lower ALOS and then again for the projected number of high-risk births using the high risk ALOS.

- Step 1. Determine the projected number of annual births, low risk and then high risk. (see definitions for DRG's in each category.)
- Step 2. Project the Average Length of Stay in the obstetric unit. This number on average is 1.5 days for low risk patients and 3.5 days for high-risk patients. A description of how to determine ALOS by DRG is provided at the end of this section.
- Step 3. Determine the desired percentage of occupancy in the obstetric unit. The most widely used number in the private sector is 70% or .70.
- Step 4. Insert the numbers attained in steps one through three into the formula and calculate the number of obstetric beds required.
- Step 5. Calculate the formula twice, once for the projected number of low risk deliveries and once for the projected number of high-risk patients. Add the resulting number of beds from each calculation to determine the total number of obstetric beds required.

DoD Space Planning Criteria for Health Facilities

Labor & Delivery/Obstetric Unit

Number of other OB/GYN beds required = $\frac{\text{projected number of patients in each DRG} \times \text{ALOS for the DRG}}{365}$

Note: Other OB beds are for DRG's 376, 377 (except those following delivery), 378, 379, 380, 381, 382, 383 & 384. What about all the GYN DRG's (353-369)?

- Step 1. Determine the projected number of admissions from the above DRG's.
- Step 2. Project the Average Length of Stay in the obstetric unit for each DRG. A description of how to determine ALOS by DRG is provided at the end of this section.
- Step 3. Insert the paired numbers (patients by DRG and ALOS by DRG) attained in steps one and two into the formula and calculate the number of postpartum beds required for each DRG.
- Step 4. Calculate the formula nine times, once for each DRG. Add the resulting number of beds from each calculation to determine the total number of other OB beds required.

Number of Units (LDR, LDRP or Obstetric Unit).

Matrix shows the number of units based on the numbers of patient rooms or beds.

Number of Units	1	2	3	4	5
Obstetric	< 23	23-44	45-66	67-88	89-110
LDR	< 13	13-24	25-36	37-48	49-60
LDRP	< 19	19-36	37-54	55-72	73-90

Average Length of Stay (ALOS) is available through at least two sources.

Analysts with access to Standard Inpatient Data Records (SIDRs), the biometric records describing an individual disposition, can sum bed days by DRG and divide by dispositions. SIDRs are available on the IBM mainframe computer at Ft. Detrick in the MHS Data Repository (MDR) files and are based on SIDRs generated at individual MTF's.

Analysts with access to the All Region Server (ARS) Bridge can view individual SIDR records there and using the Business Objects software intrinsic to the Bridge, can calculate ALOS by DRG. As of January 2001, the Bridge has been in a developmental mode with limited access but is moving to a production format with greatly increased access, including authorization for at least one analyst per MTF.

Both of the above methods calculate ALOS "on the fly" rather than accessing a pre-calculated value; thus they can be developed by DRG or by any other grouping, e.g. by MEPR code.

A third option providing less detail is calculation through the MEPRS Executive Query System (MEQS). MEQS is a Business Objects based system containing expense and workload data for MTF's according to categories of interest for expense/accounting rather than workload purposes. Using occupied bed day and disposition data available here, one could calculate ALOS by MEPR code or site. ALOS by DRG could not be calculated using MEQS data.

DoD Space Planning Criteria for Health Facilities

Nursery

4.3.1. PURPOSE AND SCOPE:

This section specifies the space planning criteria for nurseries of a military hospital. These units provide the facilities and services associated with the care of newborn infants.

Levels of Newborn Care: The following are levels of newborn care, which denote the service provided in a hospital:

- Level I: Nurseries that provide routine services for normal newborns without complications and provide minimal resuscitative services. Nurseries, which typically provide this level of service, are often referred to in literature as: holding nursery, full-term nursery or newborn nursery.
- Level II: Nurseries that provide services for both the routine newborns and infants who require minimal physiological monitoring and/or supplemental oxygen. May also include premature infants who are feeding and growing. Nurseries, which typically provide this level of service, are often referred to in literature as: transition nursery, continuing care nursery, special care nursery or intermediate care nursery.
- Level III: Nurseries that provide services for management of severely ill infants who require constant nursing and continuous cardiopulmonary monitoring. These infants are often on life support (i.e. ventilators, IV blood pressure support and invasive monitoring). Nurseries that typically provide this level of service are often referred to in literature as: Neonatal Intensive Care Unit (NICU) or Intensive Care Nursery (ICN)

Note: The area per bassinet increases with each level of care.

4.3.2. DEFINITIONS:

Average Length of Stay (ALOS): The amount of time between arrival and departure of patient.

Holding Nursery (Level I): The holding nursery is required where Mother-Baby care is being delivered. The infant would normally stay in the room with its mother. A small “holding nursery” is located adjacent to the nurses’ station on the unit(s) to accommodate well infants who need to be removed from the mother’s room.. The holding nursery will be located on the Obstetric Unit when the LDR concept is used, and on the Labor and Delivery Unit when the LDRP concept is programmed

Isolation Room: This is a room for the treatment of infectious infants. The infant placed in this area has an infectious disease and must not be placed in an area with other infants. In a hospital that provides only Level I nursery care, this area may also serves as the “transition area.”

Mother-Baby: This is also described as “Rooming In” and “Mother-Infant Couplet Care.” This is when the infant stays in the same bedroom as the mother following delivery and during the infant and mother’s stay in the hospital.

Neonatal Intensive Care Unit (NICU) (Level III): This nursery provides the highest (most comprehensive) level of care to newborn infants. This unit is essential for a hospital to be considered a “Level III” facility. Infants, which receive care in such a nursery, may be either born in this hospital or may have been transferred to this hospital from another hospital (typically a Level I or II facility).

DoD Space Planning Criteria for Health Facilities

Nursery

Transition Nursery or Area (Level II): Most infants born in LDR or LDRP rooms will “transition” (pass through the critical four-hour period following birth where intensive observation is needed) in the LDR or LDRP room with the mother during her recovery period. A space is required for potentially sick infants who need special observation or medical intervention following birth. For hospitals providing only Level I nursery care, this Level II space is provided in the Holding Nursery when LDRPs are programmed. In a hospital providing only Level I nursery care, using the LDR concept, the transition care may be provided in the isolation nursery room. For those hospitals providing Level II or III care, transition care will be provided in either nursery. No extra space is required for transition care.

4.3.3. POLICIES:

An economic analysis should be accomplished when nursery services of Level II or III are included in a MILCON project to determine the desired capacity and resources. Such analysis may be accomplished with in-house resources or through a commercial contract. This analysis must consider: population served and future trends for that population, fertility rates in the population by segments both past and future, obstetric service staffing projections, availability and cost of nursery services in the geographic area and concepts of care. For Level III services, the analysis must include the Poisson process calculation for determining required number of bassinets. The analysis may include a simulation evaluation, which includes projected occupancy over time, to justify and display the risk associated with the number of bassinets proposed.

4.3.4. PROGRAM DATA REQUIRED.

Note: There is a linkage between Nursery Services in a hospital and Labor & Delivery. In almost all cases, a Level III nursery service will be found in a hospital with a high number of deliveries. The higher the number of deliveries, the more likely that there will be newborns in need of Level III care. In Level I nursery facilities, almost all of the infants in the hospital will have been born in that hospital. In hospitals with higher levels of care (II & III), infants that are not born in the hospital will be transferred into that hospital from other hospitals (Level I to Level II & III, and Level II to Level III).

- What will the level of care be for nursery services in this hospital? (I, II or III)
- What is the model or concept of care that will be used? (LDR or LDRP)
- Project annual number of births.
- Project annual percent of births that are cesarean sections.
- Projected annual number of infant admissions (i.e. infants transferred into the MTF or discharge and later admitted) (Level II & III hospitals)
- Projected Average Length of Stay (ALOS) for vaginal birth infants.
- Projected Average Length of Stay (ALOS) for cesarean section infants.
- Maximum number of pediatricians who require sleeping space at one time.
- Peak FTE's on a shift for Nursery areas distributed by sex.
- Total number of FTE for Nursery areas distributed by sex.
- Projected annual number of infants requiring intensive care (i.e. admissions to the NICU).
- Project average length of stay for an infant in intensive care.
- Project number of sick infants from normal births.
- Projected number of infectious or isolation cases annually in the NICU.

DoD Space Planning Criteria for Health Facilities

Nursery

4.3.5. SPACE CRITERIA:

NURSERIES:			
FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Level I (Holding Nursery)			Locate with the postpartum mothers.
Holding Nursery Area		varies	One per obstetric unit or LDRP unit, one bassinet per every 10 LDR/LDRP Rooms or 10 Post Partum beds, minimum of 80 nsf, 55 nsf per bassinet not to exceed 16. See formula in para. 4.2.6. Minimum clear area per bassinet: 24 nsf for level I.
Holding Nursery Work	9.29	100	One per Holding Nursery.
Isolation Nursery Room	13.94	150	One airborne infection isolation room is required in or near the nurseries.
Isolation Ante Room	5.85	60	One per Isolation room.
Level II (Special Care Nursery)			For Hospitals providing Level II care.
Nursery Reception / Control Area	11.15	120	Central control point for all visitors and staff who enter and depart area where infants are housed, i.e. all nurseries combined. If nurseries are physically separate, then add additional reception area for each separate nursery area.
Nursery Ante Room (Continuing Care)	5.57	60	A minimum of one for all nursery units. Typically provide one at the highest level of care. Enter Nursery Area via this room with scrub facilities and observation. Not required if there is an ante room for a Level III nursery.
Nursery Area (Continuing Care)		varies	Provide 105 nsf per bassinet (provide a minimum clear area of 50 nsf). Provide not less than one lavatory per every four bassinets. Every bassinet must be within 20 feet of a lavatory. No nursery may exceed 16 bassinets. See formula in para. 4.2.6.

DoD Space Planning Criteria for Health Facilities

Nursery

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Level III Neonatal Intensive Care Unit (NICU)			Required in hospitals, which provide Level III care.
Nursery Reception / Control Area	11.15	120	Central control point for all visitors and staff who enter and depart area where infants are housed, i.e. all nurseries combined. If nurseries are physically separate, then add additional reception area for each separate nursery area.
Nursery Ante Room	5.57	60	A minimum of one for all nursery units. Typically provide one at the highest level of care. Enter Nursery Area via this room with scrub facilities and observation.
Nursery Area (NICU)		varies	Provide 180 nsf per bassinet (provide a minimum clear area of 120 nsf per bassinet). Provide not less than one lavatory per every four bassinets. Every bassinet must be within 20 feet of a lavatory. No nursery may exceed 16 bassinets. See formula in para. 4.2.6.
Nursery Support Areas (Levels II & III)			Supports all nurseries except Level I
Nurses' Station	18.58	200	One per nursery area.
Procedures Room	13.94	150	One per nursery area.
Isolation Nursery Room	13.94	150	Minimum of one airborne infection isolation room is required in or near the nursery. Maximum number of rooms programmed must be based on the maximum number of infected infants in the nursery for a period on not less than ten days.
Isolation Ante Room	5.85	60	One per isolation room.
Parents Teaching Room / Lounge	16.72	180	One per nursery service.
Lactation Support & Breast Pump Rm.	11.15	120	One per nursery service.
NCOIC/LCPO/LPO Office	11.15	120	One per nursery area.
Nurse Supervisor Office	11.15	120	One per labor and nursery area.
Charting Area	5.7	60	One per nursery area.
Storage	8.36	90	Minimum. One per nursery area. Calculate 18 nsf per bassinet if more than five bassinets programmed.
Clean Utility Room	13.94	150	One per nursery area.
X-ray Alcove	3.72	40	One per dedicated mobile X-ray unit.
Parent Sleeping Room w/ bathroom	5.57	300	One per every 16 bassinets or fraction of.

DoD Space Planning Criteria for Health Facilities

Nursery

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Laboratory	11.15	120	One per Nursery Services when laboratory technician dedicated to Nursery Services.
Developmental Therapy Room	11.15	120	One per nursery services when development. therapist FTE dedicated to nursery.
Social Workers Office	13.01	140	One per Social Worker FTE dedicated to Nursery Services
Nursery Staff Support Area: (Level II & III)			Supports all Nursery areas other than Level I
On-call Sleeping Room with Toilet & Shower	18.58	200	One per projected on-call clinical staff that must stay in the hospital for periods, which exceed 18 hours.
Staff and Support Areas			
Staff Lockers, Lounges and Toilets			See also Section 6.1
Female Locker Room	9.29	100	Minimum, add 7 nsf for each project female FTE in Nursery Services over 10, on all shifts.
Female Shower Area	5.57	60	Minimum: provides area for one shower. Increase by one shower for each increment of 15 females on peak shift over 10 FTE's. Add 20 nsf for each additional shower.
Male Locker Room	9.29	100	Minimum, add 7 nsf for every project male FTE in Nursery Services over 10, on all shifts.
Male Shower Area	5.57	60	Minimum: provides area for one shower. Increase by one shower for each increment of 15 males on peak shift over 10 FTE's. Add 20 nsf for each additional shower.
Staff Lounge	9.29	100	Minimum, add 5 nsf for every projected FTE on peak shift in Nursery Service over ten. Separate lounges may be provided for each nursery area and the postpartum unit when total FTE's in area are ten or greater.
Staff Toilets (see also Section 6.1)			
Female		varies	One wc @ 30 nsf, for each 15 female FTE's projected per maximum shift, plus one lavatory @ 30 nsf for each 15 female FTE's projected per maximum shift.
Male		varies	One urinal @ 30 nsf for each 40 male FTE's projected per maximum shift plus one wc @ 30 nsf, for each 20 male FTE's projected per maximum shift, plus one lavatory @ 30 nsf for each 20 male FTE's projected per max. shift.

DoD Space Planning Criteria for Health Facilities

Nursery

4.3.6. FORMULAS:

Normative formulas are provided below for the purpose of both quick and comparative program development. The Poisson process will be used to provide the accepted quantity solutions. An example Poisson distribution example is provided following the formulas. An interactive, electronic spreadsheet, which graphs this distribution, is available on the website: <http://www.tricare.osd.mil/ebc/rm>.

Common Planning Factors: Actual experience rates are more desirable and should be obtained from the historic workload for the facility. The following factors are provided for comparative purposes.

Infant's ALOS (Average Length of Stay) for a normal vaginal birth (DRG 391) = 1.5 days. For more information in how to obtain ALOS information, see Labor & Delivery/Obstetrics Units Section 4.2.6 Formulas, the end of the section.

Infant's ALOS for Cesarean birth = 3.5 days
Cesarean birthrate is 20% nationally

Formulas for:

Level I, Holding Nursery **Total Number of Bassinets** = Projected number of infants on the unit
X 10%

Level II, Continuing Care Bassinets Required =

(Projected annual number of sick infant births + sick infant admissions or transfers into the hospital) X ALOS
365 X Projected Occupancy Rate
PLUS
Projected annual number of cesarean section births in the hospital X 0.167
365 X Projected Occupancy Rate

- Step 1. Determine the projected number of annual sick infant births and admissions (annual admission to continuing care nursery, not to NICU).
- Step 2. Project the Average Length of Stay (ALOS) in the Continuing Care nursery unit. For more information in how to obtain ALOS information, see Labor & Delivery/Obstetrics Units Section 4.2.6 Formulas, the end of the section.
- Step 3. Determine the desired percentage of occupancy in the continuing care nursery. The most widely used number in the private sector is 70% or .70.
- Step 4. Project the annual number of cesarean section births in the hospital and multiply this by 0.167 (0.167 is the ALOS for a cesarean section infant prior to being returned to its mother in a LDRP or in Postpartum).
- Step 5. Plug the appropriate numbers into the formulae above and calculate.
4. Insert the numbers attained in steps one through three into the formula and calculate the number of bassinets required.

DoD Space Planning Criteria for Health Facilities

Nursery

Level III, NICU Bassinets Required = $\frac{\text{Projected annual \# of admission to the NICU} \times \text{ALOS}}{365 \times \text{desired percentage occupancy}}$

Note: This calculation includes the isolation bassinets.

Step 1. Determine the projected number of admissions to the NICU.

Step 2. Project the Average Length of Stay in the NICU.

Step 3. Determine the desired percentage of occupancy for the NICU.

Step 4. Insert the numbers attained in steps one through three into the formula and calculate the number of NICU bassinets required.

Isolation Rooms = % of nursery admissions requiring isolation X 100 X total bassinets required.

Step 1. Project the percent of admissions, based on historic experience, that require isolation.

Step 2. From the formula for each level of bassinets required, obtain the total number of bassinets required.

Step 3. Insert the appropriate numbers into the formula and calculate the number of Isolation Rooms Required.

Step 4. Subtract the number of isolation rooms required from each level of nursery care provided, to determine final number of bassinets in each level nursery.

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

4.4.1. PURPOSE AND SCOPE:

Surgery (Inpatient and Ambulatory):

This document sets forth the space planning criteria for Inpatient and Ambulatory Surgical Services. Every attempt should be made to co-locate these Services in order to share staff, support and mechanical spaces.

This Section does not pertain to Intensive Care space planning. Intensive Care planning is found in the Section 4.1, Nursing Units, of this manual. Also, this Section does not pertain to Specialty Surgical Clinics, which are in Section 3.11, Specialty Surgical Clinics, of this manual.

4.4.2. DEFINITIONS:

Ambulatory Operative Procedure - A surgical procedure which does not require complicated anesthesia or post-operative care as defined by the facility, and can be performed on a patient that will remain in a medical facility for less than 24 hours.

Average Time Per Procedure - The total average time to perform all of the following activities: room set-up, anesthesia induction, surgery and room cleanup.

General Operating Room - An operating room designed and equipped to perform a wide variety of operative procedures. This includes endoscopic surgery, which is defined as therapeutic surgical procedures using endoscopic equipment and requiring anesthesia support.

Infection Control Risk Assessment (ICRA) - An ICRA is a determination of the potential risk of transmission of various agents in the facility. See section 5.1 of *Guidelines for Design and Construction of Hospital and Health Care Facilities* of the AIA.

Inpatient Operative Procedure - A surgical procedure performed on a patient who must remain in the medical facility for a greater than or equal to 24 hours.

Operating Room Control (or nursing station)- The Operating Room Control is the area within the surgical suite for clinical staff to supervise the Operating Rooms.

Patient Holding Area / Patient Preparation Cubicle - adjacent to OR's where patient can be held, prepared for surgery, have IV's started, and be placed on cardiac monitor.

Post Anesthesia Care Unit (PACU) - The area where patients who have received anesthesia for a surgical procedure are closely monitored as they recover from that event for Phase I and Phase II. Phase I PACU recovery is typically associated with general anesthesia and the period immediately following surgery. Phase II is an area where outpatients are closely monitored after they have transferred from Phase I, or after surgery not involving general, spinal or epidural anesthesia. This area includes a combination of stretchers and chairs, nourishment room and patient toilets. Patients stay in this area until they are ready for discharge.

Post Anesthesia Care Unit (PACU) Control (or nursing station) - is the location to monitor patients in PACU.

Pre-op Control (or nursing station) - is where patients are monitored preoperatively.

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

Reception - The main entry into either anesthesia/pre-op area or the surgical suite, depending the design of the facility. This is the meeting and greeting, scheduling and entry location for the public (patients and family).

Restricted Area - This area includes operating and procedure rooms, the clean core, and scrub sink areas. Surgical attire and hair coverings are required. Masks are required where open sterile supplies or scrubbed persons may be located.

Semi-restricted Area - This area includes the peripheral support areas of the surgical suite and has storage areas for clean and sterile supplies, work areas for storage and processing of instruments, and corridors leading to the restricted areas of the surgical suite. Traffic in this area is limited to authorized personnel and patients. Personnel are required to wear surgical attire and cover all head and facial hair.

Special Operating Room - An operating room designed to perform a specific type of operative procedure such as orthopedic surgery, thoracic surgery, transplant or neurosurgery.

Sterile/clean core: In the restricted area of the operating suite. This acts as a service area between two or more operating rooms. This is where warming cabinets and sterile supplies used in the operating rooms are kept. This area must not provide for cross traffic of staff and supplies from the decontaminated/soiled areas to the sterile/clean areas.

Surgery Students – Students such as nurse anesthetist students, operating room technician students, or operating room nurse students. Small workspaces for these types of students (if present) need separate areas.

Surgical Suites - Includes space for the following functional areas: operating rooms, anesthesia, administration, support activities and staff facilities.

Surgical Suites and Levels of Care - *(From the Guidelines for Design and Construction of Hospitals and Health Care Facilities, AIA)* The size of the surgical procedure rooms is dependent on the level of care to be provided. The level of care as defined by the American College of Surgeons are as follows:

Class A: Provides for minor surgical procedures performed under topical, local, or regional anesthesia without pre-operative sedation. Excluded are intravenous, spinal, and epidural routes; these methods are appropriate for Class B and Class C facilities.

Class B: Provides for minor surgical procedures performed in conjunction with oral, parenteral, or intravenous sedation or under analgesic or dissociative drugs.

Class C: Provides for major surgical procedures that require general or regional block anesthesia and support of vital bodily functions.

Unrestricted Area - This area includes a reception established to monitor the entrance of patients, personnel, and materials.

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

4.4.3. POLICIES:

Suite Size and Composition - Any medical facility authorized a surgical suite will have a **minimum of two operating rooms** regardless of workload or utilization rate. The surgical suite shall be divided into three designated areas - unrestricted, semi restricted, and restricted -- that are defined by the physical activities performed in each area.

The number of **General Operating Rooms** programmed for DoD Medical Facilities will be sufficient to provide a 75% utilization rate during the normal duty day. Include all endoscopic procedures to be performed in the surgical suites. Endoscopic surgery is defined as therapeutic surgical procedures using endoscopic equipment and requiring anesthesia support.

Patients will be counseled by an anesthesiologist or anesthetist prior to surgery. On the day of surgery, ambulatory patients will report to a pre surgery holding area. Surgery patients will be recovered in two phases. Phase I recovery will occur in the PACU and is typically associated with general anesthesia, spinal and epidural anesthesia, and the period immediately following surgery. Phase II will occur in PACU.

Residents - While surgical residents spend a considerable amount of time in the surgical suite, space for their offices and training is provided in their separate surgical clinics. Anesthesia residents' offices and training support space is provided in the area of the operating rooms, when an anesthesia residency program is present.

Staff Support - Lockers. Provide lockers to accommodate all surgical personnel (i.e. anesthesia, recovery, MD's, consultants, admin, support staff). Minimum = 2 locker rooms (one male/one female). See also Section 6.1.

Lounge / Conference Rooms - Minimum of one lounge in Surgical Suite and one in Post Anesthesia Care Unit. Provide a conference room if staff exceeds 10. See Section 6.1 for correct sizing. Locate staff lounge in a semi-restricted area and conference room in either a semi or non-restricted area.

4.4.4. PROGRAM DATA REQUIRED:

4.4.4.1. General Operating Rooms

- Programmed number of surgical procedures per day. Include endoscopic procedures performed in the surgical suite (outside of a clinic). Do not include Cardio/Neuro/Cysto/Ortho workload.
- Average time per surgical procedure.

Determine if all or any of the current workload in the following clinics will be accomplished in the surgical suite in the future or if current surgical suit workload will be accomplished in clinics in a future facility: Dental, OB-GYN, General Surgery, Ophthalmology, ENT, Plastic Surgery. If it is projected that this workload will be accomplished in surgical suite, then include those procedures, if it will be accomplished in a clinic, then exclude that workload.

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

4.4.4.2. Special Operating Rooms

- Projected number of Neuro. surgical procedures per day
- Average time per Neuro. surgical procedure

- Projected number of Cardio surgical procedures per day
- Average time per Cardio surgical procedure

- Projected number of Ortho surgical procedures per day
- Average time per Ortho surgical procedure

- Projected number of Cysto. surgical procedures per day
- Average time per Cysto. surgical procedure

4.4.4.3. Miscellaneous

- Number of heart lung machines (only required if open heart surgery mission).
- Number of radiographic systems authorized?
- Number of fluoroscopy systems authorized?
- Number of “on-call” personnel who must be resident on 24-hour shifts.

4.4.4.4. Staffing numbers:

- Providers (Surgery Skills)
 - Administrative staff
 - Receptionist
 - Secretary
 - Instructors
 - Anesthesiologists (MDs)
 - Anesthesiology residents
 - Nurse Anesthetists
 - Student Nurse Anesthetists
 - Operating Room Nurses
 - Operating Room Nurse Students
 - Surgical Technicians
 - Surgical Technician Students
 - Housekeepers
- Is there a Residency Research Technician assigned?

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

4.4.5. SPACE CRITERIA:

A. Surgical Services

Every attempt should be made to co-locate Inpatient and Ambulatory Surgical Services. Co-location offers the ability to transfer staff according to workload between the two Surgical Services and decreases support space requirements. Support space includes anesthesiology office space, post anesthesia recovery, staff and public facilities, mechanical spaces, etc.

Section 4.4 has not been divided into Inpatient and Ambulatory Surgical Services. In the cases of a renovation project where co-location is not feasible or the case of an Ambulatory Surgical Services in a stand alone clinic, the same criteria should be applied as is presented in this section. The programmer must pay particular attention to the comments section of the criteria.

Toilets, Lounges and Locker Areas: The criteria for toilets, lounges and locker rooms is provided in a separate section, Section 6.

Administrative Offices: The office space required to provide administrative support to operate the clinic services will be provided in accordance with criteria for administration in Section 2.1.

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
<u>Anesthesia Counseling Area:</u>			In small facilities with 2 ORs the area may be combined with the PACU area.
Patient Reception	16.72	180	This space is for patient control.
Waiting Area	11.89	128	Per OR (16 NSF per seat, 4 seats per OR). Provide area for infectious patient in accordance with the ICRA.
Public Toilets, Single Occupancy	5.57	60	See Section 6.1. If this area supports more than 4 OR's, then provide separate male and female single occupancy toilets.
Interview Room	9.29	100	Minimum. One per every two ORs.
EKG Room	11.15	120	One per every four ORs. Confirm that this service is part of the Surgical Suites' concept of operation.
Laboratory Drawing Area	9.29	100	Minimum. Add an additional 20 nsf for each OR above four. Confirm that this service is part of the Surgical Suites' concept of operation.
<u>Family Waiting Area:</u>			
Family Waiting Room	11.15	120	Minimum area for 2 ORs. Add 40 nsf for each OR above two.
Vending Area	3.72	40	Provide one such area when there are four or more operating rooms.
Family Counseling Room	11.15	120	Minimum. Add a second room if more that four ORs and a third room if more than 8 ORs.
Family Toilet (single occupancy)	5.57	60	One per family waiting area. Provide separate male and female toilets if waiting area supports more than 4 ORs.

DoD Space Planning Criteria for Health Facilities
Surgery (Inpatient and Ambulatory)

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
<u>Pre-Op/Patient Holding:</u>			Ambulatory patients report to this area to change and then wait in the patient holding room. Provide additional space for infectious patients in accordance with the ICRA.
Patient Holding Room	11.15	120	Minimum area for 2 ORs. Add 40 nsf for each OR greater than two.
Patient Prep./Induction	33.45	360	Minimum. 1.5 stations per OR. Each station is 120 nsf. This area may be combined with the recovery area. It must be under visual control of the nursing staff.
Mediprep Alcove	3.71	40	Minimum. One per patient prep./induction area.
Patient Changing Rooms:			For ambulatory patients only.
Female Changing Room	7.43	80	Minimum for two ORs. Add 60 nsf for each 2 ORs above 2.
Changing Room Toilet (Female)	5.57	60	One per Female Changing Room.
Male Changing Room	7.43	80	Minimum for two ORs. Add 60 nsf for each 2 ORs above 2.
Changing Room Toilet (Male)	5.57	60	One per Male Changing Room.
Clean Supply/Linen	5.57	60	Minimum for two ORs. Add 10 nsf of each OR above 2.
Soiled Utility	9.29	100	Per pre-surgery patient holding area.
<u>Surgical Suite:</u>			
General Surgery Operating Room	45.06	485	See Section 4.4.6. Inpatient or Outpatient.
Cystoscopic Operating Room	45.06	485	Same size as general operating room; special equipment required. Inpatient facility only.
Special Operating Rooms:			
Neuro. Operating Room	62.80	675	See Section 4.4.6. Inpatient facility only.
Neurosurgical equipment storage	13.94	150	1 per Neuro. OR. (Inpatient Services only).
Neurosurgical Monitoring	9.29	100	1 per 2 Neuro. ORs (Inpatient Services only).
Cardiac Operating Room	62.80	675	See Section 4.4.6. Inpatient facility only.
Cardiac Monitoring Room	9.29	100	1 per 2 cardiac ORs (Inpatient Services only).
Pump Room	13.94	150	Minimum of 50 NSF per heart/lung pump. Provide only if open-heart surgery is authorized. (Inpatient Surgical Services only).
Ortho. Operating Room	62.80	675	See Section 4.4.6. Inpatient facility only.
Orthopedic equipment storage	11.15	120	Per Ortho OR (Inpatient Services only).
Plaster Cart storage	6.50	70	1 per 2 Ortho ORs. (Inpatient Services only).
Scrub Area(s)	6.50	70	1 per 2 OR's. Each scrub area includes two double handsinks

DoD Space Planning Criteria for Health Facilities
Surgery (Inpatient and Ambulatory)

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
<u>Surgical Suite (continued):</u>			
Substerile Area(s)	13.94	150	One per 2 OR's. Includes pharmacy supply station system- automated dispensing system, point of use.
Sterile Core	37.16	400	One per two ORs. if total number of ORs. is two, or if there is any remainder of OR's beyond clusters of four.
	69.68	750	One per every four OR's if there is a number of OR dividable by four.
Decontamination/ Cleanup Area	11.15	120	One per 2 OR's.
Crash cart storage	3.72	40	Includes space for 2 crash carts per every 4 OR's.
Surgical Suite Nurse Station	11.15	120	One per 4 OR's.
Cart Lift Access	9.29	100	One per OR suite.
Case Cart Storage	3.72	40	Minimum. 20 nsf per each OR greater than 2. If no dedicated cart lift access, increase case cart storage to 30 nsf per OR.
Mobile Fluoro. Storage unit	3.72	40	Per mobile fluoro. unit.
Mobile X-Ray Storage	3.72	40	Per mobile x-ray unit.
X-Ray film Processing	9.29	100	Authorized, if > 4 OR's or Cysto. OR.
Laboratory	9.29	100	Teaching facilities only.
Equipment Storage	23.23	250	Minimum. Add 75 nsf for each additional OR greater than 3.
Equipment Cleanup Area	9.29	100	Minimum, or 50 NSF per OR. Maximum 250.
Clean Storage/ Work Area	13.94	150	One per OR suite.
Clean Linen Storage	4.65	50	Minimum. 50 nsf per 4 OR's.
Trash/ Soiled Linen	12.08	130	Minimum. 25 nsf per OR, maximum 200.
Janitors Closet	5.57	60	One per OR Suite. See also Section 6.1.
Housekeeping Equipment/Supply	9.29	100	Minimum. One per every four OR's.
Gurney Storage	1.86	20	One per OR.

DoD Space Planning Criteria for Health Facilities
Surgery (Inpatient and Ambulatory)

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Post Anesthesia Care Unit (PACU):			
Recovery Room (Adult), Phase I	22.30	240	Minimum. 120 NSF per bed. 1 recovery bed per OR.
Nourishment station	9.29	100	One per PACU.
Patient Toilet	5.57	60	Phase I: One per 20 beds or fraction thereof. Phase II: One for first 10 Recovery Stations. If greater than 10 Recovery Stations, then one male and one female per 20 beds or fraction thereof. Section 6.1.
Recovery Room (Pediatric)	11.15	120	Minimum when pediatric surgery part of MTF mission. Add additional pediatric rooms based on percentage of pediatric surgical workload and reduce patient recovery (adult) by the number of pediatric beds provided, but not below minimum of two recovery beds.
Isolation Room	11.15	120	1 per unit. This may be deleted or increased, based on the ICRA.
Isolation Toilet	4.65	50	1 per isolation room.
PACU Control (Nurses' Station)	11.15	120	One per PACU.
Toilet (Dedicated PACU Staff Toilet)	5.57	60	One per PACU.
Mediprep	5.57	60	Minimum. 60 nsf per every additional 20 recovery beds greater than 20.
Crash Cart	3.72	40	NSF. Includes space for 2 crash carts per recovery room.
Ice Machine	.93	10	One per PACU.
Clean Supply	9.29	100	Minimum (10 NSF/bed). Maximum 200 nsf.
Soiled Utility	.57	60	One per PACU.
Trash/Soiled Linen	4.65	50	Minimum (5 NSF/bed).
Recovery Cubicle, Phase II	44.60	480	Minimum, for 2 ORs. 120 nsf per each cubicle (seat or bed). 2 per recovery cubicles (seat or bed) per Phase II OR.
Nurse Supervisor – Recovery Room	11.15	120	Only if FTE is authorized.
Physician's Workroom	11.15	120	If more than 4 OR's.
Consultation Room	11.15	120	Per 20 beds or fraction thereof.
Nurses' Workstation	11.15	120	Minimum. Add 40 nsf for each nurse above 4 assigned to the day shift.
Equipment Storage	3.72	40	One per OR.
Janitors' Closet	5.57	60	Minimum one per OR suite. See also Section 6.1.

DoD Space Planning Criteria for Health Facilities
Surgery (Inpatient and Ambulatory)

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
<u>Surgery, PACU, Anesthesia Lockers, Toilets and Lounge:</u>			See also Section 6.1.
Staff Locker Rooms	9.29	100	Minimum. Add 7 nsf for each programmed FTE over 8 (on peak shift).
Staff Toilets, single occupancy	5.57	60	Minimum. Increase by one additional toilet for every 15 FTE (on peak shift) greater than 15.
Staff Shower	5.57	60	Minimum: provides for one shower. Increase by one additional shower for every 15 FTE (on peak shift) greater than 15.
Staff Lounge	13.01	140	Minimum. Add 10 nsf for each programmed FTE over 8 (on peak shift).
<u>Anesthesia:</u>			
Chief of Anesthesiology	11.15	120	One per OR Suite.
Chief Anesthetist	11.15	120	One per OR Suite.
Workstation Anesthesiologists	5.57	60	Consolidate each four or few workstations into single rooms. One workstation per programmed FTE.
Workstation Nurse Anesthetists	5.57	60	Consolidate each four or few workstations into single rooms. One workstation per programmed FTE.
Office, Secretary	11.15	120	Only if FTE is assigned.
Anesthesia Workroom, Clean	13.94	150	Minimum or 30 NSF per OR.
Anesthesia Workroom, Soiled	9.29	100	Minimum or 20 per OR.
Drug Storage	9.29	100	Minimum. 10 nsf per anesthesiologist or nurse anesthetist.
Anesthesia Gas Storage Full or partially full containers	4.65	50	One per Surgical Suite.
Anesthesia Gas Storage Empty Containers	4.65	50	One per Surgical Suite.
Students' Workstation(s)	5.57	60	Per student anesthetist. Max. 4 students per room.
Pain Clinic			See Section 3.11.
<u>Surgical Suite Administration:</u>			
Conference Room	20.90	225	One per surgical suite.
Student Workstation(s)	3.72	40	Per student for the average # of students. Not for surgery residents. (Inpatient Surgical Services only).
Instructor	11.15	120	Only if teaching facility and instructor FTE programmed.
Clerical/Secretary Area	5.57	60	Per clerk.
Dictation Area	9.29	100	One per every four ORs.
Office, Inpatient Supervisor	11.15	120	If FTE programmed.
Nurse Supervisor's Office	11.15	120	One per OR Suite.

DoD Space Planning Criteria for Health Facilities
Surgery (Inpatient and Ambulatory)

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
<u>Surgical Suite Administration (continued):</u>			
Nurses' Workroom	11.15	120	Minimum. Add 40 nsf for each nurse above 4 assigned to the day shift.
Equipment Workroom	9.29	100	Only if authorized Biomedical equipment repairman is permanently programmed FTE.
On - Call Duty Room	11.15	120	One per on-call personnel FTE programmed.
On - Call Duty Room Toilet	6.50	70	One per On-Call Duty Room. See Section 6.1.
NCOIC/LCPO/LPO Office	11.15	120	One per clinic/department.
Administrative Office		varies	Refer to Chapter 2.1. Provide if full time administrative support programmed.

Functions which are required for Residency Education in Anesthesiology (only in a hospital):

The following areas must be programmed if the MTF has a Residency Program in anesthesiology. There are no known cases of this occurring in a facility that does not provide inpatient services. These areas are in addition to those listed under common areas above.

Director of Anesthesia Residency	11.15	120	One per director of an Anesthesia Residency Program.
Secretary to Director with visitor waiting.	11.15	120	One per Director of an Anesthesia Residency Program, if there is a programmed FTE secretary position.
Anesthesia Residency Coordinator	11.15	120	One per Anesthesia Program Coordinator if there is a programmed FTE.
Resident's Office Space	11.15	120	120 nsf minimum, 60 nsf per programmed resident.
Residency Library	22.29	240	One per Anesthesia Residency Program.
Conference Room	37.16	400	One per Anesthesia Residency Program.
Residency Research Technician	11.15	120	One per Residency Program, if there is a programmed FTE.

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

4.4.6. **FORMULAS:**

Process: The formula below works for the various types of operating rooms (general surgery, neurosurgery, cardiac, orthopedic surgery, cystoscopic and other specialty operating rooms). The number of procedures per day must be determined for each type of room desired and the average length of time for the procedures occurring in that type of room must be determined.

Data required for:

Numbers of General Operating rooms - number of general operating room procedures within a year* (include endoscopic procedures).

Numbers of Special Operating rooms -

- a. Number of cardiac procedures per year.
- b. Number of neurosurgical procedures per year.
- c. Number of orthopedic surgery procedures per year.
- d. Number of cysto. surgery procedures per year.

Average Time per Procedure (minutes) - The time per procedure should be obtained via examination of the operating room schedule. The time should be aggregated in groups associated with the types of operating rooms which are being programmed. The average time per procedure must include the time of clean-up and the preparation time.

* Formula assumes that during the reporting period of one year, that surgical procedures will normally occur during 250 days (365 days less weekends and holidays)

Formula For Determining The Required Number of Operating Rooms

$$\text{OR Number} = \frac{\text{(Daily Number of Procedures)} \times \text{(Average Time \{minutes\} per Procedure)}}{360 \text{ minutes per day}}$$

For fractions less than half a room, round down. For fractions greater than or equal to half a room round up.

Calculate room requirements for each type of operating room desired separately based on separate procedure data - (general, neuro., cardiac, cysto., orthopedic)

- Step 1. Determine the average number of procedures per day by dividing the annual number of procedures by 250 days. Separate and determine for each type of operating room desired (general, neuro., cardio, ortho. or cysto.).
- Step 2. Determine the average time it takes to accomplish a procedure of the type desired (general, neuro., cardio, ortho. or cysto.).
- Step 3. Insert the numbers attained in steps one and two into the formula and calculate the number of the type of operating rooms required. There may not be fewer than two general operating rooms.
- Step 4. Repeat steps one through three for each type of operating room desired (general, neuro., cardio, ortho. or cysto.).

DoD Space Planning Criteria for Health Facilities Surgery (Inpatient and Ambulatory)

Example: A medical facility accomplishes 6,500 general operating room procedures in one year. Determine the required number of operating rooms (average time is examples only).

Step 1. Average # of procedures per day = $\frac{6,500 \text{ Procedures / per year}}{250 \text{ day / year}} = 26 \text{ procedures/day}$

Step 2. Average time per procedure = 117 minutes for general surgery procedures

Step 3. Number of ORs = $\frac{(26 \text{ procedures / day}) \times (117 \text{ minutes / procedure})}{360 \text{ min.}}$

= 8.45 ORs

Provide 8 general operating rooms.

DoD Space Planning Criteria for Health Facilities

Central Sterile

4.5.1. PURPOSE AND SCOPE:

Central Sterile (CS):

This document sets forth the space planning criteria for the decontamination, sterilization, processing and packaging of instruments and reusable supplies required for patient care in a DoD health care facilities. This activity often packages health care items into “packs and trays” which may include reusable items, new items or both. The title and scope of functions accomplished in this area may vary between the Services and between facilities. In this document, this function is referred to as Central Sterile (CS).

Concepts of Operation:

It is important that the programmer understand the projected concept of operation for the Central Sterile (CS) of the health facility that is being programmed. In some medical treatment facilities (typically freestanding clinics) this service may not occur and those items in need of decontamination may be sent to a hospital and re-supplied in like kind. In some smaller medical clinic facilities, the sterilization service of a Dental Clinic (for example, Dental Instrument Processing Centers in the Air Force) may be used to meet the CS needs. Additionally it is typical that some decontamination capability will exist in the operating room suites, especially for “flash” sterilization of instruments.

In general the following is true:

- All sterilization of supplies and instruments will be completed by the CS. Sterile supplies will be distributed to using areas by dedicated delivery systems or by Medical Materiel personnel.
- All disposable items that do not require processing and sterilizing will be stored and distributed to the using area by Medical Materiel.
- Equipment requiring CS handling will be cleaned, decontaminated, and stored in the CS in a clean environment.
- The CS as defined in this document may be designed as part of a total material distribution system.

Clean and dirty separation: The separation of activities dealing with sterile and non-sterile items is important to the layout and use of the spaces described in this section. This separation may be thought of as a “sterile line” or “red line” that traverses the CS area. One side of this line is dirty and the other is clean. This line generally is defined by the activities on either side of the autoclaves. This is especially true if “pass-thru” autoclaves are used. The line becomes blurred at the point of autoclaves which are not “pass-thru.” Those activities (receiving, decontamination) that lead up to items being placed in the autoclave (sterilization) are on the dirty or contaminated side of the CS. Those activities which occur with items that are removed from the autoclave(s), should occur on the “sterile side” of the CS.

4.5.2. DEFINITIONS:

Assembly Area - Assembly generally occurs on the clean side and is space needed to put together sterile items (expendable and nonexpendable) for later delivery to the sections or services where they will be used. Note that the term assembly can be confusing as there are situations where non-sterile items are put together to be sterilized together.

Cart Queuing Area - Area for queuing carts that are ready to be delivered to the using area.

Conditioned Water Unit – Some sterilizers require conditioned (softened) water in order to function properly. If facilities provide clean stem, a conditioned water unit may not be necessary.

DoD Space Planning Criteria for Health Facilities

Central Sterile

Decontamination - Freeing an object of some contaminating substance - cleaning and sterilizing.

Decontamination Area - Area for the cleaning of soiled, contaminated, and used items that have to be returned to the CS. These items are cleaned and then sterilized in the decontamination area.

Equipment and Cart Holding Area - A holding area for medical equipment and carts after they have been decontaminated and cleaned prior to storage or issue. The equipment will then be moved to materiel distribution for storage in a clean area. A portion of this area may also serve as a case cart holding area.

Heat Sensitive Cleaning Area - Area for the decontamination of heat sensitive items such as thermometers, lens equipment, etc. Heat sensitive sterilization can be accomplished via alternative low temperature sterilization. This area is a part of the sterilization area.

Housekeeping - The area where housekeeping items required in the CS are stored. Separate areas will be maintained in both the decontamination area and in the clean area.

Instrument Storage and Assembly Area - Storage area for non-sterile instruments that are to be used in sets and trays. Area includes space for assembling sets of instruments.

Receiving, Decontaminating, and Cleaning Area - An area where reusable instruments, supplies, equipment and carts are received, sorted, cleaned, and decontaminated. This area adjoins the sterilization area.

Size of Central Sterile Service – This criteria divides the central sterile services into three size options: large, medium and small. These sizes align with the size of the central sterile service needed to support health care service in a clinic or hospital supporting itself and in some cases satellite services (health and dental) on an installation. Generally, the small size is for a facility, which has no inpatient services, the medium size is for a community hospital and the large size is for a medical center or large community hospital with satellite services.

Sterile Storage Area - Area to hold sterile processed materiel that is awaiting delivery to using agencies.

Sterilization Area - Consists of space for steam sterilizers, alternative low temperature sterilization, along with loading and unloading space for each machine.

4.5.3. **POLICIES:**

When Service is Provided: At a minimum, Central Sterile (CS) service will be programmed into any DoD medical treatment facility, which includes an operating room. Based on the concept of operation, a central sterile service may be provided in medical treatment facilities that do not have operating rooms, but require an “in facility” capability, for such items as a steam sterilizer and a Steris.

Lockers, Lounges, Toilets, Showers - Separate staff support area should be provided for those personnel working in clean areas and for those personnel in the Decontamination area. If there is a single support area, it should be centrally located with separate exits to the decontamination and clean areas.

DoD Space Planning Criteria for Health Facilities

Central Sterile

4.5.4. PROGRAM DATA REQUIRED:

Will the CS be provided with conditioned water (piped into the CS) that can be used in the sterilizers, or will the water provided to the CS need to be conditioned? Will the CS be provided with clean steam?

Is a CS needed in this facility, or can such service be provided from some other source (another medical treatment facility nearby or a dental clinic)?

Classify the facility being programmed into one of the following four categories:

- A. A health clinic which receives CS support from another MTF or Dental Clinic.
- B. A health clinic, which does not provide ambulatory surgery, is alone on an installation and which does not receive CS support from another source?
- C. A health clinic, which provides ambulatory surgery or a community hospital.
- D. A medical center.

Note: If the answer above is A., then no CS should be programmed. If the answer is B., then a small CS should be programmed. If the answer is C., then a medium CS should be programmed. If the answer above is D., then a large CS should be programmed.

- A= no CS
- B= small CS
- C=medium CS
- D=large CS

Exchange cart requirements:

How many operating rooms are in the facility being programmed?

How many carts, other than those dedicated to the ORs, are being serviced by the CS?

What is the projected number of cases per OR per day?

Is there an OB service?

Is there a Cardiac OR procedure room?

Is there a cardiac specialty OR?

Are there other than cardiac specialty ORs?

Note: Transportation systems (cart conveyors, pneumatic tubes, box conveyors and dumb waiters) may add to the space requirements in this area. If the planned medical treatment facility will include such systems, the programmer will need to add space for the "Send and/or Receive" points for such systems.

DoD Space Planning Criteria for Health Facilities

Central Sterile

4.5.5. SPACE CRITERIA:

Toilets, Lounges and Locker Areas: The criteria for toilets, lounges and locker rooms is provided in a separate section, Section 6.

Administrative Offices: The office space required to provide administrative support to operate the clinic services will be provided in accordance with criteria for administration in Section 2.1.

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Receiving, Decontaminating, and Cleaning Areas:			
Receiving Window	5.57	60	One per CS service.
Cart receiving	.93	10	Per cart times 5% of total carts. See formula in 4.5.6 for determining number of carts.
Double sinks with work counters	4.64	50	2 per CS service; 1 in heat sensitive area on the contaminated side of the low temperature sterilizer, one in the general decontamination/cleaning area.
Distilled Water unit	2.79	30	1 per CS service. This may not be necessary if the distilled water is provided to the CS from a central source (building plant).
Automatic cart washers	15.79	170	Per cart wash machine. One machine per hospital with more than 4 ORs.
Manual cart wash area	11.15	120	One per CS service. Provide only when automatic cart washers are not programmed.
Decontamination Equipment Area (includes washer pasteurizer, washer sterilizer, and sonic cleaner).	32.52	350	Per small CS service.
	46.45	500	Per medium CS service.
	69.68	750	Per large CS service.
Tables for Drying	1.86	20	Per small CS service.
	2.79	30	Per medium CS service.
	4.64	50	Per large CS service.
Assembly Areas:			
Instrument Storage	9.29	100	Per small CS service.
	13.94	150	Per medium CS service.
	27.87	300	Per large CS service.
Assembly Space (tables)	11.15	120	Per small CS service.
	18.58	200	Per medium CS service.
	37.16	400	Per large CS service.
Equipment Holding Area	13.94	150	Per small CS service.
	27.87	300	Per medium CS service.
	37.16	400	Per large CS service.
Bulk storage	13.94	150	Per small CS service.
	27.87	300	Per medium CS service.
	55.73	600	Per large CS service.

DoD Space Planning Criteria for Health Facilities

Central Sterile

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Assembly Areas (Continued):			
Assembly area (includes table work areas, basket storage, basket return, mobile tables, pre- assembly space and pre-sterile holding space).	37.16	400	Per small CS Service.
	60.39	650	Per medium CS Service.
	83.61	900	Per large CS Service.
Sterilization Areas:			
Sterilization Equipment Area (area for sterile air tube drying and steam sterilizers)	23.22	250	Per small CS Service.
	46.44	500	Per medium CS Service.
	65.02	700	Per large CS Service.
Sterile Storage Areas (SSA):			
Sterile Storage Area	27.87	300	Per small CS Service.
	55.73	600	Per medium CS Service.
	92.89	1000	Per large CS Service.
Cart Queuing & Clean Cart Storage Areas:			
Clean Cart Storage	.93	10	NSF per cart. Space for 20% of carts. See formula in 4.5.6 for determining number of carts.
Cart queue	.93	10	NSF per cart. Space for 5% of carts. See formula in 4.5.6 for determining number of carts.
Staff and Support Areas:			
			If CS is collocated with Surgery, combine with Surgery, if feasible.
Chief of CS Service	11.15	120	One per CS Service.
Administrative area	9.29	100	Minimum or 60 nsf per programmed administrative FTE if greater than one.
NCOIC/LCPO/LPO Office	11.15	120	One per CS Service.
Lounge	9.29	100	Minimum, add 10 NSF per FTE staff over 10 per shift. 200 NSF maximum. If FTE staff is less than 4, do not provide a separate lounge, but collocate with Surgery lounge (see Section 4.4).
Locker room - Decon.			See Section 6.1. For personnel assigned in the Decon. Area. Combine with Clean locker room, if feasible.
Male	9.29	100	Minimum, add 10 NSF per male assigned over 10.
Female	9.29	100	minimum, add 10 NSF per female assigned over 10
Toilets: - Decon.			See Section 6.1.
Male (lav, ur, wc, sh)	11.15	120	Minimum. If more than 25 males assigned, add 1 ur, 1 wc, 1 lav, 1 sh @ 30 NSF. Minimum 2 wc.
Female (lav, wc, sh)	8.36	90	Minimum. If more than 25 females assigned, add 1 lav, wc, sh @ 30 NSF/fix. Minimum 2 wc

DoD Space Planning Criteria for Health Facilities

Central Sterile

FUNCTION	AUTHORIZED		PLANNING RANGE/COMMENTS
	m ²	nsf	
Staff and Support Areas (Continued):			
Locker Room – Clean:			See Section 6.1. For personnel assigned in the Clean Area. Combine with Decon. locker room, if feasible.
Male	9.29	100	Minimum, add 10 NSF per male assigned over 10.
Female	9.29	100	Minimum, add 10 NSF per female assigned over 10
Toilets - Clean:			See Section 6.1.
Male	11.15	120	Minimum. If more than 25 males assigned, add 1 ur, 1 wc, 1 lav, 1 sh @ 30 NSF. Minimum 2 wc.
Female (lav, wc, sh)	8.36	90	Minimum. If more than 25 females assigned, add 1 lav, wc, sh @ 30 NSF/fix. Minimum 2 wc
Janitor's Closet	5.57	60	One janitor's closet per 10,000 nsf. See Section 6.1.

Central Sterile Service for Freestanding Clinics:			
Clinic - Central Sterilization	16.72	180	For Clinics greater than 35,000 gsf, but less than 100,000 gsf. Justification required.
	22.30	240	For Clinics greater than 100,000 gsf, but less than 125,000 gsf. Justification required.
	27.87	300	For Clinics greater than 125,000 gsf. Justification required.

4.5.6. FORMULA:

Formula for calculating number of carts:

of cases per O.R. per day X # of ORs = _____ carts

+ 2 carts if OB performed

+ 1cart if cardiac OR

+ 4 carts if there are specialty ORs, other than cardiac ORs

+ _____ number of carts (other than from OR Suite) that are serviced by CS

Calculate and sum all applicable above.