

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).

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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.

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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.

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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.

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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.

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

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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.