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Blanchfield Army Community Hospital (BACH) is a medium-sized Army Community Hospital that serves a rural military population. The organization operates a five-bassinet Level I neonatal intensive care unit (NICU) as part of its Women's Health Services. The organization transfers mothers in labor prior to 36 weeks of gestational age and neonates born prior to 36 weeks of gestational age or with high acuity levels to facilities with greater NICU capabilities. In Fiscal Year 2001 BACH paid approximately $608,729 to two local community hospitals located within 25 miles of the facility for Level II neonatal care and the labor/delivery services associated with that care. This study looked at several options for recapturing these costs, while maintaining or increasing the quality of patient care to BACH's beneficiaries. The options considered include: coordinating neonatal transfers back to the BACH, upgrading the NICU to a Level II by increasing the competency of the current staff, and upgrading the NICU to a Level II plus by hiring a neonatologist and neonatal nurse practitioners. The analysis indicated that retaining 35-week neonates by increasing the competency level of the current staff could generate cost savings of approximately $54,544 per year and make more effective use of the facility, staff, and equipment.

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Feasibility of Recapturing Neonates with Minor to Moderate Illnesses

By

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Abstract

Blanchfield Army Community Hospital (BACH) is a medium-sized Army Community Hospital that serves a rural military population of approximately 86,000 beneficiaries. The organization operates a five-bassinet Level I neonatal intensive care unit (NICU) as part of its Women's Health Services. The organization transfers mothers in labor prior to 36 weeks of gestational age and neonates born prior to 36 weeks of gestational age or with high acuity levels to facilities with greater NICU capabilities. In Fiscal Year 2001 BACH paid approximately $608,729 to two local community hospitals located within 25 miles of the facility for Level II neonatal care and the labor/delivery services associated with that care. This total consisted of $418,048 in neonatal care, generated by 70 neonates, and $190,680 in labor/delivery charges for 60 mothers. This study looked at several options for recapturing these costs, while maintaining or increasing the quality of patient care to BACH's beneficiaries. The options considered include: coordinating neonatal transfers back to the BACH, upgrading the NICU to a Level II by increasing the competency of the current staff, and upgrading the NICU to a Level II plus by hiring a neonatologist and neonatal nurse practitioners. The analysis indicated that retaining 35-week neonates by increasing the competency level of the current staff could generate cost savings of approximately $54,544 per year and make more effective use of the facility, staff, and equipment.

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Introduction

Blanchfield Army Community Hospital (BACH) is a medium-sized Army Community Hospital, built in 1982, that serves a rural military population of approximately 86,000 beneficiaries along the Kentucky-Tennessee border. The key services provided to the population include: women's health, orthopedics, general surgery, primary care, laboratory, pharmacy, pathology, radiology, physical therapy, ophthalmology, nutrition care, and an emergency center. Of these services, women's health and primary care account for the majority of the organization's workload.

The Department of Women's Health is currently undergoing a significant renovation and cultural shift toward family-centered care in an effort to maintain its patient base. The change is driven by the National Defense Authorization Act (NDAA) of Fiscal Year 2002, which places the Military Health System (MHS) in direct competition with the private sector. The NDAA eliminates the MHS's authority to require TRICARE Standard patients to receive a non-availability statement prior to receiving care in civilian medical facilities (Peake, 2002). The NDAA also entices female beneficiaries seeking maternity-related care to drop TRICARE's health maintenance organization (HMO) insurance (TRICARE Prime) for TRICARE's point of service (POS) insurance (TRICARE Standard) because the patient can receive the full-spectrum of perinatal care services in the private sector at a cost to the patient of only $25. Consultants have estimated that MTFs that offer maternity-related services may lose up to 40% of their patients if they do not become more marketable and family-focused (KPMG, 2002).

The Department of Women's Health includes an OB/GYN clinic, a labor/delivery unit, a mother/baby unit, and a Level I neonatal intensive care unit

(NICU). These services account for a significant portion of BACH's overall workload. BACH averaged 1,800 births and 89 neonatal transfers each year since 1997. However, the number of births has been trending down, while the number of neonatal transfers has been trending up, peaking in 2001. Nearly all the neonatal transfers were to one of three hospitals. Two of these are local community hospitals with Level II NICU services. These hospitals are located within 25 miles of BACH. The third hospital is a highly regarded Level III facility and one of Tennessee's five regional perinatal centers. This facility is approximately 60 miles away. Although most of the transfers occur by ground transport, civilian air transport is also available.

BACH's NICU has five-bassinets and is categorized as Level I because it is used primarily for emergency stabilization of neonates prior to transfer to a higher-level facility. Occasionally it is used for neonates that require more attention and care than a normal, healthy newborn for a short period of time. The scope of practice guidelines used by BACH's NICU staff can be found in Appendix A. BACH's standing policy is to transfer mothers in labor prior to 36 weeks of gestational age to a facility with greater NICU capability (level II or III). This policy is based on studies that have shown better outcomes for infants transferred "in utero" compared to infants transferred following birth (Bose, 1994, Schwartz, 1996). BACH also automatically transfers neonates born prior to 36 weeks of gestational age and neonates with problems considered beyond the NICU's capabilities by the pediatricians on duty.

The NICU is a sub-unit of the Mother/Baby unit. Nurses assigned to the Mother/Baby unit rotate NICU duty. This is problematic because the Army stopped providing NICU training to nurses in the late 1990s and the transitional

nature of the military does not support continuity in the neonatal skill sets. Thus, the head nurse consistently assigns the same NICU certified nurses (one registered nurse (RN) and one licensed practical nurse (LPN) for each shift) to provide NICU coverage. However, these personnel also cover the Mother/Baby unit because the NICU is very rarely used. Physician neonatal care duties are rotated amongst the pediatricians on staff.

Conditions Which Prompted the Study

There are several conditions that prompted this study. First, the hospital commander espoused objectives including: 1) provide high quality care that is convenient for BACH's beneficiaries, 2) ensure the financial viability of the organization, and 3) recapture costs where possible. These objectives set the parameters for establishing or modifying services offered by the organization. Second, the Managed Care Division and the Outcomes Management Division identified neonatal care as one of the highest external costs to the organization. Unfortunately, the information provided to by these divisions was too general to take immediate action. A more in-depth analysis to determine the true costs to the organization was required. Third, BACH is faced with a situation in which it could lose a significant portion of its population base to the private sector if their concerns are not addressed. Neonatal care could play a key role in the decision to receive care at BACH. Fourth, BACH is in a region that uses revised finance budgeting. This budget program provides the organization two funding streams: base operations and revised financing. The base operations funds cover salaries, facility maintenance, and basic services. These funds cannot be used for any other purpose, which limits the hospital commander's flexibility. The revised financing funds are used for services provided outside of the organization

(normally services beyond the scope of the organization's capabilities). Theoretically, savings generated in this funding stream can be reinvested into the organization, which serves as an incentive for commanders to promote cost-saving behaviors. Finally, the TRICARE Management Agency (TMA) has established contracts with civilian Managed Care Support Contractors (MCSC) in each region. These contracts place the government and the MCSC at risk. They also allow resource sharing to take place. Resource sharing allows the MCSC, through agreements with the military treatment facility (MTF), to provide personnel, equipment, equipment maintenance, and supplies necessary to enhance the capability of the MTF to provide health care to CHAMPUS beneficiaries (Joseph, 1996). Under resource sharing, the MTF saves because it does not have to pay the full TRICARE rates (previously known as CHAMPUS), and the contractor saves because treating the patient at the MTF is less costly than paying for the patient's individual medical fees in the civilian community (Montgomery, 1996). Used correctly, resource sharing creates a win-win situation for both parties.

Statement of the Problem

BACH must address the neonatal issue for two primary reasons. First, BACH pays a significant amount of money for neonatal care provided outside the organization. A broad-brush overview of BACH's purchased institutional claims by Major Diagnostic Category (MDC) for Fiscal Years (FY) 2001 and 2002 indicated that MDC 15 represented the greatest cost to the organization. MDC 15 represents "Newborns and Other Neonates with Conditions Originating in the Perinatal Period." In FY 2001, there were a total of 1,785 institutional claims made of which 232 were MDC 15 (13%). The total cost attributed to MDC 15

was $2,798,093, which represents 25.6% of the organization's total claims cost for that year. In FY 2002, there were 2,050 total institutional claims, of which 167 were MDC 15 claims (8.2%). The total cost attributed to MDC 15 was $2,115,833, or 21.9% of the organization's total claims cost for the year. Table 1 provides a summary of this information.

Table 1

Breakdown of MDC 15 Claims for FY 2001 and 2002

Fiscal Year	Total # of Institutional Claims	Total Cost of Claims	Number of MDC 15 Claims	Cost of MDC 15 Claims	% of MDC Claims	% of MDC Cost
2001	1,785	$10,931,120	232	$2,798,093	13.0%	25.6%
2002	2,050	$9,659,143	167	$2,115,833	8.2%	21.9%

Note. Data provided by Mary Arrington, OMD, as of 31 August 2002

Because BACH provides only Level I neonatal care, the amount of money spent for neonatal services indicates that an opportunity to increase capabilities may exist. Second, the organization must address the factors that may make maternity care more competitive with the community hospitals in the area. The NICU is one area in which the competition has the advantage.

Literature Review

Levels of Neonatal Care

The *Guidelines for Perinatal Care, 4th Edition*, published in 1997, outlines three levels of neonatal care: basic, specialty, and sub-specialty. Prior to 1997, the levels of neonatal care were designated I, II, and III. Although the designations changed, the responsibilities for each level changed very little. Because most organizations are more familiar with and continue to use the numerical designations, this study will do the same. It is important to understand

the recommended capabilities of each level of care. The responsibilities commensurate with each level can be found in Appendix B.

Although the levels of care have been designated, no national standard of what constitutes a NICU exists (Martin, 1999). An example of the range of capabilities found in NICUs can be found in a survey of Illinois and Wisconsin hospitals that compiled responses from 116 hospitals (23 level I, 77 level II, and 16 level III). Table 2 shows the results of the level II and level III NICUs that were surveyed.

Table 2

Demographics and Capabilities of Level II, II Plus, and III NICUs

Demographics	Level II	Level II Plus	Level III
Sample Size	n = 58	n = 19	n = 16
Average Number of deliveries	1000	1870	2500
Average NICU census	1	5	21
Capability Available			
Neonatologist	41%	68%	100%
Mechanical ventilator	3%	84%	100%
General surgery	7%	32%	81%
Cardiac surgery	2%	0%	19%
Neuro surgery	10%	16%	56%
Central line	16%	47%	88%
Parenteral hyperalimentation	36%	95%	100%
Percutaneous central venous catheters	26%	95%	100%
Extracorporeal-membrane oxygenation	0%	0%	13%
High frequency ventilation	2%	5%	100%
Nitrous Oxide	2%	0%	38%

Note. Information taken from the article "Which Nurseries Currently Care for Ventilated Neonates in Illinois and Wisconsin? Implications for the Next Generation of Perinatal Regionalization", (Meadows et al, 2002)

Genesis of Regionalized Neonatal Care

In 1975 the March of Dimes sponsored the creation of the Committee on

Perinatal Health, a multidisciplinary group of professionals representing all aspects of perinatal care. After a year of work, the committee released a publication entitled *Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Maternal and Perinatal Health Services* (Schwartz, 1996). This publication outlined a model for regionalized perinatal care and defined three levels of inpatient hospital care. The central component of the regional model was the referral of high-risk mothers and neonates to tertiary centers with neonatal intensive care units. Three factors encouraged the ready acceptance of this model. First, medicine was fee-for-service and there were government provisions for free care to the indigent. Second, the supply of sub-specialty trained neonatologists was increasing, but was not great enough to support care locally. In 1975, the American Board of Pediatrics' Sub-Board of Neonatal and Perinatal Medicine certified 355 physicians as the first neonatologists in the United States (Bucciarelli, 1994). From 1975 through 1989 there were an average of 264 new neonatologists certified each time the certification exam was given (Bucciarelli,1994), which was approximately every two years. Third, the Robert Wood Johnson Foundation sponsored a demonstration project aimed at evaluating the effectiveness of regionalized care. By the mid-1980's, several studies demonstrated that the successful referral of newborn infants and mothers was resulting in improved outcomes (Schwartz, 1996).

Current Trends in Neonatal Care

The regionalization concept is still in use today, however, there appears to be a shift towards providing more level II NICU care in community hospitals. A study of Missouri hospitals from 1982-1986 and 1990-1994 illustrates this shift.

The authors state, "The proportion of level II centers rose from 26 of 120 (21.7%) to 31 of 98 (31.6%)." (Yeast, Poskin, Stockbauer, Shaffer, 1998, p.4). This shift is most likely the result of the following factors. First, the implementation of the Prospective Payment System in the early 80's changed the way healthcare was reimbursed. The reimbursement systems sparked competition for revenue generating patients, in this case, moderately ill newborns. These infants often require close oversight, but do not consume a great deal of resources. Many organizations that previously referred moderately ill newborns to tertiary facilities began to increase their capabilities to keep them in-house. Second, the supply of neonatologists has been increasing rapidly, making them more available to local hospitals. In 1982 the Residency Review Committee of the Accreditation Council for Graduate Medical Education of the American Medical Association began certifying fellowship-training programs in neonatology. In 1991 there were 103 approved training programs with an estimated 433 fellows in training (Bucciarelli, 1994). Third, managed care placed increased pressure on organizations to save money by restricting access to some types of care or to provide the services themselves. These factors have worked in concert to create an environment in which hospitals are attempting to increase their capability to enhance their marketability and reduce their costs.

Mortality Rates and the Levels of Care

This is a complex undertaking involving many variables. One study of births in California indicated that both patient volume and level of NICU care had a significant effect on mortality (Phibbs, Bronstein, Buxton, Phibbs, 1997). The results showed that infants born in hospitals with level III NICUs and an average daily census of at least 15 patients per day had significantly lower risk-adjusted

mortality when compared to hospitals without a NICU (Phibbs, Bronstein, Buxton, Phibbs, 1997). They also showed that the risk-adjusted neonatal mortality for infants born in smaller level III NICUs (less than 15 patients per day), level II, and level II plus NICUs regardless of size, was not significantly different from hospitals without a NICU, but was significantly higher than in hospitals with a large level III NICU (Phibbs, Bronstein, Buxton, Phibbs, 1997). A study done in 2001 looked more closely at births under 2000 grams, with similar results. This study showed that the risk-adjusted mortality for Infants with a birth weight of <2000 grams is lower at a hospital with a regional NICU than at a hospital with no NICU, an intermediate NICU of any size, or a small community NICU (Cifuentes, Bronstein, Phibbs, Phibbs, Schmitt, Carlo, 2002). A third study, done in the United Kingdom in 2002, did not find any relationship between high patient volume and improved risk-adjusted outcomes (U.K Neonatal Staffing Study Group, 2002). However, the study indicated that as the number of infants per nurse increased, so did the odds of mortality in all levels of NICUs. The study did not indicate the most effective nurse to infant ratio.

Neonatal Organizational Structure

All neonatal organizational structures require a great deal of coordination between obstetrics and pediatrics. The chiefs of obstetric, pediatric, nursing, and mid-wifery services should jointly manage a basic care facility (AAP/ACOG, 1997). This administrative approach requires close coordination and unified policy statements. A specialty-care facility should have a board-certified obstetrician with special interest, experience, or certification of special competence in maternal-fetal medicine as the chief of obstetric services. A board-certified pediatrician with special experience or subspecialty certification in

neonatal-perinatal medicine should be the chief of the neonatal care unit. These two physicians should coordinate the organization's perinatal care services and serve as co-directors. A subspecialty center ideally has a director of maternal-fetal medicine that is a full-time, board-certified obstetrician with subspecialty certification in maternal-fetal medicine. The director of the regional newborn intensive care unit should be a full-time, board-certified pediatrician with subspecialty certification in neonatal-perinatal medicine (AAP/ACOG,1997).

NICU Staffing

Staffing a NICU requires an array of interdependent, multidisciplinary professionals that must work in concert (Loisel, Kovzelove, Shatz, 1994). The staffing requirements for a NICU include obstetricians, pediatricians, nurses, midwives, respiratory therapists, laboratory technicians, x-ray technicians, nutritionists, patient transport personnel, administrators, and social workers (AAP/ACOG, 1997). Other staff members to consider include: pastoral care providers, pharmacists, occupational and physical therapists, lactation consultants, and bereavement counselors (Vestal, 1999). Appendix C provides a recommended list of staff requirements from the American Academy of Pediatrics. The number and specialty type of staff required is based on the NICU's capability level, the patient mix/acuity, and the volume of patients. Although there are many types of providers involved in NICU care, nurses are perhaps the most important. Appendix D provides a breakdown of the registered nursing staff required per the number and condition of the patient being cared for. The table does not include information about additional support staff requirements. The National Association of Neonatal Nurses (NANN) drafted a supplemental position to the American Academy of Pediatrics recommendation in

Appendix D which stated, "it is the position of NANN that in no instance should these units (NICUs) be staffed by fewer than two registered nurses with training and expertise in neonatal care..." (NANN Board of Directors, 1996). The importance of trained nurses in the NICU was also reinforced in another article which stated, "Research has consistently shown that nurse practitioner care in the NICU is comparable or better to that of resident physicians in terms of knowledge, problem-solving, and communication, as well as in outcomes of morbidity, mortality, number of hospital days, and costs." (Beal, 2000, p.19).

Cost Effectiveness

Improvements in neonatal technology have significantly increased the likelihood of survival for pre-term and very-low birth weight babies. However, the cost of this care is quite high. Several studies were found that address this issue. A study for U.S. Congress indicated that "Neonatal intensive care for very low birth weight infants ranks among the most costly of all hospital admissions" and "A primary predictor of costs is birth weight: costs increase as birth weight falls." (U.S. Congress, Office of Technology Assessment, 1987, p.4). Another study also looked at the costs of very low birth weight infants. The results showed that the initial hospitalization episode for neonates with a birth weight of less than 1000g cost $58,900 and had an average length of stay of 40 days (Rowgowski, 1998). Neonates with a birth weight between 1000-1249g cost $55,800 and had an average length of stay of 48.2 days (Rowgowski, 1998). Neonates born between 1250-1499g cost $44,100 and had an average length of stay of 39.5 days (Rowgowski, 1998). A third study, conducted in the UK, indicated that economies of scale can be demonstrated in neonatal unit daily costs (O'Neill et. Al, 2000). Essentially, it indicated that organizations that saw

more patients could achieve economies of scale because of the amount and types of resources available. The study did not take nurse/patient ratios into consideration. A fourth study also confirmed the relationship between cost, birth weight, gestational age, and length of stay. This study stated, "Our data confirm numerous previous observations that hospital costs for acutely ill neonates are determined largely by LOS with birth weight and gestation being major determinants of LOS." (Adams, Moreno, Reynolds, Campbell, O'Brian, and Weismann, 1997, p.3).

Neonatal Transport

Neonatal transport is another aspect of neonatal care that must be considered. There are three types of perinatal transport between facilities:

1. Maternal transport: A pregnant woman is transferred during the antepartum or intrapartum period for special care of the mother or neonate.
2. Neonatal transport: A neonate is transferred to another facility to receive specialized or intensive support.
3. Return transport: A mother and/or her neonate are returned to the original referring hospital or a local hospital for continuing care after receiving intensive or specialized care. (AAP/ACOG, 1997)

The transport may be performed by the hospital referring the patient (one-way), or by the hospital receiving the patient (two-way). In one-way transports, the referring hospital maintains responsibility for the patient until he is accepted at the receiving facility. In two-way transports, the receiving hospital assumes responsibility for the patient at the time of pick-up. In most perinatal regions, two-way transport is preferable (Bose, 1994).

The Guidelines for Perinatal Care recommend the following components as part of a regional referral program:

a. Formal transfer agreements between participating hospitals

b. Risk identification and assessment of problems that are expected
c. Resource management
d. Adequate financial and personnel support
e. A reliable, accurate, and comprehensive communication system between participating hospitals.

The program should include a program center, a dispatching unit, a properly equipped transport vehicle, and a specialized transport team. The director of the transport program should be either a subspecialist in maternal-fetal medicine or neonatology or an obstetrician gynecologist or pediatrician with expertise in these areas (AAP/ACOG, 1997).

Purpose

The purpose of this study is to assess the feasibility of recapturing neonates with minor to moderate illnesses that are currently transferred from BACH to hospitals with Level II NICUs. The assessment will be conducted using cost, access, and quality perspectives of healthcare and will incorporate savings generated by labor/delivery services that could also be recaptured. The study will accomplish this using three approaches: 1) comparing the cost of providing these services in the civilian network to the cost of providing the services internally, 2) determining if the organization could handle the increased workload, and 3) assessing the quality of the care provided. The study will also serve as a template for other MTFs to use to conduct similar assessments.

Method and Procedures

Assessing the feasibility of recapturing neonates with minor to moderate illnesses and any associated labor/delivery services requires a comprehensive analysis addressing quality, access, and cost issues. These terms have wide

connotations that must be narrowed for the purposes of this study. Quality is defined as any medical issue related to obstetrical and neonatal care that is addressed by professional guidelines, often known as standards of care. Access is considered to be the ability to receive care in the facility at the time it is required (i.e. having labor and delivery rooms available at the time of birth.) Cost is defined as the amount of money spent (determined by summing up all institutional and non-institutional fees paid to the organization by BACH) to provide the medical services for an episode of care. Institutional costs are facility fees charged for the service provided. Non-institutional costs are physician professional, ancillary services, and medical transport fees charged for the services provided. Episodes of care for this study were 1) for the mother; the date admitted for the delivery to the date discharged, and 2) for the neonate, the date born to the date discharged. In-patient and outpatient episodes of care taking place before and after these periods were considered different episodes of care and were not included in the overall costs. Additional terminology used throughout the study include: neonate, infant, gestational age, birth weight, low birth weight, very low birth weight, term, pre-term, and very pre-term. Definitions for these terms can be found in Appendix E.

This study focused on developing BACH's obstetrical and neonatal quality, access, and cost issues by focusing on all obstetric and neonatal transfers (TRICARE Prime beneficiaries) to Level II facilities in Kentucky and Tennessee in FY 2001. Both facilities are local community hospitals that have level II nurseries staffed with neonatologists. Transfers to the Level III facility were not included in the study because a cursory look at the diagnostic-related groups of the patients transferred there indicated medical requirements well beyond BACH's

capabilities. However, back transfers from the Level III facility to the Level II facility in Tennessee were considered in the study because these infants had transitioned from the high-risk category into the moderate to low risk category. FY 2001 was selected because health care claims can be filed for payment up to one year from the date the service is rendered (TRICARE website, 2002). This ensured a complete claims data set for the analysis. Statistically, FY 2001 was also very similar to fiscal years 1997-2000 and 2002 in the number of births and transfers from BACH, making FY 2001 relevant for comparisons and a good projection of what can be expected in the future.

After establishing the parameters and definitions above, the study followed a ten-step process. The first step was to identify all obstetric and neonatal patients transferred out of the facility. This was accomplished by accessing the Labor and Delivery (L&D) logbook and the Maternal-Infant Case Manager's files. The L&D logbook provided the following information for each patient transferred: name, social security number, date, and transfer location. The case manager's files served several purposes. First, they validated the L&D's list of patients and the transfer location, which sometimes changed in transit. Second, the files included back-transfer patients (patients transferred from one outside organization to another or to BACH), which did not show up on the L&D log. Finally, the admission and discharge documentation in the files provided birth weight and gestational age information for each patient.

The second step was to identify the costs associated with each episode of care for the mother and the child. This was accomplished by using the CHAMPUS Detail Information System (CDIS) to access the Health Care Service Records (HCSR). The HCSR is an automated database of the paid health care

claims. Through CDIS it is possible to find specific claims by beneficiary. Using the patient's name, social security number and date of care, it was possible to identify every payment made for each episode of care. The following information was collected for each episode of care through this system: payment made, payment category (institutional vs. non-institutional), the DRG assigned to the care provided, the number of bed days, the dates of the stay, and the type of provider or service rendered. A spreadsheet was created to capture all this data. Each child's birth weight and gestational age from the first step was incorporated into this spreadsheet. The spreadsheet allowed the data to be sorted in several ways, which was the next step.

The third step was to compile the data into a format that could be analyzed. An example of the spreadsheet can be found in Appendix G. The patients were initially grouped by the child's gestational age, as this was a key factor in the decision to transfer the patients out. The age group breakdown was: 36 weeks of age and older, 35 weeks, 34 weeks, 33 weeks, and 32 weeks of age and younger. The age groups were sorted by DRG. A description for each DRG from 2001 was obtained from the TRICARE website. A complete listing of the FY 2001 neonatal TRICARE DRG descriptions can be found in Appendix F. The descriptions were used to identify neonates with minor to moderate illnesses that could possibly be managed by a pediatrician. Table 3 identifies the DRGs associated with minor to moderately ill neonates. Other criteria considered in the screening for neonates that could be managed by pediatricians were birth weight (grams) and length of stay (bed days). After the sorting and screening process was complete, the labor/delivery cost, the neonatal care cost, and the total cost for each episode of care was determined.

Table 3

Selected Diagnostic Related Group Descriptions

DRG	Description
391	Normal newborn
613	Neonate, birthweight 1500-1999 grams, w/o signif OR proc, with minor problems
614	Neonate, birthweight 1500-1999 grams, w/o signif OR proc, with other problems
619	Neonate, birthweight 2000-2499 grams, w/o signif OR proc, with minor problems
621	Neonate, birthweight 2000-2499 grams, w/o signif OR proc, with minor problems
628	Neonate, birthweight >2499 grams, w/o signif OR proc, with minor problems
630	Neonate, birthweight >2499 grams, w/o signif OR proc, with other problems

The fourth step was to identify the FY 2001 workload for the Labor and Delivery and Mother/Baby wards. Daily figures were used because the monthly averages did not give a true reflection of the unpredictable nature of the workload. The data was collected from two sources. The ward logbooks were the first source. The second source was the Automated Staffing Assessment Model version 2 (ASAM) report generated by the hospital's resource management division. Obtaining the information from the logbooks was important because it ensured the validity of the ASAM II figures. The information was placed on a template that shows the daily census for each ward in FY 2001. This template can be found in Appendix G.

Determining the staffing requirements is the fifth step. This step is important because it will determine if the organization can manage the mission by increasing, decreasing, or maintaining its current staffing levels. The overall savings to the organization will be impacted by the number and type of additional

staff required to support a Level II NICU. The staffing requirements were determined by comparing the staffing authorizations on BACH's TDA for FY 2003 with professional guidelines, the post renovation facility capabilities, the historical workload, and similar organizations. The TDA is a document that shows the position/duty title, experience level required, number of personnel required, and the number of personnel authorized for every unit in the organization. It dictates what the organization will be funded for. The post renovation facility capabilities indicate the maximum workload the staff would have to handle. The historical workload helps project the workload the staff will most likely have to manage. The professional guidelines outline the staff/patient ratios that should be on hand to ensure quality of care. The comparisons with other organizations are intended to develop best-in-practice staffing guidelines, which may result in changes to the TDA.

Verifying the level II NICU's equipment requirements was the sixth step. The requirements were determined during the literature review and by talking with physicians and other facilities that provide level II neonatal care. This information was compared to the list of equipment on hand. The facility's medical maintenance section was also consulted to determine the life expectancy and maintenance histories of the equipment on hand. This information will be used to determine if additional equipment costs will be required to establish a Level II NICU.

The seventh step examines the impact of the workload generated by each option on the L&D unit, the Mother/Baby unit, and NICU. This step is important because the amount of savings generated could be constrained by limitations in the facility. This step was done using basic simulation. The workload templates

for L&D unit and the NICU from step four serve as the base models. Next the workload identified in step three is applied to the base models by using the dates and length of stays for each patient. This provides a picture of the workload at BACH in 2001 had all care been provided in-house. Finally, these figures had to be analyzed using a different facility configuration because the organization initiated a renovation of the Department of Women's Health in March 2003. Following the renovation, the facility configuration will be seven Labor/Deliver/Recover rooms, two C-section rooms, and twenty post-partum beds available. The analysis involved determining how much time a women would stay in the LDR room and applying that to the model. This information is intended to show points in time when the facility might reach capacity and potentially, the number of patients that might have to be transferred out. The models would also indicate the percentage of time the staff was involved in patient care and to what level.

The eighth step was to determine each option's overall annual cost or savings to the organization. The formula used was:

Revised Financing Funds Saved	-	Staff cost	-	Recurring Equipment cost	-	Recurring Training cost	=	Potential Savings

The revised financing funds saved component of the formula is the amount of money the organization could save in its revised financing budget by providing the service internally. The staff cost is the amount of money from the operational budget required to hire on additional staff to generate savings in the revised financing budget. The equipment and training cost components of the formula are recurring costs only and do not include the cost of purchasing new equipment

or initial training costs. The purchase of new equipment and initial train-up costs were not included because they are costs that can be made up over time, given a positive annual return. The potential savings component indicates whether or not the option will provide the organization a positive annual benefit. A positive number indicates a beneficial decision, zero would indicate breakeven, and a negative number would be detrimental to the organization.

The ninth step was to identify the organization's options and consolidate the data into a matrix that would allow comparisons to be made. The options were developed based on the age groups and the pediatrician criteria established in the third step. Criteria also had to be identified to evaluate each of the options. The criteria used to evaluate each option were the potential savings, the facility and equipment usage rates, and the quality of care provided. The criteria were developed based on the data collected in previous steps.

The tenth step was to evaluate the various options using a decision matrix. Each criterion was ranked from one (best) to five (worst). The potential savings and quality of care criteria were considered more important to the organization than the other criteria and were therefore weighted higher. The potential savings criterion was considered three times more important and the quality of care was considered two times more important than the other criteria. Options with negative annual savings are automatically excluded from consideration. The criteria rankings for each option were totaled to provide an overall score for each option. The option with the lowest score would be considered the best option for the organization to pursue.

Results

Cost Analysis

Blanchfield Army Community Hospital paid $608,729 to Level II facilities for neonatal and associated labor/delivery services in FY 2001. This total consisted of $418,048 in neonatal care, generated by 70 neonates, and $190,680 in labor/delivery charges for 60 mothers. The difference between the number of mothers and the neonates can be attributed to the following reasons: 1) some mothers had twins, 2) some births did not result in viable neonates, and 3) some neonates were transferred following birth at BACH. The majority, 68.5%, of the neonatal charges could be attributed to institutional costs. The labor/delivery charges consisted of 48.4% institutional and 51.6% non-institutional charges. The Level II facility in Kentucky handled over 85% of the cases and the Level II facility in Tennessee handled the remainder. Ten of the eleven cases handled by facility in Tennessee were back-transfers from the Level III facility.

Table 4 shows that the organization spent $72,964 on care to mothers and neonates that met or exceeded BACH's 36-week transfer policy. At least two of these neonates were transferred because the organization was at capacity. The table also clearly shows that the greatest increase in neonatal costs occurred at 33 weeks and younger. The complete data set can be found in Appendix H. The pediatrician scrub criteria were then applied to the data to determine the potential impact on savings. Scrubbing the data by DRG to identify the neonates with minor to moderate illnesses (Table 3) and age reduced the potential savings by nearly $450,000. Table 5 shows the results of the scrub, which eliminated three age categories, seven DRGs (607, 612, 617, 618, 626, 627, and 636) and reduced the organization's potential savings from $608,729 to $163,064.

Table 4

Summary of FY 2001 Transfers and Expenditures to Level II Facilities

Gestational Age Category (Weeks)	Number of Births	Revised Financing Birth Expenditures	Number of Neonates	Revised Financing Neonate Expenditures	Total Expenditures by Age
≥36 weeks	13	$47,146.99	16	$25,817.88	$72,964.87
35 weeks	16	$44,160.78	17	$38,018.49	$82,179.27
34 weeks	8	$34,330.99	8	$50,432.74	$84,763.73
33 weeks	10	$31,110.72	19	$172,823.12	$203,933.84
≤32 weeks	6	$18,814.53	7	$128,216.07	$147,030.60
Unknown age	7	$15,116.67	3	$2,740.68	$17,857.35
Total	60	$190,680.68	70	$418,048.98	$608,729.66

Table 5

Pediatrician Scrub Summary of FY 2001 Transfers and Expenditures to Level II Facilities

Gestational Age Category (Weeks)	Number of Births	Revised Financing Birth Expenditures	Number of Neonates	Revised Financing Neonate Expenditures	Total Expenditures by Age
≥36 weeks	13	$47,146.99	13	$11,149.50	$58,296.49
35 weeks	16	$44,160.78	15	$20,383.91	$64,544.69
34 weeks	8	$34,330.99	5	$5,891.86	$40,222.85
Total	37	$125,638.76	33	$37,425.27	$163,064.03

Descriptions of the DRGs eliminated by the pediatrician scrub can be found in Table 6 or Appendix E. The descriptions clearly indicate the need for significantly higher levels of expertise than can be provided by pediatricians.

Table 6

Descriptions of DRGs Removed per the Pediatrician Scrub Criteria

DRG	Description
607	Neonate, birthweight 1000-1499 grams, w/o signif OR proc, discharged alive
612	Neonate, birthweight 1500-1999 grams, w/o signif OR proc, with major problems
617	Neonate, birthweight 2000-2499 grams, w/o signif OR proc, with mult major problems
618	Neonate, birthweight 2000-2499 grams, w/o signif OR proc, with major problems
626	Neonate, birthweight >2499 grams, w/o signif OR proc, with mult major problems
627	Neonate, birthweight >2499 grams, w/o signif OR proc, with major problems
636	Neonatal diagnosis, age >28 days

Neonate Analysis by Age Category

This analysis provides more detailed information (DRG, length of stay, birth weight) about the transferred neonates. The neonate analysis was developed using SPSS 10.1 and the data from appendices H and I. The SPSS charts can be found in appendices J and K.

26-32 week neonates.

There were seven neonates in the 26 to 32 week gestation age group. These neonates were assigned the following DRGs: 607, 612, 614, 618, 627, and 636. DRG 612 occurred twice, while the remainder occurred once each. The amount of bed days for this age group ranged from 14 to 40 days. DRG 607 recorded the longest stay with 40 days, followed by DRG 618 with 39 days, DRG 636 with 32 days, DRG 627 with 27 days, DRG 612 with 17-18 days, and DRG 614 with 14 days. All of the neonates in this age group were either very low birth

weight (42.9%) or low birth weight (57.1%). The pediatrician scrub eliminated six of the seven cases in this category, leaving only one case in DRG 614.

33-week neonates.

There were 19 neonates in this category. They were assigned the following DRGs: 607, 614, 618, 619, and 621. DRG 614 occurred the most frequently, 36.8% of the time, followed by DRG 621 (26.3%), and DRG 618 at 15.8%. The two remaining DRGs each occurred 10.5% of the time. The number of bed days for this group ranged from 4 to 17 days, with no clear trend or grouping of bed days within each DRG. All neonates in this category were very low (11.8%) or low birth weight (88.2%). The pediatrician scrub eliminated DRGs 607 and 618, which equates to 5 of the 19 cases in this age group.

34-Week Neonates.

There were eight 34-week gestation neonates that fell into six DRG categories. These DRG categories were 391, 617, 618, 621, 626, and 630. DRG 391 occurred the most frequently (37.5% of the time). There was one occurrence each of the remaining DRGs. The number of bed days for this group ranged from 2 to 12 days. The sample sizes for each DRG were not large enough to determine significant trends, but 3 of the 8 cases had stays of only two days. The birth weights of the neonates in this category were either low (77.8%) or normal (22.2%). The pediatrician scrub eliminated three cases in DRGs 617, 618, and 626.

35-week neonates.

The 35-week gestation neonates had a sample size of 17. These cases were assigned six DRG categories. The DRG categories were 391, 613, 617, 621, 627, and 630. DRG 630 clearly occurred the most often (10 of 17 cases or

58.8%). The next most frequent was DRG 391 which occurred 3 times. The remaining DRGs occurred once each. The number of bed days for this age group ranged from 1 to 13 days. DRG 630 ranged from 1 to 4 days, while all DRG 391 cases were 2 days. Overall, 58.9% of the cases were released after two days and 88.3% of the cases were released after four bed days. All neonates in this age category were low (40%) or normal (60%) birth weights. The pediatrician scrub removed one case each in DRGs 617 and 627.

36-42 week neonates.

There were 16 neonates in this age group. They fell into the following DRG categories: 391, 618, 627, and 630. DRG 391 occurred the most frequently (43.8%), followed by DRG 630 (37.5%), DRG 627 (12.5%), and DRG 618 (6.3%). The number of bed days for this group ranged from 1 to 7 days. DRG 391 ranged from 1 to 3 days, while DRG 630 ranged from 2 to 5 days. Overall, 56.3% of the cases were released after two days, and 81.4% of the cases were released after four days. All neonates in this age category were low (14.3%) or normal (85.7%) birth weight. The pediatrician scrub eliminated three cases from DRG's 618 and 627.

FY 2001 Workload

The L&D Unit delivered 1,685 babies in FY 2001, of which 280 (16.3%) were by cesarean section. The average daily patient census for the year was 4.66 patients per day. Looking at the average daily patient census by month indicated a range of 3.97 to 5.47 patients per day. BACH's yearly L&D workload data can be found in Appendix L.

The Mother/Baby Unit workload was less certain because the unit did not have a patient census logbook available. The results presented come from two

sources: 1) the ASAM workload report and 2) researcher projection. The ASAM workload report indicated the Mother/Baby unit had an average daily census by month of 4.7 patients per day. The researcher did not believe that this average could be accurate given the unit's 48-hour newborn observation policy. Taking this policy into consideration, the researcher projected an average daily census by month of 9.21 patients per day based on the L&D census.

The NICU had an average daily patient census by month of 0.73 patients per day. The number of neonatal inpatients in this unit ranged from 0 to 4 per day, with no patients in the unit 44.3% of the time.

Staffing

The L&D Unit has 28 positions authorized on the TDA, of which, 13 are registered nurses. The unit actually has 17 registered nurses on hand (one being the head nurse) and 34 total personnel. Table 7 shows the relationship between the registered nurses on hand, the number required to support the workload, and the number required to be in compliance with the AAP and the ACOG guidelines at maximum capacity. The FY 2001 data, including all recaptures, indicated the unit operated at maximum capacity only 10% of the time. The results indicate the unit is adequately staffed to support the anticipated workload.

The Mother/Baby Unit and the NICU are staffed from the same pool of nurses and support staff. This pool consists of 39 authorized positions of which 18 (including the head nurse) are registered nurses. The unit actually has 43 personnel available, of which 20 are registered nurses. Table 8 shows the requirements for registered nurses in this unit. The FY 2001 data, including all recaptures, indicated that the Mother/Baby unit would never have been at

capacity and the NICU would have hit capacity on 6.53% of the time. The table indicates that this unit is adequately staffed to handle the workload for both the post-partum and special care nursery, even at maximum capacity.

Table 7

L&D Unit Staffing Requirements using FY 2001 Data, the Renovation Configuration, and All Recaptures

100% Capacity Staffing (Registered Nurses)				
Number and Type of Rooms	AAP/ACOG Guidelines (Nurse: Patient)	Staff Required	Total per Shift	Four Shifts (24/7/365 Coverage)
7 LDRs	1:2	3.5	5.5	22
2 C-section	1:1	2		
Workload Staffing (Registered Nurses)				
Type Delivery	Daily Delivery Average	Staff Required	Total per Shift	Four Shifts (24/7/365 Coverage)
Normal (80%)	4	2	3	12
C-Section (20%)	1	1		
BACH Staffing (Registered Nurses)				
Authorized	13 + Head Nurse			
On-Hand	16 + Head Nurse			

Although the nurse staffing levels appear to be adequate, the command must take medical expertise into consideration. The organization's nurses and pediatricians do not feel comfortable dealing with neonates born too early or with certain types of illnesses. Taking this into consideration, the staffing cost estimate should consider the cost of a neonatologist and neonatal nurse practitioners. The literature review indicated that neonatologists working in this region average $198,000-$210,000 per year, while neonatal nurse practitioners average approximately $63,000 per year (Salary Wizard, 2003).

Table 8

Mother/Baby Unit Staffing Requirements Using FY 2001 Data, Renovation Configuration, and All Neonatal Recaptures

100% Capacity Staffing (Registered Nurses)				
Number and Type of Rooms	AAP/ACOG Guidelines (Nurse: Patient)	Staff Required	Total per Shift	Four Shifts (24/7/365 Coverage)
20 Post Partum	1:4	5	6.3	25.2
4 Special Care	1:3	1.3		

Workload Staffing (Registered Nurses)				
Type Care	Daily Delivery Average	Staff Required	Total per Shift	Four Shifts (24/7/365 Coverage)
Couplet	9.64	1.61	2.61	10.43
Neonate	2.49	1		

BACH Staffing (Registered Nurses)	
Authorized	14 + Head Nurse
On-Hand	19 + Head Nurse

Equipment

Research conducted in an earlier study by a BACH pediatrician concluded that the facility had equipment required for a level II NICU on hand. Information collected from other facilities indicated that the required equipment is on hand. However, the organization should invest in three or four more ventilators to have the capability to support each bassinet. The medical maintenance section within the organization verified that the equipment is operational and would not surpass their life expectancy for at least two years. The recurring equipment costs are therefore negligible.

Training

Discussions with the Department of Women's Health's Head Nurse indicate a definite need for increased NICU training. The department currently sends

some of its nurses to a level III facility for one to two week rotations. The training is free of charge, but the organization incurs approximately $500 in travel and per diem costs for each individual. The department has also sent up to three personnel each year to the Naval Medical Center in Bethesda, Maryland for two-weeks of hands-on training. The training is free of charge, but the organization incurs approximately $2,500 in travel, hotel, and per diem charges per individual. Thus, the organization can expect to spend from $2,000 to $10,000 to establish a baseline NICU competency level. To obtain a higher level of proficiency, the organization should look for longer hands-on training, which could run $4,000 - $20,000 depending on the training site selected. Once the baseline competencies are established and the increased workload sustains the new competencies, the recurring training costs will run approximately $10,000 per year.

Facility Capabilities

Superimposing the nine-room configuration (7-LDR, 2-C-Section) on the L&D FY 2001 daily delivery template indicates that the unit would have operated at 90-100% capacity 21.98% of the time and exceeded capacity only 0.82% of the time. The Mother/Baby Unit would have operated at 90-100% capacity 0.82% of the time and exceeded capacity only one time. The special care nursery also had capacity available. There were no beds occupied 51.93% of the time in FY 2001. However, the unit would have been at capacity 6.53% of the time and would have exceeded its capacity only twice (0.59% of the time). The workload templates can be found in Appendix M.

Impact of Additional Workload

Adding all the level II neonatal recaptures to the FY 2001 workload

templates demonstrated that the L&D and Mother/Baby units could have handled the increased workload with minimal problems, while the NICU would have had to turn away some patients. The workload templates can be found in Appendix N.

The increased workload estimate for L&D indicates the unit would have operated at 90-100% of its capacity 21.72% of the time, possibly exceeded capacity 11.52% of the time based on patient mix and timing, and definitely would have exceeded capacity only 1.65% of the time. The daily average for deliveries with the additional workload is estimated at 4.83 per day compared to 4.66 per day without the additional workload.

The Mother/Baby unit was similar to L&D. The increased workload would have caused the unit to operate at 90-99% of capacity only 1.65% of the time. The unit would have also hit maximum capacity only 0.55% of the time and exceeded capacity 0.27% of the time. The daily average census including this workload is estimated at 9.64 per day compared to 9.21 per day without the additional workload.

The NICU faced more facility constraints. The increased workload estimate indicated that the unit would have exceeded capacity 27% of the time. However, the staff would have been idle only 8.7% of the time and at 100% of capacity 48.12% of the time. This is a drastic improvement from the 51.93% idle time experienced in FY 2001.

Cost/Benefit Analysis

Table 9 consolidates the options and criteria considered into a matrix that allows comparisons. Options 1 and 5 show negative savings potential, while the remaining options indicate positive returns. Option 5 has the highest workload

averages of all the options and option 1 has the worst. The remaining options have a mix of positive and negative attributes. The matrix indicates positive and negative aspects of each option, but does not clearly identify the best course of action.

Table 9

Matrix of the Options and Criteria Considered

Option	1	2	3	4	5
Description	Status Quo	Recapture 36 week Back Transfers	Level II NICU: Pediatrician Keep ≥35 week	Level II NICU: Pediatrician Keep ≥34 week	Level II NICU: Neonatologist Keep ≥32 week
Revised Financing Dollars Saved	$0	$10,318	$64,544	$104,766	$608,729
Staff Cost	$0	$0	$0	$63,000	$452,000
Recurring Training Cost	$0	$0	$10,000	$20,000	$10,000
Estimated loss due to Facility Constraints	$0	$0	$0	$3,143	$164,357
Total Estimated Savings	-$608,729	$10,318	$54,544	$18,623	-$17,628
L&D Daily Average	4.66	4.66	4.70	4.73	4.83
M/B Daily Average	9.21	9.21	9.29	9.33	9.64
NICU % Idle Time	52%	51%	36%	34%	9%
Quality of Care	Good	Good	Average	Low	Good
Risk of Negative Outcome	Low	Low	Medium	High	Medium

Table 10 shows the decision matrix that identifies option 3 as the best course of action.

Table 10

Decision Matrix

Option	Description	Estimated Savings	L&D Daily Average	M/B Daily Average	SCN % Idle Time	Quality of Care	Risk of Negative Outcome	Total
1	Status Quo	5	5	5	5	1	1	33
2	Recapture 36 week Back Transfers	4	5	5	4	1	1	29
3	Level II NICU: pediatricians: Keep ≥35 week	1	3	3	3	3	3	**21**
4	Level II NICU: pediatricians: Keep ≥34 week	2	2	2	2	5	5	27
5	Level II NICU: neonatologist: Keep ≥32 week	5	1	1	1	1	3	23

Although options 1 and 5 have scores indicated, they were not considered because they have negative savings potential.

DISCUSSION

The initial cost analysis using MDC 15 indicated that BACH spent approximately $2.7 million on neonatal care in FY 2001. This figure did not include the costs of the associated labor/delivery care that often accompany neonatal care because they could not be linked to the neonatal care expenditures. This indicated the potential for even more savings. However, after conducting a screen for neonates requiring level II NICU capability, the total expenditures amounted to approximately $608,000 including labor/delivery costs.

After identifying the organization's capabilities and the costs of increasing those capabilities, it was determined that the maximum savings that could be generated was approximately $54,544 per year. The savings are contingent on the organization's ability to use resources already on hand. The savings quickly dissipates if the organization has to hire additional nursing staff.

The estimated savings outlined in Table 9 indicate that options 2 through 4 are preferable to options 1 and 5, which have negative savings potential. However, the projected savings generated by each option is not the only criteria considered in the decision to try and recapture these neonates. The impact on the staff, equipment, and facility usage rates, the quality of care and the risk of negative outcomes were also important considerations. These factors are important to consider because they tie directly to staff buy-in. The quality of care and the risk of negative outcomes also play a key role in developing patients' perceptions of the organization.

Option 2, recapture 36-week back transfers, offers a small positive savings and could be implemented immediately with minimal organizational effort. The quality of care provided by this option is good and the risks low. Strong case management is the key to success for this option. However, this option fails to generate greater staff efficiency and facility/equipment utilization in the L&D, Mother/Baby and NICU.

Option 3, operate as a Level II NICU using pediatricians and retaining 35-week neonates, has good savings potential, increases staff and facility usage, and reduces the amount of NICU idle time. The quality of care rating drops to average because 35-week neonates beyond the organization's capabilities would be transferred after birth, rather than "in utero". This option requires more staff training because the pediatricians and nurses would have to deal with higher risk patients. The organization would assume more risk of negative outcomes with this option than the previous two.

Option 4, operate a Level II NICU using pediatricians and retaining 34-week neonates, also has positive savings potential ($18,623). This option also

increases the staff and facility usage rate in the L&D, Mother/Baby, and NICU. It also decreases the staff idle time in the NICU. However, the quality of care criteria receives a poor rating because care for neonates of this gestational age is usually reserved for neonatologists or pediatricians supervised by a neonatologist and because sick neonates would be transferred after birth. These factors significantly raise the risk of negative outcomes.

Option 5, operate as a Level II NICU using a neonatologist and neonatal nurse practitioners to retain 32-week and older neonates was rated as the second best option on the decision matrix, even though it had negative savings potential. This option achieves the highest staff, facility and equipment usage rates of all the options, without overwhelming the system. The workload lowered the NICU's idle time rate to 9%; the lowest of all options considered. The organization would meet the standards of care outlined in the Guidelines for Perinatal Care, 4th Ed. However, the organization still assumes a medium amount of risk because of the fragile nature of the 32-week neonates. This option could become the organization's best choice once the staff achieves a greater competency level. This comfort level could allow the organization to hire a neonatologist part-time instead of full-time, which would create positive savings for the organization. An additional benefit of hiring a neonatologist might be to recapture additional outpatient pediatric workload.

RECOMMENDATION

The organization should pursue option 3 following the completion of the Department of Women's Health renovation project. This option has strong savings potential and benefits the organization by increasing workload in multiple areas without overwhelming them. This option maintains the organization's

commitment to quality care and provides its health care providers with work that is more challenging and meaningful. It also allows the organization to assess the impact of recapturing the neonates with less financial risk to itself, while also providing the staff an opportunity to develop their competencies and standard operating procedures. The latter are important aspects of bringing about the cultural change that will be required if the organization decides to increase the NICU's capabilities even further.

The Department of Women's Health should use the renovation period to identify and train the RNs and LPNs who will staff the NICU. The department leadership should focus on the civilian nurses to mitigate the transitional nature of the military nurses. The Deputy Commander for Clinical Services should identify a pediatrician to head the NICU services and also implement a training plan for the pediatricians on staff. The hospital commander should initiate a NICU steering committee to develop the organization's plan. The group members should represent the following areas: nursing, obstetrics, pediatrics, radiology, pharmacy, laboratory, pastoral care, social work services, case management, anesthesiology, and patient administration. The command should also ensure that beneficiaries are informed of the new service through a marketing campaign.

Recommendations for Further Study

The study should be expanded to determine how much revenue a neonatologist generates from providing outpatient care. The additional revenue might allow option 5 to break even, which would make it the best option for the organization to pursue. BACH should also establish metrics and processes for capturing the NICU workload data to identify additional costs that may impact the

cost effectiveness. Particular attention should be paid to the cost of the ancillary services and the amount of time the pediatricians have to spend providing NICU care. BACH should also monitor the impact of the new capability on the revised financing invoice. If the service matures as expected, the organization should examine the feasibility of hiring a neonatologist and further expanding the NICU's capabilities. The organization should also consider expanding this study to include all neonates transferred to the level III facility. The acuity for each of these neonates should be confirmed to validate that BACH is transferring only the most critical neonates to the level III facility.

Conclusion

This study addressed the feasibility of recapturing neonates with minor to moderate illnesses in a community hospital. Although the trend in the private sector indicates a shift toward providing level II NICU care, there are many factors to consider before implementing this service. Neonatal intensive care is a complex service requiring close coordination between many departments. It is also a very visible service. Patient perspectives can quickly change from good to negative with one poor outcome. Organizations must mitigate the risk of poor outcomes through strong staff competency and reliable equipment. Every organization should conduct a thorough cost/benefit analysis to determine if providing this service is feasible.

APPENDIX A – Scope of Practice Guidelines

SCOPE OF PRACTICE	
Invasive Procedures	**Non-Invasive Procedures**
Arterial and venous blood draws	Standard infant care (weighing, feeding, vital signs, monitoring, changing diapers)
Heel sticks	Phototherapy
Peripheral IV access	EKGs
Umbilical artery and umbilical vein placement	X-rays
Endotracheal intubation	Transport for CT/US/MRIs
Endotracheal suctioning	
Nasogastric/orogastric tube	
Lumbar punctures	
Intraveneous medication administration	
Blood transfusions/exchange transfusions	
Needle thoracentesis	
Chest tube placement	

Taken from the BACH Special Care Nursery SOP dated 12 November 2001

Appendix B - Functions of the Levels of Care

Functions of the Levels of Care per the Guidelines for Perinatal Care, 4th Ed.

Basic Care (Previously Level I)

- Surveillance and care of all patients admitted to the obstetric service with an established triage system for identifying high-risk patients who should be transferred to a facility that provides specialty (previously level II) or subspecialty (previously level III) care prior to delivery
- Proper detection and supportive care of unanticipated maternal-fetal problems that occur during labor and delivery
- Capability to perform cesarean delivery within 30 minutes of the decision to do so
- Availability of blood and fresh-frozen plasma for transfusion
- Availability of anesthesia, radiology, ultrasound, and laboratory services on a 24-hour basis
- Care of post-partum conditions
- Evaluation of the condition of healthy neonates and continuing care of these neonates until their discharge
- Resuscitation and stabilization of all neonates born in the hospital
- Stabilization of unexpectedly small or ill neonates before transfer to a specialty (previously level II) or subspecialty (previously level III) facility
- Consultation and transfer arrangements
- Nursery care
- Parent-sibling-neonate visitation
- Data collection and retrieval

Many basic care facilities provide care for convalescing babies who have been returned from specialty and subspecialty facilities.

Specialty Care (previously Level II)

- Performance of basic care services as described above

Appendix B - Continued

- Care of high-risk mothers and fetuses, both admitted and transferred from other facilities
- Stabilization of ill neonates prior to transfer
- Care of pre-term infants with a birth weight of 1,500 grams or more

Specialty care should be reserved for stable or moderately ill newborns with problems that are expected to resolve rapidly. These situations usually occur as a result of preterm labor or preterm premature rupture of membranes at 32 weeks of gestation or later. Preterm labor and impending delivery at less than 32 weeks of gestation warrant maternal transfer to a subspecialty center. Infants with weights of less than 1,500 grams and born at less than 32 weeks of gestational age should usually be transferred to a subspecialty center. Mothers with complex medical or surgical problems requiring early intervention should be transferred to a subspecialty center.

Subspecialty Care (previously level III)

- Provision of comprehensive perinatal care services for both admitted and transferred mothers and neonates of all risk categories, including basic and specialty care as described above
- Research and educational support
- Analysis and evaluation of regional data, including those on complications
- Initial evaluation of new high-risk technologies

At less than 32 weeks of gestation, subspecialty care usually requires expertise in neonatal and maternal-fetal medicine.

Appendix C – Neonatal Staffing Requirements

BASELINE NEONATAL STAFFING REQUIREMENTS

BASIC CARE FACILITY

a. Qualified physician or certified nurse midwife at all deliveries
b. Anesthesia available 24 hours
c. Staff capable of performing neonatal resuscitation

SPECIALTY CARE FACILITY

a. General pediatrician
b. Neonatologist (for high risk cases)
c. Advance Practice Nurses (work under neonatologist)
d. Anesthesia available 24 hours
e. Radiologist available 24 hours
f. Clinical pathologist available 24 hours
g. Specialized medical and surgical consultation should be readily available

SUBSPECIALTY CARE FACILITY

a. Maternal-fetal medicine specialists available 24 hours
b. Neonatologists available 24 hours
c. Personnel qualified to handle obstetric or neonatal emergencies available in-house
e. Pediatric subspecialists in cardiology, neurology, hematology, genetics should be available for consultation
f. Pediatric surgeons and surgical subspecialists
g. Anesthesia available 24 hours
h. Radiologist available 24 hours
i. Clinical pathologist available 24 hours

Note. Taken from the Guidelines for Perinatal Care, 4th Edition

Appendix D – Recommended Nurse to Patient Ratios

Recommended Nurse/Patient Ratios for Perinatal Care Services

Nurse/Patient Ratio	Care Provided
Intrapartum	
1:2	Patients in labor
1:1	Patients in second stage of labor
1:1	Patients with medical or obstetric complications
1:2	Oxytocin induction or augmentation of labor
1:1	Coverage for initiating epidural anesthesia
1:1	Circulation for cesarean delivery
Antepartum/ Postpartum	
1:6	Antepartum/postpartum patients without complication
1:2	Patients in postoperative recovery
1:3	Antepartum/postpartum patients with complications but in stable condition
1:4	Recently born infants and those requiring close observation
Newborns	
1:6-8	Newborns requiring only routine care (nursery setting)
1:3-4	Normal mother-newborn couplet care
1:3-4	Newborns requiring continuing care
1:2-3	Newborns requiring intermediate care
1:1-2	Newborns requiring intensive care
1:1 or greater	Unstable newborns requiring complex critical care

Note. Taken from the Guidelines for Perinatal Care, 4th Edition

APPENDIX E - Definitions

Neonate-birth to 28 days of age

Infant-birth to one year of age

Gestational age-the number of weeks that have elapsed between the first day of the last normal menstrual period (not the presumed time of conception) and the date of delivery, irrespective of whether the gestation results in a live birth or fetal death.

Birth weight-the weight of a neonate determined immediately after delivery or as soon thereafter as feasible.

Low birth weight-any neonate, regardless of gestational age, whose weight at birth is less than 2,500g.

Very low birth weight-Any neonate, regardless of gestational age, whose weight at birth is less than 1,500g.

Term-period from the start of the 38th week through the end of the 42nd week

Pre-term-period prior to the end of the 37th week

Very pre-term-period prior to the end of the 32nd week

APPENDIX F – FY 2001 TRICARE Diagnostic Related Groups and Descriptions

FY 2001 (2000/10/01 to 2001/09/30)	
DRG Number	Description
370	CESAREAN SECTION W CC
371	CESAREAN SECTION W/O CC
372	VAGINAL DELIVERY W COMPLICATING DIAGNOSES
373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
374	VAGINAL DELIVERY W STERILIZATION &/OR D&C
375	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C
376	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE
377	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE
378	ECTOPIC PREGNANCY
379	THREATENED ABORTION
380	ABORTION W/O D&C
381	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY
382	FALSE LABOR
383	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS
384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS
385	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY
386	EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE
387	PREMATURITY W MAJOR PROBLEMS
388	PREMATURITY W/O MAJOR PROBLEMS
389	FULL TERM NEONATE W MAJOR PROBLEMS
390	NEONATE W OTHER SIGNIFICANT PROBLEMS
391	NORMAL NEWBORN
600	NEONATE, DIED W/IN ONE DAY OF BIRTH
601	NEONATE, TRANSFERRED <5 DAYS OLD
602	NEONATE, BIRTHWT <750G, DISCHARGED ALIVE
603	NEONATE, BIRTHWT <750G, DIED
604	NEONATE, BIRTHWT 750-999G, DISCHARGED ALIVE
605	NEONATE, BIRTHWT 750-999G, DIED
606	NEONATE, BIRTHWT 1000-1499G, W SIGNIF OR PROC, DISCHARGED ALIVE
607	NEONATE, BIRTHWT 1000-1499G, W/O SIGNIF OR PROC, DISCHARGED ALIV
608	NEONATE, BIRTHWT 1000-1499G, DIED
609	NEONATE, BIRTHWT 1500-1999G, W SIGNIF OR PROC, W MULT MAJOR PROB
610	NEONATE, BIRTHWT 1500-1999G, W SIGNIF OR PROC, W/O MULT MAJOR PR
611	NEONATE, BIRTHWT 1500-1999G, W/O SIGNIF OR PROC, W MULT MAJOR PR
612	NEONATE, BIRTHWT 1500-1999G, W/O SIGNIF OR PROC, W MAJOR PROB
613	NEONATE, BIRTHWT 1500-1999G, W/O SIGNIF OR PROC, W MINOR PROB
614	NEONATE, BIRTHWT 1500-1999G, W/O SIGNIF OR PROC, W OTHER PROB
615	NEONATE, BIRTHWT 2000-2499G, W SIGNIF OR PROC, W MULT MAJOR PROB
616	NEONATE, BIRTHWT 2000-2499G, W SIGNIF OR PROC, W/O MULT MAJOR PR
617	NEONATE, BIRTHWT 2000-2499G, W/O SIGNIF OR PROC, W MULT MAJOR PR
618	NEONATE, BIRTHWT 2000-2499G, W/O SIGNIF OR PROC, W MAJOR PROB
619	NEONATE, BIRTHWT 2000-2499G, W/O SIGNIF OR PROC, W MINOR PROB
620	NO LONGER VALID
621	NEONATE, BIRTHWT 2000-2499G, W/O SIGNIF OR PROC, W OTHER PROB
622	NEONATE, BIRTHWT >2499G, W SIGNIF OR PROC, W MULT MAJOR PROB
623	NEONATE, BIRTHWT >2499G, W SIGNIF OR PROC, W/O MULT MAJOR PROB
624	NEONATE, BIRTHWT >2499G, W MINOR ABDOM PROCEDURE
625	NO LONGER VALID
626	NEONATE, BIRTHWT >2499G, W/O SIGNIF OR PROC, W MULT MAJOR PROB
627	NEONATE, BIRTHWT >2499G, W/O SIGNIF OR PROC, W MAJOR PROB
628	NEONATE, BIRTHWT >2499G, W/O SIGNIF OR PROC, W MINOR PROB
629	NO LONGER VALID
630	NEONATE, BIRTHWT >2499G, W/O SIGNIF OR PROC, W OTHER PROB
631	BPD AND OTH CHRONIC RESPIRATORY DISEASES ARISING IN PERINATAL PE
632	OTHER RESPIRATORY PROBLEMS AFTER BIRTH
633	MULTIPLE, OTHER AND UNSPECIFIED CONGENITAL ANOMALIES, W CC
634	MULTIPLE, OTHER AND UNSPECIFIED CONGENITAL ANOMALIES, W/O CC
635	NEONATAL AFTERCARE FOR WEIGHT GAIN
636	NEONATAL DIAGNOSIS, AGE > 28 DAYS

Appendix G – Data Collection Templates

Data collection template

Title																		
					Mother's Information				Children Information									
ID	Date of Care	SSN	NAME	HOSPITAL	DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	BW (grams)	Gestation Age (Weeks)	DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	Total	Child Start Care	Child End Care

Daily Census templates

Title																															
Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00																																
Nov-00																																
Dec-00																																
Jan-01																																
Feb-01																																
Mar-01																																
Apr-01																																
May-01																																
Jun-01																																
Jul-01																																
Aug-01																																
Sep-01																																

* Numbers represent the number of occupied bassients in the special care nursery. There are five bassinets available, however only four are used because one is left available for emergencies.

Indicates all 4 beds available — of the time the staff is not providing patient care
Indicates 1 to 3 beds available — of the time the unit has capacity available
Indicates unit is at capacity — of the time the unit is at capacity
Indicates unit has exceeded capacity — of the time the unit's capacity is exceeded

Daily Average

APPENDIX H – FY 2001 Neonatal Revised Financing Expenditures

ALL Fiscal Year 2001 Transfers from Blanchfield to Level II Facilities

			Mother's Information					Children Information									
ID	Date of Care	Hospital	DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	BW (grams)	Gestation Age (Weeks)		DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	Total	Child Start Care	Child End Care
			1 373	3	$1,164.30	$1,053.22	1,480	29	1	607	40	$19,142.04	$11,561.86	$32,921.42		
			1 371	4	$2,621.32	$531.27	1,530	31	1	612	17	$11,551.78	$4,400.01	$19,104.38		
			1 373	3	$1,164.31	$1,780.97	1,670	32	1	612	18	$11,169.63	$5,533.37	$19,648.28		
			1 373	3	$1,131.31	$1,204.79	1,640	32	1	614	14	$4,233.13	$4,264.71	$10,833.94		
			1 373	2	$1,164.31	$1,450.75	1,360	29	1	618	39	$10,522.98	$12,507.70	$25,645.74		
			1 370	6	2780.19	2767.79	1,800	31	1	627	27	$11,290.63	$7,426.84	$24,265.45		
			373				990	26	1	636	32	$11,120.77	$3,490.62	$14,611.39		
			6	3.50	$10,025.74	$8,788.79			7		26.71	$79,030.96	$49,185.11	$147,030.60		
					$18,814.53							$128,216.07		$147,030.60		
			370				1,485	33	1	607	16	$19,142.04	$1,996.34	$21,138.38		
							1,175	33	1	607	5	$19,508.76	$706.75	$20,215.51		
			373				1,690	33	1	614	10	$4,437.55	$886.96	$5,324.51		
			1 373	1	$1,139.31	$1,643.74	1,980	33	1	614	4	$4,343.13	$1,769.59	$8,895.77		
			1 372	5	$1,497.70	$2,123.54	2,005	33	1	614	17	$11,180.63	$5,219.31	$24,131.12		
							2,200	33	1	614	7	$3,454.13	$655.81	$4,109.94		
			1 371	3	$2,249.38	$1,509.07	1,850	33	1	614	15	$4,437.55	$4,204.42	$27,961.03		
								33	1	614	15	$11,551.78	$4,008.83			
							1,968	33	1	614	16	$4,437.55	$4,543.61	$8,981.16		
			1 373	3	$1,131.31	$2,142.11	2,310	33	1	618	9	$6,280.50	$3,550.84	$13,104.76		
			1 373	2	$1,164.31	$1,893.09	2,230	33	1	618	10	$6,346.50	$3,240.98	$12,644.88		
			1 372	4	$1,582.45	$1,998.74	2,420	33	1	618	7	$6,468.08	$2,447.79	$12,497.06		
			1 370	5	$2,791.19	$1,172.48	2,180	33	1	619	7	$3,767.92	$2,712.55	$19,114.10		
			1 372	5	$1,552.70	$2,005.20	2,005	33	1	619	13	$3,701.92	$4,968.04	$12,227.86		
							2,029	33	1	621	13	$1,283.01	$897.98	$2,180.99		
			371				2,300	33	1	621	5	$1,307.59	$403.01	$1,710.60		
								33	1	621	5	$1,258.01	$1,986.79			
			1 373	5	$1,164.31	$760.04	1,891	33	1	621	17	$6,192.50	$5,459.31			
							1,800	33	1	621	11	$1,123.01	$2,942.05	$5,989.41		
			1 379	2	$1,522.97	$67.08		33	0							
			10	3.50	$15,795.63	$15,315.09			19		10.63	$120,222.16	$52,600.96	$1,590.05		
					$31,110.72							$172,823.12		$201,817.13		
			1 374	3	$1,893.92	$2,013.82	2,350	34	1	391	2	$308.22	$332.46	$203,933.84		
			1 379	5	$1,494.34	$4,063.54	2,270	34	1	391	2	$308.22	$258.00	$4,548.42		
			1 371	4	$2,207.10	$2,087.64	2,530	34	1	391	4	$308.22	$318.60	$6,124.10		
			370				2,192	34	1	617	7	$9,971.19	$684.33	$4,921.56		
			1 373	3	$1,131.31	$1,907.60	2,190	34	1	618	6	$6,313.50	$2,303.51	$10,655.52		
			1 373	3	$1,164.31	$1,091.64	2,315	34	1	621	2	$1,283.01	$332.46	$11,655.92		
			1 370	3	$2,813.19	$2,275.16	3,670	34	1	630	3	$530.31	$1,628.36	$3,871.42		
			1 371	3	$2,207.10	$3,674.47	2,380	34	0				$284.00	$7,247.02		
			1 371	4	$2,249.38	$2,056.47	1,840	34	1	626	12	$22,123.77	$3,144.58	$6,165.57		
			8	4	$15,160.65	$19,170.34			8		5	$41,146.44	$9,286.30	$29,574.20		
					$34,330.99							$50,432.74		$84,763.73		
			373	2			2,430	35	1	391	2	$308.22	$258.90	$84,763.73		
			1 373	3	$1,164.31	$1,136.27		35	1	391	2	$308.22	$264.08	$567.12		
			1 374	2	$1,901.92	$2,099.60		35	1	391	2	$422.22	$0.00	$2,872.88		
			1 371	4	$2,207.10	$2,761.31	1,980	35	1	613	6	$7,519.74	$1,773.05	$4,423.74		
			1 373	2	$582.16	$1,245.07	2,420	35	1	617	13	$9,584.19	$4,696.27	$14,261.20		
			1 373	2	$1,139.31	$0.00	2,423	35	1	621	3	$1,283.01	$333.67	$16,107.69		
			1 374	3	$1,926.92	$2,525.17	2,480	35	1	627	2	$2,835.43	$518.69	$2,755.99		
			1 373	3	$1,131.31	$1,550.35	3,218	35	1	630	2	$530.31	$332.46	$7,806.21		
			1 373	2	$1,139.31	$71.32	2,680	35	1	630	4	$505.31	$244.59	$3,544.43		
			1 373	1	$0.00	$998.88	3,347	35	1	630	1	$441.93	$295.12	$1,960.53		
			1 370	3	$2,846.19	$1,639.54	3,023	35	1	630	3	$530.31	$207.25	$1,735.93		
			1 373	2	$1,139.31	$1,415.01	2,780	35	1	630	2	$530.31	$308.46	$5,223.29		
			1 373	2	$0.00	$1,567.63	2,580	35	1	630	4	$505.31	$303.30	$3,393.09		
			1 374	3	$963.46	$1,150.30	2,380	35	1	630	3	$530.31	$284.29	$2,376.24		
			1 373	2	$1,182.62	$1,525.46	3,000	35	1	630	2	$0.00	$473.09	$2,928.36		
			1 373	2	$1,186.62	$1,675.00	2,667	35	1	630	2	$540.47	$430.78	$3,181.17		
			1 373	2	$1,727.09	$2,562.24	2,700	35	1	630	1	$540.47	$378.73	$3,832.87		
			16	2.35	$20,237.63	$23,923.15			17		3.18	$26,915.76	$11,102.73	$5,208.53		
					$44,160.78							$38,018.49		$82,179.27		
			1 371	2	$2,207.10	$876.93	2,810	37	1	391	2	$308.22	$517.01	$82,179.27		
			1 373	2	$1,139.31	$2,283.20	3,830	38	1	391	2	$308.22	$421.45	$3,909.26		
			1 373	3	$1,164.31	$1,351.78	3,210	38	1	391	3	$308.22	$282.94	$4,152.18		
							3,580	39	1	391	1	$308.22	$396.47	$3,107.25		
			1 373	2	$1,164.31	$1,930.71	3,630	40	1	391	2	$308.22	$333.75	$704.69		
			1 370	7	$2,846.19	$4,118.00	3,730	40	1	391	3	$308.22	$0.00	$3,736.99		
														$7,272.41		

APPENDIX I – Scrubbed FY 2001 Neonatal Revised Financing Expenditures

Pediatrician Scrub of Fiscal Year 2001 Transfers from Blanchfield to Level II Facilities

				Mother's Information				Children Information							
ID	Date of Care	Hospital		DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	BW (grams)	Gestation Age (Weeks)		DRG	Bed Days	Amount Govt Paid (Institutional)	Govt Paid (Non-Institutional)	Total	Child Start Care	Child End Care
			1	373	3	$1,164.30	$1,053.22	1,480	29		607				$2,217.52		
			1	371	4	$2,621.32	$531.27	1,530	31		612				$3,152.59		
			1	373	3	$1,164.31	$1,780.97	1,670	32		612				$2,945.28		
			1	373	3	$1,131.31	$1,204.79	1,640	32	1	614	14	$4,233.13	$4,264.71	$10,833.94		
			1	373	2	$1,164.31	$1,450.75	1,360	29		618				$2,615.06		
			1	370	6	2780.19	2767.79	1,800	31		627				$5,547.98		
				373				990	26		636				$0.00		
			6		3.50	$10,025.74	$8,788.79			1		14.00	$4,233.13	$4,264.71	$27,312.37		
						$18,814.53							$8,497.84		$27,312.37		
				370				1,485	33		607				$0.00		
								1,175	33		607				$0.00		
				373				1,690	33	1	614	10	$4,437.55	$886.96	$5,324.51		
			1	373	1	$1,139.31	$1,643.74	1,980	33	1	614	4	$4,343.13	$1,769.59	$8,895.77		
			1	372	5	$1,497.70	$2,123.54	2,005	33	1	614	17	$11,180.63	$5,219.31	$24,131.12		
								2,200	33	1	614	7	$3,454.13	$655.81	$4,109.94		
			1	371	3	$2,249.38	$1,509.07	1,850	33	1	614	15	$4,437.55	$4,204.42	$27,961.03		
									33	1	614	15	$11,551.78	$4,008.83			
								1,966	33	1	614	16	$4,437.55	$4,543.61	$8,981.16		
			1	373	3	$1,131.31	$2,142.11	2,310	33		618				$3,273.42		
			1	373	2	$1,164.31	$1,893.09	2,230	33		618				$3,057.40		
			1	372	4	$1,582.45	$1,998.74	2,420	33		618				$3,581.19		
			1	370	5	$2,791.19	$1,172.48	2,180	33	1	619	7	$3,767.92	$2,712.55	$19,114.10		
			1	372	5	$1,552.70	$2,005.20	2,005	33	1	619	13	$3,701.92	$4,968.04	$12,227.86		
								2,029	33	1	621	13	$1,283.01	$897.98	$2,180.99		
				371				2,300	33	1	621	5	$1,307.59	$403.01	$1,710.60		
									33	1	621	5	$1,258.01	$1,986.79			
									33	1	621	17	$6,192.50	$5,459.31			
			1	373	5	$1,164.31	$760.04	1,891	33	1	621	11	$1,123.01	$2,942.05	$5,989.41		
								1,800	33	0							
			1	379	2	$1,522.97	$67.08		33						$1,590.05		
			10		3.50	$15,795.63	$15,315.09			14		11.07	$62,476.28	$40,658.26	$132,128.55		
						$31,110.72							$103,134.54		$134,245.26		
			1	374	3	$1,893.92	$2,013.82	2,350	34	1	391	2	$308.22	$332.46	$4,548.42		
			1	379	5	$1,494.34	$4,063.54	2,270	34	1	391	2	$308.22	$258.00	$6,124.10		
			1	371	4	$2,207.10	$2,087.64	2,530	34	1	391	4	$308.22	$318.60	$4,921.56		
				370				2,192	34		617				$0.00		
			1	373	3	$1,131.31	$1,907.60	2,190	34		618				$3,038.91		
			1	373	3	$1,164.31	$1,091.64	2,315	34	1	621	2	$1,283.01	$332.46	$3,871.42		
			1	370	3	$2,813.19	$2,275.16	3,670	34	1	630	3	$530.31	$1,628.36	$7,247.02		
			1	371	3	$2,207.10	$3,674.47	2,380	34	0				$284.00	$6,165.57		
			1	371	4	$2,249.38	$2,056.47	1,840	34		626				$4,305.85		
			8		4	$15,160.65	$19,170.34			5		3	$2,737.98	$3,153.88	$40,222.85		
						$34,330.99							$5,891.86		$40,222.85		
				373	2			2,430	35	1	391	2	$308.22	$258.90	$567.12		
			1	373	3	$1,164.31	$1,136.27		35	1	391	2	$308.22	$264.08	$2,872.88		
			1	374	2	$1,901.92	$2,099.60		35	1	391	2	$422.22	$0.00	$4,423.74		
			1	371	4	$2,207.10	$2,761.31	1,980	35	1	613	6	$7,519.74	$1,773.05	$14,261.20		
			1	373	2	$582.16	$1,245.07	2,420	35		617				$1,827.23		
			1	373	2	$1,139.31	$0.00	2,423	35	1	621	3	$1,283.01	$333.67	$2,755.99		
			1	374	3	$1,926.92	$2,525.17	2,480	35		627				$4,452.09		
			1	373	3	$1,131.31	$1,550.35	3,218	35	1	630	2	$530.31	$332.46	$3,544.43		
			1	373	2	$1,139.31	$71.32	2,680	35	1	630	4	$505.31	$244.59	$1,960.53		
			1	373	1	$0.00	$998.88	3,347	35	1	630	1	$441.93	$295.12	$1,735.93		
			1	370	3	$2,846.19	$1,639.54	3,023	35	1	630	3	$530.31	$207.25	$5,223.29		
			1	373	2	$1,139.31	$1,415.01	2,780	35	1	630	2	$530.31	$308.46	$3,393.09		
			1	373	2	$0.00	$1,567.63	2,580	35	1	630	4	$505.31	$303.30	$2,376.24		
			1	374	3	$963.46	$1,150.30	2,380	35	1	630	3	$530.31	$284.29	$2,928.36		
			1	373	2	$1,182.62	$1,525.46	3,000	35	1	630	2	$0.00	$473.09	$3,181.17		
			1	373	2	$1,186.62	$1,675.00	2,667	35	1	630	2	$540.47	$430.78	$3,832.87		
			1	373	2	$1,727.09	$2,562.24	2,700	35	1	630	1	$540.47	$378.73	$5,208.53		
			16		2.35	$20,237.63	$23,923.15			15		2.60	$14,496.14	$5,887.77	$64,544.69		
						$44,160.78							$20,383.91		$64,544.69		
			1	371	2	$2,207.10	$876.93	2,810	37	1	391	2	$308.22	$517.01	$3,909.26		
			1	373	2	$1,139.31	$2,283.20	3,830	38	1	391	2	$308.22	$421.45	$4,152.18		
			1	373	3	$1,164.31	$1,351.78	3,210	38	1	391	3	$308.22	$282.94	$3,107.25		
								3,580	39	1	391	1	$308.22	$396.47	$704.69		
			1	373	2	$1,164.31	$1,930.71	3,630	40	1	391	2	$308.22	$333.75	$3,736.99		
			1	370	7	$2,846.19	$4,118.00	3,730	40	1	391	3	$308.22	$0.00	$7,272.41		

APPENDIX J – Neonate Bed Day to DRG Cross-Tabulation Stratified by Age

Table 1

Child bed days * Child DRG Crosstabulation for 26 to 32 Week Neonates

			Child DRG						
			607	612	614	618	627	636	Total
Child bed days	14	Count			1				1
		% within Child DRG			100.0%				14.3%
		% of Total			14.3%				14.3%
	17	Count		1					1
		% within Child DRG		50.0%					14.3%
		% of Total		14.3%					14.3%
	18	Count		1					1
		% within Child DRG		50.0%					14.3%
		% of Total		14.3%					14.3%
	27	Count					1		1
		% within Child DRG					100.0%		14.3%
		% of Total					14.3%		14.3%
	32	Count						1	1
		% within Child DRG						100.0%	14.3%
		% of Total						14.3%	14.3%
	39	Count				1			1
		% within Child DRG				100.0%			14.3%
		% of Total				14.3%			14.3%
	40	Count	1						1
		% within Child DRG	100.0%						14.3%
		% of Total	14.3%						14.3%
Total		Count	1	2	1	1	1	1	7
		% within Child DRG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	14.3%	28.6%	14.3%	14.3%	14.3%	14.3%	100.0%

APPENDIX J (continued)

Table 2

Child bed days * Child DRG Crosstabulation for 33 Week Neonates

			Child DRG					
			607	614	618	619	621	Total
Child bed days	4	Count		1				1
		% within Child DRG		14.3%				5.3%
		% of Total		5.3%				5.3%
	5	Count	1				2	3
		% within Child DRG	50.0%				40.0%	15.8%
		% of Total	5.3%				10.5%	15.8%
	7	Count		1	1	1		3
		% within Child DRG		14.3%	33.3%	50.0%		15.8%
		% of Total		5.3%	5.3%	5.3%		15.8%
	9	Count			1			1
		% within Child DRG			33.3%			5.3%
		% of Total			5.3%			5.3%
	10	Count		1	1			2
		% within Child DRG		14.3%	33.3%			10.5%
		% of Total		5.3%	5.3%			10.5%
	11	Count					1	1
		% within Child DRG					20.0%	5.3%
		% of Total					5.3%	5.3%
	13	Count				1	1	2
		% within Child DRG				50.0%	20.0%	10.5%
		% of Total				5.3%	5.3%	10.5%
	15	Count		2				2
		% within Child DRG		28.6%				10.5%
		% of Total		10.5%				10.5%
	16	Count	1	1				2
		% within Child DRG	50.0%	14.3%				10.5%
		% of Total	5.3%	5.3%				10.5%
	17	Count		1			1	2
		% within Child DRG		14.3%			20.0%	10.5%
		% of Total		5.3%			5.3%	10.5%
Total		Count	2	7	3	2	5	19
		% within Child DRG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	10.5%	36.8%	15.8%	10.5%	26.3%	100.0%

APPENDIX J (continued)

Table 3

Child bed days * Child DRG Crosstabulation for 34 Week Neonates

			Child DRG						
			391	617	618	621	626	630	Total
Child bed days	2	Count	2			1			3
		% within Child DRG	66.7%			100.0%			37.5%
		% of Total	25.0%			12.5%			37.5%
	3	Count						1	1
		% within Child DRG						100.0%	12.5%
		% of Total						12.5%	12.5%
	4	Count	1						1
		% within Child DRG	33.3%						12.5%
		% of Total	12.5%						12.5%
	6	Count			1				1
		% within Child DRG			100.0%				12.5%
		% of Total			12.5%				12.5%
	7	Count		1					1
		% within Child DRG		100.0%					12.5%
		% of Total		12.5%					12.5%
	12	Count					1		1
		% within Child DRG					100.0%		12.5%
		% of Total					12.5%		12.5%
Total		Count	3	1	1	1	1	1	8
		% within Child DRG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	37.5%	12.5%	12.5%	12.5%	12.5%	12.5%	100.0%

Table 4

Child bed days * Child DRG Crosstabulation for 35 Week Neonates

			Child DRG						
			391	613	617	621	627	630	Total
Child bed days	1	Count						2	2
		% within Child DRG						20.0%	11.8%
		% of Total						11.8%	11.8%
	2	Count	3				1	4	8
		% within Child DRG	100.0%				100.0%	40.0%	47.1%
		% of Total	17.6%				5.9%	23.5%	47.1%
	3	Count				1		2	3
		% within Child DRG				100.0%		20.0%	17.6%
		% of Total				5.9%		11.8%	17.6%
	4	Count						2	2
		% within Child DRG						20.0%	11.8%
		% of Total						11.8%	11.8%
	6	Count		1					1
		% within Child DRG		100.0%					5.9%
		% of Total		5.9%					5.9%
	13	Count			1				1
		% within Child DRG			100.0%				5.9%
		% of Total			5.9%				5.9%
Total		Count	3	1	1	1	1	10	17
		% within Child DRG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	17.6%	5.9%	5.9%	5.9%	5.9%	58.8%	100.0%

APPENDIX J (continued)

Table 5

Child bed days * Child DRG Crosstabulation for 36 to 42 Week Neonates

			Child DRG				
			391	618	627	630	Total
Child bed days	1	Count	1				1
		% within Child DRG	14.3%				6.3%
		% of Total	6.3%				6.3%
	2	Count	4		1	3	8
		% within Child DRG	57.1%		50.0%	50.0%	50.0%
		% of Total	25.0%		6.3%	18.8%	50.0%
	3	Count	2			1	3
		% within Child DRG	28.6%			16.7%	18.8%
		% of Total	12.5%			6.3%	18.8%
	4	Count				1	1
		% within Child DRG				16.7%	6.3%
		% of Total				6.3%	6.3%
	5	Count			1	1	2
		% within Child DRG			50.0%	16.7%	12.5%
		% of Total			6.3%	6.3%	12.5%
	7	Count		1			1
		% within Child DRG		100.0%			6.3%
		% of Total		6.3%			6.3%
Total		Count	7	1	2	6	16
		% within Child DRG	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	43.8%	6.3%	12.5%	37.5%	100.0%

APPENDIX K – Neonate Age Group to Birth Weight Cross-Tabulation

Age group * Group birth weight Crosstabulation for All Neonates

			Group birth weight			
			<1500g	1500-2499g	>2500g	Total
Age group	26 to 32 weeks	Count	3	4		7
		% within Age group	42.9%	57.1%		100.0%
		% of Total	4.8%	6.5%		11.3%
	33 weeks	Count	2	15		17
		% within Age group	11.8%	88.2%		100.0%
		% of Total	3.2%	24.2%		27.4%
	34 weeks	Count		7	2	9
		% within Age group		77.8%	22.2%	100.0%
		% of Total		11.3%	3.2%	14.5%
	35 weeks	Count		6	9	15
		% within Age group		40.0%	60.0%	100.0%
		% of Total		9.7%	14.5%	24.2%
	36 to 42 weeks	Count		2	12	14
		% within Age group		14.3%	85.7%	100.0%
		% of Total		3.2%	19.4%	22.6%
Total		Count	5	34	23	62
		% within Age group	8.1%	54.8%	37.1%	100.0%
		% of Total	8.1%	54.8%	37.1%	100.0%

APPENDIX L – Labor and Delivery Unit Yearly Workload

MONTH	DELIVERIES	C/S	TRANSPORTS	MONTH	DELIVERIES	C/S	TRANSPORTS	MONTH	DELIVERIES	C/S	TRANSPORTS
Oct-96	162	29	2	Oct-97	171	31	13	Oct-98	154	29	9
Nov-96	126	23	7	Nov-97	141	28	4	Nov-98	154	24	12
Dec-96	160	28	2	Dec-97	154	33	6	Dec-98	169	30	7
Jan-97	159	29	4	Jan-98	161	32	10	Jan-99	150	24	1
Feb-97	137	23	4	Feb-98	146	16	12	Feb-99	138	32	9
Mar-97	164	29	3	Mar-98	171	22	5	Mar-99	165	23	6
Apr-97	147	32	8	Apr-98	159	31	8	Apr-99	143	18	5
May-97	142	21	5	May-98	145	29	7	May-99	158	22	4
Jun-97	171	29	4	Jun-98	131	26	4	Jun-99	174	30	8
Jul-97	171	28	3	Jul-98	155	22	8	Jul-99	140	15	8
Aug-97	173	32	5	Aug-98	158	30	10	Aug-99	158	24	10
Sep-97	193	24	9	Sep-98	167	26	8	Sep-99	181	21	4
FY 1997	1905	327	56	FY 1998	1859	326	95	FY 1999	1884	292	83
		17.17%				17.54%				15.5%	

MONTH	DELIVERIES	C/S	TRANSPORTS	MONTH	DELIVERIES	C/S	TRANSPORTS	MONTH	DELIVERIES	C/S	TRANSPORTS
Oct-99	175	29	4	Oct-00	141	26	5	Oct-01	140	31	11
Nov-99	144	19	9	Nov-00	136	16	13	Nov-01	144	30	6
Dec-99	144	27	0	Dec-00	149	23	9	Dec-01	117	19	8
Jan-00	166	28	6	Jan-01	164	27	12	Jan-02	124	31	12
Feb-00	169	25	9	Feb-01	143	28	6	Feb-02	128	20	9
Mar-00	184	29	13	Mar-01	126	21	7	Mar-02	136	29	0
Apr-00	137	20	7	Apr-01	121	22	8	Apr-02	109	24	13
May-00	145	33	9	May-01	133	20	8	May-02	138	33	7
Jun-00	138	17	11	Jun-01	146	22	9	Jun-02	147	18	8
Jul-00	144	23	10	Jul-01	123	23	11	Jul-02	132	33	7
Aug-00	160	27	10	Aug-01	149	22	10	Aug-02	172	32	8
Sep-00	158	29	16	Sep-01	164	30	8	Sep-02	172	29	3
FY 2000	1864	306	104	FY 2001	1695	280	106	FY 2002	1658	329	92
		16.4%				16.3%				20.2%	

APPENDIX M – FY 2001 Daily Workload by Unit

BACH FY 01 DAILY DELIVERIES: RENOVATION CONFIGURATION

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00	2	4	5		2	4	2	5	2		7	5	7	2	4	5	4	2	4	4	2	2	5			6	2	7	7	2	3	4.55
Nov-00	7	6	2	2	3	5	6	5	3	6	5	2	2	5	4		6	7	2	6	1		3	4	3	4	2			2		4.53
Dec-00	7	4	2	4	5	6	4	4	4	2	5		6		4	2	3	6	5	5		5	3	4	2	2	3	3	7	3		4.81
Jan-01	5	3	7	4	5	4	4		0		6	5	4	7	1	2	11			6	2	4	7	6	2		5	3	7	6	5	5.29
Feb-01	5	6	7	3	4	4		5	5	4	5	6	1	2	4	7	3	4	5	7	5	5	7		5		5	5				5.11
Mar-01	6	6	1	2	1	6	6	4	5	3	3		2	3		7	4	3	3	7	5	3	5	4	3	3	2	7	5	0		4.20
Apr-01	2	3	2	3	7	3	1	5	3	5	3		4	3	2	4	3	4	5	6	3	0	6	3		4		2	3	7		4.03
May-01		6	5	7	3	2	6	6	1	1	7	3	2	3	7	7	3	1	4	3	2	4		3	4	6	4	4	1	6	5	4.29
Jun-01	7	4	7	7	4	5	3	6	6	3	2	7	6		4	6	3	5	14	3	5	1	3	2	5	6	4	5	5	0		4.87
Jul-01	2	4	3	3	7	5	4	4	6	3	5	6	2	3	3	4		4	7	4	5	3	3	3	1	2	4	3	1	5	6	3.97
Aug-01	4		4		5	3			7	6	3	5	3	5	3	6	2	3	5	2	5	3	3	4	2	7	2	7	3	6	7	4.81
Sep-01	5	4	5	3	6	5	4	5	4	4	7	4	5	6	2	5	3		7		6	5	5	5	7	6	7	15	2	3		5.47

Colored areas indicate potential problem areas after the LDR renovation is complete (7 LDR and 2 Cesarean section rooms)

- Operating at 90-100% of capacity (estimated-possible trouble area) — 21.98% of the time
- Operating at 114-143% of capacity (estimated-definite trouble area) — 9.62% of the time
- Operating at 157% or greater (estimated-capacity exceeded) — 0.82% of the time

Daily Average for the year: 4.66

PROJECTED BACH FY 01 MOTHER/BABY UNIT CENSUS: RENOVATION CONFIGURATION

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00		6	9	14	11	6	6	7	7	10	15	12	12	9	6	9	9	6	6	8	6	4	7	15	18	14	8	9	14	9	5	9.23
Nov-00	10	13	8	4	5	8	11	11	8	9	11	7	4	7	9	13	15	13	9	8	7	9	11	7	7	7	6	10	16	10		9.10
Dec-00	9	11	6	6	9	11	10	8	8	6	7	14	15	16	14	6	5	9	11	10	15	15	8	7	6	4	5	6	10	10	13	9.35
Jan-01	15	8	10	11	9	9	8	14	10	8	14	11	9	11	8	3	13	19	17	15	8	6	11	13	8	10	13	8	10	13	11	10.74
Feb-01	10	11	13	10	7	8	12	13	10	9	9	11	7	3	6	11	10	7	9	12	12	10	12	15	13	13	13	10				10.21
Mar-01	11	12	7	3	3	7	12	10	9	8	6	12	11	5	11	15	11	7	6	10	12	8	8	9	7	6	5	9	12	5		8.57
Apr-01	2	5	5	5	10	10	4	6	8	8	8	11	12	7	5	6	7	7	9	11	9	3	6	9	12	13	12	10	5	10		7.83
May-01	15	14	11	12	10	5	8	12	7	2	8	10	5	5	10	14	10	4	5	7	5	6	13	12	7	10	10	8	5	7	11	8.65
Jun-01	12	16	11	14	11	9	8	9	12	9	5	9	13	14	12	10	9	8	19	17	8	6	4	5	7	11	10	9	10	5		10.07
Jul-01	2	6	7	6	10	12	9	8	10	9	8	11	8	5	6	7	12	12	11	11	9	8	6	6	4	3	6	7	4	6	11	7.74
Aug-01	10	13	13	13	14	8	11	16	15	13	9	8	8	8	8	9	8	5	8	7	7	8	6	7	6	9	9	9	10	9	13	9.58
Sep-01	12	9	9	8	9	11	9	9	9	8	11	11	9	11	8	7	8	12	16	17	16	11	10	10	12	13	13	22	17	5		11.07

Colored areas indicate potential problem areas after the renovation is complete (20 post-partum beds)

- Operating at 90-99% of capacity (estimated-possible trouble area) — 0.82% of the time
- Operating at 100% of capacity (estimated-definite trouble area) — 0.27% of the time
- Capacity exceeded (estimated) — 0.27% of the time

Daily Average for the year: 9.21

FY 01 SPECIAL CARE UNIT DAILY CAPACITY: RENOVATION CONFIGURATION

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00																																
Nov-00	1	1	0	0	0	0	0	1	1	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	2	1	0	0	0		0.40
Dec-00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	1	1	2		2		2	0	0		4	5			1.13
Jan-01	2	1	0	0				0	0	0	2	2		1	1	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0.71
Feb-01	0	0	0	1	1	0	0	2	2	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	0				1.00
Mar-01	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0.39
Apr-01	1	1	0	0	0	0	0	1	1		0	0	0	0	0	0	2	2	0	1	0	0	0	0	0	0	0	1	0	0		0.43
May-01	0	1	1	2				0	1	1	0	0	1	0	0	2		2		1	1	1	0	0	0		2	1	1	0	0	1.06
Jun-01	1	0	1	0	0	0	0	0	0	1	1	0	1	2			2	1	0	1	1	1	1	1	1	0	0	0	2	1		0.83
Jul-01	0	0	0	0	0	2	2	1	0	0	0	0	0	0	2	0	0	1	2	2					1	1	0	1	1	0	0	0.81
Aug-01	0	1	1	0	0	0	0	2		1	0	0	1	0	1	1	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.48
Sep-01	1	0	0	0	0	0	0	1	0	1	1	1	1		1	1	0	1	2	1	2	1	1	1	0	0	0	1	1	1		0.77

* Numbers represent the number of occupied bassients in the special care nursery. There are four bassinets available, however only three are used because one is left available for emergencies.

- Indicates all 3 beds available — 51.93% of the time the staff is not providing patient care
- Indicates 1 to 2 beds available — 40.95% of the time the unit has capacity available
- Indicates no beds available — 6.53% of the time the unit is at capacity
- Exceed capacity, must transfer — 0.59% of the time the unit's capacity is exceeded

Daily Average 0.73

APPENDIX N – FY 2001 Daily Workload including Recaptures by Unit

BACH FY 01 DELIVERIES INCLUDING ALL JSMC AND GATEWAY RECAPTURES

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00	2	4	5		2	4	2	5	2		7	5	7	2	4	5	4	2	5	4	3	2	5				2	7	7	2	3	4.68
Nov-00	7	6	3	2	3	5	6	7	3	6	5	2	2	5	4		7	7	2	6	1		3	4	3	5	3			3		4.77
Dec-00	7	4	3	4	5	6	4	4	4	2	5		6	12	4	3	3	6	5	6		5	4	4	2	2	3	3	7	4		5.03
Jan-01	5	3	7	4	5	4	4	11	0		6	5	5	7	1	2	11		11	6	2	4	7	6	2		6	3		6	5	5.48
Feb-01	5	6	7	3	4	4		5	5	4	5	7	1	2	4	7	3	4	5	7	6	5	7		5		6	5				5.29
Mar-01	6	7	1	2	1	6	6	4	6	3	3		2	3		7	5	3	3	7	5	3	5	4	4	3	2	7	5	0		4.33
Apr-01	2	3	2	3	7	3	1	6	3	5	4		5	3	2	4	4	4	5	6	4	0	6	3		4		2	3	7		4.20
May-01		6	5	7	3	2	6	6	2	1	7	3	2	3		7	4	1	4	3	2	4		4	4	6	4	4	1	6	5	4.42
Jun-01		4	7	7	4	5	3	6	6	3	3		6		5	6	3	6	14	3	5	2	3	2	5	6	5	5	5	0		5.10
Jul-01	2	4	3	3		5	4	4		3	5	6	2	3	3	4		4	7	4	5	3	3	3	1	2	4	3	1	5	6	4.06
Aug-01	4		4		5	3				6	4	5	3	5	3	6	2	3	5	2	5	3	3	4	2		2		3	6	7	5.03
Sep-01	5	4	5	3	6	5	4	5	4	4	7	4	5	6	2	5	4		7		6	6	5	5	7	6	7	15	2	3		5.53

Colored areas indicate potential problem areas after the LDR renovation is complete (7 LDR and 2 Cesarean section rooms)

Operating at 90-100% of capacity (estimated-possible trouble area)	**21.70%**	**of the time**
Operating at 101-143% of capacity (estimated-definite trouble area)	**11.54%**	**of the time**
Operating at 157% of capacity or greater (estimated-capacity exceeded)	**1.65%**	**of the time**

Daily Average for the year: 4.83

PROJECTED FY 01 MOTHER/BABY CENSUS INCLUDING ALL JSMC AND GATEWAY RECAPTURES

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00		6	9	14	11	6	6	7	7	10	15	12	12	9	6	9	9	6	7	9	7	5	7	15	18	16	10	9	14	9	5	9.50
Nov-00	10	13	9	5	5	8	11	13	10	9	11	7	4	7	9	13	16	14	9	8	7	9	11	7	7	8	8	11	16	11		9.53
Dec-00	10	11	7	7	9	11	10	8	8	6	7	14	15	18	16	7	6	9	11	11	16	15	9	8	6	4	5	6	10	11	14	9.84
Jan-01	15	8	10	11	9	9	8	15	11	8	14	11	10	12	8	3	13	19	19	17	8	6	11	13	8	10	14	9	11	14	11	11.13
Feb-01	10	11	13	10	7	8	13	14	10	9	9	12	8	3	6	11	10	7	9	12	13	11	12	15	13	14	15	11				10.57
Mar-01	11	13	8	3	3	7	12	10	10	9	6	12	11	5	11	15	12	8	6	10	12	8	8	9	8	7	5	9	12	5		8.83
Apr-01	2	5	5	5	10	10	4	7	9	8	9	12	13	8	5	6	8	8	9	11	10	4	6	9	12	13	12	10	5	10		8.17
May-01	15	14	11	12	10	5	8	12	8	3	8	10	5	5	11	15	11	5	5	7	5	6	13	13	8	10	10	8	5	7	11	8.90
Jun-01	8	12	11	14	11	9	8	9	12	9	6	11	14	14	13	11	9	9		17	8	7	5	5	7	11	11	10	10	5		10.20
Jul-01	2	6	7	6	11	13	9	8	12	11	8	11	8	5	6	7	12	12	11	11	9	8	6	6	4	3	6	7	4	6	6	7.77
Aug-01	10	14	14	13	14	8	12	17	16	14	10	9	8	8	8	9	8	5	8	7	7	8	6	7	6	11	11	10	11	9	13	10.03
Sep-01	12	9	9	8	9	11	9	9	9	8	11	11	9	11	8	7	9	13	16	17	16	12	11	10	12	13	13	22	17	5		11.20

Colored areas indicate potential problem areas after the renovation is complete (20 post-partum beds).

Operating at 90-99% of capacity (estimated-possible trouble area)	**1.10%**	**of the time**
Operating at 100% of capacity (estimated-definite trouble area)	**0.55%**	**of the time**
Capacity exceeded (estimated)	**0.27%**	**of the time**

Daily Average for the year: 9.64

SPECIAL CARE UNIT DAILY CAPACITY: RENOVATION CONFIGUATION-ALL

Date/ Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Daily Average
Oct-00																					1	1	1			2	2	2	5		2	1.73
Nov-00					2	1	1	4	4	4	2	1			2		1	1	1	1					1		4			4		1.83
Dec-00	4	4	4	4				2		4	1	1	1	2	2		2	2	2	4	5	4	5	4	1	1	4	5	6	5	5	3.19
Jan-01	4		1	1	4	4	1	2	2	4	4	5			2	2	2	2	4	4	5					1	2	2	4			2.87
Feb-01				1	1		1			1	1	2	2	2	1	2	2	1	1	2		2	2	2	2	4	5					1.75
Mar-01		5	4				2	2									2	2	2	2	1	2	2	2	1	1	1	1	1	1	1	2.19
Apr-01	2	2	1	1	1	1	1	2	2	4	2	2	4	4			5	6	4	5	4				1	1	1	1	2	1	1	2.43
May-01		1	1	2				1	2	1	1	1				4	4	5		2	2	1	1	2	5	4			2	2	2	2.06
Jun-01	4		4	1	2	2	2	2	2		4	4	5	6	8	7	5	4	2			4	4	4	4	2			5	4		3.63
Jul-01					4	6	6	5	4	4	2	1	1	1		1	1	2			4	4	4	2	2	1	2	2				2.58
Aug-01		2	2	1			1		6	4	4	4	5				4				1	1						4	4	4	4	2.23
Sep-01	5	4	4	4	4	4	5	4	5	2	2	1			1	1	1	2		1	2	2			2	2	2					2.83

* Numbers represent the number of occupied bassinets in the special care nursery. There are four bassinets available, however only three are used because one is left available for emergencies.

Indicates 3 beds available	8.70%	of the time, the staff is not providing patient care
Indicates 1 to 2 beds available	43.19%	of the time the unit has capacity available
Indicates no beds available	48.12%	of the time, the unit is at capacity
Exceed capacity, must transfer	26.96%	of the time, the unit's capacity is exceeded

Daily Average 2.49

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