APPENDIX G:

LABOR AND DELIVERY SYSTEM (LADS)

This Appendix contains "parts" that correlate to major components of the LADS model.

NOTE: THE LADS CURRENTLY SERVES AS THE FOUNDATION FOR MANPOWER REQUIREMENTS DETERMINATION IN THE LABOR AND DELIVERY UNIT.

PART I: LADS Quick Reference Sheet

1. While LADS was designed to be used either daily or every other day, we **strongly recommend** the daily use of LADS.

2. The LADS is a concurrent system. The worksheets must be filled out at the time the tasks are performed. Too often, problems with LADS Nursing Care Hours are the result of worksheets that are not completed until later in the shift when tasks are often recorded improperly.

3. Nurses have expressed concerns that the LADS does not address all of the tasks they perform in their workcenter. It is important for you to remember that the number of tasks/variables (25 inpatient and 1 outpatient) were "regressed" from over 100 tasks/variables. The tasks/variables that were excluded by regression had no significant impact on staffing requirements. Only the tasks/variables that did impact on staffing requirements were included in the LADS. Without regression, all 100 tasks & variables would have to be monitored.

Note: The data from the majority of Labor and Delivery Units has been reviewed to date. When performed properly, LADS provides a good profile of the nursing staff needed on the units.

4. In order for the LADS to work, two conditions must be met.

a. There must be an over-arching commitment by the head nurse of the L&D unit to perform the LADS properly.

b. There must be an obsessive commitment to complete the worksheets properly.

5. All nursing personnel are allowed to mark on the worksheets, however, all nursing personnel must receive adequate training by the Head Nurse. Frequent reviews of the worksheets are essential in order to ensure the integrity of the LADS.

6. LADS data is collected for the period 0001 to 2400 hours.

7. Twins are not counted as 2 deliveries unless one delivers vaginally and one abdominally.

8. The LADS was originally designed to show a staffing profile. Our extensive review of the data showed no benefit to this lengthy and difficult procedure. All of the data that is necessary to determine staffing requirements are contained in the "end of month" summary report that is in the LADS. This is an on

demand report that can be printed out at your discretion.

a. To determine the manpower requirements needed for the Labor and Delivery unit perform the following: Take the aggregate nursing care hours (per month) for both (outpatients & inpatients) and divide by 145 hours (standard DA available hours). The result is the "full time requirements" that were required to perform the mission of the Labor and Delivery Unit for that month. From a manpower perspective, one month of data cannot drive staffing requirements. Monthly data should be averaged over a twelve month period. (Do not exclude a particular month because of low nursing care hour data unless there was an artificial circumstance that is not likely to occur again. One example of this might involve a Labor and Delivery Unit that is temporarily closed for renovation. There are normal fluctuations in workload that occur throughout the year and are important in identifying the real needs of a particular unit.

b. The unit nursing administrative overhead (Head Nurse & Ward Master) for the Labor and Delivery Unit are not included in the LADS Nursing care hours calculations. Two Full Time Requirements must be added to your calculations to account for these positions.

9. Skill Mixture Recommendations: (as determined by expert opinion)

65% RN
35% Paras (It is recommended that all of the Paraprofessionals in the L&D area be at least 91Cs or LPNs.)

10. Shift Distribution Recommendations: (as determined by expert opinion)

40% Days
30% Evenings
30% Nights

11. LADS data no longer needs to be forwarded outside of your facility. You need only keep a hard copy of the "end of month LADS summary reports" on your units.

PART II: Purpose of LADS

LADS was developed to provide (a) an acuity based method of determining nurse staffing needs and (b) a method of evaluating the work process in the Labor and Delivery Unit.

PART III: Measuring Nursing Workload

Nursing workload is measured in nursing care hours and includes both direct and indirect care time. Direct care time refers to patient care activities performed in the presence of the patient.

Indirect care time includes time spent performing nursing activities away from the patient in support of patient care or unit management. Indirect care time most often reflects administration, communication, conferences, documentation and clerical support, the environment, patient support, supplies, travel and transportation. In LADS, indirect care time also includes personal, fatigue, and delay time--such as time spent waiting for patients. An indirect care formula is used to calculate indirect care time.

PART IV: Guidelines for Using LADS Worksheet

Introduction

The Labor and Delivery System (LADS) worksheet is used to document certain direct care nursing activities that occur. The nursing activities listed on the worksheet do not represent every task performed by nurses caring for L&D inpatients. The activities listed are those that accurately predict the total nursing time spent in caring for L&D inpatients. This information is then used to classify patients according to their acuity.

The worksheet is used with inpatients who receive care in L&D units. **Sections I, II and III** are completed. **Section I: Inpatient Information** contains information about the gravity and parity of the patient and the date and time of admission, transfer or discharge from L&D. In **Section II: One-Time Inpatient Activities**, nursing care activities that can only be marked once during a patient's stay are listed. **Section III: Multiple Occurring Inpatient Activities** contains activities that can occur many times during a patient's stay.

Task definitions for all tasks are in Part V of this

Appendix. Activities should be marked only when they are completed as defined. For your convenience, definitions for certain combinations of tasks are listed on the back of the form as **"Bundled tasks at a glance".**

How to Use the Worksheet with Inpatients

1. **Starting the worksheet for an inpatient:** Start a worksheet for each patient who is admitted or transferred in to L&D. It is important to keep the form near the patient during her entire stay in L&D, so all nursing personnel can mark completed nursing activities. Start a new sheet each time a patient transfers to L&D. (**NOTE:** A transferred patient is an inpatient from any clinical unit who comes to L&D for care.)

a. Stamp the worksheet with the patient's identification plate in the top left hand corner. Make sure it is legible. Write the date in the space labeled "Today's Date" at the top of the worksheet.

b. Complete the following information in **Section I: Inpatient Information:**

1) Patient's gravida and para.
2) Date and time of admission or transfer. If the patient is transferred to L&D, write the time she **was** received on L&D. Use military time.

2. Using the worksheet: In **Section II: One-Time Inpatient Activities** and **Section III: Multiple Occurring Inpatient Activities,** mark the nursing care activities completed during the patient's stay in L&D. Keep the worksheet near the patient so you can mark the activities as they occur. All nursing staff providing care for the patient are responsible for marking completed activities.

Place one tick mark in the area labeled **"Counting Area"** each time you complete one of the identified nursing activities. Record the mark in the block according to the time of day. It will be easier to total the marks if you avoid stray marks and record the tick marks in groups of five. Review the worksheet at the end of your shift to assure that completed nursing activities have been marked.

The charge nurse on each shift is responsible for reviewing every worksheet to assure legibility and completeness. Space is available in the bottom left hand corner of the worksheet for

verifying that the worksheets have been reviewed for each shift.

3. Using more than one inpatient worksheet for the same patient: Start a new worksheet for each inpatient who remains in L&D after 2400 hours.

a. Stamp a new worksheet using the patient's identification plate. Write the date in the space at the top of the worksheet.

b. Leave the time of admission blank. (The patient has already been admitted.)

c. Check the continuation sheet "Yes" block in **Section I: Inpatient Information.**

4. Finishing the worksheet for an inpatient:

a. When a patient is discharged or transferred out:

1) Add the marks in each counting area and write the total in the "Total No." column for each row.

Write the time of discharge or transfer from L&D in **Section I: Inpatient Information.**

Remove the worksheet from the patient's record before transferring or discharging the patient.

Give the completed worksheets to the charge nurse to review for clarity, legibility and completeness.

b. When a patient remains in L&D after 2400 hours:

1) Add the marks in each counting area and write the total in the "Total No." column for each row.

2) Start a new worksheet and check the continuation sheet "Yes" block.

3) Give the totaled worksheet to the charge nurse to review for clarity, legibility and completeness.

5. Reviewing completed inpatient worksheets: The charge nurse reviews completed worksheets to assure that:

a. the worksheet is stamped with the patient's identification plate;

b. the information in **Section I: Inpatient Information** is complete;

the tick marks are accurately totaled when the worksheet is finished.

Space is available in the bottom left hand corner for verifying that the worksheets have been reviewed. Store the forms in a location designated by the head nurse.

Part V: LADS WORKSHEET TASK DEFINITIONS

Note: Section II of the worksheet contain the following and may be marked only one time.

Admission or Transfer - Includes time for the spectrum of admission assessment and orientation activities. These include establishing the nursing data base (maternal/fetal assessment including Leopold Maneuvers, vital signs, and nursing history), orienting the mother and significant other to the unit, starting an IV, drawing baseline blood work, applying external monitors, and providing initial emotional support.
(NOTE: Mark ONLY when completed for a patient being admitted or "transferred in" to Labor and Delivery (L&D). Do not mark this task when patients are "transferred out" from L&D.**)**

Assisted Care - Includes time to assist patient with bath (place equipment at bedside, remove pajamas, allow for patient bathing, change water, bathe back and lower extremities if patient is unable to, replace pajamas and remove equipment from area);
AND
Make unoccupied bed (includes time to place linen at bedside, remove soiled linen, place bottom sheet on mattress, then place top sheet, change pillow cases, remove soiled linen from area);
AND
Assist patient with oral hygiene (includes time to place equipment at bedside and remove equipment when patient has completed mouth care);
AND
Bring fluids to the bedside (includes time to place fluids at bedside, set water pitcher and glass/straw within reach, and depart from area);
AND

Reapply external monitors;
AND
Complete a maternal/fetal assessment.

Complete Care - Includes time to bathe patient (place equipment at bedside, remove pajamas, bathe face, chest, abdomen and extremities, change water, bathe back, buttocks and perennial area, replace pajamas, and remove equipment from area);
AND
Make an occupied bed (includes time to place linen at bedside, turn patient on side, roll linen to one side of bed, replace with clean linen, turn patient to freshly made side of bed, remove soiled linen and complete bed making, then remove soiled linen from area);
AND
Assist patient with oral hygiene (includes time to place equipment at bedside, cleanse gums, teeth, and mouth, and remove equipment when mouth care is completed);
AND
Bring fluids to the bedside (includes time to place fluids at bedside, set water pitcher and glass/straw within reach, and depart from area);
AND
Reapply external monitors;
AND
Complete a maternal/fetal assessment.

Second Stage Labor Support - Includes time from when complete dilatation of the cervix occurs until patient is ready to be transferred to the delivery room. A member of the nursing staff remains in constant attendance to evaluate amplitude, duration, and frequency of each contraction, assess fetal heart tones and to encourage proper breathing and bearing down efforts **(NOTE:** This applies to the Labor Room only; do not mark if second stage occurs in Delivery Room. Also do not mark if second stage lasts only moments before the patient moves to Delivery or a nurse is not in attendance to provide coaching.**)**

Vaginal Delivery - Includes time for L&D staff to assist with complicated or uncomplicated vaginal delivery per unit SOP. **(NOTE:** This ONLY applies to vaginal deliveries occurring on L&D.)

C-Section, Circulate AND Scrub - Includes time for two L&D staff members to perform both circulating and scrubbing duties per unit SOP. **(NOTE:** This ONLY applies to C-Sections performed on L&D.)

C-Section, Circulate OR Scrub - Same as C-Section, Circulate AND

Scrub except that L&D staff are involved only in scrubbing OR circulating, for the procedure. **(NOTE:** This ONLY applies to C-Sections performed on L&D.**)**

Note: Section III of the worksheet contains inpatient activities that may be marked more than one time.

Assisted Ambulation - Includes time to place IV solution on rolling pole (if patient has an IV), assist patient into a sitting position on side of bed, then into an upright standing position, then with ambulation to the bathroom and back to bed, and reposition back to bed.

Bedpan Assistance - Includes time to place bedpan at bedside, place patient on bedpan, provide toilet tissue, remove patient from bedpan, cover bedpan, provide for patient hygiene, and remove bedpan from area.

Breast Feeding Teaching - Includes time to provide instructions on the technique of breast feeding; observe and assist mother during the feeding process to assess proper technique.

Epidural Anesthesia, Initial Set-Up - Includes time to explain procedure to patient, place equipment at bedside, assess baseline vital signs as well as maternal and fetal status, assist physician with insertion of the epidural catheter and anesthetic agent, assess and monitor vital signs, fetal heart tones, and uterine activity, remove equipment from area, continue monitoring vital signs, fetal heart tones and uterine activity, initiate neuro checks if warranted.

Fetal Scalp Sampling - Includes time to explain procedure to patient, set up equipment at bedside, assess baseline fetal heart tones, position patient, assist physician with procedure, mark monitor strip, monitor and assess fetal heart tones, label blood samples, then remove used equipment from area.

Insertion Fetal Scalp and IUPC - Includes time to explain procedure to patient, set up equipment at bedside, position patient, zero and calibrate monitor, flush catheter with sterile water, assist physician with the insertion of fetal electrode and intrauterine catheter, secure catheter and electrode, connect monitoring equipment, assess and record fetal heart rate, mark monitor strip, then remove used equipment from area.

Insertion IUPC - Includes time to set up equipment at bedside, position patient, assist physician with the insertion of the

intrauterine pressure catheter, connect monitoring equipment, flush catheter with sterile water, zero and calibrate monitor, mark monitor strip, then remove used equipment from the area.

IV Bottle Change - Includes time to place equipment at bedside, remove used IV container and replace with new IV container, calculate and adjust flow rate, and remove equipment from area.

IV Medication Encounter:

IV Push - Identify patient, place equipment at bedside, select site for injection of solution using existing system, administer IV solution, and remove equipment from area;

OR

Piggy Back - Identify patient, place equipment at bedside, select site for administration of solution using existing system, initiate infusion, record on Intake and Output Record, and remove equipment from area.

IV Medication Titration - Includes time to check infusion pump operation and IV flow rate, make flow rate adjustments, and assess maternal/fetal response to include vital signs. **(NOTE:** This task applies to initiating drugs such as pitocin, ritodrine, and magnesium sulfate as well as the titration procedure that occurs while the drugs are in use.**)**

Nipple Stimulation Test - Includes time to set patient up as for a non-stress test, explain procedure to patient, teach and monitor nipple stimulation technique per unit protocol, obtain baseline fetal and maternal assessment, begin the test with monitoring according to unit protocol; when test is completed, detach patient from monitor.

Non- Stress Test - Includes time to set up equipment at the bedside, explain and demonstrate procedure to patient, assess baseline vital signs and fetal heart tones, fetal movement, and uterine activity.

Patient Position Change, Assistance - Includes time to remove support pillows, reposition patient, and reapply support pillows.

Ultrasonic/Tocotransducer Application - Includes time to position patient, expose abdominal area, apply tocotransducer and ultrasonic transducer, connect to monitoring equipment, assess status of contractions and fetal heart tones and depart area.

Ultrasound - Includes time to explain procedure to patient, place equipment at bedside, assist physician with procedure, remove equipment from bedside. **(NOTE:** Do not mark this procedure if the physician does the task independently without assistance from the nursing staff.**)**

Urinary Catheterization:

Indwelling - Includes time to place equipment at bedside, prepare patient and insert indwelling urinary catheter, inflate balloon, tape catheter in position, connect to urinary drainage bag; then remove used equipment from area.

OR

Straight - Includes time to place equipment at the bedside, prepare patient and insert urinary catheter, empty bladder and remove straight catheter; then remove used equipment from area.

Vital Signs:

T, P, R, and B/P - Includes time to place equipment at bedside, position temperature probe or thermometer, assess respiratory rate, take pulse, place cuff around extremity, position stethoscope, measure blood pressure, remove cuff, record results of measurements, and remove equipment from area.

OR

P, R, and B/P - Includes time to place equipment at bedside, assess respiratory rate, take pulse, place cuff around extremity, position stethoscope, measure blood pressure, remove cuff, record results of measurements, and remove equipment from area.

PART VI: Outpatient Specifications

Outpatient Acuity

a. The staff will report each outpatient visit. The same patient may "visit" repeatedly during the 24-hour period. An outpatient may become an inpatient the same day. The method of capturing that information by logs currently varies from site to site; additional outpatient information being recorded in these logs also varies dramatically. LADS only requires the daily volume; any other considerations for automating outpatient volume reporting are unit- and MEPRS-driven.

b. A regression formula is used to calculate the total outpatient direct care time (acuity) per day. The formula is:

Total outpatient volume per day x 0.789254

= total outpatient direct care time in hours.

c. See the following section for methodology to combine outpatient direct care time with inpatient nursing care time to determine total nursing care hours (NCH) per day. Outpatient time is included in the total NCH formula as an additive.

d. Inpatients from other wards who are seen on L&D must not be recorded as outpatients. The LADS patient classification system (PCS) is used with all inpatients.

e. The regression formula for outpatient direct care time is not applicable to outpatients seen in any other area. This includes the outpatient OB clinic or antepartum diagnostic clinic, even if L&D nursing staff work in those areas.

f. Since a regression formula is used, there are no outpatient categories. Disregard previous guidance on outpatient indicators and category ranges. The average outpatient direct care hours is the recommended data element for development of the acuity-based staffing standard.

PART VII: Formulas for LADS Nursing Care Hours

1. LADS determines the total nursing care time by multiplying the inpatient direct care time by the indirect care multiplier (ICM), then adding the outpatient direct care time. The calculations are described in this memo. The values for the regression constant, indicator weights and ranges of direct care time for the inpatient categories unique to L&D are attached.

2. Inpatient direct care time is calculated using a regression formula. The weight for each indicator is multiplied by the frequency the indicator was performed. There are 25 indicators. The result for each indicator marked is summed, then added to the constant. This is then multiplied by the ICM. The formula is:

$$Y = (a + b_1 x_1 + \ldots b_{25} x_{25}) \text{ ICM}$$

a. Terms defined:

y = Total inpatient nursing care time

a = Constant; a statistically derived regression intercept

b_1 to b_{25} = Weight or partial regression coefficient

x_1 to x_{25} = Frequency of each indicator

$(a+b_1 x_1 + \ldots b_{25} x_{25})$ = Direct care time.

3. The ICM is a constant derived from the indirect care time proportion for L&D 71.1% The ICM formula is:

$$1 + \frac{\text{Indirect care time proportion}}{1 - \text{Indirect care time proportion}}$$

4. Outpatient direct care time is also calculated using a regression formula. The total number of outpatient visits per day is multiplied by 0.789254.

5. When the inpatient time and outpatient time are combined as described, the result is expressed in hours. Divide by 8 and round to the first decimal place to convert to variable nursing staff, expressed as full-time equivalents (FTE).

PART VIII: Inpatient Regression Formula Constant & Weights

INPATIENT VALUES

Constant equals 7.17. This is included for all inpatients even if no other indicators are marked.

Indicators	Weights
Gravida	10.93
(only given if Gravida equals 1 and Vaginal Delivery equals 1)	
Admission or Transfer	49.53
Assisted Care	28.95
Completed Care	45.97
Second Stage Labor Support	43.94
Vaginal Delivery	144.33
C-Section, Circulate and Scrub	201.98
C-Section, Circulate and Scrub	117.19
Assisted Ambulation	6.33
Bedpan Assistance	3.28
Breast Feeding, Teaching	13.05
Epidural Anesthesia, Initial	33.61
Fetal Scalp Sampling	14.23
Insertion, Fetal Scalp & IUPC	19.34
Insertion, IUPC	18.25
IV Bottle Change	4.47
IV Medication Encounter	3.94
IV Medication Titration	3.17
Nipple Stimulation Test	11.94
Non-Stress Test	24.49
Position Change, Assist	5.95
Ultrasonic/Tocotransducer Application	8.93
Ultrasound	11.85
Urinary Catheterization	14.75
Vital Signs	3.62