

**WORKLOAD MANAGEMENT SYSTEM FOR  
NURSING (WMSN)**

## **Forward:**

The WMSN is about to undergo a name change. When the new automation system "Defense Medical Human Resource System" (DMHRS) is fielded, the WMSN will become the **Patient Acuity Workload Management System (PAWMS)**. While there will be a few more "whistles and bells" on the PAWMS, the function and specifications will remain the same as when it was the WMSN.

Our research shows that the WMSN still provides solid factors to begin your planning for patient care. The strength of the WMSN is the acuity profile per patient that it delineates for a particular unit. It is important to note that the strength of the WMSN is knowing its capabilities and limitations. The WMSN cannot stand as a single method for determining staffing requirements. When used properly, the WMSN can provide you with a good starting point for assessing the staffing needs of your unit. However, the following equation is extremely important for the total picture of staffing.

### **(The WMSN plus Professional Assessment = Requirements)**

The following manual was originally written in WordPerfect for Windows (Version 5.2) It contains the following sections:

1. **Workload Management System for Nursing Basic Manual**
2. **Appendix A. Nursing Care Hours Requirements Charts**
3. **Appendix B. Daily Personnel Requirements Charts**
4. **Appendix C. Critical Indicators (with discussion)**
5. **Appendix D. Inter Rater Reliability**
6. **Appendix E. Manual Implementation of the WMSN**
7. **Appendix F. Post-Anesthesia Care Staffing System (PACS)**
8. **Appendix G. Labor & Deliver Staffing System (LADS)**

**Note: FM 8-501 still applies**

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## WMSN CONCEPTS

- a. The WMSN is linked to direct patient care.
- b. The WMSN allows time for indirect care.
- c. The WMSN is prospective.
- d. The WMSN is comprehensive but simple.
- e. The WMSN quantifies the number of nursing personnel that are recommended to be available to provide patient care.
- f. The WMSN provides staff time for administration and management of a nursing unit.
- g. The WMSN is reliable.
- h. The WMSN is valid.

### Concepts Delineated:

- a. The WMSN is linked to direct patient care.

The time nursing personnel spend providing direct nursing care to a patient is the foundation of nursing and the WMSN. The WMSN is designed to capture an estimate of what nursing time will be required to provide nursing care to a group of patients on a nursing unit. This is based on an estimate of direct bedside time required for each individual patient. Staffing must be adequate to provide safe bedside care of the same quality that a patient would receive in the civilian community. The critical indicators of the WMSN are direct nursing care activities that have been documented in time studies. The system assesses direct care time needed for a group of patients on a nursing unit. An indirect care time factor is included to determine required available staff time to provide patient care.

- b. The WMSN allows time for indirect care.

Staff time necessary for indirect nursing care is included in the WMSN staffing formulas. The percentage of staff time spent in indirect care activities was determined by research. The work sampling technique used in the research addressed the variety of indirect care activities that occur daily on a nursing unit. Among others, indirect nursing care

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includes:

COORDINATING APPOINTMENTS	CHARTING
FILLING OUT XRAY & LAB SLIPS	MEETINGS
GETTING & STOCKING SUPPLIES	TIME SCHEDULES
PREPARING MEDICATIONS/Unit Dose	TRAINING
CLEANING & CHECKING EQUIPMENT	PATIENT CHAPERON
CHANGE OF SHIFT REPORT	ANSWERING PHONES
FILING LAB SLIPS, CONSULTS, ETC.	TRANSCRIBING ORDERS
QA/QI ACTIVITIES	Computer operations

**c. The WMSN is prospective.**

The system was intentionally designed to be prospective to ensure that future staffing requirements would be based on actual patient care needs rather than on the care provided by available staff in the past. Retrospective workload can only reflect what was done, not what was required and should have been done. By designing the WMSN to provide an estimate of staff requirements for the next 24 hours, it becomes a valuable management tool for making staffing decisions. The only critical indicator that may be counted retrospectively is the 12 points allocated for a patient admission.

**d. The WMSN is comprehensive but simple.**

Nurses perform a variety of bedside care activities from simple, concrete tasks such as raising and lowering a bed side rail to complex and nebulous tasks such as providing emotional comfort to a dying patient. Prior research documented mean times for 357 distinct nursing tasks. It was felt that it would be an administrative burden to keep track of all of these activities for every patient. Research was undertaken to reduce the 357 nursing tasks to as few as possible, while still placing patients in distinct categories. Direct care nursing activities that required 15 minutes of bedside time in a 24 hour period were identified as critical indicators.. Research showed that this simplified task list allowed nurses to classify patients into the same categories as when they accounted for all 357 nursing tasks. From these categories, an accurate estimate of staff time could be calculated. Activities that require less than 15 minutes of care time in a 24 hour period were shown not to be statistically significant in the determination of that patient's acuity category. In the WMSN, 1 point equals 7.5 minutes of care, 2 points equal 15 minutes.

Note that on the list of critical indicators there is only

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one that has a point value of less than 2 points. This critical indicator, Vital Signs q.i.d. or less is the only exception to the 15 minute rule. This exception was allowed because of the frequency with which this indicator occurs.

- e. The WMSN quantifies the number of nursing personnel that are recommended to be available to provide patient care.**

The WMSN determines the available staff time needed for patient care during a 24 hour period. Monthly WMSN data are used to calculate the total number of personnel required to staff a unit, allowing time for personnel leaves, sick time, in and out processing, mandatory military training, organizational duties, and other miscellaneous job requirements. This is called non-available time and is a constant that has been determined by the Department of Defense for use by all the Services. (Non-available time is discussed in greater detail during a later section.)

- f. The WMSN provides staff time for administration and management of a nursing unit.**

The Head Nurse and Wardmaster position on each nursing unit is recognized as constant requirements for unit administration and management, in addition to personnel requirements for direct patient care. However, it is recognized that these personnel also participate in direct patient care in times of unexpected workload. In this way, they also function as a mechanism to offset periods of unpredicted increases in nursing workload.

- g. The WMSN is reliable.**

It is important that any system be consistent. Research shows that the WMSN is reliable; that is, it can be used by two independent nurse classifiers on the same patient with high category agreement. Maintaining consistent use of this classification system throughout the Army is very important to the continued accuracy of the workload data. For this reason, quarterly Inter-Rater Reliability (IRR) tests must be done on all nursing units to ensure that patients are being correctly and consistently categorized. Should the IRR score drop below 80%, actions must be undertaken to identify the cause and correct the problem. The test is repeated at least monthly until the IRR score is 80% or above.

- h. The WMSN is valid.**

As a patient classification system, WMSN measures what it is

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supposed to measure and provides an accurate measurement of required staff. Research supports the validity of the WMSN system. A discussion of WMSN validity is included in later sections.

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## VALIDITY OF WMSN: PARTS 1 & 2

### DISCUSSION ON THE VALIDITY OF WMSN: PART I

As noted earlier, the WMSN has been shown, by sound statistical processes, to be both reliable and valid. The critical indicators in the WMSN were standardized on the basis of tens of thousands of measurements. While the WMSN has been shown to be valid, there are real differences among medical treatment facilities (MTFs) which account for some of the manpower differences that nurses observe. Whereas the WMSN was standardized across a broad continuum of MTFs, staffs, and patients, there are unique factors and missions within MTFs that influence the number of nursing personnel that are necessary to deliver the required patient care. These differences account for the delta that occurs between the WMSN recommendations and the nursing manager's assessments. Among many others, these factors include:

a. **Professional Experience.** The WMSN was standardized on a wide continuum of experienced and inexperienced registered nurses and paraprofessionals. Many nurses observe that personnel involved in the delivery of health care increase their overall speed and efficiency through continuous work experience. However, the performance times of newly graduated health care delivery personnel are part of the measurements which were factored into the WMSN equations. The assessment of the adequacy of staffing can vary according to the overall experience level of the unit's staff.

b. **Unit Architecture & Configuration.** MTFs throughout the Army have a wide range of configurations. Nursing units with particularly inefficient configurations such as those with long corridors and patient rooms that are fairly remote from the nursing station may have more manpower intensive requirements than the recommendations which are noted within the WMSN. Conversely, nursing units that are more modern and convenient to the nursing staff may have inherent manpower advantages not identified by the WMSN.

c. **Professional Mix.** As reported in the section on WMSN mathematics, the mix of professionals and paraprofessionals was determined by a panel of experts. It is not uncommon to find that a different mix of paraprofessionals and professionals (as prescribed by the WMSN) is available to staff a particular unit on a particular day. The change in the recommended mix of the nursing staff must be assessed by the head/charge nurse or

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supervisor for its adequacy. The shift in the staff mix of personnel that were identified by the WMSN, may or may not effect the staffing requirements for a unit. As a general rule, it is assumed that greater amounts of work may be accomplished by the same number of personnel when the mix of personnel reflects a higher degree of education, experience and/or skill. This produces a significant time advantage which is not accounted for by the WMSN. Professional assessment is the key to determining the final staffing requirements.

**NOTE: The staffing mix identified by the WMSN is also broken out across the various shifts in relation to expert recommendations.**

**It is important to note that on any particular day, a unit may find their staffing demands disproportionate to the WMSN breakout due to the amount of workload that must be accomplished on one shift verses another. Again, professional assessment is the key to understanding the nuances of staffing across mix and shifts.**

d. Miscellaneous. There are many times when the personnel required by the WMSN is predicated on workload which changes after the patient classification is conducted. Among others, a decrease in workload may be due to unexpected discharges, transfers, discontinued orders or canceled procedures. However, once the daily patient classification is completed, the WMSN requirements will continue to reflect the projected workload and not any decrease in workload. This can greatly increase the difference between the WMSN recommendations and the manpower requirements which are actually necessary to provide the care. (Lost or gained workload is discussed in greater detail in the following chapters.)

#### **Discussion:**

The WMSN is an important tool which nursing managers have to assist in the assessment of staffing requirements. However, the WMSN calculations must be tempered by additional information unique to the unit, staff or patients. There are many nuances that cannot be adequately captured or reflected by the WMSN. Coupled with the WMSN projections, the additional information provides the basis for the nursing manager's assessment and consonant adjustments to staffing.

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## VALIDITY OF WMSN: PART II

### WORKLOAD NOT CAPTURED BY THE WMSN

The WMSN captures a "snapshot" of prospective workload at one point in time for a particular population on a nursing unit.

Nurses have expressed concern that workload is lost due to admissions and emergencies that occur after this snapshot. This workload includes emergency surgeries, after hours recovery care performed by an Intensive Care Unit, cardiac arrests, late admissions, and patients who are admitted after the snapshot point of time and discharged or transferred before the next day's snapshot in time. Not all direct care requirements are predictable. For this reason, the system allows one to count unanticipated direct care activities that are performed during the shift in which the patient is classified. If patients are classified on the day shift, then include any unexpected activities that were performed during that day shift, such as an unanticipated lumbar puncture. It is recognized that the unanticipated workload that occurs on the other two shifts is lost.

From a daily management point of view, it is difficult to plan staffing to support this unanticipated workload. For this reason evening and night supervisors must make critical decisions to move or call in staff as needed.

From a manpower resources perspective, there are several points to consider:

1. Manpower standards use the average workload to determine manpower requirements, not peak workload. Managers must handle workload peaks by judicious use of assigned staff, when actually employed (WAE) staff, and overtime. Conversely, workload valleys allow use of compensatory time or shifting of personnel to areas with peak workloads. Capture of unanticipated workload will only be of benefit if the result is an increase in the overall average workload for a nursing unit. In volunteer studies done by Medical Treatment Facilities (MTF) to assess the impact of capturing lost workload, patients were classified every shift. These studies showed that most did not earn additional manpower. Some units earned one additional requirement, but judged that the time required to classify patients each shift was not compensated by the one additional requirement.

2. Manpower analysts also recognize that there is workload counted that is not performed. Examples include late unanticipated discharges, transfers, discontinued orders,

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canceled procedures and deaths. These occurrences offset some of the unanticipated workload increases.

**The Chief, Department of Nursing (DON) has the authority to address lost workload in the following ways:**

1. The Chief, DON sets the time at which workload will be captured throughout the MTF. Typically the UCAPERS batch cycle is done at 1400 hours; however, the patient workload may be more stable during the night shift. The Chief, DON could establish that the UCAPERS batch cycle be run during the night shift.

2. The Chief, DON can require patient classification every shift and test whether or not this will make a difference in manpower requirements.

3. Units that experience a significant amount of unanticipated workload should keep a log of this data and submit it during a manpower application to justify the need for additional staff. This may be of benefit for ICUs which seem to have many evening admissions who are discharged or transferred the next day before classification. It may or may not result in an additional manpower requirement.

The WMSN reflects the majority of the nursing time required to provide nursing care. Even if a nursing unit's authorizations and assigned staff numbers are equal to the earned manpower requirements, as shown on the TDA documents, the unit will still need to manage their personnel assets to accommodate workload peaks.

### **DISCUSSION**

It is important to remember that the WMSN projects the amount of personnel who are needed to deliver health care. Many of the concerns regarding the validity of the WMSN to accurately project the manpower needed for a unit can be traced directly to the inappropriate use or misunderstanding of the WMSN. The WMSN does not take into account additional missions which your personnel must assume that are beyond the purview of inpatient care. Workload outside the scope of nursing, such as, housekeeping duties and transporting lab specimens is not considered part of nursing's primary practice. Nursing units that routinely lose resources to these activities should seek the proper organizational support for these activities. Nursing

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staff who are detailed for work other than the delivery of health care as defined by the WMSN will not have their effort accounted for within the WMSN. Non-available times beyond the standards that were built into the manpower equations are issues that organizations must address. Nurses must strive to understand the purpose and parameters of the WMSN. When used in its proper context, the WMSN is a powerful system which can greatly enhance a nursing manager's ability to guide his/her units efficiently and effectively.

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## **USES OF WMSN INFORMATION**

The WMSN provides the nurse manager with a wealth of objective information that was previously unavailable for decision making and action. Too often, however, nurses abuse the WMSN by making decisions based solely on the WMSN data. WMSN data should never be the sole consideration in decision-making. WMSN is just one of many tools which nursing managers can use to assist and enhance their decision making. Some possible uses of WMSN include:

### **Executive Level of Nursing:**

- \* Report nursing manpower and workload statistics to the Command group, MACOM and other key personnel as needed.
- \* Provide an overview of staffing trends and patterns.
- \* Initiate and expand a nursing pool.
- \* Make initial nursing personnel assignments.
- \* Realign assets on the TDA.
- \* Justify combining units permanently or temporarily such as during a holiday period.
- \* Justify exclusion from a hiring freeze.
- \* Reduce the number of attempts by non-nursing areas to acquire nursing authorizations.
- \* Use with risk management and quality improvement programs.
- \* Budget planning (includes personnel, equipment, supplies etc.)
- \* Support and substantiate nursing request for additional assets, i.e., through the Program Budget Advisory Committee process.
- \* Project capability for new missions.
- \* Evaluate nursing productivity.
- \* Include as part of the performance plan for each nurse.
- \* Justify the removal of unit personnel from additional duty rosters due to shortages.
- \* Teach "staff", the management of personnel resources.

### **Operations level of Nursing:**

- \* Improve nursing documentation.
- \* Determine areas for cross training.
- \* Include as part of the performance plan for each nurse.
- \* Recommend changes to the surgery schedule for more efficient utilization of staff.
- \* Evaluate nursing productivity.
- \* Use as an educational tool for staff management development.
- \* Proactive to staff shortages based on the 24 hour staff projection.

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- \* Adjust staffing on all shifts to improve the utilization of personnel across all shifts.
- \* Identify staffing patterns and workload trends.
- \* Assist in determining which units have the capability to support additional workload or temporary missions or projects.
- \* QA/QI
- \* Justify the need to cap admissions, redirect admissions, or transfer patients areas of lesser workload.
- \* Justify needs for additional resources or overtime.
- \* Improve accountability for personnel.
- \* Encourage loaning of staff between units without resentment.
- \* Encourage peer review.
- \* Provide objective data when discussing unusual occurrences.

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## **SELECTED STRATEGIES**

The following subsection includes some of the management strategies which were not included in other sections of this manual. The uses and strategies listed in this manual are not comprehensive. Nurses are encouraged to continue developing additional uses and management strategies for the WMSN and to share their experiences with other Army Nurse Corps Officers.

The Uniform Chart of Accounts Personnel Utilization System (UCAPERS) Patient Acuity (PA) module, calculates and reports the percentage of fill by shift. Monitoring this information will suggest trends in noncompliance with JCAHO standards. Recognize that this figure is only accurate if the scheduling information entered into the computer is accurate.

Document actions taken to manage workload and staffing. Some units document these actions on their time schedule, 24 Hour report, or UCAPERS printout report. Wherever your facility decides to keep these record, make a notation of any changes in workload and staffing. If the workload on a unit decreases after the "snapshot" of classification, make a note that the existing staff is adequate to meet the present workload because of circumstances such as patient discharges, transfers, deaths, discontinuance of orders, or completion of admission workload on the day shift. Also, document if you hold staff members over into the next shift, call in extra staff, pull staff to work a short unit, or if you receive help from other nursing personnel such as reservists, red cross volunteers or the nursing supervisor. (Refer to the SAMPLE DOCUMENTATION OF STAFF WORKLOAD section for additional discussion.)

Provide nursing managers with the monthly Manpower Utilization Summary Reports (MUSR) which shows the ratio of available to non-available time. This can facilitate management of non-available time.

Manage non-available and leave time. Ask for exception to duties that take personnel away from the bedside, such as military details for snow removal. Have your paraprofessionals in shortage units exempted from duty rosters. (Refer to the section on under WMSN Formulas regarding the Army Availability Factor for additional discussion.)

Place priority on accurate and timely input and updating of staffing schedules in UCAPERS (prior to the printing of the daily report).

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Establish a procedure to ensure the capture of borrowed and loaned staff for input into UCAPERS. For example, instruct personnel you loaned to another unit to sign out on the unit time schedule "loaned to unit 5A for 2 hours" and sign in on the borrowing unit's time schedule. "CPT Jones, borrowed for 2 hours".

Compare monthly Full Time Equivalents (FTEs) to the WMSN recommended on the monthly WMSN report to determine if staff and workload are balanced over the period of a month. This can be an indicator of nursing's management's ability to effectively meet patient care needs over a period of time.

Identify and target clinical areas that require additional support by providing civilian, contract, When Actually Employed (WAE), or military personnel. Advise administrators whenever the hospital is not in compliance with organizational and JCAHO standards and, therefore, would be at risk of receiving a finding.

Document and manage workload peaks through the use of civilian hires, contracts, WAEs, reservists, and staff overtime. Recognize that the manpower standard recognizes requirements based on average workload. Units that have a great fluctuation in either census or acuity levels may have difficulty meeting the recommended staffing levels during workload peaks. Minimally staffed units have little flexibility in meeting workload peaks and units whose assigned staff is much less than their recognized requirements will have difficulty meeting their average workload.

Use staffing trend information to demonstrate to the Comptroller that even when authorizations equal requirements, you will need additional dollars for staff to support peak workload.

When your assigned strength is less than required, extra staff will be needed to handle average workload.

Should there be problems hiring RNs, consider hiring less educated, less costly support personnel to free up the scarce RN resource. Nurses do not count activities that are done by other than nursing personnel when classifying a patient. Hire staff to transport patients, serve trays, draw lab blood specimens on the evening/night shift. Consider ward clerks on the evening shift, perhaps shared between units on the night shift. Consider creative new ways to efficiently provide care while maximizing your resources.

Keep the Commander and other administrators apprised of

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staffing trends and needs. Work as a team to provide safe quality care to all patients. Enlist the aid of physicians. Explain the WMSN system and how productivity can improve when nursing resources are maximized. Make them aware that acuity points cannot be captured for unanticipated workload and that their cooperation is essential to maximize the efficiency and effectiveness of nursing resources. It is essential that physicians assist in the following ways:

a. Communicate to the nursing staff the plans for each patient early in the day (transfer, discharge, transfusions, etc.).

b. Ensure that written orders are current, accurate, specific, timely, and complete so nursing staff can take credit for routine care give. Orders must be "clearly" written for care and treatments such as urine specific gravity, oxygen, intravenous infusions, intake and output, vital signs, circulation checks, special monitoring, ambulation, preps for diagnostic procedures, etc.

c. Notify the nurses early in the day if a procedure is anticipated for which assistance will be needed, such as, lumbar puncture, paracentesis, thoracentesis, arteriogram, and chest tube insertion.

d. Do not ask the nursing staff to perform tasks that are the workload of other departments. Nursing will not be staffed to do the work of other health care providers and can only provide help to others at the expense of their own authorized workload.

e. Pre-admit as many patients as possible. Workload cannot be captured without a register number.

f. Elective admissions, not pre-admitted, should arrive on the unit NLT 0900. (Note: This may differ among organizations. It is relative to patient classification and the running of the batch cycle.)

g. Be aware of the capability of the units on which the patients will be admitted. This requires a basic understanding of the WMSN.

h. Lab, X-ray, etc. request should be made and scheduled for times when the organization as a whole can support the requests and provide the appropriate resources outside of nursing to accomplish them.

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i. Discharge patients in the AM and avoid discharges on other shifts and at the change of shifts.

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## WMSN AS A "CAPPING" TOOL

Nurses in all fixed Army hospitals use the WMSN to classify patients and to determine staffing needs. This patient classification system estimates the number of nursing care hours required to provide safe nursing care to the number of patients already on the nursing unit. Units utilize these nursing care hours to determine staffing needs.

When required nursing care hours exceed available man-hours and a unit is unable to handle additional patients without jeopardizing patient safety, nurses must make management decisions to equalize workload or to recommend that physicians limit patient admissions. The nursing supervisor has the responsibility to determine if nursing staff can be pulled from other areas within the facility to augment the unit and increase its capacity. If this is not feasible, the nursing supervisor identifies units which have the ability to absorb additional workload and recommends that new patients be admitted to those units.

Do not confuse distributing patients to equalizing workload or limiting admissions with curtailing hospital admissions. Limiting admissions or "capping beds" for a specific nursing unit does not automatically mean that the patient cannot be admitted to the hospital. Rather it means that additional admissions to specific units with high nursing care hour requirements should not occur and health care providers should admit patients to units with lesser nurse care hour requirements. This practice ensures that patients receive required care from nursing staff who are not already overworked. Health care providers should not turn patients away or not admit them because of the inconvenience of having patients from the various services scattered throughout the facility. Only when in-house capability does not exist, should you cap beds at the facility level.

d. The WMSN is only **one of the information tools** available to nurses to evaluate staffing needs and **is NOT used exclusively to determine a unit's capability to handle additional workload.** The nursing supervisor considers the experience of the staff, as well as the amount of workload already accomplished, when determining if available staff can handle current/projected workload. **The decision to cap admissions to the facility should NOT be made lightly and requires a coordinated effort within the medical treatment facility.** The WMSN system can readily be incorporated into a comprehensive bed management policy.

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**NOTE:** Writing specific policies which delineate "thresholds" for the mandatory capping of beds is **STRONGLY DISCOURAGED**. The decision to cap beds should never be made solely on the basis of the information provided by the WMSN. The decision to cap beds should be made on the basis of many factors which the nurse, in conjunction with the medical staff, must evaluate.

The "capping of beds" should be one of the last management strategies to pursue.

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## **ACCOUNTABILITY FOR THE WMSN**

The attendant expectation is that the task of ensuring the accuracy of the WMSN data is now a part of the professional role. Responsibilities for the WMSN for which professionals are accountable are as follows:

### **Clinical Staff Nurse:**

1. Classifies each patient daily into 1 of 6 acuity categories.
2. Documents the acuity category, date and initials of the RN performing classification on DA Form 4677.

### **Clinical Head Nurse:**

1. Assures the accuracy of WMSN information by ensuring that clinical staff nurses know the mechanics of classification and by checking monthly data for correctness.
2. Maintains WMSN information. (Need to maintain the average number of patients by acuity.)
3. Monitors the nursing unit's IRR testing results and implements actions to correct problems.
4. Includes in the evaluation of each staff nurse his or her ability to use the WMSN.

### **Section Supervisor:**

1. Reviews unit WMSN data to identify patient categories that are out of line with the usual workload of a given unit.
2. Monitors the monthly average acuity of each unit to identify reasons for fluctuations and trends.
3. Educates physicians who admit patients to the section about the managerial and manpower implications of the WMSN.
4. Includes in the evaluation of the CHNs the accuracy and appropriate uses of the WMSN information; that is, positive or negative performance in its use or maintenance.

### **IRR Program Coordinator:**

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1. Ensures the IRR testing is conducted at least quarterly on each inpatient unit for which the WMSN is applicable.
2. Structures the IRR program so that:
  - a. Initial IRR is established for the pool of experienced raters.
  - b. The IRR is established for the pool of experienced raters.
  - c. Quarterly IRR is conducted by experienced raters.
  - d. Tabulation & reporting of IRR is done in a timely manner and the results are shared with the unit, the section or service chief, and the chief nurse (CN).
  - e. If a unit fails to achieve a minimum of 80 percent agreement on the quarterly IRR, the service or section chief is involved in the problem resolution.
  - f. Monthly IRR testing is initiated until an IRR of 80 percent agreement by category is achieved.

**Chief, Nursing Education & Staff Development:**

1. Responsible for development of WMSN education commensurate with the levels of expertise and responsibilities of the nursing staff.
2. Directs educational endeavors to the following:
  - a. New personnel: Presents a standard program to all new RNs who will be using the WMSN. (Topics - the principles and mechanics of patient classification, policies for use of WMSN data, IRR procedures, and responsibilities for accuracy of patient acuity data.
  - b. Professional RN staff: Provide annual inservice education. (Topics - identified problem areas observed and/or perceived needs, trends noted through IRR testing, and updates to the system.
  - c. Nursing Management: Presents the WMSN as a management tool for all levels of nurse managers. (Topics - uses of WMSN data at various levels of nursing management, manpower application, &

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managerial accountability.

- d. Other personnel: Provides educational programs aimed at specific populations such as physicians, resources management staff, and other administrative personnel.

**Chief, Department of Nursing:**

1. Monitors accuracy & appropriateness of uses of WMSN information.
2. Distributes and redistributes nursing personnel on a short- and long-term basis to offset nursing care hours (NCHs) deficits.
3. Monitors monthly comparisons of WMSN requirements to the requirements, authorization, and assigned numbers documented in the TDA, unit IRR scores, and unit acuity for major changes and trends within the facility.
4. Educates the Commander, Deputy Chief for Clinical Services, deputy chief of administration, and others involved in hospital administration about the managerial and manpower implications of the WMSN.
5. Reports WMSN manpower and workload statistics to the command group.
6. Facilitates the development of regulations, policies, and procedures in collaboration with individuals affected by the system to promote the use of the data to balance workload and manpower.

**Facility Nurse Methods Analyst:**

1. Liaison between the resource management staff and the C, DON.
2. Monitors changes in workload & staffing.
3. Provides trend analysis and identifies factors contributing to fluctuations in workload for Resource Management Staff and C, DON.

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## WMSN STAFFING SKILL MIX & DISTRIBUTION

The WMSN is a management tool used to assess nursing personnel staffing based on patients' nursing care needs. Nurses classify patients according to an assessment of their nursing care needs for the next 24 hour period and determine the total number of nursing care hours (NCH) a unit's patients will require. Therefore, the WMSN is also a patient classification system linked to a staffing methodology.

The NCHs include both direct and indirect care staff time. Each clinical area has unique amounts of direct care hours per acuity category and unique amounts of indirect care hours. Hence, nurses use unit specific charts for the seven types of nursing units to determine total nursing care hours required. The average task time required for bedside care of patients in each of the six acuity categories and the associated nursing care hours per acuity category make up the direct care hours. Indirect care hours include activities that necessitate time over and above the direct care critical indicators.

**Note:** Category zero applies to patients who are on pass from the hospital. Because category zero generates no acuity points, it will not be routinely addressed in the following charts. Only the six primary (point generating) acuity categories are addressed.

The WMSN converts the unit's NCHs required into the daily WMSN recommended number and skill mix of staff needed per shift to provide the projected NCHs. The number of staff recommended reflects the staff needed to provide the projected nursing care.

A panel of experts representing each clinical area determined the skill mix of Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and Nurse Assistant (NAs). They based their decision on a literature review, considerations of the nursing activities reflected by the WMSN critical indicators, the clinical area's unique indirect care time, and the appropriate level of training required to provided the nursing activities. The percentages of professionals and paraprofessionals, and the percentages of LPNs and NAs within paraprofessional, are:

	Professional	Paraprofessional	LPN	NA
Intensive Care	59%	41%	75%	25%
Medical/Surgical	40%	60%	49%	51%

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Neonatal Intensive Care	80%	20%	75%	25%
Newborn Nursery	56%	44%	51%	49%
Obstetrics (Ante/Postpartum)	40%	60%	55%	45%
Pediatrics	50%	50%	47%	53%
Psychiatric	38%	62%	30%	70%

A panel of nursing experts also determined the distribution of staff across shifts. This varied by clinical area as listed below:

**a. Medical/Surgical, Obstetrical, Psychiatric, Pediatric**

Days = 45%  
Evenings = 35%  
Nights = 20%

**b. Intensive Care, Neonatal Intensive Care, Newborn Nursery**

Days = 33%  
Evenings = 33%  
Nights = 33%



## WMSN CATEGORIES

Category	Point Range	Midpoint Category	Approximate Range of NCHs per Category
0	0	0	0
I	0 - 12	7	<1 through 2.5 hour
II	13 - 31	22	2.6 through 6.5 hours
III	32 - 63	48	6.6 through 13.5 hours
IV	64 - 95	80	13.6 through 20 hours
V	96 - 145	121	21 through 30 hours
VI	146 - 256	204	31 through 54 hours

### Quick Reference Staff to Patient Ratios & Hours of Care:

Category	General Staff To Pt. Ratios	Approximate Daily NCHs	Nursing Care Description
0	0	0	On Pass
I	1:20	1	Self-Care/Minimal Care
II	1:6	4	Moderate Care
III	1:3	10	Acute Care
IV	1:2	17	Intensive Care
V	1:1	25	Continuous Care
VI	>1:1	>30	Critical Care

\* These are excellent general guidelines that provide a "quick reference" or "thumbnail sketch" for staffing planning purposes. They are not exact requirements. As you can see by the example in Category III, a staff to patient ratio of approximately 1 to 3 is anticipated. However, the approximate daily NCHs of 10 would multiply out to 30 hours a day. Remember that the approximate 10 nursing care hours represents the midpoint of the category III time band. The low end of the category III NCH band is just over 6 hours which would allow approximately 1 staff for every 4 patients. These guidelines allow for quick assessment by nurses. It takes a nurse's professional assessment in conjunction with the WMSN to determine the exact staffing needed for each unit and shift. (Other factors that influence staffing ratios include, among others, economies of scale, layout of the unit, workload not captured by the WMSN, unexpected admissions/ discharges, other unit missions beyond those identified in the WMSN, and staff experience.) The WMSN provides an excellent starting point for professional assessment. Nursing Care Hour requirements by type and category of patient are included in the following section.

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## WMSN FORMULAS

Staffing Standard Equation -

$$Y_c = a + (b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6) \text{ (ICM)}$$

$Y_c$  = Total Computed Man-hours Required

\*  $a$  = Constant Man-hours Required (overhead)

\*\*  $b$  = Man-hours Required Per Patient Within a Category

$x$  = Average Number of Patients in the Category

ICM = Indirect Care Multiplier (by unit)

#1 - 6 = Category of patient

\* The value for "a" represents 290 hours. This is the additional administrative overhead component of a Head Nurse and Ward Master (145 hrs x 2).

\*\* The value for "b" represents direct patient care man hours and is computed by taking the midpoint of each category times 7.5 minutes per acuity point divided by 60 minutes.)

**Raw Staff Earned =**

$$\text{(Ave. \# of Daily NCHs) / 145 + 2 [HN \& WM]}$$

**WMSN Required = Raw Staff Earned + (any additive)**

**Minimum Staffing:**

**The minimal staffing requirement on any nursing unit is 12. This is the amount of nursing staff required to operate a nursing unit 24 hours/day throughout the year. This number includes the administrative overhead of the Head Nurse and Ward Master.**

Due to the unique readiness requirements of the European Theater, a readiness requirement additive was given to each nursing unit to assist with the additional demands. This added one full time requirement to the overhead. The minimal staffing requirement for a nursing unit in Europe is 13.

**Strategy:** In previous years, the manpower staffing system was such that it was advantageous for Medical Treatment Facilities to maintain as many nursing units as possible including those units which generated minimal staffing. In the current capitated and resource restricted environment, maintaining unnecessary nursing units is no longer a sound strategy. It is highly beneficial for

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MTFs to maintain only the nursing units necessary to accomplish its mission. In a capitated environment, the consolidation of nursing units, when possible, is a strategy that pays direct dividends to the organization.

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## ARMY AVAILABILITY FACTOR

The Army Availability Factor (AAF) is a peacetime factor that depicts the amount of time military and civilian personnel should be available to the unit in a standard work month. The AAF was developed by the DOD for use by all of the Services. The AAF was developed along parameters consistent with Congressional "expectations" about the amount of time service members and civilians should be available for performing duty.

### Manpower Calculations:

Congressionally Mandated Work Year = 2087 HRS  
 Minus Holidays (10 X 8 Hrs.) = 2007 HRS  
 Divided by 12 Months = \*167.25 HRS/Month

**\* [167.25 HRS/MONTH = 1 FULL TIME EQUIVALENT (FTE)]**

Minus Non-Available Time:	<u>MILITARY</u>	<u>CIVILIAN</u>
Leave (Non-Medical)	9.71	12.93
Medical	3.61	4.23
Training (Ancillary)	3.64	.99
Organizational Duties	3.36	2.78
Miscellaneous	.67	.67
PCS Related	<u>1.26</u>	<u>.65</u>
Total Non-Available Hours	22.25 Hours	22.25 Hours
Monthly Army Availability	**145.00 Hours	**145.00 Hours

**\*\* [145.00 HRS/MONTH = 1 FULL TIME REQUIREMENT (FTR)]**

**NOTE:** Both FTEs and FTRs are used throughout the varying automation systems within the Army. UCAPERS uses FTEs in its calculations because the UCAPERS system is concerned with the entire manpower bill. Employees are not paid just for their available time. Employees are paid and provided benefits based upon 167.25 Hours per month. The WMSN system, however, is not concerned with paying bills. The WMSN primary objective is to identify the manpower required that is necessary to perform the work within the constraints of 145 available hours per month per staff member. It reports recommendations by FTRs. These differing approaches often cause confusion when comparing WMSN reports with UCAPERS reports. It is very important to understand

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**the distinction between FTEs and FTRs especially when planning manpower requirements for new healthcare initiatives.**

(NOTE: The AAF for local National employees overseas varies. For example, the AAF for Germany is 135 hours a month and in England and Italy the AAF for local National employees is 140 hours per month.)

The AAF of 145 hours/month is not intended to represent a precise measure of available time at a particular work center. Available time is expected to vary among work centers. Even if non-available factors were measured exactly, the measurement would not reflect all of the "desired" non-available time. Managers at all levels have the managerial latitude to take actions which are necessary to control elements of the non-available time.

The AAF must withstand the scrutiny of higher headquarters and oversight agencies which are concerned with how the Services manage their resources. In a review of military non-available time, the GAO was highly critical of the amount of time the military in TDA units spend on organizational duties and ancillary training activities. The GAO recommended reducing non-available time attributable to those activities.

No other single factor evokes as much emotion as the amount of non-available time which actually occurs within hospitals contrasted to the amount which is allowed and built into the manpower formulas. Many Departments of Nursing report that their non-available time substantially exceeds the amount of non-available time that is built into the formulas.

Managers need to understand that identifying a high rate of non-available time does not necessarily make it proper or necessary. It is unlikely that the AAF will change in the foreseeable future. Any non-available time above the allowed amount will be taken out of existing resources.

Controlling the amount of non-available time within an organization is the only available method of managing this problem. Nursing managers must have a thorough understanding of the type and amount of non-available time that units are experiencing. In many cases, the total amount of non-available time is not known by the Command group. Nurses are encouraged to work with Commanders to create a strategy which is designed to control the amount of non-available time. The coordination of "additional duties" between the Hospital and Company Commander can significantly lessen the impact on staffing.

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Nurses should continue to record all non-available time and delineate the reasons for it. This information should be presented for consideration during the application of a manpower staffing model. Example: There may be a unique mission on a unit, such as an air evacuation transportation requirement or a telemetry requirement that are not readily identified by the WMSN data. This additional information may have a significant impact on the manpower requirements for a particular unit.

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