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AN EXAMPLE FOR BEST PRACTICES: STAFF PLANNING BASED ON PATIENT ACUITY

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ABSTRACT

The importance of using correct health professional at correct place for effective healthcare is known by many healthcare professional. Insufficient nurse staff causes many negative effects, such as extension of patient hospitalization and increase in hospital infections and even death rates. This study aims to classify the patients hospitalized at AHG, calculate the patient care coefficients every floor or section, monitor necessary nurse numbers on the system, orient nurses to units in need when necessary, and thus, increase patient and employee satisfaction.

INTRODUCTION

Nowadays, many studies in literature describe the contribution of using correct health professional at correct place for effective healthcare. It is known that having insufficient nurse staff causes many negative effects, such as extension of patient hospitalization and increase in hospital infections and even death rates (Aiken *et al*., Estabrooks *et al*., Kane *et al*., Needleman *et al*., Tourangeau *et al*.). Aiken *et al*. have proven in their studies that correct nurse staffs have a negative association with patient death rates. In another study conducted in 799 US hospitals for 1 year (Needleman *et al*.) demonstrated the higher level of nurse staffing associated with lower failure to rescue rates and improved patient outcomes such as rates of urinary tract infection, upper gastrointestinal bleeding, pneumonia and cardiac arrest.

Also, it is known that nurses, who employed in hospitals with sufficient nurse staffs face less worksite dissatisfaction, burnout syndrome and problems related to patient care quality (Rafferty *et al*., ?). Today, nursing managers and hospital administrators are under pressure for providing cost-effective care and savings. Nurse leaders must create nursing staffs with the most suitable number and versatility to provide safe, efficient and cost-effective care. Administration needs to be aware that effective nursing care is now seen as an efficient use of resources while, it will reduce the expense of complications, extended hospital stays and potentially hospital readmissions (Ball *et al*., ?). In 2007, the American Nurse Association (ANA) stated that nursing care has linked to high quality care for patients, including protecting their safety. Nurses are crucial in preventing adverse events. If nurses spend less time with patients and higher patient to nurse ratio is utilized in the unit then, poor outcomes like increased length of stay, nosocomial infections and pressure ulcers are likely occur (Institute of Medicine of the National Academies, Washington DC). The monetary benefit of saved lives per 1,000 hospitalized patients was 2.5 times higher than the increased cost of one additional full-time nurse per patient day in the ICU. It was 1.8 times higher in surgical units and 1.3 times higher in medical units. The researchers estimated that increasing nurse staffing by one full-time nurse in the ICU would save 327,390 years of life in men and 320,988 in women. This would result in a productivity benefit of $4 billion to $5 billion dollars. In surgical units, the staffing change would result in a larger productivity benefit of $8 billion to $10 billion dollars (Shamilyan *et al*., ?).

Determining an acuity-based staffing model constitutes a delicate balance between patient safety and provider productivity at the same time optimizing organizational costs. ANA also supports that nurse-patient ratio has to be based on patient acuity while taking into consideration the number of admissions, discharges and transfers on the unit.

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The study was aimed to determine the correct personnel number for Acıbadem Health Group (AHG). AHG hospitals have been using the "electronic health record system" since 2009. This project aims to classify the patients hospitalized at AHG, calculate the patient care coefficients every floor or section, monitor necessary nurse numbers on the system, orient nurses to units in need when necessary, and thus, increase patient and employee satisfaction. This system is not used actively in Turkey which is one of the strengths of our study. Create nurse staffing according to the dependency level and requirements of our patients, affect our care quality positively (outputs are presented in our international scientific study). This system also helps us tell the truth by speaking with numbers.

Applied methods and standards

A patient is selected from the nurse consol, an entry is made from system application screen, and patient classification form is filled-in by staff nurses at every shift. Patient care group and necessary care time is calculated according to the points defined in the system for every question defined in the form. Point ranges used in the calculation are as follows:

No	Group Name	Lowest Point	Top Points	Care Time (hours)
1	Independent patient	0	24	2
2	Low level dependent patient	25	48	4
3	Mid level dependent patient	49	120	10
4	High level dependent patient	121	>	14

Branch name comes automatically on the selected screen. Location must be selected from the system. After shift selection, with the query button; number of beds, number of patients, number of classified patients and patient dependency type are seen for the relevant position. The system calculates the necessary number of nurses and patient care coefficient according to this data. Number of nurses currently working in that shift for the relevant location is entered to the current area. The 'detail' button on the nurse staff planning screen is for determining the current nurse type. Pressing this icon allows additions by entering the duty and number. This area helps determine which duty definitions current nurses are in.

The 'note' area on Nurse Staff Planning screen helps classifying the nurses going or coming to help, being at orientation or intern. After finishing the inputs, various expressions are seen at the right side of the line. These expressions change according to whether the number of necessary nurses is below, near or over the current number. The system calculates the number of necessary nurses independently from care level for patients that require one-on-one care, require care from 2 nurses, and require AHG special nursing services. The nurse, who fills-in the classification form, will select the nurse of the patient from the primary nurse area. Charge nurse sees inpatient number, classified patient number, average care scores and necessary nurse number, and enters the current nurse number to the system in the defined time range. Nursing Services Managers see the dependency at inpatient units and Nursing Services Director see the dependency levels of all hospitals. Nurse Staff Planning system has 6 different reports. These are grouped under the headings of date range, branch, position, difference (between calculated nurse number and assigned nurse number), staffing notes and shift definition. Occupancy rate and occupancy rate detail reports are prepared for our managers and provide the total nurse numbers on hospital basis, average patient number, care scores and occupancy rate on floor basis. Also, patient care coefficient is calculated by dividing the necessary nurse number by patient number. The report being available for all management levels to ensure that managers are informed of each other instantaneously.

Conclusion

Insufficient nurse staffs are associated with weak patient outcomes; extended hospital stays and increases in patient deaths. Using correct nurses at correct places, in other words, "safe staffing" will ensure that patient care requirements are met, safe working conditions are maintained, and appropriate number of personnel with necessary skill profiles employed. In nursing information systems, all record identification and monitoring must be performed and completed over the automation system. The study on this issue is carried out in coordination with AHG Nursing Services Directorate and IT department.

The study had its final form upon 26 meetings held since 2007 and 2 review meetings in the last year. Literature emphasizes that correct staffing must be associated with patient safety. Aware of this, we update our annual necessary number of nurses according to patient acuity level, and continue our health services by focusing on creating a flexible plan based on the needs of our patients. Also, this system has become a tool for raising the awareness of unit managers on staff planning and its effects on the budget.

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