Department of Veterans Affairs
Office of Inspector General

Healthcare Inspection

Patient Equipment and Medication Safety in the Surgical Intensive Care Unit

Michael E. DeBakey VA Medical Center
Houston, Texas

Report No. 12-00823-285

September 24, 2012

VA Office of Inspector General
Washington, DC 20420

To Report Suspected Wrongdoing in VA Programs and Operations:
Telephone: 1-800-488-8244
E-Mail: vaoighotline@va.gov
(Hotline Information: http://www.va.gov/oig/hotline/default.asp)

Executive Summary

The VA Office of Inspector General Office of Healthcare Inspections conducted an inspection in response to complainants' allegations of unsafe patient care and delivery of services in the Surgical Intensive Care Unit (SICU) at the Michael E. DeBakey VA Medical Center in Houston, TX (facility). Specifically, the complainants alleged that:

- The SICU is understaffed, affecting patient care and safety.
- SICU cardiac monitors are outdated and need replaced and other equipment is in short supply.
- Pharmacy Service places all SICU patients' medications in a bin in the medication room and is slow to respond to calls for urgent medications.

We found that the facility's average actual SICU nursing hours per patient day staffing levels were statistically significantly below the unit's target nursing hours per patient day for our sample period. We determined that the facility assigned nurses to units without proper training, tolerated disruptive behavior, and did not properly use Veterans Health Administration nurse staffing methodology.

We substantiated that the SICU cardiac monitors were outdated and in need of replacement, and that equipment was in short supply.

We substantiated that the pharmacy placed SICU patients' medications in a bin in the medication room and was slow to fill requests for urgent medications.

We recommended that the Facility Director:

- Ensure that SICU nursing management reassesses the SICU nursing methodology to ensure the target nursing hours per patient day is appropriate for the unit.
- Ensure that nursing staff receive unit-specific training for each unit they are assigned.
- Ensure that outdated SICU monitors are replaced and equipment is in sufficient supply to meet patient care needs.
- Ensure that disruptive behaviors are addressed to ensure a culture of safety and professionalism in the SICU.
- Ensure that medications are dispensed in a safe, efficient, and effective manner by appropriate pharmacy staff.

The Veterans Integrated Service Network and Acting Facility Directors agreed with our findings and recommendations and provided acceptable improvement plans.

DEPARTMENT OF VETERANS AFFAIRS
Office of Inspector General
Washington, DC 20420

TO: Director, South Central VA Health Care Network (10N16)

SUBJECT: Healthcare Inspection – Patient Equipment and Medication Safety in the Surgical Intensive Care Unit, Michael E. DeBakey VA Medical Center, Houston, Texas

Purpose

The VA Office of Inspector General (OIG) Office of Healthcare Inspections (OHI) conducted an inspection to determine the validity of allegations of unsafe patient care and delivery of services in the Surgical Intensive Care Unit (SICU) of the Michael E. DeBakey VA Medical Center in Houston, TX (facility).

Background

The facility is a tertiary care medical center that is part of Veterans Integrated Service Network (VISN) 16. The facility provides a broad range of inpatient and outpatient healthcare services including outpatient care provided at seven community based outpatient clinics in Beaumont, Conroe, Galveston, Lake Jackson, Lufkin, Richmond, and Texas City, TX.

In November 2011, the OIG's Hotline Division was contacted with allegations of unsafe patient care and delivery of services in the facility's SICU. The allegations were sent to the facility for review. However, the response received from the facility was not sufficiently thorough. Therefore, OHI elected to conduct its own review of the same allegations. The allegations included the following:

- The SICU is understaffed, affecting patient care and safety.
- SICU cardiac monitors are outdated and need replaced and other equipment is in short supply.
- Pharmacy Service places all SICU patients' medications in a bin in the medication room and is slow to respond to calls for urgent medications.

The Veterans Health Administration (VHA) has established requirements for facilities to determine appropriate nurse staffing levels in direct patient care settings using a

data-driven, evidence-based approach.[1] This includes defining the target nursing hours per patient day (NHPPD) for specific care settings.

The Joint Commission (JC) requires that facilities orient staff to relevant hospital-wide and unit-specific procedures.[2] In addition, JC requires continuing education and training be provided to staff when responsibilities change and that training be specific to patient population needs.[3]

VHA requires that facilities implement strategies to inspect, test, and maintain all medical equipment. VHA recommends that backup patient care and monitoring equipment be readily available in the event of a failure or emergency to prevent uninterrupted patient monitoring. In addition, equipment history, such as work orders, must be maintained to identify hazards, determine whether equipment can be repaired or replaced, and address any recalls.[4]

VHA Pharmacy Handbooks require pharmacies to dispense medications in a safe, efficient, and effective manner. This includes properly labeling and packaging medications, timely dispensation, and use of effective delivery systems.[5,6]

Scope and Methodology

We interviewed the facility managers, clinicians, and other employees during an onsite inspection April 2–4, 2012. We reviewed policies and procedures, nurse staffing methodology, incident reports, root cause analysis reports, peer reviews, and other relevant documents. OHI statisticians analyzed the SICU staffing data based on the actual unit census.

We conducted the inspection in accordance with *Quality Standards for Inspection and Evaluation* published by the Council of the Inspectors General on Integrity and Efficiency.

[1] VHA Directive 2010-034, *Staffing Methodology for VHA Nursing Personnel*, July 19, 2010.
[2] Joint Commission, 2012, *Human Resources: Elements of Performance*, January 1, 2012.
[3] Joint Commission, 2012, *Environment of Care: Elements of Performance*, January 1, 2012.
[4] VHA Directive 2008-008, *Recall of Medical Devices and Medical Products, Including Food Products*, November 26, 2008.
[5] VHA Handbook 1108.07, *Pharmacy General Requirements*, April 17, 2008.
[6] VHA Handbook 1108.06, *Inpatient Pharmacy Services*, June 27, 2006.

Inspection Results

Issue 1: SICU Staffing

We assessed the staffing plans and patterns based on the targeted SICU NHPPD, the actual NHPPD, and actual patient census reported by the facility. The sample time period consisted of preset randomly selected dates ranging from October 1, 2011, through March 31, 2012, grouped by holidays, weekdays, and weekends. The facility's average actual SICU NHPPD staffing levels were statistically significantly (at the significant level 0.05) below the target NHPPD for the sample period.

Figure 1 plots the sampled actual SICU NHPPD and census during the sample period. Figure 2 shows the overall actual NHPPD mean (15) and the overall actual patient census (14), including those on holidays, weekdays and weekends, are statistically significantly below the facility target NHPPD (16.37) and patient census target (18).

Figure 1: Sampled Actual NHPPD and Patients (Census) for SICU
October 1, 2011–March 31, 2012

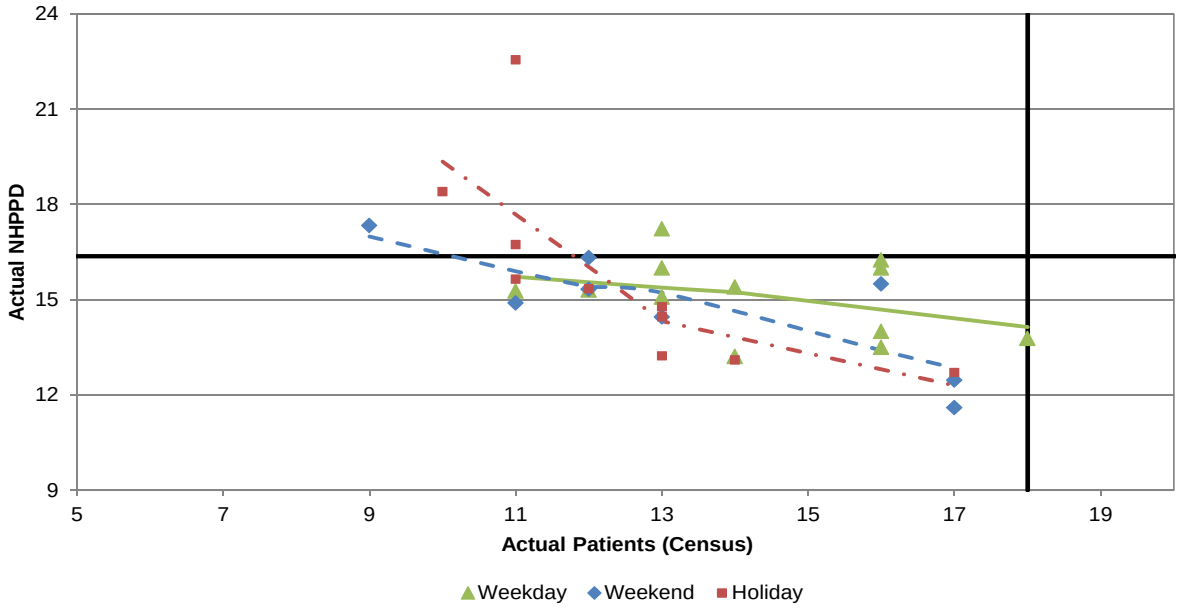


Figure 2: Estimated NHPPD and Daily Patients for SICU
October 1, 2011–March 31, 2012

	NHPPD				Patients (Census)			
	Sample Size	Mean	95% Confidence Interval	Estimate is Statistically Significantly Different from the Target (**16.37**)	Sample Size	Mean	95% Confidence Interval	Estimate is Statistically Significantly Different from the Target (**18.00**)
Holiday	10	15.7	*		10	12.5	*	
Weekday	12	15.1	(14.34, 15.83)	Below	12	14.3	(13.089, 15.578)	Below
Weekend	8	14.7	(13.374, 16.108)	Below	8	13.4	(9.607, 17.143)	Below
Overall	**30**	**15**	**(14.495, 15.565)**	**Below**	**30**	**14**	**(12.963, 15.011)**	**Below**

** All holiday-related data are reviewed.*

In addition, we found that nurses in the SICU were assigned outside of the surgery product line without training to meet specific patient population needs for the units to which they were assigned. During interviews, staff stated they did not disagree with assignments outside their product line, but were frustrated with not being able to meet the specific needs of the patient population on other units. While not an allegation, staff interviewed reported a tolerance of disruptive behaviors by managers in the SICU. Staff reported negative behaviors (such as "bullying," condescending language, verbal outbursts, etc;) and unauthorized activities, such as coming in early and inappropriately changing assignments by some SICU staff. When discussed with facility leadership, they were aware of the behaviors and had taken some corrective actions; however, to some extent, the negative behaviors are ongoing.

Issue 2: Equipment

We substantiated that the cardiac monitors in the SICU were outdated and required frequent repairs. During our site visit, we were provided documentation showing that in 2007 facility managers recognized that monitors needed to be replaced; however, there were no facility funds available for this purpose. A request for new monitors was not submitted to the VISN until May 24, 2011. The request was approved by the VISN, and the facility reported that new monitors should be available and installed in September 2012.

The nurses in the SICU told us that the connectors on some of the current monitors were broken and staff were having to secure transducers and cables with tape in order for monitors to function properly.

Although some new cables and transducers had been purchased, staff still had difficulty finding needed cables and transducers. Additionally, unit computers and hand-held devices used for documentation of medication administration are not available for every staff member providing care in the SICU. Equipment is frequently out-of-service or waiting for repair or replacement. During our interviews, all SICU staff reported frequent calls to biomedical engineering to repair or replace non-working equipment, stating the majority of the calls were related to the monitors.

We requested the SICU equipment work orders for calendar year 2011. Review of work orders revealed there was no repair equipment history for any of the SICU equipment as required by VHA. VHA requires an equipment history be maintained to identify hazards, preventative maintenance, and to track repaired or replaced equipment.[7]

The facility biomedical department provided only three SICU monitor work orders. Two were for minor monitor repairs and one was for required SICU equipment maintenance. There was no documentation to support that SICU staff telephoned biomedical engineering to repair or replace equipment. When asked, we were told that the biomedical department does not document telephone calls for repairs on equipment. Therefore, we could not validate whether equipment repairs occurred in a timely manner.

Additionally, VHA requires equipment risk assessments to determine the likelihood and severity of injury caused if equipment should fail.[8] When requested, we were told that no risk assessments had been completed on monitors, computers, or hand-held medication administration devices.

Issue 3: Medication Distribution

We substantiated that medications were not dispensed in a safe, efficient, and effective manner. In the SICU medication room, we found individual patient medications without proper labels and in unsecured, plastic bags placed in a single bin by pharmacy staff. This required the SICU nurses to sort through all patient medications prior to administration. Facility policy requires Pharmacy Service staff to deliver medications safely and accurately.

SICU staff reported that Pharmacy Service does not always have available staff to deliver medications as required within the local policy time frames. During our interviews, SICU staff reported that leaving the unit to go to the pharmacy to obtain necessary medications for patients was a common practice. In addition, nurses spent time removing medications of discharged patients from the medication carts, a task usually completed by pharmacy staff during the 24-hour medication delivery. Pharmacy staff did not always collect these medications for return to the pharmacy timely, at times it took several days.

Conclusions

We found that the facility's average actual SICU NHPPD staffing levels were statistically significantly (at the significant level 0.05) below the target NHPPD for our sample period. Additionally, we found SICU nurses were assigned to units outside the surgery product line to cover staff shortages without unit-specific orientation or training as required by the JC.

[7] VHA Directive 2008-008.
[8] VHA Directive 2008-008.

We substantiated that SICU cardiac monitors were outdated and in need of replacement. In May 2011, a request for new monitors was submitted to the VISN and approved with a projected installation date of September 2012.

We substantiated that equipment was in short supply in the SICU. Unit computers and hand-held devices used for documentation of medication administration are not available for every staff member providing care, and other needed equipment is frequently out-of-service or waiting for repair or replacement.

Although facility leadership had taken some corrective actions, disruptive and negative behaviors still occur in the SICU affecting patient care and unit morale.

Medications were not dispensed in a safe, efficient, and effective manner. Pharmacy Service staff were placing patient medications in a single bin in the SICU medication room, and medications were not always labeled as required. Further, Pharmacy Service staff were not removing discharged patient medications from the medication carts and staff were not always available to dispense and distribute medications within facility policy required time frames.

Recommendations

Recommendation 1. We recommended that the Facility Director ensure that SICU nursing management reassesses the SICU nursing methodology to ensure the target NHPPD is appropriate for the unit.

Recommendation 2. We recommended that the Facility Director ensure that nursing staff receive unit-specific training for each unit they are assigned.

Recommendation 3. We recommended that the Facility Director ensure that outdated SICU monitors are replaced and equipment is in sufficient supply to meet patient care needs.

Recommendation 4. We recommended that the Facility Director ensure that disruptive behaviors are addressed to ensure a culture of safety and professionalism in the SICU.

Recommendation 5. We recommended that the Facility Director ensure that medications are dispensed in a safe, efficient, and effective manner by appropriate pharmacy staff.

Comments

The VISN and Acting Facility Directors concurred with our findings and recommendations and provided acceptable improvement plans. (See Appendixes A and B, pages 8–12, for the full text of the Directors' comments.) We will follow up on the

planned actions for Recommendations 2, 3, and 4 until they are completed, and we consider Recommendations 1 and 5 closed.

JOHN D. DAIGH, JR., M.D.
Assistant Inspector General for
Healthcare Inspections

Appendix A

VISN Director Comments

Department of Veterans Affairs **Memorandum**

Date: September 6, 2012

From: Director, South Central VA Health Care Network (10N16)

Subject: **Healthcare Inspection – Review of Patient Equipment and Medication Safety in the Surgical Intensive Care Unit, Michael E. DeBakey VA Medical Center, Houston, TX**

To: Director, Dallas Office of Healthcare Inspections (54DA)

Thru: Director, VHA Management Review Service (VHA 10AR MRS)

1. The South Central VA Health Care Network has reviewed and concurs with the draft report submitted for the Michael E. DeBakey VA Medical Center, Houston, TX.

2. If you have questions regarding the information submitted, please contact Reba Moore, VISN 16 Accreditation Specialist, at 601-206-7022.

Rica Lewis-Payton, MHA, FACHE
Director, South Central VA Health Care Network (10N16)

Appendix B

Acting Facility Director Comments

Department of Veterans Affairs **Memorandum**

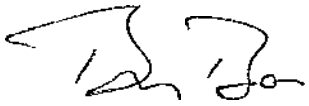
Date: August 27, 2012

From: Acting Medical Center Director, Michael E. DeBakey VA Medical Center (580/00)

Subject: **Healthcare Inspection – Review of Patient Equipment and Medication Safety in the Surgical Intensive Care Unit, Michael E. DeBakey VA Medical Center, Houston, TX**

To: Director, South Central VA Health Care Network (10N16)

I concur with the recommendations and action plans have been implemented to comply with all recommendations.



Bryan T. Bayley, M.H.A., F.A.C.H.E.
Acting Medical Center Director,
Michael E. DeBakey VA Medical Center (580/00)

Director's Comments to Office of Inspector General's Report

The following Director's comments are submitted in response to the recommendations in the Office of Inspector General's report:

OIG Recommendations

Recommendation 1. We recommended that the Facility Director ensure that SICU nursing management reassesses the SICU nursing methodology to ensure the target NHPPD is appropriate for the unit.

Concur **Target Completion Date:** Completed

Facility's Response:

SICU nursing management has conducted a reassessment of the SICU staffing as per VHA Directive 2010-034, Staffing Methodology for VHA Nursing Personnel, to ensure that the NHPPD is appropriate for the unit. Based on the reassessment, three additional Nursing Assistant FTE were added. A Clinical Nurse Specialist/Advance Practice Nurse FTE was also added to provide guidance to help nurses integrate new evidence into practice, as well as to provide staff education and to conduct patient and family teaching.

Status: Completed

Recommendation 2. We recommended that the Facility Director ensure that nursing staff receive unit-specific training for each unit they are assigned.

Concur **Target Completion Date:** September 12, 2012

Facility's Response:

From time to time, when census is low in SICU, the RNs are floated to other units. During orientation, new nurses are oriented with their preceptor to med/surg areas. The expectation is that when a nurse is floated to any unit for the first time they will be given a brief introduction and orientation to that unit. For units other than med/surg, a process has been established to ensure that nursing staff are being provided with unit-specific

training. Only staff that have been cross-trained to the respective units will be pulled to those areas. Ongoing cross-training to those units will continue until all staff are trained.

Status: In progress

Recommendation 3. We recommended that the Facility Director ensure that outdated SICU monitors are replaced and equipment is in sufficient supply to meet patient care needs.

Concur **Target Completion Date:** November 30, 2012

Facility's Response:

Monitoring equipment is being replaced throughout the facility. Training of the SICU staff on the new monitoring equipment will begin the week of September 4, 2012, with a go live date of September 11, 2012. Installation of monitoring equipment and training of staff throughout the entire facility will be completed by November 30, 2012.

We have ordered five new unit computers and hand-held devices used for documentation of medication administration to replace remaining aging computers and hand-held devices. Vendor bids are currently being evaluated. It is anticipated that new medication carts will be received before December 31, 2012.

Status: In progress

Recommendation 4. We recommended that the Facility Director ensure that disruptive behaviors are addressed to ensure a culture of safety and professionalism in the SICU.

Concur **Target Completion Date:** November 30, 2012

Facility's Response:

Since 2011, activities to address negative behavior included presentations on civility and Jean Watson's Caring Theory, which focuses on improving behavior. Several meetings with Care Line and Nursing leadership were also held to address issues and concerns. Additionally, prior to and since the OIG visit, eight counselings have been issued to disruptive/unprofessional staff. Furthermore, seven recommendations for disciplinary actions have been routed through HR and are consistent with HR recommendations.

Effective April 23, 2012, the Assistant Nurse Manager intermittently works the evening shift to provide stability and support for conflict resolution and visibility to staff. SICU leadership has also begun team building exercises for the staff. There was a presentation which discussed the fundamentals of an effective team. This was followed by open discussions on issues and concerns related to interpersonal communication and negative behavior.

Status: In progress and ongoing

Recommendation 5. We recommended that the Facility Director ensure that medications are dispensed in a safe, efficient, and effective manner by appropriate pharmacy staff.

Concur **Target Completion Date:** Completed

Facility's Response:

Pharmacy has revised the SICU medication delivery process to ensure that medications are dispensed in the most safe, efficient and effective manner. Medications are placed into medication carts and segregated into individual bins identified for each patient. Additionally, medication needs for SICU have been reassessed and the commonly used medications have been made available in adequate supply in the Omnicell.

Status: Completed

Appendix C

OIG Contact and Staff Acknowledgments

OIG Contact	For more information about this report, please contact the Office of Inspector General at (202) 461-4720.
Acknowledgments	Cathleen King, MHA, CRRN, Project Leader Rose Griggs, MSW, LCSW, Team Leader George Wesley, MD, Medical Consultant Misti Kincaid, BS, Management and Program Analyst Lin Clegg, PhD, Biostatistician Nathan McClafferty, MS, Management Program Analyst Patrick Smith, MS, Mathematical Statistician Jarvis Yu, MS, Management and Program Analyst

Appendix D

Report Distribution

VA Distribution

Office of the Secretary
Veterans Health Administration
Assistant Secretaries
General Counsel
Director, South Central VA Health Care Network (10N16)
Director, Michael E. DeBakey VA Medical Center (580/00)

Non-VA Distribution

House Committee on Veterans' Affairs
House Appropriations Subcommittee on Military Construction, Veterans Affairs, and Related Agencies
House Committee on Oversight and Government Reform
Senate Committee on Veterans' Affairs
Senate Appropriations Subcommittee on Military Construction, Veterans Affairs, and Related Agencies
Senate Committee on Homeland Security and Governmental Affairs
National Veterans Service Organizations
Government Accountability Office
Office of Management and Budget
U.S. Senate: John Cornyn, Kay Bailey Hutchison
U.S. House of Representatives: Kevin Brady, Louie Gohmert, Al Green, Pete Olson, Ron Paul, Ted Poe

This report is available at http://www.va.gov/oig/publications/default.asp