TIPS

Analyzing Missing Patient Events at the VA

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HAVE YOU EVER wondered which patient care areas experience the most missing patient or elopement events? Is wandering behavior more frequent than elopement behavior? Is there a day of the week or time of day when patients are more likely to wander off or elope? These are good questions and thanks to your work completing RCAs and Aggregate Reports we have some answers.

Through December 2004, there were 270 individual RCA reports entered into the patient safety information database on missing patient events. While each of these events had been categorized using the NCPS Primary Analysis and Categorization (PAC) process, the results didn't provide the level of detail we needed to answer all of these questions. To supplement this data, we selected for analysis the 50 most recent individual RCAs, submitted as of December 2004, and 81 Missing Patient Aggregate Reports, submitted during the 2004 calendar year. Merging this information together yielded an interesting collection of VA patient safety data regarding missing patient events.

Before we describe what we found, we need to be clear on the definitions we used for missing, wandering, and elopement patients. Here are our definitions:

- ♦ Missing patient: A patient missing from a care area without staff knowledge or permission.
- ♦ Wandering patient: A patient that strays beyond the view or control of staff without the intent of leaving (cognitive impairment).
- ♦ Elopement patient: A patient that is aware that he/she is not permitted to leave, but does so with intent.

While it can be argued that it is difficult to understand the patient's intent from a review of data, we would respond by saying that the patient's observed conduct speaks volumes. We found it very straightforward to categorize wandering and elopement behavior from reading the narrative descriptions in the individual RCA reports.

When we reviewed the 50 individual RCA reports, we found that 70 percent of the events were elopements (see Fig. 1).
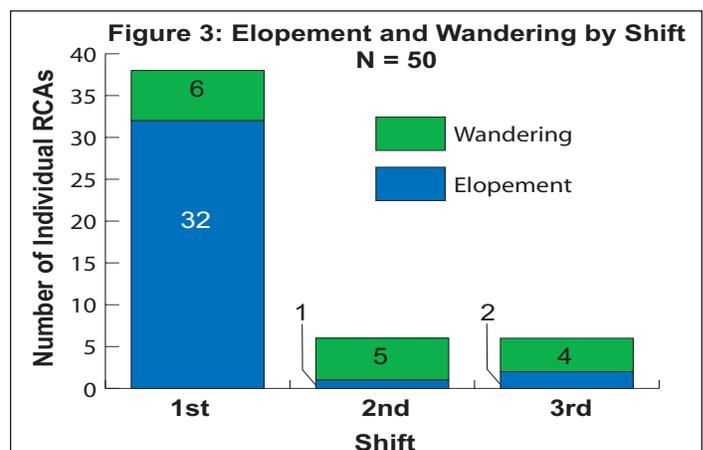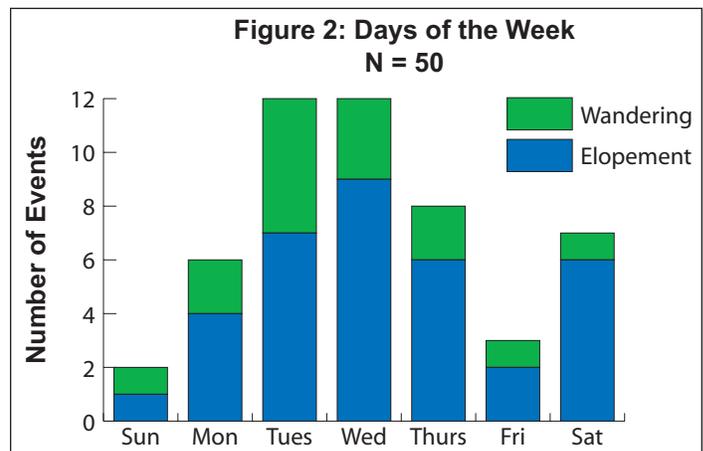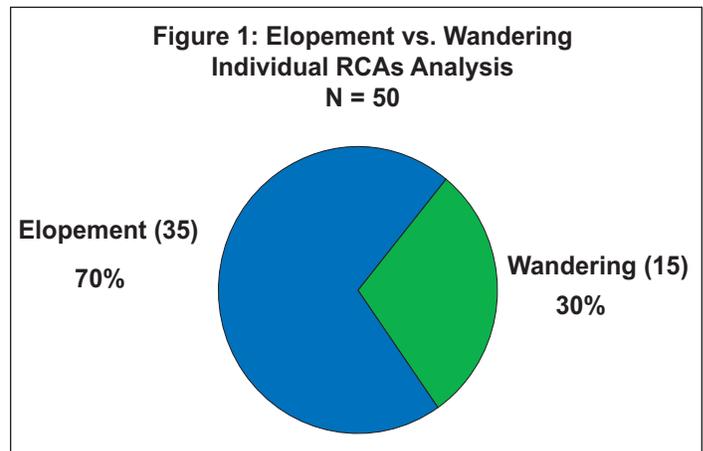
What days of the week were patients most frequently reported missing? The data indicated Tuesdays and Wednesdays (see Fig. 2). It was speculated that patient census may be higher mid-week, creating more opportunities for wandering or elopement. However, a review of the average daily census figures for one VISN did not support this supposition. The figures at this VISN, for Monday through Friday during fiscal year 2005, were all within a few percentage points. Further study will be needed to understand why this occurs.

What shift were patients most likely to be reported missing? The data showed that first shift was most common for eloping patients, while wandering behavior was evenly distributed amongst all three shifts (see Fig. 3).

The locations where the missing patient events occurred was one of the most interesting facts that emerged from the review. Wandering events occurred more frequently in acute care than in long-term care (see Fig. 4 and 5, p. 2).

What types of activities were occurring when patients were reported missing? PAC data indicated that the majority of the patients were reported missing when routine care was being provided (see Fig. 6, p. 2). In some cases, monitoring equipment was being used, including bracelets and door alarms.

RCA teams found a myriad of system vulnerabilities that we grouped into five categories: assessment, admitting, placement, privileging and response (see table, p. 3).

Figure 1: Elopement vs. Wandering Individual RCAs Analysis
N = 50

Elopement (35) 70%

Wandering (15) 30%

Figure 2: Days of the Week
N = 50

Figure 3: Elopement and Wandering by Shift
N = 50

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What barriers did RCA teams focus on to control missing patients? Of the 432 actions reviewed, more than 50 percent were weak actions that addressed policy/procedures and training (see Fig. 7). Intermediate actions involving communication issues were identified 24 percent of the time. Stronger actions, including building architecture and equipment changes, made up approximately 20 percent of the total.

Action Summary and Examples

W*eaker Actions:*

♦ 43% of the actions consisted of policy and procedure changes.
♦ 11% of the actions addressed training for staff, patients and families.

Intermediate Actions Involving Communication:

♦ 24% of the actions were communication-related, such as use of high visibility vests, electronic record flags, and the development of cognitive aids/checklists for staff.

Intermediate to Stronger Actions Involving Equipment and Software:

♦ 14% of the actions included examples such as: software enhancements to the Computerized Physician Order Entry System; door hardware that automatically locks when a patient with a wander alert bracelet approaches; and the use of electronic tracking devices for patients with off-ward privileges.

Stronger Actions Involving Physical Plant Design/Layout:

♦ 5% of the actions included interventions such as: black floor tiles in front of doors (creating a black hole effect); construction of physical barriers; and relocation and/or redesign of units where high-risk patients are provided care.

What Else is "Missing"

From this data, we think the readers will agree that our RCA teams are on the right track. Facility and network patient safety managers can help by continuing to work with teams to identify system vulnerabilities and encourage the development of stronger actions.

Technology Recommendations

NCPS has reviewed current technologies that can assist in locating patients. Consider the following specifications when evaluating radio frequency tracking systems and global positioning systems.

Radio Frequency Tracking Systems

A. Signaling tags should have active signaling; operate in wide band; track patients to within 100 feet of their location; be approximately the size of a quarter, weigh less than 10 oz., and be waterproof; operate in temperatures ranging from 0° to 130° F; have long-lasting batteries (e.g., lithium) that will be good for more than 12 months; and have a low battery signal.

B. Central monitoring and display stations should have a CRT (or better) display; accommodate at least 1,000 patients; provide audio and visual alarms; and display the entire floor plan of the section being monitored.

C. The system should have the ability to lock the egress doors and prevent "tailgating"; include auto reset alarm features; have a positive staff bypass feature with variable time delay and reset options; and preferably be compatible with Project Lifesaver.*
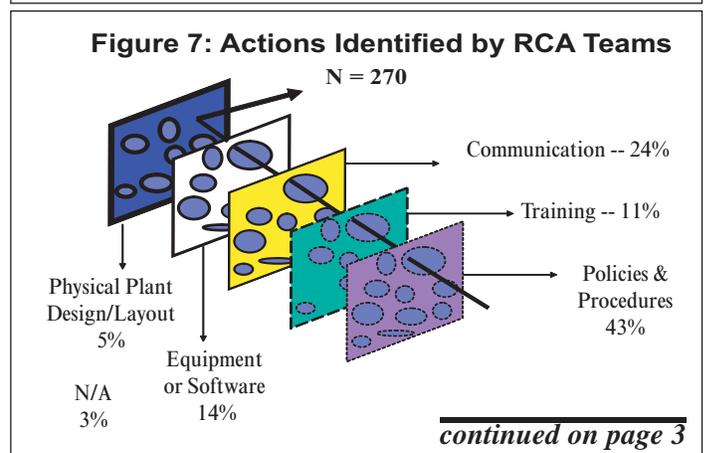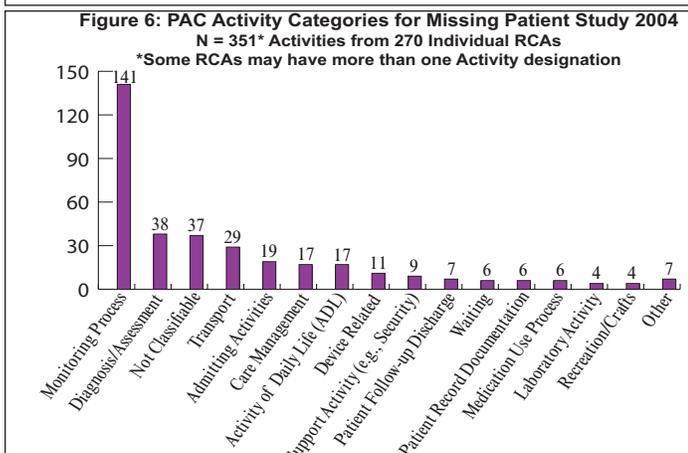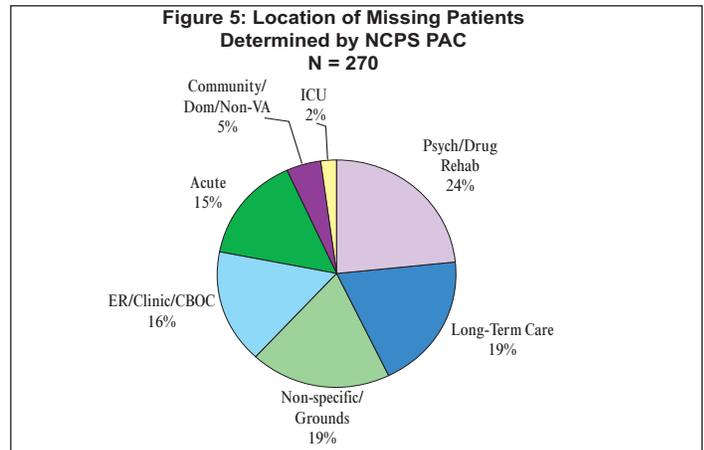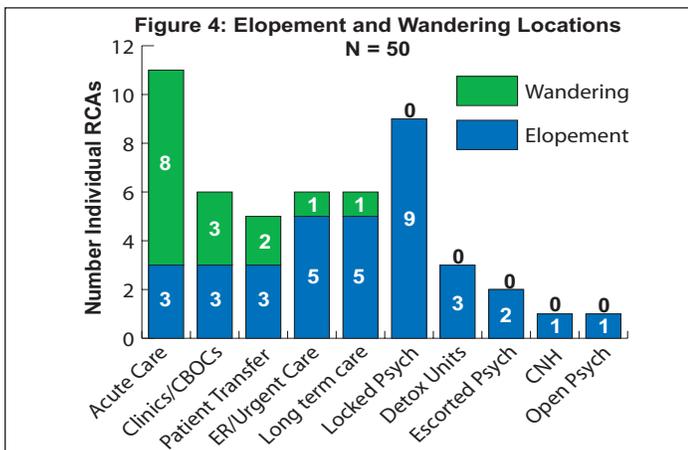
Global Positioning Systems

A. The signaling transmitte/receiver should have cell phone-type receivers; backlit LCDs; a tri-band antenna (9000, 1800, 1900 MHz); active receivers; a locator range measured within 100 feet; and the ability to signal for help in emergencies (e.g., 911 panic button).

B. Central monitoring and display stations should accommodate at least 1,000 patients; be able to locate a patient within two minutes from initiating a search; and have software that has street, aerial and custom mapping capability.

Summation

By analyzing the data we've drawn from our facilities, we hope to elevate awareness and in turn increase reporting of events and close calls and implement strong actions. NCPS and VISN-level staff will continue to look for trends in the data that indicate what is working best at our facilities.

*Project Lifesaver is an RF tracking system, used by the police, that incorporates a handheld antenna to track the RF signal from a bracelet worn by a patient.

Figure 4: Elopement and Wandering Locations
N = 50

Figure 5: Location of Missing Patients Determined by NCPS PAC
N = 270

Figure 6: PAC Activity Categories for Missing Patient Study 2004
N = 351* Activities from 270 Individual RCAs
*Some RCAs may have more than one Activity designation

Figure 7: Actions Identified by RCA Teams
N = 270

Communication -- 24%
Training -- 11%
Policies & Procedures 43%
Physical Plant Design/Layout 5%
Equipment or Software 14%
N/A 3%

VISN 8 Patient Safety Center of Inquiry — Direct Support for Clinicians
Preventing Wandering and Associated Adverse Events for Veterans with Dementia

By Gail Powell-Cope, PhD, ARNP, FAAN; D. Helen Moore, PhD; William Kearns, PhD; Andrea Baptiste, MA, CIE; John Lloyd, PhD; Shawn Applegarth, MSME

THE MISSION OF THE VISN 8 Patient Safety Center of Inquiry is to prevent adverse events associated with mobility and immobility. We directly support clinicians by designing and testing safety "defenses" — to include technologies — for patients, providers, and organizations.

We have focused on a number of issues: preventing patient falls and fall-related injuries; preventing bedrail entrapment and bed-related falls; and safe patient handling and movement. We have also begun to work on two new initiatives: technology to prevent pressure ulcers in spinal cord impairment and preventing elopement and falls associated with wandering.

To date, we have developed 78 clinical tools to enhance patient and staff safety, which have been tested at local, VISN, and national levels. Many of these products are available on our Web site: *www.visn8.med.va.gov/patientsafetycenter*

Further, we've partnered with a number of national groups, such as the Department of Defense and the American Nurses Association, to disseminate research findings and best practices.

Below is a brief review of our wandering initiative.

Wandering: An Overview

For the purpose of our study, we define wandering as meandering, aimless or repetitive locomotion that exposes a person to harm and is incongruent with boundaries, limits or obstacles. Adverse outcomes associated with wandering include: falls, accidents, fractures and other injuries, weight loss, fatigue, sleep disturbances, berating and abuse, getting lost, and untimely death.[i,ii,iii,iv,v,vi,vii]

Wandering occurs in 4-to-26 percent of nursing home residents with dementia and in up to 59 percent of community-residing individuals with dementia.[viii]

The Alzheimer's Association estimates that 60 percent of people with the disease will wander and become lost in the community during the course of their disease.[ix] Wandering behaviors and associated risks are a frequent reason for nursing home placement. This results in home-based care often being replaced by more expensive and qualitatively less desirable institutionally-based, long-term care.

Taking Action

One of the first things we did was to assemble a panel of national experts that included clinicians, researchers, educators, and engineers. The panel reviewed the literature on wandering and conducted a review of secondary data in the VA nursing home data base. The goals were to identify the determinants of wandering, adopt a standardized definition of wandering, and develop a resource guide on wandering technologies.

We found, as you can imagine, that getting lost is probably *the* most hazardous outcome of wandering. Other key findings from the literature reviewed included:

♦ Wandering can be costly as it is a leading cause of nursing home placement for persons with dementia.[x] For each year that one patient can be sustained in the community, a current average annual savings of $57,700 in nursing home expenditures is realized.
♦ The typical wanderer is relatively "young" in the older population, more cognitively impaired, more likely to be a man, might have experienced sleep problems, had a more active pre-morbid lifestyle, and used more psychotropic medications.[xi]
♦ Clinical trials of wandering management programs are sparse, and most of the research has been conducted in long-term care. No well-designed clinical trials of in-home interventions for patients with mild dementia were found in the literature.
♦ There is limited scientific investigation of performance criteria or patient and caregiver preferences for technologies to safely manage wandering behaviors.

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Summary from NCPS Patient Safety Database (N = 277 Root Causes)	
Assessment 28%	Use of assessments or lack of staff education on using assessments; documentation and/or communication of assessments (staff to staff and patient/family to staff) was inadequate; assessments were not applied consistently and/or the application of assessment criteria was inconsistent; and a lack of implementation of preventative measures from assessments led to patients not be assessed or treated as high-risk for elopement/wandering.
Admitting 5%	Contraband searches were not occurring at admission; staff was not educated on admitting duties regarding elopement/wandering; high-risk status was not communicated once admitted; and the absence of a formal check-in process for ED or Urgent Care areas led to wandering or elopement incidents occurring.
Placement & Care 38%	Staffing levels required to monitor high-risk patients were not available; level of observation ordered was not adequate; staff was not educated on how to treat a high-risk patient; policies for handling high-risk patients were non-existent; visual patient inspections were not occurring as needed or indicated; monitoring equipment was absent, not used or failed to function properly; layout or design of physical space or barriers was inadequate for high-risk patients, increasing the likelihood of patients being able to wander or elope.
Privileging & Transport 15%	Privileging or transport policies were unclear and/or inconsistent; absence of a tracking system for patients leaving units (e.g., sign-out log or wander alert system); written privileging orders were not completed; patients' at-home responsibilities prompted them to leave; patients were not being supervised during transport or during long clinic waiting times; and facilities' smoking policies led to patients wandering/eloping.
Response 14%	Complex/hard to understand policies regarding a response; policies that could not be located during an event; untimely communication between services about a missing patient; not using the most effective method of communication during an event; lack of tracking the location attempts (i.e., which areas have already been searched) led to a delay in response to a missing patient incident.

Technology For Wandering

We believe there is a critical need to study the utility of wandering technology. Technology to prevent adverse events associated with wandering may enable veterans with moderate to severe dementia to be safely cared for in the home — rather than requiring transfer to a long-term care facility, potentially enhancing their quality of life.

However, with more than 82 devices available in the commercial market, healthcare providers and family caregivers are uncertain as to which technology is most appropriate to prevent adverse events in acute care, long-term care, or community-based settings.

The technologies provide two key functions: Firstly, elopement management to minimize elopement risk; and secondly, tracking to find a patient who has eloped. Both functions serve to promote patient safety and reduce morbidity and mortality associated with wandering. Unfortunately, we found no published studies comparing and contrasting available technologies.

Because of the limited literature to evaluate technologies, we have developed a resource guide to provide information to clinicians when they seek technological solutions to wandering, once it is identified as a problem.

We also conducted focus groups with nursing home care residents and family members, healthcare providers and engineers to gain insights about perceived effectiveness of existing technologies and to enumerate ideal elements that the technologies should possess.[XII]

The Safe Return Program

The Alzheimer Association's Safe Return Program facilitates return of persons with dementia who have left their care settings unattended and have become lost in the community. Since its inception in 1993, the program has aided discovery of 7,500-plus missing wanderers. Currently, more than 60,000 individuals are registered with the program.

Patients wear identification jewelry that indicates a memory problem and lists a 24-hour number to call.

Because of the success of this program, we intend to conduct a pilot of it at Tampa VA to explore how it can best fit into our healthcare system.

Summation

We are determined to continue developing initiatives that focus on our three primary organizational goals:

♦ Promoting personal freedom and safety for patients with impaired mobility (In particular, targeting two vulnerable veteran populations: the elderly and those with disabilities)
♦ Promoting the safe use of technology to prevent adverse events associated with mobility or immobility
♦ Promoting a culture of safety that supports clinicians and enhances safe patient care and safe working environments.

For a complete list of references, see below.

NCPS✚

An Overview of Wandering Technologies

Door Alarms	A door alarm can be affixed to a doorway to sound an audible alarm when the door is opened, or when an individual passes through. Some door alarms can alert caregivers through remotely turning on lamps throughout the home.
Lockout Systems	These systems can be used to inactivate devices the resident may use to escape or wander such as a car.
Optically Activated Alarms	These alarms use passive infrared light and other types of light beam to monitor patients. This light is sometimes invisible. When the resident approaches the system or crosses the light, an alarm will be activated. These are typically seen on beds and doorways.
Pressure Activated Alarms	These alarms operate by monitoring change in pressure. They are typically pads that can be positioned either under a mattress or chair, or beside a door or window. They will sound an alarm when a pressure is removed (like in a bed or chair) or when a pressure is applied (like next to a door or window).
Pull Tab Alarms	Pull tab alarms are devices that connect a patient to an alarm unit through the use of a detachable tab. One end of the alarm is attached to the patient's clothing while a main monitoring unit is rigidly attached to a bed or chair. When the patient attempts to move to another location, the tab is pulled out of the monitoring unit which then sounds an alarm.
Visual Deterrents	Visual deterrents are physical barriers placed in the individual's path to prevent going out of a door or into a restricted area. Some of them camouflage the door with a photograph, drapes, or art work, while others simply provide a physical barrier without camouflage such as by removing the doorknob or using a large stop sign.
Tracking Systems	Tracking systems are used to find wanderers who have strayed outside a unit, home or institution. Radio frequency tracking involves sending a radio signal attached to the wanderer that is capable of locating the wanderer over a few miles. GPS uses a network of orbiting satellites to pinpoint the location of lost patients. The advantages of using a GPS locator device over other personal alert systems are that the user doesn't have to activate it and the technology works over a large geographic area. The main disadvantage is cost. Radio Frequency Identification Devices (RFID) with wristbands are used in hospitals where egress from the facility is controlled, e.g., nursing homes and neonatal units. Unlike GPS, RFIDs are fairly short range (under 30 feet), can be used within a facility or home, and allow specific tailoring of policies for particular individuals based on the RFID identification number in the wristband.
Advanced Systems	Advanced systems offer a combination of different features that are frequently customizable to each facility such as GPS locators and cellular phones, centralized notification systems, and individual identification systems.

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