A COMPARATIVE STUDY OF THE PAPER BASED ERROR REPORTING SYSTEM AND AN ELECTRONIC ERROR REPORTING SYSTEM

By

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Thesis

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Approved:

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Doris Quinn

DEDICATION

To Mom, Dad, and Prathiba.

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Working on this thesis has been one of my greatest learning experiences. It has challenged me in ways I never thought possible, and has provided me with skills that will be beneficial throughout my life.

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ABSTRACT

Background: Error reporting systems historically has been accomplished by disparate paper based processes. There has been a trend off late to shift to a more structured electronic system. Limited study has been done previously to compare the electronic error reporting system versus the traditional paper based error reporting system.

Objective: Study the paper-based electronic error reporting system and the electronic error reporting system at the Vanderbilt University Medical Center and to test for the significance of quality improvements in error reporting by using the electronic error reporting system.

Methods: Data was collected for both the type of error reporting systems on the total number of events reported and the severity levels of these events. For the paper-based error reporting system, data collected ranges from the time frame August 2001 to December 2002. For the electronic error reporting system, data collected ranges from January 2003 to May 2004. Data collected were analyzed using statistical methods to test for significant rate changes between the two types of error reporting systems.

Results: A total of 5529 events were reported using the paper-based system while a total of 7790 events were reported using the electronic reporting system. Each system was evaluated for 17 months. An increase of the total number of events reported (p=.002) is noticed for the electronic error reporting system. Of the 5529 events reported using the paper based system, 4215 (76.22%) were unknown injury events, 552 (9.98%) no injury events, 602 (10.88%) minor injury events,

157 (2.84%) major injury events, and 4 (0.04%) deaths. Of the 7790 events reported using the electronic reporting system, 1899 (24.37%) were unknown injury events, 4210 (54.04%) no injury events, 1342 (17.22%) minor injury events, 298 (3.82%) major injury events and 41 deaths (0.53%). An increase the average severity level of an event reported (p=.000) is seen for the electronic error reporting system. Reporting of significantly fewer number of unknown severity events are also seen for the electronic error reporting system (p=.000).

Conclusion: An electronic reporting system facilitates higher level of reporting and reporting of higher severity events. Fewer unknown injury events are reported using the electronic reporting system which indicates that more information is available about an event reported using the electronic error reporting system. This higher level of information can be used to perform analysis in understanding the root causes that causes these errors. A better understanding of the root causes will help in decreasing the incidence of these events. More work is needed on how best the event reported data is analyzed and utilized for the betterment of medical safety.

CHAPTER I

INTRODUCTION & BACKGROUND

Medical Errors

Heath care is composed of a large set of interacting systems- paramedic, emergency, ambulatory, impatient care, and home health care; testing and imaging laboratories; pharmacies; and so forth - that are connected in loosely coupled but intricate networks of individuals, teams, procedures, regulations, communications, equipment, and devices that function with diffused management in a variable and uncertain environment (Van Cott, 1994). The distinct cultures of medicine (and other health professions) add to the idiosyncrasy of health care among high risk industries (Kohn and Donaldson, 2000).

In a comprehensive review conducted by the Institute of Medicine, it was estimated that 44000 to 98000 deaths occur each year as a result of medical errors (Kohn and Donaldson, 2000). Between 3% and 4% of patients admitted to the hospital have adverse events resulting in injury or disability. About 30% of these adverse events are thought to be preventable and represent suboptimal care. The total national cost for medical errors is estimated to be $37–50 billion, with preventable adverse events accounting for $17–29 billion (Kohn and Donaldson, 2000).

Medical Errors has been identified as a major health problem in the United States (Pronovost et al, 2005). Health care is characterized by a reliance on human operators

who work with increasingly complex technology and variable levels of uncertainty and are inevitable and may have serious consequences for life (Rubin et al, 2003). The growing recognition of harm as an unwelcome and frequently unrecognized product of health care has initiated focused efforts to create highly reliable organizations for safe healthcare delivery (Duwe et al, 2005).

Medical error can be defined as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim (Resar et al, 2003; Kohn and Donaldson, 2000). Although many medical errors can lead to harm, numerous reports have shown that they are often not linked to the injury of patients (Rozich et al, 2003; Layde et al, 2002). Instead, they are often ‘‘caught’’ by the system before they can lead to injury (Layde et al, 2002). Even when errors reach the patient, they are most often minor and, in most instances, result in no significant damage (Barach, 2003). Examples are common in medicine—for instance, a drug being given an hour later than prescribed or even the wrong drug being given to the patient, such as diphenhydramine being given incorrectly. This is an error but, in the overwhelming number of instances, administering a small dose of diphenhydramine (even to the wrong patient) will not result in harm (Resar et al, 2003).

At the same time, medical errors can also lead to an injury of a patient (Layde et al, 2002, Kilbridge and Classen, 2002). Errors may result in an adverse event, an injury caused by medical management rather than the underlying condition of the patient (Sheikh and Hurwitz, 2001). They happen sometimes in subtle ways, being compounded

by circumstances or further errors (Reason, 2000). Adverse events are thus any injury caused by medical management and are independent of the patient's condition (Resar et al, 2003). Adverse events can be defined as any injury (not just that associated with medication or drug use) caused by medical management rather than the underlying condition of the patient (Kilbridge and Classen, 2002; Classen et al, 1997).

The reporting of adverse events as well as minor and moderate events is valuable as it will help in understanding these causes and it will help in monitoring the progress for reporting of error (Kaplan, 2003). It is important that even the minor and moderate higher frequency incidents be reported accurately if error reporting is to become a reliable tool for detecting problems and monitoring changes to system and procedure (Stanhope et al, 1998). Analyzing the root causes of medical errors is of paramount importance for reducing their future incidence (Wears et al, 2000; Nolan, 2000). By excluding medical errors that did not cause harm, medical error reporting systems will miss enormous opportunities to improve health care and create safer healthcare environments (Dovey and Phillips, 2004). It is therefore necessary to have a structured system in place for the report of all kinds of medical errors.

Error Reporting Systems

There are a number of ways that reporting systems can contribute to improving patient safety (Kohn and Donaldson, 2000). Apart from reporting events that caused harm, event reporting also has the potential to learn what is broken from near misses, incidents that did not lead to harm but could have resulted in patient injury (Pronovost et

al, 2005). Reporting systems allows event data to be collected and analyzed to determine whether there are root causes leading to patterns of these events (Barach, 2003). Good reporting systems are a tool for gathering sufficient information about errors from multiple reporters to try to understand the factors that contribute to them subsequently prevent their reoccurrence throughout the health care system (Kaplan and Fastman, 2003).

Although health care has lagged behind other industries in implementing event reporting systems , successful reporting systems have been developed in the last 5 years in anesthesia, intensive care, transfusion medicine, and pharmacy (Kivlahan et al, 2002). The Institute of Medicine (IOM) identified mandatory and voluntary reporting systems as important components of patient safety improvement. According to Kohn and Donaldson (2000), reporting systems whose primary purpose is to hold providers accountable are mandatory reporting systems. Reporting systems that focus on safety improvements are voluntary reporting systems. Reports are usually reported in confidence and no penalties or fines are issued around a specific case.

Voluntary reporting systems have a very important role to play in enhancing understanding of the factors that contribute to error (Kohn and Donaldson, 2000). Medical and non-medical literature contains several examples of anonymous non-punitive reporting systems proving more effective results than mandatory programs for tracking errors (Billings and Reynard, 1984, Liang 1999). Voluntary reporting systems are also used extensively in other industries such as where they are an important part of

improving safety (Kohn and Donaldson, 2000). According to Handler, Gilliam et al, (2000), solutions for errors in medicine should focus on changes to the system and processes rather than punitive targeting of individuals. The importance of voluntary error reporting in a ‘‘blame-free’’ organizational culture as a way to improve systems and enhance patient safety is emphasized by the Institute for Safe Medication Practices (The Institute for Safe Medication Practices, 1999).

Voluntary reporting systems vary in scope from event specific national reporting systems (for example, medication errors, and sentinel events), to hospital based internal reporting systems that capture a variety of events (Tuttle et al, 2004). Although the approaches and information collected differ—for example, check boxes, pre-coded drop down menus, open ended narratives, anonymous, confidential, etc (Holzmueller et al, 2004), the importance of reporting and the unifying goal to learn from experience remains the same (Tuttle et al, 2004).

Voluntary error reporting systems historically has been accomplished by disparate paper based processes (Wu et al, 2002). According to Mekhjian et al (2004), these processes do not provide a mechanism for anonymity, nor do they lend themselves to quick notification or easy statistical analysis. Additionally Paper-based forms and procedures that typically support event reporting involve cumbersome event reporting steps and result in inefficient organizational processes when attempting to use the information for overall improvement. Thus, confidence in the effectiveness of the

procedure may be diminished, perpetuating the cycle of poor event reporting (Uribe et al, 2002).

Although the paper based error-reporting system is the most prevalent (Mekhjian et al, 2004), the best methods of reporting are not yet known and technology to facilitate reporting has not been studied (Nash, 2003). According to Ammenwerth et al (2004), the use of modern information technologies offer tremendous opportunities to improve healthcare. An electronic error reporting format would be more efficient and cost-effective than paper or scanned forms because it would eliminate lost forms, illegible handwriting, double data entry (from paper to database) and some causes of data entry errors (Holzmueller et al, 2004). It creates a culture of confidence in a blame-free error reporting structure by overcoming the barriers to traditional reporting methods, such as lack of anonymity, excessive time demands, and delayed or no response to a reporting event (Mekhjian et al, 2004). The private sector has begun to address the inadequacies of the older paper based reporting systems through a variety of new electronic systems (Tuttle et al, 2004). Yet even with these efforts, little is known about the prevalence of adverse events across clinical disciplines, factors that encourage high levels of reporting, and differential reporting rates based on paper or electronic formats (Kivlahan et al, 2002).

Most of the studies on electronic reporting systems (Holzmueller et al, 2004; Mekhjian et al, 2004; Tuttle et al, 2004) have focused on the system and its characteristics. Tuttle et al, (2004) studied an electronic error reporting system in an

academic medical center. The study details the characteristics of the electronic error reporting system, its planning and implementation process, and the error reporting rates. Mekhjian et al, (2004) studied a web based event reporting system in an academic environment. The study focused on the characteristics of the system, its usability functions, and the reasons of underreporting using the paper based system. Although these studies deal with an electronic error reporting system, there has been no study done so far to compare the rates for minor or moderate and adverse events reported using a voluntary electronic event reporting system to a paper based one.

This study will focus on comparing the electronic error reporting system versus the traditional paper based system. It will test the frequency of errors reported using the paper-based system and the electronic error reporting system. This paper will also look into the severity levels and test for significance of variance for the severity levels reported using the electronic error reporting system against the paper based system.

CHAPTER II

METHODS

Study Setting

This study was done at the Vanderbilt University Medical Center, a 658 bed teaching facility that employs 5872 medical care employees including 571 residents. During the fiscal year 2002, the hospital had 33854 admissions, 698,968 outpatient visits with 71402 emergency room visits (VUMC by the numbers, 2004). The Vanderbilt University Medical Center used a paper-based error reporting system till the end of 2002. An electronic error reporting system was implemented in January 2003 known as DOERS (Dynamic Online Error Reporting System). For the purpose of this study, information about both harmful and potentially harmful events were collected for both the paper based system and the DOERS system. This study includes all the events reported through the paper-based system from August 2001 to December 2002 and all the events reported through DOERS from January 2003 to May 2004.

Paper Based Error Reporting System

This section details the process of the paper based error reporting system and its working. An error is reported by filling up a form known as Occurrence Report (see figure 6). The Occurrence Report is divided into seven main areas. The first part contains the general information about the event like date, time, or whether it is a patient related or non-patient related event. The second part contains a list of locations, which can be

selected if the event occurred in a place other than the patient's inpatient unit. The thirds part contains a selection of various types of injuries, which can be selected. The fourth, fifth and sixth parts contain lists of selections related to medication, falls and medical device/equipment respectively. The seventh part is to be filled up if there is a staff member involved and contains a list of staff member functions.

The occurrence report form consists of a white sheet and a duplicate yellow sheet. The white sheet is sent to the Risk Management department and the yellow sheet is sent to user's immediate supervisor. The head of the Risk Management department then enters the pertinent information about the event into a Microsoft Access database. A severity level is also then assigned to the event. The severity of an event is divided into five types; Unknown injury, No injury, Minor injury, Major Injury, and Death (see Table 1). A detailed process flow of the paper based error reporting system is shown in Figure 8.

Electronic Error Reporting System

There was a need to improve the efficiency and speed of the existing paper based system to improve quality and safety at the Vanderbilt University Medical Center. An electronic error reporting system was decided upon as the possible replacement of the paper based system. The intervention between the two systems occurs with the introduction of the DOERS system in January 2003. The features of DOERS are shown in table 2. DOERS was implemented throughout all clinical disciplines across the Vanderbilt University Medical Center. All employees having user identification and the intranet password can access the system through workstations set up across the medical

center. There are two types of user access levels. The first one being the users who can enter an event only and the second one being accountable managers/risk management head who have additional privileges like event editing, follow up and closure, data queries, analysis, and reporting functions.

DOERS is arranged into four major event categories defined as patient, physician/visitor, property/equipment/narcotics count, and employee illness/injury. Using drop down menus, DOERS prompts the user to answer nine questions including nature of event, event date and time, department name reporting event, department name where event actually occurred, general area where event occurred, whether harm occurred, type of harm or injury occurred if it did, and affected body part. A screen shot of this first page is shown in Figure 7.

Based on the event category selected, there are additional menu driven prompts to capture more details about patient information, visitor/physician information, employee injury related information, and equipment related information, and severity of event. The severity of event uses the same taxonomy as the paper-based system scaled from 0 to 5. An open text field is also provided to give a brief description of the event. Users with advanced privileges can now enter additional information regarding the event and follow up actions taken or planned. Screen shots of the second page are shown in Figures 8, 9 and 10. A detailed process flow on the working of the electronic error reporting system is shown in Figures 11, 12, and 13.

Analysis of Data

All statistical analysis was done using the statistical software SPSS version 11. Frequency distributions and their mean plots were computed for the total events reported for both the paper based and the electronic reporting system. As done by Tuttle et al, (2004), independent sample T-test was used to test the significance in the change in error reporting rates. Frequency distributions and their mean plots were also computed for the severity levels of events reported. A chi-square test was performed to test for any significance in change in severity levels reported by the two error reporting systems. Independent sample t-tests were used to test of significance in variation and compare the means of the severity levels reported by the two reporting systems.

CHAPTER III

RESULTS

A total of 5529 events were reported using the paper-based system from August 2001 to December 2002, while a total of 7790 events were reported using the electronic reporting system from January 2003 to May 2004. Figure 1 shows the frequency chart of the total events reported during this timeframe. Figure 2 shows the mean plot of the number of events. From the frequency chart and the mean plot we can see that there is an increase in the number of events reported using the electronic reporting system. Frequencies of the events reported for all severity levels are also plotted over the entire time period of this study for both the paper based system and the electronic reporting system in Figure 6 with the intervention occurring at the introduction of the electronic reporting system in Jan 2003. These figures show an increase in trend for the number of events reported using the electronic reporting system. An average of 325 events were reported per month using the paper based error reporting system and an average of 458 events were reported per month using the electronic error reporting system. An independent sample T-test is performed to test the significance of this reporting rate change. The results of this test is shown in Table 4 where we see that there is a statistical difference in the error reporting rates between the two systems ($p=0.002$).

Of the 5529 events reported using the paper based system, 4215 (76.22%) were unknown injury events, 552 (9.98%) no injury events, 602 (10.88%) minor injury events, 157 (2.84%) major injury events, and 4 (0.04%) deaths. Of the 7790 events reported

using the electronic reporting system, 1899 (24.37%) were unknown injury events, 4210 (54.04%) no injury events, 1342 (17.22%) minor injury events, 298 (3.82%) major injury events and 41 deaths (0.53%). Table 3 shows a detailed data split up between the paper based reporting system and the electronic reporting system based on event severity.

To see the trend in the change in severity levels reported using the two reporting systems, frequencies of the events reported are plotted against various severity levels for the two reporting systems. Frequency plots of the severity of events for the paper-based system is shown in Figure 3 and frequency plot of the severity of events for the electronic reporting system is shown in Figure 4. Frequencies of the events reported for all severity levels are also plotted over the entire time period of this study for both the paper based system and the electronic reporting system in Figure 6 with the intervention occurring at the introduction of the electronic reporting system in Jan 2003. From these frequency plots, it is seen that fewer number of unknown injury events (severity level 1) are reported using the electronic reporting system. An increase in reporting rate of higher severity events (severity levels greater than 2) can also be inferred from these graphs.

Figure 5 shows the mean plot of the severity levels reported using the two systems. It has a positive slope indicating an increase in the average severity level of events reported using the electronic system compared to the paper based reporting system.

To test for statistical significance of the difference in severity levels reported by the two systems, a Chi-Square test is performed on the data from Table 3. The results are shown in Table 5. It shows that there is a significant difference in the severity levels reported by the two reporting systems (p=0.000). An independent sample T-test was conducted to test the significance of the variance in mean of the severity levels. The results of the T-tests are shown in Table 6 where it is seen than there is a high significance in the severity levels between the two groups (p = .000). An independent sample T-test was conducted to test the significance of the difference in unknown severity events reported. The results are shown in Table 7 where it is seen that there is a high significance of difference in unknown severity events reported between the two systems (p=.009).

Thus with these statistical analyses, it is seen that an increased level of reporting is achieved using the electronic error reporting system and higher severity of errors being reported using the electronic reporting system.

CHAPTER IV

DISCUSSION

This study has shown that an institutional wide voluntary electronic error reporting system increased the frequency of error reporting. While an average of 325 events were reported per month using the paper based error reporting system, the number rose to 458 events reported per month when using the electronic error reporting system. This study also shows that the average severity level of an event report using an electronic system is significantly higher than a paper based system. The higher level events reported and higher level of adverse events reported could be due to a number of factors including easier accessibility, user confidence in fast and timely response time, and increased user anonymity. Characteristics considered to be important for a successful voluntary reporting program include a non-punitive or safe environment, simplicity in reporting, and timely and valuable feedback (Leape, 2002).

According to Handler et al (2000), error prevention also depends on how fast an error is reported. The faster an error is reported, the higher the possibility of correcting it before any damage is done. Early error recognition may allow corrective or rescue steps to be taken before injury occurs (Handler et al, 2000). Rapid error identification facilitates corrective action to prevent or limit injury (Nolan, 2000). Therefore, it is imperative to create a system that can identify error at the earliest possible moment (Handler et al, 2000). In this study, when an event is reported using the paper based

reporting system, it could take a number of days before the supervisor or the risk management department gets the error report and takes any necessary action. This delay is due to the fact that most often paper based error reports are mailed using internal mail or dropped off at specified drop boxes. The nature of the time delay inherent in these methods can delay the response time for the necessary action taken. With the electronic reporting system, the event can be noticed with minutes of reporting and facilitates faster response times. The electronic error reporting system becomes an effective concurrent risk management tool by providing timely communications about real time events as they occur.

Another reason behind higher error reporting rate for an electronic reporting system could be the reporter's confidence in the system. According to Mekhjian et al, (2004), reporter confidence in the organization's ability to respond to events is essential for sustained increase in reporting. When a caregiver can observe a response to a reported event within hours or days versus weeks or even months, he or she is more likely to report future events.

Another interesting result of this study is that there are fewer number of unknown severity events reported using an electronic reporting system. The electronic reporting system could encourage the user to seek and to input much more information than he or she would have previously done using a paper based error reporting system. More information known about any kind of event reported increases the chance to understand

the underlying causes behind the event and helps to take steps towards prevent that error from occurring again.

From this study it is seen that an electronic error reporting system facilitates higher level of reporting. It also increases the scope of reporting in terms of the amount of information entered for each event. Therefore using an electronic error reporting system, much more information is known about each event than previously with a paper based reporting system. This provides better scope for analyzing the data and identifying the root causes behind each event. To improve overall healthcare safety, it is important to utilize this data effectively. There has been no study done so far on how best the event reported data is analyzed and utilized for the betterment of medical safety. A future scope of this study could include how to best code and analyze this information for further improvement and identifying an event before it happens.

In conclusion, it is seen than an electronic error reporting system is much more effective than a disparate paper based one. Hospitals should encourage the use of voluntary electronic error reporting systems to facilitate higher levels of error reporting.

TABLES

Table 1: Severity Index

Severity Level	Description
1	Unknown Injury
2	No Injury
3	Minor Injury
4	Major Injury
5	Death

Table 2 Features of the DOERS electronic event reporting system

- Implementation throughout all clinical areas
- Accessed only through validated intranet password
- 2 levels of privileges set for users
- 4 major event categories: Patient, Visitor/Physician, Equipment, and Employee Illness/Harm
- 4 event categories further classified on to 64 other subtypes
- 10 basic background questions regarding the event with drop down menus
- 22 other questions about event details with drop down menus
- Open ended narrative to document incident details
- Supplement information section
- Severity level Taxonomy (0-5)
  (1) Unknown Effect/Injury: Level of impact unknown at time of report
  (2) No Effect/Injury: The event did not produce a negative effect and there is no visible evidence of any physical injury or emotional distress
  (3) Minor Effect/Injury**:** The event produced a temporary negative effect or there is evidence of physical injury or emotional distress not requiring medical intervention
  (4) Major Effect/Injury: The event produced a significant or permanent negative effect or there is evidence of physical injury or emotional distress requiring medical intervention
  (5) Death: The event resulted in death or death of a fetus

Table 3: DOESRS and Paper Based Event Reporting Data

Severity Level	*Number of events reported using events paper based System	%	*Number of events reported Using DOERS	%
(1) Unknown	4215	76.22	1899	24.37
(2) No Injury	552	9.98	4210	54.04
(3) Minor	602	10.88	1342	17.22
(4) Major	157	2.84	298	3.82
(5) Death	4	0.07	41	0.53

*All events reported through the paper based system from Aug 2001 through Dec 2002 (17 months) and all events reported through the electronic reporting system from Jan 2002 through May 2004 (17 months) are included

Table 4: T-test Results for Number of Events

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
NumberOfEvents	Equal variances assumed	5.978	.020	-3.274	32	.003	-133.12	40.659	-215.938	-50.297
	Equal variances not assumed			-3.274	22.165	.003	-133.12	40.659	-217.404	-48.832

Table 5: Chi-Square test results for severity levels

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3768.079(a)	4	.000
Likelihood Ratio	4068.171	4	.000
Linear-by-Linear Association	1707.074	1	.000
N of Valid Cases	13320		

Table 6: T-test Results for Severity Level

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SEVERITY	Equal variances assumed	101.245	.000	44.239	13317	.000	.62	.014	.588	.642
	Equal variances not assumed			44.108	11775.990	.000	.62	.014	.588	.642

Table 7. T-test Results for Unknown Severity Level Events Reported

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
NumberOfEvents	Equal variances assumed	7.766	.009	5.736	32	.000	142.00	24.754	91.577	192.423
	Equal variances not assumed			5.736	27.709	.000	142.00	24.754	91.269	192.731

FIGURES

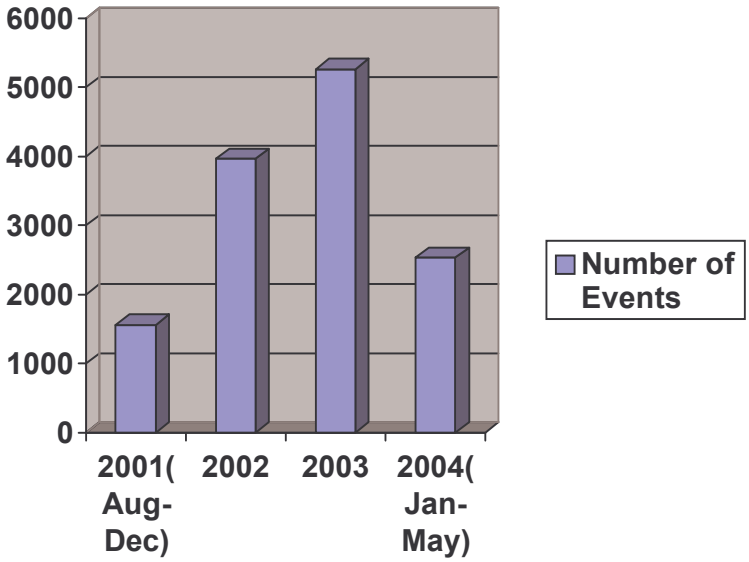
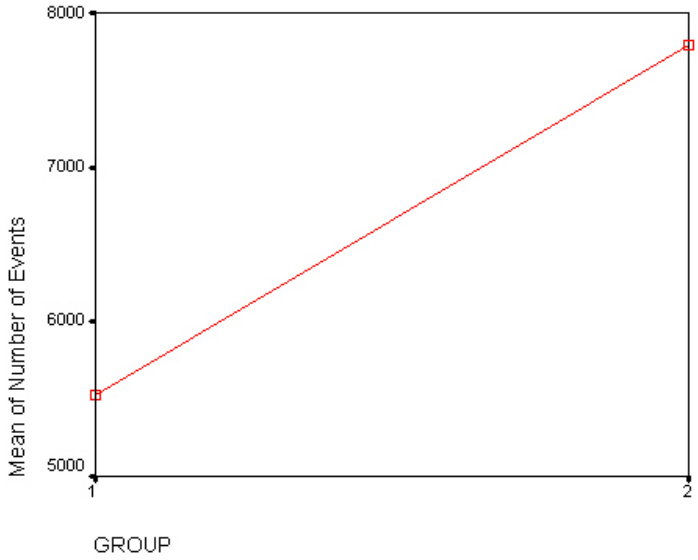


Figure 1: Frequency Chart of Events Reported



Group 1: Paper Based Reporting System
Group 2: Electronic Error Reporting System

Figure 2: Mean Plot of Number of Events

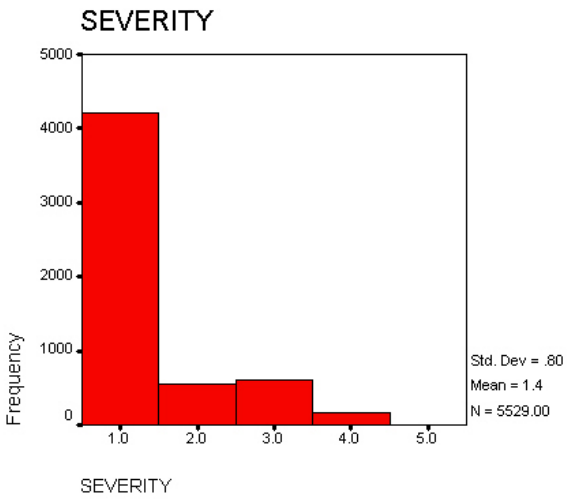


Figure 3: Frequency Plot for Severity Levels Reported Using Paper Based System

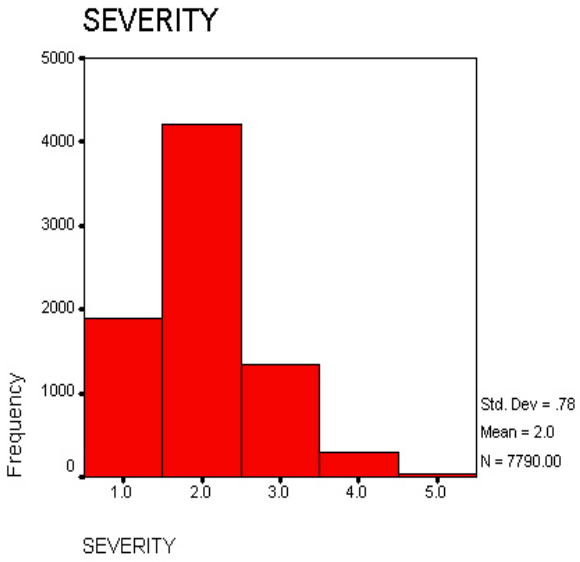
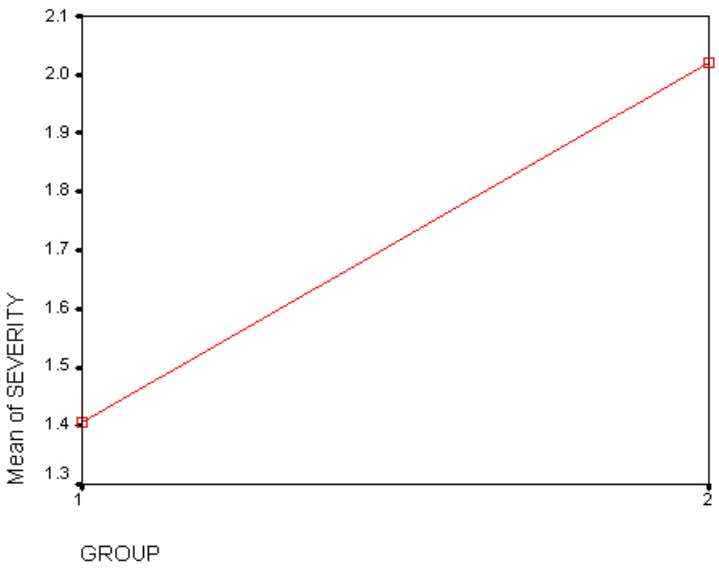


Figure 4: Frequency Plot for Severity Levels Reported Using the Electronic System



Group 1: Paper Based System
Group 2: Electronic System

Figure 5: **Mean Plot for Severity of Events**

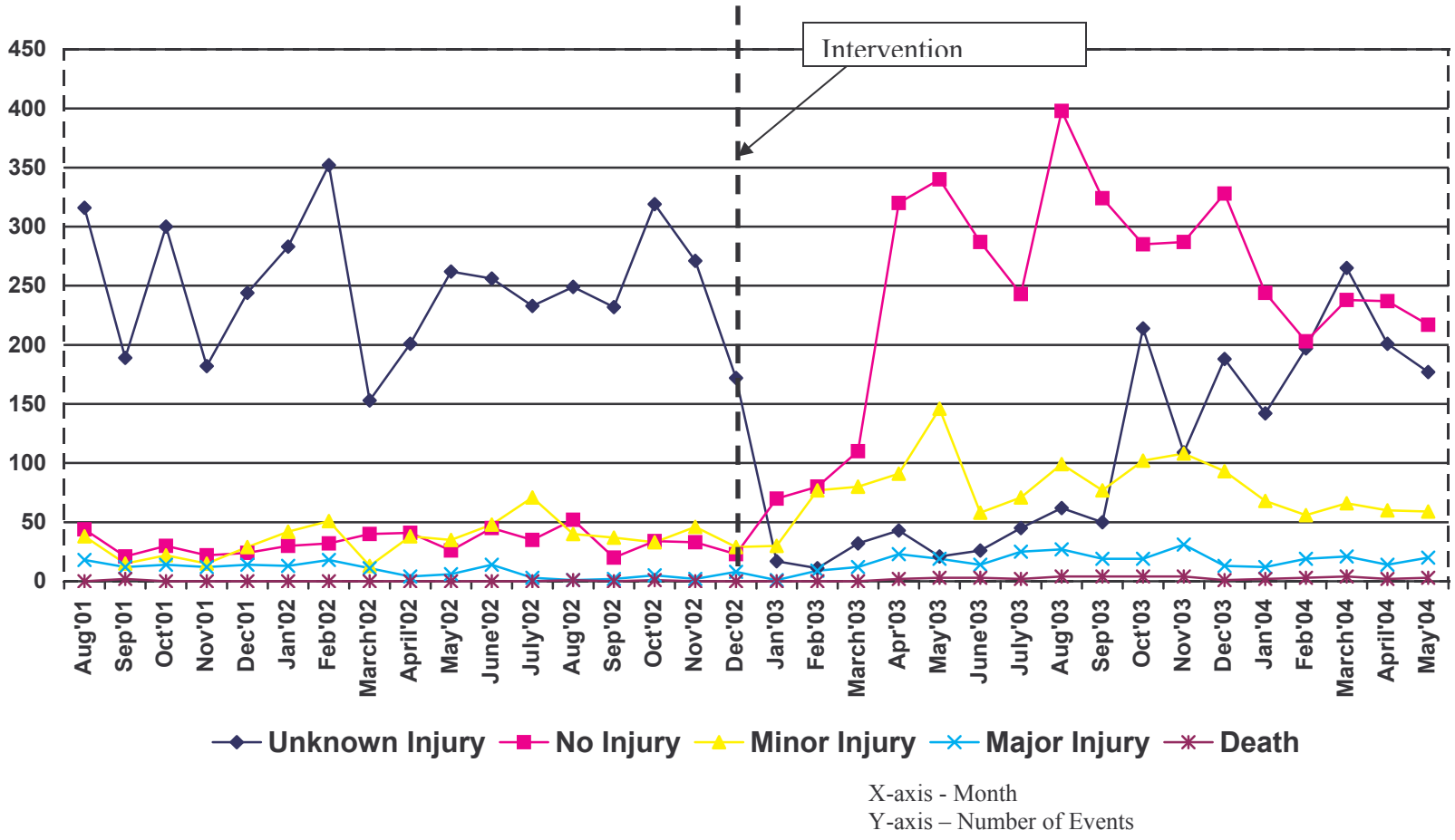
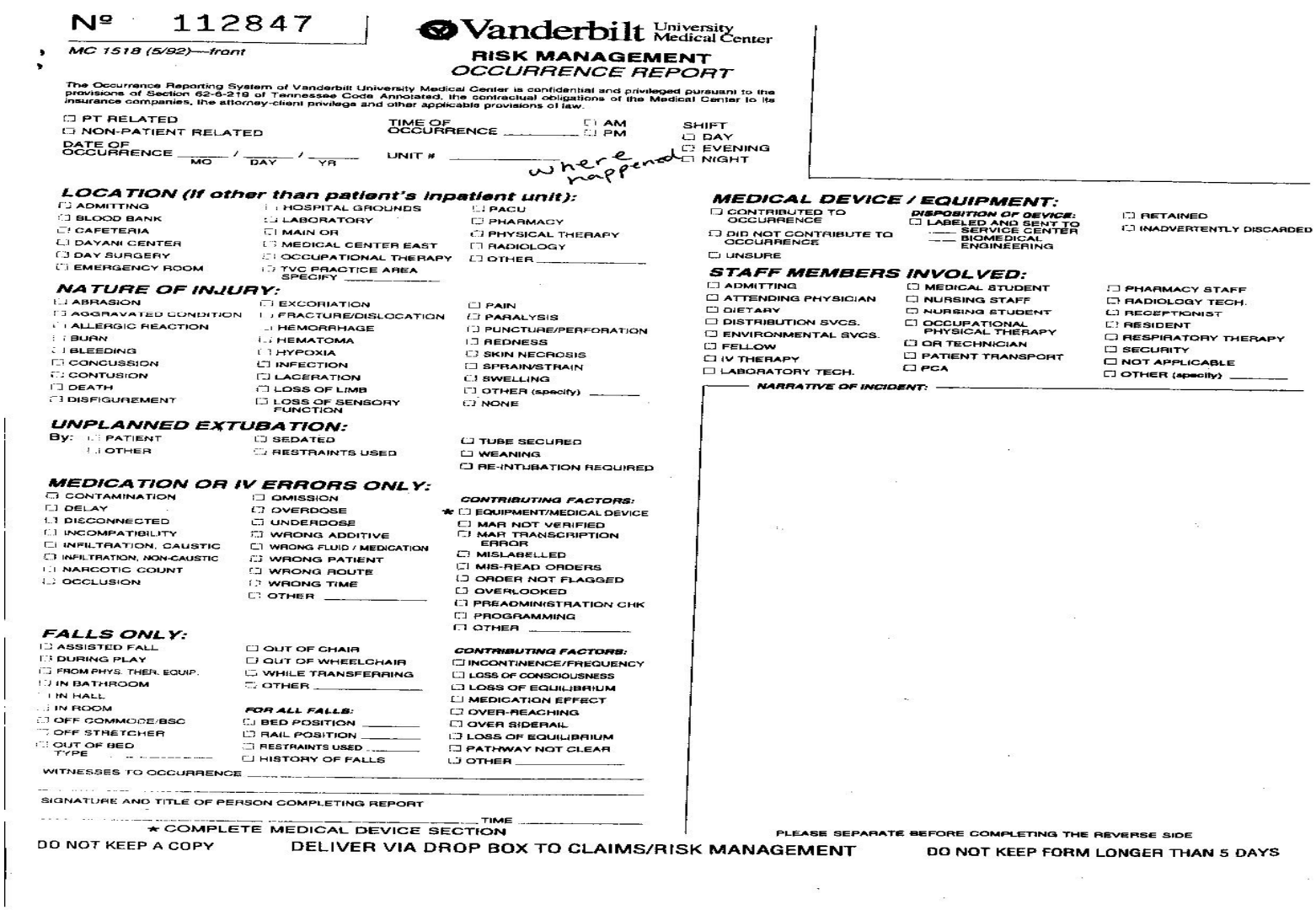


Figure 6: **Frequency of All Errors Reported for All Severity Levels**



Nº 112847

MC 1518 (5/92)—front

Vanderbilt University Medical Center

RISK MANAGEMENT

OCCURRENCE REPORT

The Occurrence Reporting System of Vanderbilt University Medical Center is confidential and privileged pursuant to the provisions of Section 63-6-219 of Tennessee Code Annotated, the contractual obligations of the Medical Center to its insurance companies, the attorney-client privilege and other applicable provisions of law.

☐ PT RELATED
☐ NON-PATIENT RELATED

TIME OF OCCURRENCE _____ ☐ AM ☐ PM

SHIFT
☐ DAY
☐ EVENING
☐ NIGHT

DATE OF OCCURRENCE ____ / ____ / ____ (MO / DAY / YR)

UNIT # _____

where happened

LOCATION (If other than patient's inpatient unit):

☐ ADMITTING
☐ BLOOD BANK
☐ CAFETERIA
☐ DAYANI CENTER
☐ DAY SURGERY
☐ EMERGENCY ROOM
☐ HOSPITAL GROUNDS
☐ LABORATORY
☐ MAIN OR
☐ MEDICAL CENTER EAST
☐ OCCUPATIONAL THERAPY
☐ TVC PRACTICE AREA SPECIFY _____
☐ PACU
☐ PHARMACY
☐ PHYSICAL THERAPY
☐ RADIOLOGY
☐ OTHER _____

NATURE OF INJURY:

☐ ABRASION
☐ AGGRAVATED CONDITION
☐ ALLERGIC REACTION
☐ BURN
☐ BLEEDING
☐ CONCUSSION
☐ CONTUSION
☐ DEATH
☐ DISFIGUREMENT
☐ EXCORIATION
☐ FRACTURE/DISLOCATION
☐ HEMORRHAGE
☐ HEMATOMA
☐ HYPOXIA
☐ INFECTION
☐ LACERATION
☐ LOSS OF LIMB
☐ LOSS OF SENSORY FUNCTION
☐ PAIN
☐ PARALYSIS
☐ PUNCTURE/PERFORATION
☐ REDNESS
☐ SKIN NECROSIS
☐ SPRAIN/STRAIN
☐ SWELLING
☐ OTHER (specify) _____
☐ NONE

UNPLANNED EXTUBATION:

By: ☐ PATIENT ☐ OTHER
☐ SEDATED
☐ RESTRAINTS USED
☐ TUBE SECURED
☐ WEANING
☐ RE-INTUBATION REQUIRED

MEDICATION OR IV ERRORS ONLY:

☐ CONTAMINATION
☐ DELAY
☐ DISCONNECTED
☐ INCOMPATIBILITY
☐ INFILTRATION, CAUSTIC
☐ INFILTRATION, NON-CAUSTIC
☐ NARCOTIC COUNT
☐ OCCLUSION
☐ OMISSION
☐ OVERDOSE
☐ UNDERDOSE
☐ WRONG ADDITIVE
☐ WRONG FLUID / MEDICATION
☐ WRONG PATIENT
☐ WRONG ROUTE
☐ WRONG TIME
☐ OTHER _____

CONTRIBUTING FACTORS:

★ ☐ EQUIPMENT/MEDICAL DEVICE
☐ MAR NOT VERIFIED
☐ MAR TRANSCRIPTION ERROR
☐ MISLABELLED
☐ MIS-READ ORDERS
☐ ORDER NOT FLAGGED
☐ OVERLOOKED
☐ PREADMINISTRATION CHK
☐ PROGRAMMING
☐ OTHER _____

FALLS ONLY:

☐ ASSISTED FALL
☐ DURING PLAY
☐ FROM PHYS. THER. EQUIP.
☐ IN BATHROOM
☐ IN HALL
☐ IN ROOM
☐ OFF COMMODE/BSC
☐ OFF STRETCHER
☐ OUT OF BED
TYPE _____
☐ OUT OF CHAIR
☐ OUT OF WHEELCHAIR
☐ WHILE TRANSFERRING
☐ OTHER _____

FOR ALL FALLS:

☐ BED POSITION _____
☐ RAIL POSITION _____
☐ RESTRAINTS USED _____
☐ HISTORY OF FALLS

CONTRIBUTING FACTORS:

☐ INCONTINENCE/FREQUENCY
☐ LOSS OF CONSCIOUSNESS
☐ LOSS OF EQUILIBRIUM
☐ MEDICATION EFFECT
☐ OVER-REACHING
☐ OVER SIDERAIL
☐ LOSS OF EQUILIBRIUM
☐ PATHWAY NOT CLEAR
☐ OTHER _____

WITNESSES TO OCCURRENCE _____

SIGNATURE AND TITLE OF PERSON COMPLETING REPORT _____ TIME _____

★ COMPLETE MEDICAL DEVICE SECTION

MEDICAL DEVICE / EQUIPMENT:

☐ CONTRIBUTED TO OCCURRENCE
☐ DID NOT CONTRIBUTE TO OCCURRENCE
☐ UNSURE

DISPOSITION OF DEVICE:

☐ LABELED AND SENT TO SERVICE CENTER
☐ BIOMEDICAL ENGINEERING
☐ RETAINED
☐ INADVERTENTLY DISCARDED

STAFF MEMBERS INVOLVED:

☐ ADMITTING
☐ ATTENDING PHYSICIAN
☐ DIETARY
☐ DISTRIBUTION SVCS.
☐ ENVIRONMENTAL SVCS.
☐ FELLOW
☐ IV THERAPY
☐ LABORATORY TECH.
☐ MEDICAL STUDENT
☐ NURSING STAFF
☐ NURSING STUDENT
☐ OCCUPATIONAL PHYSICAL THERAPY
☐ OR TECHNICIAN
☐ PATIENT TRANSPORT
☐ PCA
☐ PHARMACY STAFF
☐ RADIOLOGY TECH.
☐ RECEPTIONIST
☐ RESIDENT
☐ RESPIRATORY THERAPY
☐ SECURITY
☐ NOT APPLICABLE
☐ OTHER (specify) _____

NARRATIVE OF INCIDENT: _____

PLEASE SEPARATE BEFORE COMPLETING THE REVERSE SIDE

DO NOT KEEP A COPY — DELIVER VIA DROP BOX TO CLAIMS/RISK MANAGEMENT — DO NOT KEEP FORM LONGER THAN 5 DAYS

Figure 7. Occurrence Report

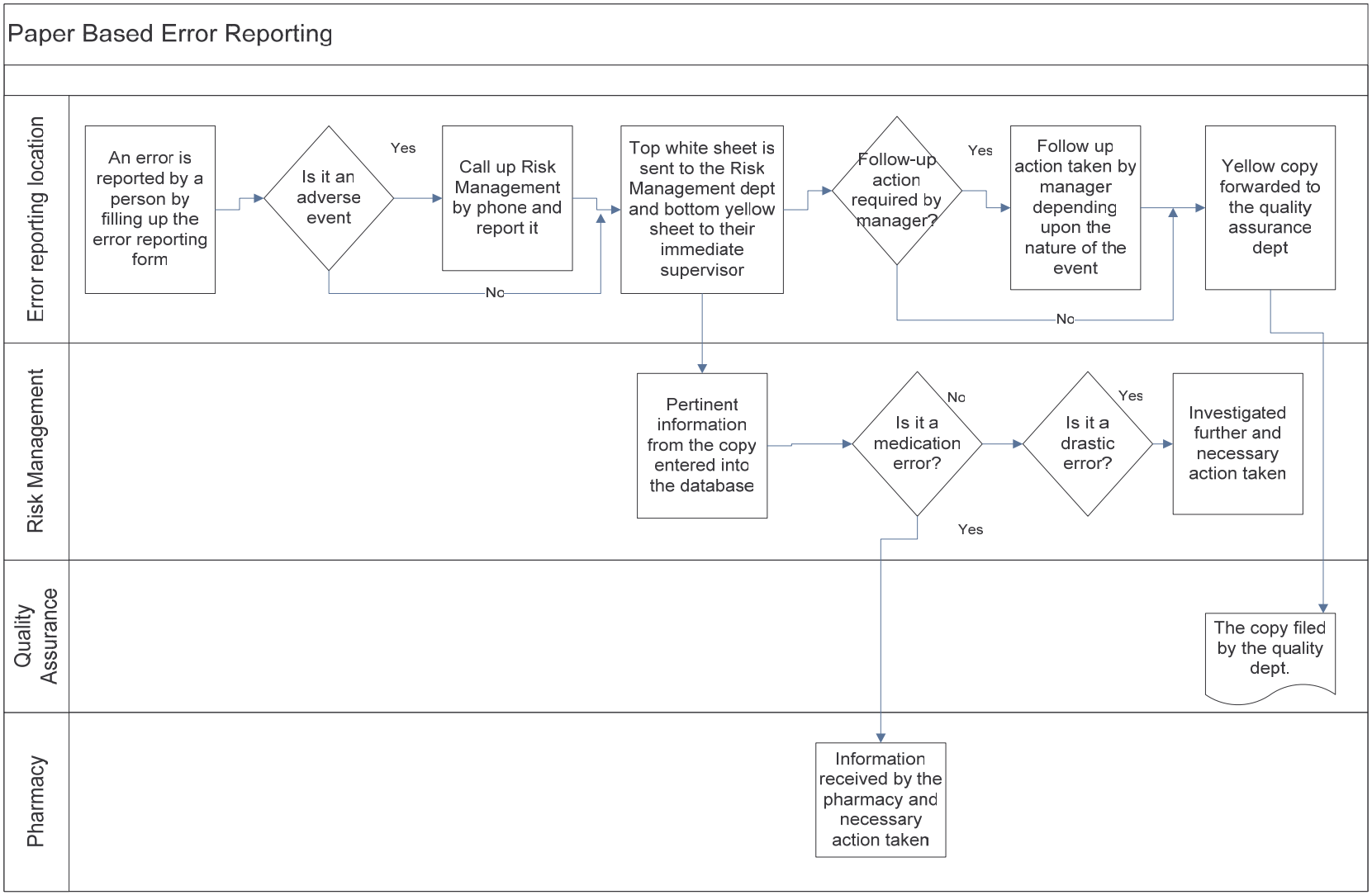


Figure 8. Process Flow of the Paper Based Reporting System

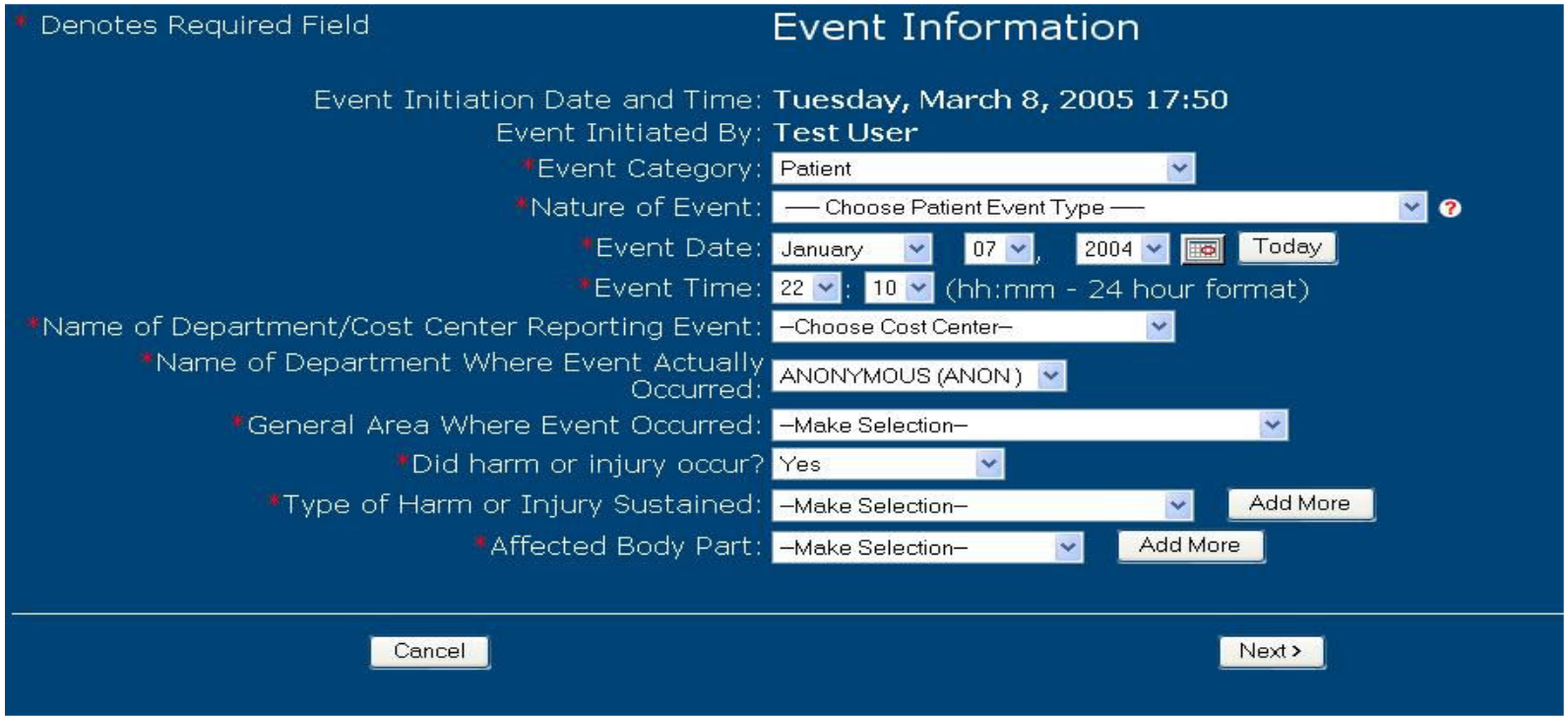


Figure 9: Screen Shot of Page 1 in DOERS

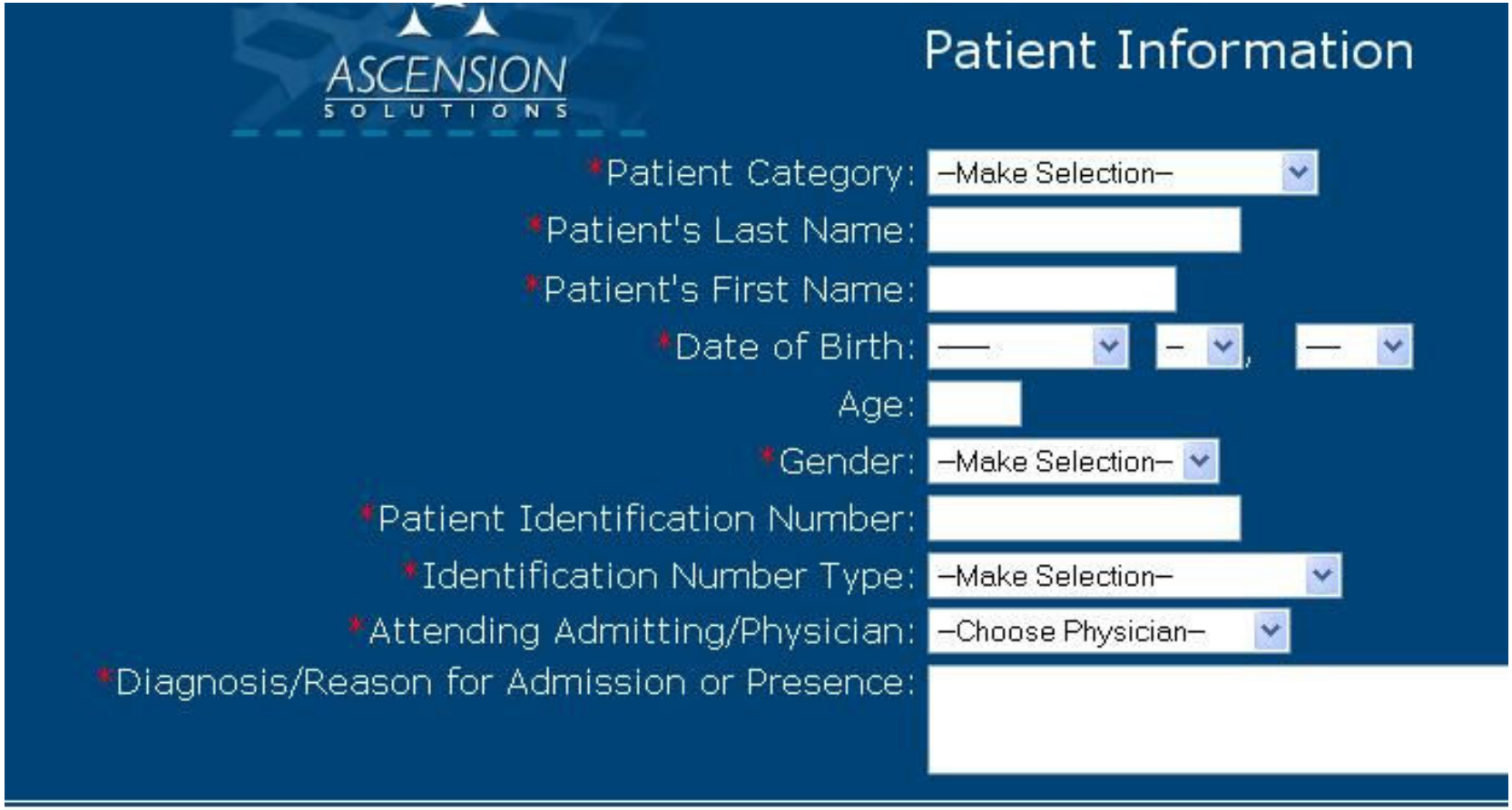


Figure 10: Screen Shot of Page 2 – Part 1 in DOERS

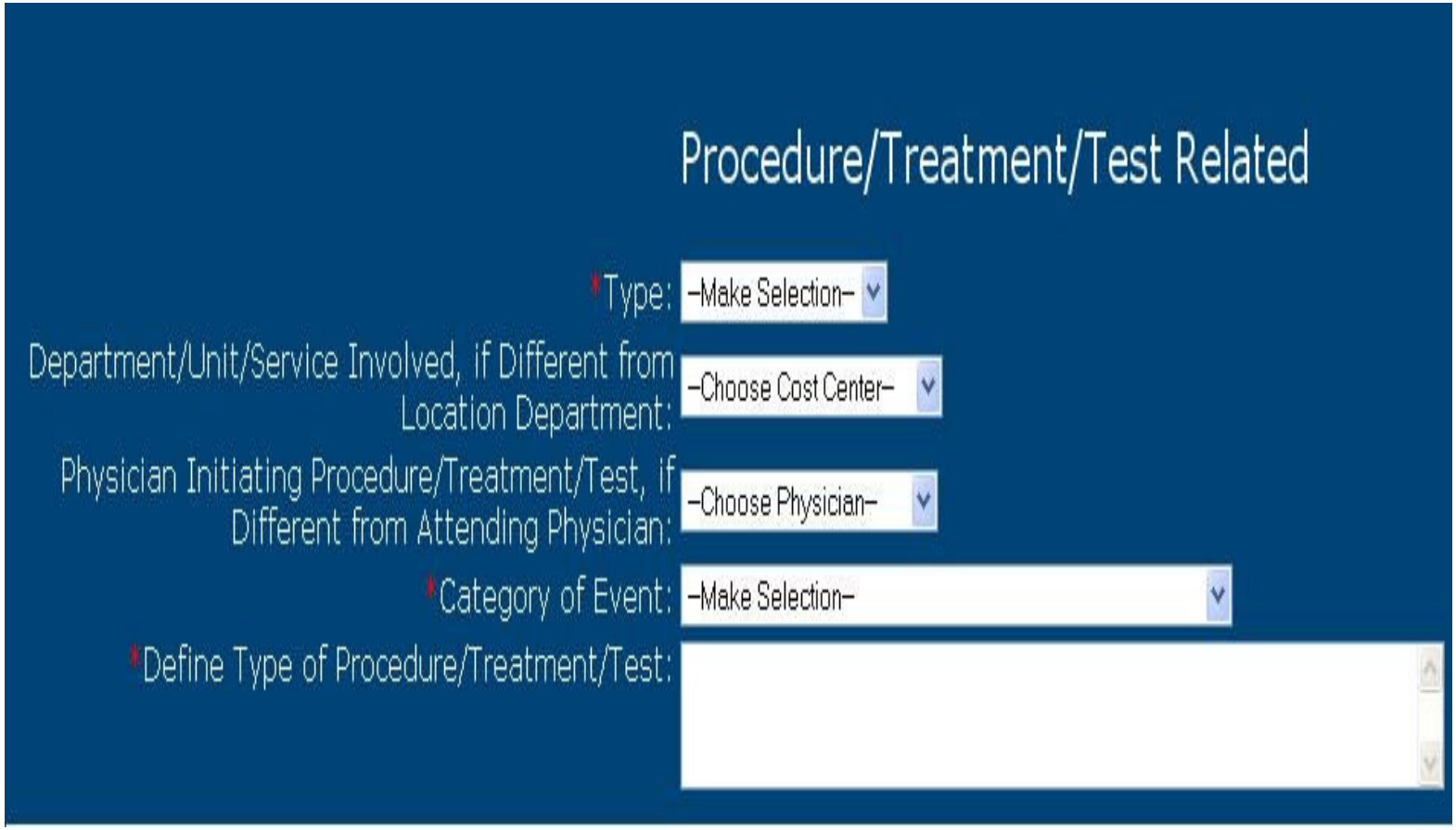


Figure 11: Screen Shot of Page 2 – Part 2 in DOERS

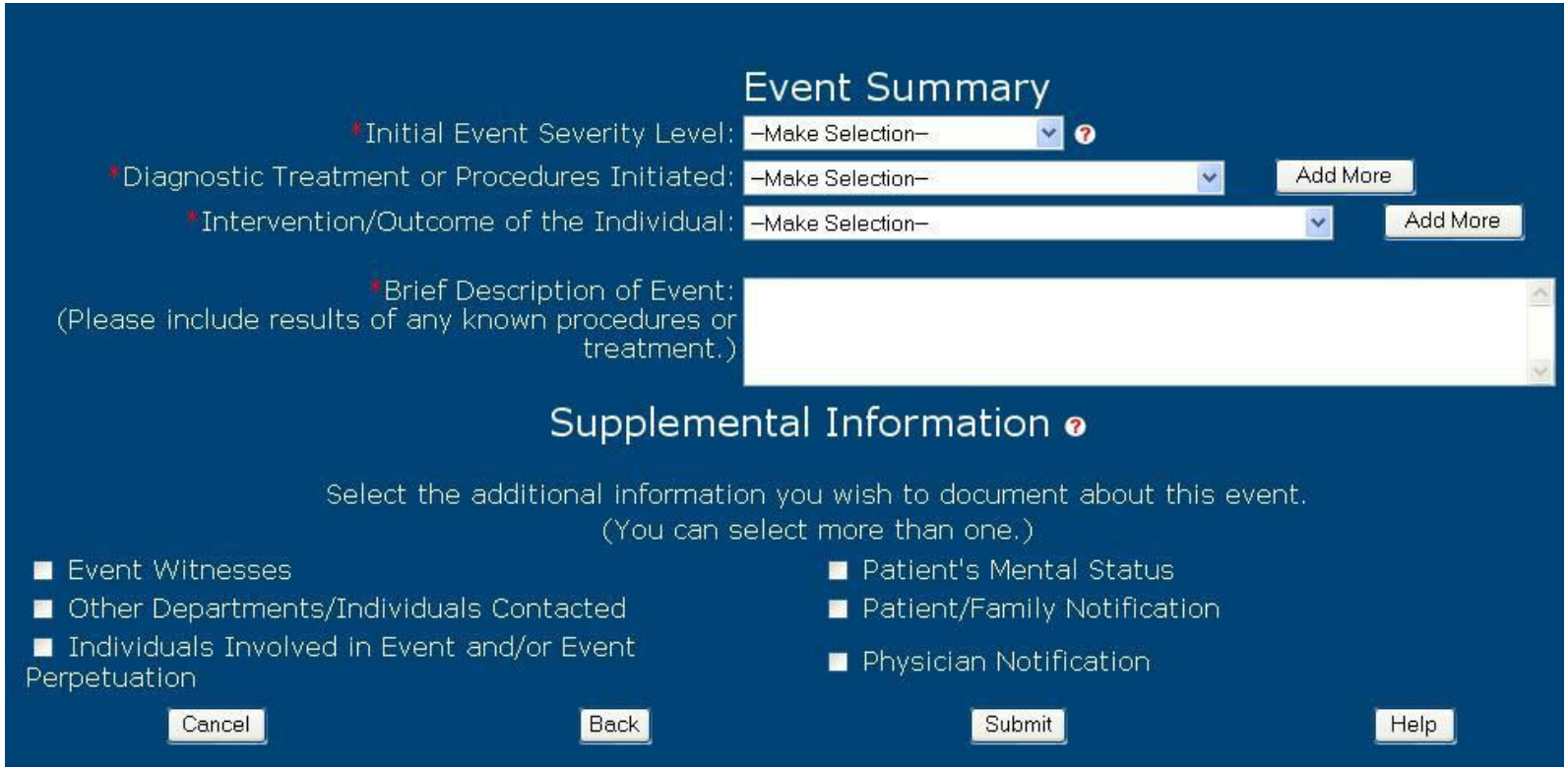


Figure 12: Screen Shot of Page 2 – Part 3 in DOERS

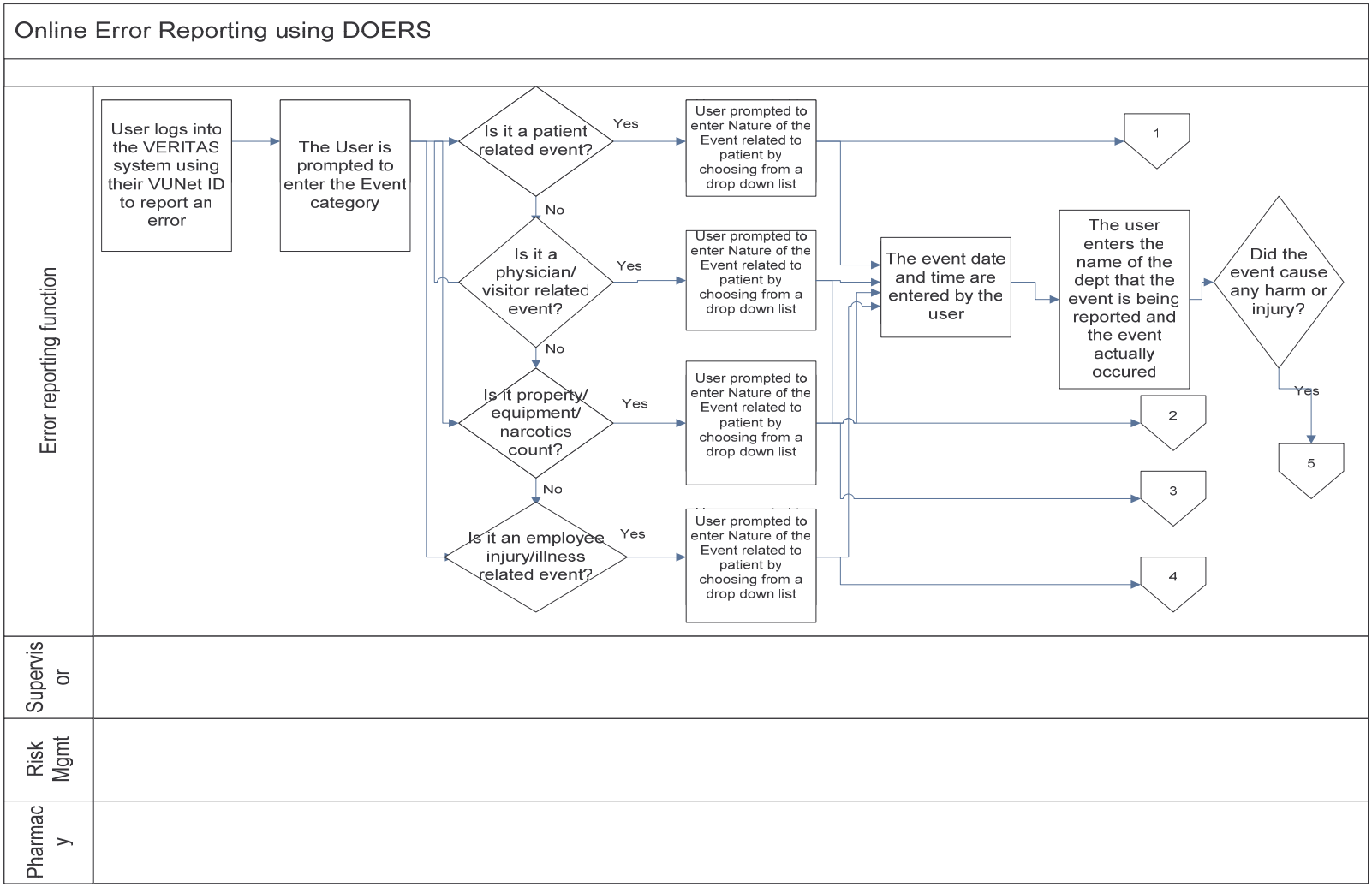


Figure 13: Process Flow of Electronic Reporting System- Part1

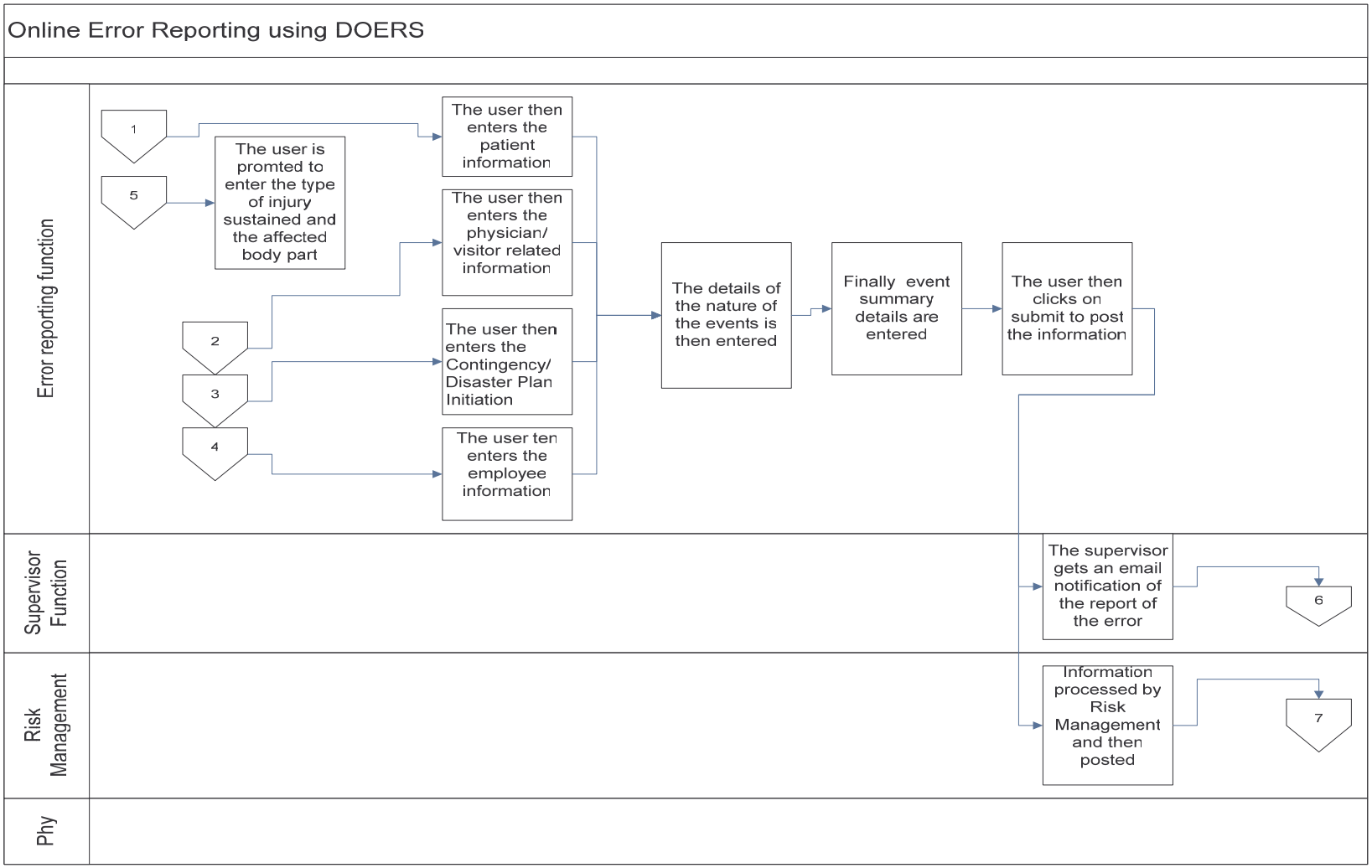


Figure 14: Process Flow of Electronic Reporting System- Part2

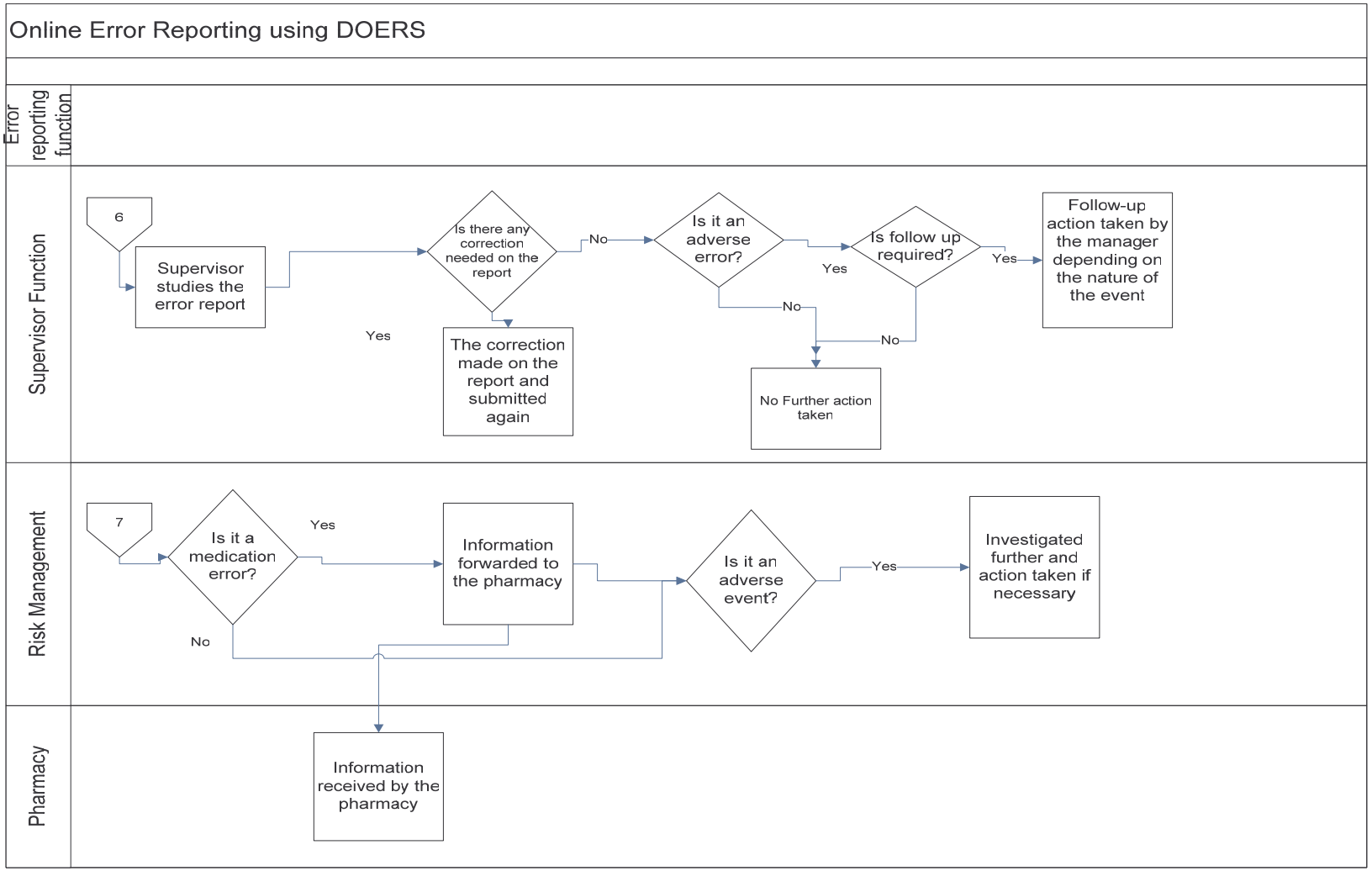


Figure 15: **Process Flow of Electronic Reporting System - Part3**

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