



The Internet Journal of Allied Health Sciences and Practice

<http://ijahsp.nova.edu>

A Peer Reviewed Publication of the College of Allied Health & Nursing at Nova Southeastern University

Dedicated to allied health professional practice and education

<http://ijahsp.nova.edu> Vol. 3 No. 1 ISSN 1540-580X

Patient Safety Vignettes: Preliminary Observations on a Novel Use of an Old Methodology

C. J. Biddle, CRNA, PhD¹
William Hartland, CRNA, PhD²
Michael Fallacaro, CRNA, DNSc³

1. Professor, School of Allied Health, Virginia Commonwealth University
2. Associate Professor, School of Allied Health, Virginia Commonwealth University
3. Professor, School of Allied Health, Virginia Commonwealth University

Citation:

Biddle, C.J., Hartland, W., Fallacaro, M. Patient safety vignettes: Preliminary observations on a novel use of an old methodology. *The Internet Journal of Allied Health Sciences and Practice*. January 2005. Volume 3 Number 1.

Abstract

Problems arise when clinicians or educators encounter situations that are error-prone, complex, or distracting. Trigger films (TF) are 2-4 minute vignettes simulating real-life situations that finish abruptly, stimulating participants to analyze situations in a safe environment. We report on a natural evolution of the TF, the patient safety vignette (PSV), a multimedia tool that advantages the human characteristic of vicariousness by inviting stakeholders into an unfolding patient misadventure. PSVs are produced in our high fidelity simulation lab and are based on actual patient events. We have previously demonstrated the validity and reliability of the approach in the healthcare setting, a multidimensional, dynamic and stressful environment where complex, critical, and risky decision making and interventions occur. PSVs offer a systematic approach to facilitating patient safety activity by engaging clinicians in a range of complex scenarios in what we term the "living laboratory." Initial outcome measures examining efficacy and clinician acceptance are reported.

Introduction

In the care of patients, accidents, lapses, mistakes and other undesirable actions often result from incomplete knowledge, unfamiliarity, stress, or simply occur as an inevitable consequence of humans traversing an inherently complex terrain. Virginia Commonwealth University has produced a number of patient safety vignettes (PSVs), which are brief, staged reenactments of actual patient misadventures that are visually displayed providing an evidence-based approach to error resolution and prevention. Based upon the concept of the "living laboratory," a virtual setting where activity, improvisation, success and failure occur in the face of simulated patient and provider interaction, we produce PSVs that are realistic.¹ In our Center for Research in Human Simulation, we have the flexibility that allows us to model virtually any situation from a healthcare venue (e.g., operating room, intensive care unit, patient's hospital room, etc).

PSVs are directed toward preventing and managing real world negative patient events that surface in practice but

would be difficult or dangerous to reproduce using real patients. We have spearheaded a patient safety initiative to bring the power of simulation to any interested professional, even in the privacy of their home, in the form of high fidelity multimedia tools.

One principle of adult learning is that humans often learn best from their own mistakes.² We would add that humans also learn vicariously from the mistakes of others and as such, embrace the view that errors or negative outcomes are opportunities for us to learn and develop robust systems to prevent similar errors from befalling others.^{3,4} An enlightened view of error recognizes that simply punishing those involved, or reassigning them to other jobs does not prevent mistakes. Educating providers and building better systems are superior approaches to error prevention and error absorption.

Imagine a nurse, with only good intentions in mind, severely burning a patient with a universally used warming blanket. Imagine a patient getting the wrong

operation suffering an unnecessary amputation. Imagine a person having a superficial surgical procedure on their neck, yet leaving the hospital with arm paralysis due to improper positioning. We have produced a range of vignettes targeting blood transfusion errors, drug administration mistakes, and equipment malfunctions, just to name a few. All of these cases have three shared themes: 1) they are documented to have occurred frequently in hospitals throughout the United States, 2) they have catastrophic effect(s) on the patient, and 3) they are completely preventable.

Organizations such as the military, the aviation and nuclear power industries manage potentially hazardous processes by creating a culture of safety that anticipate and plan for unexpected events and future surprises. Inherent in the incredible complexity of the healthcare landscape is the responsibility for each individual, even those at the bottom of the ladder, to be made aware of their importance in the overall process of health care delivery. Each task, even those of an ancillary nature, must be accorded the same attention and the same consideration. We believe that the power of vicariousness embedded in media is a most effective method to convey this message.

This paper overviews our work with the PSV and includes preliminary outcome data suggesting that it may have meaningful and lasting impact as a patient safety intervention.

Background of the PSV

Our interest in employing media as an instructional method began with clinical faculty development, specifically in the realm of improving the quality of the dynamic between instructors and students in the patient care setting. This interest led to the use of trigger films

(TFs), 2-4 minute long films that simulate a real-life situation, finishing abruptly, and not always committing to a particular course of action.^{5,6} This technique, pioneered in the 1960s, has been virtually ignored in health care.

Initially our work was directed at using this approach to enlighten clinical faculty in using principles of adult education in dealing with common and not-so-common faculty/student interactions. Among these, are TFs dealing with students who were ill-prepared, argumentative, insubordinate, unconfident or overly timid. The use of these TFs in faculty development workshops is well received, with demand for workshops from university and clinical departments exceeding the capacity to deliver them.

In 2000, the Institute of Medicine published a landmark report, *To Err is Human*, which profoundly influenced the direction of our clinical and research efforts. From this report we learned that medical and nursing error was exceptionally common, produced an enormous toll upon human suffering, and that an aggressive nationwide effort was needed to improve the situation.⁷ Our work and experience with TFs, as well as our longstanding interest in patient safety, became the framework for developing PSVs,

The primary author (CB) has extensive experience in dealing with root cause analysis, evidence-based decision making, and medical closed claims research, affording a national access to cases of patient and provider misadventures.⁸⁻¹⁶ Initial PSVs were directed at events occurring exclusively in the operating room where complex decision making involving critically ill patients, often occurs in the setting of time and production pressure. Examples of these PSVs are listed in Table I.

Table I: Examples of recently produced patient safety vignettes (PSVs)

- Wrong site surgery
- Syringe swap / medication error
- Inadvertent blood transfusion in a Jehovah's Witness patient
- Cardiac arrest to equipment malfunction (breathing circuit)
- Peripheral nerve injury due to malpositioned arm
- Severe patient burn injury from a convective warming device
- Heparin-induced thrombocytopenia—failure to diagnose with severe consequences
- Catastrophic nosocomial infection due to failed hand washing technique

More recent work has extended into other areas of patient care including dealing with heparin-induced thrombocytopenia, neglected hand washing, electrocautery-ignition of a patient drape resulting in severe patient burn, and other misadventures.

Description of the PSV

Each PSV minimally exhibits the following attributes: 1) A 2-4 minute reenactment of an actual negative patient event employing domain-knowledgeable "actors" that simulate what took place to the best of our ability, 2) a

brief pause, 3) a 2-4 minute follow-up vignette that demonstrates the salient, systematic events of the misadventure/calamity or that illustrates how another approach could have mitigated against the occurrence, 4) 2-3 minute evidence-based review of the relevant literature, and 5) evidence-based reference sources.

Each PSV is staged and developed in a high-fidelity simulation laboratory with practice sessions preceding production. A highly skilled media crew is enlisted. Each PSV is then formatted in four modes: VHS, CD, DVD and web-site for video streaming.

Early Outcome Analysis

Institutional approval was obtained prior to developing our PSVs and exposing stakeholders to them. Our PSVs have been displayed at a number of national and regional symposia and conferences. Table 2 lists these meetings as well as the attributes of, and approximate number of the attendees at each. We have been carefully following up with attendees who have been

exposed to the PSVs in a qualitative effort to measure their impact. Because our patient safety work is still in its infancy, and for a variety of ethical and logistical reasons, this preliminary data lacks the elements of a randomized trial. Thus any outcome analysis must be considered rudimentary and preliminary at this stage. In that context, we report our findings to date.

Table 2: Audiences exposed to the Patient Safety Vignettes

Conference	Title Composition	Audience Size
National Patient Safety Foundation, Washington DC. February 2002	RN, NA, P, RM, A, S	600
4 th Annual Conference on Patient Care and Safety Richmond, VA. May, 2004	RN, NA, P, RM, A, S	475
St. Mary's Hospital, Bon Secours Hospital System, Medical Executive Committee	P, A	25
Richmond Community Hospital, Bon Secours Hospital System, Medical Executive Committee	P, A	25
Hanover Regional Medical Center, Bon Secours Hospital System, Medical Executive Committee	P, A	25
Anesthesiology Symposium, Glacier National Park, MT	NA	75
National Assembly School Faculty, American Assn Nurse Anesthetists, Scottsdale, AZ	NA, RN, S	250
Orthopedic Attendings and Residents, Virginia Commonwealth University, School of Medicine, Richmond, VA	P	40
Western Clinical Conference of Anesthesia, Jackson Hole, WT	NA, RN	200
Nurse Anesthesiology Faculty Associates, Williamsburg, VA	NA, RN	250
Caribbean Conference of Anesthesia, Paradise Island, Bahamas	NA, RN, S	100
Staff Nurses Educational Workshop, Mary Washing Hospitals & Medical Center, Charlottesville, VA	RN, A	300
Anesthesiology Seminar at Bar Harbour, Bar Harbour, ME	CRNA, MD, A	150
Current Reviews for Nurse Anesthetists, Orlando, FL	CRNA, RN	350

Key: RN = registered nurse, P = physician, NA = nurse anesthetists, A = administrator, RM = risk manager, S = scholar or scientist who is not one of the aforementioned

Approximately 2,500 health care providers (nurses, physicians, technologists) and administrators (executive leadership, risk and quality management department members) have been exposed to a variety of PSVs but have seen at least the following two offerings: 1) wrong site surgery, and 2) peripheral nerve injury. Of these, contact information has been secured with 1,791 subjects in the form of e-mail or postal mailing addresses obtained at the time of experiencing the PSV. The breakdown of these 1,656 is as follows: 302 physicians (MD), 831 certified registered nurse anesthetists (CRNA), 249 registered nurses (RN), and 209 administrators (AD). As part of the actual follow-up, 5% of each cohort have been randomly contacted (ie, 15 MD, 42 CRNA, 13 RN, 11 AD).

On follow-up at 6-12 months we observed the following:

1. 100% of sampled respondents were able to specifically recall the theme of the PSVs
2. 66% recalled the specific preventive/corrective actions displayed in the PSVs
3. 48% indicated that the PSVs subsequently affected their practice or work life in some "useful" manner
4. 94% indicated that the PSVs represented a "useful" or "highly useful" tool in the domain of patient care and patient safety

As part of the ongoing study a comparison group of 15 MDs, 35 CRNAs, 15 RNs and 15 ADs were given 2 case

reports to read from the FDAs MedWatch bulletin, one describing an inadvertent peripheral nerve injury due to malpositioning during an operative procedure, and one that detailed the events involved in a patient who experienced a wrong site surgery. These individuals were not exposed the PSVs. On follow-up at 6-12 months we observed the following:

1. 1.5% recalled the themes of the written report
2. 0 recalled the specific preventive/corrective actions
3. 12% indicated it "might have had an impact" on subsequent practice
4. 16% indicated it represents a "useful" or "highly useful" tool in the domain of patient care and patient safety

This early data lends us to believe that the cognitive imprint created with the PSVs is better in light of the inconsistent and rather bleak imprint created with traditional reading of published literature. We feel, and have indirect evidence to support our belief that storytelling, especially in the framework of presenting information in a believable, personally relevant manner has powerful cognitive imprint qualities and potential. While we have not precisely measured the actual weight of the role of vicariousness upon human learning, we have long been impressed with the power of these multimedia presentations to substantially imprint upon human cognition.

Summary

We report preliminary observations of our ongoing program of research creating PSVs that target common, catastrophic patient-related misadventures that occur in health care settings nationwide. We believe that much can be achieved by learning from the mistakes that others have experienced using the PSV instrument. As such we utilize the tool of story-telling. With this process we hope to spare ourselves (and our own patients) from

experiencing similar negative outcomes. Gleaning such lessons, especially when rendered in a high fidelity multi-media format, advantages the powerful human sense of vicariousness—with resultant high cognitive imprinting.

To view a sample film, in this case, a film on wrong site surgery, please go to:

<http://www.nrsa.vcu.edu/ps/WrongSurgery.htm>

References

1. Hartland W, Biddle C, Fallacaro M. Accessing the living laboratory. Trigger films as an aid to developing, enabling and accessing anesthesia clinical instructors. *J Amer Assoc Nurse Anesth.* 2003;71:287-291
2. Mitchell G. *The Trainer's Handbook.* The American Medical Association Guide to Effective Training. New York: AMACOM; 1993
3. Leape LL, Bades DW, Cullen DJ. Systems analysis of adverse drug events. *JAMA.* 1995;274:325-43.
4. Reason J. *Managing the Risks of Organizational Accidents.* Aldershot: Ashgate Press; 1997.
5. Baud D, Pearson M. The trigger film: a stimulus for affective learning. *Programmed Learning Ed Tech.* 1984;16:52-56.
6. Alroy G, Ber R. Doctor-patient relationship and the medical student. The use of trigger films. *Journal of Medical Education.* 1984;16:52-56.
7. Kohn LT, Corrigan JM, Donaldson MS, editors. *To Err is Human: Building a Safer Health System.* Washington, DC: National Academy Press; 2000.
8. Biddle, C. The long term consequences of general anesthesia. *Curr Rev Nurse Anesth.* 1998;21:15-19.
9. Blike G, Biddle C. Preanesthesia detection of equipment faults by anesthesia providers at an academic hospital: Comparison of standard practice and a new electronic checklist. *J Am Assoc Nurse Anesth.* 2001;68:497-505.
10. Biddle C, Dosch M, Dove C, Nagelhout J, Waugaman W. Analysis of noteworthy indicators on the anesthesia record: A prospective, multi-regional study. *J Am Assoc Nurse Anesth.* 2001;69:407-410.
11. Sumanis J, Kenned C, Biddle C, Fallacaro MD,. *Daedalus revisited: A call for redesign of the bougie esophageal dilator.* *Am Surgeon.* 2002;68:139-142.
12. Biddle C. Beyond oxygen and carbon dioxide: The lung as mechanical and biochemical workhorse. *Curr Rev Nurse Anesth.* 2002;25:19-23.
13. Petty C, Kremer M, Biddle C. A synthesis of the Australian anesthesia incident monitoring study, the ASA closed claim project, and the AANA closed claims study. *J Am Assoc Nurse Anesth.* 2002;70:193-202..
14. Lahaye L, Biddle C. Errors in healthcare. Part I. Definitions, epidemiology and enlightened considerations. *Curr Rev Nurse Anesth.* 2003;26,67-72
15. Lahaye L, Biddle C. Errors in healthcare. Part II. What are we doing about errors in medicine and nursing? *Curr Rev Nurse Anesth.* 2003;26,79-86
16. Fritzlen T, Kremer M, Biddle C. Peripheral nerve injury during anesthesia management: A national investigation of anesthesia closed claims. *J Am Assoc Nurse Anesth.* 2003;71:347-351