1. **CALL TO ORDER:** The meeting was called to order by Cheryl Wraa at 10:00 a.m.

2. **WELCOME & INTRODUCTIONS:** All present were introduced. Announcements:
   - The terms of office for the Treasurer, Lynn Bennink, and the Director-at-Large Local Emergency Medical Services Agency (LEMSA), Cindi Stoll, have ended. Cindi was presented with an award for her dedication and service to the organization. Lynn was unable to attend; therefore, her award will be presented at a later date.
   - Congratulations were extended to our newly elected officers Sue Cox, Treasurer and Karen Crain, Director-at-Large LEMS.

3. **APPROVAL OF MINUTES:** The minutes of December 3, 2010 were approved by the committee as submitted and will be posted on the website.

4. **PRESIDENT’S REPORT:**
   - **California Statewide Trauma Plan:** Each section of the draft state trauma plan has been reviewed by an editing group which included a LEMS Director, trauma surgeon, trauma program manager, and EMS Authority (EMSA) staff. The revised sections have been returned to the individual writing groups for further development with a return due date of April 15, 2011.
American College of Surgeons (ACS) Rural Trauma Team Development Course (RTTDC®): RTTDC resource documents and course content are being revised; therefore, all courses are on hold until the revision is complete. The Course Coordinator for the RTTDC®, Cheri White from Sutter Roseville Medical Center, will maintain contact with ACS and notify the committee when courses may resume. Each region has been asked to identify a TMAC member to serve as a Regional Coordinator. Loni Chartan, Antelope Valley Hospital, volunteered to be the Regional Coordinator from the Southwest RTCC. We are still in need of a Regional Coordinator from the North RTCC.

**Trauma Manager’s Resource Manual:** The *Trauma Manager’s Resource Manual* is complete! This is a huge accomplishment. Cindi Stoll provided an overview of the vast resources included on the flashdrive. The *Trauma Manager’s Resource Manual* was distributed to members in good standing. Members in good standing who were not able to attend will receive the flashdrive via the mail. Members not in good standing will receive the flashdrive upon renewal of their membership. In addition, non-members may purchase the resource document for $150.00.

**Pediatric Trauma and Access to Care Summit:** Children’s Hospital Los Angeles in collaboration with UC Davis and the EMSA are coordinating a pediatric consensus group, *Pediatric Trauma and Access to Care Summit*, on April 28, 2011 to examine and develop recommendations specific to issues facing the pediatric population in California.

5. **STATE REPORT:**

**EMS Authority Update:** The EMSA has relocated to the following location:

10901 Gold Center Drive, Suite 400
Rancho Cordova, CA 95670

In addition, Farid Nasr, MD, has been hired to oversee the specialty programs including Emergency Medical Services for Children (EMSC), Stemi, and Stroke. Hailey Pate, Registrar, has also been hired to work with the State registries.

**CEMSIS Trauma:** Currently 54 out of 71 counties are voluntarily submitting data. End of year goal is for 100% of all counties to be submitting. Obvious variances in *Trauma Triage Criteria* are being utilized statewide as evidenced by the “treat and release” rate ranging from a low of 0% to a high of 54%.

**Special Projects:**
- “Cost of Trauma”, Dr. Chung, UC San Diego, is working in collaboration with the EMSA to evaluate the economic impact of trauma.
- “Under Triage”, David Raglin, UC Berkley, is working in collaboration with the EMSA to evaluate the under triage rate. The definition of “under triage” has yet to be defined.

**California State Trauma Summit IV:** The *Trauma Summit IV* is scheduled for March 19, 2012 at the Crowne Plaza Hotel, Los Angeles Airport. In addition, the EMSA is exploring the feasibility of hosting a State Trauma Conference with a clinical focus.

**ACS Committee on Trauma (COT):** The *ACS COT Resources for Optimal Care of the Injured Patient (Green Book)* is currently under its second internal review. The Verification Review Committee (VRC) is attempting to streamline the verification process to be faster, focused, and objective. In addition a subcommittee has been created to develop a tool for taxonomy. Currently discussions on patient safety are not based on a common language
which hinders learning from near misses and adverse events. The concept of a taxonomy combines terminology and the science of classification—in the case of patient safety, the identification and classification of things that go wrong in health care, the reasons why they occur, and the preventive strategies that can minimize their future occurrence. The classification schema (taxonomy) may be included in the revised resource document and possibly piloted in Southeastern Regional Trauma Coordinating Committee. Refer to Attachment I.

6. **HOT TOPIC – BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM:** Barriers to Safe Patient Care in a Trauma System a presentation by Dr. Gill Cryer, Trauma Medical Director, UCLA Medical Center, Los Angeles. Refer to Attachments II & III.

7. **HOT TOPIC – WHAT'S HOT IN SACRAMENTO:** Debbie Rodgers, California Hospital Association of Sacramento, provided an overview of What’s Hot in Sacramento including:
   - **California Budget Crisis:** Major cuts to balance the budget are being explored. Of particular concern is the elimination of the Maddy Fund. Through the Maddy Fund, California’s counties collect fines and reimburse emergency and on-call physicians and hospitals for treating the uninsured through the Physician Services Inpatient Program (PSIP). This is the only source of funding to compensate for treating the uninsured, all of whom must be stabilized and treated under state law and the federal Emergency Medical Treatment and Labor Act, regardless of their insurance status or ability to pay. The majority of LEMSAs also depend on this funding source for system oversight.
   - **Regulations Update:** Pre-Notice Meeting for General Acute Care Hospitals Regulation Review have been issued. The notice invites interested parties to participate in a public discussion and submit statements and comments regarding the update of regulations governing General Acute Care Hospitals in CCR Title 22, Division 5, Chapter 1, prior to the start of the formal rulemaking process. For additional information visit [www.cdph.ca.gov/programs](http://www.cdph.ca.gov/programs).
   - **“Bridge to Reform”:** Outlines steps the state is taking to transition to the new federal rules established by the Patient Protection and Affordable Care Act. The waiver will bring to California an estimated $10 billion in federal funds over the next five years and represents an essential bridge to 2014, when the majority of the new provisions of the federal law take effect. For additional information visit [www.dhcs.ca.gov/provgovpart](http://www.dhcs.ca.gov/provgovpart).
   - **Rural Health Policy:** Encourages, through the availability of grant monies, Critical Access Hospitals to seek trauma center designation (Level III or IV) so that trauma activation fees may be charged. However if the patient is ultimately transferred for a higher level of care it would preclude any subsequent activation fees from being charged. This could have a economic impact on Level I and II’s.
   - **Look for future Bills to address:**
     - Hospital fines imposed if they exceed the Nurse-Patient ratio;
     - EMS Authority work group to review “exclusive operating areas”;
     - Emergency overcrowding;
     - Violence in hospitals in response to the Contra Costa and Napa Valley incidents;
     - Helmet law repeal; and
     - Single-Payer Healthcare.
8. REGIONAL TRAUMA COordinating COMMITTEE (RTCC) UPDATES:

Region 1 - Northern:
- Due to geographic distances between members and changes at regional EMS agencies, scheduling meetings has been difficult;
- Limited participation – need to re-energize members and explore instituting an executive committee; and
- Planning to standardized field triage criteria using CDC as a template.

Region 2 - Bay Area:
- Specific, Measureable, Achievable, Relevant, Timely (SMART) Objectives development are in process;
- Developing Re-Triage Model (immediate/delayed) – looking at immediate transfer protocol (under development) through 9-1-1 system; and
- Working to obtain access to outcome data from non-trauma centers.

Region 3 - Central:
- Working to standardized field triage criteria using CDC as a template;
- Transfer (re-atriage) protocol (emergent and urgent) and implementation process is underdevelopment which includes communication with rural hospitals, and provides contact resources at regional trauma centers;
- Working on System PI- preventable/potentially preventable deaths for regional system; and
- Analyzing causes for delays in transfer and long scene times.

Region 4 - South Western:
- Working on Inter-county agreements; and
- Standardizing triage criteria utilizing CDC/ACS as a template across the region.

Region 5 - South Eastern:
- February 24th regional meeting at Loma Linda; Regional TAC after meeting with individual case presentations;
- Standardized triage criteria region-wide using CDC as minimum;
- Taxonomy project – new project currently being developed;
- Disaster planning and response – creation of a new subcommittee to develop the role of the trauma center; and
- Development of Trauma transfer process. Refer to Attachment IV.

9. TMAC BOARD & STANDING COMMITTEE REPORTS: Tabled

10. OPEN FORUM: Various issues discussed including:
- Future Hot Topics:
  - Toxonomy presentation.
  - ACS Site Survey presentation

11. NEXT MEETING: The next general membership meeting is scheduled for Friday, June 17, 2011 at San Jose Regional Hospital, San Jose, from 10:00 a.m. to 3:00 p.m.

12. ADJOURNMENT: The meeting was adjourned at 3:00 p.m. by Cheryl Wraa.
THE JCAHO PATIENT SAFETY EVENT TAXONOMY:
a standardized terminology and classification schema for near misses and adverse events

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Abstract

Background. The current US national discussions on patient safety are not based on a common language. This hinders systematic application of data obtained from incident reports, and learning from near misses and adverse events.

Objective. To develop a common terminology and classification schema (taxonomy) for collecting and organizing patient safety data.

Methods. The project comprised a systematic literature review; evaluation of existing patient safety terminologies and classifications; and identification of those that should be included in the core set of a standardized taxonomy; assessment of the taxonomy’s face and content validity; the gathering of input from patient safety stakeholders in multiple disciplines; and a preliminary study of the taxonomy’s comparative reliability.

Results. Elements (terms) and structures (data fields) from existing classification schemes and reporting systems could be grouped into five complementary root nodes or primary classifications: impact, type, domain, cause, and prevention and mitigation. The root nodes were then divided into 21 subcategories which in turn are subdivided into more than 200 coded categories and an indefinite number of uncoded text fields to capture narrative information. An earlier version of the taxonomy (n = 111 coded categories) demonstrated acceptable compatibility with the categorized data requirements of the ICU safety reporting system.

Conclusions. The results suggest that the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Patient Safety Event Taxonomy could facilitate a common approach for patient safety information systems. Having access to standardized data would make it easier to file patient safety event reports and to conduct root cause analyses in a consistent fashion.

Keywords: patient safety, standardized terminology and classification, taxonomy

Introduction

Concerns about safety in patient care have called attention to the need for governmental agencies and private sector accrediting bodies to work together with health care organizations to coordinate the monitoring, reporting, and analysis of medical errors. The 2003 Institute of Medicine report, Patient Safety: Achieving a New Standard of Care [1], recommends that standardization and better management of information on patient safety—including near misses and adverse events—are needed to inform the development of strategies that reduce the risk of preventable medical incidents. However, patient safety incident reporting systems differ in design and therefore in their ability to define, count, and track adverse events [2]. Among reporting systems, there are often disparate data fields, conflicting patient safety terminologies, classifications, characteristics, and uses that make standardization difficult. In addition, each source of data on near misses and adverse events usually requires different methods for interpreting and deconstructing these events [3]. Finally, misuse of terminology in the research literature, conference papers and presentations, and media contributes to widespread misunderstandings about the language of patient safety.

The proliferation of reporting systems has created a pressing need for organization of patient safety information systems and terminology. Unfortunately, much of the work to date has fallen short in meeting identified needs for epidemiological data [4]. Given the current state of the art, it is
extremely difficult to achieve broad-based and timely improvements in patient safety, since there is no standard determination as to which events to capture and report [5,6].

Additionally, the lack of a common patient safety terminology is a critical obstacle to sharing and aggregating data to support patient safety.

The concept of a taxonomy combines terminology and the science of classification—in the case of patient safety, the identification and classification of things that go wrong in health care, the reasons why they occur, and the preventive strategies that can minimize their future occurrence. There is consensus that standardization of patient safety data would facilitate improvements in incident reporting, tracking, and analysis [7,8]. The core set of terms in patient safety, like other health disciplines, should incorporate both theoretical concepts and generally accepted vocabulary.

Several methods have been developed to define and classify medical errors, adverse events, near misses, and other patient safety concepts and terms [9,10]. However, these methods have tended to be, with notable exceptions, narrowly and predominantly focused on specific areas of health care—medication errors [11–13], transfusion reactions [14], primary care [15,16], and nursing care [17,18].

In this project we developed and applied a method of classification that is based on evaluations of current taxonomies and reporting systems with feedback from individuals who would use the taxonomy. This approach sought to identify similarities and gaps in the terminology and classification to create a multidimensional taxonomy that encompasses diverse health care settings and incident reporting systems.

Methods

Terms and definitions used in patient safety were gathered from a wide range of print and web resources (e.g. books, glossaries, published journals). Current, practical, and colloquial terms that underlie the communication among users were listed in a comparative glossary. Because the terms and their definitions are extensive, they are not reproduced herein. However, this patient safety dictionary is available electronically from the authors.

A comprehensive literature search was performed in Medline (PubMed) and Embase Medline (Embase). Literature that describes approaches to the definition of medical errors, adverse events, near misses, and other patient safety concepts and terms, including existing classification schemes on patient safety, was retrieved. The searches were not limited to articles published in the English language or within a particular geographical area. The databases were searched for articles with publication dates between January 1993 and June 2003. In addition to database searches, the Internet sites of Departments of Public Health, Ministries of Health, and Patient Safety Organizations and Groups in Africa, Asia, Australia, Europe, and North America were searched. The reference lists of major reports were also scanned for relevant publications that date from the 1980s.

A total of 512 distinct references were identified from the Medline search. The Embase search resulted in 15 additional unique references. The titles and/or abstracts of these articles were initially scanned, and inclusion/exclusion decisions made. Based on the review of the absences, we eliminated 429 articles on the following criteria: (i) not relevant to the field of patient safety/medical error/adverse event classification; (ii) relevant to the field of patient safety/medical error/adverse event classification but did not provide adequate description of the components needed to define a coherent classification scheme; (iii) classifications that are in the early stages of development; (iv) unpublished classifications. The very few exceptions to this are classifications that hold particular conceptual or methodological interest in the development of the field.

Methodological concerns

Of the 96 full articles that were reviewed, 73 were eliminated according to the above criteria. Eleven formal classification schemes identified in the remaining 23 articles that address the frequencies, types, causes and contributing factors, consequences, and prevention of medical/medication errors are summarized in a report prepared for the World Health Organization [19].

The 11 classifications of medical and medication errors, patient safety events, and incident reporting systems were reviewed and compared for homogeneity. The semantic relationships, equivalent categories, and linkages among these classifications schemes were identified and used to construct the overarching framework of a preliminary taxonomy. This version also referenced human factors and safety research.

We reviewed data collected by the Joint Commission's Sentinel Event Program from January 1995 to December 2002 to validate the construct of the preliminary taxonomy. This was supplemented by recommendations from a nominal expert advisory taxonomy workgroup (see Acknowledgements for composition of workgroup). We asked the workgroup to assess the content and face validity of an initial iteration of the taxonomy. They offered a checklist of five attributes to be used in judging appropriateness of the elements of the taxonomy; these judgments involved subjective assessments rather than statistical analyses. Input was also solicited from medical specialty societies, business groups, government health care agencies, and health care organizations.

Since it is difficult, if not impossible, to prove formally that the items chosen were representative of all relevant terms and classifications, subjective tests of linguistic clarity were used to indicate whether the terminology of the classifications was clear. In the absence of a 'gold standard' to test criterion validity, we conducted a simplified item analysis of each variable of the taxonomy against those found in an established classification in one US hospital. Responses were coded as follows: 'unmatched' = 0, 'extrapolated' = 1, 'related' = 2, 'synonymous' = 3, and 'identical' = 4. Results of this work were used to inform the development of a beta version of the patient safety event taxonomy.
Results

Our review of the literature reinforces the fact that various approaches used in the health care sector to define and classify near misses, adverse events, and other patient safety concepts have generally been fragmented [20]. Early efforts to define and classify "error" or "mistakes" were hindered by theoretical and methodological flaws. The model of medical error was largely unspecified. Where classification instruments were described, their validity was found to be modest and their reliability not reported. A systematic review of classification schemes used in primary care by Elder and Doyce [10], found a limited number of studies that attempted to categorize medical errors, including near misses and adverse events [21–25]. Most of these studies were not designed with the development of a functional classification scheme in mind; thus, they did not offer a conceptual explanation of what they had classified.

Bese and Wright [26] proposed a more promising classification methodology and an enhanced evaluation approach for the Edinburgh Incident Classification. Focusing on in-depth analysis and a search for multiple levels of causation and contributing factors, including the identification of active and latent failures, this classification model exemplifies a theory-driven analytical framework that integrates, functionally and technically, with an incident reporting system. This systematic approach to classification in patient safety did not become the de facto standard for quite some time, and is still often neglected.

The classification of error types framework and theoretical and technical foundation for in-depth analysis of root causes of adverse events did not materialize until after the publication of the seminal works by Reason [27], Rasmussen [24], and Hale [29]. Contributions from aviation [30] and high-technology/high-risk industries have also been instrumental in advancing the reporting, analysis, and classification of adverse events in health care. A few more theoretically based studies—such as those reported by Makucan [15], Buddies [31], and Vincent [32]—have focused on more rigorous classification schemes and give greater consideration to validity and reliability issues. Like the earlier classifications, however, the process and outcome "root causes" of adverse events in these schemes were only described where a significant impact was recorded [33].

Finally, Runciman and colleagues [34] have developed a structured approach based on Reason’s model and framework of contributory and causative factors to draw out all of the relevant information about an incident and to describe patient safety phenomena in terms that can be analyzed statistically.

Homogeneous elements of these models—which comprise terms and the relationships between terms that make up the building blocks of a classification scheme—were categorized into five complementary root nodes, or primary classifications.

1. Impact—the outcome or effects of medical error and systems failure, commonly referred to as harm to the patient.
2. Type—the implied or visible processes that were faulty or failed.

3. Domain—the characteristics of the setting in which an incident occurred and the type of individuals involved.
4. Cause—the factors and agents that led to an incident.
5. Prevention and mitigation—the measures taken or proposed to reduce incidence and effects of adverse occurrences.

The root nodes were then divided into 21 subclassifications, which were in turn subdivided into more than 200 coded categories and an indefinite number of non-coded text fields to capture narrative information about specific incidents.

The ‘Impact’ classification (shown in Figure 1) comprised three subclassifications that could discriminate between 18 types of outcomes or effects (harm). The harm index was based on the NCC-MERP Medication Error Taxonomy [12], and is characterized by the degree of harm—ranging from no harm to temporary or permanent impairment of physical or psychological function. Broad distinctions were also made between medical (psychological or physical) and non-medical (legal, social, or economic) impacts.

The ‘Type’ classification included three levels that address communication, patient management, and clinical performance (see Figure 2). The ‘communication’ subclassification identified communication problems that exist between provider and patient, provider and patient’s proxy, provider and non-medical staff, and among providers. The ‘patient management’ node classified substandard patient management that involved improper delegation, failure in training or follow-up, wrong referral or consultation, or questionable use of resources. The ‘clinical performance’ subclassification included the full range of failures that could lead to iatrogenic events during the pre-intervention, intervention, and post-intervention phases of care. Analysis of Joint Commission sentinel event data (reported from 1995 to 2002) related to wrong-site surgeries (n = 209) showed that these adverse events could be classified in the following principal groups: (i) Communication—including communication with the patient and among members of the surgical team; availability of information; and operating-room hierarchy; (ii) Patient management—who preoperative assessment of the patient; and (iii) Clinical performance—including orientation and training, the procedures used to verify the operative site, and distance.

A new taxonomy was proposed for the purposes of this document. The ‘Domain’ classification included the types of health care professionals commonly involved in patient care and the demographics of patients in a variety of health care settings where events might have occurred (see Figure 3). Analysis of voluntarily reported sentinel events showed that they occur most frequently in the following settings: general hospital (64%); psychiatric hospital (13%); psychiatric unit (6%); outpatient behavioral health (5%); emergency department (4%); long-term care facility (4%); home care service (3%); and ambulatory care setting (1.5%). From this, we postulated a link between where the event took place (>10 coded categories) and which medical specialty was involved (>21 coded
Figure 1: Classification of impact.
categories). In addition, we specified the intended patient care intervention (eight coded categories—therapeutic, diagnostic, rehabilitative, preventive, palliative, research, cosmetic, and other), which pre-existing conditions the patient had (ICD-9-CM coded categories), and the associated causes and outcomes delineated in the other four primary classifications.

The classification of ‘Causes’ is shown in Figure 4. Root cause analyses of sentinel events in all categories showed that the underlying causes of these events could be classified into two principal groupings: system failures and human failures. The principal nodes of the ‘Cause’ classification comprised two subcategories: system (process/structure) failures and human failures. System failures are remote from the direct control of the clinician and are usually the distal cause of structure and process failures among reported sentinel events (e.g., orientation/training, availability of information, staffing levels; physical environment, alarm systems, organizational culture). System failures are errors in the design, organization,
Figure 4 Classification of cause.
training, or maintenance that lead to operator errors. These failures involving direct contact with the patient—human failures—are often part of the proximate cause of an event [35]. The root cause analysis data yielded groupings that included communication, patient assessment, and continuity of care, among others. The sub-classification, "human organizational failure," included five coded categories: (i) management, (ii) organizational culture, (iii) protocol and processes, (iv) transfer of knowledge, and (v) external factors. Two categories for latent technical failures—factors and external factors—were derived from the Handbook Classification System [31].

Terminology for the ‘Prevention and Mitigation’ classification was adopted from the definitions proposed by Gordon [36] for physical disease prevention. In this classification, three types of prevention and mitigation were identified: universal, selective, and indicated. The ‘universal’ sub-classification covered preventive and corrective measures that are designed for everyone in the eligible population. Prevention and mitigation measures that are directed toward a subgroup of the population whose risk of adverse events is above average were grouped in the ‘selective’ sub-classification. Lastly, the ‘indications’ sub-classification combined interventions that are targeted to specific high-risk individuals identified as having a minimal but detectable risk for sustaining an adverse event. Figure 1 illustrates how the preventive strategies of the Joint Commission’s 2004 National Patient Safety Goals [37] could be classified according to this scheme.

The proposed interrelationships depicted in Figure 6 show the assumptions underlying the Taxonomy framework. The linkages in this visual analytical framework provide a strategic approach to guide the retrospective process of identifying the factors (causes) that contribute to systems failures (type) and adverse events, or to prospectively identify potential risk factors and devise preventive strategies (prevention) and corrective actions (mitigation) to protect the patient (in a domain) from harm (impact). The linkages are not meant to lead to premature conclusions about an event, nor are they intended as the only analytical framework. Although the linkages define the specific types of queries, they do not identify precise data sources nor which units of data should populate the taxonomy.

A preliminary test of the alpha version taxonomy conducted at one hospital with an acute incident reporting system (Stanford’s ICUs) demonstrated acceptable correlation between its coded categories (κ = 11) and the categorized data requirements of the system. Thirteen (12%) categories were identical, 42 (38%) were synonymous, 45 (41%) were relaxed, and six (5%) had to be extrapolated. Few (4%) categories were unmatched—date and time of incident, patient or family dissatisfaction, and two patient identifiers—and were therefore omitted from the taxonomy.

Using the desirable attributes of patient safety taxonomy identified by the expert advisory workgroup (see Box 1), the face validity of the terminology and classifications inferred from the comments of the experts who reviewed their clarity and completeness was judged to be high. The workgroup recommended inclusion of external factors that are perceived to influence patient safety. The workgroup concluded that the Taxonomy was well suited to meet the need for integration of patient safety data from disparate sources. A variety of patient safety stakeholders concerned in the taxonomy’s suitability and feasibility for application in incident investigation, reporting, tracking, and analysis at US hospitals and elsewhere.

Discussion

The Patient Safety Event Taxonomy developed and tested in this study represents a synthesis of traditional, hierarchical classifications represented by single topic areas and settings and the heuristic, multidimensional/qualitative classifications that rely on a systems approach to understanding patient safety [38]. It includes all events that are not due to an underlying physiological or pathological process and is sensitive to minor variations among similar events. This approach compels the user to make explicit, a priori decisions about the key variations in structure and process that relate to any given patient safety event. It also allows others to judge whether important variables were overlooked. Finally, it makes explicit the relationships between these variables and their relevance as valid markers of patient safety.

The number of relevant categories constituting the optimum classification scheme or how best to decompose an adverse event without being subject to debate [39]. Holmgren [40], using a modified Delphi process to differentiate between specific classes of medical error common to emergency medicine practice, found that cognitive errors in medical decision-making can be difficult to identify, and suggested that consensus on terminology and classification may be challenging. One source of difficulty we encountered in choosing logical data variables to link disparate terminologies and classifications is that they are all loosely attached in an intricate network of information characterized by events, settings, individuals, and teams of people, protocols, procedures, policies, and communications that function in an uncertain environment. Understanding these relationships could provide a useful basis to guide the development and improvement of information about near misses and adverse events, and use the information to make health care safer for patients.

We critiqued existing taxonomies on several grounds. Most were developed in relative isolation from other classification approaches for a specific medical specialty, and few were improvements of earlier work. In this regard, we believe that research that compares different classification schemes constitutes a crucial stage in consolidating the discipline of patient safety event reporting.

Aggregating data gathered through different measurement methods into the framework of a standardized taxonomy has been used successfully by epidemiologists to detect nosocomial infections [41], and is likely to be useful in detecting trends and patterns in patient safety. In a number of studies, there appears to be an evolving effort to build a science of patient safety measurement that is equivalent to health measurement or psychometrics. This is important because decisions affecting the welfare of patients and the expenditure of public funds are based on the results of patient safety measurements [42].
Figure 5 Classification of prevention and mitigation.

The potential applications for patient safety event information vary widely depending on the identity of the user—e.g., internal evaluations, oversight bodies, patient safety managers, patients, ethicists, and lawyers, among others. In order to meet the needs of these diverse audiences it is essential to identify a common language that is widely applicable and straightforward. The vocabulary adopted for the Taxonomy closely resembles the lexicon commonly used among various users today, and avoids pejorative terms.

In its simplest form, the Taxonomy's classifications can represent individual fields for the front end of paper-based or electronic reporting systems with individual incidents comprising the records. At its broadest application, the Taxonomy describes processes that determine the quality of incident reports, the effectiveness of reporting systems, and the success of intervention strategies. The significance is that the Taxonomy could potentially be used as a common backbone when mapped to disparate reporting systems unifying terminologies and classifications. This allows aggregated data to be
combined and curated over time, provides for consistency across reporting systems, and structures data documentation and presentation using a standardized format. Applied to an electronic health record system, the taxonomy offers a means for interoperability, facilitating exchange of patient safety data across systems.

A decentralized approach to patient safety reporting, using a standardized terminology and classification framework, would simplify the development and maintenance of a coding structure for reporting. Reconciling the data collected by local or focused reporting programs to a national standard would provide a means to integrate the already existing data collection efforts relating to health care errors and systems failures. The framework of the Taxonomy will also lessen the burden on patient safety organizations that operate in multiple states and/or must be responsive to multiple government agencies, private oversight bodies, and group purchasers, without requiring expensive re-engineering of existing reporting systems.

Limitations

Health care error classification systems are not free of their own problems. For example, they partition categories more coarsely than do keywords, and users, who are accustomed to the everyday colloquial language of patient safety used in the workplace environment, may not be fluent in the terminology of the classifications. The finite number of elements in the Taxonomy nevertheless encompasses a broad range of areas that could possibly be classified, but there are still many areas that could escape detection and reporting. Furthermore, because the anatomy of an event is multidimensional, its deconstructed components may not be mutually exclusive to each of the classifications, sub-classifications, coded categories, and narrative fields in the taxonomy. In addition, the multi-tiered features may be too complicated for some audiences to use. For example, wrong-site surgery not only results in physical harm, but may also affect the emotional (psychological) and functional status of the patient, and his or her ability to return to work (economics). Near misses in the taxonomy are assumed to have the same root causes as the much smaller subset that actually develops into adverse events. Arguably, the very advantage of using near-miss data to provide information on how an incident 'recovered' from a potential adverse event also has a downside. Adverse events are by definition near misses that failed to be recovered in time [43]. By contrast, the events that a hospital successfully prevents from occurring will be just those events that will never be identified in a near-miss information system. Thus,
the Taxonomy must be clear on just what near misses have in common, or not, with adverse events. Notwithstanding the potential limitations of near-miss data, near misses are sufficiently clear precursors of adverse events to point the way to identification of specific individual and systems failures.

Conclusion

The Joint Commission Patient Safety Event Taxonomy focuses on the most salient terminologies and classifications. Its design will permit the progressive incorporation of new patient safety data and information over time. However, additional field-setting will be required to bring the taxonomy to full maturity and permit it to realize its overall objectives.

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BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

Barriers to safe patient care in a trauma system

Gill Cryer MD PhD
David Geffen School of Medicine
UCLA

Crossing the Quality Chasm

- Redesign care processes based on best practices
- Use information technology to support clinical decision making
- Improve knowledge and skills management
- Develop effective teams
- Coordinate care
- Incorporate performance and outcome measures for quality improvement and accountability

Components of ideal trauma system PIPS plan

- Accurate system clinical database
- Identification of risk factors
- Accurate measurement of complications
- Risk adjusted outcomes measurement
- Identification of best practices’ evidence based guidelines
- Benchmarking within system and nationally
- System monitoring and feedback

New quality taxonomy

Cognitive Dispositions to Respond
- Biased memory
- Overemphasis on discrepant
- Availability heuristic
- Confirmation bias
- Overconfidence
- Conning of attention
- Reversion under stress
- Wrong mental model
- Wrong assumptions

Latent Errors

- Design of work
- Conditions of work
- Training
- Design and maintenance of equipment

What is the problem?

- Pilot error? Always
- Work environment?
- Lack of resources?
- Imperfect team?
- Lack of leadership?
- Lack of coordination?
- A system problem?
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

Drunk Man
- 50 year old man found down drunk behind liquor store
- GCS 1-4, VGS
- No evidence of injury
- Paramedics take pt to non trauma center
- Pt arrived in ED with unresponsive pupils, multiple broken teeth and blood in the mouth having vomited en route

Drunk Man cont.
- Intubated and suctioned vomitus from airway
- CT scan SDH and SAH and depressed skull fracture
- Coded in CT scan and revived
- Transfer to trauma center through MAC
- Pt arrived aspinioplastic, hypotensive with GCS 3, and herniated 6 hours later
- Declared brain dead by Neurosurgery

CHI at non trauma center
- Relatively common problem
- It takes too long to transfer a patient to a trauma center
- Take all head injuries to trauma centers
- Provide a mechanism for rapid transfer
- Is there a controller to prevent a crash landing?
- How are we doing as a system?

The solution to the problem
- A new structure
- A new process
- A guide
- Control, authority and responsibility
- Accountability

NAVAL AVIATION MISHAP RATE

"Errors can be prevented by designing systems that make it easy for people to do the right thing and hard for people to do the wrong thing."
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

**Levels of Safety**
- Design, Management, "Blunt"
- Training, Policies, "Sharp"
- Regulations, Rules
- Provider

**MVA**
- 40 year old patient BP 60/40
- 2L RL BP 70/50
- FAST positive
- Pelvis x-ray shows fracture
- Trauma surgeon sends patient to CT scan
- CT scan shows ruptured saphenae with a lot of free blood BP 60/40
- Patient arrests on the way to the OR

**Barrier**
- Trauma surgeons have been known to disregard the rules!
- Ultimately we need to know how individual providers are performing
- This should be done at individual hospitals but may not be (non-preventable, really?)
- Some form of outside peer review is essential

**Captain of the ship vs. lighthouse**
- Who made the error?
- Was it quickly recognized and corrected?
- Good process in place to prevent errors?
- Good communication?
- Well functioning team?
- Who do you think got his ass chewed in the debriefing?
- But the captain ultimately responsible!

**Barrier**
- Trauma surgeons have been known to pull rank and go into attack mode before getting all the facts straight.
- Fire captains too!

**Rural MVA T-bone**
- 34 yo Female T-boned high rate of speed driver side not wearing seatbelt Comorbidities Obesity BMI 42, HTN
- accident 7 mi from non-trauma center 50 mi to trauma center
- Prehospital GCS 3 90/50-160-12 assisting respirations
- After an argument the patient was taken to the community hospital
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

MVA cont.
- 13:25: arrive community hospital
- 13:30: 95/55 173 100% NRB GCS V1 M3 E1 Z 20g IV started
- 13:36: intubated RSI
- 13:30: Tx CT on 109/86 + spleen, skull fx SAH, pelvis fx
- 14:00 contact trauma center for transfer
- SEP 90-95 hr 150-170
- After another argument trauma center recommended to stabilize then transfer
- bld NS 4prbc
- 15:00-17:00 OR explor & splenectomy, then ICU
- Next day 1:45, transferred

Pediatric Trauma Care
- Pediatric hospitals vs. Adult hospitals
- Designated pediatric trauma centers
- ACS verified pediatric trauma centers
- Where do kids really go?
- Realistically where should they go?

9 year old bicycle jump
- Awake
- Abdominal pain
- BP 100/60
- Pulse 110
- FAST negative
- CT-scan

8 year old in MVA
- Awake and crying
- BP 100/75
- Pulse 120
- Abdomen tender
- FAST negative
- OR?

Move to OR or CT table

2 year old assaulted by father
- BP 40/p
- Pulse 150
- Unresponsive
- Bruises abdomen
- Bruises head
- FAST positive
- OR. CT or transfer?
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

**MVA cont.**
- 13:25: arrive community hospital
- 13:30: 95/55, 173, 100% NRB, GCS V1 M3 E1 2 20g IV started
- 13:38: intubated RS1
- 13:50: to CT op (29/66 + spleen, skull fx SAG, pelvis fx
- 14:40: contact trauma center for transfer
- SEP 50-95 hr 150-170
- After another argument trauma center recommended to stabilize then transfer
- 8L NS 4 prbc
- 15:50-17:40 OR exc-cryo & splenectomy, then ICU
- Next day 1345, transferred

**Pediatric Trauma Care**
- Pediatric hospitals vs. Adult hospitals
- Designated pediatric trauma centers
- ACS verified pediatric trauma centers
- Where do kids really go?
- Realistically where should they go?

**9 year old bicycle jump**
- Awake
- Abdominal pain
- BP 100/60
- Pulse 110
- FAST negative
- CT-scan

**8 year old in MVA**
- Awake and crying
- BP 100/75
- Pulse 120
- Abdomen tender
- FAST negative
- OR?

**Move to OR or CT table**

**2 year old assaulted by father**
- BP 40/p
- Pulse 150
- Unresponsive
- Bruises abdomen
- Bruises head
- FAST positive
- OR, CT or transfer?
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

2 year old assaulted by father
- Hemoperitoneum
- Grade 4 liver lac
- Grade 4 splenic lac
- Hematoma in Gerota's
- Repaired liver and splenectomy
- Post op head CT minimal SAH

1 month old
- Mom and stroller hit by car in crosswalk
- BP 55/35
- Pulse 150
- Unresponsive, not crying
- No external evidence of injury
- FAST positive
- Firm fontanelle

1 month old
- CT scan
- Lg SDH with shift
- Grade 2 splenic injury with small amount of fluid
- Craniotomy
- Observed spleen
- Could you do it?

Error in DVT prophylaxis?
- 40 year old woman with femur fracture is rodded 12 hours after admission and is on DVT prophylaxis with lovenox according to protocol. She develops massive PE.
- 40 year old woman with femur fracture is rodded 12 hours after admission and is on DVT prophylaxis with lovenox according to protocol. She has massive cerebral hemorrhage
- No error from SCIP perspective

The definition of insanity is doing the same thing over and over and expecting different results.
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

**Barrier**
- Many times there is no correct answer!
- Even when we think there is!

**Step 3: Report the Data**
Each participating site receives a semiannual report with their O/E ratios, logistic regression, and supporting data. Additionally, the program offers a series of real-time, online reports that enable a medical center to monitor its performance across any data rank and against national averages.

**NSQIP**

**Step 4: Act on the Data**
O/E ratios and online reports provide reliable and actionable data about a site's performance and are the foundation for a medical center to:
- Analyze and interpret results
- Share best practices
- Re-engineer workflow/canonical processes of care
- Set and improve hospital education
- Identify and develop clinical performance improvement initiatives
- Support positions

**NSQIP: Centers of concern: problems accounting for higher mortality**
- Poor coordination of care
- Gradual cutbacks in fiscal support
- Service lines that fragment care
- Poor monitoring of quality
- Lack of surgeon led team with administrative support
- An issue of systems not providers

**ACSCOT PIPS Program**
- Optimal resources document and Web manual
  - Structure
  - Care processes
  - Verification Committee
  - Data validation
  - Outcomes
- ATLS and ATOM
- Best practices and processes
- NTD (TQIP)
- Benchmarking
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

The JCAHO Taxonomy: Overview, Experience, and Pathways to Adoption

R. Lawrence Reed, II, MD FACS
Director of Trauma Services, Glisan Methodist Hospital
Professor of Surgery, Indiana University
Indianapolis, IN

Background

- 2003 Institute of Medicine report “Patient Safety: Achieving a New Standard of Care”, recommends that standardization & better management of information on patient safety—including near misses and adverse events—are needed to inform the development of strategies that reduce the risk of preventable medical incidents.
- Problem: patient safety incident reporting systems differ in design and therefore in their ability to define, count, and track adverse events.

What is Patient Safety Taxonomy?

- Patient Safety is freedom from injury or illness resulting from the processes of health care.
- Taxonomy is the science, laws, or principles of classification.
- Patient Safety Taxonomy = the identification and classification of things that go wrong in health care, the reasons why they occur, and the preventative strategies that can minimize their future occurrence.

Development of JCAHO Taxonomy


- Problem: there is no commonly agreed upon definition for errors in health care.
- There is currently no universal agreement on medical error taxonomy.
- There is currently no single classification system that could be applied to the full set of TCM recommendations.
- Established a Patient Safety Taxonomy Workgroup.
- Performed a comprehensive review of existing literature for terminology and definitions used in patient safety.
- 607 unique references.
- Compared the classifications of medical and medication errors, patient safety events, & incident-reporting systems for homogeneity.

Shared Words for Medical Error and Patient Harm

- Adverse event/outcome
- Unexpected occurrence
- Therapeutic misadventure
- Preventive error
- Medication error
- Hospital-acquired complication
- Medical mishap
- Unplanned clinical occurrence
- Patient safety event
- Circus accident
- Medical error
- Surgical error
- Lapse
- Blip
- Sentinel Event

- An unexpected occurrence involving death, serious physical or psychological injury, or risk thereof. Serious injury specifically includes loss of limb or function. The phrase “or the risk thereof” includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome.
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

Reviewable Sentinel Events

The subset of sentinel events that is subject to review by the Joint Commission includes any occurrence that meets any of the following criteria:
1. The event resulted in an unanticipated death or major morbidity, or a major permanent loss of function not related to the natural course of the patient’s illness or underlying condition.
2. The event is one of the following: the occurrence of death or major permanent loss of function in a patient who is not expected to die as a result of the associated medical condition.
3. The event is one of the following: the occurrence of death or major permanent loss of function in a patient who is not expected to die as a result of the associated medical condition.
4. The event is one of the following: the occurrence of death or major permanent loss of function in a patient who is not expected to die as a result of the associated medical condition.

JCAHO Taxonomy

- Building blocks
  - Common definitions and classifications
  - Unambiguous and translatable terminology
- Scope
  - Comprehensive classification tool
  - Applicable to all health care delivery settings
  - Includes all patient harm
- Addresses sentinel or serious events, adverse events, no-harm events, near misses or close calls, and potential events

Primary Classifications

1. Impact: the outcomes or effects of medical error and systems failure, commonly referred to as harm or to the patient.
2. Type: the implied or intended processes that were faulty or failed.
3. Domain: the characteristics of the setting in which an incident occurred and the type of individuals involved.
4. Cause: the factors and agencies that led to an incident.
5. Prevention and Mitigation: the measures taken or proposed to reduce the incidence and effects of adverse occurrences.

Classification: Impact

Classification: Type
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

Example Case
- 24 yo male MVC victim transferred at family's request from Level II TC in evening 10 hours following incident
- Had been hypotensive initially, but received 5 units PRBCs and 6 L crystalloids in first 12 hours and becomes stable prior to transfer
- Arrives intubated with pulmonary contusions, rib fractures, open tibia fracture, GCS 8, moving all 4 extremities
- Secondary survey & adjunctive studies w/ negative except for suspicion of lower T-spine fracture on CT

Example Case
- Ortho consulted for
- Requested neuro consult
- NURS report
- Goes for MRI at 2
- While in scanner
- Patient pulled out
- CPT instituted, patient brain damage
- Support withdrawn 3 days later
- Further review indicated patient had severe base deficit on arrival and collapsed inferior vena cava

Strategies for COT PIPS Implementation of JCAHO Taxonomy
- Develop specific elements within taxonomy specific to trauma
- Create data entry software with look-up capabilities for classification
- Pilot application of JCAHO/COT taxonomy at a limited number of trauma centers that will identify events information concurrently with standard registry/PI data entry and evaluation
- Assess effectiveness
- Develop educational and integrating materials
  - PIPS
  - NTRIS
  - VRG
  - TCIP

Why benchmark?
Sometimes we are too close to the problem to see the solution!
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

Variability in survival in ACS verified Level 1 trauma centers
- ACS verified level 1 trauma centers admitting more than 1000 patients/year
- Risk adjusted O/E ratios for survival
- Almost half performed differently than expected
  - 14 (24%) high performers
  - 33 (57%) average performers
  - 11 (18%) low performers
- Is the performance that is different or the way the data is collected?
  Shafi et al. AAST 2007

LA County TQIP Analysis

4,620 patients with ISS >9 in 13 trauma centers.

Risk adjusted mortality
California trauma centers

18,000 patients in 46 California trauma centers in 2006

State trauma system PI
- Pre hospital: what percentage of patients with an ISS>9 arrived at a trauma center within 1 hour?
- Hospital: what is observed to expected mortality ratio for individual trauma centers and the system as a whole?
- What regional problems need to be identified and solved? (Pediatrics?)

Trauma system indicators
- Hypotensive patient to OR within 1 hour
- Open fracture to OR within 8 hours
- Splenectomy rate
- Angiographic embolization for pelvic fracture bleeding
- Use of brain injury guidelines (ICP etc.)
- Outcome of GSW to chest or abdomen
- PRBC:plasma ratio in massive transfusion
- Pediatric outcomes and transfers
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

**Barriers to patient safety**
- Cognitive human errors based on misconception
- Latent errors based on imperfect systems
- Overconfidence in medical knowledge
- Lack of a real solution to the problem
- The human tendency to occasionally screw up
- The human tendency to disbelieve in and/or ignore the rules
- Hopefully a well designed performance improvement program can help avoid these problems in our state trauma system

**LA County Trauma Centers**
- Population 10 million
- 4,000 square miles
- 20,000 major trauma patients annually

**What do you do if your mortality O/E ratio is unfavorable?**
- Review accuracy of data
- Compare sites characteristics to national average
- Review all deaths but particularly those with low probability of death
- Structure, process, judgement, technique
- Outside review
- Standard questionnaire

**What to do if morbidity O/E ratio unfavorable**
- Compare unadjusted morbidity to national average for each of 19 post-operative complications
- Compare risk factors between patients with and without complication
- Identify target complications
- Chart review
- Develop protocol
- Measure compliance
- Monitor outcome

**Trauma Quality Improvement Project**
The fundamental goal of TQIP is to provide risk-adjusted benchmarking of designated/verified trauma centers to track outcomes and improve patient care.
To do that we need to have high quality data collected in a standardized way at each institution.

**Trauma Quality Improvement Project**
The objective of TQIP is to build upon existing trauma center performance improvement infrastructure through enhancements in the following areas:
- data collection for trauma registry
- Benchmarking using NTDB
- Identifying additional structures and processes of care that affect outcomes
- facility reporting with more meaningful report cards
- monitoring performance over time at a national level so we all become better not just average
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

**Trauma Quality Improvement Project**
- Standardized data collection
- Initial and ongoing training of trauma registrars
- Data and case validation
- Risk adjusted benchmarking
- Performance feedback
- Identification and sharing of best practices
- Targeted process measures
- Ongoing performance monitoring
- Raise the performance of all trauma centers to a higher level

**Lessons in Patient Safety – What we know**
1. Errors are common
2. Cognitive Dispositions to Respond
3. Latent errors
   - Sleep deprivation

**Latent Errors**
- Design of work
- Conditions of work
- Training
- Design and maintenance of equipment

---

**BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM**

**Trauma Quality Improvement Project**
- Business plan submitted to ACS Board of Regents
- Initial registrar training in June
- Twenty-six centers in two-year pilot
- Additional data collection module on process measures
- Care of hemorrhagic shock
- Care of the brain injury
- Care of extremity fractures
BARRIERS TO SAFE PATIENT CARE IN A TRAUMA SYSTEM

European Physician Work Standards
- EU: 13/24, maximum 48 hours/week
- UK: 13/24, 56 hours
- Netherlands: 10/24, 48 hours

Lessons in Patient Safety – What we know
1. Errors are common
2. Cognitive Dispositions to Respond
3. Latent errors
4. Teamwork

Barriers can be broken!

Thank you
PROPOSED STATEWIDE DATA REPORTS

Each table to be filled out by each trauma center, aggregated for each LEMSA, RTTC and state as a whole with Mean and standard deviation or better yet confidence limits and potentially a report of all trauma centers and deviation from mean of each.

### Mortality review

<table>
<thead>
<tr>
<th>ISS</th>
<th>Blunt mortality</th>
<th>Stab mortality</th>
<th>GSW mortality</th>
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### Initial transport review (number and % arriving at trauma center within time frame)

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<th>Time hours</th>
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### Transfers (number and % arriving at trauma center from NTC pediatric and adult)

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### Ortho femur fracture repair review (number and % operated within time frame)

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### TBI Review

### TBI Mortality (number and % of patients in each category that die)

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**PROPOSED STATEWIDE DATA REPORTS**

**TBI craniotomy (number and percent receiving a craniotomy)**

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<th>Craniotomy</th>
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**TBI craniotomy timing (number and percent of patients receiving a craniotomy within time frame)**

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**Hemorrhagic Shock Review (hypotension and blood transfusion in first hour)**

**Hemorrhagic shock PRBC transfusion volume and mortality (number and % dying in each category)**

<table>
<thead>
<tr>
<th>PRBC 1st 6 hours</th>
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<th>ISS 9-15</th>
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**Hemorrhage FFP:PRBC ratio (number and % receiving a ratio>0.05 within 1st 6 hours)**

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<th>PRBC 6 hours</th>
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**GSW abdomen and laparotomy (number and % with start of laparotomy within timeframe)**

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PROPOSED STATEWIDE REPORTS

Pediatric Review

Pediatric ICU (number and %)

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<td>PED ICU after transfer from TC</td>
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<tr>
<td>PED ICU after tr from NTC</td>
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</tr>
<tr>
<td>Craniotomy</td>
<td></td>
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<tr>
<td>Crany after tr from TC</td>
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<tr>
<td>Crany after tra from ntc</td>
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<tr>
<td>Laparotomy</td>
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<tr>
<td>Laparotomy after tr from tc</td>
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<td></td>
</tr>
<tr>
<td>Laparotomy after tr from ntc</td>
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</tbody>
</table>

Post discharge review (number and percent transferred or died)

<table>
<thead>
<tr>
<th>Variable</th>
<th>ISS&lt;9</th>
<th>ISS 9-15</th>
<th>ISS 16-24</th>
<th>ISS&gt;24</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehab</td>
<td></td>
<td></td>
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<tr>
<td>Readmit</td>
<td></td>
<td></td>
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<tr>
<td>Died</td>
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</table>
RIVERSIDE COUNTY CONTINUATION OF TRAUMA CARE POLICY

OPERATIONAL POLICY

| Operational Policy: Continuation of Trauma Care | Approval: REMSA Medical Director Humberto Ochoa MD | Signature |
| Applies To: EMS System | Approval: REMSA Director Bruce Barton, CCEMT-P | Signature |

**OPERATIONAL POLICY**

<table>
<thead>
<tr>
<th>Effective</th>
<th>Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1, 2010</td>
<td>March 31, 2012</td>
</tr>
</tbody>
</table>

**PURPOSE**

The purpose of this policy is to allow for the expedited transport and care of the critical trauma patient (CTP) that arrives to a non-trauma hospital Emergency Department. The CTP falls within the jurisdiction of the Riverside County EMS Trauma plan and Trauma System per Title 22, as does the need for coordination of all health care organizations to facilitate the transfer of the CTP. The CTP shall be accepted from the non-trauma hospital by the closest Trauma Center, regardless of Trauma Center's in-patient census/capacity. The only rationale for the closest Trauma Center to refuse the CTP transfer is due to the same criteria as outlined in REMS policy 5310.

This policy allows for 2 levels of triage, the CTP who needs immediate higher of care and the Trauma patient who would benefit from higher level of care to a trauma center. Please refer to policy 5712 for trauma triage criteria.

### Trauma Triage Continuation of Care

<table>
<thead>
<tr>
<th>Critical Trauma Patient</th>
<th>Trauma Patient, needs Higher Level of Care to in-House Trauma Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Immediate Higher Level of Care</td>
<td>ED to ED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vital Signs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Compromise SBP less than 90, (greater than 70 y/o SBP less than 100) GCS less than or equal to 13</td>
</tr>
<tr>
<td>Within Normal Limits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CNS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetrating/depressed skull injury</td>
</tr>
<tr>
<td>Open injury w/ or w/o CSF leak</td>
</tr>
<tr>
<td>Deteriorating GCS or changes in neuro status</td>
</tr>
<tr>
<td>Stable Spinal Cord Injury</td>
</tr>
<tr>
<td>Any head injury w/ combined face, chest, abd, or pelvic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHEST:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widened Mediastinum on initial XRAY</td>
</tr>
<tr>
<td>Penetrating Injury</td>
</tr>
<tr>
<td>Major Chest wall injury or pulmonary contusion</td>
</tr>
<tr>
<td>Prolonged ventilator requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ABDOMEN/PELVIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Injury w/ associated Shock (SBP less than 90)</td>
</tr>
<tr>
<td>Unstable pelvic ring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXTREMITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Injuries w/ associated shock (SBP less than 90)</td>
</tr>
<tr>
<td>Open long bone fracture</td>
</tr>
<tr>
<td>Crush Injuries or prolonged ischemia</td>
</tr>
<tr>
<td>Loss of distal pulses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MULTI SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any injury w/ associated shock</td>
</tr>
<tr>
<td>Possible Co-morbidities with associated Traumatic injury</td>
</tr>
<tr>
<td>Less than 5, greater than 70 years of age, (RCRMC for Pediatrics)</td>
</tr>
<tr>
<td>Known anticoagulation/anti-platelet therapy</td>
</tr>
<tr>
<td>Pregnancy</td>
</tr>
<tr>
<td>Immunosuppression</td>
</tr>
</tbody>
</table>
**Procedure for continuation of trauma care transport:**

**For Critical Trauma Patient:**

1. The patient should be resuscitated and attempts made to stabilize for transport.

   **A. Referring Physician:**

   1. The physician initiating Continuation of Care transport should call the local ALS ambulance provider. When continuation of care has been initiated the ambulance provider will respond immediately to requesting facility code 3.

   OR request the patient's current EMS crew to stand-by on premises for immediate transport of the patient to a trauma center. The stand-by of the EMS crew should not last longer than 20 minutes.

   2. Notify directly the ED physician at the receiving Trauma Center. (see #4 for script.)

   3. Coordinate diagnostics and interventions w/ receiving ED physician.

   4. Suggested script, “This is Dr. ____ at ____ hospital. I want to speak to the ED physician regarding a critical trauma patient for higher level of care.” *(Do not use the word “transfer.”)*

   **B. Information to Transporting Personnel:**

   Information concerning the patient’s condition and needs during transport should be communicated to transporting personnel.

   **C. Documentation:**

   All documents are sent including: problem, treatments, status at time of transfer, lab values, Xrays, personal belongings and EMTLA higher level of care paperwork.

**For Trauma Patient:**

   **A. Referring Physician:**

   Contact Closest Trauma Center, speak to accepting Trauma Surgeon.

   (per hosp policy or ED to ED)

   **B. Information to Transporting Personnel:**

   Information concerning the patient’s condition and needs during transport should be communicated to transporting personnel.

   **C. Documentation:**

   All documents are sent including: problem, treatments, status at time of transfer, lab values, Xrays, personal belongings and EMTLA higher level of care paperwork.

   **D. Prior to Transfer:**

   The patient should be resuscitated and attempts made to stabilize in respect to Aâ€Œâ€Œ’s.

   **E. Management during Transport:**

   Determine if patient needs CCT, ALS or BLS transport.

   During transport, continued management of vital functions and continuous re-evaluation are essential.

   **Reference:** American College of Surgeons; Rural Trauma Team Development Course