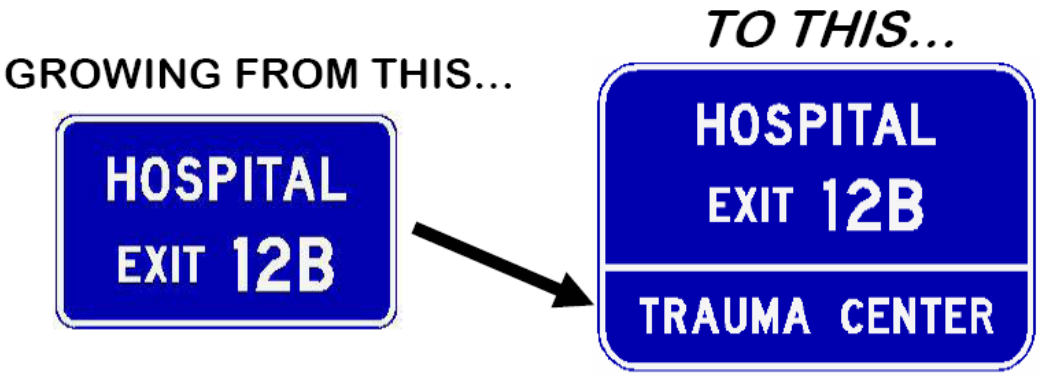
KENTUCKY TRAUMA CARE SYSTEM
ANNUAL REPORT
to the
KENTUCKY GENERAL ASSEMBLY
for
Calendar Year 2009



Required by KRS 211.494(7)

December 1, 2009

This document was assembled and prepared by Richard N. Bartlett, Emergency Preparedness and Trauma Coordinator for the Kentucky Hospital Association, who has assisted the Kentucky Department for Public Health and the Public Health Preparedness Branch as the acting state trauma coordinator through a related contract that support the US Department for Health and Human Services' "Hospital Preparedness Program".

Additional contributions to the report are acknowledged from Dr. Andrew Bernard, Chair of the Kentucky Trauma Advisory Committee (KyTAC) and a surgeon from the University of Kentucky Trauma Center; and Dr. Julia Costich and Shannon Beaven from the Kentucky Injury Prevention and research Center, University of Kentucky College of Public Health.

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EXECUTIVE SUMMARY

The Kentucky's Trauma Care System is entering its second year, and work has progressed towards development of the system.

The Kentucky Trauma Advisory Committee (KyTAC) that established by statute (see Attachment 1) has met regularly, and administrative regulations for the system's operation are in process.

KyTAC hosted a Verification Conference on January 6, 2009, in conjunction with the Kentucky Board of EMS, to provide information to those hospitals that are interested in volunteering to become a trauma center.

There was a follow-up workshop held at Marcum and Wallace Hospital on March 27, 2009, for Critical Access Hospitals (CAH) and other institutions to see about developing a Level-IV trauma center and preparing its program for eventual verification and designation. The Office for Rural Health provided financial support for this program. Marcum and Wallace Hospital is actively preparing for verification when the new trauma system regulations are promulgated.

A Trauma Hospital Reference Manual has been drafted and shared with facilities that are considering or working on development of their programs (see Attachment 7). The manual builds upon the assumption that the Kentucky system will use the American College of Surgeons Committee on Trauma (ACS COT) criteria and verification process for Levels I (highest) to Level III designations (usually regional medical centers). The manual specifies criteria and a verification process that will likely be considered for in-state verification and designation of Level-IV (community hospitals). The designation of each level of trauma verification and related requirements will be promulgated as regulations through the Cabinet for Health and Family Services.

Earlier this year, Ephraim McDowell Regional Medical Center became an ACS COT Verified Level-III Trauma Center. That means Kentucky now has two verified Level-I and two verified Level-III Trauma Centers. Kosair Children's Hospital is in the process of re-verifying their pediatric trauma center status, which will hopefully be done in 2010.

Hardware and software requirements to develop a standardized statewide trauma database were determined. KyTAC received a donation from an EMS physician's group to seed the purchase of a data system for the Kentucky trauma Registry, and the acquisition of several web-based portals for facilities working on trauma certification. A statewide data repository on trauma allows for study and analysis of the causes of injuries, and can lead to the development of strategies for care, prevention and education. Regular funding will be needed to sustain this effort.

The biggest problem facing the development of the Kentucky Trauma Care System at the moment is identification of a sustainable source of funding.

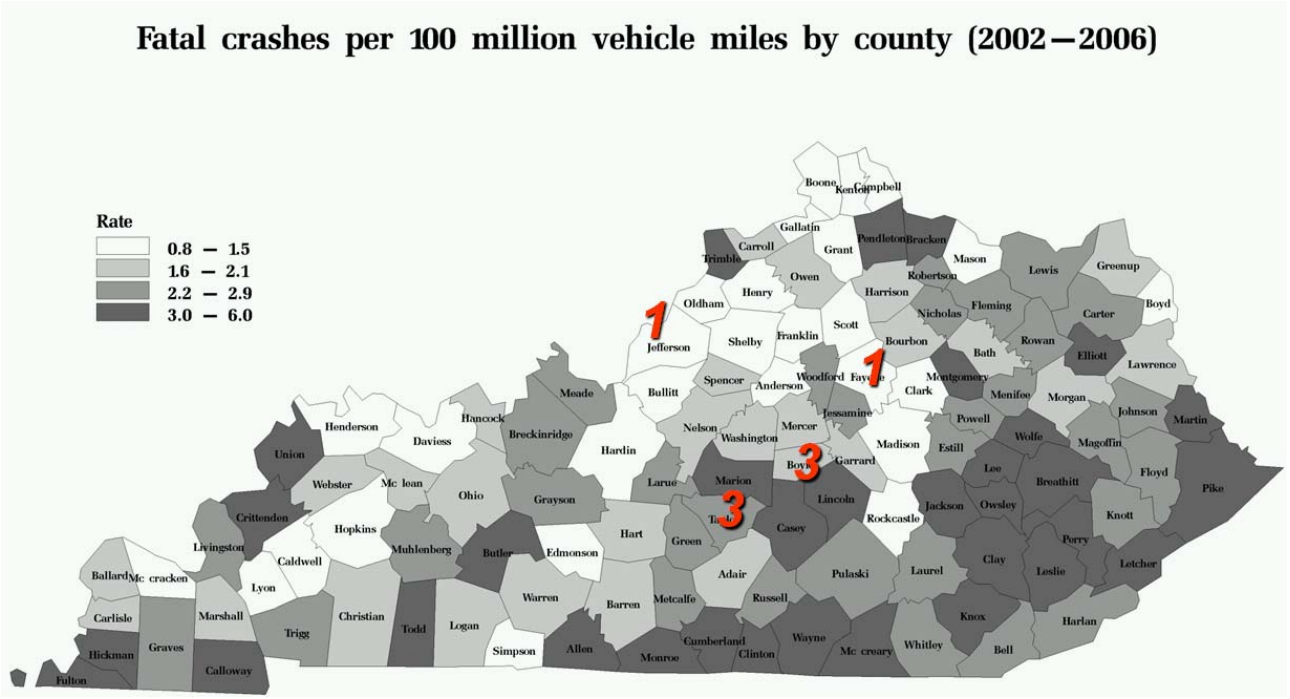
OVERVIEW

Trauma remains a leading cause of death among Kentuckians under age 45, but access to trauma care is significantly limited or delayed for many of Kentucky's citizens. While there is a new law to help get the system organized (see Attachment 1), there is no identified funding to sustain the program. The Kentucky Trauma Care System currently depends on volunteer time and donations.

Currently, there are two Level-I, and two Level-III trauma centers in Kentucky verified by the American College of Surgeons Committee on Trauma (ACS COT). This body is the accepted national leader in this field. Information on their verification process can be found in Attachment 2.

In October, 2009, Ephraim McDowell Regional Medical Center in Danville announced that it had successfully been verified by ACS COT as a Level-III Trauma Center. Kosair Children's Hospital in Louisville is working with ACS COT on re-verification, and it should have this process complete in 2010.

Unfortunately, there are still too few trauma centers, they are located primarily in central Kentucky, and there is disparate mortality. Trauma data has been limited and had to be extrapolated from motor vehicle accident reports and a few reporting trauma centers. Time and distance are also factors: 96% of cases appear to be getting to a Level 1 trauma center in over two hours; and 23% appear to be taking over seven hours.



The medical helicopter system in Kentucky is not integrated well into the trauma or EMS system and is not regulated by the Kentucky Board of EMS like other ambulances services. Federal rules regulate air ambulances like commercial passenger planes. Kentucky can not specify required personnel, equipment, or even heating and air conditioning on the aircraft.

There has been a great deal of interest expressed by hospitals across the Commonwealth in *voluntarily* becoming part the trauma care system, and there are facilities either in the process of gathering data and organizing their program, or considering this action in the near future. See Attachment 3 for a map showing Kentucky Trauma Center locations, and a second map that indicates the 44 counties where 52 hospitals have given KyTAC some indication of potential interest.

The Level-I centers are associated with the academic medical centers at the University of Louisville and the University of Kentucky. The Level-III centers are in generally rural areas (Campbellsville and Danville), and all the trauma centers are currently clustered in the central part of the state. Severely injured persons in other areas generally have to be flown or driven to trauma centers in distant cities of adjacent states.

The American Burn Association (ABA) lists eight burn beds at the University of Kentucky, and five burn beds at the University of Louisville. The next closest verified burn centers are in Cincinnati, Nashville, and Indianapolis.

Dr. Andrew Bernard, Chair of KyTAC and a trauma surgeon, in a September 16, 2009 presentation to the Interim Joint Committee on Health and Welfare, told the legislators that the benefits of a trauma system include: organized care, from the injury through rehabilitation; efficiency in the delivery of care; improved quality of care, to include a focused quality improvement program; decreased cost of overall care; decreased morbidity; and decreased mortality by about 15%.

An organized trauma system includes:

- Verified trauma centers
- Education for medical personnel and first responders
- Protocols for EMS and hospitals that standardize the approach to trauma care
- Data collection and surveillance
- Performance improvement/quality assurance
- Injury prevention

As stated in last year's trauma system report, if an event on the scale of the 9/11/2001 attacks, or a natural disaster, transportation, or industrial accident were to occur in the Commonwealth the healthcare system would be taxed. In order to build a domestic preparedness program that has the capacity to handle the potential aftermath of a severe natural disaster, **c**hemical, **b**iological, **r**adiological, **n**uclear or **e**xplosive (CBRNE) event, Kentucky must first improve on the preparedness level of the emergency healthcare system, including its Trauma Care System.

Trauma Data

Through a cooperative effort of the Kentucky Hospital Association (KHA), the Kentucky Transportation Cabinet, the Cabinet for Health and Family Services (CHFS), the Kentucky Injury Prevention and Research Center (KIPRC) of the University of Kentucky College of Public Health now has access to Kentucky Hospital Discharge Data (HDD) and hospital emergency department (ED) data. This provides a much broader and more

complete picture about trauma hospitalizations than using only information from the current Kentucky Trauma Registry, which includes information from only four trauma centers.

The new data sheds light on the magnitude of trauma as a public health issue because it includes many hospitalizations for injuries that do not meet ACS criteria for trauma. On average, 54 Kentuckians are admitted to a hospital for injury every day, and an additional 595 receive care in a hospital emergency department..

A complete report on this information can be found in Attachment 4.

KY TRAUMA ADVISORY COMMITTEE (KyTAC)

KRS 211.494 establishes an advisory committee to assist the Kentucky Department for Public Health in the development and implementation of the new trauma care system. Cabinet for Health and Family Services Secretary Janie Miller solicited recommendations from the organizations, and interested parties, to fill the required classes of membership specified in the law. The KyTAC has 19 appointed positions, all of whom are serving without compensation.

The listing of Trauma Advisory Committee members can be found in Attachment 5.

PROGRAM GOALS AND OBJECTIVES

The *goals* of KyTAC, as set-forth in the law, are as follows:

- Reduce or prevent death and disability from trauma without regard to the patient's insurance coverage or ability to pay for services;
- Provide optimal care for trauma victims by utilization of best practices, protocols, and guidelines;
- Minimize the economic impact of lost wages and productivity for trauma patients; and
- Contain costs of trauma care.

The *objectives* of the program, as outlined in the law, indicate that the KyTAC and the Trauma Director are to:

- Develop and implement a statewide trauma care system, integrated with the public health system for injury prevention;
- Recognize levels of care for the appropriate delivery of a full range of medical services to all trauma patients in the Commonwealth;
- Develop and implement trauma prevention and education initiatives;
- Facilitate appropriate education and continuing education about trauma care and procedures for physicians, nurses and emergency medical services personnel;
- Develop and distribute statewide guidelines and protocols for care and treatment of trauma victims, to include special populations;
- Integrate the programs, guidelines and protocols with EMS, physicians, nurses and hospitals;
- Establish a voluntary hospital trauma center verification program;

- Coordinate local and regional triage and transport protocols with the KY Board of EMS, EMS providers, emergency departments; and
- Assure that the new system has continuing quality assurance and peer review programs.

KyTAC ACTIVITIES

The Kentucky Trauma Advisory Committee normally meets on the third Tuesday of each month at 3 PM ET via the Kentucky Public Health video teleconference network. A public viewing site is provided for each meeting at the Cabinet for Health and Family Services, and members of the public are welcome to go to a site being used by a KyTAC member to participate in the meeting. Minutes are posted on the Trauma Care System website of the Kentucky Hospital Association at http://www.kyha.com/home/kentucky-trauma-care-system/

Committee Charges/Goals

The group has formed five working committees to focus on core areas of development. These committees include:

- Education
- Data
- Protocols
- Verification
- Finance

KyTAC has defined the initial charges for each committee as follows:

Education:

- Consider all levels of training, including physicians, nurses, and pre-hospital personnel.
  - Basic Trauma Life Support (EMS)
  - Pre-Hospital Trauma Life Support (EMS)
  - Trauma Nursing Core Course (RNs)
  - Advanced Trauma Life Support (MDs)
  - Rural Trauma Team Development Course (Hospitals)

- Obtain and make available to the public information on the courses and cost.
- Determine the number of individuals and institutions currently trained.
- Identify the target audiences and set goals for training.
- Any cost to obtain education would be the responsibility of the participants, unless grant funded.

Protocols

- Develop and disseminate sample transfer agreements that can be used by hospitals.
- Develop ground and air transport protocols for patients from scenes and inter-facility transport.
- Develop treatment protocols, (for pre-hospital, inter-facility and hospital treatment).
- Standardize triage and tagging process.
- Review and approve the standardized EMS protocols that are published and available for download on the KBEMS website.

- Recommend guidelines for trauma center evaluation process to accelerate transfer of patients requiring trauma center admission (target to make the decision in no more than 15 minutes).

Use of standardized protocols can be encouraged through the Rural Trauma Team Development Course (RTTDC) and other courses sponsored by the KyTAC, highlighting the multi-dimensional, integrative nature of the trauma system.

Data

- Develop a standard system for gathering data and passing it to the trauma registry.
- Set guidelines to assure that systems can all work together.
- Produce easy to use/understand standard reports for the KyTAC, on a quarterly basis, to show the activity and progress of the system.
- Perform a simple review and presentation of key data.
- Make recommendations for new /developing trauma centers on software and trauma registry data packages.
- Review data from non-verified hospitals/centers and assess process and outcomes in the care of injured patients not going to a Kentucky trauma center.
- Review KHA's Emergency Department data.
- Develop a set of recommendations on the ability of the trauma registry to gather and analyze data.

Verification

- Outline the state criteria and process for Level-IV verification.
- Organize the proposed half-day orientation session on verification for hospitals that want to learn about it.
- Make a recommendation on the process to be used for Level-I, II, and III.
    - (Assumption to date is that this would be the American College of Surgeon's Committee on Trauma standards).
- Identify potential sources for funding assistance to hospitals going through consultation and verification.
- Assess need for additional trauma centers and provide guidance/assistance on this subject.

Finance

- Seek outside funds to assist with the development of the trauma system.

EDUCATION

Rural Trauma Team Development Courses (RTTDC) have been held in these communities and facilities over the past few years:

- KY Trauma Symposium-Louisville (2005)
- KY Trauma Symposium-Lexington (2006)
- Paul B. Hall-Paintsville
- Western Baptist-Paducah
- Marcum & Wallace Memorial-Irvine
- Lake Cumberland Regional-Somerset
- Morgan County ARH-West Liberty
- James B. Haggin Memorial-Harrodsburg
- Livingston County Hospital-Salem
- Berea Hospital-Berea

- Rockcastle County Hospital-Mt Vernon
- Fort Logan Hospital-November

Additional RTTDC classes are being planned in the near future for:

- Clinton County Hospital, Albany (Office of Rural Health funded)
- Frankfort Regional Hospital, Frankfort (Hospital funded)

In addition to the Trauma Symposiums shown above, there have also been similar conferences in other years:

- KY Trauma Symposium-Louisville (2007)
- KY Trauma Symposium-Lexington (2008)
- KY Trauma Symposium-Louisville (2009)

Funding for many of these programs has come either from the University of Kentucky's Office of Rural Health or the original Hospital Preparedness grant program from the United States Health and Human Services' Health Resources and Services Adminstration (HRSA) or Assistant Secretary for Preparedness and Response (ASPR.

Advanced Burn Life Support (ABLS) courses have been held in virtually every region of the state. These were primarily run by the Trauma Institute at the University of Louisville and have been often funded through the Hospital Preparedness Program.

The EMS for Children (EMSC) program, which is housed at the Kentucky Board of Emergency Medical Services (KBEMS), is coordinating at least three, two-day Pediatric Advanced Life Support (PALS) courses over the next few months at locations in central and eastern Kentucky.

The plan is to identify additional funding and to conduct courses in the future for the Trauma Nursing Core Course, Pre-Hospital Trauma Life Support, and additional RTTDC classes in concert with developing rural trauma center programs.

In February, 2010, KyTAC will partner with the Kentucky Hospital Association, the Kentucky Chapter of the American College of Emergency Physicians (ACEP), KBEMS, the Kentucky Department for Public Health Preparedness Branch, and the national ACEP office to host a one-day educational program focused on developing trauma centers. The program will be in two segments: one focusing on the CDC "In a Moment's Notice" trauma surge capacity planning program; and the other segment will focus on a new FEMA course that ACEP is developing on Hospital Evacuation Planning. These will programs will be done at a live site in Frankfort and offered through the statewide video teleconference network.

There has also been interest expressed in doing another Verification Workshop, similar to the January 2009 training program, to help developing facilities learn the process to become a trauma center. This will likely be a spring 2010 offering.

PROTOCOLS

Work has started on the development of standardized protocols for the Emergency Department and EMS. Earlier this year, KyTAC endorsed and distributed a simple "ER Transfer Decision Tree." The objective of this flow chart is to help the initial receiving

facility make a decision whether to transfer a trauma patient a higher level of care. This chart can be found in Attachment K of the Kentucky Trauma Hospital Reference Manual which is in Attachment 7.

The second approach that KyTAC is working on is to encourage developing trauma centers to build with their local EMS systems and neighboring hospitals a "Field Triage Decision Scheme." These are generally adapted from a template that was developed by the Centers for Disease Control which encourages the counties around a trauma center to work together. In Attachment 6 there are two related items: a map that shows initial consideration of how established or developing trauma centers could work with clusters of related counties to develop sub-regional trauma protocols; and a sample of the document that was developed around the new Level-III trauma center at Ephraim McDowell Regional Medical Center in Danville.

REGULATIONS

KyTAC has been working with the Commissioner for Public Health to draft a set of new implementing regulations which are under review at this time and should be ready for a public airing in 45 to 60 days. While the goal is to have our first verified and state designated Level-IV facility in the spring of 2010, timing of the regulatory process may push that back to the summer of 2010.

FINANCING

The Trauma Care System law was passed but contained no appropriation of funds and, to date, no state funds have been identified. However, the law included a provision to permit funding on a non-lapsing basis from a variety of sources.

Kentucky has been using a program that was developed in-house to collect information from the existing trauma centers, but this home-grown system needs to be upgraded to handle additional facilities, data transfers to the National Trauma Database (NTDB) system, and development of a web portal that would allow smaller facilities the ability to gather, report, and submit their trauma data in a cost-effective manner.

There was a $25,000 donation made in October, 2009, from *Marshall Emergency Services Associates (MESA)*, a private emergency medical physicians group that provides staffing for emergency departments throughout the Commonwealth. Members of MESA enlisted support from their fellow physicians to "work a shift for trauma", and they made donations in the form of payroll deductions. The funds were used to purchase the state's first trauma database package.

This donation will allow an upgrade to the Kentucky Trauma Registry at the Kentucky Injury Prevention and Research Center (KIPRC) in the University of Kentucky, and will provide five web portals for developing trauma centers.

This is a unique approach to funding and suggests that physicians realize trauma is a major healthcare problem. The MESA team felt that it had made a strong commitment to a healthier Kentucky. There have been several inquiries about this strategy for funding from other trauma systems across the nation.

A $10,000 donation from the grateful family of a trauma patient was announced recently. The plan is to also use this money to help develop the trauma registry system.

Strategic Funding Group (SFG) in Lexington has agreed to provide assistance to KyTAC with fund raising. With a sub-committee of KyTAC, SFG developed an application for $50,000 and submitted it to a religious foundation to und a portion of a trauma nurse coordinator position. That application is pending at this time.

Other applications for financial assistance have been filed and are currently pending with several organizations. The list includes a large statewide insurance company and a private company that has a personal connection with the trauma care system through an associate's family survivor.

Unfortunately, this does not create a sustainable program, and additional funding will be needed for both short-term system development and long-term support costs.

The following are examples of the trauma care system's needs:

- ✓ Assistance and consultative support for hospitals interested in voluntarily becoming verified, designated trauma centers as part of a Kentucky Trauma System. Estimate is $45,000/year.
- ✓ On-going funding to support the Kentucky Trauma Registry system, software licenses, and web portals. Estimate is $42,000/year.
- ✓ Personnel support for KIPRC to conduct trauma data analysis, compile an annual and ad hoc reports, and ad hoc reports. Estimate is $32,500/year.
- ✓ Support for the Kentucky Trauma Advisory Committee (KyTAC) to include a full-time trauma coordinator (RN), a half-time support person, and administrative costs for the KyTAC. Estimate is $120,500/year.
- ✓ Funding for educational programs across the state to help facilities and personnel prepare for the verification/designation process and to improve the capabilities of both hospital and pre-hospital (EMS) personnel. Estimated cost is $60,000/year.

On-going annual cost needs are estimated to be $300,000.

One-Time Start-up Costs

- ✓ A trauma system “Stakeholders Survey” that would be conducted either by in-state resources, such as one of the two Schools of Public Health, or by the American College of Surgeons Committee on Trauma, based on an instrument provided by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS). The purpose of this analysis is to identify where the system is in comparison to other developing trauma systems and national standards and to help formulate an updated trauma system development plan. This would also be a component for development of future grant or funding requests. Estimated cost would be $30,000.
- ✓ To address the American Academy of Pediatrics (AAP) and Institute of Medicine (IOM) recognized national gaps between the current level of pediatric care capability in hospitals and that recommended by the AAP, a survey should be been conducted of Kentucky hospitals to create a *Kentucky Pediatric Care Gap Analysis*

and Needs Assessment. The survey would be based on the current AAP report and recommendations. In order to develop a comprehensive plan and approach for filling the gaps, and funding the needs, through future grant requests. Estimated cost is $18,000.

One-time potential costs are estimated to be $48,000.

The lack of funding has guided the way KyTAC is implementing its processes including meetings. The law provides for members to be reimbursed for travel if funds are available. Because travel funds are currently not available, participants are using the Kentucky Department for Public Health's video-teleconference network to designated sites throughout the state. This allows for interactive participation, and members of the public can view the meetings either at a public site in Frankfort or at one of the satellite locations used by KyTAC members. While the approach generally works, there are limitations that can make the meetings awkward, and it is not the same as a face-to-face dialogue.

To further hold down costs, written materials and meeting notices are distributed using a listserve system that is provided by the Kentucky Hospital Association. This system also allows the committee, and interested persons, to exchange materials and ideas broadly with the group. Minutes and reference material are posted on the KHA website.

Summary

Going forward, the Kentucky Trauma Care System intends to be:

- Patient focused.
- Priority-driven;
- Cost-effective; and
- Inclusive.

In the short run, KyTAC is seeking:

1. Legislative support to address funding needs; and
2. A reliable source of funding to sustain the program.

The members of the Trauma Advisory Committee and the Kentucky Department for Public Health are prepared to assist in the development of approaches to address our goals and objectives.

TABLE OF ATTACHMENTS

Number	Attachment Description
1	Kentucky Trauma Care Law
2	ACS COT: Definitive Care Facilities (Extract from "Resources for Optimal Care...", 2006)
3	Trauma Centers in Kentucky (Maps showing current, developing, and interested areas of the Commonwealth)
4	2008 Kentucky Inpatient and Emergency Department Trauma Data
5	KyTAC Membership Listing
6	KyTAC Protocol Centers and Sample Regional Trauma Triage Protocol
7	Trauma Hospital Reference Manual (Draft document)

ATTACHMENT 1
KENTUCKY TRAUMA CARE LAW

Kentucky Trauma Care Law

KRS 211.490 - 496

(2008 Kentucky General Assembly)

KRS 211.490 Legislative findings concerning provision of trauma care.

The General Assembly finds that:

(1) Trauma is a severe health problem in this state and a major cause of death and long-term disability;

(2) Trauma care is an essential public service;

(3) Trauma care is significantly limited in many parts of Kentucky, particularly in rural areas where there is a growing danger that some communities may not have adequate emergency care;

(4) It is essential for persons in need of trauma care to receive that care within sixty (60) minutes immediately following injury, referred to as the "golden hour," for that is when the potential for survival is the greatest and the need for treatment for shock or injury is most critical;

(5) Kentucky's emergency preparedness efforts require the establishment of an efficient statewide trauma care system that can be mobilized to save the lives of trauma patients who are victims of terrorism or natural disasters;

(6) Trauma centers save lives and money because access to trauma care can mean the difference between full recovery and serious disability that requires expensive long-term care and results in a loss of economic productivity;

(7) Regional preparedness planning has identified trauma care as a priority, and some grant funding has been obtained to initiate trauma care planning;

(8) It is in the best interests of the citizens of Kentucky to establish an efficient and well-coordinated statewide trauma system to reduce costs of medical care and the greater economic impact of lost wages and productivity and to reduce the incidence of inappropriate and inadequate trauma care and emergency medical services; and

(9) Existing trauma centers are facing an increasing number of uninsured patients, declining reimbursement, and rising malpractice insurance premiums that threaten continued community access to trauma care. Therefore, financial assistance is needed to support existing trauma centers and establish new trauma centers.

Effective: July 15, 2008
History: Created 2008 Ky. Acts ch. 25, sec. 1, effective July 15, 2008.

KRS 211.492 Definitions for KRS 211.490 to 211.496.

For the purposes of KRS 211.490 to 211.496:

(1) "Trauma" has the same meaning as defined in KRS 311A.010;

(2) "Trauma center" means a hospital that has institutional, surgical, and specialty care and commitment to treating individuals with injuries and that has been verified by the American College of Surgeons or by the Department for Public Health; and

(3) "Trauma center verification" means the process by which a trauma center is evaluated and designated as a trauma center by the American College of Surgeons or the Department for Public Health.

Effective: July 15, 2008
History: Created 2008 Ky. Acts ch. 25, sec. 2, effective July 15, 2008.

KRS 211.494 Statewide trauma care program -- Goals -- Advisory committee-Components of trauma care system -- Coordination of activities -- Confidentiality of data -- Reports -- Administrative regulations.

(1) A comprehensive statewide trauma care program shall be established within the Department for Public Health. The statewide trauma care program shall consist of, at a minimum, a statewide trauma care director and a state trauma registrar funded through available federal funds or, to the extent that funds are available, by the trauma care system fund established in KRS 211.496. The department may contract with outside entities to perform these functions.

(2) The statewide trauma care system shall address, at a minimum, the following goals:

(a) To reduce or prevent death and disability from trauma without regard to the patient's insurance coverage or ability to pay for services;

(b) To provide optimal care for trauma victims by utilization of best practices protocols and guidelines;

(c) To minimize the economic impact of lost wages and productivity for trauma patients; and

(d) To contain costs of trauma care.

(3) (a) The Department for Public Health shall establish an advisory committee to assist in the development, implementation, and continuation of its duties.

(b) The advisory committee shall be appointed by the secretary of the Cabinet for Health and Family Services and shall be composed of representatives from the following agencies and organizations:

1. The Department for Public Health;
2. The Kentucky Board of Medical Licensure;
3. The Kentucky Board of Nursing;
4. The Kentucky Board of Emergency Medical Services;
5. The Kentucky Medical Association;
6. The Kentucky Hospital Association;
7. The Kentucky Committee on Trauma of the American College of Surgeons;
8. One (1) representative from each verified Level I trauma center;
9. One (1) hospital representative from a Level II verified trauma center, one (1) hospital representative from a Level III verified trauma center, and one (1) hospital representative from a Level IV verified trauma center. The Kentucky Hospital Association shall submit recommendations to the secretary for each of the three (3) members appointed under this subparagraph;
10. The Kentucky Chapter of the American College of Emergency Physicians;
11. The Kentucky Chapter of the Emergency Nurses Association;
12. The Kentucky Transportation Cabinet; and
13. Two (2) members at large, one (1) of whom shall be a health care consumer.

(c) Members of the advisory committee shall serve for a period of four (4) years and shall serve until a successor is appointed, except that initial terms shall be staggered and one-third (1/3) of the members shall be appointed to four (4) year terms, one-third (1/3) of the members shall be appointed to three (3) year terms, and one-third (1/3) of the members shall be appointed for two (2) year terms.

(d) The advisory committee shall meet at least on a quarterly basis. The committee shall elect a chair, a vice chair, and a secretary from among its members and adopt rules of

governance at the first meeting in each fiscal year. The first meeting of the advisory committee shall occur before September 30, 2008.

(e) Appointed members shall serve without compensation but may receive reimbursement for actual and necessary expenses relating to the duties of the advisory committee in accordance with state regulations relating to travel reimbursement.

(f) Expenses associated with the advisory committee shall be paid by the trauma care system fund established in KRS 211.496, to the extent funds are available.

(4) The statewide trauma care director and the advisory committee shall develop and implement a statewide trauma care system, integrated with the public health system for injury prevention, that recognizes levels of care for the appropriate delivery of a full range of medical services to all trauma patients in the Commonwealth. The statewide trauma care system shall include but is not limited to:

(a) Development and implementation of trauma prevention and education initiatives;

(b) Facilitation of appropriate education and continuing education about trauma care and procedures for physicians, nurses, and emergency medical services personnel;

(c) Development and statewide distribution of guidelines and protocols for the care and treatment of trauma victims that include the needs of special populations and are fully integrated with all available resources, including but not limited to emergency medical services, physicians, nurses, and hospitals;

(d) Voluntary hospital trauma center verification through the American College of Surgeons or the Department for Public Health;

(e) Local and regional triage and transport protocols for use by the Kentucky Board of Emergency Medical Services, emergency medical services providers, and emergency rooms; and

(f) Continuing quality assurance and peer review programs.

(5) The Department for Public Health or the statewide trauma care director and the advisory committee established in this section shall coordinate activities related to the care of trauma patients with other state agencies and boards that are directly or indirectly involved with care of injured persons. Upon request of the Department for Public Health or the statewide trauma care director, other state agencies and boards shall assist and facilitate the development and implementation of a statewide trauma care system.

(6) Data obtained through a trauma registry or other data collected pursuant to KRS 211.490 to 211.496 shall be confidential and for use solely by the Department for Public Health, the statewide trauma care director, the advisory committee, and persons or public or private entities that participate in data collection for the trauma registry. Personal identifying information that is collected for use in the trauma registry shall not be subject to discovery or introduction into evidence in any civil action.

(7) The statewide trauma care director shall report by December 1 of each year to the Interim Joint Committee on Health and Welfare on the status of the development and implementation of the statewide trauma system.

(8) The Department for Public Health may promulgate administrative regulations in accordance with KRS Chapter 13A to implement this section.

Effective: July 15, 2008
History: Created 2008 Ky. Acts ch. 25, sec. 3, effective July 15, 2008.

KRS 211.496 Kentucky trauma care system fund -- Uses.

(1) The Kentucky trauma care system fund is created as a restricted account that shall consist of state general fund appropriations and other grants, contributions, donations, or other moneys made available for the purposes of KRS 211.490 to 211.496. Moneys in the fund are hereby appropriated for the purposes set forth in KRS 211.490 to 211.496.

(2) The trauma care system fund shall be used to support:

  (a) Administrative costs of the Department for Public Health, the statewide trauma care director, and the advisory committee that relate to the statewide trauma care system, including public awareness and information efforts;

  (b) The implementation of the statewide trauma care system;

  (c) Expenses related to hospital trauma center verification;

  (d) Continuing education for trauma care providers; and

  (e) Support for uncompensated care provided by hospitals, physicians, emergency medical services, or other trauma care providers who provide services in a verified trauma center. Verified trauma centers shall have the authority to contract with state government for receipt of funds under this paragraph.

(3) Notwithstanding KRS 45.229, any moneys remaining in the fund at the close of a fiscal year shall not lapse but shall be carried forward into the succeeding next fiscal year to be used for the purposes set forth in KRS 211.490 to 211.496.

(4) Any interest earned on moneys in the account shall accrue to the fund and shall be used for the purposes set forth in KRS 211.490 to 211.496.

Effective: July 15, 2008
History: Created 2008 Ky. Acts ch. 25, sec. 4, effective July 15, 2008.

(Cross-Reference for KRS 211.492 (Definition of Trauma)

KRS 311A.010 Definitions for chapter.

As used in this chapter, unless the context otherwise requires:

(1) "Ambulance" means a vehicle which has been inspected and approved by the board, including a helicopter or fixed-wing aircraft, except vehicles or aircraft operated by the United States government, that are specially designed, constructed, or have been modified or equipped with the intent of using the same, for the purpose of transporting any individual who is sick, injured, or otherwise incapacitated who may require immediate stabilization or continued medical response and intervention during transit or upon arrival at the patient's destination to safeguard the patient's life or physical well-being;

(2) "Ambulance provider" means any individual or private or public organization, except the United States government, who is licensed by the board to provide medical transportation services at either basic life support level or advanced life support level and who may have a vehicle or vehicles, including ground vehicles, helicopters, or fixed-wing aircraft to provide such transportation. An ambulance provider may be licensed as an air ambulance provider, as a Class I ground ambulance provider, as a Class II ground ambulance provider, or as a Class III ground ambulance provider;

(3) "Board" means the Kentucky Board of Emergency Medical Services;

(4) "Emergency medical facility" means a hospital or any other institution licensed by the Cabinet for Health and Family Services that furnishes emergency medical services;

(5) "Emergency medical services" means the services utilized in providing care for the perceived individual need for immediate medical care to protect against loss of life, or aggravation of physiological or psychological illness or injury;

(6) "Emergency Medical Services for Children Program" or "EMSC Program" means the program established under this chapter;

(7) "Emergency medical services personnel" means persons, certified or licensed, and trained to provide emergency medical services, and an authorized emergency medical services medical director, whether on a paid or volunteer basis;

(8) "Emergency medical services system" means a coordinated system of health-care delivery that responds to the needs of acutely sick and injured adults and children, and includes community education and prevention programs, centralized access and emergency medical dispatch, communications networks, trained emergency medical services personnel, medical first response, ground and air ambulance services, trauma care systems, mass casualty management, medical direction, and quality control and system evaluation procedures;

(9) "Emergency medical services training or educational institution" means any person or organization which provides emergency medical services training or education or in-service training, other than a licensed ambulance service which provides training, or in-service training in-house for its own employees or volunteers;

(10) "Emergency medical technician" or "EMT" means a person certified under this chapter as an EMT-basic, EMT-basic instructor, or EMT-instructor trainer;

(11) "First responder" means a person certified under this chapter as a first responder or first responder instructor;

(12) "Emergency medical services medical director" means a physician licensed in Kentucky who is employed by, under contract to, or has volunteered to provide supervision for a paramedic or an ambulance service, or both;

(13) "Paramedic" means a person who is involved in the delivery of medical services and is licensed under this chapter;

(14) "Paramedic course coordinator" means a person certified under this chapter to coordinate a paramedic course. A paramedic course coordinator shall not practice as a paramedic unless they are also licensed as a paramedic;

(15) "Paramedic preceptor" means a licensed paramedic who supervises a paramedic student during the field portion of the student's training;

(16) "Prehospital care" means the provision of emergency medical services or transportation by trained and certified or licensed emergency medical services personnel at the scene or while transporting sick or injured persons to a hospital or other emergency medical facility; and

(17) "Trauma" means a single or multisystem life-threatening or limb-threatening injury requiring immediate medical or surgical intervention or treatment to prevent death or permanent disability.

Effective: June 20, 2005

History: Amended 2005 Ky. Acts ch. 99, sec. 592, effective June 20, 2005. -- Created 2002 Ky. Acts ch. 211, sec. 1, effective July 15, 2002.

ATTACHMENT 2
American College Surgeons
Committee on Trauma
Definitive Care Facilities Description

Reference:

"Resources for Optimal Care of the Injured Patient - 2006"
Committee on Trauma, American College of Surgeons
633 N. Saint Clair Street
Chicago, IL 60611-3211
ISBN 1-880696-30-4

Definitive Care Facilities

Essential to the development of a trauma care system is the designation of definitive trauma care facilities. The trauma care system is a network of definitive care facilities that provides a spectrum of care for all injured patients. In an area with adequate Level I resources, it may not be necessary to have Level II centers. Similarly, when Level I and II centers can provide care for the volume of trauma patients in the region, Level III centers may not be necessary. In less densely populated areas and certainly in rural areas, however, Level II and III centers will be essential. It must be emphasized that in any trauma system, the designating authority should be responsible for determining the anticipated volume of major trauma patients and assessing available resources to determine the optimal number and level of trauma centers in a given area.

Conceptually, effective trauma systems must have a lead hospital. These lead hospitals should be the highest level available within the trauma system. In many areas, Level I centers will serve as the lead hospitals. In systems with a less dense population base, Level II facilities may assume this role. In smaller community and rural settings, Level III centers must serve as the lead hospital.

In most trauma systems, a combination of levels of designated trauma centers will coexist with the other acute care facilities. The trauma care system must establish trauma facility standards. Historically, these standards have been based on the guidelines established in this ACS-COT document. We have attempted to emphasize resource differentiation between centers. We do not view our classification scheme as a ranking of medical care, but as a ranking of resource depth. We expect the commitment to quality care to be the same regardless of resources.

Level I

The Level I facility is a regional resource trauma center that is a tertiary care facility central to the trauma care system. Ultimately, all patients who require the resources of the Level I center should have access to it. This facility must have the capability of providing leadership and total care for every aspect of injury, from prevention through rehabilitation. In its central role, the Level I center must have adequate depth of resources and personnel.

Because of the large personnel and facility resources required for patient care, education, and research, most Level I trauma centers are university-based teaching hospitals. Other hospitals willing to commit these resources, however, may meet the criteria for Level I recognition.

In addition to acute care responsibilities, Level I trauma centers have the major responsibility of providing leadership in education, research, and system planning. This responsibility extends to all hospitals caring for injured patients in their regions.

Medical education programs include residency program support and postgraduate training in trauma for physicians, nurses, and prehospital providers. Education can be accomplished through a variety of mechanisms, including classic continuing medical

education (CME), trauma and critical care fellowships, preceptorships, personnel exchanges, and other approaches appropriate to the local situation. Research and prevention programs, as defined in this document, are essential for a Level I trauma center.

Level II

The Level II trauma center is a hospital that also is expected to provide initial definitive trauma care, regardless of the severity of injury. Depending on geographic location, patient volume, personnel, and resources, however, the Level II trauma center may not be able to provide the same comprehensive care as a Level I trauma center. Therefore, patients with more complex injuries may have to be transferred to a Level I center (for example, patients requiring advanced and extended surgical critical care). Level II trauma centers may be the most prevalent facility in a community, managing the majority of trauma patients.

The Level II trauma center can be an academic institution or a public or private community facility located in an urban, suburban, or rural area. In some areas where a Level I center does not exist, the Level II center should take on the responsibility for education and system leadership.

Level III

The Level III trauma center serves communities that do not have immediate access to a Level I or II institution. Level III trauma centers can provide prompt assessment, resuscitation, emergency operations, and stabilization and also arrange for possible transfer to a facility that can provide definitive trauma care. General surgeons are required in a Level III facility. Planning for care of injured patients in these hospitals requires transfer agreements and standardized treatment protocols. Level III trauma centers are generally not appropriate in an urban or suburban area with adequate Level I and/or Level II resources.

Level IV

Level IV trauma facilities provide advanced trauma life support before patient transfer in remote areas where no higher level of care is available (see Chapter13, Rural Trauma Care). Such a facility may be a clinic rather than a hospital and may or may not have a physician available. Because of geographic isolation, however, the Level IV trauma facility is the de facto primary care provider. If willing to make the commitment to provide optimal care, given its resources, the Level IV trauma facility should be an integral part of the inclusive trauma care system. As at Level III trauma centers, treatment protocols for resuscitation, transfer protocols, data reporting, and participation in system performance improvement are essential.

A Level IV trauma facility must have a good working relationship with the nearest Level I, II, or III trauma center. This relationship is vital to the development of a rural trauma system in which realistic standards must be based on available resources. Optimal care in rural areas can be provided by skillful use of existing professional and institutional resources supplemented by guidelines that result in enhanced education, resource allocation, and appropriate designation for all levels of providers. Also, it is essential for

the Level IV facility to have the involvement of a committed health care provider who can provide leadership and sustain the affiliation with other centers.

An inclusive system should leave no facility without direct linkage to a Level I or II trauma center. This association should facilitate expeditious transfer of seriously injured patients who require a higher level of care. Exchange of medical personnel between Level I/II and Level III/IV facilities may be an excellent way to develop this relationship. The Level I and II trauma centers have an obligation to extend their educational outreach to rural areas in the form of Introduction professional education, consultation, or community outreach. A mechanism should provide feedback about individual patient care and outcome analysis to the referring hospital.

Use of the resources Document

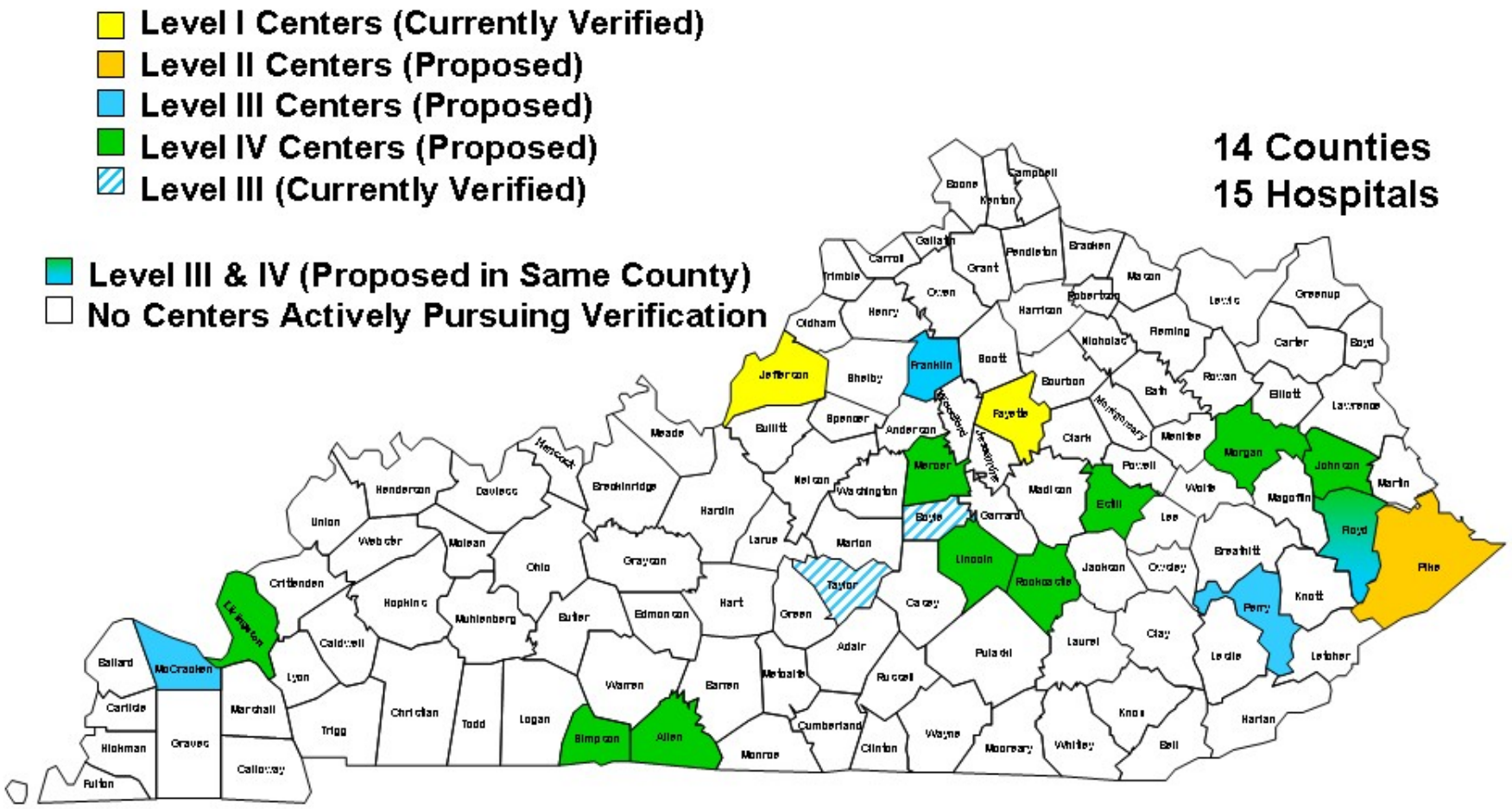
An obvious outgrowth of the ACS-COT guidelines for optimal care was the development of a verification process whereby a hospital could be evaluated to determine whether ACS criteria were being met. This verification process was established in 1987, and at the time of this writing, more than 1,800 verification and consultation site visits were completed (see Chapter 22, Consultation/Verification Program). This document has become a guide for the Consultation/Verification program of the ACS-COT. This edition was developed to further aid the process of consultation and verification of trauma centers. Attention was given to providing support for resource expenditure within an inclusive system of trauma care. As the verification process matured, better definitions were sought for many of the assessed areas within a hospital

Differentiation Between Levels of Care

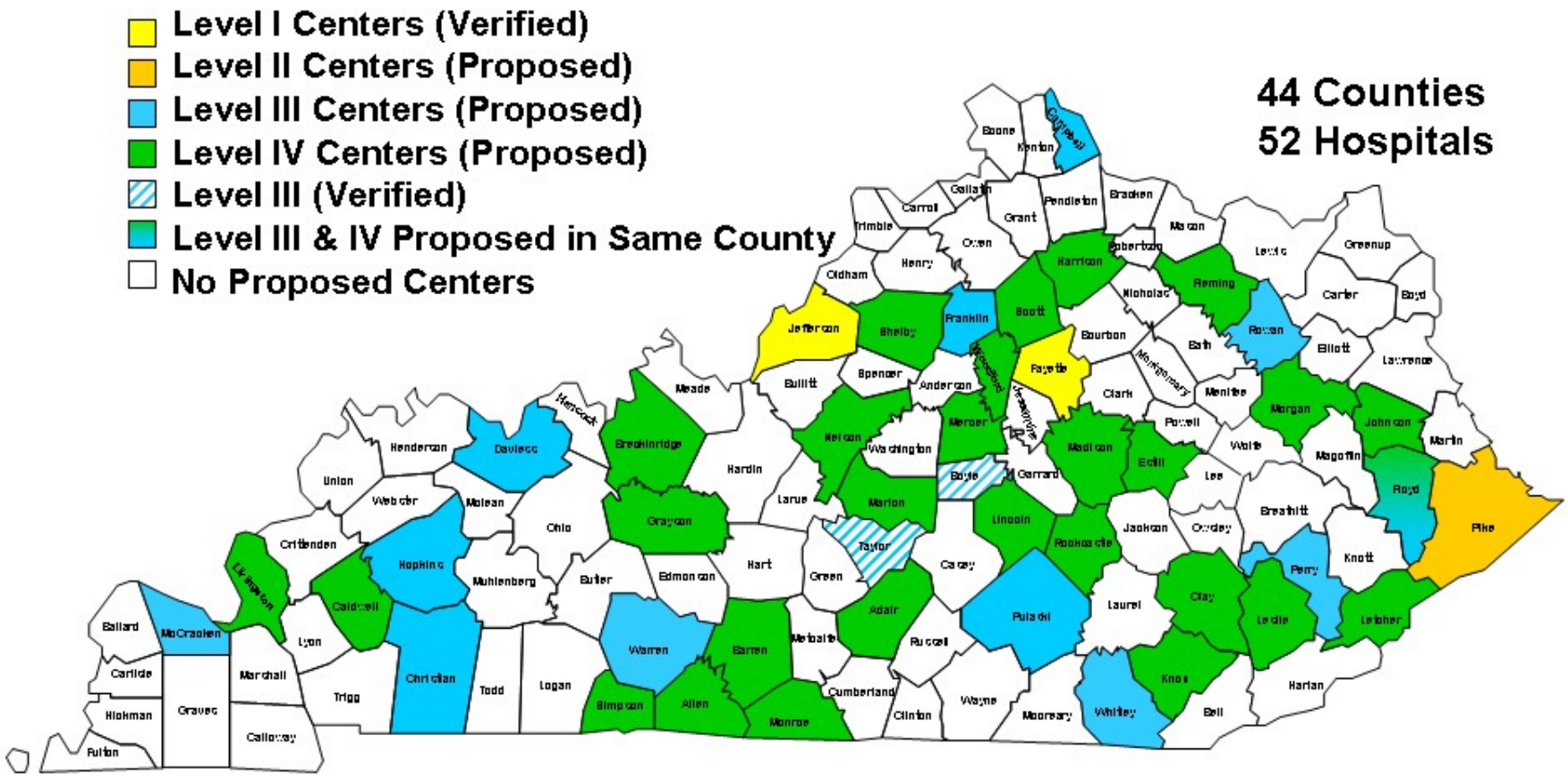
A sincere attempt was made to avoid discrepancies of resource needs between the different levels of care. Although the quality of care is expected to be similar throughout all levels of care, the severity and the volume of injured patients were accepted as the drivers of resource utilization. As severity and volume increase, more human and financial resources are required to ensure optimal care. Hopefully, the differences in resource commitment will allow each facility at each level to expend an acceptable amount of resources based on the needs of the patient population served. Our resource assignment tried to be practical given current medical marketplace demands.

ATTACHMENT 3
Trauma Centers in Kentucky
and Developing Trauma Centers in Kentucky
(Map)

Hospitals Actively Pursuing Trauma Center Verification (November 16, 2009)


Level I Centers (Currently Verified)
Level II Centers (Proposed)
Level III Centers (Proposed)
Level IV Centers (Proposed)
Level III (Currently Verified)
Level III & IV (Proposed in Same County)
No Centers Actively Pursuing Verification
14 Counties
15 Hospitals
Jefferson
Franklin
Fayette
Mercer
Boyle
Lincoln
Rockcastle
Pulaski
Whitley
Bell
Knox
Harlan
Letcher
Perry
Pike
Floyd
Johnson
Martin
Magoffin
Morgan
Elliott
Lawrence
Greenup
Carter
Boyd
Lewis
Mason
Bracken
Pendleton
Campbell
Boone
Kenton
Gallatin
Carroll
Grant
Trimble
Owen
Henry
Oldham
Harrison
Robertson
Nicholas
Fleming
Bourbon
Scott
Woodford
Jessamine
Clark
Montgomery
Bath
Rowan
Menifee
Powell
Wolfe
Estill
Madison
Garrard
Lee
Owsley
Breathitt
Jackson
Clay
Laurel
Knox
Whitley
Bell
Harlan
Leslie
Perry
Knott
Letcher

Hospitals Interested in Kentucky Trauma System
(November 16, 2009)



ATTACHMENT 4
2008 Kentucky Inpatient and Emergency Department Trauma Data

(Based on Hospital Discharge Data assembled by the Kentucky Hospital Association on contract with the Kentucky Transportation Cabinet and the support of the Kentucky Cabinet for Health and Family Services)

2008 Kentucky Inpatient and Emergency Department Trauma Data

Introduction

The following tables provide a broad overview of 2008 hospital care provided to Kentucky residents whose primary diagnosis was some form of physical trauma. It is important to note that the data sources for these tables are the hospital discharge datasets and emergency department (ED) dataset for all Kentucky hospitals. These figures are not the same as those reported in the Kentucky Trauma Registry, which includes more detailed data from the 4 Kentucky hospitals that have been verified by the American College of Surgeons (ACS) as trauma facilities. As Kentucky moves toward a broader and deeper network for trauma care, review of the full statewide hospital discharge and emergency department datasets gives a comprehensive account of trauma hospitalization in Kentucky. This report sheds light on the magnitude of trauma as a public health issue because it includes many hospitalizations that do not require the services of a full-fledged Level I trauma center. County-specific reports of fewer than 5 patients are not reported in keeping with state data reporting standards that protect the identities of individual patients. The inpatient and ED datasets are notable for their size: on average, 54 Kentuckians are admitted to a hospital for injury care every day, and an additional 595 receive care in a hospital ED.

Inpatient Data

Over three-quarters (78.28%) of hospitalizations were for unintentional injuries, that is, injuries that were not the result of interpersonal or self-directed intention to harm. It is likely that this proportion would be even higher if we had complete information for the 17.95% of trauma hospitalizations for which a cause was not noted (Inpatient Table 1). With regard to cause, falls account for nearly half (49.23%) of all inpatient encounters for traumatic injury where a cause was noted (Inpatient Table 2). Among intentional injuries leading to hospitalization, 70% were classified as the result of assault or attempted homicide (Inpatient Tables 3 and 4). This finding is of interest because as a cause of death, suicide far exceeds homicide, often by ratios between 3:1 and 4:1. The wide divergence between hospitalization and fatality data points to the high rate of lethal injury among attempted suicides in comparison with assaults or homicides. It is also plausible that assailants are less likely to intend the deaths of their victims than those who attempt suicide. Some 7% of those hospitalized for intentional injury could not be distinguished as either attempted homicide or suicide and are thus listed as “undetermined,” while 5 hospitalizations were the result of legal intervention such as being wounded in flight from a law enforcement officer (Inpatient Tables 3 and 4).

The highest percentages of hospitalized patients with trauma diagnoses were aged 65 and older; these individuals accounted for half (50.5%) of all trauma hospitalizations (Inpatient Table 4). This finding is quite different from the age distribution in the Kentucky Trauma Registry, where 61.2% of patients are in the 18-55 age range and only 8.8% are over 65. The difference is primarily the result of including fall-related fractures; the leading cause of inpatient stays in those aged 65 and older. Isolated hip fracture, the most common cause of hospitalization following serious falls in older adults, is not included in the diagnostic categories reported in state trauma registries. This distinction also affects the distribution by gender (Inpatient Table 6), which includes slightly more women (55.6%) than men in the statewide hospital discharge database. For statewide trauma system planning purposes, the inclusion of this large group of older adults has important implications because it identifies a group that can usually be managed safely at community facilities rather than higher-level trauma center.

Trauma accounted for a total of 105,920 inpatient days in 2008, or an average of 5.4 days per patient (Inpatient Table7). While cost data are not reported in the hospital discharge dataset, the well-known

high cost of inpatient care, commonly running to thousands of dollars per day, hints at the enormous financial burden this figure represents. This cost is borne disproportionately by public programs: Medicare, Medicaid, and other government funding sources add up 60% of the total payment mix (Inpatient Table87).

Emergency Department Data

Emergency department (ED) data has been collected statewide in Kentucky only since January 2008, and as is typical in the first year of a data collection initiative, there are some areas where data are incomplete. The amount of data lost because of incomplete reporting at the facility level appears to be small enough to be immaterial with regard to the following analysis.

As with the inpatient data, falls are the most commonly reported cause of injury at 23.79% of the total (ED Table 2). "Overexertion," the second most common cause of injury (14.57%) includes excessive physical effort and injuries due to lifting, pulling and pushing; it is also used for injuries associated with exceeding the tolerance of some part of the musculoskeletal system, such as an ankle sprain. The proportion of missing information regarding the cause of injury is substantially higher in the ED dataset than for inpatient data, with 23.5% of the 216,993 reported ED encounters for traumatic injury missing an indication of cause.

Unintentional injuries again account for the large majority (75.6%) of encounters and would undoubtedly be an even greater majority if cause-of-injury data were available for all ED visits (ED Tables 1, 3 and 5). With regard to the manner of intentional injury, suicide is again a much smaller factor than homicide, in contrast with their relative impact as causes of death (ED Table 5). The age range responsible for the largest proportion of ED visits is the teen and young adult years, with half (50.2%) fall in the 15-year-old to 39-year-old range (ED Table 4). The difference between this finding and the preponderance of older adults in the inpatient dataset may reflect the relative underlying health status of these two age groups because chronic conditions are more common in older age groups. The ED data is roughly equal (49%/51%) with regard to gender (ED Table 6), in contrast with the Kentucky Trauma Registry's 70% male composition.

Payment source data reflects a very different mix for ED trauma visits than for inpatient stays (ED Table 7). Nearly one-fourth (22.7%) of ED visits were billed to Medicaid and an additional 20.5% were classified as either "self-pay" or "charity", categories indicating that the patient had no health insurance. These patients are often covered by either state Disproportionate Share Hospital funding through Medicaid or by the facility itself, ultimately a likely cost-shift to other payers. The total for these two categories, 43.2%, is an important indicator of the burden of traumatic injury on state and local payers.

Conclusion

The Kentucky Hospital Discharge and Emergency Department datasets provide a broad and detailed perspective on traumatic injury across the state. A comprehensive statewide trauma system will help address injury care in a more systematic manner, but a stronger emphasis on prevention in policy and practice will be essential to reduce the toll of injury on the state's residents and its economy.

Prepared by Julia Costich and Shannon Beaven, Ky Injury Prevention and Research Center, Univ. of Kentucky College of Public Health.

Table 1: 2008 KY Inpatient Trauma Cases

Injuries classified by intent

County of Residence	Unintentional	Intentional	Unclassified/Missing	Total
Adair	88	*	16	104
Allen	70	*	20	90
Anderson	64	*	18	82
Ballard	36	0	5	41
Barren	184	*	27	211
Bath	58	*	9	67
Bell	121	6	28	155
Boone	219	7	47	273
Bourbon	50	*	38	88
Boyd	186	*	47	233
Boyle	128	*	28	156
Bracken	26	*	12	38
Breathitt	75	9	25	109
Breckinridge	73	*	15	88
Bullitt	214	12	62	288
Butler	41	*	9	50
Caldwell	67	0	10	77
Calloway	140	5	19	164
Campbell	206	*	43	249
Carlisle	37	*	5	42
Carroll	39	*	11	50
Carter	99	*	14	113
Casey	65	5	12	82
Christian	137	7	12	156
Clark	134	6	48	188
Clay	119	*	31	150
Clinton	82	*	12	94
Crittenden	64	*	8	72
Cumberland	37	*	12	49
Daviess	415	22	74	511
Edmonson	28	0	6	34
Elliott	15	*	0	15
Estill	64	*	18	82
Fayette	666	57	286	1009
Fleming	69	*	15	84
Floyd	143	*	50	193
Franklin	175	7	38	220
Fulton	28	*	*	28

Gallatin	22	*	8	30
Garrard	66	*	8	74

Table 1 cont'd	Unintentional	Intentional	Unclassified/Missing	Total
Grant	60	0	14	74
Graves	234	17	41	292
Grayson	124	6	25	155
Green	57	*	23	80
Greenup	115	*	23	138
Hancock	37	*	6	43
Hardin	326	17	34	377
Harlan	80	*	14	94
Harrison	72	*	12	84
Hart	96	*	11	107
Henderson	132	*	21	153
Henry	91	*	21	112
Hickman	24	0	*	24
Hopkins	251	8	13	272
Jackson	76	*	18	94
Jefferson	2713	248	679	3640
Jessamine	143	6	45	194
Johnson	67	*	19	86
Kenton	295	7	85	387
Knott	74	6	19	99
Knox	126	7	18	151
Larue	48	0	*	48
Laurel	204	11	26	241
Lawrence	41	*	9	50
Lee	32	*	11	43
Leslie	43	*	23	66
Letcher	106	*	34	140
Lewis	36	0	11	47
Lincoln	96	*	23	119
Livingston	64	6	11	81
Logan	79	*	15	94
Lyon	40	*	7	47
McCracken	442	16	35	493
McCreary	65	*	18	83
McLean	50	*	5	55
Madison	177	8	96	281
Magoffin	51	*	5	56
Marion	72	*	34	106
Marshall	162	*	37	199

Martin	21	*	7	28
Mason	59	0	14	73

Table 1 cont'd	Unintentional	Intentional	Unclassified/Missing	Total
Meade	84	*	11	95
Menifee	20	*	6	26
Mercer	112	*	21	133
Metcalfe	58	*	7	65
Monroe	82	*	11	93
Montgomery	82	*	35	117
Morgan	52	*	10	62
Muhlenberg	149	*	14	163
Nelson	202	*	32	234
Nicholas	44	0	10	54
Ohio	97	*	39	136
Oldham	151	10	42	203
Owen	35	*	8	43
Owsley	35	*	11	46
Pendleton	29	*	12	41
Perry	198	19	39	256
Pike	262	12	42	316
Powell	50	0	14	64
Pulaski	296	*	85	381
Robertson	8	0	*	8
Rockcastle	68	7	22	97
Rowan	93	*	8	101
Russell	89	*	24	113
Scott	125	*	34	159
Shelby	103	5	36	144
Simpson	63	*	13	76
Spencer	46	*	7	53
Taylor	120	*	40	160
Todd	23	0	*	23
Trigg	57	*	7	64
Trimble	41	0	6	47
Union	48	*	*	48
Warren	288	7	62	357
Washington	51	*	18	69
Wayne	82	5	19	106
Webster	65	0	*	65
Whitley	257	13	20	290
Wolfe	47	*	10	57
Woodford	83	0	31	114
Total	15426	743	3537	19706

* At least one but less than 5

Table 2: 2008 KY Inpatient Trauma Cases

Unintentional injuries classified by cause

County of Residence	Fall	MVC	Other Transport	Struck by/Against	Over-exertion	Other Causes	Missing	Total
Adair	48	17	*	*	0	17	0	88
Allen	49	8	*	*	*	7	0	70
Anderson	37	10	*	*	*	10	*	64
Ballard	20	10	*	0	*	*	*	36
Barren	130	36	7	0	*	8	*	184
Bath	24	20	*	*	*	7	*	58
Bell	72	16	8	8	6	11	0	121
Boone	165	17	6	*	6	14	9	219
Bourbon	19	17	*	0	0	9	*	50
Boyd	145	18	*	*	*	18	0	186
Boyle	79	19	*	*	*	15	8	128
Bracken	14	7	*	0	*	*	0	26
Breathitt	40	12	9	*	*	11	*	75
Breckinridge	39	21	*	0	0	11	0	73
Bullitt	114	63	13	*	*	18	0	214
Butler	25	8	*	*	0	*	0	41
Caldwell	50	*	6	*	*	8	0	67
Calloway	100	20	6	*	*	10	*	140
Campbell	179	8	*	*	0	10	*	206
Carlisle	29	*	0	0	*	5	*	37
Carroll	17	9	*	*	*	6	0	39
Carter	55	19	*	*	*	14	0	99
Casey	34	12	8	0	0	9	*	65
Christian	88	13	*	*	*	21	6	137
Clark	83	34	*	*	0	11	*	134
Clay	51	25	22	*	*	16	*	119
Clinton	43	14	5	*	0	18	0	82
Crittenden	46	11	*	0	*	*	0	64
Cumberland	21	*	6	*	*	*	*	37
Daviess	287	60	12	6	9	39	*	415
Edmonson	12	7	*	0	0	5	0	28
Elliott	7	6	*	0	*	0	0	15
Estill	35	18	*	0	*	7	0	64
Fayette	425	134	23	12	5	64	*	666
Fleming	32	16	*	5	0	12	0	69
Floyd	84	24	7	*	*	21	*	143
Franklin	124	26	7	7	*	10	0	175

Table 2 cont'd	Fall	MVC	Other Transport	Struck by/Against	Overexertion	Other Causes	Missing	Total
Fulton	19	*	*	0	0	6	0	28
Gallatin	8	7	*	*	0	*	*	22
Garrard	35	20	*	0	0	6	*	66
Grant	38	7	*	*	*	7	*	60
Graves	162	37	16	5	*	8	*	234
Grayson	73	31	5	0	0	12	*	124
Green	39	8	*	0	*	7	0	57
Greenup	89	10	*	6	0	9	0	115
Hancock	25	5	*	*	*	*	0	37
Hardin	197	71	18	7	7	25	*	326
Harlan	45	7	*	*	*	15	*	80
Harrison	50	12	*	*	0	5	0	72
Hart	57	21	*	*	*	8	*	96
Henderson	78	30	7	*	*	12	0	132
Henry	46	25	12	*	*	5	0	91
Hickman	13	*	*	*	0	*	0	24
Hopkins	184	21	10	6	*	26	*	251
Jackson	26	28	*	5	0	7	7	76
Jefferson	1811	512	51	61	39	231	8	2713
Jessamine	73	41	9	*	0	13	*	143
Johnson	50	6	*	0	*	6	*	67
Kenton	233	19	7	5	12	18	*	295
Knott	44	10	8	*	0	10	*	74
Knox	74	22	12	6	0	12	0	126
Larue	32	11	*	0	*	*	0	48
Laurel	99	49	12	*	5	20	15	204
Lawrence	27	*	*	*	*	6	*	41
Lee	11	12	5	*	0	*	*	32
Leslie	24	7	*	*	*	5	*	43
Letcher	62	19	6	*	*	12	*	106
Lewis	23	9	*	0	*	*	0	36
Lincoln	43	24	11	*	*	9	5	96
Livingston	42	8	9	*	0	*	*	64
Logan	59	*	*	*	0	10	*	79
Lyon	31	*	*	*	*	*	*	40
McCracken	312	66	13	*	11	26	10	442
McCreary	41	13	*	*	*	5	0	65
McLean	36	5	*	*	*	*	*	50
Madison	92	54	13	*	*	7	6	177
Magoffin	26	6	*	0	*	13	*	51

Table 2 cont'd	Fall	MVC	Other Transport	Struck by/Against	Overexertion	Other Causes	Missing	Total
Marion	43	17	5	0	0	7	0	72
Marshall	110	26	11	*	*	9	*	162
Martin	9	5	0	*	0	5	*	21
Mason	33	13	6	0	0	7	0	59
Meade	41	33	*	*	0	6	*	84
Menifee	9	6	*	*	0	0	*	20
Mercer	74	24	*	*	0	8	*	112
Metcalfe	37	10	*	*	*	6	0	58
Monroe	61	11	*	*	*	5	0	82
Montgomery	33	31	5	5	*	*	6	82
Morgan	24	12	*	0	*	9	*	52
Muhlenberg	101	14	5	*	*	18	9	149
Nelson	130	35	9	8	*	18	*	202
Nicholas	22	11	*	*	0	5	*	44
Ohio	48	27	8	*	0	12	0	97
Oldham	89	32	8	*	*	15	*	151
Owen	20	7	0	*	0	5	*	35
Owsley	21	7	*	0	0	*	*	35
Pendleton	17	5	*	0	*	*	0	29
Perry	118	42	11	*	*	18	*	198
Pike	150	48	17	12	*	22	10	262
Powell	21	18	5	*	0	*	*	50
Pulaski	159	82	14	8	5	27	*	296
Robertson	8	0	0	0	0	0	0	8
Rockcastle	37	19	*	0	*	6	*	68
Rowan	60	16	0	*	*	11	0	93
Russell	51	18	8	*	*	*	5	89
Scott	58	41	8	5	*	12	0	125
Shelby	46	24	11	8	*	13	0	103
Simpson	54	*	0	*	0	*	0	63
Spencer	23	17	0	*	0	5	0	46
Taylor	82	22	*	*	*	9	0	120
Todd	15	0	*	*	0	*	*	23
Trigg	44	*	*	0	0	6	*	57
Trimble	16	13	*	*	0	7	0	41
Union	29	9	*	*	*	6	0	48
Warren	224	21	7	9	*	23	*	288
Washington	24	15	*	*	0	6	*	51
Wayne	47	24	7	0	0	*	0	82
Webster	32	13	*	*	*	12	0	65

Table 2 cont'd	Fall	MVC	Other Transport	Struck by/Against	Overexertion	Other Causes	Missing	Total
Whitley	156	39	13	*	7	40	*	257
Wolfe	26	7	9	0	0	5	0	47
Woodford	37	23	11	*	0	8	*	83
Total	9690	2849	705	333	216	1435	198	15426

* At least one but less than 5

Table 3: 2008 KY Inpatient Trauma Cases

Intentional injuries classified by manner

County of Residence	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Adair	0	*	0	16	16
Allen	0	*	0	20	20
Anderson	0	*	0	18	18
Ballard	0	0	0	5	5
Barren	*	*	0	27	27
Bath	0	*	0	9	9
Bell	*	*	0	28	28
Boone	*	5	0	47	52
Bourbon	*	*	0	38	38
Boyd	*	*	0	47	47
Boyle	*	*	0	28	28
Bracken	0	*	0	12	12
Breathitt	5	*	0	25	30
Breckinridge	0	*	0	15	15
Bullitt	*	9	0	62	71
Butler	0	*	0	9	9
Caldwell	0	0	0	10	10
Calloway	*	*	0	19	19
Campbell	*	*	0	43	43
Carlisle	0	*	0	5	5
Carroll	*	*	0	11	11
Carter	*	*	0	14	14
Casey	*	*	0	12	12
Christian	*	5	0	12	17
Clark	0	6	0	48	54
Clay	*	*	0	31	31
Clinton	*	*	0	12	12
Crittenden	*	0	0	8	8
Cumberland	*	0	0	12	12
Daviess	8	14	0	74	96
Edmonson	0	0	0	6	6
Elliott	*	0	0	0	0
Estill	0	*	0	18	18
Fayette	6	51	0	286	343
Fleming	*	*	0	15	15
Floyd	*	*	*	50	50
Franklin	0	7	0	38	45

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Fulton	*	*	0	*	0
Gallatin	*	0	0	8	8
Garrard	*	0	0	8	8
Grant	0	0	0	14	14
Graves	7	10	0	41	58
Grayson	5	*	0	25	30
Green	0	*	0	23	23
Greenup	*	*	0	23	23
Hancock	0	*	*	6	6
Hardin	5	12	0	34	51
Harlan	0	*	0	14	14
Harrison	*	*	0	12	12
Hart	*	*	0	11	11
Henderson	*	*	0	21	21
Henry	0	*	0	21	21
Hickman	0	0	0	*	0
Hopkins	*	*	0	13	13
Jackson	0	*	0	18	18
Jefferson	27	221	0	679	927
Jessamine	0	5	*	45	50
Johnson	*	*	0	19	19
Kenton	*	5	0	85	90
Knott	*	5	0	19	24
Knox	*	6	0	18	24
Larue	0	0	0	*	0
Laurel	*	9	0	26	35
Lawrence	0	*	0	9	9
Lee	*	*	0	11	11
Leslie	*	*	0	23	23
Letcher	*	*	0	34	34
Lewis	0	0	0	11	11
Lincoln	*	*	0	23	23
Livingston	*	*	0	11	11
Logan	0	*	0	15	15
Lyon	*	*	0	7	7
McCracken	*	12	0	35	47
McCreary	0	0	*	18	18
McLean	0	*	0	5	5
Madison	*	5	0	96	101
Magoffin	0	*	0	5	5

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Marion	0	*	0	34	34
Marshall	0	*	0	37	37
Martin	0	*	0	7	7
Mason	0	0	0	14	14
Meade	0	*	0	11	11
Menifee	*	0	0	6	6
Mercer	*	0	0	21	21
Metcalfe	*	*	0	7	7
Monroe	0	*	0	11	11
Montgomery	0	*	0	35	35
Morgan	0	*	0	10	10
Muhlenberg	0	*	0	14	14
Nelson	*	*	0	32	32
Nicholas	0	0	0	10	10
Ohio	*	0	0	39	39
Oldham	*	6	0	42	48
Owen	*	*	0	8	8
Owsley	*	*	0	11	11
Pendleton	0	*	0	12	12
Perry	13	6	0	39	58
Pike	*	10	0	42	52
Powell	0	0	0	14	14
Pulaski	*	*	0	85	85
Robertson	0	0	0	*	0
Rockcastle	*	*	0	22	22
Rowan	*	*	0	8	8
Russell	*	*	0	24	24
Scott	*	*	0	34	34
Shelby	*	*	0	36	36
Simpson	0	*	0	13	13
Spencer	0	*	0	7	7
Taylor	0	*	*	40	40
Todd	0	0	0	*	0
Trigg	0	*	0	7	7
Trimble	0	0	0	6	6
Union	*	0	0	*	0
Warren	*	5	0	62	67
Washington	0	*	0	18	18
Wayne	*	*	0	19	19
Webster	0	0	0	*	0

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Whitley	*	10	0	20	30
Wolfe	*	0	0	10	10
Woodford	0	0	0	31	31
Total	179	559	5	3537	4280

* At least one but less than 5

2008 KY Inpatient Trauma Cases from HDD

Table 4: Statewide Age Distribution

Age	Frequency	Percent
<1	101	0.5
1-4	225	1.1
5-9	254	1.3
10-14	325	1.6
15-19	763	3.9
20-24	766	3.9
25-29	733	3.7
30-34	703	3.6
35-39	708	3.6
40-44	862	4.4
45-49	1,028	5.2
50-54	1,084	5.5
55-59	1,053	5.3
60-64	1,131	5.7
65-69	1,271	6.4
70-74	1,424	7.2
75-79	1,833	9.3
80-84	2,195	11.1
85+	3,247	16.5
Total	19,706	100.0

Table 5: Statewide Summary by Manner

Manner	Fequency	Percent
Unintentional	15,426	78.3
Suicide	179	.9
Homicide/Assault	559	2.8
Undetermined	56	.3
Legal/War	5	.0
Missing	3,481	17.7
Total	19,706	100.0

Table 6: Statewide Summary by Gender

Gender	Frequency	Percent
Female	10,951	55.6
Male	8,755	44.4
Total	19,706	100.0

Table 7: Length of Stay

Length of Stay	Frequency	Percent
1 day	2,606	13.2
2-6 days	12,490	63.4
7-13 days	3,455	17.5
14-20 days	643	3.3
21-30 days	306	1.6
31-60 days	176	.9
> 60 days	30	.2
Total	19,706	100.0

Total days 105,920

Mean LOS = 5.4 days

Table 8: Primary Payment Source

Primary Payer	Frequency	Percent
Self Pay	924	4.7
Workers Comp	182	.9
Medicare	9,917	50.4
Medicaid	1,379	7.0
Other Federal Program	15	.1
CHAMPUS	97	.5
Commercial	5,933	30.1
Medicaid Managed Care	399	2.0
Other	781	4.0
Charity	79	.4
Total	19,706	100.0

Table 1: 2008 KY Outpatient Trauma Cases

Injuries classified by intent

County of Residence	Unintentional	Intentional	Unclassified/Missing	Total
Adair	1305	59	102	1466
Allen	1094	35	240	1369
Anderson	710	23	176	909
Ballard	229	*	42	273
Barren	1106	45	376	1527
Bath	1018	10	159	1187
Bell	1890	50	525	2465
Boone	3839	139	344	4322
Bourbon	852	42	463	1357
Boyd	3192	115	1949	5256
Boyle	630	21	222	873
Bracken	290	21	116	427
Breathitt	620	5	136	761
Breckinridge	822	19	131	972
Bullitt	1124	52	1958	3134
Butler	280	8	44	332
Caldwell	422	11	88	521
Calloway	1164	34	108	1306
Campbell	3466	190	279	3935
Carlisle	184	*	39	225
Carroll	981	35	335	1351
Carter	1110	57	424	1591
Casey	784	22	234	1040
Christian	1834	123	413	2370
Clark	1029	69	1266	2364
Clay	1394	49	453	1896
Clinton	699	18	68	785
Crittenden	331	8	139	478
Cumberland	404	13	184	601
Daviess	3587	181	829	4597
Edmonson	267	*	41	312
Elliott	250	8	63	321
Estill	1184	25	179	1388
Fayette	7703	442	2507	10652
Fleming	791	21	121	933
Floyd	2433	57	225	2715
Franklin	1773	96	431	2300
Fulton	187	8	19	214

Table 1 cont'd	Unintentional	Intentional	Unclassified/Missing	Total
Gallatin	463	24	88	575
Garrard	401	9	284	694
Grant	2287	70	171	2528
Graves	1776	40	496	2312
Grayson	1371	29	349	1749
Green	863	36	188	1087
Greenup	1450	43	927	2420
Hancock	198	*	28	230
Hardin	4930	170	771	5871
Harlan	1420	48	267	1735
Harrison	1172	54	309	1535
Hart	349	10	118	477
Henderson	1766	40	189	1995
Henry	467	12	367	846
Hickman	111	*	33	145
Hopkins	2395	79	47	2521
Jackson	499	22	143	664
Jefferson	22591	1393	9613	33597
Jessamine	1332	72	321	1725
Johnson	1643	24	64	1731
Kenton	7575	493	662	8730
Knott	517	18	69	604
Knox	904	19	468	1391
Larue	764	25	109	898
Laurel	2869	110	427	3406
Lawrence	489	13	187	689
Lee	389	17	80	486
Leslie	590	13	177	780
Letcher	1150	32	146	1328
Lewis	300	6	88	394
Lincoln	544	26	605	1175
Livingston	408	8	74	490
Logan	993	38	151	1182
Lyon	199	*	41	243
McCracken	2900	114	668	3682
McCreary	318	18	80	416
McLean	362	13	45	420
Madison	3753	179	968	4900
Magoffin	668	17	22	707
Marion	398	23	669	1090

Table 1 cont'd	Unintentional	Intentional	Unclassified/Missing	Total
Marshall	1117	13	609	1739
Martin	439	18	39	496
Mason	547	21	233	801
Meade	617	12	87	716
Menifee	503	*	74	581
Mercer	815	15	420	1250
Metcalfe	376	9	119	504
Monroe	682	22	113	817
Montgomery	2653	26	425	3104
Morgan	748	23	105	876
Muhlenberg	1511	43	201	1755
Nelson	1853	63	294	2210
Nicholas	463	13	137	613
Ohio	785	14	94	893
Oldham	1261	32	226	1519
Owen	455	12	37	504
Owsley	193	10	57	260
Pendleton	803	24	64	891
Perry	879	34	229	1142
Pike	1419	47	342	1808
Powell	749	13	343	1105
Pulaski	2651	105	659	3415
Robertson	90	*	19	110
Rockcastle	926	30	90	1046
Rowan	1653	44	229	1926
Russell	999	29	113	1141
Scott	2174	102	482	2758
Shelby	308	14	1419	1741
Simpson	467	23	248	738
Spencer	260	7	442	709
Taylor	1183	48	610	1841
Todd	242	7	42	291
Trigg	139	9	23	171
Trimble	277	10	84	371
Union	851	15	43	909
Warren	2889	123	536	3548
Washington	295	10	240	545
Wayne	859	26	100	985
Webster	623	16	22	661
Whitley	2275	78	425	2778

Table 1 cont'd	Unintentional	Intentional	Unclassified/Missing	Total
Wolfe	399	18	77	494
Woodford	990	24	244	1258
Total	163970	6691	46332	216993

* At least one but less than 5

Table 2: 2008 KY Outpatient Trauma Cases

Unintentional injuries classified by cause

County of Residence	Fall	Over-exertion	MVC	Struck by/Against	Cut/Pierce	Other Causes	Missing	Total
Adair	438	247	133	144	142	194	7	1305
Allen	399	136	131	77	133	217	*	1094
Anderson	184	196	107	83	41	95	*	710
Ballard	83	57	33	12	7	37	0	229
Barren	357	211	212	117	59	148	*	1106
Bath	144	105	36	51	35	89	558	1018
Bell	694	422	206	159	87	321	*	1890
Boone	1230	874	610	476	125	483	41	3839
Bourbon	256	171	123	80	40	148	34	852
Boyd	1524	314	483	302	105	416	48	3192
Boyle	179	117	98	63	18	152	*	630
Bracken	87	49	48	39	18	44	5	290
Breathitt	209	115	95	62	28	109	*	620
Breckinridge	311	138	132	80	40	121	0	822
Bullitt	341	220	292	103	49	114	5	1124
Butler	89	61	57	16	14	43	0	280
Caldwell	165	80	35	45	39	58	0	422
Calloway	300	242	139	124	108	251	0	1164
Campbell	1139	939	455	391	141	378	23	3466
Carlisle	55	40	29	28	8	24	0	184
Carroll	330	216	97	129	67	140	*	981
Carter	380	155	228	91	71	171	14	1110
Casey	178	109	97	102	115	182	*	784
Christian	670	268	305	233	99	254	5	1834
Clark	479	114	165	49	12	129	81	1029
Clay	392	253	285	115	92	241	16	1394
Clinton	263	71	67	71	46	178	*	699
Crittenden	130	50	47	32	8	64	0	331
Cumberland	93	72	34	25	14	44	122	404
Daviess	1126	836	560	306	164	592	*	3587
Edmonson	82	33	69	22	16	45	0	267
Elliott	73	36	48	16	31	41	5	250
Estill	379	298	159	134	43	168	*	1184
Fayette	2625	1458	1234	985	415	932	54	7703
Fleming	298	108	76	104	54	138	13	791
Floyd	588	448	334	179	127	563	194	2433
Franklin	474	461	328	195	103	205	7	1773

Table 2 cont'd	Fall	Overexertion	MVC	Struck by/Against	Cut/Pierce	Other Causes	Missing	Total
Fulton	60	33	27	17	10	39	*	187
Gallatin	142	110	61	47	26	77	0	463
Garrard	127	58	83	40	16	68	9	401
Grant	757	517	236	280	95	393	9	2287
Graves	528	553	220	162	105	204	*	1776
Grayson	441	217	217	147	89	258	*	1371
Green	352	76	96	126	95	117	*	863
Greenup	643	163	245	148	55	179	17	1450
Hancock	63	41	37	20	*	33	0	198
Hardin	1557	817	817	725	476	528	10	4930
Harlan	366	291	202	167	90	301	*	1420
Harrison	392	284	142	132	56	158	8	1172
Hart	103	48	69	31	37	61	0	349
Henderson	552	375	262	169	114	294	0	1766
Henry	122	130	84	59	12	60	0	467
Hickman	37	24	9	12	5	24	0	111
Hopkins	667	523	311	196	106	585	7	2395
Jackson	116	104	73	53	33	102	18	499
Jefferson	6892	4538	5458	2173	752	2698	80	22591
Jessamine	428	250	234	184	58	169	9	1332
Johnson	430	319	236	133	69	444	12	1643
Kenton	2622	1707	855	959	272	1127	33	7575
Knott	134	92	106	38	22	102	23	517
Knox	272	178	170	73	48	159	*	904
Larue	255	109	101	112	86	98	*	764
Laurel	818	554	477	297	183	439	101	2869
Lawrence	146	83	81	50	28	98	*	489
Lee	141	69	66	37	16	57	*	389
Leslie	160	65	82	50	45	159	29	590
Letcher	293	184	181	118	77	295	*	1150
Lewis	105	39	60	25	10	55	6	300
Lincoln	152	77	138	50	21	105	*	544
Livingston	139	58	71	27	23	89	*	408
Logan	302	286	152	100	74	78	*	993
Lyon	88	35	28	10	11	27	0	199
McCracken	1050	614	432	222	124	456	*	2900
McCreary	104	41	83	34	10	46	0	318
McLean	117	85	45	39	12	63	*	362
Madison	1259	761	536	429	155	557	56	3753
Magoffin	158	112	118	50	38	178	14	668

Table 2 cont'd	Fall	Overexertion	MVC	Struck by/Against	Cut/Pierce	Other Causes	Missing	Total
Marion	187	34	114	11	7	45	0	398
Marshall	417	189	195	82	41	192	*	1117
Martin	89	78	106	45	17	95	9	439
Mason	189	83	91	55	38	88	*	547
Meade	199	82	145	72	36	80	*	617
Menifee	62	48	37	19	13	41	283	503
Mercer	289	148	118	74	41	142	*	815
Metcalfe	129	68	74	35	24	41	5	376
Monroe	238	117	60	102	37	126	*	682
Montgomery	160	92	57	62	18	80	2184	2653
Morgan	220	136	82	85	84	120	21	748
Muhlenberg	519	246	187	176	90	292	*	1511
Nelson	627	384	389	167	107	178	*	1853
Nicholas	136	66	48	59	48	82	24	463
Ohio	259	182	108	53	50	132	*	785
Oldham	398	297	191	161	61	149	*	1261
Owen	129	93	46	65	54	66	*	455
Owsley	72	33	30	17	10	30	*	193
Pendleton	257	183	142	97	25	97	*	803
Perry	214	151	257	71	43	140	*	879
Pike	357	324	190	140	121	275	12	1419
Powell	144	42	60	24	9	41	429	749
Pulaski	884	442	540	247	129	404	5	2651
Robertson	33	13	13	11	8	12	0	90
Rockcastle	264	176	112	67	83	217	7	926
Rowan	445	433	154	165	189	225	42	1653
Russell	320	207	120	114	75	161	*	999
Scott	643	620	349	207	112	234	9	2174
Shelby	68	63	72	30	26	48	*	308
Simpson	194	48	79	43	33	69	*	467
Spencer	72	45	62	31	9	41	0	260
Taylor	441	217	124	176	80	144	*	1183
Todd	83	43	38	35	17	25	*	242
Trigg	63	14	20	13	1\	28	0	138
Trimble	89	64	35	20	15	54	0	277
Union	266	144	78	123	68	172	0	851
Warren	832	667	614	274	175	318	9	2889
Washington	121	43	77	16	11	27	0	295
Wayne	275	112	117	91	113	150	*	859
Webster	191	126	88	74	31	112	*	623

Table 2 cont'd	Fall	Overexertion	MVC	Struck by/Against	Cut/Pierce	Other Causes	Missing	Total
Whitley	738	416	399	213	135	360	14	2275
Wolfe	146	52	64	35	21	61	20	399
Woodford	271	259	129	134	43	150	*	990
Total	51564	31620	26499	16772	8620	24053	4842	163970

* At least one but less than 5

Table 3: 2008 KY Outpatient Trauma Cases

Intentional injuries classified by manner

County of Residence	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Adair	5	54	0	102	161
Allen	*	33	0	240	275
Anderson	0	23	0	176	199
Ballard	0	*	0	42	44
Barren	*	43	0	376	421
Bath	*	9	0	159	169
Bell	*	45	*	525	575
Boone	9	124	6	344	483
Bourbon	*	38	0	463	505
Boyd	6	109	0	1949	2064
Boyle	*	19	0	222	243
Bracken	*	18	0	116	137
Breathitt	0	5	0	136	141
Breckinridge	*	17	0	131	150
Bullitt	*	48	*	1958	2010
Butler	0	7	*	44	52
Caldwell	*	10	0	88	99
Calloway	*	32	0	108	142
Campbell	12	175	*	279	469
Carlisle	0	*	0	39	41
Carroll	5	29	*	335	370
Carter	7	49	*	424	481
Casey	0	22	0	234	256
Christian	8	109	6	413	536
Clark	6	62	*	1266	1335
Clay	*	47	0	453	502
Clinton	0	18	0	68	86
Crittenden	0	8	0	139	147
Cumberland	0	13	0	184	197
Daviess	*	176	*	829	1010
Edmonson	*	*	0	41	45
Elliott	0	8	0	63	71
Estill	*	23	0	179	204
Fayette	16	416	10	2507	2949
Fleming	5	16	0	121	142
Floyd	*	56	0	225	282
Franklin	*	93	*	431	527
Fulton	0	8	0	19	27

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Gallatin	*	21	*	88	112
Garrard	0	9	0	284	293
Grant	*	63	*	171	241
Graves	*	39	0	496	536
Grayson	*	25	0	349	378
Green	*	34	0	188	224
Greenup	*	41	0	927	970
Hancock	0	*	0	28	32
Hardin	7	162	*	771	941
Harlan	*	43	*	267	315
Harrison	*	50	0	309	363
Hart	0	10	0	118	128
Henderson	5	33	*	189	229
Henry	*	10	0	367	379
Hickman	0	*	0	33	34
Hopkins	*	75	*	47	126
Jackson	0	22	0	143	165
Jefferson	56	1313	24	9613	11006
Jessamine	*	69	0	321	393
Johnson	*	21	*	64	88
Kenton	19	460	14	662	1155
Knott	*	17	0	69	87
Knox	*	15	*	468	487
Larue	*	24	0	109	134
Laurel	6	103	*	427	537
Lawrence	0	13	0	187	200
Lee	0	17	0	80	97
Leslie	*	12	0	177	190
Letcher	*	31	0	146	178
Lewis	0	6	0	88	94
Lincoln	*	25	0	605	631
Livingston	0	8	0	74	82
Logan	*	32	5	151	189
Lyon	0	*	0	41	44
McCracken	*	112	0	668	782
McCreary	*	17	0	80	98
McLean	*	12	0	45	58
Madison	8	170	*	968	1147
Magoffin	*	16	0	22	39
Marion	0	23	0	669	692

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Marshall	*	11	0	609	622
Martin	0	18	0	39	57
Mason	*	17	*	233	254
Meade	0	12	0	87	99
Menifee	0	*	0	74	78
Mercer	0	15	0	420	435
Metcalfe	0	9	0	119	128
Monroe	0	22	0	113	135
Montgomery	*	23	0	425	451
Morgan	*	22	0	105	128
Muhlenberg	*	41	0	201	244
Nelson	*	58	*	294	357
Nicholas	0	12	*	137	150
Ohio	0	14	0	94	108
Oldham	*	30	0	226	258
Owen	0	12	0	37	49
Owsley	0	10	0	57	67
Pendleton	0	24	0	64	88
Perry	*	30	*	229	263
Pike	5	42	0	342	389
Powell	*	11	0	343	356
Pulaski	6	99	0	659	764
Robertson	0	*	0	19	20
Rockcastle	*	29	0	90	120
Rowan	*	43	0	229	273
Russell	*	25	*	113	142
Scott	*	99	*	482	584
Shelby	5	9	0	1419	1433
Simpson	0	23	0	248	271
Spencer	0	7	0	442	449
Taylor	*	47	0	610	658
Todd	0	7	0	42	49
Trigg	0	9	0	23	32
Trimble	0	10	0	84	94
Union	0	14	*	43	58
Warren	9	111	*	536	659
Washington	0	10	0	240	250
Wayne	0	25	*	100	126
Webster	0	16	0	22	38

Table 3 cont'd	Suicide	Homicide/Assault	Legal	Unclassified/Missing	Total
Whitley	0	78	0	425	503
Wolfe	*	16	0	77	95
Woodford	*	23	0	244	268
Total	319	6268	104	46332	53023

* At least one but less than 5

2008 KY ED Trauma Cases from HDD

Table 4: Statewide Age Distribution

Age	Frequency	Percent
<1	1,183	0.5
1-4	9,382	4.3
5-9	9,430	4.3
10-14	15,380	7.1
15-19	21,990	10.1
20-24	23,332	10.8
25-29	24,503	11.3
30-34	20,547	9.5
35-39	18,425	8.5
40-44	16,382	7.5
45-49	14,895	6.9
50-54	11,587	5.3
55-59	7,864	3.6
60-64	5,559	2.6
65-69	4,105	1.9
70-74	3,253	1.5
75-79	3,054	1.4
80-84	2,835	1.3
85+	3,287	1.5
Total	216,993	100.0

Table 5: Statewide Summary by Manner

Manner	Fequency	Percent
Unintentional	163,970	75.6
Suicide	319	.1
Homicide/Assault	6,268	2.9
Undetermined	191	.1
Legal/War	104	.0
Missing	46,141	21.3
Total	216,993	100.0

Table 6: Statewide Summary by Gender

Gender	Frequency	Percent
Female	106,428	49.0
Male	110,558	51.0
Missing	7	.0
Total	216,993	100.0

Table 7: Primary Payment Source

Primary Payer	Frequency	Percent
Self Pay	43,217	19.9
Workers Comp	2,453	1.1
Medicare	22,918	10.6
Medicaid	38,415	17.7
Medicaid Mgd Care	10,815	5.0
Other Fed Program	853	0.4
Commercial	84,295	38.8
CHAMPUS	1,968	0.9
Other	10,859	5.0
Charity	1,200	0.6
Total	216,993	100

ATTACHMENT 5
KY Trauma Advisory Committee
Appointee Listing

Title	First Name	Last Name	Suffex	Representative for	Organization	Yrs	Expires
Dr.	William	Barnes	MD	KY Medical Association	Livingston Hospital	4	10/21/2012
Mr.	Richard	Bartlett	BS, MEd	KY Hospital Association	KY Hospital Association	3	10/21/2011
Dr.	Andrew	Bernard	MD, FACS	ACS, KY COT	UK Trauma	4	10/21/2012
Dr.	Julia	Costich	JD, PhD	Injury Prevention Programs	KIPRC	4	6/4/2013
Dr.	Mary	Fallat	MD	Pediatric trauma	Pediatric Surgery, UofL	2	10/21/2010
Mr.	Terence	Farrell	-	Level-II Trauma Center	Pikeville Hospital	3	10/21/2011
Dr.	Glen	Franklin	MD	UofL Level-I Trauma Center	UofL Dept. of Surgery	2	10/21/2010
Ms.	Lisa	Fryman	RN	UK Level-I Trauma Center	UK Trauma Center	2	10/21/2010
Mrs.	Linda	Gayheart	-	At Large	Citizen/consumer	4	10/21/2012
Mr.	Chuck	Geveden	-	KY Transportation Cab.	Office of Highway Safety	3	10/21/2011
Dr.	William	Hacker	MD	KY Dept for Public Health	Commissioner for Public Health	4	10/21/2012
Ms.	Sharon	Mercer	RN, MSN	KY Board of Nursing	KY Board of Nursing	3	10/21/2011
Dr.	Earl	Motzer	PhD	Level-IV Trauma Center	James B. Haggin Mem Hosp	2	10/21/2010
Mr.	Charles	O'Neal	-	KY Board of EMS	KyEM (**See note below)	4	10/21/2012
Mrs.	Charlotte	O'Neal	RN, MSN	Emergency Nurses Assn	Frankfort Reg Med Center	3	10/21/2011
Dr.	Christopher	Pund	MD	ACEP, KY Chapter	Marshall Emerg Serv Assoc	2	10/21/2010
Ms.	Susan	Starling	-	At Large	Marcum & Wallace Hospital	4	6/4/2013
Dr.	Russell	Travis	MD	KY Bd of Medical Lic.	KY Bd of Medical Lic.	4	10/21/2012
Ms.	Carol	Wright	RN	Level-III Trauma Center	Taylor Regional Hospital	3	10/21/2011

**Note: *[Mr. O'Neal was asked to continue representing KBEMS in the interim until a replacement is named to fill his official position on the Board's staff.]*

The elected officers for the group have been:

Chair: Dr. Andrew Bernard, University of KY Trauma Center
Vice Chair: Charles O'Neal, KY Board of EMS (now with KY Emergency Management)
Secretary: Richard Bartlett, KY Hospital Association

ATTACHMENT 6
KyTAC Trauma Protocol Centers
Sample Regional Trauma Triage Protocol

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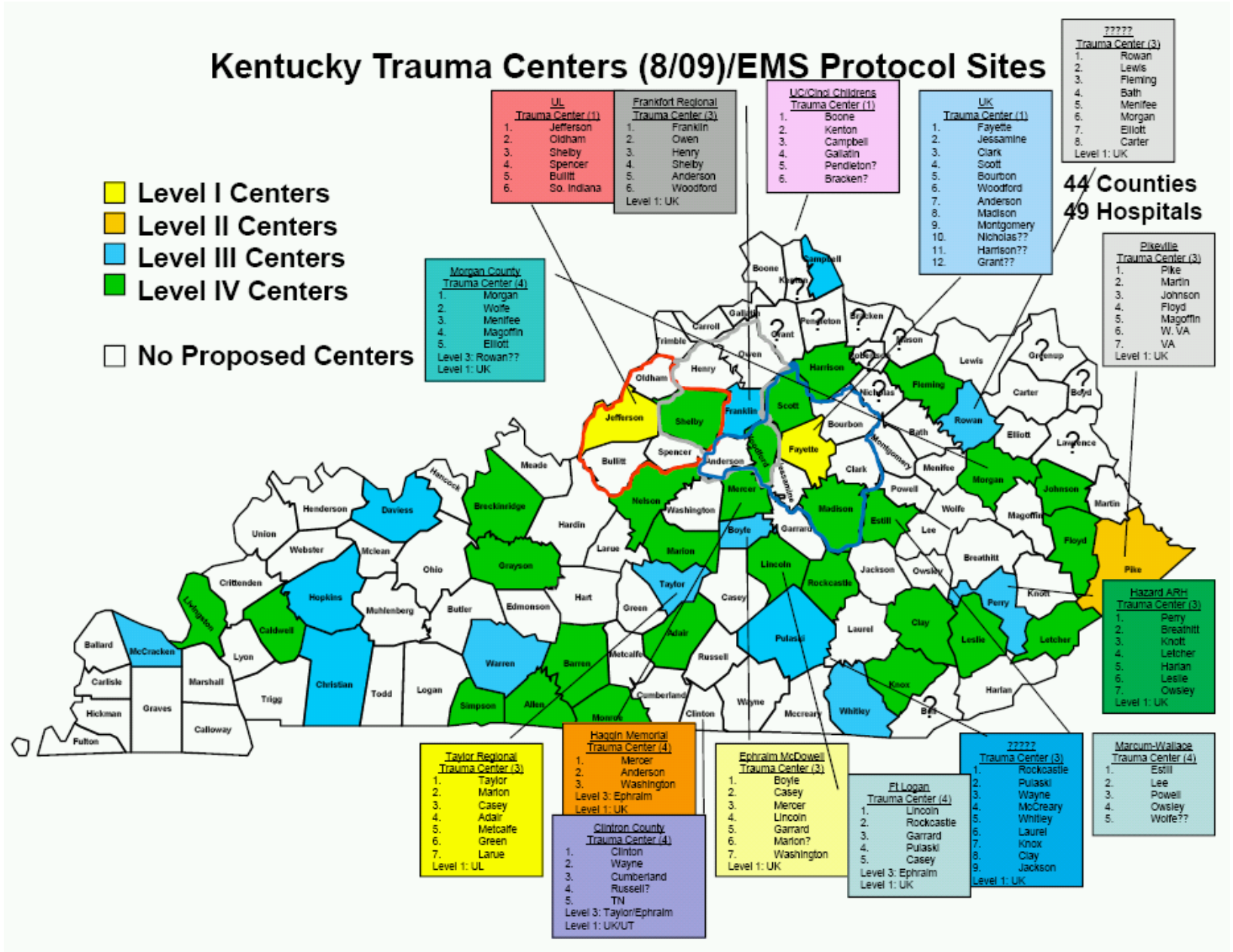
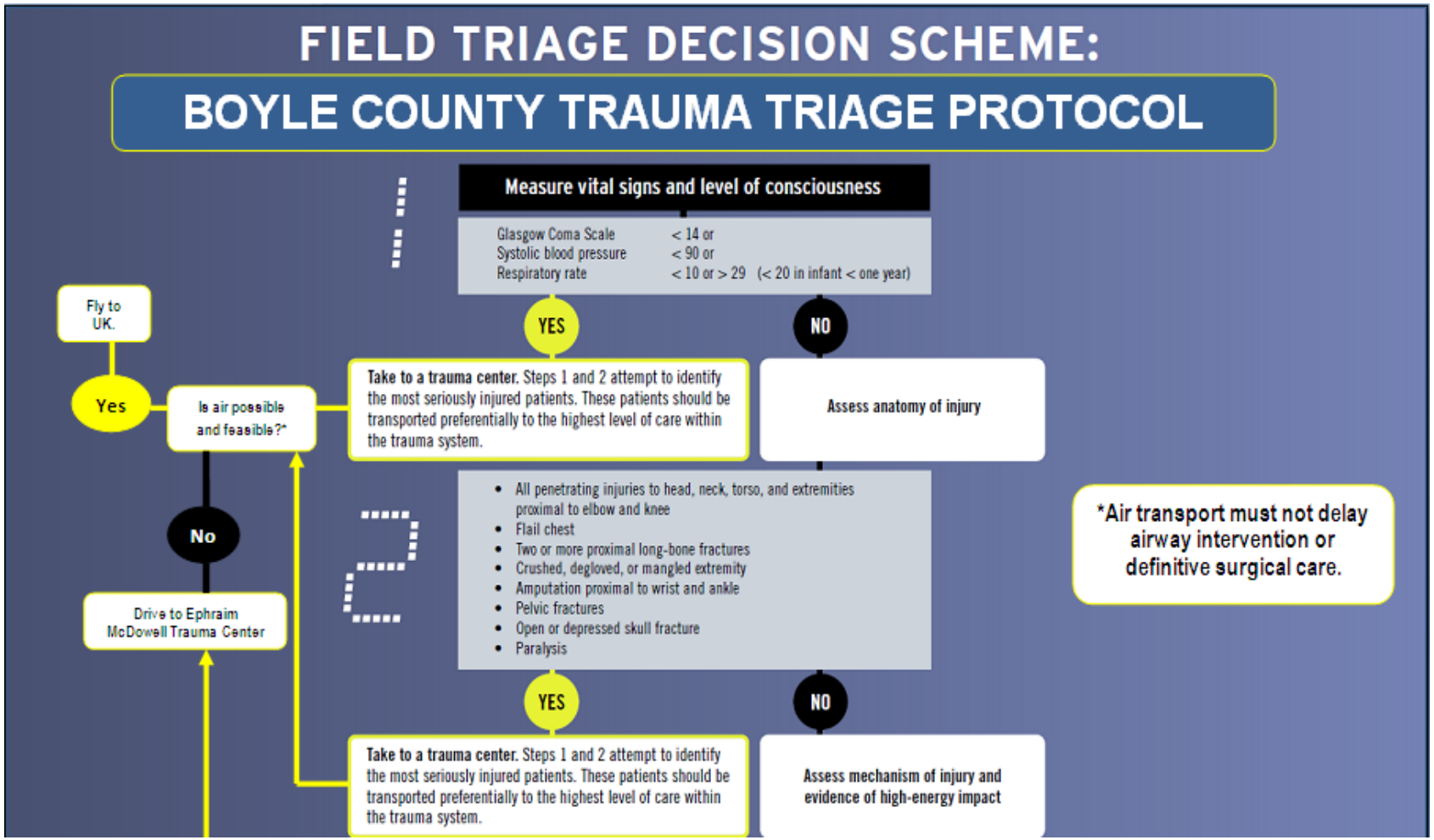
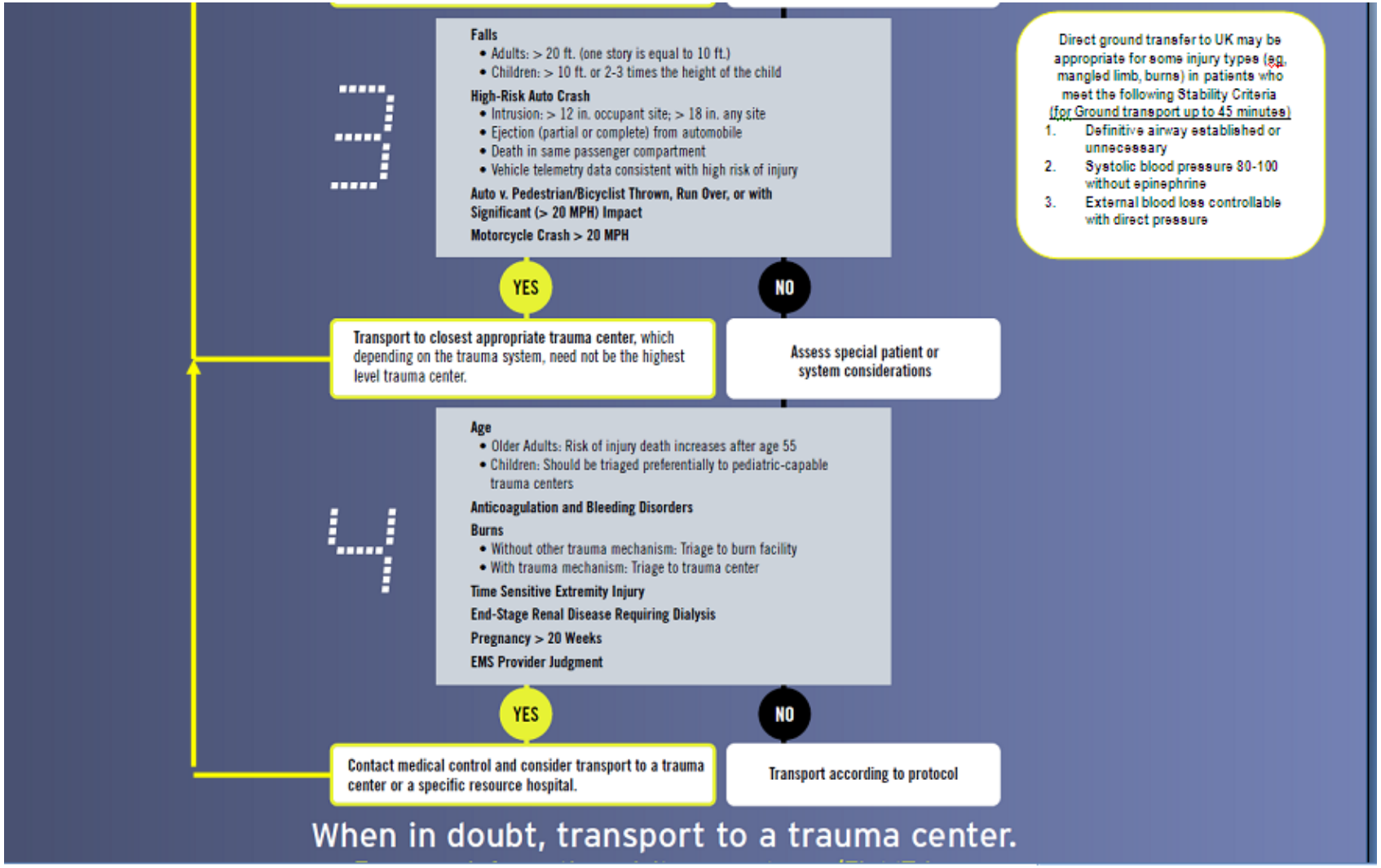

Kentucky Trauma Centers (8/09)/EMS Protocol Sites
Level I Centers
Level II Centers
Level III Centers
Level IV Centers
No Proposed Centers
44 Counties
49 Hospitals
UL
Trauma Center (1)
1. Jefferson
2. Oldham
3. Shelby
4. Spencer
5. Bullitt
6. So. Indiana
Frankfort Regional
Trauma Center (3)
1. Franklin
2. Owen
3. Henry
4. Shelby
5. Anderson
6. Woodford
Level 1: UK
UC/Cinci Childrens
Trauma Center (1)
1. Boone
2. Kenton
3. Campbell
4. Gallatin
5. Pendleton?
6. Bracken?
UK
Trauma Center (1)
1. Fayette
2. Jessamine
3. Clark
4. Scott
5. Bourbon
6. Woodford
7. Anderson
8. Madison
9. Montgomery
10. Nicholas??
11. Harrison??
12. Grant??
?????
Trauma Center (3)
1. Rowan
2. Lewis
3. Fleming
4. Bath
5. Menifee
6. Morgan
7. Elliott
8. Carter
Level 1: UK
Pikeville
Trauma Center (3)
1. Pike
2. Martin
3. Johnson
4. Floyd
5. Magoffin
6. W. VA
7. VA
Level 1: UK
Morgan County
Trauma Center (4)
1. Morgan
2. Wolfe
3. Menifee
4. Magoffin
5. Elliott
Level 3: Rowan??
Level 1: UK
Hazard ARH
Trauma Center (3)
1. Perry
2. Breathitt
3. Knott
4. Letcher
5. Harlan
6. Leslie
7. Owsley
Level 1: UK
Taylor Regional
Trauma Center (3)
1. Taylor
2. Marion
3. Casey
4. Adair
5. Metcalfe
6. Green
7. Larue
Level 1: UL
Hagolin Memorial
Trauma Center (4)
1. Mercer
2. Anderson
3. Washington
Level 3: Ephraim
Level 1: UK
Clinton County
Trauma Center (4)
1. Clinton
2. Wayne
3. Cumberland
4. Russell?
5. TN
Level 3: Taylor/Ephraim
Level 1: UK/UT
Ephraim McDowell
Trauma Center (3)
1. Boyle
2. Casey
3. Mercer
4. Lincoln
5. Garrard
6. Marion?
7. Washington
Level 1: UK
Ft Logan
Trauma Center (4)
1. Lincoln
2. Rockcastle
3. Garrard
4. Pulaski
5. Casey
Level 3: Ephraim
Level 1: UK
?????
Trauma Center (3)
1. Rockcastle
2. Pulaski
3. Wayne
4. McCreary
5. Whitley
6. Laurel
7. Knox
8. Clay
9. Jackson
Level 1: UK
Marcum-Wallace
Trauma Center (4)
1. Estill
2. Lee
3. Powell
4. Owsley
5. Wolfe??


FIELD TRIAGE DECISION SCHEME:
BOYLE COUNTY TRAUMA TRIAGE PROTOCOL
Measure vital signs and level of consciousness
Glasgow Coma Scale < 14 or
Systolic blood pressure < 90 or
Respiratory rate < 10 or > 29 (< 20 in infant < one year)
YES
NO
Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.
Assess anatomy of injury
Is air possible and feasible?*
Yes
Fly to UK.
No
Drive to Ephraim McDowell Trauma Center
All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
Flail chest
Two or more proximal long-bone fractures
Crushed, degloved, or mangled extremity
Amputation proximal to wrist and ankle
Pelvic fractures
Open or depressed skull fracture
Paralysis
YES
NO
Take to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the trauma system.
Assess mechanism of injury and evidence of high-energy impact
*Air transport must not delay airway intervention or definitive surgical care.


3
Falls
• Adults: > 20 ft. (one story is equal to 10 ft.)
• Children: > 10 ft. or 2-3 times the height of the child
High-Risk Auto Crash
• Intrusion: > 12 in. occupant site; > 18 in. any site
• Ejection (partial or complete) from automobile
• Death in same passenger compartment
• Vehicle telemetry data consistent with high risk of injury
Auto v. Pedestrian/Bicyclist Thrown, Run Over, or with Significant (> 20 MPH) Impact
Motorcycle Crash > 20 MPH
YES
NO
Transport to closest appropriate trauma center, which depending on the trauma system, need not be the highest level trauma center.
Assess special patient or system considerations
Direct ground transfer to UK may be appropriate for some injury types (eg, mangled limb, burns) in patients who meet the following Stability Criteria (for Ground transport up to 45 minutes)
1. Definitive airway established or unnecessary
2. Systolic blood pressure 80-100 without epinephrine
3. External blood loss controllable with direct pressure
4
Age
• Older Adults: Risk of injury death increases after age 55
• Children: Should be triaged preferentially to pediatric-capable trauma centers
Anticoagulation and Bleeding Disorders
Burns
• Without other trauma mechanism: Triage to burn facility
• With trauma mechanism: Triage to trauma center
Time Sensitive Extremity Injury
End-Stage Renal Disease Requiring Dialysis
Pregnancy > 20 Weeks
EMS Provider Judgment
YES
NO
Contact medical control and consider transport to a trauma center or a specific resource hospital.
Transport according to protocol
When in doubt, transport to a trauma center.

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ATTACHMENT 7
Kentucky Trauma Hospital Resource Manual
(Draft document)

Kentucky Trauma Hospital Resource Manual

Version 2009-2.5
December 7, 2009

Kentucky Cabinet for Health and Family Services
Department for Public Health
Trauma Advisory Committee
%Commissioner's Office

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The Kentucky Trauma Advisory Committee (KyTAC)
wishes to acknowledge that we have liberally used the
excellent work of the Minnesota Trauma System
for inspiration. Many of our own thoughts and planning
seemed to parallel work that Minnesota had already done well.

So, building on the success of those who went before us,
we freely admit that we have borrowed liberally
from their excellent and talents to create the starting
point for our new trauma system.

DRAFT

Resource Manual

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This manual contains a description of the designation process as well as examples of sample policies and forms to help you develop your hospital's trauma program.

Trauma Hospital Designation
Verification vs. Designation

For years Kentucky had level I verified trauma hospitals located in the population-dense areas of Louisville and Lexington, and in the rural areas of Campbellsville and Madisonville. These hospitals were evaluated by the American College of Surgeons (ACS) Committee on Trauma (also referred to as ACS COT) which verified that they met at least the minimum criteria for a trauma hospital established by the ACS.

In 2008 the Kentucky General Assembly passed a bill authorizing The Commissioner for Public Health (The Commissioner), Kentucky Department for Public Health (KDPH), to develop a statewide trauma system, including a process to designate hospitals as trauma hospitals. The law also created a Kentucky Trauma Advisory Committee (KyTAC) to work with and assist the Commissioner with the development of the system. The law can be found in the Attachment section of this manual.

The law did not specify how the system was to be configured, but the KyTAC advised The Commissioner to use the ACS COT Level-I, II and III standards, and has developed a set of verification criteria and processes for Level-IV based on guidance in the ACS COT reference, "Resources for Optimal Care of the Injured Patient".

The term "designation" is an official label assigned by a political authority. Hospitals in Kentucky can *volunteer* to become part of the trauma system, and submit for state *designation* as a trauma center at a specific level of capability. *Designated* trauma hospitals in Kentucky must demonstrate that they meet the state's recognized criteria for a trauma hospital. The standards and process are spelled out in administrative regulations XXX KAR XX:XXX through XXX KAR XX:XXX (see Attachment AA). Designation is for a defined period of time, as outlined in the regulations, and must be periodically re-verified to maintain that level of designation.

The term "verification" is a process of reviewing the hospital and its trauma program against established criteria. As noted above, for Levels I-III Kentucky currently recognizes the ACS COT standards and verification process. For Level-IV, Kentucky has developed its own standards and verification process, based upon ACS guidance and the recommendations of the KyTAC. *Hospitals must be **verified** as having met Kentucky's recognized standards and criteria before they can be designated at a specific level.*

DRAFT

Level I, II and III Designation Process

The designation process in Kentucky is a voluntary program for hospitals. The KDPH currently accepts ACS level I, II or III verification as adequate evidence that a hospital meets the standards for the appropriate level.

The ACS requires a hospital which is anticipating a request for verification as a Level-I, II or III trauma center will have a working, documentable trauma program in place. This will include such things as the designated personnel, training, an effective quality improvement program, educational outreach and about a year's data to document that a functioning system is in place and working effectively.

Since the facility will have a working trauma program, KDPH and the Kentucky Trauma Advisory Committee would like to be aware of the developing trauma center, to track its progress and assist as necessary. To that end, the hospitals can start the *voluntary* trauma center designation process in Kentucky by first submitting a letter of intent (see Attachment AB for a sample) to *The Commissioner, Kentucky Department for Public Health no less than twelve (12) months in advance of an anticipated verification site visit.* The letter will identify their trauma system team, their initial trauma center development plan, and the anticipated timeline to prepare for the ACS verification site visit. It will include letters of support from local EMS providers, and should project when the facility will be able to start reporting its trauma data to the Kentucky Trauma Registry using software meeting the requirements of the trauma system regulations (see Attachment AA).

When the hospital completes the ACS verification process, the facility will formally apply to KDPH for designation as a trauma hospital in Kentucky (see Attachment AC). A copy of the ACS letter or Certificate of Verification, and a copy of the verification report, will be attached to and become part of the application package. The application may spell out the additional attachments, which will include (but may not be limited to) copies of the facility's Board Resolutions, trauma linkage agreements and trauma protocols as outlined in this manual.

The KyTAC will review the application package, and will make recommendations to The Commissioner about the potential designation of the facility as a *Trauma Center* in the Commonwealth of Kentucky. *The length of time the Kentucky Trauma Center designation is valid is tied directly to the expiration period for the ACS verification.* Re-verification will require the facility to apply for re-designation.

If a trauma hospital experiences a change in its ability to meet the minimum required criteria at any time during the designation period, it must notify The Commissioner, and subsequently the KyTAC, immediately. This element is critical to the effectiveness of the statewide trauma program because it may require other regional hospitals and local EMS providers to adjust their operating guidelines.

Level-IV Designation Process

ACS does not currently have verification criteria and processes in place beyond Level-III, even though its guidance discusses the concept of system development beyond Level-III. The Kentucky system has developed criteria and standards for a Level-IV designation that will discussed further in this manual. A Level-IV "Criteria for State Verification" is in Attachment Y.

As with Levels I-III, the designation of Level-IV trauma facilities in Kentucky is a *voluntary* system. KDPH empowers the Kentucky Trauma Advisory Committee to *verify* the presence of the resources and processes required and published by the KyTAC. Once verified, KyTAC will recommend to The

Commissioner that the facility is prepared to be recognized and designated as a Level-IV *Kentucky Trauma Center*. The length of time the *Kentucky Trauma Center* designation is valid is tied directly to the expiration period for the ACS verification. Re-verification will be required to apply for re-designation.

The hospital would begin the process by first submitting a "letter of intent" (see Attachment AB) to *The Commissioner, Kentucky Department for Public Health*. The KyTAC will work with the hospital to review its development against the Level-IV verification criteria, and as set forth in XXX KAR XX:XXX (See Attachment AA).

When it appears that the key elements are in place, and the hospital feels it is ready, the hospital can either apply (see Attachment AD) for a *consultation* visit, or can proceed directly for a *verification* site visit. **In either case, the costs for the team to perform this visit will be borne by the requesting facility.** The application will spell out required attachments, which will include (but may not be limited to) copies of the facility's Board Resolutions, trauma linkage agreements and trauma protocols as outlined in this manual.

Once complete, a copy of the verification site visit report, based on the "Criteria for State Verification" in Attachment Y, will be attached to and becomes part of the application for designation. The KyTAC will review the complete application package, which will include a copy of the verification report, and will make recommendations to The Commissioner about potential designation as a *Trauma Center* in the Commonwealth of Kentucky. The length of time the *Kentucky Trauma Center* designation is valid is tied directly to the expiration period for the verification. Re-verification will be required to apply for re-designation.

Level-IV Consultation/Verification Program

The KyTAC Consultation/Verification Program is designed to assist hospitals in the evaluation and improvement of trauma care, and provide objective state review of institutional capability and performance. This is accomplished by an on-site review of the hospital by a peer review team appointed by the KyTAC whose members have no conflict of interest with the hospital being verified, such as being on the medical staff or having a contract with the hospital or hospital system, and are experienced in the field of trauma care and trauma system development. The team assesses commitment, readiness, resources, policies, patient care, protocols, performance improvement, and other relevant features as outlined by the KyTAC.

Consultation: The KyTAC will first provide a consultation visit to the requesting entity if requested. The consultation visit is performed to assess the entity's system of trauma care delivery or prepare for a verification review. The consultation visit is performed by a two-member team, one of which will be a physician and one of whom will be a member of the KyTAC. The consultation visit will follow the same format as a verification review. The consultation visit will provide recommendations to aid the facility in attaining verification. A copy of the consultation visit report will be provided on an informational basis to the Verification Committee of the KyTAC. *A consultation visit is not required prior to verification*, however a consultation visit is highly recommended prior to seeking a verification review.

Verification: Trauma center verification is the process by which the KyTAC confirms the hospital is performing as a trauma center according to the state required criteria. A verification site visit is

performed at the request of the facility. The verification process is performed by a two-member team appointed by the KyTAC, and one person designated by The Commissioner. The verification visit results in a report to the full KyTAC outlining the findings and, if successful, recommending that a *Certificate of Verification* be issued. A *Certificate of Verification* is valid for three (3) years from the date of the *initial* review. Once a site verification process is successfully completed a re-verification visit can be requested thereafter.

Re-verification: A facility that has previously been verified is eligible for re-verification if the facility applies for and schedules its visit *prior to the expiration* of the current certificate. If the facility does not schedule its re-verification visit to occur prior to the expiration they may apply for new verification.

Focus Review: If, during the verification or re-verification review, a hospital is found to have criteria deficiencies which at the discretion of the KyTAC are felt to be isolated and correctable, an on-site focus review may be necessary. In this case, another two-member team returns to the facility. The returning team usually consists of at least one original review member. The hospital must demonstrate that they have corrected the deficiencies before a certificate can be issued. This process is to be conducted *within six (6) months* and *not more than one (1) year* from the time of notification of the results of the initial review. The certificate of verification will be dated from the *initial* verification/re-verification visit. **The costs for the team to perform this visit will be borne by the requesting facility.**

If, on the other hand, the breadth and/or depth of deficiencies are extensive, the facility will not be eligible for a focus review. Rather, the facility will be denied verification, and will be required to apply for a new consultation or verification review when deficiencies are corrected. As with the original reviews, t**he costs for the teams to perform these visits will be borne by the requesting facility.**

Re-designation: The *Kentucky Trauma Center* designation is valid for no more than three years, during which time the facility must apply for and complete the re-designation process, or be awaiting the site visit or site visit results. Trauma hospitals should apply for re-designation six months before the expiration date. An existing designation may be provisionally extended up to 18 months if the hospital applied for re-designation in a timely manner and is either scheduled for a site visit, awaiting the results of the visit or responding to deficiencies identified during the visit. (See XXX KAR XX:XXX in Attachment AA))

The re-designation site visits will focus on three areas: 1) compliance with the designation criteria; 2) progress made toward strengthening the weaknesses identified during prior site visits; and 3) identifying how the system can collaboratively support the ongoing and future needs of the hospital's trauma care commitment. Specific suggestions for improvement will generally have an educational focus. The re-designation site visits are intended to be constructive, not punitive.

Hospital Organization

Before becoming designated, a formal trauma program must be established within the hospital. In addition to developing policies and protocols that address trauma team deployment, emergent transfers and performance improvement, the hospital board and medical staff must demonstrate a commitment to providing trauma care commensurate with the standards published by KyTAC and KDPH. Support for a hospital's participation in the statewide trauma system is demonstrated when both the board of directors and the medical staff resolve to provide the resources necessary to attain and sustain designation. (*See Attachment A: Sample Hospital Board Resolution* and *Attachment B: Sample Medical Staff Resolution*.)

The hospital's trauma program will require both a medical director/advisor which is a physician who will provide clinical oversight for the program and a manager/coordinator which is usually a nurse who will be responsible for the administrative functions of the trauma program. (*See Attachment C: Sample Trauma Program Medical Director Job Description* and *Attachment D: Sample Trauma Program Manager/Coordinator Job Description*.)

The trauma program must be integrated into the hospital's organizational structure, appearing on the organizational chart. The position of the trauma program should be such that the medical director and program manager/coordinator have sufficient authority to effect change across several departments. (*See Attachment E: Suggested Position of Trauma Program*.)

Trauma Team Activation

A clear procedure for assembling the team that will provide immediate resuscitation to the seriously injured patient is vital to the efficient functioning of a trauma hospital. This procedure should specify when the team must be assembled, who is to respond and how they are to be notified. The policy should build upon existing facility-specific internal operating procedures, staffing resources and established state minimum criteria. (See *Attachment F: Sample Single-Tier Trauma Team Activation Protocol* and *Attachment G: Sample Multi-Tier Trauma Team Activation Protocol*.)

Documentation of the patient's resuscitation can be easily accomplished with the use of a trauma flow sheet. A comprehensive flow sheet can also be used to easily identify data elements in the patient's chart required for trauma and SCI/TBI reporting (through the registry) or for performance improvement (PI) activities. (See *Attachment I: Trauma Resuscitation Record*. [Registry, TBI/SCI and PI elements are shaded to help facilitate data abstraction.])

Hospitals must work with their emergency medical services (EMS) provider(s) to establish and train with protocols designed to quickly identify seriously injured patients and route them directly to appropriate trauma hospitals. It is expected that the hospital trauma team will be activated upon notice by EMS. It is up to the individual hospital to determine if EMS personnel will activate the team or if EMS will consult with the emergency department provider, who will then establish the need for activation. Continued work with the EMS professionals in your area will help to control over and under triaging.

Transfers

A well-functioning trauma system is able to not only treat seriously injured trauma patients effectively and efficiently, but it is able to recognize the need to transfer patients to the trauma hospital that can best provide the resources that patient needs in a timely manner. To this end, level I, II, III and IV designations do not reflect the quality of care provided in those hospitals, but rather the resources available. Improved outcomes are closely associated with the time it takes for a facility to determine the need for and to accomplish the transfer.

Trauma hospitals must establish procedures that direct the process for quickly and efficiently transferring a trauma patient to definitive care. Policy elements include anatomical and physiological criteria that if met, will immediately initiate transfer. (See *Attachment J: Suggested Criteria for Consideration of Transfer* and *Attachment M: Sample Trauma Transfer Protocol*.) Simple algorithmic transfer protocols can be found in Attachment K and L.

Ambulance service personnel, with the guidance of medical direction and in cooperation with their local hospitals, may establish a process to request aero medical transport to meet them at the emergency department. The establishment of a close working relationship with local EMS providers will contribute to the development of an efficient transfer process.

Transfer agreements must be established and maintained with trauma hospitals capable of caring for patients with major trauma, severe burns and acute spinal cord injuries. An agreement with a second burn facility must also be maintained. (See *Attachment N: Transfer Agreement Examples*.) Receiving trauma hospitals may provide the transfer agreement for the referring hospital.

Performance Improvement

Every *Kentucky Trauma Center* hospital is expected to measure, evaluate and improve its performance with respect to numerous objectives in health care from patient care standards to fiscal solvency to materials management. A successful performance improvement process is designed to identify weaknesses within an organization that prevent the organization from providing the optimal care it is capable of providing.

The process used to facilitate performance improvement may be referred to by other names, such as quality assurance or continuous quality improvement. Regardless of by what means your facility employs, it is important that there be a process in place to provide an intentional process, or loop, to continuously identify shortcomings in patient care, determine the likely cause, employ a plan to correct it, then evaluate whether or not the shortcoming has been resolved, thus "closing the loop." A PI program will assist your facility to constantly improve itself by identifying and confronting problems within the institution. The process can be applied to virtually any element of performance within the hospital.

PI Structure

While the required PI components must be in place in a trauma hospital, the structure is left to the discretion of the facility and will depend on the facility size and available resources. It is anticipated that hospitals have an existing PI structure in place. The trauma program PI activities ideally are incorporated into that structure. The description of the PI process contained herein is not meant to be prescriptive, but illustrative. It is understood that facilities will accomplish PI in a variety of ways. Trauma hospitals are expected to be able to demonstrate the effectiveness of their program.

The trauma program should have a standing trauma PI team, usually made up of the trauma program manager/coordinator, the trauma program medical director and possibly the trauma program registrar. All information and reports pertaining to trauma program performance are funneled through this team. The data is then either used by the team to address system concerns or referred to one or more PI committees to address patient care concerns.

Both system and patient care-related issues can be identified via several methods.

- Chart abstraction
- Emails
- Hallway conversations
- Hospital information/database systems/registries
- Individual patient charts
- Multidisciplinary committee meetings
- Patient relations inquiries/complaints
- Personal observations
- Rounds
- Staff reports

Reports from staff can be generated via a PI tracking form. (See *Attachment O: Trauma PI Tracking Form*.)

Morbidity and Mortality Review Committee

The trauma program PI requirements include the establishment of a morbidity and mortality review committee, which is analogous to a physician peer review committee. Its purpose is to provide for review of physician performance. Membership on this committee should be physicians from several disciplines and may include non-physicians (such as nurse practioners [NPs] or physician assistants [PAs]), at the discretion of the trauma program and hospital administration. The format and activities of this committee are left largely to the discretion of the hospital. Physicians may not review their own care.

The morbidity and mortality review committee should meet regularly and review the physician care from patient charts, focusing on cases wherein problems, shortcomings, weaknesses or concerns have been identified by the trauma program PI team. If the committee members identify provider-related problems, they should recommend a corrective action plan; if they identify system-related concerns they should forward their findings to the trauma PI team.

This committee is also responsible to review all trauma deaths in the facility and classify them as non-preventable, potentially preventable or preventable. (See *Attachment P: Definitions of Trauma Death Classifications*.)

Multidisciplinary Trauma Review

Unlike the morbidity and mortality review committee, membership of the multidisciplinary trauma review committee is not limited to physician providers. The participants in this review are both clinical and non-clinical representatives from all disciplines involved in the care of the trauma patient.

Potential participants may be:

Administrators

Department managers

Emergency department nurses

Emergency department providers

EMS staff

Financial management

Floor nurses

ICU/PACU staff nurses

Laboratory technicians

Operating room nurses

Patient relations personnel

Radiologists

Radiologic Technologist

Rehabilitation professionals

Risk management staff

Social services staff

Surgeons

The trauma PI team should identify the cases for presentation to this committee. Again, the focus should be on problematic cases or educational opportunities presented by particular cases.

Filters

In addition to system problems and weakness, the team also seeks to identify occurrences of significant events. These events are represented by PI filters. Each filter reflects either an area of patient care that the trauma program would like to scrupulously observe, a standard of care that the facility has established for itself or an ideal expectation of the industry. These are essentially characteristics of system performance or patient care that automatically prompt the process of evaluating that element of the system or care of the patient to determine whether or not it met the standards defined by the industry or the hospital. The primary mechanism in which the trauma program will assess its performance is through the use of these filters.

The examples of filters listed in Table 1 should be perpetually included in the hospital's PI process.

Table 1

Audit filter	Level III	Level IV
Trauma care provided by physicians who do not meet the educational requirement of the plan (e.g., ATLS)	√	√
Trauma transfers	√	√
Trauma deaths	√	√
ED provider non-compliance with on-call response times	√	√
Trauma patients admitted to non-surgeons	√	√
General surgeon non-compliance with on-call response times	√	
Trauma care provided by NPs/PAs		√

It is anticipated that each hospital will also select its own filters to monitor. The filters will change constantly as the facility's need to evaluate various elements of the trauma program changes. Some filters may be watched for six months while others may need to be watched for years before enough cases have been through the hospital and enough data has been collected to effectively assess the system's performance.

Examples of filters commonly used include:

- Abdominal, thoracic or vascular surgery >24 hours after admission
- Absent hourly charting
- C-spine injury missed on initial evaluation
- EMS report not in patient chart
- EMS scene time >10 minutes without extrication involved
- GCS ≤8 left emergency department w/out an airway
- Glasgow Coma Scale ≤8, no endotracheal tube or surgical airway
- Head CT >2 hours after admission with GCS <14
- Laparotomy >1 hour w/ abdominal injuries and systolic blood pressure <90
- Massive blood transfusion (>3 units)
- Non-fixation of femoral diaphyseal fracture in adult
- Open fracture to OR >8 hours after admission
- Over triaged/trauma team activated unnecessarily
- Re-intubated within 24 hours of extubation
- Transferred out; length of stay >2 hours
- Under-triaged/trauma team not activated when criteria met
- Unscheduled return to the OR.

There is no ideal way to quickly and easily identify patients who are characterized by filters. Although some patients will be identified by querying the registry, most will have to be identified by abstracting the information from the patient record manually. The process of abstracting a chart may be assisted by employing the use of a trauma flow sheet to document the resuscitation. (See *Attachment I: Trauma Resuscitation Record*.) Many performance elements can be easily identified by abstracting this single record. Additionally, filters can be captured with the use of a tracking worksheet (see *Attachment Q: Trauma PI Filter Tracking Worksheet*). A worksheet is completed on every major trauma patient by abstracting the chart. If filters are identified, the chart is routed to the trauma PI team for review.

The Performance Improvement Loop

Performance improvement can be thought of as a continuous loop of activity surrounding a given issue. (See *Attachment R: Trauma PI Flowchart*.)

The three distinct phases of the PI loop are:

1) Recognition of the issue;

2) Corrective action; and

3) Evaluation of the result.

Recognition of the Issue: Enough data must be collected to identify a system or patient care issue. This may be a single occurrence of an event reported by a staff member or PI committee or it may be a

recurrence of a similar or same event several times, which is discovered by chart abstraction or by a registry query.

For example: The trauma PI team routinely evaluates all trauma patients transferred. (To identify these patients, they might use the trauma registry to create an ad hoc report.) An expectation established by the hospital is that a trauma patient's condition is accurately assessed and the patient transferred to definitive care within two hours. The team discovers that 20 percent of these transfers occurred >2 hours after arrival.

The team then reviews the identified cases with the charge of determining why the patients' treatment did not meet the standard of care established by the facility. They may discover that, given the circumstances of the individual patients, the cases were managed as well as they could have been. However, the committee may identify a problem with a protocol, an individual provider or a system policy that contributed to the shortcomings.

For example:

- The committee discovers that the patients were transferred days after admission to their hometown hospitals after their conditions had stabilized. Therefore, there is no corrective action necessary.
- The committee finds that the transfers were initiated >2 hours after arrival when earlier CTs initially read by emergency department providers were reviewed by radiologists and found to reveal abnormalities requiring transfer to a facility with more resources.

Corrective Action: The problem can now be classified as disease-related, system-related or provider-related and referred, if necessary, to any another appropriate person or committee for review. Corrective action may be unnecessary or may consist of education, protocol revision, practitioner counseling, etc. The team should develop a corrective plan, consulting any in-house and out-of-hospital resources as necessary.

For example, the committee may recommend:

- Implementing a continuing education program for the emergency department providers to improve their CT scan interpretation capabilities.
- Making educational or reference resources available for interpreting CT scans to the emergency department providers.
- Employing the use of an off-site, 24-hour radiology service.

Evaluation of the Result: Once the corrective action is in place, the trauma program again collects data and the team determines whether or not the action corrected the problem. If it did, the loop is closed and the issue is resolved. If not, the committee revisits the case and repeats the PI process again.

Trauma Diversion

On rare occasions, critical resources needed to care for seriously injured patients become unavailable at one hospital due to an unusually great demand for those resources, a mechanical plant failure preventing the use of those resources or other event that renders resources unavailable or inaccessible. (More isolated hospitals that are a significant distance from their neighboring hospitals may not be able to safely divert trauma patients simply because of high patient volumes.) In such cases it is important that trauma hospitals have a contingency plan to divert trauma patients to a nearby facility. (See *Attachment S: Sample Level III Trauma Diversion Protocol* and *Attachment T: Sample Level IV Trauma Diversion Protocol*.)

The decision to divert trauma patients should be carefully considered. It should only occur if, in the judgment of the lead medical staff person, it would be in the patient's best interest to be transported to a different facility rather than attempting to accomplish the resuscitation in an environment lacking critical resources. Trauma hospitals should track both the number of times the facility goes on divert and the number of patients diverted. (See *Attachment U: Trauma Divert Tracking Log*.)

The Kentucky Department for Public Health has provided a resource tracking and monitoring tool, EMResource, which can assist the hospital in communicating with the EMS providers and other hospitals in the trauma system, share status information, and resources. The facility is encouraged to utilize this tool in planning its system.

Trauma Registry

The collection and use of data is of paramount importance to a successful trauma program: locally, statewide and nationally. A trauma registry is established primarily to ensure quality of care, but it has a secondary benefit of providing data for the surveillance of morbidity and mortality.

Trauma hospitals are required to submit a number of data points to the Kentucky Trauma Registry system, and they will be periodically reported to the National Trauma Database (NTDB) system. Additionally, each hospital can design a unique data set to collect and analyze to further their PI objectives. (See Attachment V: Trauma Registry Inclusion Criteria.)

There are several commercial registries available for purchase, but the package considered must be compatible with the NTDB data dictionary, and must be able to transfer required data elements to the

Kentucky Trauma Registry as required in XXX KAR XX:XXX (See Attachment AA). Trauma hospitals utilizing their own registries must be able to submit data to the state trauma system without duplicating data entry.

The Kentucky Injury Prevention Research Center (KIPRC), which operates the Kentucky Trauma Registry system, will be happy to advise the hospital on packages that are compatible with the system being used by the NTDB and the Kentucky Trauma Registry.

The function and purpose of the statewide trauma registry is threefold:

- To facilitate simple and accurate trauma data reporting to the state trauma program.
- To assist trauma hospitals in identifying patients who match their filter characteristics via the report-generating features.
- To collect and report the state-required TBI/SCI data, eliminating the need to duplicate data submission.

The state trauma system will submit your trauma data to the National Trauma Database (NTDB) on your behalf.

Technical assistance for the Kentucky Trauma Registry system is available through KIPRC.

Injury Prevention

While the vast majority of a hospital's trauma resources are committed to managing the injured patient, injury prevention cannot be ignored. A trauma hospital's injury prevention program may most effectively be incorporated into existing outreach activities. Ideally, prevention activities will be driven by epidemiological data for the community.

Technical and program assistance for injury prevention can be obtained through the *Kentucky Injury Prevention Research Center* (KIPRC).

Steps to Implementing a Prevention Activity

Recognize opportunities: Seek out existing public venues for your prevention activities such as school or church fairs and community events such as national night out.

Identify a desired outcome: The goal of the prevention activity may be to reduce the occurrence of a particular injury, raise awareness of a threat or hazard, increase knowledge of a subject or alter behaviors or attitudes.

Identify the target audience: Begin by determining what message you would like to communicate and who the recipients of that message should be. This may be driven by injury data—such as frequency,

severity or location of a particular traumatic event within the community—where the audience is specific or by forum opportunity, such as a community fair, where the target audience is diverse.

Develop objectives: Describe the actions necessary to achieve the desired outcomes of the prevention activity. Consider staff and material resources needed, as well as program evaluation tools.

Develop strategies for reaching the targeted audience: Adults, adolescents and children all have different learning styles. By defining the target audience, the curriculum can be customized. For example, characters (such as Traumaroo™) appeal to children from ages 3 to 7. Children older than 7 relate well to video and slide presentations. Teenagers are most engaged when the forum allows them to voice their own viewpoints and opinions.

Obtain staff and funding for the activity: Do not limit yourself to hospital staff. Often, the goals of other community organizations coordinate well with injury prevention goals of the hospital. Consider the age and cultural dynamics of both the audience and the presenters. Sometimes coordinating the two can improve the effectiveness of the message. Trauma survivors or their family members can be powerful spokespeople. Funding may come from within the facility or from foundations, businesses, civic groups and government agencies.

Evaluate the effectiveness of the activity: Although effectiveness can be assessed by determining the number of people reached or by surveying program participants, ideally, effectiveness should be *measured* by evaluating whether or not the activity actually accomplished the desired outcome. Outcome evaluation should measure progress toward the goal of decreasing injury occurrence or changing the knowledge, attitude or behaviors of the target audience. Techniques may include data collection, surveying and direct observation.

Examples of prevention activities include:

- Bicycle helmet campaigns
- Bicycle rodeos
- Blood pressure screening
- Car seat clinics
- Domestic violence awareness
- Fall prevention
- Firearm safety
- Health fairs
- Intoxicated driving campaigns
- Posters/pamphlet publication
- Red light running campaigns

Required Equipment

Trauma hospitals must have certain equipment capabilities for all ages of trauma patients. See *The American College of Surgeons "Resources for Optimal Care of Inured Patient" manual for Levels I thru III facilities,* and *Attachment W: Level IV Equipment Checklist* for a checklist that can be used to verify the existence of the minimum required equipment in your facility. To assist trauma hospitals with care for children, the *American Academy of Pediatrics* has recommended the equipment and base medications listed in *Attachment X: Recommended Pediatric Equipment Capabilities Checklist*.

Individualized Consultation

If at any time you have questions about the trauma program and its requirements, contact the KyTAC program.

The KyTAC has committees that focus on key areas of trauma system development, and would be glad to assist a facility with such things as:

- Application preview
- Assistance establishing or developing a PI or injury prevention program
- Documentation evaluation
- Examples of program policies, forms, tools
- Guidance regarding the existence or establishment of required criteria
- One-on-one consultation/guidance
- Pre-site visit consultation
- Telephone and in-person technical advice
- Web-based registry training

The KyTAC also encourages hospitals in the network "reach out" to partnering hospitals and EMS agencies in their region to provide assistance and technical support. It is part of the requirements for all levels of trauma centers to provide education and assistance to other hospitals and EMS agencies in their referral network. This is hopefully enhanced by the development of Regional Trauma Advisory Committees in the catchment areas of trauma centers at all levels.

The Kentucky trauma program is always eager to hear your feedback. If you have recommendations for resources that can be provided in this manual or elsewhere, please us.

Online Resources

Organizations

Kentucky Department for Public Health
http://chfs.ky.gov/

Kentucky Hospital Association
http://www.kyha.com/

Kentucky Board of EMS
http://kbems.kctcs.edu/

American College of Surgeons, Trauma Program
http://www.facs.org/trauma

Society of Critical Care Medicine
http://www.sccm.org/

American College of Emergency Physicians
http://www.acep.org/webportal

American Academy of Orthopedic Surgeons
http://www.aaos.org/

Trauma.org
http://www.trauma.org/

Emergency Nurses Association
http://www.ena.org/

Society of Trauma Nurses
http://www.traumanursesoc.org/

Brain Injury Association of America
http://www.biausa.org/

National Highway Traffic Safety Administration
http://www.nhtsa.gov/

Publications/Resources

ACS Trauma Publications
https://web2.facs.org/timssnet464/acspub/frontpage.cfm?product_class=trauma

Society of Critical Care Medicine Publications
http://www.sccm.org/

American Trauma Society
http://www.amtrauma.org/

Eastern Association for the Surgery of Trauma, Trauma Practice Guidelines
http://www.east.org/tpg.html

National Trauma Data Bank
http://www.facs.org/trauma/ntdb.html

American Academy of Experts in Traumatic Stress
http://www.aaets.org/

Gift from Within (Survivors of Trauma and Victimization)
http://www.giftfromwithin.org/

Pediatrics
American Academy of Pediatrics
http://www.aap.org/

Emergency Medical Services for Children (EMSC)
http://www.ems-c.org/

National Child Traumatic Stress Network
http://www.nctsn.org

Children's Safety Network
http://www.childrenssafetynetwork.org/

Prevention
Kentucky Injury Prevention and Research Center
http://www.kiprc.uky.edu/

The American Association for the Surgery of Trauma, Injury Prevention
http://www.aast.org/prevent.html

ATS Injury Prevention Programs
http://www.amtrauma.org/programs/programs.html

National Center for Injury Prevention and Control
http://www.cdc.gov/ncipc/

Helmets R Us
http://www.helmetsrus.net

BoosterSeat.gov
http://www.boosterseat.gov/

National Highway Traffic Safety Administration
http://www.nhtsa.dot.gov/

Safety Belt Safe U.S.A.
http://www.carseat.org/

Risk Watch
http://www.riskwatch.org/teacher.html

Keep Safe (internet safety for kids)
http://ikeepsafe.org/

DRAFT

Attachment A: Sample Hospital Board Resolution

WHEREAS, traumatic injury is the leading cause of death for Kentuckians between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Kentucky Trauma Care System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the board of directors of [HOSPITAL] resolve to provide the resources necessary to achieve and sustain a level [III or IV] trauma hospital designation.

IN WITNESS THEREOF, I have hereunto subscribed my name this Xst day of (month), 20XX.

_____

Chairman of the Board

DRAFT

Attachment B: Sample Medical Staff Resolution

WHEREAS, traumatic injury is the leading cause of death for Kentuckians between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Kentucky Trauma Care System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the medical staff of [HOSPITAL] resolves to support the hospital's trauma program and to provide trauma care commensurate with the standards published by the Kentucky Statewide Trauma System for level [III or IV] trauma hospitals.

IN WITNESS THEREOF, I have hereunto subscribed my name this Xst day of (month), 20XX.

_____

Chief of Staff

DRAFT

Attachment C: Sample Trauma Program Medical Director Job Description

Job Title: Trauma Program Medical Director

Reports to: Chief of Medical Staff

Qualifications:

1. Board certified in Family Medicine, Emergency Medicine, Internal Medicine or General Surgery.
2. Member in good standing of the hospital medical staff or emergency medicine staff.
3. Currently licensed to practice medicine in Kentucky.
4. Currently certified in Advanced Trauma Life Support (ATLS).
5. Three years clinical experience in emergency/trauma care.
6. Two years administrative experience.
7. Ability to establish and maintain effective interpersonal relationships.
8. Ability to accept and implement change.
9. Ability to problem solving make decisions.
10. Demonstrated history of positive collegial relations with colleagues, support staff, hospital-based providers, administrators and patients.

Nature and Scope: The Trauma Medical Director is responsible for the ongoing development, growth and oversight/authority of the Trauma Program. He/she must be able to demonstrate effective interpersonal skills and an understanding of the interdependent roles of various allied health professions. The Trauma Medical Director is responsible for promoting high standards of practice through development of trauma policies, protocols and practice guidelines; participating in rigorous performance improvement monitoring; resident and staff education and trauma research. He/she has authority to act on all trauma performance improvement and administrative issues and critically review trauma deaths and complications that occur within the hospital. Decisions affecting the care of trauma patients will not be made without the knowledge, input and approval of the Trauma Medical Director.

Principal Duties and Responsibilities:

Administration:

- Participate in the research, development and writing of trauma policies, protocols and practice guidelines.
- Implement all trauma program policies and procedures as they pertain to patient care.
- Organize, direct and integrate the trauma program with all other departments and services within the hospital.
- Promote a cooperative and collaborative working environment among the clinical disciplines involved in trauma care.
- Maintain an effective working relationship with the medical staff, trauma service staff, administration and other departments.
- Provide advice and direction in recommending privileges for the trauma service.

- Participate in trauma program marketing activities.
- Establish a physician case management process that fosters cost-effective, high quality patient care.
- Assess need for equipment, supplies, budget
- Assist the Trauma Program Coordinator in developing and meeting the trauma program budgetary goals.
- Oversee, participate in and develop projects that ensure the cost-effectiveness of care provided by physicians and hospital.

Program Initiatives:

- Lead efforts to develop and maintain a trauma center.
- Collaborate with the Trauma Program Coordinator to establish trauma program goals and objectives consistent with those of the hospital and ensure that those of the trauma program are being met.
- Develop and provide input on the development and maintenance of practice guidelines, policies and methodologies for medical/surgical trauma care.
- Participate in site review by regulatory agencies.
- Organize, direct and implement departmental practices to assure continued compliance with applicable laws including the guidelines established by the Kentucky Trauma Care System and the [insert accreditation program].
- Demonstrate positive interpersonal relationship with colleagues, referral MDs, hospital personnel, and patients/families in order to achieve maximum operational effectiveness and customer satisfaction.
- Assure transfer agreements in place and in good standing; maintain relationship with receiving facilities, foster collaborative relationship.
- Make appropriate referrals for specialty services and communicate regularly with referring physician as appropriate.
- Assume clinical responsibility for all trauma patients.
- Ensure that adequate attending physician availability is provided to render care to trauma patients.
- Ensure establishment of physician/surgeon call schedules for all trauma care, excluding those who do not meet educational and credentialing requirements.
- Provide trauma care leadership and consultation for emergency, surgery and intensive care unit departments.
- Participate in regional and statewide activities affecting the trauma program.
- Attend local and national meetings and conferences to remain current regarding issues relevant to the performance of duties.
- Demonstrate consistent, efficient, cost effective and quality trauma care at all times.
- Participate in trauma patient/family satisfaction projects as developed by hospital.

Performance Improvement:

- Determine and implement PI activities appropriate to the trauma program.
- Oversee the trauma PI program and participate in other quality initiatives that deal with the care of injured patients.
- Review and investigate all trauma PI inquiries in collaboration with the Trauma Program Coordinator and refer to the appropriate committees.
- Monitor compliance with trauma treatment guidelines, policies and protocols.
- Assure that the quality and appropriateness of patient care are monitored and evaluated and that appropriate actions based on findings are taken on a consistent basis.
- Report quality of care issues promptly to appropriate individuals, including Trauma Program Coordinator and hospital administration.
- Identify and correct deficiencies in trauma care policies, guidelines and protocols.
- Consult with appropriate medical staff and administration regarding quality care issues and adverse outcomes; identify areas to improve patient care.
- Assure that continuum of care is maintained.
- Identify representatives from various disciplines appropriate to participate in PI activities.
- Coordinate, schedule and facilitate the PI peer review process.
- Chair the Morbidity and Mortality Committee meeting and the Multidisciplinary Trauma Conference.
- Review all trauma-related peer review and initiate action as necessary.
- Assist the Trauma Program Coordinator in evaluating the effectiveness of corrective actions resulting from PI processes.
- Assume responsibility for the accuracy and validity of trauma statistics.

Clinical Education:

- Support the requirements for trauma CME by participating and assisting in the education and training of hospital personnel physicians and specialists.
- Provide education for hospital staff regarding trauma program policies and appropriate medical practices.

Community Outreach:

- Maintain relations with community organization and legislative bodies whose activities relate to trauma care and injury prevention
- Participate in hospital outreach activities as may be requested by administration.
- Develop and participate in trauma community education and injury prevention activities.
- Function as a liaison to other hospitals within the region.

Knowledge and Skill:

- Lead the hospital in program development.
- Oversee the clinical practice of medical staff.
- Analyze and interpret complicated information.
- Determines a course of action based on research, data, standards of care and general guidelines/protocols.
- Communicate effectively with a wide variety of intra- and inter-facility staff and administration using both oral and written communication.
- Possess critical thinking, analytical, teaching/coaching and research skills.

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Attachment D: Sample Trauma Program Manager/Coordinator Job Description

Job Title: Trauma Program Coordinator

Reports to: Director of Nursing

Qualifications:

1. Bachelor's degree
2. Currently licensed as registered nurse in Kentucky.
3. Currently certified in TNCC.
4. Three years clinical experience in trauma/emergency care.
5. Ability to establish and maintain effective interpersonal relationships.
6. Ability to accept and implement change.
7. Ability to problem solving make decisions.
8. Possession of critical thinking, analytical, teaching/coaching and research skills.

Nature and scope: The Trauma Program Coordinator (TPC) is responsible for developing, implementing and maintaining a cost-effective system of care for trauma patients and their families throughout the continuum of care. The TPC works both independently and in collaboration with the trauma program medical director and other members of the health care team and the management staff. The TPC is self-directed and self-motivating, plans and conducts work with minimal direction, and reports the progress of work to the director of nursing.

Principal Duties and Responsibilities:

Administration:

- Support and adhere to hospital policies, procedures, philosophy and mission.
- Produce and manage the trauma program budget.
- Interpret and implement policies and procedures; make recommendations for revisions; assist with updating policies and procedures.
- Participate in the development and planning of goals and objectives related to trauma care.
- Coordinate with the medical director, hospital administration and clinicians to assess the need for policies, procedures and protocols relating to the care of trauma patients.
- Develop policies and procedures based on current literature, input from clinicians and other sources such as information from patient care evaluations.
- Represent the Trauma Program on various hospital and community committees to enhance and foster optimal trauma care management.
- Participate in the budget process: anticipate trends, future needs of the trauma program.
- Work with a broad array of department to resolve inefficiencies and reduce costs

- Supervise adherence to hospital policies and procedures and standards through observation, medical record review, staff feedbacks and other appropriate sources.
- Serves as a liaison to administration, representing the Trauma Program on various hospital and community committees to enhance and foster a fiscally sound Trauma Program.
- Monitor trauma care financial reimbursement issues.

Program Initiatives:

- Implement program initiatives.
- Monitor and maintain compliance with statewide trauma system regulatory requirements.
- Coordinate preparation for statewide trauma system designation site visit.
- Develop and foster collaborative relationships with all hospital departments to facilitate and support quality trauma care.
- Participate in state and regional trauma care activities
- Monitor national and statewide trends in trauma care.
- Respond to trauma team activations that occur during work hours; function in what ever role necessary to assist the team in the care of the patient.
- Serve as a resource for the hospital staff regarding trauma care issues.
- Plan and implement strategies for ongoing trauma program development and improvement.
- Monitor state and national trends in trauma care.
- Collaborate with trauma program medical director, physicians and other health care professionals to provide clinical and system oversight for the care of trauma patients, ensuring the provision of efficient, quality, cost-effective care.

Performance Improvement:

- Assess and improve departmental performance.
- Maintain quality control programs and participates in the organization's overall quality control program.
- Monitor performance of hospital staff involved with the care of trauma patients.
- Monitor trauma patient outcomes; evaluate for trends.
- Coordinate with physicians, nurses, other in-hospital staff and outside providers to evaluate and address specific patient care issues.
- Participate in case review.
- Assist the trauma program medical director and hospital administration in the development, implementation and evaluation of a quality plan which is multi disciplinary and patient-outcomes focused.
- Serve as the coordinator for the identification, investigation, reporting and follow up of incidents and quality issues throughout the program while maintaining confidentiality.
- Monitor the trauma team's availability and compliance with policies and standards.
- Develop and monitor the trauma PI program in collaboration with the trauma program medical director.
- Coordinate and schedule the morbidity and mortality committee and multidisciplinary review meetings.
- Assist in data collection related to the trauma patient.

- Analyze registry data on the trauma patient population; identify trends for strategic planning and performance improvement.
- Manage registry data: collect, analyze and trend.
- Supervise the collecting, coding, scoring and developing of processes for validation of data entered into the registry.
- Ensure accurate data entry into the trauma registry.
- Ensure the maintenance of the trauma registry in collaboration with the trauma registrar.
- Ensure the periodic reporting of trauma data to the state trauma program.
- Facilitate the measurement of selected outcomes for the trauma patient population.

Clinical Education:

- Plan, coordinate and evaluate trauma-related educational programs for nursing staff.
- Monitor physician and nurse compliance with the educational requirements of the trauma program.
- Ensure staffs involved in the care of trauma patients meet educational requirements of the trauma program.
- Develop, coordinate and implement orientation, nursing education, and in-service programs related to care and management of trauma patients.
- Seek and pursue opportunities for internal and external trauma-related educational programs for hospital staff.

Community Outreach:

- Coordinate and oversee the development and implementation of an injury prevention program.
- Direct community trauma education and prevention programs by developing, implementing and evaluating programs for targeted populations in the community related to injury prevention and other topics identified through needs assessment of the community.
- Develop and implement strategies for communication, education and feedback for EMS systems in the catchment area.
- Identify opportunities for injury prevention programming in the local communities.
- Plan, coordinate and collaborate with community representatives to accomplish injury prevention activities.
- Evaluate the impact of injury prevention activities.
- Seek and pursue opportunities for internal and external trauma-related educational programs for hospital staff, patients, families and the community.

Knowledge and Skill:

- Analyze and interpret complicated information.
- Determine a course of action based on research, data, standards of care and general guidelines/protocols.
- Communicate effectively with a wide variety of intra- and inter-facility staff and administration using both oral and written communication.

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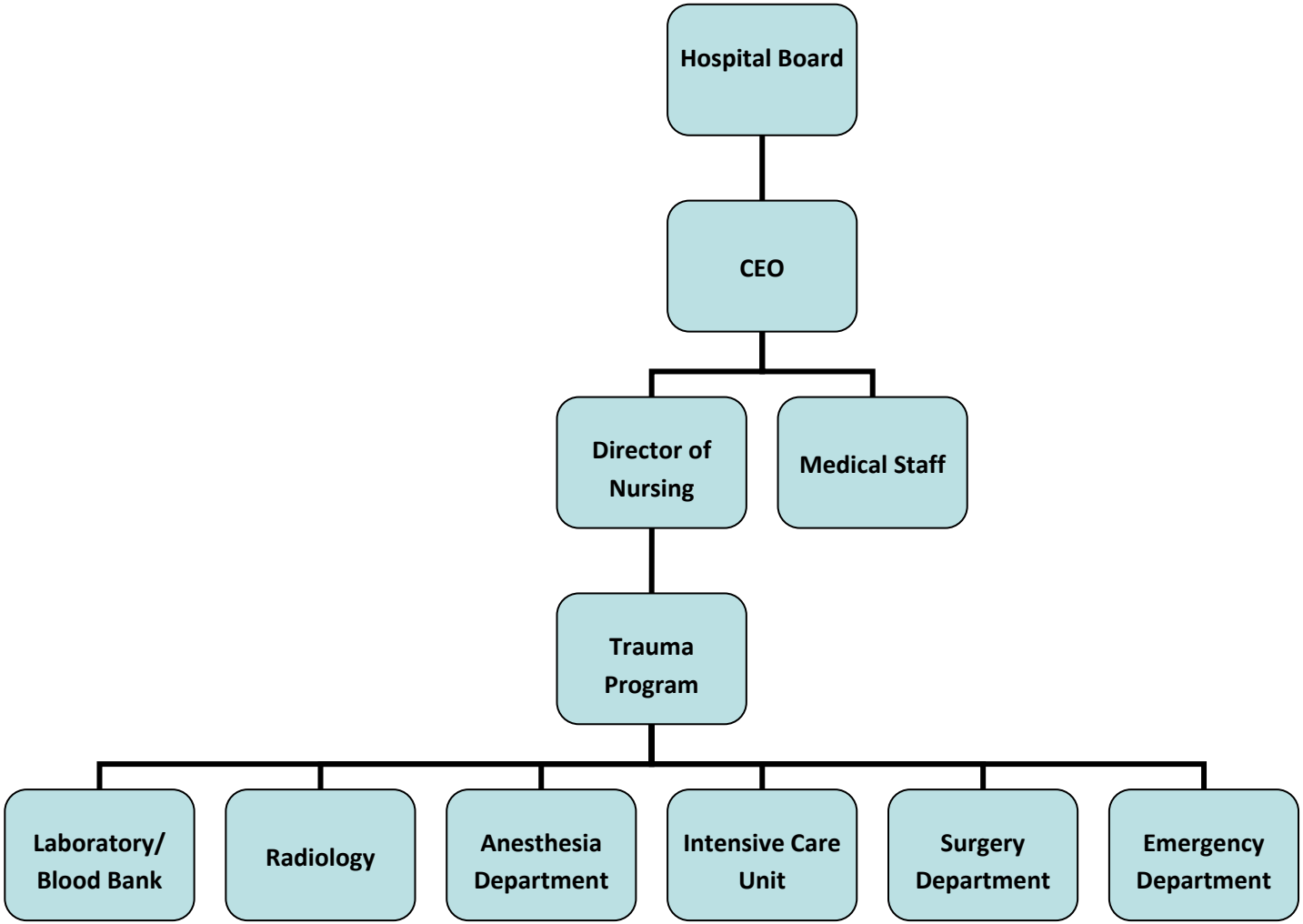
Attachment E: Suggested Position of Trauma Program



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Attachment F: Sample Single-Tier Trauma Team Activation (TTA) Protocol

Purpose:

A team must be rapidly assembled to provide for the initial evaluation and resuscitation of major trauma patients in an organized and efficient manner.

Policy:

The team is a multi-disciplinary panel of professionals assembled in an organized fashion to perform the tasks necessary to efficiently resuscitate seriously injured patients.

The activation criteria are as follows:

1) Activate trauma team upon realization that any of the following patient conditions exists, either upon arrival of the patient or notification by EMS.

   Adult or pediatric trauma patient and presenting with:

   - Altered level of consciousness: GCS ≤13 or less than A on AVPU scale
   - Respiratory distress/airway compromise, intubation:
   - Shock/diminished perfusion:
     - adult BP <90, HR>120
     - child

Age	BP	HR
≤ 6	<90	<60 or >160
2-5	<80	<60 or >180
12-24 months	<75	<70 or >180
0-12 months	<70	<80 or >180

   - Penetrating wound to the abdomen, neck, or chest
   - Severe facial injuries
   - Traumatic paralysis
   - Severe burns
   - Severe orthopedic injuries
   - Death in same passenger compartment
   - Fall >20 feet
   - Ejection from auto
   - Physician discretion

Trauma team members:

1) Emergency department provider (e.g., physician, nurse practitioner or physician assistant)
2) Two emergency department RNs
3) Nursing assistant or EMT
4) Laboratory technician
5) Radiologic Technologist
6) Health Unit Coordinator (HUC)

The individual roles of the team members are subject to change based on the needs of the patient and resources available during the resuscitation. Below is a guideline. The provider leading the resuscitation may modify the duties of any team member if in the best interest of the patient.

Emergency Department Provider:

- Perform primary and secondary survey.
- Perform or delegate airway management.
- Perform procedures as needed such as chest tube insertion, central venous access, ultrasound exam.
- Order appropriate lab and radiographs.
- Responsible for all medications and fluids given.
- Make triage and transfer decisions.
- Determine the need for and mode of inter-facility transfer (air vs. ground) early in resuscitation course.
- Communicate directly with receiving physician at trauma hospital regarding transfer.
- Document case (complete trauma flow sheet, dictate emergency department note).
- Complete and sign patient transfer form.

Emergency Department Nurses

- Prepare trauma room before the patient arrival.
- Place X-ray trauma blocks on the gurney.
- Assist EMS with transfer from EMS gurney to trauma bed.
- Attach BP, cardiac and oximetry monitors to the patient.
- Obtain initial vital signs and report out loud to emergency department provider. (BP, HR, RR, SpO_2 and temp (Core temp if hypothermia is considered).
- Maintain and monitor all intravenous lines. Obtain fluid resuscitation orders and IV rate from emergency department provider. Report to recorder (at end of emergency department course) total IV intake and urine output.
- Set up fluid and blood warmer. Start blood transfusion as ordered.
- Remain at patient bedside throughout the emergency department course.
- Assist with equipment preparation before the patient arrives.
- Assist with transfer from the EMS gurney to the trauma bed.

- Assist in removing patient's clothing.
- Draw up and label airway drugs (succinylcholine, Etomidate, etc.). Be prepared to administer drugs as ordered by the emergency department provider.
- Obtain IV access if needed. (If primary IV is done, place 2nd IV and draw bloods).

- Inserts Foley catheter when authorized by the emergency department provider.
- Set up chest tube drainage system if needed.
- Assist emergency department provider with procedures as needed.
- Administer tetanus booster and antibiotics when ordered by emergency department provider.
- Initially document emergency department course by filling out the trauma resuscitation record.
- Record vital signs initially and every 5 minutes; make sure that provider in charge is aware of any significant changes in the patient's status.
- Accompany patient out of department for any diagnostic procedures.
- Control traffic in the trauma room; attentive to patient's privacy, e.g., keep curtains closed, keep other patients and family members away from traffic areas.
- Communicate with family.
- Escort family members to trauma room and attend them when appropriate.

Nursing Assistant or EMT

- Assist with transfer from the EMS gurney to the trauma bed.
- Assist in removing patient's clothing; covers patient immediately with warm blankets.
- Assist with intubation: provide in-line cervical spine immobilization or Sellick's maneuver as directed.
- Assist with procedures as needed.
- Assist with transport of patient to X-ray.
- Check airway equipment before the patient's arrival. (i.e., suction, laryngoscopes, ambu bag, O_2)
- Maintain oxygen; insure SpO_2 unit functions properly; assist ventilation with BVM as necessary and as directed by emergency department provider.

Laboratory Technician

- Obtain pre-labeled blood tubes from trauma room; attach ID bracelet to patient.
- Obtain syringes from IV start (by RN) or perform venipuncture to obtain blood for trauma battery.
- Determine availability of blood; bring O negative blood to trauma room immediately if requested.
- Run phase 1 and phase 2 labs, if necessary. (see below)
- Obtain urine from Foley insertion and run UA on all patients. Run urine HCG on all females in reproductive age group.
- Run ABGs.
- Insure type specific blood is available in blood bank.
- Perform ECG if requested.

Radiologic Technologist

- Respond immediately to trauma team activation page; transfer portable x-ray machine to trauma room, insure enough film plates for basic trauma radiographs (e.g., lateral c-spine, chest, pelvis).
- Place chest plate on trauma cart under backboard before patient arrives.
- Determine radiographic priorities per physician in charge.
- Ensure at least 2 additional aprons are in trauma room and available for emergency department staff.
- Develop films and immediately take them to the trauma room.
- Inquire if CT will be needed; call in/notify CT tech to prepare for emergency scan.
- Copy radiographs if patient will be transferred; ensure originals accompany the patient.

Health Unit Coordinator (HUC)

- Activate trauma team upon notification of TTA for the field; confirm all team members have arrived. Record arrival times.
- Determine if additional medical staff will be needed.
- Contact receiving trauma hospital as directed by emergency department provider.
- Assemble and copy all documentation for transport team, e.g., chart, labs, x-ray.
- Direct family members to family support person.
- Prepare patient transfer forms and obtain emergency department provider signature if patient is transferred.
- Request security to secure the helicopter landing pad.
- Meet family members; escort them to the family consultation room.
- Offer to contact others, e.g., family, friends, or clergy.
- Authorize food services to provide refreshments to family members as necessary.
- If the patient is transferred, ensure that family members have transportation and directions to receiving facility.

Procedure:

a. The emergency department nurse, emergency department provider or EMS becomes aware of a patient meeting TTA criteria and instructs the operator to call a level 1 or 2 TTA. Call a TTA upon receipt of notification that the incoming patient's condition meets the TTA criteria. Do not wait for the patient to arrive in the emergency department before activating the team.
b. The HUC pages overhead *"Level [1 or 2] Trauma Team Stat, [ETA],"* a total of 3 times.
c. Team members assemble in the emergency department immediately.
d. The emergency department provider team leader briefs the team on the condition of the patient and begins to assign duties.
e. The team leader should immediately consider the need to transfer the patient and activate the trauma transfer protocol, if indicated.

Guiding Principles:

- Transfers should not be delayed to perform laboratory studies. Trauma lab panels, if necessary, should only be performed if they are going to be acted upon locally. Lab studies might include:
  - Heme profile
  - PT/INR
  - PTT
  - Basic metabolic
  - Alcohol
  - Type and screen
  - Arterial blood gases
  - Pregnancy test (serum or urine) on all females in reproductive age group
  - UA
  - Urine tox. Screen

- Personal Protective Equipment (PPE) should be worn by all personnel who work directly with the patient.
    - Gowns
    - Gloves
    - Masks to include eye shields
    - Shoe covers, surgical caps
    - Lead aprons
- Keep talking and noise to a minimum. Discuss the patient's condition only behind closed doors and after ensuring a private environment.
- Keep doors and curtains closed. Vigilantly maintain the patient's privacy. Encourage other patients and family members to stay in their cubicles during the resuscitation.
- Ensure that the patient is informed of procedures before they are performed. Continuously ascertain the patient's comfort level (e.g., pain, temperature).
- Verbally acknowledge orders; inform the source when the request has been completed; when giving orders, ensure their receipt.
- Stand in an area removed from the patient until called upon or dismissed, if not directly involved in patient care.
- Select proximal sites for peripheral IVs, when possible; they may need to be converted to rapid infusion catheters.
- Vacate the room when X-rays are being taken unless fitted with a lead apron.
- Place the patient's clothing and belongings into labeled bags as soon as possible.

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Attachment G: Sample Multi-Tier Trauma Team Activation (TTA) Protocol

Purpose:

A team must be rapidly assembled to provide for the initial evaluation and resuscitation of major trauma patients in an organized and efficient manner.

Policy:

The team is a multi-disciplinary panel of professionals assembled in an organized fashion to perform the tasks necessary to efficiently resuscitate seriously injured patients.

The activation criteria are as follows:

1) Level 1 activation: Activate the Level 1 Trauma Team upon realization that any of the following conditions exist, either upon arrival of the patient or notification by EMS.

   Adult or pediatric trauma patient and presenting with:

- Altered level of consciousness: GCS ≤8 secondary to trauma or less than V on AVPU scale.
- Respiratory distress/airway compromise, intubation:
  - Adult RR <10 or >30
  - Child

Age	RR
≤6	<10 or >30
2-5	<10 or >40
12-24 months	<10 or >50
0-12 months	<10 or >60

- Shock/diminished perfusion:
  - Adult BP <90, HR>120
  - Child

Age	BP	HR
≤ 6	<90	<60 or >160
2-5	<80	<60 or >180
12-24 months	<75	<70 or >180
0-12 months	<70	<80 or >180

- Severe multiple injuries (two or more systems) or severe single system injury.
- Cardiac or major vessel injuries.
- Transferred patients from other hospitals receiving blood to maintain vital signs.
- Penetrating wound to the abdomen, neck or chest.
- Unstable pelvic fracture.
- Severe facial injuries.
- Physician discretion.

2) Level 2 activation: Activate the Level 2 Trauma Team upon realization that any of the following conditions exist, either upon arrival of the patient or notification by EMS.

Adult or pediatric trauma patient and presenting with:

- GCS >8 and <14 secondary to trauma.
- Severe burns.
- Cardiac or respiratory disease.
- Co-morbid factors:
    - Insulin-dependent diabetes.
    - Morbid obesity.
    - Age <5 or >55 years.
- Severe orthopedic injuries.
- Injuries with complications (e.g., shock, sepsis, respiratory failure, cardiac failure).
- Traumatic paralysis.
- Death in same passenger compartment.
- Fall >20 feet.
- Ejection from auto.
- Pregnancy >20 weeks.
- Combination trauma with burns.
- Physician discretion.

For each level of activation, the trauma team members are:

1) Level 1 activation
    i) Emergency physician* (present within 15 minutes of patient's arrival)
    ii) General surgeon (present within 30 minutes of patient's arrival)
    iii) Two emergency department RNs*
    iv) Nursing supervisor
    v) Emergency department tech or EMT
    vi) Respiratory therapy
    vii) Anesthesia
    viii) Laboratory technician
    ix) Radiologic Technologist
    x) Emergency department HUC
    xi) Security
    xii) Social services or chaplain

*Note one physician and two RNs per critical patient

2) Level 2 activation
    i) Emergency physician* (present within 15 minutes of patient's arrival)
    ii) Two emergency department RNs*
    iii) Nursing supervisor
    iv) Emergency department tech or EMT
    v) Radiologic Technologist
    vi) Laboratory technician
    vii) Emergency department HUC
    viii) Security
    *Note one physician and two RNs per critical patient

The individual roles of the team members are subject to change based on the needs of the patient and resources available during the resuscitation. Below is a guideline. The physician leading the resuscitation may modify the duties of any team member if in the best interest of the patient.

Emergency physician and general surgeon

- Perform primary and secondary survey.
- Perform or delegate airway management.
- Perform procedures as needed such as chest tube insertion, central venous access, ultrasound exam.
- Order appropriate lab and radiographs.
- Responsible for all medications and fluids given.
- Make triage and transfer decisions.
- Determine mode of inter-facility transfer (air vs. ground).
- Communicate directly with receiving physician at trauma hospital regarding transfer.
- Document case (complete trauma flow sheet, dictate emergency department note).
- Complete and sign patient transfer form.
- Coordinate priorities when more than one critical patient in the emergency department.

Emergency Department Nurses

- Prepare trauma room before the patient arrival.
- Place X-ray trauma blocks on the gurney.
- Assist EMS with transfer from EMS gurney to trauma bed.
- Attach BP, cardiac and oximetry monitors to the patient.
- Obtain initial vital signs and report out loud to emergency department physician and critical care nurse. (BP, HR, RR, SpO_2 and temp (core temp if hypothermia is considered).
- Maintain and monitor all intravenous lines. Obtain fluid resuscitation orders and IV rate from emergency department physician. Report to recorder total IV intake and urine output at end of emergency department course.
- Set up fluid and blood warmer. Start blood transfusion as ordered.
- Remain at patient's bedside throughout the emergency department course.

- Remove patient's clothing.
- Draw up and label airway drugs (succinylcholine, Etomidate, etc.). Be prepared to administer drugs as ordered by the emergency department physician.
- Obtain IV access if needed. (If primary IV is done, place second IV and draw bloods)
- Insert Foley catheter when authorized by the emergency department physician.
- Set up chest tube drainage system if needed.
- Assist physician with procedures as needed.
- Administer tetanus booster and antibiotics when ordered by emergency department physician.
- Initially document emergency department course by filling out the trauma resuscitation record.
- Record vital signs initially and every five minutes; make sure that physician in charge is aware of any significant changes in the patient's status.
- Accompany patient out of department for any diagnostic procedures.
- Accompany patient to ICU, report off to ICU staff.

Nursing Supervisor

- Assess staffing needs; delegate additional nursing staff as required to attend trauma patient or others in the emergency department.
- Ensure all team members are wearing appropriate protective equipment (see below).
- Monitor activities of the trauma team.
- Control traffic in the trauma room; attentive to patient's privacy, e.g., keep curtains closed, keep other patients and family members away from traffic areas.
- Assist others with equipment and procedures as needed.
- Communicate with family in collaboration with family support staff member.
- Escort family members to trauma room and attend them when appropriate.

Emergency Department Technician (or EMT)

- Assist with transfer from the EMS gurney to the trauma bed.
- Assist in removing patient's clothing; cover patient immediately with warm blankets.
- Assist with intubation: provide in line cervical spine immobilization or Sellick's maneuver as directed.
- Assist with procedures as needed.
- Assist with transport of patient to CT scanner.

Respiratory Therapist (When not available a paramedic may take the place of RT.)

- Check airway equipment before the patient's arrival (e.g., suction, laryngoscopes, Ambu bag, O_2).
- Maintain oxygen; ensure SpO_2 unit functions properly; assist ventilation with BVM as necessary and as directed by emergency department physician.
- Assist with intubation; perform Sellick's maneuver after paralytic is given; ensure that in-line cervical spine immobilization is delegated for the intubation.

- Check tube placement after intubation with esophageal detector device, attach end tidal CO_2 monitor and secure ET tube.
- Ventilate patient; set up transport ventilator if necessary.
- Monitor end tidal CO_2 and SpO_2.
- Draw ABGs if requested.

Anesthesia (CRNA or MDA)

- Initially assist with airway management as directed by physician in charge.
- Assist with vascular access (peripheral or central).
- Assist with ventilation if respiratory therapy unavailable (if RT not in house).
- Serve as team leader for an individual patient when emergency department physician unavailable.
- Place NG or OG tube as directed by physician in charge.

Laboratory Technician

- Obtain pre-labeled blood tubes from trauma room; attach ID bracelet to patient.
- Obtain syringes from IV start (by RN) or perform venipuncture to obtain blood for trauma battery.
- Determine availability of blood; bring O negative blood to trauma room immediately if requested.
- Run phase 1 and phase 2 labs (see below).
- Obtain urine from Foley insertion and run UA on all patients. Run urine HCG on all females in reproductive age group.
- Run ABGs.
- Ensure type specific blood is available in blood bank.
- Perform ECG if requested.

Radiologic Technologist

- Respond immediately to trauma team activation page; transfer portable X-ray machine to trauma room, ensure enough film plates for basic trauma radiographs (e.g., lateral c-spine, chest and pelvis).
- Place chest plate on trauma cart under backboard before patient arrives.
- Obtain radiographic priorities from physician in charge.
- Ensure at least two additional aprons are in trauma room and available for emergency department staff.
- Develop films and immediately take them to the trauma room.
- Inquire if CT will be needed; call in/notify CT tech to prepare for emergency scan.
- Copy radiographs if patient will be transferred; ensure originals accompany the patient.

Health Unit Coordinator (HUC)

- Activate trauma team upon notification of TTA; confirm all team members have arrived and record arrival times.
- Determine if additional medical staff will be needed.
- Contact receiving trauma hospital as directed by emergency department physician.
- Assemble and copy all documentation for transport team, e.g., trauma flow sheet, chart, labs, X-ray.
- Direct family members to family support person.
- Prepare patient transfer forms and obtain emergency department physician signature if patient is transferred.

Security

- Assist with procedures during resuscitation.
- Secure helicopter landing pad and assist flight crew with equipment.
- Assist with transportation of the patient to CT or helipad as needed.

Family Support Person (Social Services, Chaplain or Nursing Supervisor)

- Meet family members; escort them to the family consultation room.
- Offer to contact others, e.g., family, friends or clergy.
- For pediatric resuscitations, accompany parents into the trauma room; attend them continuously.
- Authorize food services to provide refreshments to family members as necessary.
- If the patient is transferred, ensure that family members have transportation and directions to receiving facility.
- In the case of patient's death, assist with contacting funeral service.

Back up physicians (non-emergency department physician called in to assist with multiple casualties)

- Assist with procedures as delegated by the physician in charge.
- Assume responsibility for additional trauma patients or other emergency department patients as directed by physician in charge.
- Inform physician in charge of findings, patient progress; consult regarding treatment/triage/transfer plans.

Procedure:

1. The emergency department nurse, emergency department physician or EMS becomes aware of a patient meeting TTA criteria and instructs hospital operator to call a level 1 or 2 TTA. Call a TTA upon receipt of notification that the incoming patient's condition meets the TTA criteria. Do not wait for the patient to arrive in the emergency department before activating the team.
2. The operator pages overhead "Level [1 or 2] Trauma Team Stat, [ETA]," a total of 3 times.
3. Team members assemble in the emergency department immediately.
4. The physician team leader briefs the team on the condition of the patient and begins to assign duties.
5. The physician team leader should immediately consider the need to transfer the patient and activate the trauma transfer protocol, if indicated.

Guiding Principles:

- Transfers should not be delayed to perform laboratory studies. Trauma lab panels, if necessary, should only be performed if they are going to be acted upon locally. Lab studies might include:
    - Heme profile
    - PT/INR
    - PTT
    - Basic metabolic
    - Alcohol
    - Type and screen
    - Arterial blood gases
    - Pregnancy test (serum or urine) on all females in reproductive age group
    - UA
    - Urine tox. screen
- Personal Protective Equipment (PPE) should be worn by all personnel who work directly with the patient.
    - Gowns
    - Gloves
    - Masks to include eye shields
    - Shoe covers, surgical caps
    - Lead aprons
- Keep talking and noise to a minimum. Discuss the patient's condition only behind closed doors and after ensuring a private environment.
- Keep doors and curtains closed. Vigilantly maintain the patient's privacy. Encourage other patients and family members to stay in their cubicles during the resuscitation.
- Ensure that the patient is informed of procedures before they are performed. Continuously ascertain the patient's comfort level (e.g., pain, temperature).
- Verbally acknowledge orders; inform the source when the request has been completed; when giving orders, ensure their receipt.
- Stand in an area removed from the patient until called upon or dismissed, if not directly involved in patient care.
- Select proximal sites for peripheral IVs, when possible; they may need to be converted to rapid infusion catheters.
- Vacate the room when X-rays are being taken unless fitted with a lead apron.
- Place the patient's clothing and belongings into labeled bags as soon as possible.

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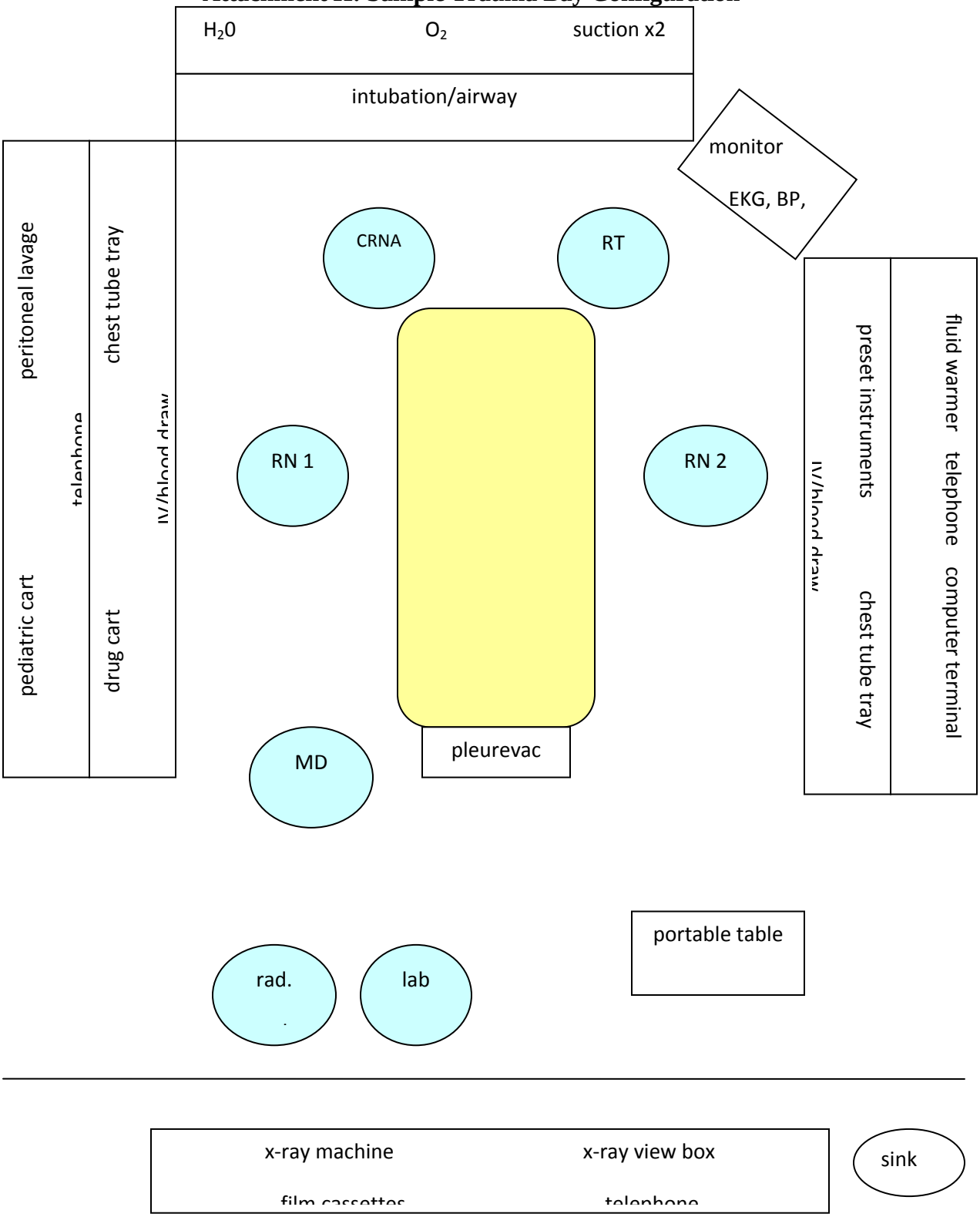
Attachment H: Sample Trauma Bay Configuration



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Attachment I: Trauma Resuscitation Record

On the next four pages is a sample form, originally developed for the Minnesota Trauma System, which can be used as an internal model to capture key data elements. It is not required, and is provided only as an example for reference.

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Patient Tag/Sticker	Admit Date / / Patient Name Arrival Time :
Date of Birth	**Trauma Team Notification/Arrival**
	Trauma Team Activated? ☐Yes ☐No Time: :
Gender	
Medical Record #	

Name		Time called	Time arrived	Present upon Pt arrival?
Trauma Surgeon		:	:	☐Yes ☐No
ED Physician		:	:	☐Yes ☐No
Anesthesia		:	:	☐Yes ☐No
		:	:	☐Yes ☐No

Arrived via:

☐Ambulance

☐Helicopter

☐Police

☐Self

☐

☐Transfer from:

☐EMS report in Pt chart

Pre-hospital Interventions

Airway:

☐Oral ☐Nasal ☐Intubated ☐O_2

☐IV size _____ site _____

☐IV #2 size _____ site _____

☐Blood sugar _____ mg/dl

☐CPR ☐LBB ☐C collar ☐MAST

☐Splint type _____ location _____

Meds:

☐Morphine _____ mg ☐Versed _____mg

☐_____ _____mg

Pt. Medications

☐unknown

Past History

☐unknown

last tetanus_____

last P.O._____

Allergies

☐unknown

Mechanism of Injury

Motor Vehicle

Involved:

☐Auto

☐Light truck

☐Heavy truck

☐Motorcycle

☐ATV

☐Bicycle

☐Pedestrian

☐Watercraft

Patient was:

☐Driver

☐Passenger-front

☐Passenger-back

☐Pedestrian struck by auto

☐Bicyclist struck by auto

☐Unknown

☐Seatbelt

☐Airbag

☐Child seat

☐Helmet

☐Ejected

☐Extrication

☐Death of another occupant

Impact:

☐Front

☐Side

☐Rear

☐Rollover

☐T-bone

Fall/Jump

Approx. height:

_____

Landing surface:

☐Grass/dirt/earth

☐Stone

☐Concrete/brick

☐Tile/wood

☐Carpet

☐Water

Burn

☐Flame

☐Steam

☐Chemical

☐Radiation

☐Inhalation

☐Electrical voltage:_____

Penetrating

☐GSW

caliber_____

distance_____

☐Stab

blade length_____

☐Self inflicted

☐Impalement

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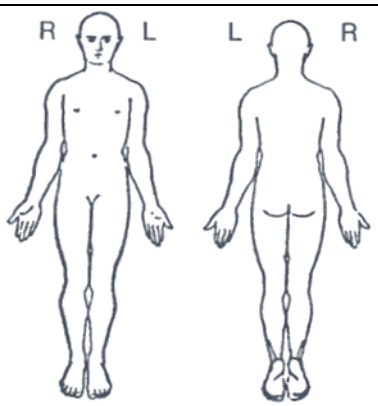
☐Sporting _____				☐		

Primary Survey and Preliminary Interventions				Initial ED Vital Signs
Airway	☐Patent/talking ☐Clear ☐Partially obstructed ☐Completely obstructed ☐Breathing assisted ☐Intubated ☐EOA/Combitube	☐Jaw thrust ☐Suction ☐Foreign object removal/laryngoscopy ☐Oral airway ☐Nasal airway ☐Combitube/LMA time: ____:____	☐Intubation ☐RSI tube size_____ time:____:____ _____cm @ _____ #attempts:_____ ☐Confirmed by: ☐End tidal CO_2 ☐Aspirator ☐CXR	Time:____:_____ BP: _____/_____ Pulse: _____/min Resp.: _____/min Temp.: ____^{0} C site_____ SaO2: _____% Blood Glucose _____ mg/dl Est. weight: _____ kg
Breathing	☐Spontaneous ☐Labored ☐Agonal ☐No effort Trachea: ☐Midline ☐Deviated ☐R ☐L Chest wall symmetry: ☐Symmetrical ☐Asymmetrical	Lung sounds: L R ☐ ☐Present ☐ ☐Clear ☐ ☐Diminished ☐ ☐Absent ☐ ☐Rales ☐ ☐Rhonchi ☐ ☐Wheezes	Assisted: ☐BVM ☐Ventilator Vent. Rate _____ Supplemental O_2 ☐Mask ☐NC _____ l/m	**A** Awake and alert **V** Verbal stimuli elicits response **P** Painful stimuli elicits response **U** Unresponsive to stimuli
Circulation	Skin: ☐Warm ☐Pink ☐Cool ☐Pale ☐Hot ☐Flushed ☐Dry ☐Ashen ☐Moist ☐Cyanotic ☐Diaphoretic	Pulse: ☐Central pulse present ☐Peripheral pulse present ☐No pulse ☐Strong ☐Thready Capillary refill _____ sec.	IVs: Time Site Size ____:____ _____ _____ ____:____ _____ _____ ____:____ _____ _____ ☐Warm IV fluids	☐Warm blankets ☐Warming lights ☐Direct pressure bleeding control: site_____
Disability	**Glasgow Coma Scale (GCS)** Eye Opening Verbal Motor			**Pupils** **L** **R**

	☐4 Spontaneous ☐3 To Verbal ☐2 To Pain ☐1 None	☐5 Oriented ☐4 Confused ☐3 Inappropriate response ☐2 Incomprehensible ☐1 None/Intubated	☐6 Obeys ☐5 Localizes pain ☐4 Withdraws from pain ☐3 Flexor posturing ☐2 Extensor posturing ☐1 None/chemically paralyzed	☐Brisk ☐Sluggish ☐Non-reactive _____mm	☐Brisk ☐Sluggish ☐Non-reactive _____mm

MR#

Secondary Survey	
Head	☐Pain/tenderness Drainage from: ☐ears ☐nose ☐mouth
Neck	☐Pain/tenderness ☐JVD
Chest	☐Pain/tenderness ☐Dyspnea ☐ Deformity ☐ Paradoxical expansion
Abdomen	☐Pain ☐Tender ☐Rigid ☐Bowel sounds present ☐Soft ☐Guarded ☐Distended ☐Bowel sounds absent Emesis/gastrocult: ☐+ ☐-
Pelvis/Genital	☐Pain/tenderness Pelvis: ☐stable ☐unstable ☐Blood at the meatus Rectal tone: ☐present ☐absent Hemocult: ☐+ ☐-
Extremities	☐Pain/tenderness ☐CMS intact x4 ☐Moves all extremities ☐Extremities warm and pink
Back	☐Pain/tenderness ☐Deformity



Surface Trauma

Ongoing Monitoring

Time	:	:	:	:	:	:	:	:	:	:	:
BP	/	/	/	/	/	/	/	/	/	/	/
Pulse											
Resp.											
SaO2	%	%	%	%	%	%	%	%	%	%	%
GCS											
Temp.	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C	^{0}C
EKG											

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$ETCO_2$											
Pain scale	/10	/10	/10	/10	/10	/10	/10	/10	/10	/10	/10

Medications

Drug/Procedure	Dose	Route	Time	Administered by	Response
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved
			:		☐no change ☐improved

Fluid In/Blood Products

Solution/Blood Product	Time hung	Size	Blood unit #	Time d/c'ed	Amount infused
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc
	:	cc		:	cc

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Procedures			
Procedure	**Time**	**By**	**Detail**
☐ Cast/splint	:		
☐ Central line	:		
☐ Chest tube R	:		
☐ Chest tube L	:		
☐ Cricothyrotomy	:		
☐ Defib/Cardiovert	:		
☐ Foley	:		
☐ Intraosseous	:		
☐ Needle thoracotomy	:		
☐ OG/NGT	:		
☐ RSI	:		
☐ Suture	:		
☐	:		
☐	:		

Laboratory		Radiology			
Lab	**Time Ordered**	**X-ray**	**Time Ordered**	**CT**	**Time Ordered**
☐ BAC	:	☐ CXR	:	☐ Abdomen	:
☐ CBC	:	☐ Pelvis	:	☐ Chest	:
☐ Electrolytes	:	☐ Skull	:	☐ Head	:
☐ Glucose	:	☐ spine-Cervical	:	☐ Neck	:
☐ hCG	:	☐ spine- Lumb/Sac	:	☐ Pelvis	:
☐ Hgb	:	☐ spine- Thoracic	:	☐ Spine	:
☐ PT/INR	:	☐	:	☐	:
☐ PTT	:	☐	:	☐	:
☐ pH	:	☐	:	**Ultrasound**	**Time Ordered**
☐ Tox. screen	:	☐	:	☐ FAST exam	:
☐ Type and screen	:	☐	:	☐	:
☐ UA	:	☐	:	☐	:

Patient Disposition

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☐ **Admitted**		☐ **Transferred**			
Pt left ED	:	Ordered	:	Transfer via: ☐Helicopter _____ ☐Ground _____	Accompanying Pt: ☐Copy of chart ☐EMS report ☐X-rays/CTs ☐ Lab report ☐RN_____
Report called	:	Arrived	:		
Admitting service:		Pt left ED	:		
Admitting physician:		Transferred to:			
☐**Expired in ED**	:	Referral hospital notified	:		

Patient Information

SSN	Address		Apt. #
Telephone Number	City	State/Province	Postal Code

Ethnicity	Race		Pay Source
☐Hispanic/Latino	☐White	☐American Indian/Alaskan Native	☐Medicare
☐Non-Hispanic/Latino	☐Black	☐Native Hawaiian/Pacific Islander	☐Uninsured
☐Unknown	☐Asian	☐Other	☐Other _____
	☐Unknown		☐Unknown

MR#

Notes

[INSERT HOSPITAL NAME, ADDRESS, PHONE NUMBER]	Signatures	
	Physician	
	Primary nurse	
	Recorder	

Attachment J: Suggested Criteria for Consideration of Transfer

Central Nervous System

- Penetrating injury/open fracture, with or without cerebrospinal fluid leak
- Depressed skull fracture
- GCS <14 or deterioration
- Spinal cord injury or major vertebral injury

Chest

- Major chest wall injury or pulmonary contusion
- Wide mediastinum or other signs suggesting great vessel injury
- Cardiac injury
- Patients who may require prolonged ventilation

Pelvis/Abdomen

- Unstable pelvic ring disruption
- Pelvic fracture with shock or other evidences of continuing hemorrhage
- Open pelvic injury
- Solid organ injury

Major Extremity Injuries

- Fracture/dislocation with loss of distal pulses
- Open long-bone fractures
- Extremity ischemia

Multiple-System Injury

- Head injury combined with face, chest, abdominal, or pelvic injury
- Burns with associated injuries
- Multiple long-bone fractures
- Injury to more than two body regions

Co-morbid Factors

- Age >55 years
- Children ≤5 years of age
- Cardiac or respiratory disease
- Insulin-dependent diabetes, morbid obesity
- Pregnancy
- Immunosuppression

Secondary Deterioration (Late Sequelae)

- Mechanical ventilation required
- Sepsis
- Single or multiple organ system failure (deterioration in central nervous, cardiac, pulmonary, hepatic, renal, or coagulation systems)
- Major tissue necrosis

American College of Surgeons, *Resources for Optimal Care of the Injured Patient: 1999*, p. 21.

Attachment K: Quick ED Transfer Decision Tree

KENTUCKY STATEWIDE TRAUMA SYSTEM

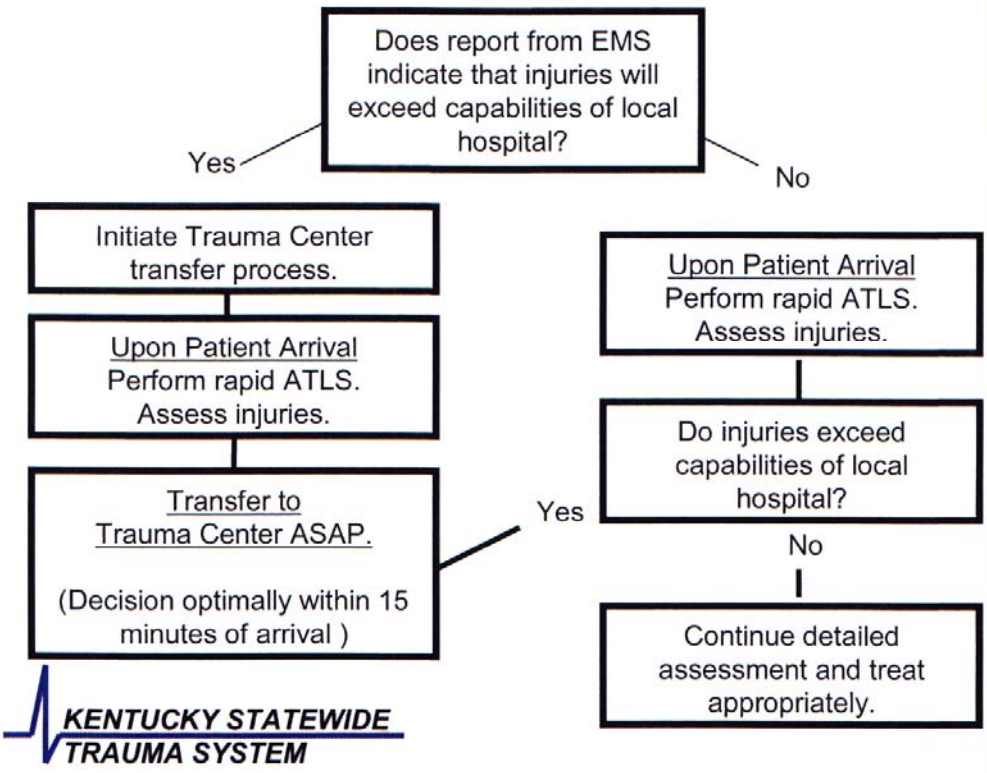
ER Transfer Decision Tree

The goal of the Kentucky Trauma System is to get the right patient to the right place at the right time. Currently in Kentucky the average time between arrival at a community hospital and arrival at a Level I Trauma Center is 5.8 hours.

A critically injured trauma patient should be transferred to definitive care (usually a surgeon) as soon as possible. Arrangements for transfer should be made as soon as it is recognized that the injuries of the patient exceed the capabilities of the local facility to appropriately treat and care for those injuries.

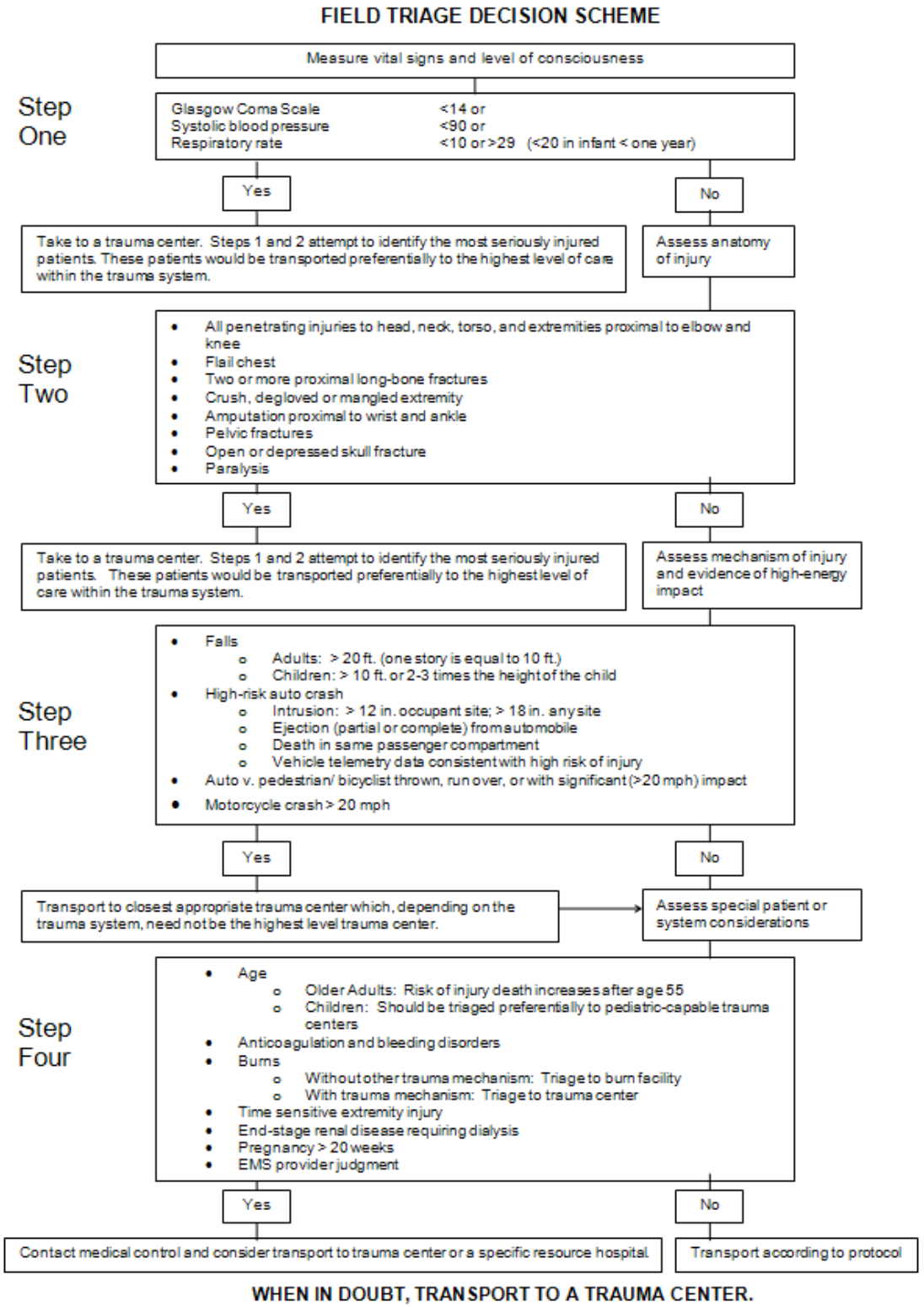
In the majority of the cases the critically ill patient will need rapid ATLS treatment followed by expedient transfer to a verified Trauma Center. There is no need for a complete workup (e.g. CT Scan, multiple x-rays, blood chemistry analysis, etc) prior to transferring the severely injured patient to definitive care.

The decision to transfer a patient can often be made within ***15 minutes*** of arrival.



KENTUCKY STATEWIDE TRAUMA SYSTEM

Attachment L: CDC Field Triage Decision Scheme



This field triage decision scheme, originally developed by the American College of Surgeons Committee on Trauma, was revised by an expert panel representing emergency medical services, emergency medicine, trauma surgery, and public health. The panel was convened by the Centers for Disease Control and Prevention (CDC) with support from National Highway Traffic Safety Administration (NHTSA). Its contents are those of the expert panel and do not necessarily represent the official views of CDC and NHTSA.

SOURCE: Adapted from American College of Surgeons. Resources for the optimal care of the injured patient. Chicago, IL: American College of Surgeons; 2006. Footnotes have been added to enhance understanding of field triage by persons outside the acute injury care field.

* The upper limit of respiratory rate in infants is >29 breaths per minute to maintain a higher level of overtriage for infants
† Trauma centers are designated Level I–IV, with Level I representing the highest level of trauma care available.
§ Any injury noted in Steps 2 and 3 triggers a "yes" response.
¶ Age <15 years.
** Intrusion refers to interior compartment intrusion, as opposed to deformation which refers to exterior damage.
†† Includes pedestrians or bicyclists thrown or run over by a motor vehicle or those with estimated impact >20 mph with a motor vehicle.
§§ Local or regional protocols should be used to determine the most appropriate level of trauma center; appropriate center need not be Level I.
¶¶ Age >55 years.
*** Patients with both burns and concomitant trauma for whom the burn injury poses the greatest risk for morbidity and mortality should be transferred to a burn center. If the nonburn trauma presents a greater immediate risk, the patient may be stabilized in a trauma center and then transferred to a burn center.
††† Injuries such as an open fracture or fracture with neurovascular compromise.
§§§ Emergency medical services.
¶¶¶ Patients who do not meet any of the triage criteria in Steps 1–4 should be transported to the most appropriate medical facility as outlined in local EMS protocols.

Original source document: CDC MMWR, January 23, 2009/ Vol. 58/ RR-1
http://www.cdc.gov/mmwr/PDF/rr/rr5801.pdf

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Attachment M: Sample Trauma Transfer Protocol
Adult and Pediatric

Purpose:
Trauma patients who will be transferred out of this facility to a definitive care facility emergently must be identified early, assessed and treated quickly and transferred efficiently in order to provide them the best possible outcome.

Policy:
Patients to be transferred can often be identified before they arrive in the emergency department. Arrangements for emergent transfer can often begin the moment the emergency department staff is notified by EMS that they are en route with a major trauma patient. Other patients may require evaluation by the emergency department physician before the decision to transfer is made.

Once the decision to transfer has been made, it should not be delayed to obtain X rays, CT scans or laboratory results that do not immediately impact the resuscitation. At this point, the focus of the emergency department staff is on resuscitation and stabilization with the goal of minimizing the patient's length of stay in the emergency department.

Consideration should be given to whether the patient will be transferred via ground or air. Generally, seriously injured trauma patients should be transferred by air when possible. Consideration should be given to ground transport if the patient can be received by the definitive care facility sooner than if transported by air or if aero medical transfer is significantly delayed or unavailable for any reason.

Transport vehicles should be staffed by paramedics and/or nurses whenever possible. Trauma patients on whom invasive procedures have been performed or who have received medications must be transferred under the care of personnel who are adequately trained to manage their resulting condition. If necessary, a physician or nurse from this hospital may accompany the patient.

<u>The following are conditions that should immediately activate emergency transfer procedures:</u>

- Central Nervous System
  - Penetrating injury/open fracture with or without cerebrospinal fluid leak
  - Depressed skull fracture
  - GCS <11 or deteriorating mental status or lateralizing neurological signs
  - Spinal cord injury or major vertebral injury
- Chest
  - Major chest wall injury or pulmonary contusion
  - Wide mediastinum or other signs suggesting great vessel injury
  - Cardiac injury
- Pelvis/Abdomen
  - Pelvic fracture with shock or other evidences of continuing hemorrhage
  - Open pelvic injury
  - Unstable pelvic ring disruption
  - Major abdominal vascular injury
- Major Extremity Injuries
  - Fracture/dislocation with loss of distal pulses

- Multiple-System Injury
  - Head injury combined with face, chest, abdominal, or pelvic injury
  - Burns with associated injuries
- Secondary Deterioration (Late Sequelae)
  - Single or multiple organ system failure (deterioration in central nervous, cardiac, pulmonary, hepatic, renal, or coagulation systems)
  - Major tissue necrosis

The following conditions should be considered for immediate transfer:

- Central Nervous System
  - GCS >10 and <14
- Chest
  - Patients who may require prolonged ventilation
  - >2 unilateral rib fractures
- Abdomen
  - Solid organ injury
- Major Extremity Injuries
  - Open long-bone fractures
  - Extremity ischemia
  - Multiple long-bone fractures
- Multiple-System Injury
  - Injury to more than two body regions
- Co-morbid Factors
  - Age >55 years
  - Children ≤ 5 years of age
  - Cardiac or respiratory disease
  - Insulin-dependent diabetes
  - Morbid obesity
  - Pregnancy
  - Immunosuppression
- Secondary Deterioration (Late Sequelae)
  - Mechanical ventilation required
  - Sepsis

Procedure:

Before patient arrival:

1. After becoming aware that a trauma patient is en route who likely will require emergent transfer, the emergency department staff activates the trauma team and notifies the emergency department physician of the likelihood of transfer. Ascertain from EMS if they have already ordered aero medical transportation.
2. The physician identifies the appropriate mode of transfer (i.e., aero medical vs. ground) and qualifications of transferring personnel.
3. HUC contacts the appropriate aero medical and/or ground transportation, obtains ETA:
   - [INSERT CONTACT INFORMATION]

After patient arrival:

1. The physician identifies and contacts the receiving facility, and requests the receiving physician to accept the transfer. The two should discuss the current physiological status of the patient and the optimal timing of transfer.
2. Before transfer, the physician should:
   - Ensure chest tubes are placed in the presence of pneumothorax.
   - Ensure at least two IV lines are established.
   - Consider securing the airway with an endotracheal tube, LMA or surgical airway if GCS <11.
   - Consider sending additional blood, equipment and supplies (medications, fluids, etc.) that the patient may need en route if not available in the transporting vehicle.
3. The **X** copies all available documentation to accompany the patient:
   - EMS report
   - Resuscitation record
   - X rays, CT scans
   - Lab results

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Attachment N: Transfer Agreement Example

Transfer Agreement

This agreement is made and entered into by and between <<Name1 Hospital>> (hereinafter called <<Initials1H>>) and <<Higher Level Regional Medical Center>> (hereinafter called <<Initials RMC>>):

Whereas, both <<INITIALS1H>> and <<INITIALS RMC>> desire, by both means of this Agreement, to assist physicians and the parties hereto in the treatment of trauma patients (e.g., burn, traumatic brain injuries, spinal cord injuries, multi-system injuries); and whereas the parties specifically wish to facilitate: (a) the timely transfer of patients and information necessary or useful in the care and treatment of trauma patients transferred, (b) the continuity of the care and treatment appropriate to the needs of adult and pediatric trauma patients, and (c) the utilization of knowledge and other resources of both facilities in a coordinated and cooperative manner to improve the professional health care of trauma patients.

IT IS, THEREFORE, AGREED by and between the parties as follows:

1. PATIENT TRANSFER: The need for transfer of a patient from <<INITIALS1H>> to <<INITIALS RMC>> shall be determined and recommended by the patient's attending physician in such physician's own medical judgment. When a transfer is recommended as medically appropriate, a trauma patient at <<INITIALS1H>> shall be transferred and admitted to <<INITIALS RMC>> as promptly as possible under the circumstances, provided that beds and other appropriate resources are available. Acceptance of the patient by <<INITIALS RMC>> will be made pursuant to admission policies and procedures of <<INITIALS RMC>>.
2. <<INITIALS1H>> agrees that it shall:
    a. Notify <<INITIALS RMC>> as far in advance as possible of transfer of a trauma patient.
    b. Transfer to <<INITIALS RMC>> the personal effects, including money and valuables and information relating to same.
    c. Make every effort within its resources to stabilize the patient to avoid all immediate threats to life and limbs. If stabilization is not possible, <<INITIALS1H>> shall either establish that the transfer is the result of an informed written request of the patient or his or her surrogate or shall have obtained a written certification from a physician or other qualified medical person in consultation with a physician that the medical benefits expected from the transfer outweigh the increased risk of transfer.
    d. Affect the transfer to <<INITIALS RMC>> through qualified personnel and appropriate transportation equipment, including the use of necessary and medically appropriate life support measures.
    e.
3. <<INITIALS1H>> agrees to transmit with each patient at the time of transfer, or in the case of emergency, as promptly as possible thereafter, pertinent medical

    information and records necessary to continue the patient's treatment and to

provide identifying and other information.

4. <<INITIALS RMC>> agrees to state where the patient is to be delivered and agrees to provide information about the type of resources in has available.

5. Bills incurred with respect to services preformed by either party to the Agreement shall be collected by the party rendering such services directly from the patient, third party, and neither party shall have any liability to the other for such charges.

6. This agreement shall be effective from the date of execution and shall continue in effect indefinitely. Either party may terminate this agreement on thirty (30) days notice in writing to the other party. If either party shall have its license to operate revoked by the state, this Agreement shall terminate on the date such revocation becomes effective.

7. Each party to the Agreement shall be responsible for its own acts and omissions and those of their employees and contractors and shall not be responsible for the acts and omission of the other institutions.

8. Nothing in this Agreement shall be construed as limiting the right of either to affiliate or contract with any hospital or nursing home on either a limited or general basis while this Agreement is in effect.

9. Neither party shall use the name of the other in any promotional or advertising material unless review and written approval of the intended use shall first be obtained from the party whose name is to be used.

10. This Agreement shall be governed by the laws of the State of Kentucky. Both parties agree to comply with the Emergency Medical Treatment and Active Labor Act of 1986, and the Health Insurance Portability and Accountability Act of 1996, and the rules now and hereafter promulgated thereunder.

11. This Agreement may be modified or amended from time to time by mutual Agreement of the parties, and any such modification or amendment shall be attached to and become part of the Agreement.

_____ Date _____ Date _____

<<INITIALS RMC>> Representative <<INITIALS1H>> President/CEO

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Attachment O: Trauma PI Tracking Form

Demographics	Source of Information	Location of Issue
Date of report: Medical record #:	☐ trauma program coordinator ☐ nurse manager ☐ staff nurse ☐ physician ☐ patient relations ☐ rounds ☐ multidisciplinary conference ☐ registry ☐ PI chart audit ☐	☐ EMS ☐ ED ☐ OR ☐ ICU/PACU ☐ floor ☐ radiology ☐ lab ☐ rehab ☐
Complication, problem or complaint:		
Reviewed by:		
Date of review:		

Determination:	**Preventability:**
☐ system-related	☐ non-preventable
☐ disease-related	☐ potentially preventable
☐ provider-related	☐ preventable
☐ unable to determine	☐ unable to determine

Corrective action:

☐ not necessary	☐ guideline/protocol	☐ resource enhancement
☐ trend/track similar occurrences	☐ counseling	☐ privilege/credentialing review
☐ education	☐ peer review	☐

Explanation:

Signature:	**Date:**

Adapted from American College of Surgeons, Resources for Optimal Care of the Injured Patient: 1999, p. 72.

Attachment P: Definitions of Trauma Death Classifications

A **non-preventable** death results from an event or complication that is a sequela of a procedure, disease, illness, or injury for which reasonable and appropriate preventable steps have been taken.

For example, a gunshot wound to the head with a Glasgow Coma Scale (GCS) of 3 on arrival and subsequent death, posttraumatic pancreatitis, pneumonia, deep venous thrombosis (DVT), and so on, in patients who had appropriate preventative steps taken. Most deaths and morbidities fall into this category.

A **potentially preventable** death results from an event or complication that is a sequela of a procedure, disease, illness, or injury that has the potential to be prevented or substantially ameliorated.

For example, iatrogenic pneumothorax or wound dehiscence, wherein alternate techniques or judgments may have prevented the complication with some certainty. Such a choice is always a difficult call and requires determination from experienced trauma surgeons or a panel of physicians. An example of a potentially preventable mortality may be an elderly trauma patient with a severe head injury who develops a fatal arrhythmia from electrolyte abnormality. The arrhythmia may have been preventable, but it is unlikely that the death was; therefore, the death is deemed "potentially preventable." A patient suffering a preventable morbidity who subsequently expires after being declared DNR (do not resuscitate) by family or advanced directive may be determined to be a potentially preventable mortality. There is no precision in these determinations; these are clinical judgments based on the best available evidence.

A **preventable death** results from an event or complication that is an expected or unexpected sequela of a procedure, disease, illness, or injury that could have been prevented or substantially ameliorated.

For example, a patient admitted with abdominal distention and shock who dies from a ruptured spleen two hours later while waiting for a surgeon. Death as a result of a missed epidural hematoma or esophageal intubation may be preventable. Preventable mortalities should be very unusual in a mature trauma system. A missed fracture resulting from failure to examine the patient may be a preventable morbidity.

Reprinted from American College of Surgeons, *Trauma Performance Improvement Reference Manual*, January, 2002, pp. 6-7.

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Attachment Q: Trauma PI Filter Tracking Worksheet

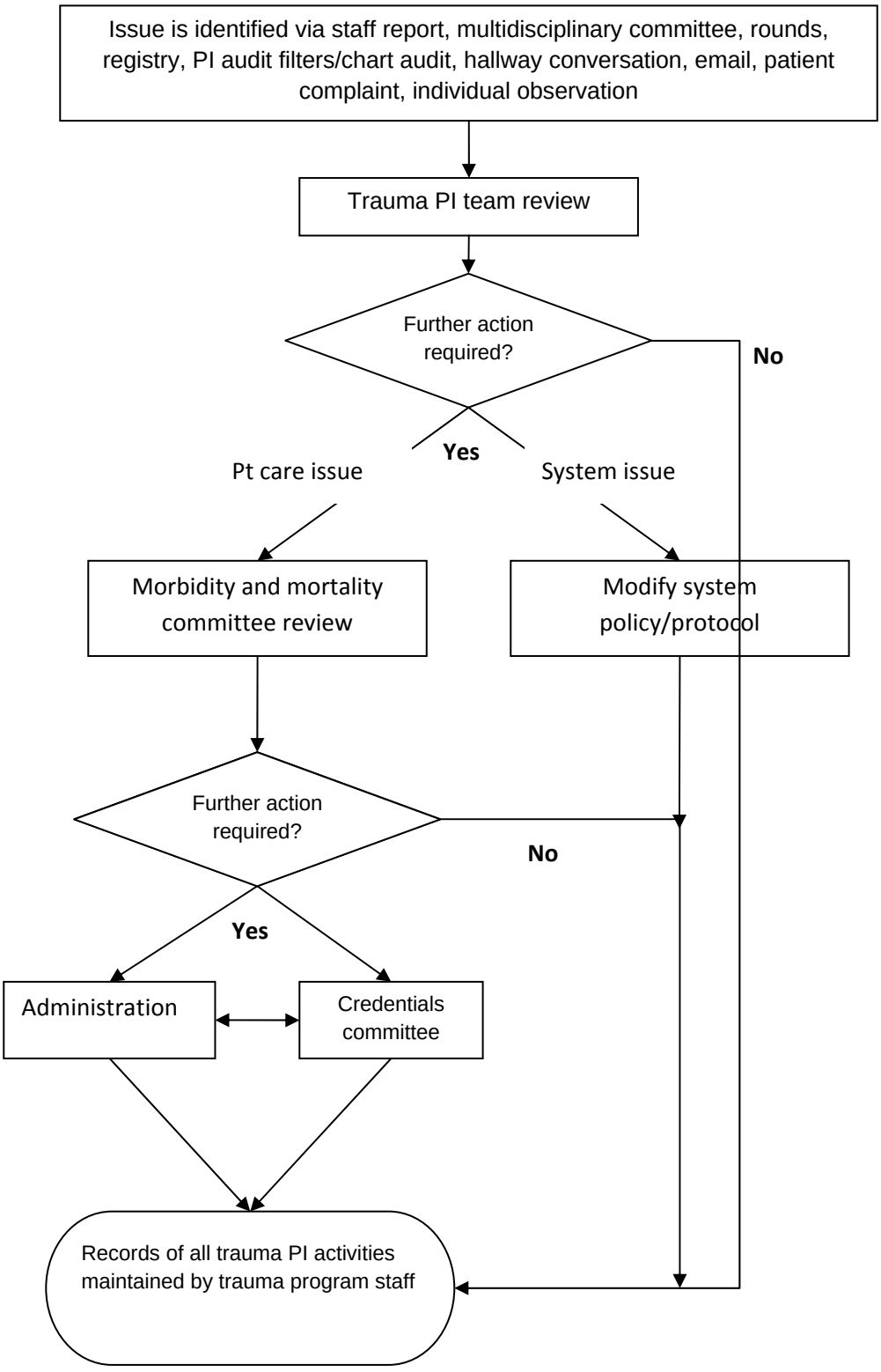
Patient name: _____ Admit date: _____

Medical record #: _____

Data Point	Yes	No	N/A
Trauma care provided by physicians who do not meet the educational requirement (e.g., ATLS)			
Transferred			
Pt died			
General surgeon arrival >30 minutes			
Admitted by non-surgeon			
Care provided by NP or PA			
Re-intubated within 24 hours of extubation			
Surgical debridement of open tibial fracture >8 hours (excluding low velocity gunshot wound)			
Open fracture to OR >8 hours after admission			
Massive blood transfusion (>3 units)			
Unscheduled return to the OR			
Over triaged/trauma team activated unnecessarily			
Under triaged/trauma team not activated when criteria met			
EMS scene time >20 minutes			
C spine injury missed on initial evaluation			
GCS <14 and head CT >2 hours after admission			
EMS report not in patient chart			
GCS ≤8 and no endotracheal tube or surgical airway			
Abdominal injuries, systolic blood pressure <90 and laparotomy >1 hour from arrival			
Abdominal, thoracic or vascular surgery after 24 hours			
Non-fixation of femoral diaphyseal fracture in adult			
Absent hourly charting			
Transfer out after 2 hours in the initial hospital			

Any chart that generated a "Yes" must be reviewed by trauma PI team.

Attachment R: Trauma PI Flowchart



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Attachment S: Sample Level III Trauma Diversion Protocol

Purpose:
Occasions may arise when one or more essential hospital resources are functioning at maximum capacity or otherwise unavailable and it is in the best interests of the trauma patient to be directed to an alternative facility for care.

Policy:
The need to go on "trauma divert" is a rare situation but might occur in the following circumstances:

- The emergency department is saturated; demand for critical patient care resources exceeds availability.
- Emergency department resources are fully committed due to an external disaster/multiple-casualty event.
- Emergency department resources are unavailable due to an internal disaster or catastrophic mechanical failure.
- All available trauma surgeons are in the operating room.
- The operating room is functioning at maximum capacity; no surgical suites are expected to become available within one hour.
- General surgeons are overwhelmed with cases.
- The general surgeon is physically unable to operate.

In such rare cases the surgeon in collaboration with the emergency department physician may make the decision to divert trauma patients for a short period of time. The need to remain on divert status should be reviewed at least hourly to provide for the shortest possible time on divert.

The diversion of trauma patients only pertains to incoming ambulance patients and not to walk-in patients. A patient incoming via ambulance while on "trauma divert" will be accepted if the EMS provider and monitoring physician determine that the patient is experiencing a condition such that transport to the next closest appropriate trauma hospital could reasonably result in increased morbidity or death. "Trauma divert" status is a request to EMS personnel to transport the patient to another facility. The patient or EMS personnel may decline the request to divert provided they have been properly apprised of the potential for delayed treatment affecting the care of the patient.

Ambulance patients who have arrived on hospital property will be admitted to the emergency department and evaluated by a physician regardless of the hospital's diversion status.

Procedure:

<u>Going on divert:</u>

1. The surgeon on call and the emergency department physician will collaborate and decide on the need to go on "trauma divert." They will notify the emergency department charge nurse.

2. The charge nurse notifies the following of trauma divert status:
    a. Emergency department nursing staff
    b. ICU nursing staff

c. EMS dispatch center(s) (e.g. sheriff departments); request EMS personnel to call hospital early with patient information
d. [NEIGHBORING HOSPITAL(S)]

3. The emergency department charge nurse begins a "Trauma Divert Tracking Log."

When contacted by EMS with information regarding a seriously injured trauma patient, the emergency department staff person taking report notifies the EMS crew that the hospital is on trauma divert and immediately puts the crew in contact with the emergency department physician. The physician will determine if the patient is to be seen in the emergency department or diverted to a nearby facility. The decision whether of not to divert must be accomplished very quickly in order to minimize the amount of time the patient spends in transit.

Going off divert:

1. The surgeon and emergency physician who initiated the closure must:
    a. Continuously evaluate the need to remain on trauma divert.
    b. Make the decision as to when the hospital is no longer on trauma divert.
    c. Notify the emergency department charge nurse when no longer on trauma divert.
2. The charge nurse notifies:
    a. Emergency department nursing staff
    b. ICU nursing staff
    c. EMS dispatch center
    d. [NEIGHBORING HOSPITAL(S)]
3. The emergency department charge nurse completes the "Trauma Divert Tracking Log" and forwards it to the trauma program manager.

Attachment T: Sample Level IV Trauma Diversion Protocol

Purpose:
Occasions may arise when one or more essential hospital resources are functioning at maximum capacity or otherwise unavailable and it is in the best interests of the trauma patient to be directed to an alternative facility for care.

Policy:
The need to go on "trauma divert" is a rare situation but might occur in the following circumstances:

- The emergency department is saturated; demand for critical patient care resources exceeds availability.
- Emergency department resources are fully committed due to an external disaster/multiple-casualty event.
- Emergency department resources are unavailable due to an internal disaster or catastrophic mechanical failure.

In such rare cases, the emergency department physician may make the decision to divert trauma patients for a short period of time. The need to remain on divert status should be reviewed at least hourly to provide for the shortest possible time on divert.

The diversion of trauma patients only pertains to incoming ambulance patients and not to walk-in patients. A patient incoming via ambulance while on "trauma divert" will be accepted if the EMS provider and monitoring physician determine that the patient is experiencing a condition such that transport to the next closest appropriate trauma hospital could reasonably result in increased morbidity or death. "Trauma divert" status is a request to EMS personnel to transport the patient to another facility. The patient or EMS personnel may decline the request to divert provided they have been properly apprised of the potential for delayed treatment affecting the care of the patient.

Ambulance patients who have arrived on hospital property will be admitted to the emergency department and evaluated by a physician regardless of the hospital's diversion status.

Procedure:

<u>Going on divert:</u>

1. The emergency department physician will decide on the need to go on "trauma divert." The physician will notify the emergency department charge nurse.
2. The XXX notifies the following of trauma divert status:
    a. Emergency department nursing staff
    a. EMS dispatch center(s) (e.g. sheriff departments); request EMS personnel to call hospital early with patient information
    b. [NEIGHBORING HOSPITAL(S)]
3. The emergency department charge nurse begins a "Trauma Divert Tracking Log."

When contacted by EMS with information regarding a seriously injured trauma patient, the emergency department staff person taking report notifies the EMS crew that the hospital is on trauma divert and immediately puts the crew in contact with the emergency department physician. The physician will determine if the patient is to be seen in the emergency department or diverted to a nearby facility. The

decision whether of not to divert must be accomplished very quickly in order to minimize the amount of time the patient spends in transit.

Going off divert:

1. The emergency physician who initiated the closure must:
    a. Continuously evaluate the need to remain on trauma divert.
    b. Make the decision as to when the hospital is no longer on trauma divert.
    c. Notify the emergency department charge nurse when no longer on trauma divert.
2. The charge nurse notifies:
    a. Emergency department nursing staff
    b. EMS dispatch center
    c. [NEIGHBORING HOSPITAL(S)]
3. The emergency department charge nurse completes the “Trauma Divert Tracking Log” and forwards it to the trauma program manager.

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Attachment U: Trauma Divert Tracking Log

Complete one form each time the hospital goes on divert.

On divert

Date: _____

Time: _____

Determining physician(s):

Off divert

Date: _____

Time: _____

Determining physician(s):

Diverted patients

No patients diverted ☐

Date/Time: _____

Ambulance Service: _____

Chief Complaint: _____

Diversion destination: _____

Date/Time: _____

Ambulance Service: _____

Chief Complaint: _____

Diversion destination: _____

Date/Time: _____

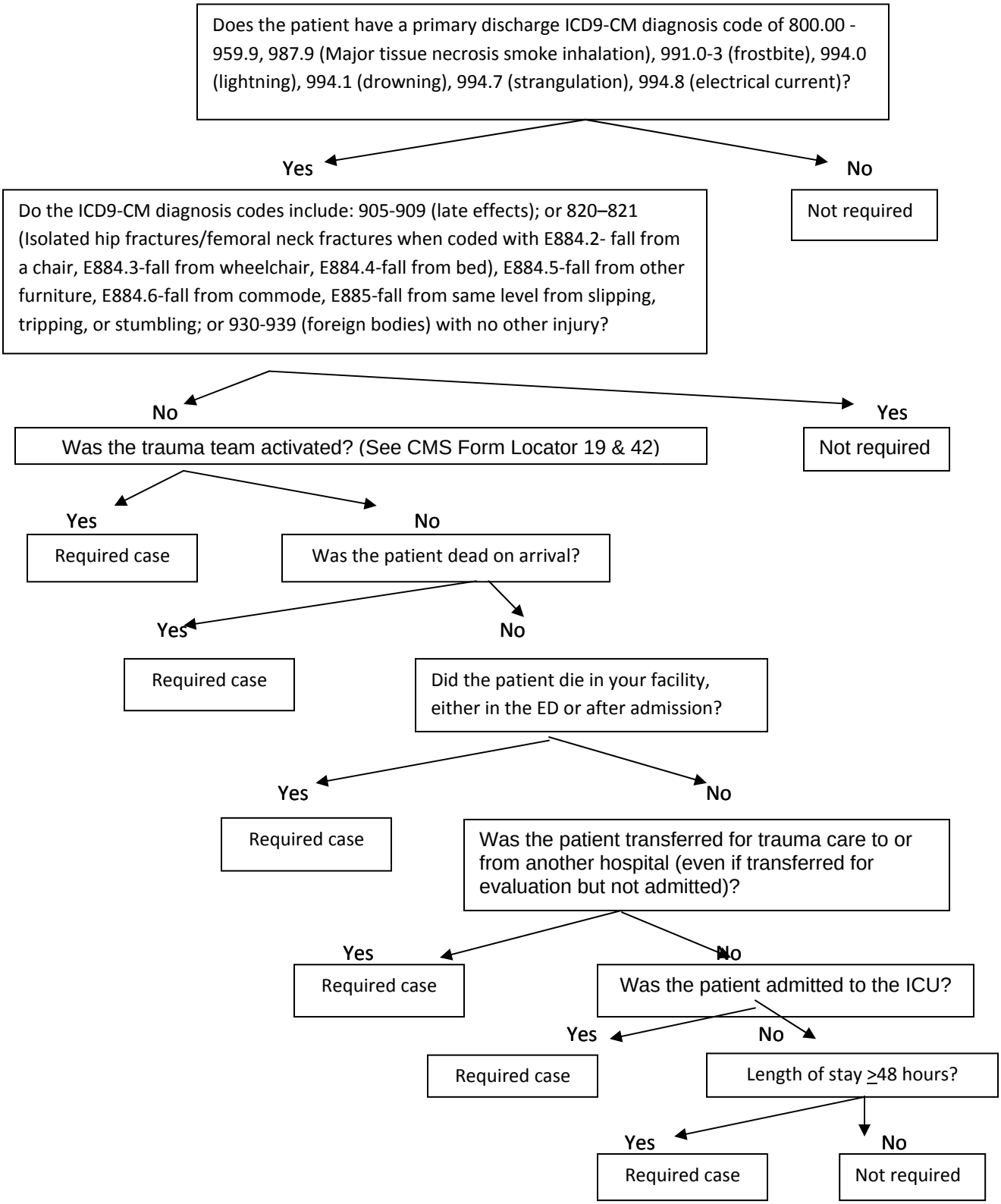
Ambulance Service: _____

Chief Complaint: _____

Diversion destination: _____

Forward this form to the trauma program manager.

Attachment V: Trauma Registry Inclusion Criteria



Attachment W: Level IV Equipment Checklist

Emergency Department Equipment	Infant	Child	Adult
Airway control and ventilation equipment	☐	☐	☐
Pulse oximetry	☐	☐	☐
Suction devices	☐	☐	☐
Electrocardiograph/oscilloscope/defibrillator	☐	☐	☐
Standard IV fluids and administration sets	☐	☐	☐
Mechanism for iv flow-rate control	☐	☐	☐
Large bore IV catheters	☐	☐	☐
Intraosseous Infusion sets	☐	☐	☐
Supplies for cricothyrotomy	☐	☐	☐
Supplies for thoracostomy	☐	☐	☐
Drugs necessary for emergency care	☐	☐	☐
Nasogastric/oral gastric tubes	☐	☐	☐
Spinal immobilization boards and c-collars	☐	☐	☐
Pediatric length-based resuscitation tape	☐	☐	
Thermal control for patients and fluids/blood	☐	☐	☐
Rapid infuser system (e.g., pressure bag)	☐	☐	☐
End-tidal CO_2 detector	☐	☐	☐
Communication with EMS	☐	☐	☐

Clinical Laboratory Services

Equipment	Infant	Child	Adult
Standard analysis of blood, urine and other body fluids including micro sampling, when appropriate	☐	☐	☐
Comprehensive blood bank or access to community blood bank	☐	☐	☐

Operating Room (if OR services available)

Equipment	Infant	Child	Adult
Thermal control for patients and fluids/blood	☐	☐	☐

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Attachment X:
Recommended Pediatric Equipment Checklist

Guidelines for Equipment and Supplies for Use in Pediatric Patients in the ED[*]

Monitoring equipment

- o Cardiorespiratory monitor with strip recorder
- o Defibrillator with pediatric and adult paddles (4.5 cm and 8 cm) or corresponding adhesive pads
- o Pediatric and adult monitor electrodes
- o Pulse oximeter with sensors and probe sizes for children
- o Thermometer or rectal probe[†]
- o Sphygmomanometer
- o Doppler blood pressure device
- o Blood pressure cuffs (neonatal, infant, child, and adult arm and thigh cuffs)
- o Method to monitor endotracheal tube and placement[‡]
- o Stethoscope

Airway management

- o Portable oxygen regulators and canisters
- o Clear oxygen masks (standard and nonrebreathing—neonatal, infant, child, and adult)
- o Oropharyngeal airways (sizes 0-5)
- o Nasopharyngeal airways (12F through 30F)
- o Bag-valve-mask resuscitator, self-inflating (450- and 1000-mL sizes)
- o Nasal cannulae (child and adult)
- o Endotracheal tubes: uncuffed (2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, and 6.0 mm) and cuffed (6.5, 7.0, 7.5, 8.0, and 9.0 mm)
- o Stylets (infant, pediatric, and adult)
- o Laryngoscope handle (pediatric and adult)
- o Laryngoscope blades: straight or Miller (0, 1, 2, and 3) and Macintosh (2 and 3)
- o Magill forceps (pediatric and adult)
- o Nasogastric/feeding tubes (5F through 18F)
- o Suction catheters—flexible (6F, 8F, 10F, 12F, 14F, and 16F)
- o Yankauer suction tip
- o Bulb syringe
- o Chest tubes (8F through 40F)[§]
- o Laryngeal mask airway[‖] (sizes 1, 1.5, 2, 2.5, 3, 4, and 5)

Vascular access

- o Butterfly needles (19-25 gauge)
- o Catheter-over-needle devices (14-24 gauge)
- o Rate limiting infusion device and tubing[§¶]

- Intraosseous needles (may be satisfied by standard bone needle aspiration needles)
- Arm boards‖
- Intravenous fluid and blood warmers§
- Umbilical vein catheters§# (size 5F feeding tube may be used)
- Seldinger technique vascular access kit§

Miscellaneous

- Infant and standard scales
- Infant formula and oral rehydrating solutions§
- Heating source (may be met by infrared lamps or overhead warmer)§
- Towel rolls, blanket rolls, or equivalent
- Pediatric restraining devices
- Resuscitation board
- Sterile linen**
- Length-based resuscitation tape or precalculated drug or equipment list based on weight

Specialized pediatric trays

- Tube thoracotomy with water seal drainage capability§
- Lumbar puncture
- Pediatric urinary catheters
- Obstetric pack
- Newborn kit§
- Umbilical vessel cannulation supplies§
- Venous cutdown§
- Needle cricothyrotomy tray
- Surgical airway kit (may include a tracheostomy tray or a surgical cricothyrotomy tray)§

Fracture management

- Cervical immobilization equipment§††
- Extremity splints§
- Femur splints§

Medical photography capability

---

* Adapted from Committee on Pediatric Equipment and Supplies for Emergency Departments, National Emergency Medical Services for Children Resource Alliance.[9]

† Suitable for hypothermic and hyperthermic measurements with temperature capability from 25°C to 44°C.

‡ May be satisfied by a disposable CO_2 detector of appropriate size for infants and children. For children 5 years or older who are ≥20 kg in body weight, an esophageal detection bulb or syringe may be used additionally.

§ Equipment that is essential but may be shared with the nursery, pediatric ward, or other inpatient service and is readily available to the ED.

‖ Equipment or supplies that are desirable but not essential.

¶ To regulate rate and volume.

Ensure availability of pediatric sizes within the hospital.

** Available within hospital for burn care.

[T]Many types of cervical immobilization devices are available, including wedges and collars. The type of device chosen depends on local preferences and policies and procedures. Chosen device should be stocked in sizes to fit infants, children, adolescents, and adults. Use of sandbags to meet this requirement is discouraged, because they may cause injury if the patient has to be turned.

Medications

Drug	Supplied	Quantity/container
atropine	pre-filled syringe	10 mL (0.1 mg/mL) 5 mL (0.1 mg/mL)
adenosine	vial	1 mL (1 mg/mL)
bretylium	pre-filled syringe ampule vial	10 mL (50 mg/mL) 10 mL (50 mg/mL) 20 mL (50 mg/mL)
calcium chloride	pre-filled syringe	10 mL (100 mg/mL=27.1mg elemental calcium
dextrose (25% and 50%)	pre-filled syringe	10 mL
dopamine	vial	5 mL (40 mg/ml) 10 mL (40 mg/mL)
dobutamine	vial	10 mL (25 mg/mL) 20 mL (12.5 mg/mL)
epinephrine 1:1000	pre-filled syringe vial	1 mL, 2 mL 30 mL (1 mg/mL)
epinephrine 1:10,000	pre-filled syringe	10 mL (0.1 mg/mL) 3 mL (0.1 mg/mL)
isoproterenol	vial	5 mL (0.2 mg/mL)
Lidocaine	pre-filled syringe vial ampule	5 mg/mL, 10 mg/mL, 15 mg/mL, 20 mg/mL, 40 mg/mL, 100 mg/mL, 200 mg/mL 5 mL (20 mg/mL)
naloxone	vial	1 mL, 10 mL, (0.4 mg/ml) 2 mL (1 mg/mL)
sodium bicarbonate	pre-filled syringe	50 mL (8.4%) (1 mEq/mL) 10 mL (8.4%) (1 mEq/mL) 10 mL (4.2%) (0.5 mEq/mL)

American Academy of Pediatrics, *Care of Children in the Emergency Department: Guideline for Preparedness*. http://aappolicy.aappublications.org/cgi/content/full/pediatrics%3B107/4/777

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Attachment Y:
Criteria for State Verification: Level IV Trauma Center

Program Component	Description(s)	Specific Criteria
Trauma Program	The board of directors, administration, medical, nursing, and ancillary staff must make a commitment to provide trauma care at the level for which the facility is seeking verification. A trauma program must be created with agreement from the board of directors, administration, and medical staff.	
Trauma Program Medical Director	A trauma program medical director should be a BC/BE physician on staff at the facility, preferably an EM physician. The job description must include his/her roles and responsibilities for trauma care, such as trauma team formation, supervision/leadership, and continuing education. The medical director must act as the medical staff liaison to administration, nursing staff, etc. and as the primary contact for that facility with other trauma centers in the region. Required to maintain certification as an ATLS© provider if not BC/BE by ABEM or AOBEM. RTTDC participation required.	ATLS Current PALS Current ACLS Current RTTDC Required
Trauma Program Manager/ Coordinator	The trauma coordinator is required and this person should be an RN with trauma care experience (ICU, ED, or flight experience). Other heath care personnel with trauma care experience (EMT-P, etc) may fill this role if needed. The program manager will work with the medical director to coordinate and implement the facility's trauma care response. The job description should include time dedicated to the trauma program, separate from other duties the program manager may have at the facility.	Trauma Coordinator Required
Emergency Department Coverage	There should be 24-hour physician coverage of the emergency department. A mid-level provider (NP, PA) may serve as the trauma team leader, but a designated ED physician should be present for immediate consultation during trauma team activations. There must be a designated physician medical director of the ED.	ED Medical Director Required
Emergency Department Physicians	Preferred BC/BE, but not required. ED physicians must maintain current ATLS© Provider certification if not BC/BE by ABEM or AOBEM, and should participate in a RTTDC©, preferably at their practice facility.	ATLS Current PALS Current ACLS Current RTTDC Preferred
Surgical Staff	Orthopedic surgery, plastic surgery, and radiology staff desirable. If staff available, published call schedules are essential. If surgical services will be provided, anesthesia coverage will be essential. 15 hours of annual trauma-related CME for surgeons is required every 3 years. Participating surgical specialties must have one representative attend at least 50% of multi-disciplinary trauma conferences.	
Trauma Nursing Education	Nurses responsible for trauma care at the facility must have completed one of the professional education courses specific to trauma care (Trauma Nursing Core Course TNCC, Advanced Trauma Care for Nurses ATCN, etc). TNCC is the preferred course.	TNCC Required
	The facility must have a written protocol describing the method to rapidly and effectively transfer the trauma patient	

Transfer Protocol	requiring a higher level of care. The protocol must address: Available ground/air transport services (with contact information), alternative transport services, receiving trauma centers/trauma surgeons contact information, what supplies/records/resources may be utilized to effect the transfer, and specific anatomic and physiologic criteria that if met, will immediately initiate transfer to definitive care. This should ideally be written with involvement of the local ground EMS provider(s) and regional air medical provider(s) to assure seamless patient care during transfer.	
Transfer Agreement	The facility must have a written agreement with a verified Level I, II and/or III trauma center, or appropriate non-verified center, regarding transfer/care of adult and pediatric trauma patients that exceeds the capabilities of the Level IV facility. Back-up transfer agreement must be obtained specifically for burn patients, in the event the primary regional receiving facility does not have the required capacity. Well defined transfer plans are essential.	Transfer Agreements Required: 1. Level I, II and/or III 2. Burn Care 3. Pediatric Care
Radiology	The facility should have a Radiologic Technologist in-house 24-hours a day for basic plain films used in the evaluation of trauma patients. In the event a technician is not in-house, a 20-minute response time from trauma team activation is required. Response times must be documented and monitored by the trauma program manager. CT and sonography capabilities desirable.	1. Rad Tech <20min for activations 2. CT desired 3. Sonography desired
Clinical Laboratory	The facility must have a Lab Technician available 24-hours a day capable of performing basic studies used in the initial evaluation of trauma patients: CBC, typing, coagulation profile, and ABG. In the event a technician is not in-house, a 20-minute response time from trauma team activation is required. Response times must be documented and monitored by the trauma program manager. Cross-matching is desired but not required. The lab (or blood bank) must have at least two units of O-negative blood available for trauma patients, to be infused at the facility or while en-route to definitive care. There should be a mechanism in place to rapidly access blood/blood products during emergency situations when the lab is not staffed. Micro-sampling is required.	<u>Required:</u> 1. Lab Tech <20min for activations 2. Standard chemistry 3. ABG 4. Hematology 5. Coags 6. Blood typing 7. Blood storage 8. Two units O- PRBC 9. Access to blood from community center <u>Desired</u> 1. Cross-matching
Respiratory Therapy	The facility must have a Respiratory Care Practitioner available 24-hours a day to respond to the ED in the event of a trauma team activation. In the event a Practitioner is not in-house, a 20-minute response time from trauma team activation is required. Other health care personnel (RN, EMT-P) can fulfill this role in the interim provided they have documented internal training and continuing education regarding the use of mechanical ventilation.	Response within 20min of activation required Available 24rs/day desired
Rehab Services	Physical therapy, occupational therapy and social services are desirable but not required.	PT, OT, SW desired.
Trauma Team Activation	The facility must have a trauma team activation protocol that addresses the following: • Members of the team and their response requirements once the team has been activated. • Criteria (based on severity, anatomy, and/or physiology of the injury) for trauma team activation and the person(s) authorized to activate the trauma team. • Physician must be present at all trauma team activations.	Presence of the ED physician at trauma activations is required.

Intensive Care Unit	If an ICU is present and trauma patients will be admitted to the ICU, involvement of a surgeon as Director or Co-Director of the ICU is desired.	Surgeon Director/Co-Director Desired
Performance Improvement	It is required that all trauma centers have an in-house Trauma Registry and contribute to the State Trauma Registry. The facility must have a written policy outlining the performance improvement portion of the trauma program. This must include: • Person(s) responsible for performing PI reviews • Minimum cases to be reviewed: Patients requiring transfer, all trauma deaths, non-compliance of trauma team members to response time requirements, bypasses, transfers, trauma care provided by physicians not meeting minimal education requirements • Frequency of meetings • Multidisciplinary physician involvement (Program Director, Radiology, Surgeon if involved) • Attendance minimums for members (50%) • Evidence of loop closure and resolution The ultimate responsibility for concurrent or retrospective review of trauma patient care lies with the trauma program medical director and program manager. Feedback should be obtained for all transferred patient to Level I, II or III centers.	Required 1. PI Program 2. In-house Registry 3. Contribution to state registry 4. Audit of all trauma deaths 5. Morbidity review 6. Multi-disciplinary trauma conference 7. Minimum conference attendance (Emergency Medicine 50%; General Surgery 50%-if involved) 8. Audits of nursing care 9. Audit of pre-hospital trauma care 10. Review of times 11. Review of bypasses 12. Review of transfers 13. Patient care
Morbidity and Mortality Review	A mechanism must be established by which all physicians participating in trauma patient care are involved in a confidential peer review in accordance with medical staff policy. Meetings must regularly review and discuss: Results of peer review activities, problematic cases including complications, and all trauma deaths- classified as preventable, potentially preventable, or non-preventable.	
Trauma Registry	Collect data via NTDB (National Trauma Databank)-registry and submit to statewide trauma system database within 90 days of patient discharge.	Trauma Registry Contribution to State Registry
Rural Trauma Team Development Course©	The facility should host or participate in a joint RTTDC©, as outlined by the American College of Surgeons Committee on Trauma. Participation of physicians, members of administration, nursing, ancillary support staff, and local pre-hospital providers is strongly encouraged.	RTTDC Participation
Outreach Education	Conduct of ATLS, TNCC (or equivalent) and ITLS/PHTLS courses is desirable. Conduct of trauma-related CME for physicians, nurses, pre-hospital and other personnel is desirable.	

Injury Prevention	The facility should participate in injury prevention programs. These may be organized by the facility or in cooperation with law enforcement, fire, EMS, etc. Documentation of activities should be available for review during the verification/re-verification process. Collaboration with other institutions is desired. Monitoring of progress and efficacy of the prevention program(s) is desired.	
Emergency Department Equipment	Refer to Kentucky Trauma Resource Manual.	
Operating Room	It is desirable that an operating room be available for emergency procedures within the scope of practice of the physicians on medical staff. If an operating room is available and the trauma center elects to us that facility for the surgical care of victims of trauma at ANY time, the following are required: 1. Operating room staff available within 30 minutes of notification 2. Anesthesia staff within 30 minutes of notification 3. Age specific equipment including: thermal control equipment for patients and fluids/blood products. Also DESIRABLE are endoscopes, bronchoscopes, equipment for long-bone fixation and rapid infusion equipment. 4. If orthopedic procedures are to be performed, C-arm capability is required. 5. Post-anesthetic recovery MUST contain: equipment for monitoring and resuscitation, pulse oximetry, thermal control	
Resuscitation Equipment for All Ages	Required resuscitation equipment includes: airway and ventilation, pulse oximetry, suction, ECG, defibrillator, IV administration sets, large bore vascular catheters, cricothyroidotomy, thoracostomy, emergency drugs, Broselow tape, fluid warmer, qualitative CO2 detector, EMS communication equipment Desirable resuscitation equipment includes: venous cutdown, peritoneal lavage, rapid infuser	

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Attachment AA:
Reserved for a copy of the Trauma Care System Regulations

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Attachment AB:
Reserved for Sample Letter of Intent

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Attachment AC:
Reserved for KDPH Application for Trauma Care System Designation at Levels I, II or III)

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Attachment AD
Application for Trauma Care System Designation at Level IV

Application for Level IV Trauma Center Verification and Designation

Version 2009.1

Kentucky Cabinet for Health and Family Services
Department for Public Health
Trauma Advisory Committee
%KY Public Health Commissioner's Office

Mailing Address
275 E. Main Street
Frankfort, KY 40621
(502) 564-3970

Questions:
Richard Bartlett (rbartlett@kyha.com)
Emergency Preparedness/Trauma Coord.
KY Hospital Association
(502) 426-6220

Instructions

Please refer to the reference document, "Application Guidance for Trauma Hospital Designation," when completing this application. This application and its guidance document are formatted similarly in order to facilitate easy association between them.

The application consists of four categories considered critical to the success of a trauma program: Institutional Organization, Clinical Capabilities, Clinical Qualifications and Performance improvement.

Complete the application and the incorporated forms and attach the required documentation. Descriptions of various aspects of your facility's trauma program are requested. The purpose of the descriptions is twofold; to ensure the minimum criteria are in place before designation and to allow the site reviewers to become familiar with how your institution manages trauma patients. For these reasons, be brief yet detailed in your descriptions, referring to the guidance document for the required criteria while you address each subject. When completing the forms, copy and attach additional pages, if necessary. Mark the attachments clearly as indicated in the application. Feel free to attach documentation that is not specifically requested if you feel that it will better illustrate or describe a component of your trauma program.

If this application is for initial designation, it is expected that some of the requested information may not yet be available. In these specific circumstances, criteria deficiencies will not be a barrier to initial designation if it is clear that the facility is making a good-faith effort to implement these elements of the program. Refer to Table 1 for direction as to how to deal with these issues.

Table 1

Program criteria	Deficiency	Action	Evaluation
Performance Improvement Data	Hospital has no data with respect to the number of trauma team activations, transfers or diversion occurrences in the last year.	Establish a process to track and collect this data.	Site reviewers will ask to see data on the number of activations, transfers and diversion occurrences since application was made.
Trauma Registry	Hospital is not using a registry; not collecting or reporting trauma-related data to the KY Trauma Registry.	Contact KIPRC trauma registry program staff for assistance. ; Begin using a state recognized trauma registry system, and start passing data to the Kentucky Trauma Registry.	Site reviewers will ask to see evidence that the facility is using an established a registry.
Morbidity And Mortality Review Committee	Hospital does not have formal peer review committee established and meeting regularly; no documentation of committee activities.	Establish a process for peer review of trauma care; schedule a meeting. (Members may not have had their first meeting at the time of application.)	Site reviewers will ask to see the minutes of the meetings that have taken place since the date of application.

Contact the Trauma Coordinator listed on the title page of this document for assistance or if you have questions while completing this application.

When you have completed the application:

1. Make a copy of the application and attachments for your records.
2. Prepare and enclose an official hospital check in the amount of $XXXX to cover both the Initial Verification/Designation OR Reverification/Designation Application Fee, and the estimated cost for the KyTAC verification site visit.
3. Mail the application and attachments to
   Kentucky Cabinet for Health and Family Services
   Department for Public Health
   %KY Public Health Commissioner's Office
   Trauma Advisory Committee
   275 E. Main Street
   Frankfort, KY 40621

Upon receipt of your application and the appropriate fee the package will be reviewed for completeness. The Kentucky Trauma Advisory Council (KyTAC) will then consider the application and make a determination as to whether or not the essential criteria have been met.

They will then forward their recommendation to the Commissioner for Public Health for final approval and designation. If the KyTAC determines that deficiencies prohibiting designation exist in your facility, you will be contacted in writing and provided with a detailed description of how to remedy the deficiencies along with a time line to do so.

Summary of the fees involved (from XXX KAR XX:XXX)

Initial Verification/Designation Application fee: $XXX
Initial Re-Verification/Designation Application fee: $XXX

Honorarium/per diem for a KyTAC verification team:
Physician (Team leader) $XXX
Nurse/trauma manager $XXX
KDPH designated team member: $XXX

Kentucky Trauma Care System

Hospital Application for Level-III

☐ **Initial Designation** ☐ **Re-designation**

Name of Facility

Mailing Address

City:
State:
Zip+four:

County:

CEO

Phone #:

, ☐MD ☐DO
Trauma Program Medical Director/Advisor

, ☐RN ☐Other:
Trauma Program Manager/Coordinator

Phone #:
Email Address:

Application Date:

Institutional Organization

1) Hospital commitment

a) Attach a copy of a signed resolution by the governing board indicating the facility's commitment to the hospital's trauma program and desire to provide the resources necessary to achieve and sustain level IV trauma hospital designation labeled as *ATTACHMENT #1*.

b) Attach a copy of a signed resolution from the medical staff supporting the hospital's trauma program labeled as *ATTACHMENT #2*.

2) Trauma Program

a) Attach an official organization chart illustrating the position of the trauma program labeled as *ATTACHMENT #3*.

3) Trauma Team Activation

a) Attach a copy of the trauma team activation protocol/policy labeled as *ATTACHMENT #4*.

4) Trauma Program Medical Director/Advisor

a) Education
Name of medical school:
Year graduated:
Board certified? ☐Yes ☐No Date: Specialty:
Boards in progress (if not board-certified)? ☐Yes ☐No Date: Specialty:
ATLS within the past four years? ☐Yes ☐No Completion date:

b) Attach a copy of the trauma program medical director/advisor job description labeled as *ATTACHMENT #5*.

5) Trauma Program Coordinator/Manager

a) Education:
☐Associate degree Year:
☐Bachelor's degree Year:
☐Master's degree Year:
☐Other: Year:

b) What percentage of time is allocated to the trauma program?

c) Briefly describe clinical experience with trauma care.

d) Attach a copy of the trauma program coordinator/manager job description labeled as *ATTACHMENT #6*.

Clinical Capabilities

1) Emergency Medicine

a) Emergency department provider is:
   ☐ In-house 24 hours/day or
   ☐ Off-site at times

b) How does the hospital track the emergency providers' response time?

c) Attach a copy of the current month's schedule for the emergency department provider labeled as *ATTACHMENT #7*.

2) Orthopedic Surgery

a) Does the hospital provide orthopedic surgical services? ☐Yes ☐No
   i) If yes, complete the Orthopedic Trauma Worksheet following this section indicating which orthopedic conditions may be managed at your facility.
   ii) If yes, attach a copy of the current month's on-call schedule for orthopedic surgeon labeled as *ATTACHMENT #8*.

3) Clinical Laboratory

a) Is the lab capable of standard analysis of blood, urine and other body fluids including micro sampling? ☐Yes ☐No

b) Blood bank is:
   ☐ In-house or
   ☐ Community/regional blood bank—Name of blood bank:
   i) How much O-negative blood is kept in-house?
   ii) What is the turn-around time for type-specific blood?
   iii) How is additional blood acquired, if necessary?

4) Trauma Transfer

a) Attach a copy of the trauma transfer plan/protocol labeled as *ATTACHMENT #9*.

b) Attach copies of the transfer agreements for hemodialysis, burn care and acute spinal cord injury. A comprehensive transfer agreement with a level I or II trauma hospital may suffice if that trauma hospital has the required capabilities. Two burn care transfer agreements are required. Label all transfer agreements as *ATTACHMENT #10*.

Orthopedic Trauma Worksheet

Indicate which orthopedic conditions may be managed at your hospital.

Chest

- ☐ Flail chest
- ☐ Multiple rib fractures
- ☐ Scapular fracture
- ☐ Clavicular fracture
- ☐ Sterno-clavicular dislocation

Spine

- ☐ Cervical spine fracture/dislocation
- ☐ T/L spinal fracture/dislocation w/ neuro impairment
- ☐ Vertebral body fracture
- ☐ Vertebral burst
- ☐ Spinal process fracture
- ☐ Compression fracture

Pelvis

- ☐ Open pelvic fracture
- ☐ Stable pelvic ring disruption
- ☐ Unstable pelvic ring disruption
- ☐ Acetabular fracture
- ☐ Pelvic fracture w/ shock

Extremities

- ☐ Open long bone fracture
- ☐ Two or more long bone fractures
- ☐ Fracture or dislocation w/ loss of distal pulses
- ☐ Extremity ischemia
- ☐ Fracture w/ abnormal neuro exam
- ☐ Compartmental syndromes

- ☐ Shoulder dislocation
- ☐ Acromioclavicular fracture/dislocation

- ☐ Proximal humerus fracture
- ☐ Distal humerus fracture
- ☐ Elbow fracture/dislocation
- ☐ Forearm fracture
- ☐ Distal radius fracture
- ☐ Hand/wrist comminuted fracture w/ nerve involvement

- ☐ Carpal dislocation
- ☐ Metacarpal fracture
- ☐ Hand amputation
- ☐ Finger amputation
- ☐ Fingertip amputation involving phalange
- ☐ Phalanx fracture

- ☐ Hip fracture

- ☐ Femur fracture
- ☐ Knee dislocation
- ☐ Proximal tibia fracture
- ☐ Distal tibia fracture
- ☐ Pilon fracture
- ☐ Ankle fracture
- ☐ Talus fracture
- ☐ Calcaneus fracture
- ☐ Midfoot dislocation
- ☐ Subtalar dislocation
- ☐ Metatarsal fracture
- ☐ Phalanx fracture

☐ Our hospital routinely transfers all of these orthopedic conditions.

Clinical Qualifications

1. Emergency Department Provider

a. Document emergency physician, nurse practitioner and physician assistant qualifications on the forms that follow this section.

b. What plan is in place to ensure that new emergency department providers who are not board-certified in emergency medicine *obtain* and *remain current in* ATLS?

2. Other Medical Staff Covering Emergencies, Including Locum Tenens

a. Document locum tenens qualifications on the forms that follow this section.

b. The hospital employs: (check all that apply)

☐ An agency that provides locum tenens

i. If so, what steps has the hospital taken to ensure that only physicians who meet the ATLS training requirement are provided?

☐ Its own locum tenens

i. If so, how does the hospital ensure that all physicians credentialed to work in the emergency department meet the ATLS training requirement?

3) Orthopedic Surgeon

a) Orthopedic surgical services are not required of level IV trauma hospitals. If orthopedic surgical services are provided by the hospital, attach a copy of the credentialing letter(s) issued by the hospital. Label all letters as *ATTACHMENT #11*.

4) Nursing

a) What percentage of emergency department nurses is trained in TNCC or other equivalent in-house training?

i) If less than 100 percent, what plan is in place to train the remaining nurses?

b) Attach a copy of job description(s) for nurses providing trauma care (i.e., emergency department). Label all nursing job descriptions as *ATTACHMENT #12*.

Clinical Qualifications for Staff Emergency Department Physicians, NPs and PAs

Name of provider	Credential	Date of current board certification (MD/DO only)	Board Eligible? (if not board-certified) (MD/DO only)	Specialty (MD/DO only)	ATLS Completion Date	PALS Completion Date	ACLS Completion Date	RTTDC Completion Date	% Attendance at morbidity & mortality review*
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						
	☐MD/DO ☐NP ☐PA		☐Yes ☐No						

* See Performance Improvement section

Attach additional pages as necessary

Clinical Qualifications for Other Medical Staff/Locum Tenens

Name of provider	Credential	Specialty (MD/DO only)	ATLS Completion Date	PALS Completion Date	ACLS Completion Date
	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				
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	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				
	☐MD/DO ☐NP ☐PA				

Attach additional pages as necessary

Clinical Qualification for Orthopedic Surgeons

Orthopedic surgical services are not required of level IV trauma hospitals. Complete this form only if orthopedic surgical services are provided by the facility.

Name of surgeon	Credentialed by hospital?	Board certified?	Board eligible? (if not board-certified)	Specialty	% Attendance at morbidity & mortality review*
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No		

* See Performance Improvement section

Attach additional pages as necessary

Performance Improvement

1) Performance Improvement (PI) Program

a) How are trauma-related *system* issues identified, corrected and monitored?
b) How are trauma-related *provider* issues identified, corrected and monitored?
c) What PI filters are currently being used?
d) How many trauma team activations occurred in the past 12 months?[1]
e) How many trauma deaths occurred at the facility in the past 12 months?
f) How many trauma patients were transferred out of your facility in the past 12 months?[1]
g) How many trauma patients were transferred in to your facility from another hospital in the past 12 months?[1]
h) Specify the 12-month period used to respond to these questions.

2) Trauma Diversion

a) How many times has the facility gone on "trauma divert" in the past 12 months?[1]
b) How does the hospital's PI process review the duration of and reasons for going on "trauma divert?"
c) Attach a copy of the trauma diversion protocol/policy labeled as *ATTACHMENT #13*.

3) Trauma Registry[2]

a) The hospital uses:
☐ The state Web-based registry or
☐ A commercially-available trauma registry.

4) Morbidity and Mortality Review

a) Which providers make up the membership of the morbidity and mortality committee?
b) How often does the morbidity and mortality committee meet?
c) What is the attendance requirement for members of the committee?
   i) Record the specific attendance results on the preceding forms.[3]

[1] For initial designation, provide if data is available. Track future activations, transfers and trauma diversions.

[2] If not currently collecting and submitting trauma data to MDH, see Table 1.

[3] For initial designation, provide if data is available. See Table 1.

Signature Page

I hereby make application on behalf of this hospital for designation as a Level IV trauma hospital.

I certify that:

- I have read and understand all of the criteria requirements contained in the Application Guidance and this hospital meets or exceeds the criteria for Level IV trauma hospitals set forth therein.
- The hospital will continue to maintain all criteria required of a Level IV trauma hospital.
- I will immediately notify the State Trauma Advisory Council, other regional hospitals and EMS service providers if this hospital is unable to meet the minimum required criteria at any time during the designation period.
- All information provided in or with this application is truthful and accurate to the best of my knowledge.
- All responses to the questions are full and complete, omitting no material information.
- I understand that all data submitted in or with this application is public.
- I will allow representatives of the Commissioner for Public Health to perform on-site reviews of the hospital to ensure compliance with designation standards.
- Pursuant to the articles of incorporation, bylaws, or resolution of the board of directors I am authorized to submit this application on behalf of the hospital and bind it.

_____

CEO Signature Date

DRAFT

Documentation Checklist

Please collate and clearly label the attachments.

☐ Attached: Initial Designation Application Fee of $XXXX,
made payable to "Kentucky State Treasurer"

☐ Attached: Redesignation Application Fee of $XXXX,
made payable to "Kentucky State Treasurer"

☐ Attachment #1: Resolution from governing board
☐ Attachment #2: Resolution from medical staff
☐ Attachment #3: Organizational chart
☐ Attachment #4: Trauma team activation protocol/policy
☐ Attachment #5: Medical advisor job description
☐ Attachment #6: Trauma program coordinator/manager job description
☐ Attachment #7: On-call schedule—emergency department provider
☐ Attachment #8: On-call schedule—orthopedic surgeon (if applicable)
☐ Attachment #9: Trauma transfer plan/protocol
☐ Attachment #10: Transfer agreements
☐ Attachment #11: Credentialing letter(s)—orthopedic surgeon(s) (if applicable)
☐ Attachment #12: Nursing job description(s)
☐ Attachment #13: Trauma diversion protocol/policy