

**EXHIBIT I. ARIZONA TRAUMA CENTER STANDARDS (A.R.S. §§ 36-2202(A)(4), 36-2209(A)(2), and 36-2225(A)(4))**

E = Essential and required

Trauma Facilities Criteria	Levels			
	I	II	III	IV
<b>A. Institutional Organization</b>				
1. Trauma program	E	E	E	-
2. Trauma service	E	E	E	-
3. Trauma team	E	E	E	E
4. Trauma program medical director <sup>1</sup>	E	E	E	-
5. Trauma multidisciplinary committee	E	E	E	-
6. Trauma coordinator/trauma program manager <sup>2</sup>	E	E	E	E
<b>B. Hospital Departments/Divisions/Sections</b>				
1. Surgery	E	E	E	-
2. Neurological surgery	E	E	-	-
a. Neurosurgical trauma liaison	E	E	-	-
3. Orthopaedic surgery	E	E	E	-
a. Orthopaedic trauma liaison	E	E	E	-
4. Emergency medicine	E	E	E	-
a. Emergency medicine liaison <sup>3</sup>	E	E	E	-
5. Anesthesia	E	E	E	-
<b>C. Clinical Capabilities</b>				
1. Published on-call schedule for each listed specialty required in (C)(2) and (3)	E	E	E	-
2. Specialty immediately available 24 hours/day				
a. General surgery <sup>4</sup>	E	E	E	-
i. Published back-up schedule	E	E	-	-
ii. Dedicated to single hospital when on-call	E	E	-	-
b. Anesthesia <sup>5</sup>	E	E	E	-
c. Emergency medicine <sup>6</sup>	E	E	E	-
3. On-call and promptly available 24 hours/day <sup>7</sup>				
a. Cardiac surgery <sup>8</sup>	E	-	-	-
b. Hand surgery	E	E	-	-
c. Microvascular/replant surgery	E	-	-	-
d. Neurologic surgery	E	E	-	-
i. Dedicated to one hospital or back-up call	E	E	-	-
e. Obstetrics/gynecologic surgery	E	-	-	-
f. Ophthalmic surgery	E	E	-	-
g. Oral/maxillofacial surgery <sup>9</sup>	E	E	-	-
h. Orthopaedic surgery	E	E	E	-
i. Dedicated to one hospital or back-up call	E	E	-	-
i. Plastic surgery	E	E	-	-
j. Critical care medicine	E	E	-	-
k. Radiology	E	E	E	-
l. Thoracic surgery	E	E	-	-
<b>D. Clinical Qualifications</b>				
1. General/Trauma Surgeon				
a. Board certification <sup>10</sup>	E	E	E	-
b. 16 hours CME/year <sup>11</sup>	E	E	-	-
c. ATLS certification <sup>12</sup>	E	E	E	E
d. Multidisciplinary peer review committee attendance > 50% <sup>13</sup>	E	E	E	-
2. Emergency Medicine <sup>3</sup>				

a. Board certification <sup>10</sup>	E	E	-	-
b. Trauma education – 16 hours CME/year <sup>11</sup>	E	E	-	-
c. ATLS certification <sup>12</sup>	E	E	E	E
d. Multidisciplinary peer review committee attendance > 50% <sup>13</sup>	E	E	E	-
3. Neurosurgery				
a. Board certification	E	E	-	-
b. 16 hours CME/year <sup>11</sup>	E	E	-	-
c. Multidisciplinary peer review committee attendance > 50% <sup>13</sup>	E	E	E	-
4. Orthopaedic Surgery				
a. Board certification	E	E	-	-
b. 16 hours CME/year in skeletal trauma <sup>11</sup>	E	E	-	-
c. Multidisciplinary peer review committee attendance > 50% <sup>13</sup>	E	E	E	-
<b>E. Facilities/Resources/Capabilities</b>				
1. Volume Performance <sup>14</sup>	E	-	-	-
2. Presence of surgeon at resuscitation (immediately available) <sup>15</sup>	E	E	-	-
3. Presence of surgeon at resuscitation (promptly available) <sup>16</sup>	-	-	E	-
4. Presence of surgeon at operative procedures	E	E	E	E
5. Emergency Department				
a. Personnel				
i. Designated physician director	E	E	E	-
b. Resuscitation Equipment for Patients of All Ages				
i. Airway control and ventilation equipment	E	E	E	E
ii. Pulse oximetry	E	E	E	E
iii. Suction devices	E	E	E	E
iv. Electrocardiograph-oscilloscope-defibrillator	E	E	E	E
v. Internal paddles	E	E	E	-
vi. CVP monitoring equipment	E	E	E	-
vii. Standard intravenous fluids and administration sets	E	E	E	E
viii. Large-bore intravenous catheters	E	E	E	E
ix. Sterile Surgical Sets for				
(1) Airway control/cricothyrotomy	E	E	E	E
(2) Thoracostomy	E	E	E	E
(3) Venous cutdown	E	E	E	E
(4) Central line insertion	E	E	E	-
(5) Thoracotomy	E	E	E	-
(6) Peritoneal lavage	E	E	E	-
x. Arterial catheters	E	E	-	-
xi. Drugs necessary for emergency care	E	E	E	E
xii. X-ray availability 24 hours/day	E	E	E	-
xiii. Broselow tape	E	E	E	E
xiv. Thermal Control Equipment				
(1) For patient	E	E	E	E
(2) For fluids and blood	E	E	E	E
xv. Rapid infuser system	E	E	E	E
xvi. Qualitative end-tidal CO <sub>2</sub> determination	E	E	E	E
c. Communication with EMS vehicles	E	E	E	E
d. Capability to resuscitate, stabilize, and transport pediatric patients <sup>17</sup>	E	E	E	E
6. Operating Room				
a. Immediately available 24 hours/day	E	E	-	-
b. Personnel				
i. In-house 24 hours/day <sup>18</sup>	E	-	-	-
ii. Available 24 hours/day <sup>19</sup>	-	E	E	-
c. Age-Specific Equipment				

i. Cardiopulmonary bypass	E	-	-	-
ii. Operating microscope	E	-	-	-
d. Thermal Control Equipment				
i. For patient	E	E	E	E
ii. For fluids and blood	E	E	E	E
e. X-ray capability including C-arm image intensifier	E	E	E	-
f. Endoscopes, bronchoscope	E	E	E	-
g. Craniotomy instruments	E	E	-	-
h. Equipment for long bone and pelvic fixation	E	E	E	-
i. Rapid infuser system	E	E	E	E
7. Postanesthetic Recovery Room (SICU is acceptable)				
a. Registered nurses available 24 hours/day	E	E	E	-
b. Equipment for monitoring and resuscitation	E	E	E	E
c. Intracranial pressure monitoring equipment	E	E	-	-
i. Pulse oximetry	E	E	E	E
ii. Thermal control	E	E	E	E
8. Intensive or Critical Care Unit for Injured Patients				
a. Registered nurses with trauma training	E	E	E	-
b. Designated surgical director or surgical co-director	E	E	E	-
c. Surgical ICU service physician in-house 24 hours/day <sup>20</sup>	E	-	-	-
d. Surgically directed and staffed ICU service <sup>20</sup>	E	E	-	-
e. Equipment for monitoring and resuscitation	E	E	E	-
f. Intracranial pressure monitoring equipment	E	E	-	-
g. Pulmonary artery monitoring equipment	E	E	E	-
9. Respiratory Therapy Services				
a. Available in-house 24 hours/day	E	E	-	-
b. On-call 24 hours/day	-	-	E	-
10. Radiological Services (Available 24 hours/day)				
a. In-house radiology technologist	E	E	-	-
b. Angiography	E	E	-	-
c. Sonography	E	E	E	-
d. Computed tomography	E	E	E	-
i. In-house CT technician	E	E	-	-
e. Magnetic resonance imaging	E	-	-	-
11. Clinical Laboratory Service (Available 24 hours/day)				
a. Standard analyses of blood, urine, and other body fluids, including microsampling when appropriate	E	E	E	E
b. Blood typing and cross-matching	E	E	E	-
c. Coagulation studies	E	E	E	E
d. Comprehensive blood bank or access to a community central blood bank and adequate storage facilities	E	E	E	-
e. Blood gases and pH determinations	E	E	E	E
f. Microbiology	E	E	E	-
12. Acute Hemodialysis				
a. In-house	E	-	-	-
b. Transfer agreement	-	E	E	E
13. Burn Care—Organized				
a. In-house or transfer agreement with burn center	E	E	E	E
14. Acute Spinal Cord Management				
a. In-house or transfer agreement with regional acute spinal cord injury rehabilitation center	E	E	E	E
<b>F. Rehabilitation Services</b>				
1. Transfer agreement to an approved rehabilitation facility	E	E	E	E
2. Physical therapy	E	E	E	-

3. Occupational therapy	E	E	-	-
4. Speech therapy	E	E	-	-
5. Social Services	E	E	E	-
<b>G. Performance Improvement</b>				
1. Performance improvement programs	E	E	E	E
2. Trauma Registry				
a. In-house	E	E	E	E
b. Participation in state, local, or regional registry	E	E	E	E
3. Audit of all trauma deaths	E	E	E	E
4. Morbidity and mortality review	E	E	E	E
5. Trauma conference – multidisciplinary	E	E	E	-
6. Medical nursing audit	E	E	E	E
7. Review of prehospital trauma care	E	E	E	-
8. Review of times and reasons for trauma-related bypass	E	E	-	-
9. Review of times and reasons for transfer of injured patients	E	E	E	E
10. Performance improvement personnel dedicated to care of injured patients	E	E	-	-
<b>H. Continuing Education/Outreach</b>				
1. Outreach activities <sup>21</sup>	E	E	-	-
2. Residency program <sup>22</sup>	E	-	-	-
3. ATLS provide/participate <sup>23</sup>	E	-	-	-
4. Programs provided by hospital for:				
a. Staff/community physicians (CME)	E	E	E <sup>24</sup>	-
b. Nurses	E	E	E	-
c. Allied health personnel	E	E	E	-
d. Prehospital personnel provision/participation	E	E	E	-
<b>I. Prevention</b>				
1. Prevention program <sup>25</sup>	E	E	-	-
2. Collaboration with existing national, regional, state, and community programs <sup>26</sup>	E	E	E	E
<b>J. Research</b>				
1. Research program <sup>27</sup>	E	-	-	-
2. Trauma registry performance improvement activities	E	E	E	-
3. Identifiable Institutional Review Board process	E	-	-	-
4. Extramural education presentations	E <sup>28</sup>	-	-	-
<b>K. Additional Requirements for Trauma Centers Represented as Caring for Pediatric Trauma Patients<sup>29</sup></b>				
1. Trauma surgeons credentialed for pediatric trauma care	E	E	-	-
2. Pediatric emergency department area	E	E	-	-
3. Pediatric resuscitation equipment in all patient care areas	E	E	-	-
4. Microsampling	E	E	E	-
5. Pediatric-specific performance improvement program	E	E	E	E
6. Pediatric intensive care unit	E <sup>30</sup>	E <sup>31</sup>	-	-

<sup>1</sup> An individual may not serve as trauma medical director for more than one trauma center at the same time.

<sup>2</sup> For a Level I trauma center, this shall be a full-time position.

<sup>3</sup> This does not apply if emergency medicine physicians do not participate in the care of a hospital's trauma patients.

<sup>4</sup> For this criterion, "immediately available" means that:

1. For a Level I trauma center, a PGY 4 or 5 surgery resident or a trauma surgeon is on the hospital premises at all times; and

2. For all major resuscitations in a Level I, II, or III trauma center:
  - a. If advance notice is provided from the field, a trauma surgeon is present in the emergency department upon patient arrival; and
  - b. If advance notice is not provided from the field, a trauma surgeon is present in the emergency department:
    - i. For a Level I or II trauma center, no later than 15 minutes after patient arrival; or
    - ii. For a Level III trauma center, no later than 30 minutes after patient arrival.

The minimum threshold for compliance with #2 is 80%.

A PGY 4 or 5 surgery resident may begin resuscitation while awaiting the arrival of the trauma surgeon, but is not a replacement for the trauma surgeon.

<sup>5</sup> For this criterion, “immediately available” means that:

1. For a Level I trauma center, an anesthesiologist, anesthesiology chief resident, or certified registered nurse anesthetist is on the hospital premises at all times;
2. For a Level II trauma center, an anesthesiologist, anesthesiology chief resident, or certified registered nurse anesthetist is present in the emergency department no later than 15 minutes after patient arrival;
3. For a Level III trauma center, an anesthesiologist, anesthesiology chief resident, or certified registered nurse anesthetist is present in the emergency department no later than 30 minutes after patient arrival; and
4. For a Level I, II, or III trauma center, an anesthesiologist is present for all surgeries.

<sup>6</sup> For this criterion, “immediately available” means that an emergency medicine physician is physically present in the emergency department at all times. However, if emergency medicine physicians do not participate in the care of a hospital’s trauma patients, an emergency medicine physician is not required to be immediately available 24 hours per day.

<sup>7</sup> For the criteria in (C)(3)(a)-(I), “promptly available” means that:

1. A physician specialist is present in the emergency department no later than 45 minutes after notification, based on patient need; or
2. For hand surgery and microvascular/replant surgery, the owner has transfer agreements to ensure that a patient in need of hand surgery or microvascular/replant surgery can be expeditiously transferred to a health care institution that has a hand surgeon or microvascular/replant surgeon on the premises.

<sup>8</sup> This criterion is satisfied by a physician authorized by the hospital to perform cardiothoracic surgery.

<sup>9</sup> This criterion is satisfied by a dentist or physician authorized by the hospital to perform oral and maxillofacial surgery. If a physician, the individual shall be a plastic surgeon or an otolaryngologist.

<sup>10</sup> In a Level I or II trauma center, a non-board-certified physician may be included in the trauma service if the physician:

1. If a surgeon, is in the examination process by the American Board of Surgery;
2. If the trauma medical director, is a Fellow of ACS;
3. Unless the trauma medical director, complies with the following:
  - a. Has a letter written by the trauma medical director demonstrating that the health care institution’s trauma program has a critical need for the physician because of the physician’s individual experience or the limited physician resources available in the physician’s specialty;
  - b. Has successfully completed an accredited residency training program in the physician’s specialty, as certified by a letter from the director of the residency training program;
  - c. Has current ATLS certification as a provider or instructor, as established by documentation;
  - d. Has completed 48 hours of trauma CME within the past three years, as established by documentation;
  - e. Has attended at least 50% of the trauma quality assurance and educational meetings, as established by documentation;
  - f. Has been a member or attended local, regional, and national trauma organization meetings within the past three years, as established by documentation;
  - g. Has a list of patients treated over the past year with accompanying ISS and outcome for each;
  - h. Has a quality assurance assessment by the trauma medical director showing that the morbidity and mortality results for the physician’s patients compare favorably with the morbidity and mortality results for comparable patients treated by other members of the trauma service; and

- i. Has full and unrestricted privileges in the physician's specialty and in the department with which the physician is affiliated; or
- 4. Complies with the following:
  - a. Has provided exceptional care of trauma patients, as established by documentation such as a quality assurance assessment by the trauma medical director;
  - b. Has numerous publications, including publication of excellent research;
  - c. Has made numerous presentations; and
  - d. Has provided excellent teaching, as established by documentation.

In a Level III trauma center, only the trauma medical director is required to be board-certified.

<sup>11</sup> This criterion applies only to the trauma medical director, the emergency medicine liaison, the neurosurgical trauma liaison, and the orthopaedic trauma liaison. This criterion is satisfied by an average of 16 hours annually, or 48 hours over three years, of verifiable external trauma-related CME. External CME includes programs given by visiting professors or invited speakers and teaching an ATLS course.

<sup>12</sup> Among the trauma surgeons, only the trauma medical director is required to have current ATLS certification. The other trauma surgeons are required to have held ATLS certification at one time. Among the emergency medicine physicians, only non-board-certified physicians are required to have current ATLS certification. The other emergency medicine physicians are required to have held ATLS certification at one time.

<sup>13</sup> Among the trauma surgeons, 50% attendance is required for each member of the trauma surgical core group. In the other specialty areas, 50% attendance is required only for the emergency medicine liaison, the neurosurgical trauma liaison, and the orthopaedic trauma liaison.

<sup>14</sup> Except for Level I trauma centers that care only for pediatric patients, each Level I trauma center shall satisfy one of the following volume performance standards:

1. 1200 trauma admissions per year,
2. 240 admissions with ISS > 15 per year, or
3. An average of 35 patients with ISS > 15 for the trauma panel surgeons per year.

Burn patients may be included in annual trauma admissions if the trauma service, not a separate burn service, is responsible for burn care in the trauma center.

<sup>15</sup> For this criterion, "immediately available" means that for all major resuscitations in a Level I or II trauma center:

1. If advance notice is provided from the field, a trauma surgeon is present in the emergency department upon patient arrival; and
2. If advance notice is not provided from the field, a trauma surgeon is present in the emergency department no later than 15 minutes after patient arrival.

The minimum threshold for compliance with this criterion is 80%.

A PGY 4 or 5 surgery resident may begin resuscitation while awaiting the arrival of the trauma surgeon, but is not a replacement for the trauma surgeon.

<sup>16</sup> For this criterion, "promptly available" means that for all major resuscitations in a Level III trauma center:

1. If advance notice is provided from the field, a trauma surgeon is present in the emergency department upon patient arrival; and
2. If advance notice is not provided from the field, a trauma surgeon is present in the emergency department no later than 30 minutes after patient arrival.

The minimum threshold for compliance with this criterion is 80%.

A PGY 4 or 5 surgery resident may begin resuscitation while awaiting the arrival of the trauma surgeon, but is not a replacement for the trauma surgeon.

<sup>17</sup> A trauma center that does not admit pediatric patients shall be capable of resuscitating, stabilizing, and transporting pediatric trauma patients.

<sup>18</sup> A Level I trauma center shall have a complete operating room team in the hospital at all times, so that an injured patient who requires operative care can receive it in the most expeditious manner. The members of the operating

room team shall be assigned to the operating room as their primary function; they cannot also be dedicated to other functions within the institution.

<sup>19</sup> A Level II trauma center shall have a complete operating room team available when needed. The need to have an in-house operating room team depends on a number of things, including the patient population served, the ability to share responsibility for operating room coverage with other hospital staff, prehospital communication, and the size of the community served by the trauma center. If an out-of-house operating room team is used, then this aspect of care shall be monitored by the performance improvement program.

<sup>20</sup> This requirement may be satisfied by a physician authorized by the hospital to admit patients into the intensive care unit as the attending physician or to perform critical care procedures.

<sup>21</sup> This requirement is met through having an independent outreach program or participating in a collaborative outreach program. "Collaborative outreach program" means an organized effort, including multiple hospitals or sponsored or coordinated by a Regional Council or the Department, through which participating hospitals educate the general public or current or prospective physicians, nurses, prehospital providers, or allied health professionals regarding injury prevention, trauma triage, interfacility transfer of trauma patients, or trauma care.

<sup>22</sup> A Level I trauma center shall have a functional and documented teaching commitment. This requirement may be met through:

1. A trauma fellowship program; or
2. Active participation with one of the following types of residency programs in emergency medicine, general surgery, orthopaedic surgery, or neurosurgery:
  - a. An independent residency program;
  - b. A regional residency rotation program; or
  - c. A collaborative residency program that includes multiple hospitals, with each non-sponsor participating hospital hosting at least one rotation.

<sup>23</sup> This requirement is met through participating in the provision of ATLS courses and having ATLS instructors on staff.

<sup>24</sup> When a Level III trauma center is in an area that contains a Level I or Level II trauma center, this is not required.

<sup>25</sup> This requirement is met through having an independent prevention program or participating in a collaborative prevention program. "Collaborative prevention program" means an organized effort, including multiple hospitals or sponsored or coordinated by a Regional Council or the Department, through which participating health care institutions promote injury prevention through primary, secondary, or tertiary prevention strategies. An independent or collaborative prevention program shall include:

1. Conducting injury control studies,
2. Monitoring the progress and effect of the prevention program,
3. Providing information resources for the public, and
4. Each participating hospital's designating a prevention coordinator who serves as the hospital's spokesperson for prevention and injury control activities.

<sup>26</sup> This requirement is met through participating in a prevention program organized at the national, regional, state, or local community level.

<sup>27</sup> This requirement is met through having an independent research program or participating in a collaborative research program. "Collaborative research program" means an organized effort, including multiple hospitals or sponsored or coordinated by a Regional Council or the Department, through which participating hospitals systematically investigate issues related to trauma and trauma care.

Injury control studies are considered to be research program activities if they have a stated focused hypothesis or research question.

<sup>28</sup> The trauma program shall provide at least 12 educational presentations every three years outside the academically affiliated institutions of the trauma center.

<sup>29</sup> A trauma center is required to comply with the requirements of (K)(1) through (6), in addition to the requirements in (A) through (J), if the trauma center is represented as caring for pediatric trauma patients. “Represented as caring for pediatric trauma patients” means that a trauma center’s availability or capability to care for pediatric trauma patients is advertised to the general public, health care providers, or emergency medical services providers through print media, broadcast media, the Internet, or other means such as the EMSsystem® administered by the Department.

<sup>30</sup> The trauma center shall have a PICU available on-site.

<sup>31</sup> This requirement may be satisfied by a transfer agreement.