Crisis Standards of Care: State of Arizona Clinical Workgroup

Arizona Dept of Health Services & Partners
Phoenix, AZ
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Facilitator
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- Josh Gaither, MD & Dan Beskind, MD
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Crisis Standards of Care: State of Arizona Clinical Workgroup

- Thank you!
  - To all members of the State of Arizona Clinical Workgroup for Crisis Standards of Care, for your
    - Time
    - Dedication
    - Service
    - Expertise
- Resource Materials
  - State of Arizona Crisis Standards of Care Web Page
    - http://1.usa.gov/148dOtS
    - URL is case sensitive

Crisis Standards of Care: State of Arizona Clinical Workgroup

- Objectives for July 17, 2013
  - Recommend activation criteria for crisis standards of care (CSC)
  - Recommend primary, secondary, & tertiary triage methods for limited healthcare resources
  - Using evidence-based guidelines when possible

Arizona CSC
Approved by SDMAC Planning Committee 6/27/13

<table>
<thead>
<tr>
<th>Desired Future State</th>
<th>Develop and implement a compassionate, ethically-based healthcare response for catastrophic disasters, using crisis standards of care (CSC) co-developed by key stakeholders.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>Arizona will become a national model in CSC planning and implementation by February, 2014.</td>
</tr>
<tr>
<td>Mission</td>
<td>Provide framework and standards for response to and recovery from catastrophic disasters, enabling optimal community resilience for the healthcare system, statewide.</td>
</tr>
<tr>
<td>Values</td>
<td>Transparency: Provide open, honest, factual and timely communication and information sharing.</td>
</tr>
<tr>
<td></td>
<td>Consistency: Implement processes and procedures across the continuum of care; applying the same methodologies to achieve optimal community health.</td>
</tr>
<tr>
<td></td>
<td>Fairness: Support respect and dignity for all populations when providing healthcare across the continuum of care.</td>
</tr>
<tr>
<td></td>
<td>Accountability: Take responsibility for actions, complete work assigned, follow through on requests and communications.</td>
</tr>
<tr>
<td></td>
<td>Resiliency: Provide for the recovery of emotional, spiritual, intellectual and mental health needs and facilitate the well-being of the community.</td>
</tr>
<tr>
<td>Evidence-based</td>
<td>Formulate decisions on medically founded, state-of-the-art, and research tested (when available) facts and processes to promote optimal community health.</td>
</tr>
</tbody>
</table>
### Presentation Outline
- IOM crisis standards of care (CSC)
- Activation criteria for CSC
- Triage systems for CSC

### IOM Crisis Standards of Care
- Seek community & provider engagement preparing for & during CSC
- Adhere to ethical norms during CSC
- Provide necessary legal protections for healthcare providers & institutions using CSC
- Ensure intrastate & interstate consistency during CSC
  - Clear indicators, triggers, & lines of responsibility
  - Evidence-based clinical processes & operations

### IOM Crisis Standards of Care
- Substantial change in usual healthcare operations & level of care
- Justified by specific circumstances
- Formally declared by state government
  - Scope
    - Statewide
  - May authorize
    - Alternate care sites
    - Alternate staffing levels
    - Expanded scopes of practice
  - Long-term crisis

### IOM Crisis Standards of Care 2012
- Systems Framework for Catastrophic Disaster Response
  - Systems
    - Governments
      - Local
      - State & Territorial
      - Tribal Nations
      - Federal
    - Health systems
      - EMS
      - Hospitals & other healthcare facilities
      - Alternate care systems
        - Out-of-hospital
        - Public Health & Public Engagement

### IOM CSC: Catastrophic Disaster Attributes
- Most or all of community’s infrastructure impacted
- Local officials unable to perform usual roles for extended period
- Most or all routine community functions immediately & simultaneously disrupted
- Surrounding communities similarly impacted
  - Therefore, no regional resources

### IOM CSC: 3 Cs
- Conventional care
  - Space, staff, & stuff (supplies) [3Ss] in daily practice
- Contingency care
  - 3Ss not used in daily practice
    - Functionally equivalent patient care
    - Patient care areas repurposed
    - Elective procedures & admissions deferred
    - Expanded staff responsibilities
    - Conserve, adapt, & substitute supplies
    - Safely re-use select supplies
- Crisis care
  - Adaptive 3Ss not used in daily practice
  - Best possible care in difficult circumstances with limited resources
Presentation Outline

- IOM crisis standards of care (CSC)
- Activation criteria for CSC
- Triage systems for CSC

IOM Catastrophic Conditions: Possible State of Arizona CSC Triggers for Discussion & Vote by CSC Clinical Workgroup

- Resources for healthcare facilities & agencies
  - Unavailable
  - Undeliverable
- Multiple healthcare facilities & agencies similarly impacted
  - Patient transfer not possible
    - Short-term
- Limited access to medical countermeasures
- Supply caches already distributed
  - No short-term resupply
- State Declaration of Emergency

IOM Catastrophic Conditions: Possible Healthcare Facility CSC Triggers for Discussion & Vote by CSC Workgroup

- Space
  - Healthcare facilities
    - Need non-patient care areas for patient care
    - Damaged
    - Unsafe
- Staff
  - Trained staff unavailable or unable to care for volume of patients at healthcare facility
- Stuff
  - Critical items lacking at healthcare facility
  - Possible reallocation of life-sustaining resources at facility

Vote

What is your level of agreement with the CSC Clinical Workgroup proposed State of Arizona CSC triggers:
1) A State Declaration of Emergency plus
2) Any one of the following:

- Resources for healthcare facilities & agencies
  - Unavailable
  - Undeliverable
- Multiple healthcare facilities & agencies similarly impacted
  - Patient transfer not possible
    - Short-term
- Limited access to medical countermeasures
- Supply caches already distributed
  - No short-term resupply

Vote Result

by State of Arizona CSC Clinical Workgroup for this question: What is your level of agreement with the CSC Clinical Workgroup proposed State of Arizona CSC triggers:
1) A State Declaration of Emergency plus
2) Any one of the other proposed criteria on last slide?

A. Strongly Agree (38%)
B. Agree (43%)
C. Neutral (5%)
D. Disagree (10%)
E. Strongly Disagree (5%)

Vote

What is your level of agreement with the CSC Clinical Workgroup proposal that a healthcare facility must meet at least 1 of the 3 following proposed CSC triggers to decide to trigger CSC at that facility?

- Space
  - Healthcare facilities
    - Need non-patient care areas for patient care
    - Damaged
    - Unsafe
- Staff
  - Trained staff unavailable or unable to care for volume of patients at healthcare facility
- Stuff
  - Critical items lacking at healthcare facility
  - Possible reallocation of life-sustaining resources at facility
**Vote Result**
by State of Arizona CSC Clinical Workgroup for this question:
What is your level of agreement with the CSC Clinical Workgroup proposal that a healthcare facility must meet at least 1 of the 3 proposed CSC triggers on the previous slide to decide to trigger CSC at that facility?

A. Strongly Agree (50%)
B. Agree (46%)
C. Neutral (0%)
D. Disagree (0%)
E. Strongly Disagree (4%)

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**Presentation Outline**
- IOM crisis standards of care (CSC)
- Activation criteria for CSC
- Triage systems for CSC

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**Triage**
- French verb “trier” = “to sort”
- Do the greatest good for the greatest number
  - With limited resources
- Dynamic
  - Reassess
  - Reprioritize
- 3 types
  - Primary
  - Secondary
  - Tertiary

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**IOM CSC: Triage**
- **Primary triage**
  - 1st assessment
  - Prior to medical interventions
  - EMS
    - START, etc.
    - Alternate Triage, Treatment, & Transport Guidelines for Pandemic Influenza
  - Hospital Emergency Department (ED)
    - Level 1-5, normally
    - START, etc. in disaster

---

**Primary Triage Systems**
- MASS (Move, Assess, Sort, & Send)
- START (Simple Triage & Rapid Treatment)
  - Both above use I|DME mnemonic
- JumpSTART® for kids
  - Uses I|DMD mnemonic
- SALT (Sort, Assess, Lifesaving Treatment)
  - Uses I|D|MED mnemonic
- FDNY
- CareFlight
- Sacco or unadjusted Sacco
**Primary Triage IDME Mnemonic**

- **Immediate = RED**
  - Life-threatening injury or illness
  - Lifesaving interventions (LSI)
  - 1st to treat

- **Delayed = YELLOW**
  - Serious, but not life-threatening
  - Delaying treatment will not affect outcome
  - 2nd to treat

- **Minimal = GREEN**
  - Walking wounded
  - 3rd to treat

- **Expectant = BLACK**
  - Palliative care, unless new resources allow triage upgrade

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**Primary Triage Immediate**

- Immediately life-threatening
- High potential for survival
- Examples
  - Airway obstruction
  - Cervical spinal cord injury
  - Tension pneumothorax
  - Exsanguinating hemorrhage
  - Severe nerve agent poisoning

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**Primary Triage Delayed**

- Serious injury, but
  - Delaying treatment will not affect outcome
- Examples
  - Complicated fractures
    - Open or
    - Need surgery
  - Paraplegia

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**Primary Triage Minimal**

- Abrasions
- Uncomplicated fractures
  - Closed
  - Do not need surgery
- Mild nerve agent poisoning
  - Eye signs & symptoms only

---

**Primary Triage Expectant (SALT)**

- Unlikely to survive
  - Very large total body surface area (TBSA) burns
    - 2nd, 3rd, & 4th degree
- Expectant does not mean no care
  - Do the best with what we have

---

**Primary Triage Dead = Deceased**

- Not breathing after
  - Opening airway
  - Rescue breaths in kids
    - SALT
      - Consider 2 rescue breaths
    - JumpSTART®
      - If pulse present, give 5 rescue breaths, after positioning airway
START Triage: RPM

- Walking & wounded = Minimal
- Respirations
- No
- Position Airway
- No Respirations = Expectant
- Respirations = Immediate
  - < 30 per minute = Immediate
  - ≥ 30 per minute = Immediate
- Radial Pulse
- No = Immediate
- Yes = Mental Status
- Unresponsive = Immediate
- Responsive = Delayed

JumpSTART© for Kids

- Pediatric triage system
  - Use JumpSTART© if patient looks like a child
    - Ages 1-8 years
  - Use START if patient looks like an adult
- Physiologic decision points (RPM) with pediatric values

Which primary triage system is best?

- Little evidence
- Use system adopted for your area

Does START triage work?

  - START evaluated for train crash
  - Compared field & retrospective, outcomes-based triage categories for 148 patients sent to 14 hospitals

<table>
<thead>
<tr>
<th>IDME</th>
<th>Field (n)</th>
<th>Outcomes-Based (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate/ Red</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Delayed/Yellow</td>
<td>68</td>
<td>26</td>
</tr>
<tr>
<td>Minimal/ Green</td>
<td>58</td>
<td>120</td>
</tr>
<tr>
<td>Expectant/ Black</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>148</td>
</tr>
</tbody>
</table>
Does START Triage Work? Conclusions

- **START**
  - Substantial over-triage
  - Acceptable under-triage
- **Over-triage**
  - Human nature not to abandon others


START vs. Other Triage Methods

- **Annals of Emergency Medicine**
- **National Trauma Data Bank**
  - N= 530,695
  - Adult, pediatric, & geriatric patients
  - Primary endpoint = hospital mortality
  - No system clearly clinically superior
    - Study unlikely to change practice

Systematic Review: Managing & Allocating Scarce Resources During MCE

- **Annals of Emergency Medicine**
  - Systematic review analyzed 74 studies
  - Points of dispensing (PODs) work for biological incidents
  - No clearly, clinically superior primary (field) triage method
  - Insufficient number of studies for conclusions on secondary triage, etc.

Primary Triage

- **Emergency Department (ED) Triage**
  - **Level 1: Resuscitation**
    - Requires immediate lifesaving intervention
  - **Level 2: Emergent**
    - Time critical, high risk condition or vital signs predict rapid decline if not treated quickly
  - **Level 3: Urgent**
    - Requires > 2 resources to properly diagnose & treat, e.g., abdominal pain requiring lab, CT, or ultrasound
  - **Level 4: Less urgent**
    - Requires 1 resource to properly diagnose or treat, e.g., x-ray or suturing
  - **Level 5: Nonurgent**
    - Requires no resources other than evaluation & treatment by physician, e.g., prescription refill

Vote

What is your preferred prehospital, primary triage method(s), based on the CSC Clinical Workgroup proposal to choose among the following, with the caveat that the CSC Clinical Workgroup would like the option to modify its recommendation as additional evidence-based guidance is published regarding other primary triage methods, such as SALT, etc.?

A. START for adults or JumpSTART® for children
B. Alternate Triage, Treatment, & Transport Guidelines for Pandemic Influenza
C. Either A or B as justified by specific circumstances

Vote Result

What is your preferred prehospital, primary triage method(s), based on the CSC Clinical Workgroup proposal to choose among the following, with the caveat that the CSC Clinical Workgroup would like the option to modify its recommendation as additional evidence-based guidance is published regarding other primary triage methods, such as SALT, etc.?

A. START for adults or JumpSTART® for children (30%)
B. Alternate Triage, Treatment, & Transport Guidelines for Pandemic Influenza (0%)
C. Either A or B as justified by specific circumstances (70%)
Vote

What is your preferred hospital/healthcare facility, primary triage method(s), based on the CSC Clinical Workgroup proposal to choose among the following, with the caveat that the CSC Clinical Workgroup would like the option to modify its recommendation as additional evidence-based guidance is published regarding other primary triage methods, such as SALT, etc.?

A. START for adults or JumpSTART© for children
B. Emergency department triage levels 1 - 5
C. Either A or B as justified by specific circumstances

Vote Result

What is your preferred hospital/healthcare facility, primary triage method(s), based on the CSC Clinical Workgroup proposal to choose among the following, with the caveat that the CSC Clinical Workgroup would like the option to modify its recommendation as additional evidence-based guidance is published regarding other primary triage methods, such as SALT, etc.?

A. START for adults or JumpSTART© for children (0%)
B. Emergency department triage levels 1 – 5 (33%)
C. Either A or B as justified by specific circumstances (67%)

Vote

What is your level of agreement with the CSC Clinical Workgroup proposal that a hospital/healthcare facility have its secondary triage performed by a facility designated physician or surgeon, after initial assessment, diagnostics, & medical interventions, to determine the patient’s priority for the OR (procedures) or CT (imaging), etc.?

A. Strongly Agree (50%)
B. Agree (41%)
C. Neutral (9%)
D. Disagree (0%)
E. Strongly Disagree (0%)

Tertiary Triage

Development of a triage protocol for critical care during an influenza pandemic

Method

Development of a triage protocol for critical care during an influenza pandemic

CMAJ 2006; 175(11):1377-1381.

- Determine need for critical care
  - Assess inclusion criteria
  - Assess exclusion criteria
    - If yes, “blue” triage code
      - Do not transfer to critical care
      - Continue current level of care or palliative care
      - Communicating with patient &/or family, etc.
    - Proceed to triage tool (initial SOFA Score)
      - For all patients, not only influenza patients
Tertiary Triage for Critical Care during Influenza Pandemic
*CMAJ* 2006; 175(11):1377-1381.

**Inclusion criteria**
- Requires ventilator
  - Refractory hypoxemia
    - SpO2 < 90% on nonrebreather reservoir mask or FiO2 > 0.85
  - Respiratory acidosis (pH < 7.2)
  - Clinically impending respiratory failure
  - Unable to protect or maintain airway
- Hypotension (SBP < 90 mmHg or relative hypotension) with clinical evidence of shock
  - Altered LOC, decreased urine output, etc.
  - Refractory to volume resuscitation
  - Requires vasopressor or inotrope

**Exclusion criteria for ICU**
- Severe trauma
- Severe burns with any 2
  - Age > 60 years
  - > 40% TBSA 2nd &/or 3rd degree burns
  - Inhalation injury
  - Cardiac arrest
  - Unwitnessed
  - Witnessed, not responsive to electrical therapy (defibrillation or pacing)
  - Recurrent
  - Severe baseline cognitive impairment
  - Advanced untreatable neuromuscular disease
  - Severe & irreversible neurologic condition
- Severe & irreversible cardiorespiratory condition

**Sequential Organ Failure Assessment (SOFA)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Scoring System</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &amp; B</td>
<td>PaO2/FiO2 (mmHg)</td>
</tr>
<tr>
<td>C</td>
<td>Hypotension</td>
</tr>
<tr>
<td>C</td>
<td>Platelets (x 10^6/L)</td>
</tr>
<tr>
<td>D</td>
<td>GCS</td>
</tr>
<tr>
<td>E</td>
<td>Creatinine (mg/dL)</td>
</tr>
<tr>
<td>E</td>
<td>Bilirubin (mg/dL)</td>
</tr>
</tbody>
</table>

**Survivors (n = 139)**

**Nonsurvivors (n = 29)**

<table>
<thead>
<tr>
<th>SOFA score on Day 1, Mean (SD)</th>
<th>Survivors</th>
<th>Nonsurvivors</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4 (3.4)</td>
<td>139</td>
<td>29</td>
<td>0.01</td>
</tr>
</tbody>
</table>

SOFA scores were significantly associated with survival during 2009 H1N1 in Canada.
SOFA scores were significantly associated with survival during 2009 H1N1 in Mexico

<table>
<thead>
<tr>
<th>SOFA score on Day 1, Mean (SD)</th>
<th>Survivors (n = 33)</th>
<th>Nonsurvivors (n = 23)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFA score on Day 1, Mean (SD)</td>
<td>6.7 (3.4)</td>
<td>12.3 (3.2)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>


Vote
What is your level of agreement with the CSC Clinical Workgroup proposal that a hospital/healthcare facility have its tertiary triage, for initial ICU admission, be based on the inclusion criteria & SOFA scores detailed in this article [CMAJ 2006; 175(11):1377-1381.] & summarized as the CSC Clinical Workgroup proposed in the table below, without using any of the exclusion criteria in this article.

<table>
<thead>
<tr>
<th>SOFA Triage Color Code</th>
<th>Criteria</th>
<th>Action or Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>SOFA score ≤ 7 or single organ failure</td>
<td>Highest priority for ICU admission</td>
</tr>
<tr>
<td>Yellow</td>
<td>SOFA score 8 through 11</td>
<td>Intermediate priority for ICU admission</td>
</tr>
<tr>
<td>Blue</td>
<td>SOFA score &gt; 11</td>
<td>Lowest priority for ICU admission Palliative care as needed</td>
</tr>
<tr>
<td>Green</td>
<td>No significant organ failure</td>
<td>No need for ICU admission</td>
</tr>
</tbody>
</table>

Crisis Standards of Care: State of Arizona Clinical Workgroup

- Objectives for July 17, 2013
  - Recommend activation criteria for crisis standards of care (CSC)
  - Recommend primary, secondary, & tertiary triage methods for limited healthcare resources
    - Using evidence-based guidelines when possible

Crisis Standards of Care: State of Arizona Clinical Workgroup

- Objectives for future
  - Recommend method for reporting status of limited space, staff, & supplies (3SSs) at healthcare facility or agency during CSC
  - Recommend expanded scopes of practice for healthcare professionals during CSC