

Exposure and Symptom Triage Tool for Gastrointestinal Acute Radiation Syndrome (EAST_{GI-ARS}) Severity Scoring – Prioritization for Use of GI-ARS Medical Countermeasures

EAST Tool

**Hicks JL, Bader JL, Coleman CN et al. 2018
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Severe H-ARS Predicted (>6 Gy)

Refer to medical care area/facility

Yes

No

Assess symptoms/data then base therapy and evacuation priority on column with majority or strongest variables.

Gastrointestinal (GI) ARS Severity Scoring System

Signs and symptoms	Tally	Normal (score, 0)	Mild (degree 1)	Moderate (degree 2)	Severe (degrees 3 to 4)
-Dehydration and weight loss (%) -Skin turgor (anesthesia) -Gum capillary refill (anesthesia) -Buccal mucosal and tongue hydration (anesthesia)		+/5 1s 1s Normal	10 2 to <3s 2 to <3s Less than normal amount of saliva, yet still some shine to membrane, tacky	15 3s 3s Dry no saliva, mucus membranes not shiny, tacky, sunken eyes	20 >3s >3s Dry and inflamed, tongue parched
Retching or vomiting		None	Mild, some evidence of vomitus (i.e. <5 ml)	Moderate, much evidence of vomitus (i.e. >5ml)	Severe, actively retching or vomiting on inspection
Inappetence		Normal eating habits, consumes all or most of food	Moderately slow to respond to meals and treats	Portions (>50%) of meal	Ignores food when delivered, all (or most) of the food remains uneaten
Abdominal cramps/pain		None	Slight abdominal pain ending within 24h	Abdominal cramps (degree 1)	Abdominal cramps (degree 2-3)
Diarrhea/day (d) frequency		Normal bulky stool	2-3 times/d	4-6 times/d; mucosal loss if at all; bleeding (degree 1 if at all)	7-10 times/d; symptoms more pronounced and will likely occur in several episodes over several days and weeks; changes in frequency (degree 1-3); consistency (degree 2-3); loss of mucosa (degree 2-3); bleeding (degree 2-3)
Abdominal cramps		None	Mild	Moderate to intense	Excruciating

Abdominal distension		None	Mild </500 ml volume increase	Moderate, 500 to 1000 ml volume increase	Severe >1000ml
Stool consistency; Stool color		Formed; Normal	Altered consistency and frequency (both degree 1); soft; other (for example, green, yellow)	Loose watery; Black	Bloody watery; Bright red
Plasma citrulline levels, % of baseline at designated time after irradiation (d)		31 µmol/L (95% CL: 19-52 µmol/L)	10% (3-6 d)	22% (4-7 d)	30-60% (4-7 d)
Match dominant signs/symptoms in column above to suggested triage category in same column below					
GI-ARS severity score/potential benefit with use of supportive care		NA	Likely benefit	Most benefit	Unlikely benefit

Complicating Medical Conditions/Vulnerability

Adjust evacuation priority to a higher degree/color if patient has a condition for which local care is not available and that could deteriorate within 48h putting the patient at risk including but not limited to:

- Anorexia
- Severe nausea
- Severe vomiting
- Severe cramping
- Severe diarrhea/dehydration
- Ulceration-GI

Goal: Initial rapid triage of patients with GI-radiation exposure for prioritization for evacuation and application of appropriate mitigators and treatment therapies.

Setting: Assembly center of screening location in resource-poor environment after nuclear detonation.

Process: Screen patients from highest to lowest precision predictors of GI-radiation injury and assign priority. This tool is an imprecise guide and should not substitute for expert clinical and radiologic opinion when available.

Outcome: One or combination of:

- Triage to acute medical care (depending on situation/severity of condition may have on-site resources to provide care or have to refer to another facility/location).
- Refer to administration of GI-mitigators and applied therapies
- Assign priority for evacuation to area with adequate medical resources
- Refer to shelter/basic needs support

References

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3. Hick JL, Bader JL, Coleman CN, Ansari AJ, Chang A, Salame-Alfie A, Hanfling D, Koerner JF. 2018. Proposed "exposure and symptom triage" (EAST) tool to assess radiation exposure after a nuclear detonation. *Disaster Med. Public Health Prep.* 12(3):386-395. doi: 10.1017/dmp.2017.86.

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