



## Chapter 40 – Injury Prevention and Control

### Episode Overview:

- 1) What are the three key aspects to Injury Control?
- 2) What makes up the Injury Triangle?
- 3) List 6 of 10 potential strategies for preventing transfer of energy

Wisecracks:

- 1) What can you actually do, as a health practitioner, to help injury prevention?

### Rosen's in Perspective:

- Trauma is a DISEASE
- This is a cognitive shift emphasizing that trauma isn't the outcome of some misfortune or random event, but predictable outcome of a specific chain of events
- Injury from trauma is the leading cause of death for most age categories in North America, and costs the system over 117 billion dollars alone in the US annually.

### 1) What are the three key aspects to Injury Control?

Prevention

- must understand the **epidemiology**
- look into the **biomechanics**
- use **education, research** and **public policy/law enforcement** to prevent injury

Acute Care

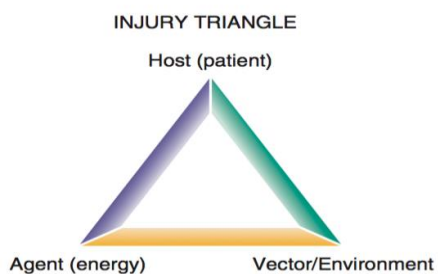
- institutions and protocols around managing trauma
  - **Trauma system** with **referral hospitals, EMS system, Guidelines for care,** and following care with **outcome research**

Rehabilitation

- **Physical Therapy, Occupational Therapy, Mental Health providers**

### 2) What makes up the Injury Triangle?

First developed by Dr. William Haddon, physician administrator for the National Highway Traffic Safety Administration (NHTSA)



**Figure 40-1.** The epidemiologic triad can be used as a framework for injury prevention. An injury occurs by the interaction of the host and agent through a vector and an environment that is conducive to injury. Alteration of any of these interactions prevents the injury.<sup>115</sup>



### 3) List 6 of 10 potential strategies for preventing transfer of energy

**Table 40-2 Haddon's Strategies for Preventing the Transfer of Energy to the Host**

TECHNIQUE	CAR CRASH	FALLS
1. Prevent the initial marshaling of energy	Manual task, breathalyzer ignition interlocks Use of alternative transportation	Remove floor obstacles Prevent unnecessary climbing
2. Reduce the amount of energy marshaled	Speed reduction Vehicle mass restrictions	Climbing height restrictions
3. Prevent the release of energy	Breakaway light poles, roadway obstacle removal	Ambulation aids for elderly Worker safety harnesses
4. Modify the rate of spatial distribution of the release of energy from its source	Auto body crumple zones Safety belts, air bags Water barrel barriers	Land with a "roll" Use of safety nets
5. Separate the energy from the host in space or time	Reduce traffic density Homogeneous traffic flow Increase following distance Sidewalks for pedestrians	Safety zones at edge of raised work areas
6. Separate the energy from the host by barrier	Guardrails, concrete median barriers	Guardrails for scaffolds, raised work areas
7. Modify the surface or structure of impact	Collapsible steering columns, padded pillars and bolsters, safety glass	Padded flooring Helmets and hard hats
8. Strengthen the host receiving the energy	Detect and treat premorbid medical conditions	Prevent and treat osteoporosis and strengthen hip flexion in elderly patients
9. Rapidly detect and evaluate damage and counter its continuation and extension	911 and EMS availability Trauma system planning and implementations, and provision of state-of-the-art emergency care	911 and EMS availability Trauma system planning and implementation, and provision of state-of-the-art emergency care
10. Reparative and rehabilitative measures	Provision of state-of-the-art trauma care, rehabilitation, and aftercare	Provision of state-of-the-art trauma care, rehabilitation, and aftercare

EMS, emergency medical services.

## Wise Cracks

### 1) What can you actually do, as a health practitioner, to help injury prevention?

#### Box 40-2 Injury Control in Emergency Medicine Practice

##### Clinical Preventive Services

- Document injury information in the medical record
- Ensure that medical records of injury cases contain E codes
- Assess behavioral and comorbid risk factors for future injury
- Provide risk screening, counseling, and referral
- Assess biomechanical risk factors in individual patients
- Use biomechanical risk factors for directed evaluation of injured patients
- Provide systematized acute trauma care

##### Population Health, Research, and Policy

- Participate in and advocate for inclusive trauma systems
- Direct and advocate for rapid, competent emergency medical services response
- Lead efforts in policy development, implementation, and evaluation
- Lead efforts in educating high-risk groups
- Lead efforts to address and modify the environment to reduce risk of injury
- Collaborate in multidisciplinary research to reduce injury risk and to improve care