JOHNS HOPKINS
BLOOMBERG
SCHOOL of PUBLIC HEALTH

Introduction Presentation

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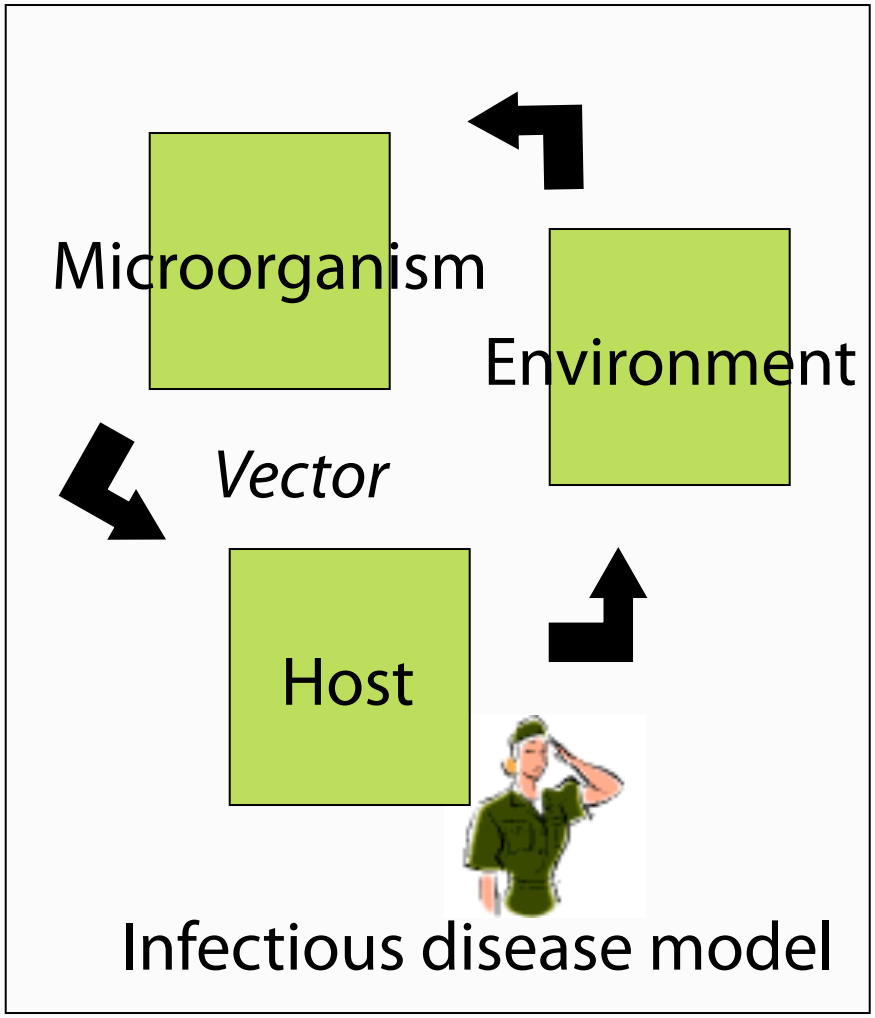
Section A: Introduction

Maria Segui-Gomez, MD, MPH, ScD

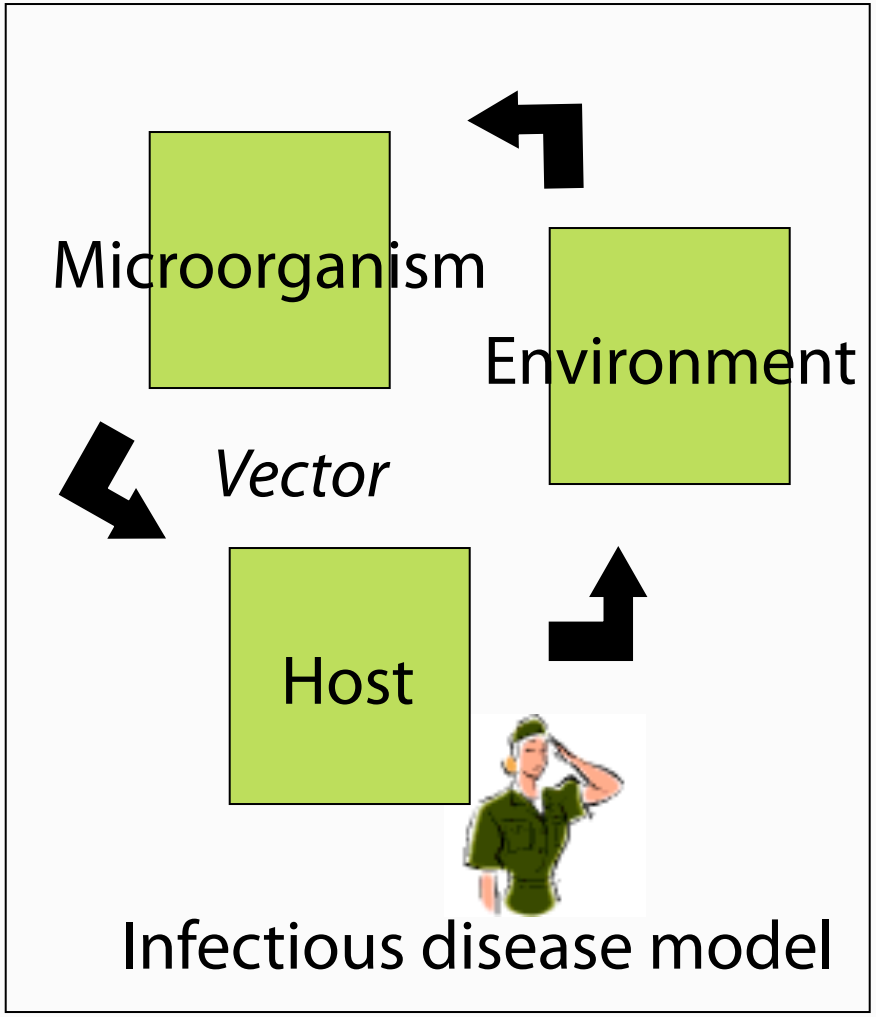
Injuries

- Body damage resulting from acute exposure to excess energy (whether thermal, mechanical, electrical, or chemical) or from the absence of such essentials as heat or oxygen

Why?


Microorganism
Environment
Vector
Host
Infectious disease model

Why?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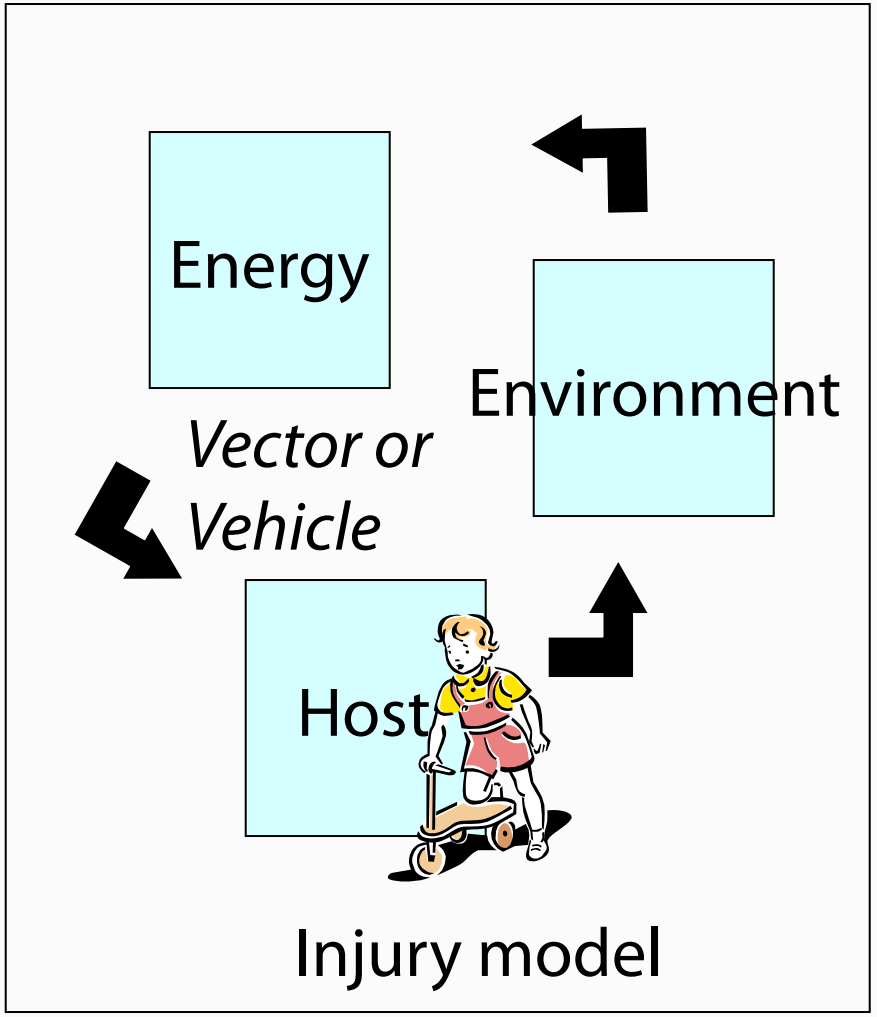
Energy
Environment
Vector or Vehicle
Host
Injury model

How to Describe Them

- Etiology
  - Inappropriate energy transfer
- Vehicles or vectors
  - Motor vehicles, bullets, animals, etc.
- Pathology
  - Fractures, dislocations, sprains, strains, concussions, etc.
- Treatment
  - Outpatient, hospitalization, etc.
- Prognosis
  - Recovery, sequelae, death

Common Classifications

- Themselves
  - Nature of injury (e.g., fracture, laceration, contusion)
  - Body region affected (e.g., head, chest, abdomen)
  - Severity (e.g., fatal, non-fatal)
- Mechanism of injury
  - Mechanism (e.g., blunt, penetrating, burn)
- The hazard that caused them
  - Cause (e.g., motor vehicle, falls, drowning)
  - Type of activity (e.g., work, sport, recreational)
  - Product involved (e.g., firearm, snowmobile)
  - Location of activity (e.g., school, outdoors, home)
  - Intent (intentional, unintentional)

Classifications

- These classifications are exhaustive and may be exclusive within classification
- We have used selected categories within classifications and created a non-exclusive, non-exhaustive system
  - Led to developing a fragmented and incomplete system

Why Are Injuries Relevant at All?

- Individual and societal consequences
  - Mortality (death)
  - Morbidity (non-fatal injuries)
  - Disability (short- and long-term sequelae)
  - Cost

History of the Field

- De Haven (1942)—Survivability of events
  - Stapp (1955)—Energy tolerance
- Gordon (1949)—Application of epidemiological framework
- Gibson (1961)—Energy as source of injury
- Haddon (1970)—Preventability strategies—matrix and principles
  - Nader (1965)—Consumer protection
  - Baker (since late 1960s)—Public health leadership in measuring the burden of injury

Source: Waller. (1996). American Journal of Public Health, 84, 664–670.

Lessons Learned

- Severity of injuries depends on
  - Energy being dissipated
  - Shapes of the colliding objects
  - Rigidity of colliding objects
  - Tolerance of host
- Injuries are predictable
  - Epidemiology, risk factors
- Injuries are preventable
  - Primary, secondary, and tertiary prevention
  - Individual, vector, environment-level interventions

The Haddon Matrix

	Host	Vector	Environment	
	(Human)	(Vehicle)	Physical	Socio-economic
Pre-event				
Event				
Post-event				

Key Cultural Traditions

- Accidents vs. injuries
  - "Accidents happen" vs. injuries are not accidents
- Passive vs. active primary prevention interventions
- Individual vs. environment