



I've Fallen and I can't get up!! No Wonder?

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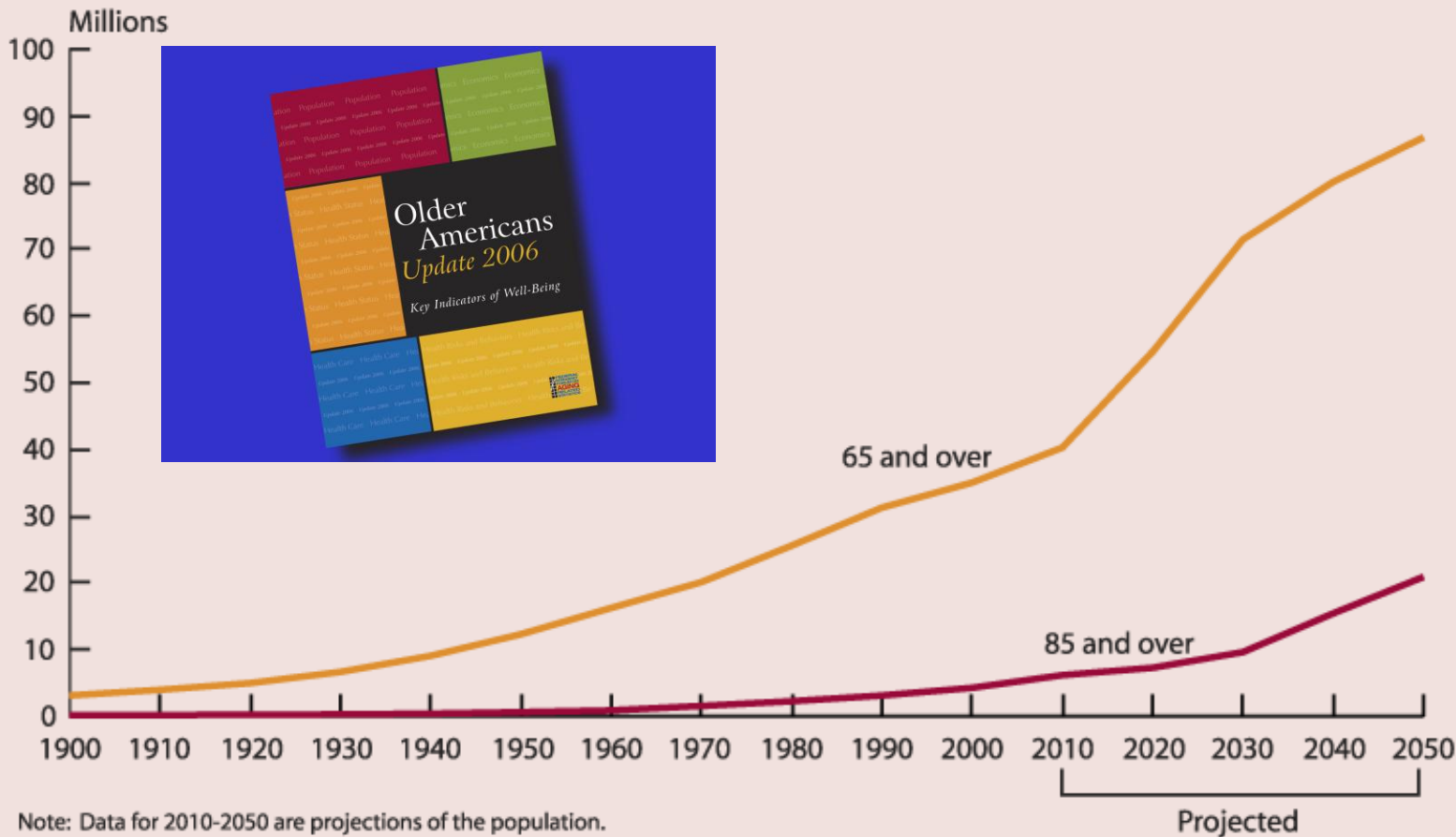
Geriatric Trauma Triage

New Guidelines for the State of Ohio

Why is Geriatric Trauma Triage an issue?



Number of people age 65 and over, by age group, selected years 1900-2000 and projected 2010-2050



Note: Data for 2010-2050 are projections of the population.
Reference population: These data refer to the resident population.
Source: U.S. Census Bureau, Decennial Census and Projections.

Geriatric EMS Stats



- persons 65 years of age and older:
 - represent 12% of the population
 - account for 36% of all ambulance transports
 - 25% of hospitalizations
 - 25% of total trauma costs
 - represent between 8-12% of the trauma population.



Data Source

- Ohio Trauma Registry (OTR) was authorized by ORC §4765.06 (B)
- State Board of Emergency Medical Services guides the operation of the OTR.

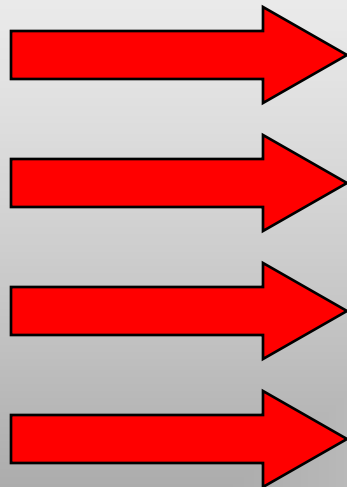
Ohio Administrative Code 4765-4.

- Gathers data points from:
 - Prehospital setting
 - Emergency Department setting
 - Inpatient course
 - Operating room visits
 - Discharge DisabilityAssessment

Trauma Mortality: All age Groups



Trauma Mortality



All Trauma deaths in Ohio	Adult	Elderly
Total patients	16284	6964
Total deaths	704	384
Died in TC	642	313
Died in NTC	52	71
Overall % mortality	4.3%	5.5%
% died in NTC - non ED/ICU (floors)	1.99%	15.89%
% died in TC	91.19%	81.51%

TC – Trauma Center

NTC – Non-Trauma Center

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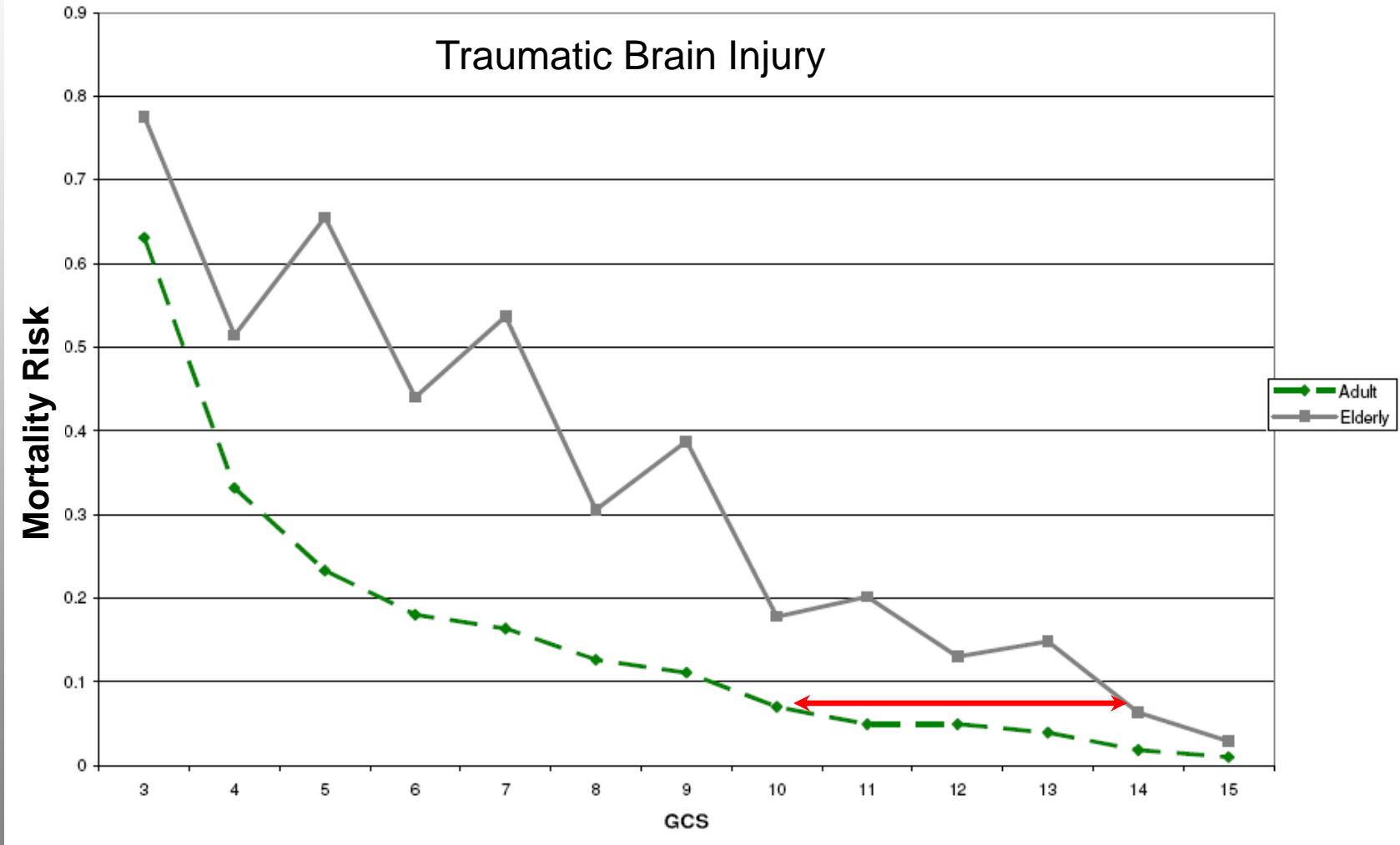
- Geriatric Trauma patients are being improperly triaged to Non-trauma centers

All Trauma deaths in Ohio	Adult	Elderly
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Total deaths	704	384
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Died in NTC	52	71
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% died in NTC – death not in ED/ICU (floors)	1.99%	15.89%
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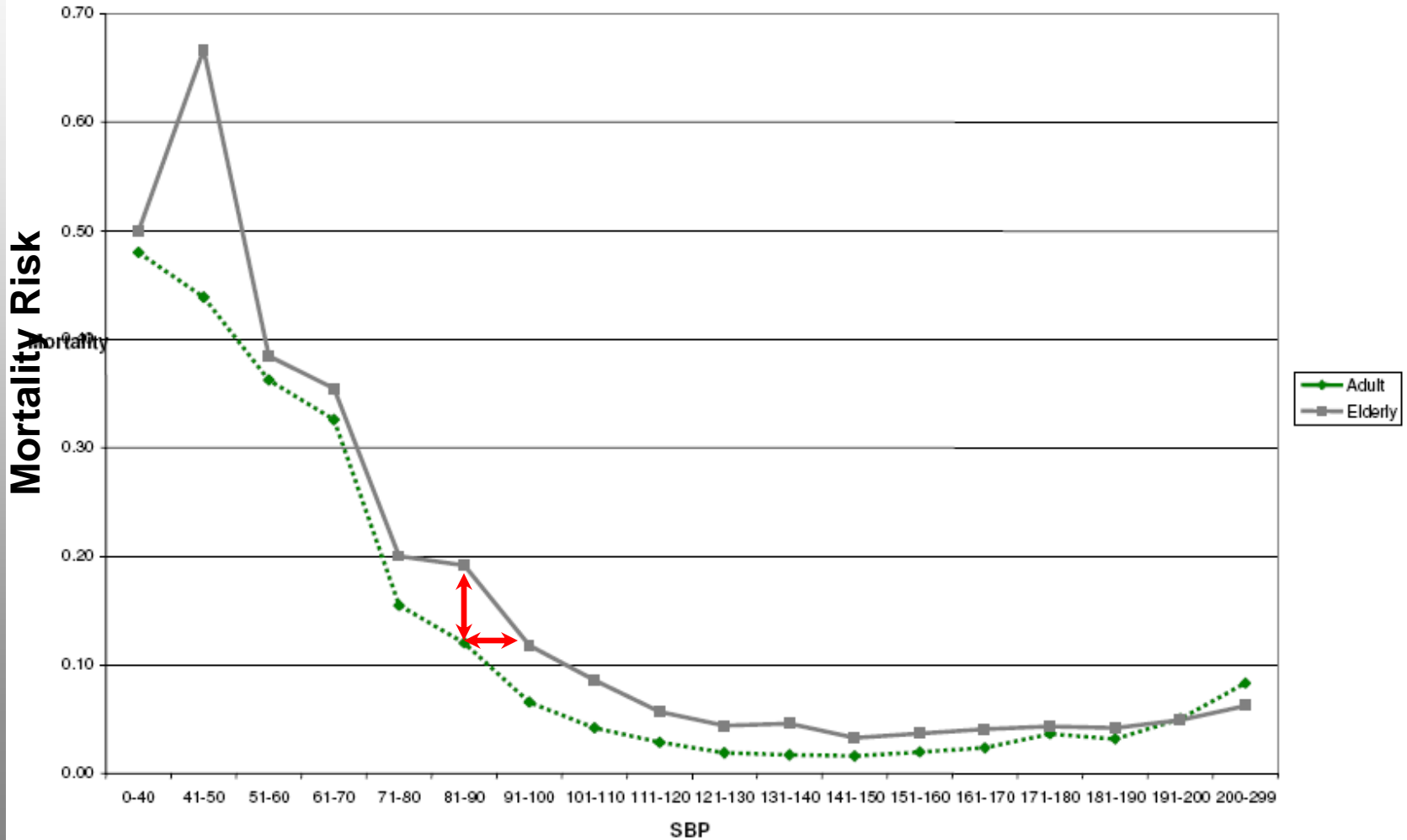
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GCS and Mortality Risk



Initial EMS Systolic BP and Mortality



What about the falls?

	Adult	Elderly
number of admitted trauma patients	94320	43622
number of falls (all)	32361	39080
number falls (all) w/TBI	6418	7071
percentage falls (all) w/TBI	19.83%	18.09%
deaths from falls (all) with TBI	385	841
mortality of falls (all) with TBI	6.00%	11.89%
OR = 2.12 (1.88 – 2.39) p < 0.0001		
number falls (all) w/chest injury	3279	3885
percentage falls (all) w/chest injury	10.13%	9.94%
deaths from falls (all) with chest injury	137	211
mortality of falls (all) with chest injury	4.18%	5.43%
OR = 1.22 (0.99 – 1.52) p = 0.0556		
number falls (all) w/abdomen/pelvis injury	585	5378
percentage falls (all) w/abdomen/pelvis injury	8.30%	13.76%
deaths from falls (all) with abdomen/pelvis injury	31	133
mortality of falls (all) with abdomen/pelvis injury	1.15%	2.47%
OR = 0.98 (0.73 – 1.31) p = 0.865		
number falls (all) w/SCI	732	303
percentage falls (all) w/SCI	2.26%	0.78%
deaths from falls (all) with SCI	36	61
mortality of falls (all) with SCI	4.92%	20.13%
OR = 4.36 (2.80 – 6.81) p < 0.0001		

- Large percentage of geriatric trauma
- Fall with specific injury:
 - Traumatic brain injury (TBI)
 - Chest trauma
 - Abdominal/pelvic injury
 - Spinal Cord Injury (SCI)

Odds Ratio: Ratio of the probability of an event occurring between 2 groups.

Falls from Standing?

	Adult	Elderly
number of falls (same level)	8918	14004
number falls (same level) w/TBI	1139	1895
percentage falls (same level) w/TBI	12.77%	13.53%
deaths from falls (same level) with TBI	80	224
mortality of falls (same level) with TBI	7.02%	11.82%
OR = 2.23 (1.84 – 2.70) p < 0.0001		

- Only falls from standing that include TBI were an indicator of greater mortality

Mechanism of Injury?

- Only mechanism isolated in the registry is pedestrian struck



Pedestrians Struck		
	All	
	Adult	Elderly
n=	2455	415
Deaths	183	69
Mortality	7.45%	16.63%

OR 2.39 (1.77 to 3.21) (p < 0.0001)

Mechanism: MVC's

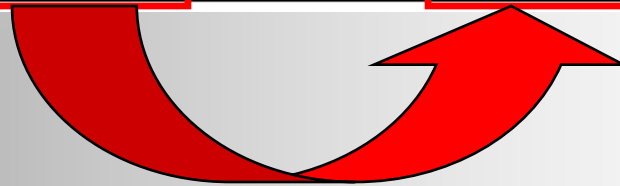
- Alone, not an independent indicator of increased mortality risk.
- A suspected or confirmed **proximal long bone fracture (humerus or femur)** with a MVC increases the mortality risk to a significant level

OR 2.41 (1.81 to 3.21) ($p < 0.0001$).

Multiple Body Regions Injured



	Single body region			Multiple body regions	
	Adult	Geriatric		Adult	Geriatric
Live	57232	32429		38909	11101
Die	1527	1327		2592	1021
Total	58759	33756		41501	12122
Mortality	2.60%	3.93%		6.25%	8.42%



- More body systems injured the higher the mortality

New Geriatric Trauma Triage Protocol for Ohio EMS Providers



- Trauma patients ≥ 70 years old
 - GCS < 15
 - Systolic BP < 100
 - Fall with evidence of traumatic brain injury
 - Even a fall from standing
 - Pedestrian struck
 - Known or suspected proximal long bone fracture sustained in MVC
 - Multiple body regions injured



Geriatric Comorbidities:

- patients should be given special consideration for evaluation at a trauma center if they have the following comorbid disease states:
 - Diabetes
 - cardiac disease
 - pulmonary disease (COPD)
 - clotting disorder (including anticoagulants)
 - immunosuppressive disorder
 - require dialysis.

Problems - Thoughts



- GCS
 - status in this population
- TBI
 - Definition?



Recommend that the geriatric trauma patients be considered as a distinct population.



Credits:

- Ohio State Board of Emergency Medical Services
- Geriatric Trauma Task Force Members
 - Howard Werman, MD – Chair
 - Jeffery Caterino, MD
 - Tim Erskine, EMT-P
 - Tricia Greenwald, MPH
 - Jane Riebe, BA

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Questions?



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datacenter

