CAEP CPD
CONTINUING PROFESSIONAL DEVELOPMENT

NATIONAL GRAND ROUNDS

Falling Through the Cracks: **A Look at Geriatric Trauma and Falls**

WED. NOVEMBER 4, 2026

2PM ET | 11AM PT



ISABELLE GRAY
Moderator



XAVIER DUBUCS
Speaker



BARBARA HAAS
Speaker



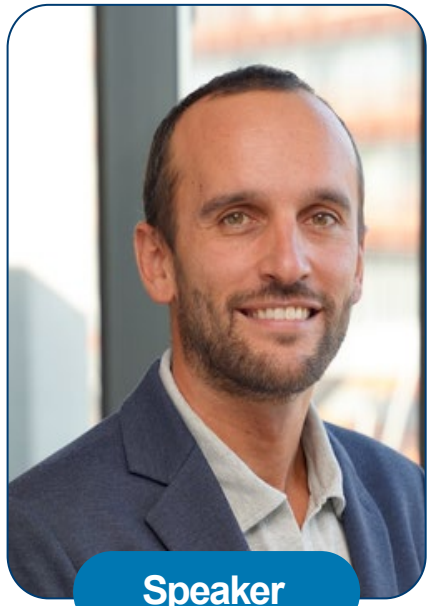
CHRISTINA SHENVI
Speaker

Introduction



Moderator

Isabelle Gray
MD MSc FRCPC



Speaker

Xavier Dubucs
MD PhD



Speaker

Barbara Haas
MD PhD FRCSC



Speaker

Christina Shenvi
MD PhD MBA FACEP

Learning Objectives

- Understand the role of CT head and C spine imaging in older populations, based on best evidence.
- Weigh the pros and cons of C-spine immobilization in older populations
- Confidently consult or activate the trauma team for older adults who have fallen
- Understand the impact of ED boarding on the care of older adult trauma patients

Disclosure of Financial Support

- This program has received NO financial support.
- This program has received NO in-kind support.
- Potential for conflict(s) of interest: None.

Mitigating Potential Bias

- The Scientific Planning Committee (SPC) mitigated potential bias by ensuring there was no industry involvement in the planning or education content.
- To comply with accreditation requirements of the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada, the speakers and moderator were provided with a Declaration of Conflict of Interest and the 3-slide Disclosure, which were collected and reviewed by the SPC.

Faculty/Presenter Disclosure

Faculty: Isabelle Gray

- Relationships with financial sponsors:
  - Direct financial relationships including receipt of honoraria: CAEP Geriatric Emergency Medicine Course (instructor)
  - Funded grants, research, or clinical trials: Funds for unrelated research through CAEP and CIHR
- Non-financial interests:
  - Public statements or published materials: Statement on ED crowding (on behalf of GeriEM committee)

Faculty: Xavier Dubucs

- Relationships with financial sponsors: None
- Non-financial interests: None

Faculty/Presenter Disclosure

Faculty: Barbara Haas

- Relationships with financial sponsors:
  - Direct financial relationships including receipt of honoraria: Trauma Medical Director, Sunnybrook Health Sciences Centre
  - Funded grants, research, or clinical trials: Grant funding from CIHR
- Non-financial interests: None

Faculty: Christina Shenvi

- Relationships with financial sponsors:
  - Memberships on advisory boards or speakers' bureau: Advisor to Noven Pharmaceuticals
- Non-financial interests: None

Head and Cervical Spine Imaging in Older Adults After Falls

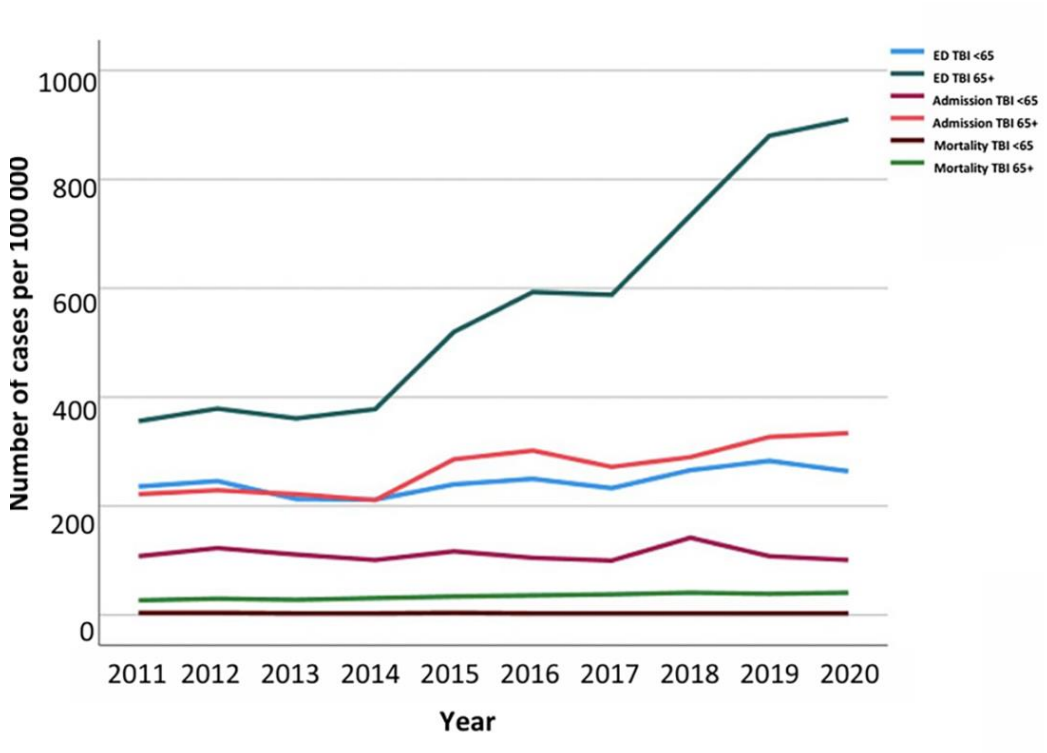
Xavier Dubucs

Emergency Physician, Toulouse University Hospital, France

National Grand Rounds, CAEP

Novembre 4, 2026

A major epidemiological trend



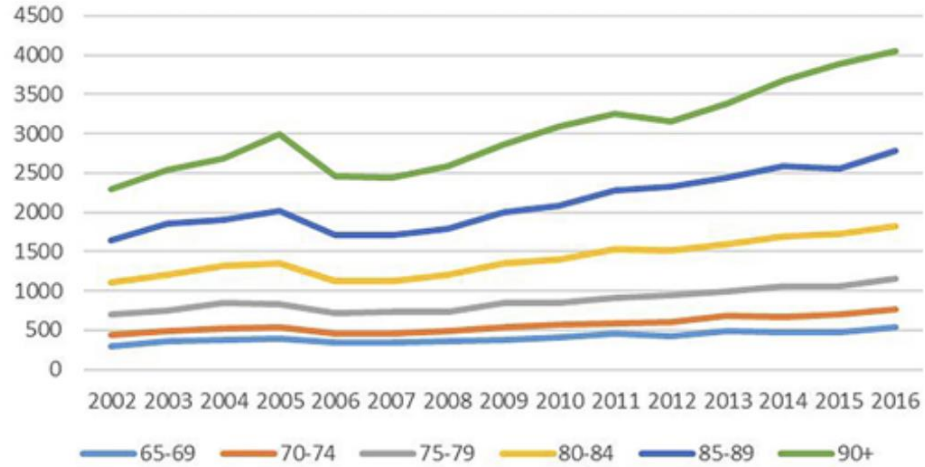


FIG. 2. Fall-related TBI rates by age group from 2002 to 2017 among all patients.

Santing et al., Injury, 2023
Cusimano, Neurosurg Focus, 2020

Our daily shift



… lives in a nursing home due to cognitive impairment, on **anticoagulants**, with left eyebrow abrasion. **Non-contributory history**. Neurological status: « normal » …

… history of long-standing cognitive impairment, on **clopidogrel**, fell from standing height, **no witnesses**, his wife heard a loud 'thud', the patient remembers nothing…



Martín-Sánchez FJ et al., European Geriatric Medicine, 2018
Carpenter C et al., Academic Emergency Medicine, 2019
Dubucs X et al., BMC Emergency Medicine, 2024

A major epidemiological trend

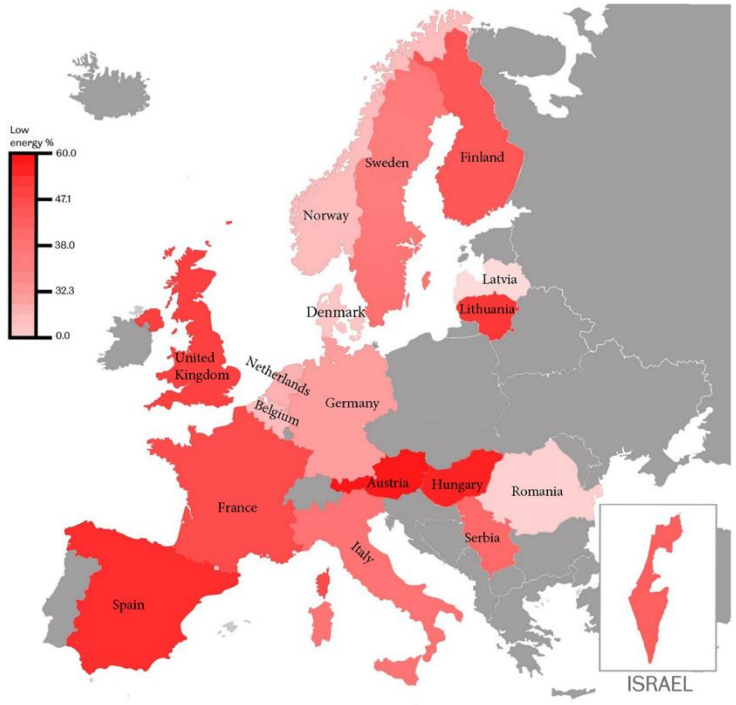
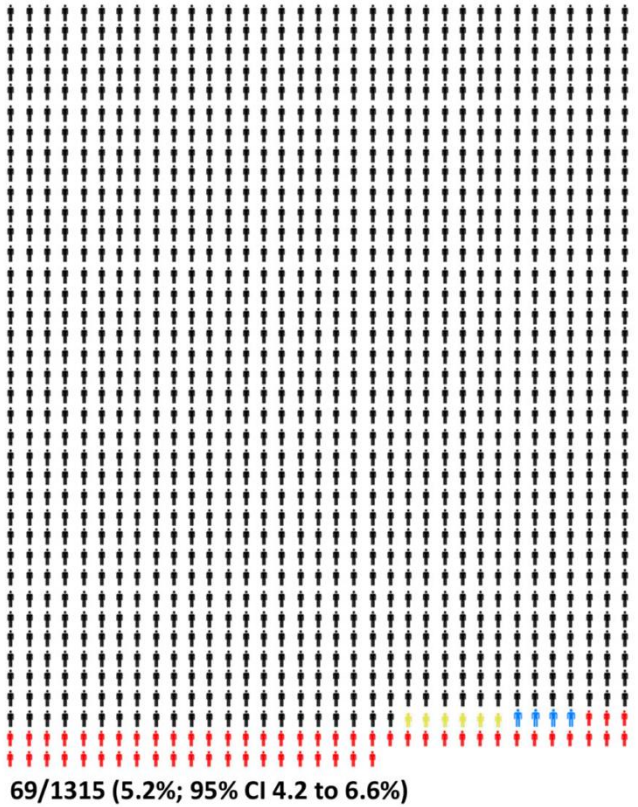


Fig 2. **Prevalence of low-energy transfer as TBI causal mechanism in countries participating in the CENTER-TBI Registry.** Colour shading as per key. Map from https://en.wikipedia.org/wiki/File:Europe_blank_map.png.



40 % of CT scan performed for TBI in EDs concern patients with low-energy falls

5.2 % of CT scan revealed intracranial injuries

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Lecky et al., Plos medicine, 2021
Kerstin De Wit et al., Injury, 2020

Did the patient have a traumatic brain injury?

	Number (%) of patients					
	Total	(a) Hit head and met CCTHR criteria	(b) Hit head but did not meet CCTHR criteria	(c) Hit head but unclear history of CCTHR criteria	(d) Unclear head injury status	(e) Did not hit their head
Category	***N*=4303**	***N*=703**	***N*=1204**	***N*=251**	***N*=502**	***N*=1643**
Any intracranial bleeding (important and not important)	173 (4.0)	73 (10.4)	40 (3.3)	23 (9.2)	23 (4.6)	14 (0.8)

When the history of the fall is unclear, be careful

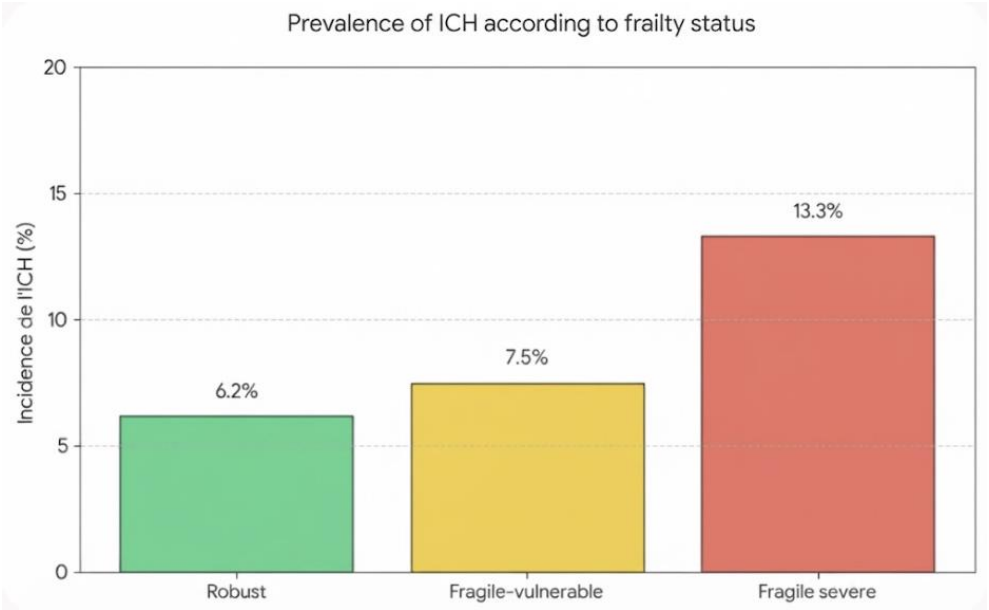


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Kerr G, Journal of the American Geriatrics Society, 2026

Paradox of frailty





	ICH prevalance	OR (95% CI)	P-value
Robust	6.2 %	Réf.	-
Fragile-vulnerable	7.5 %	1,24 (0,44 – 3,45)	0,68
Fragile sévère	**13.3 %**	**2,34 (0,41 – 13,6)**	0,34

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Dubucs et al., JEM, 2024

Clinical signs

Population
≥ 65 years-old, ground-level falls

22 520 patients

17 studies

Exposure	Number of Studies	OR	95% CI	I^2
Suspected open or depressed skull fracture	3	10.96	[6.42; 18.71]	97%
Signs of Basal Skull Fracture	7	4.69	[3.37; 6.52]	56%
Reduced baseline Glasgow Coma Scale score	11	3.97	[3.38; 4.66]	85%
Focal Neurological Sign*	10	3.80	[3.22; 4.48]	85%
Seizure	4	3.21	[1.47; 7.01]	0%
Vomiting	9	2.70	[2.11; 3.46]	0%
Amnesia	6	2.42	[1.97; 2.98]	54%
Loss of consciousness*	10	2.30	[1.92; 2.75]	77%
Dual Antiplatelet	9	2.29	[1.51; 3.47]	22%
Headache	5	2.11	[1.55; 2.88]	71%
Visible Head Trauma*	10	1.96	[1.70; 2.25]	78%
Male*	10	1.45	[1.29; 1.63]	0%
Single antiplatelet other than ASA	6	1.42	[1.01; 2.01]	26%
Chronic Kidney Disease	3	1.36	[1.00; 1.85]	0%
ASA alone	7	1.24	[1.02; 1.51]	43%
Single Antiplatelet	13	1.16	[1.02; 1.33]	51%
Preinjury Cognitive Impairment	6	1.08	[0.89; 1.32]	0%
Vitamin K antagonist (VKA)	8	1.04	[0.79; 1.35]	64%
Alcohol Intoxication	5	1.03	[0.64; 1.68]	0%
Anticoagulant	12	0.82	[0.70; 0.95]	70%
Direct Oral Anticoagulant	6	0.75	[0.59; 0.96]	63%

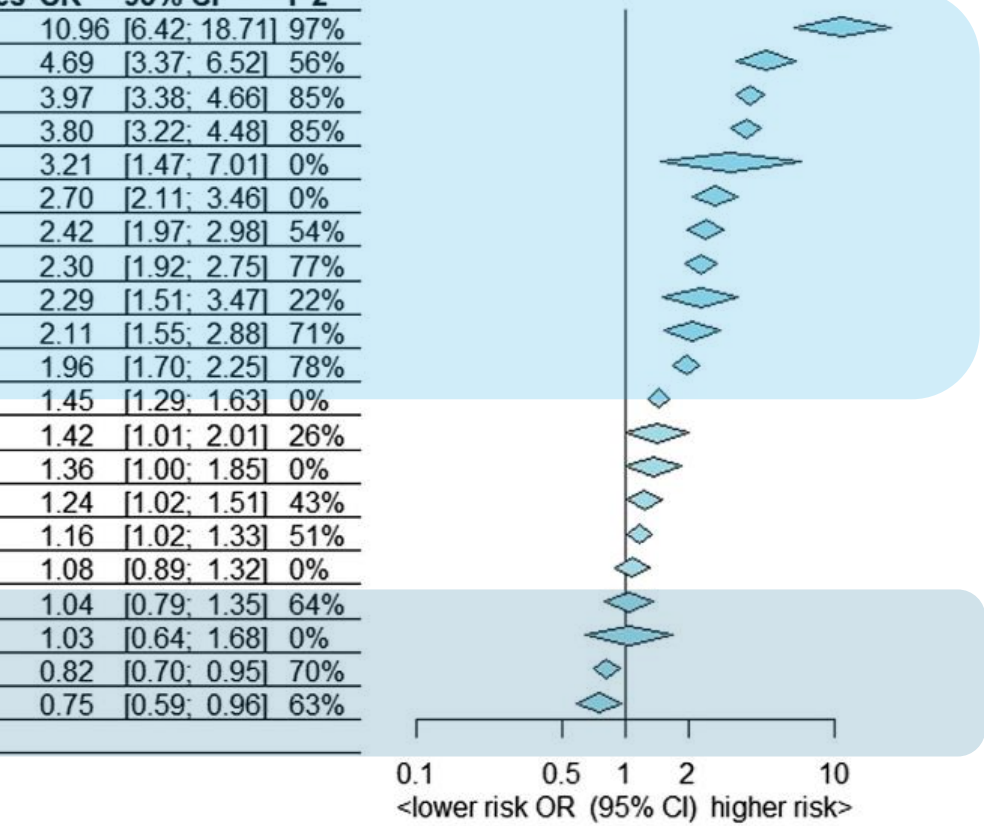


Figure 3. Forest plot of pooled unadjusted ORs for traumatic intracranial hemorrhage risk factors. *Risk factors associated with traumatic intracranial hemorrhage in both unadjusted and adjusted analyses.

Dubucs et al. Annals of Emergency Medicine, 2025

Clinical decision rules available

FALL decision rule

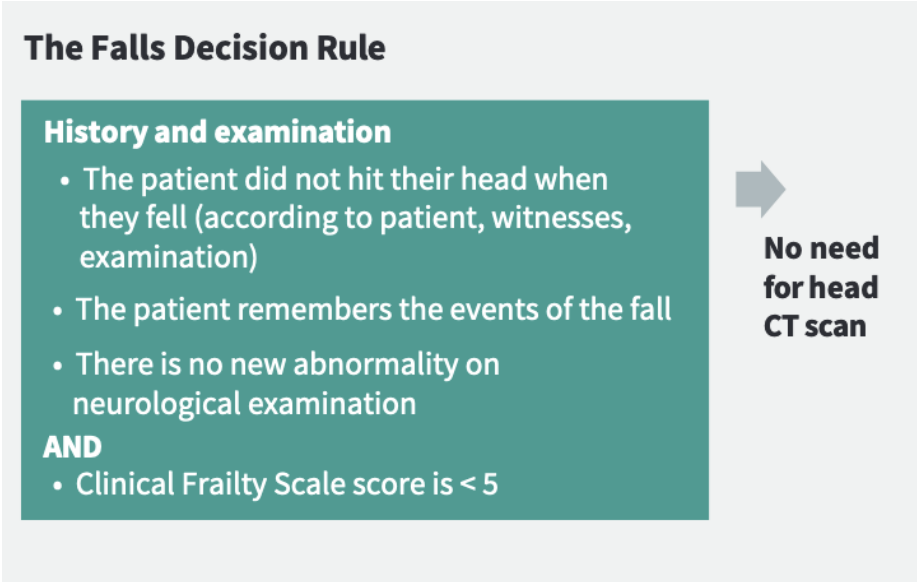


Table 3: Diagnostic accuracy of decision rules reported by living circumstances*

Decision rule	Living circumstances	Sensitivity (95% CI)	Specificity (95% CI)
Falls Decision Rule	All patients	137/139	856/4169
		98.60 (94.9–99.6)	20.30 (19.1–21.5)

De Wit et al., CMAJ, 2023
Kudu et al., CJEM, 2025

Clinical decision rules available

FLORIDA

Florida decision rule					
Add the scores for each positive predictor. The rule is positive with a score ≥ 25 points (i.e., a CT scan should be ordered).					
Arrival via EMS +*30*, GCS < 15 + 20, GCS < 14 + *50*, Antiplatelet meds +*17*, Loss of consciousness +*16*, Signs of BOS fracture +*50*, Headache +*20*					
Dataset	**Outcome**	**CT scans: All injuries**	**CT scans: All intracranial injuries**	**CT scans: Significant intracranial injury**	**CT scans: Need for neurosurgical intervention**
Derivation	Sensitivity (%) (95% CI)	94.4% (92.5, 96.3)	96.4% (94.7, 98.1)	96.1% (93.6, 98.6)	100% (100, 100)
	Specificity (%) (95% CI)	18.7% (17.4, 20.0)	18.6% (17.3, 19.9)	17.7% (16.4, 19.0)	17.1% (15.9, 18.3)
	AUROC	0.732	0.738	0.734	0.764
Validation	Sensitivity (%) (95% CI)	95.2% (92.6, 97.7)	97.0% (95.5, 99.1)	100.0% (98.8, 100)	100.0% (96.0, 100)
	Specificity (%) (95% CI)	13.5% (11.8, 15.0)	13.5% (11.9, 14.9)	12.7% (11.3, 14.2)	12.3% (10.9, 13.8)
	LR+	1.1	1.1	1.2	1.2
	LR−	0.36	0.22	0	0
	Missed cases	11	6	0	0

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Shih et al, JAGS, 2024

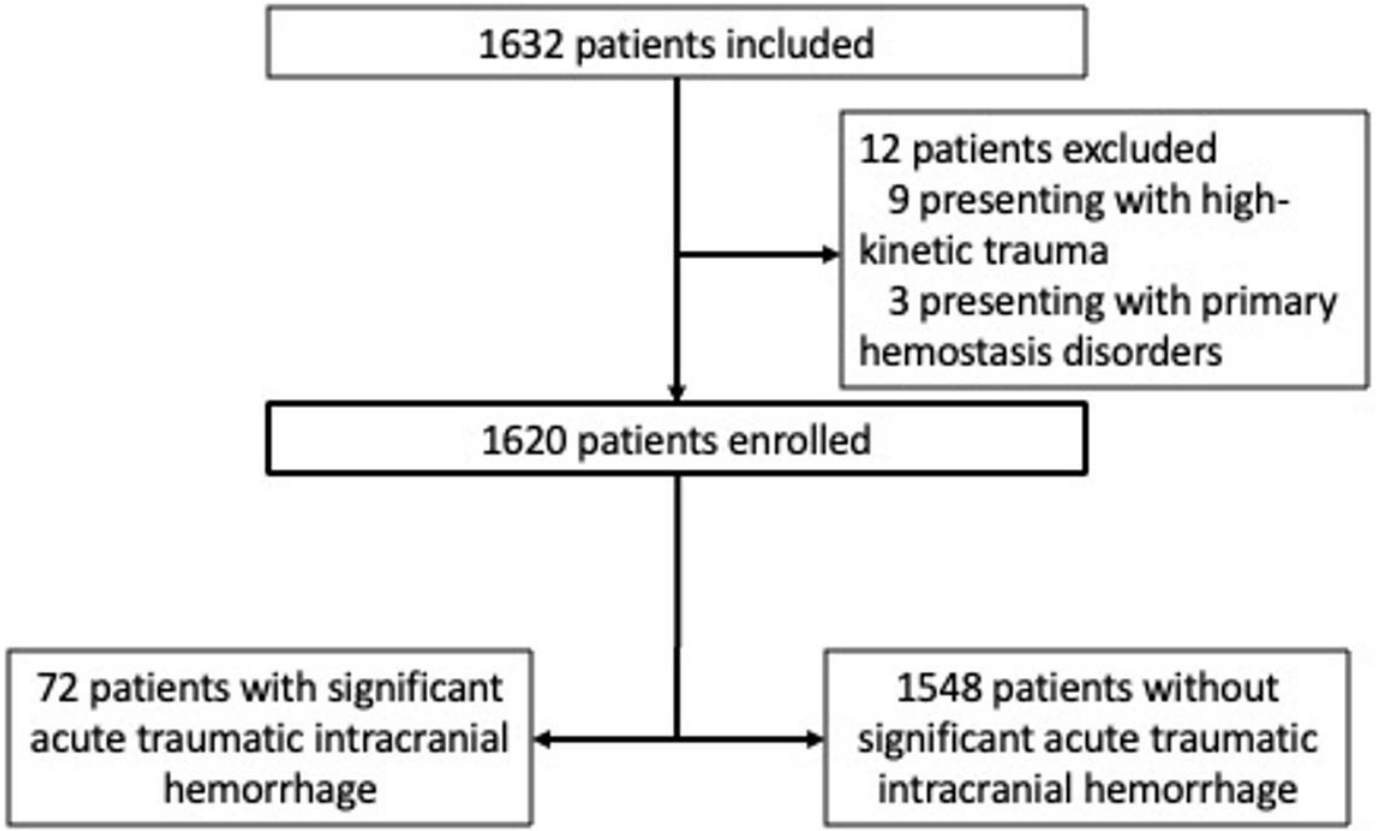
PIWI: Derivation study

From July 2023 to June 2025
Five Eds in Europe
France, Monaco, Slovakia

Medium age: **84.6 years-old**
Clinical frailty scale ≥ 4: **66 %**

Significant acute traumatic intracranial hemorrhage prevalence
4.4 %

Five patients required neurosurgical intervention



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Dubucs et al., Plos Med, 2026

PIWI: Derivation study

Place of residence: Home: 74.8%, Nursing Home: 24.8%

Frailty assessment: Robust (CFS 1–3): 34.3%;
Frail (CFS 4–6): 54.4%;
Severely frail (CFS 7–9): 11.3%

Antithrombotic medication:
Anticoagulants: 45.1%
Antiplatelets: 34.8%

Precipitating factors for falls: Accidental: 56.2%

Cognitive impairment: 25.4% of patients

Two derived rules to guide CT scan use in older patients (≥ 65 years old) with suspected or confirmed traumatic brain injury following ground-level falls

PIWI 1

Sensitivity 100% (95% CI [95,100])
Specificity 43.6% (95% CI [41,46])

- GCS score below baseline
- Focal neurological deficit
- Sign of basal skull fracture
- Acute confusion
- Vomiting ≥ 1
- Loss of consciousness

YES TO ANY → CT — ***High risk*** **11.8%** (95% CI [9,15]) risk of significant acute traumatic intracranial hemorrhage

NO



- Visible scalp impact
- Headache

YES TO ANY → CT — ***Medium risk*** **3.1%** (95% CI [2,5]) risk of significant acute traumatic intracranial hemorrhage

NO → NO CT — ***Low risk*** **0%** (95% CI [0,1]) risk of significant acute traumatic intracranial hemorrhage

PIWI 2

Sensitivity 100% (95% CI [95,100])
Specificity 25.3% (95% CI [23,28])

- GCS score below baseline
- Focal neurological deficit
- Sign of basal skull fracture
- Acute confusion
- Vomiting ≥ 1

YES TO ANY → CT — ***High risk*** **12.1%** (95% CI [9,15]) risk of significant acute traumatic intracranial hemorrhage

NO



- Visible scalp or forehead impact

YES TO ANY → CT — ***Medium risk*** **2.8%** (95% CI [2,4]) risk of significant acute traumatic intracranial hemorrhage

NO → NO CT — ***Low risk*** **0%** (95% CI [0,1]) risk of significant acute traumatic intracranial hemorrhage

CT : Non-contrast head computed tomography scan; GCS : Glasgow Coma Scale; 95% CI : 95% Confidence Interval

Sensibility
100 % (IC 95% 95-100)

Specificity
43.6 % (IC 95% 41.1-46.1)

Investigation rate
58.3 %

C-statistic
0.85

Reliable
kappa = 0.87

Sensibility
100 % (IC 95% 95-100)

Specificity
25.3 % (IC 95% 23.2-27.6)

Investigation rate
75.8 %

C-statistic
0.79

Reliable
kappa = 0.79

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Dubucs et al., Plos Medicine, 2026

Take Home Messages

- **Low prevalence of intracranial lesions in this population**
- **Caution regarding "unclear histories”**
- **Role of the fall history and physical signs**
- **Available rules: FALL, PIWI**

Cervical Spine Imaging in low-level falls



A B S T R A C T

Background: Adults ≥ 65 are at risk of cervical spine (C-spine) injury, even after low-level falls. The objectives of this systematic review were to determine the prevalence of C-spine injury in this population and explore the association of unreliable clinical exam with C-spine injury.

Methods: We conducted this systematic review according to PRISMA guidelines. We searched MEDLINE, PubMed, EMBASE, Scopus, Web of Science, and the Cochrane Database of Systematic reviews to include studies reporting on C-spine injury in adults ≥ 65 years after low-level falls. Two reviewers independently screened articles, abstracted data, and assessed bias. Discrepancies were resolved by a third reviewer. A meta-analysis was performed to estimate overall prevalence and the pooled odds ratio for the association between C-spine injury and an unreliable clinical exam.

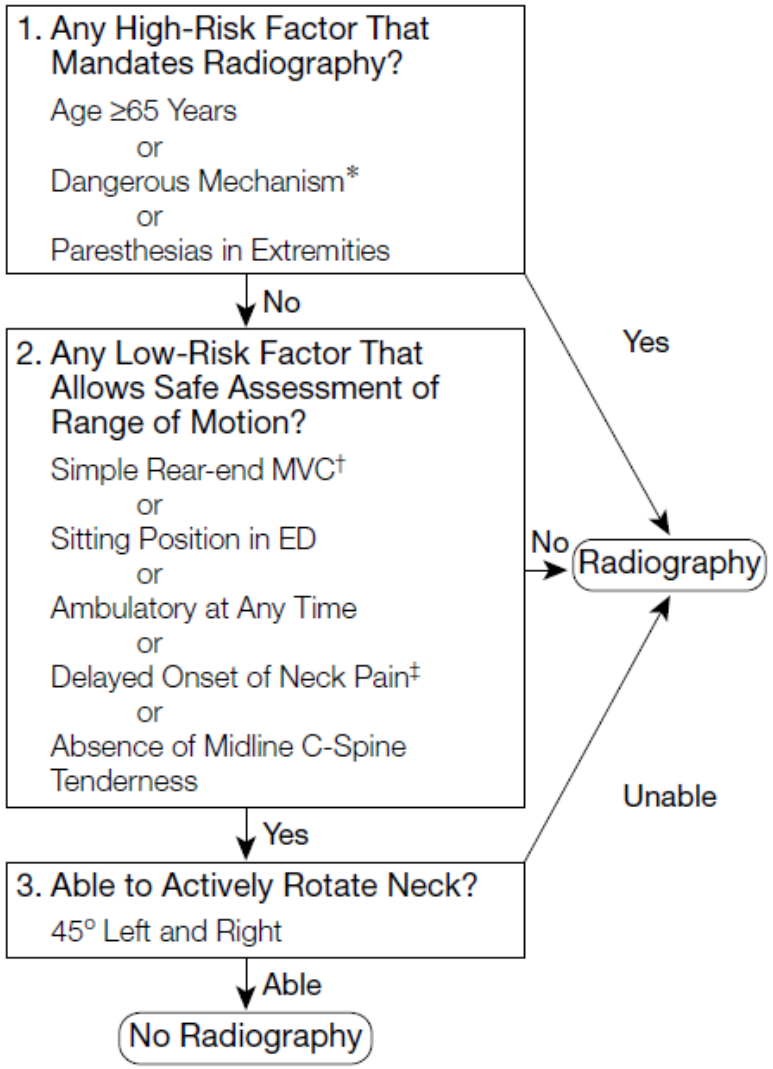
Results: The search identified 2044citations, 138 full texts were screened, and 21 studies were included in the systematic review. C-spine injury prevalence in adults ≥ 65 years after low-level falls was 3.8% (95% CI: 2.8–5.3). The odds of c-spine injury in those with altered level of consciousness (aLOC) v/s not aLOC was 1.21 (0.90–1.63) and in those with GCS < 15 v/s GCS 15 was 1.62 (0.37–6.98). Studies were at a low-risk of bias, although some had low recruitment and significant loss to follow-up.

Conclusions: Adults ≥ 65 years are at risk of cervical spine injury after low-level falls. More research is needed to determine whether there is an association between cervical spine injury and GCS < 15 or altered level of consciousness.

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McCallum et al., AJEM, 2023

Cervical Spine Imaging in low-level falls



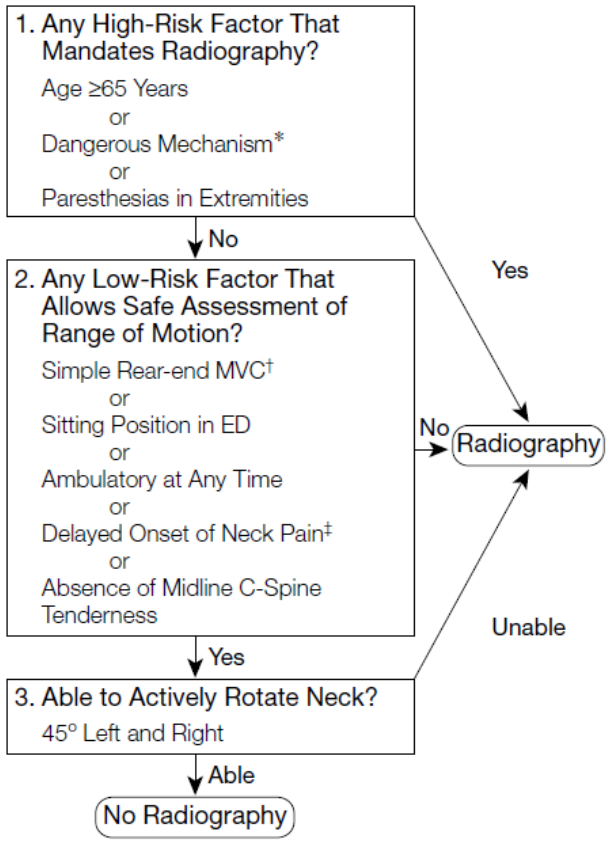
Results: Of 9455 CSCTs performed in patients ≥ 65 years, 192 (2.0%) fractures were identified (113 females); 28 (0.30%) were in asymptomatic patients. The rates of fractures (1.6%) and asymptomatic fractures (0.18%) were lowest in the 65- to 70-year age group. There were no distinguishing features as to the level or part of the vertebra fractured or surgical treatment rate between asymptomatic and symptomatic patients.

Conclusions: Cervical spine fractures in posttrauma patients ≥ 65 years are uncommon, with the lowest incidence in those 65 to 70 years old. Excluding *asymptomatic* individuals aged 65–70 from routine CSCT presents a minimal risk of missed fractures (0.18%). This prompts consideration for refining age-based screening and integrating shared decision making into the clinical protocol for this demographic, reflecting the low incidence of fractures and the changing health profile of the aging population.

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Stiell et al., JAMA, 2001
Stiell et al., NEJM, 2003
Radmard et al., ACEM, 2024

Cervical Spine Imaging in low-level falls



Fractures in patients <65 and ≥65 years old

	Total	Fractures	Asymptomatic Fractures	No Dangerous Mechanism Asymptomatic Fractures	Surgically Treated Unstable, No Dangerous Mechanism Asymptomatic Fractures
<65	18,476	237 (1.28%) (1.12%–1.45%)	25 (0.14%) (0.08%–0.19%)	10 (0.05%) (0.02%–0.09%)	1 (0.01%) (0.00%–0.02%)
≥65	13,925	240 (1.72%) (1.51%–1.94%)	37 (0.27%) (0.18%–0.35%)	21 (0.15%) (0.09%–0.22%)	1 (0.01%) (0.00%–0.02%)
P value		.001	.11	.20	.20

Stiell et al., JAMA, 2001
Lawrence et al., AJN, 2025

Cervical Spine Imaging in low-level falls



Table 1 Patient characteristics

	Non-CSI patients n=2059	CSI patients n=253	P value
Demographics			
Gender, males, n (%)	802 (39%)	102 (40.3%)	0.675
Age at admission, years, (mean (SD))	80.8 (8.4)	83.1 (8)	**<0.001**
Fall type, n (%)			
Fall from standing	1867 (90.7%)	213 (84.2%)	**0.004**
Fall from seating	98 (4.8%)	18 (7.1%)	
Fall from bed	94 (4.5%)	22 (8.7%)	

Variables	OR	95% CI lower bound	95% CI upper bound	P value
Signs of trauma (yes/no)	2.348	1.553	3.549	<0.001
Focal neurological deficit (yes/no)	2.947	1.326	6.551	0.008
Midline spinal tenderness (yes/no)	22.961	15.178	34.737	<0.001

Sensitivity	Specificity
86.6%	54.5%

Engelbart et al., EMJ, 2022

Take Home Messages

- **Low prevalence of fracture in this population**
- **No dedicated rule**
- **Role of physical signs**

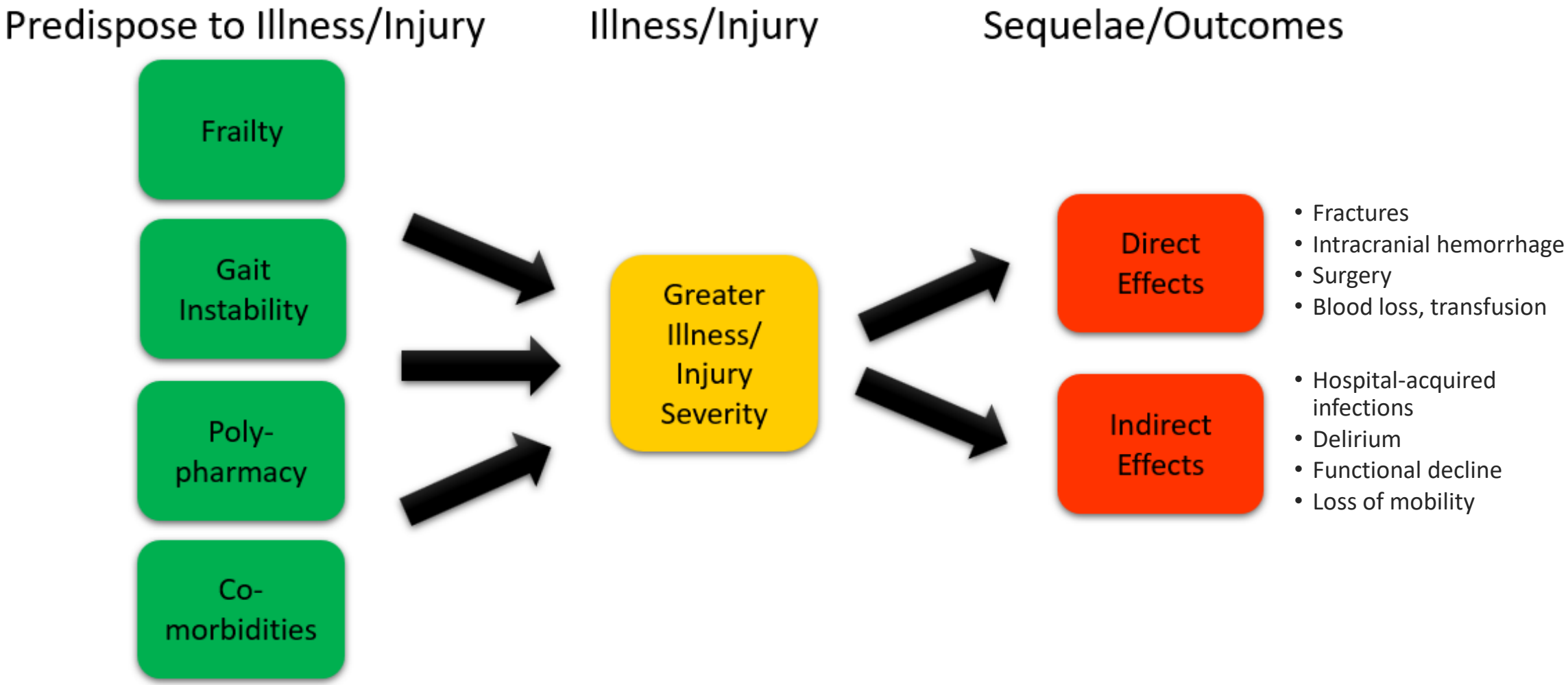


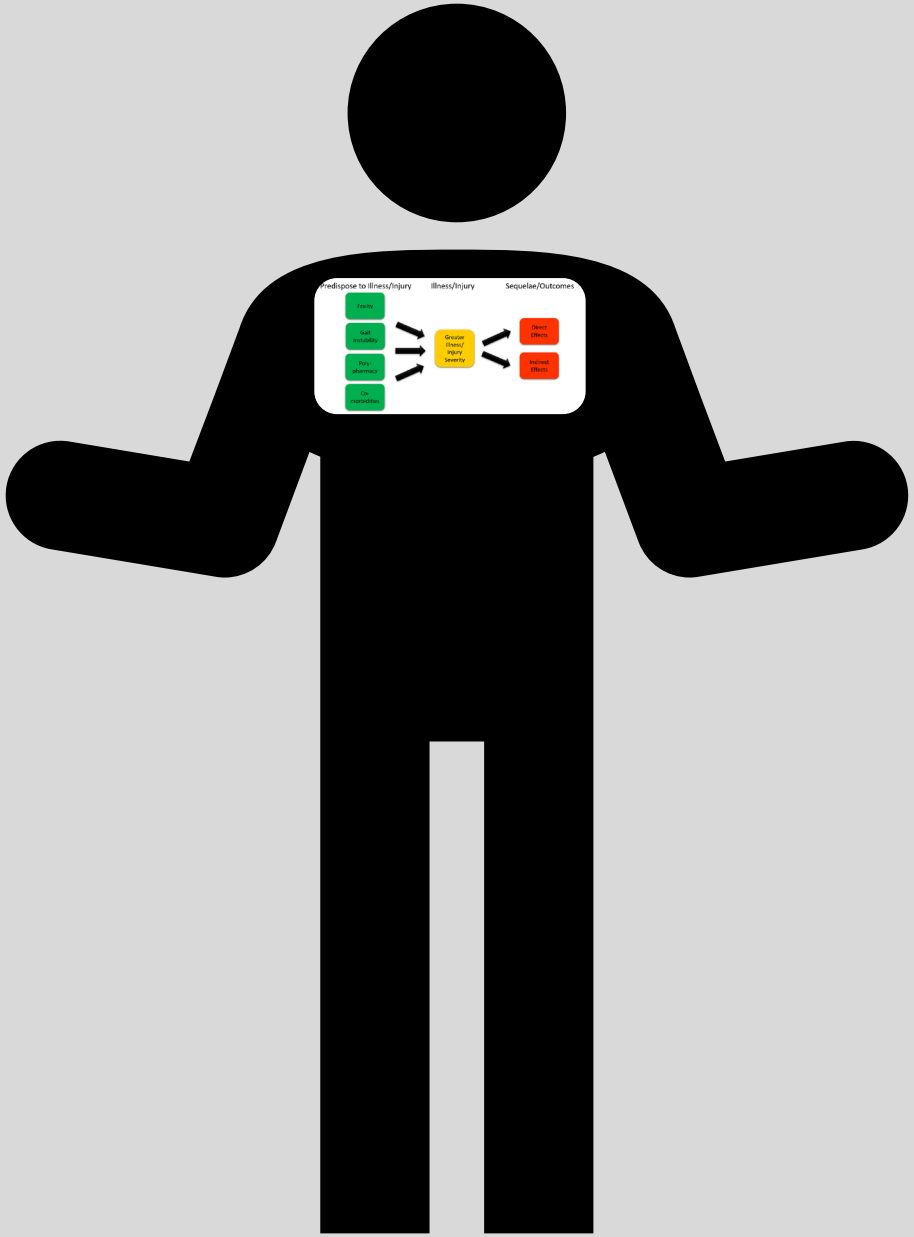
The impact of boarding on trauma care

Christina Shenvi, MD, PhD, MBA, FACEP
Professor of Emergency Medicine
University of North Carolina – Chapel Hill

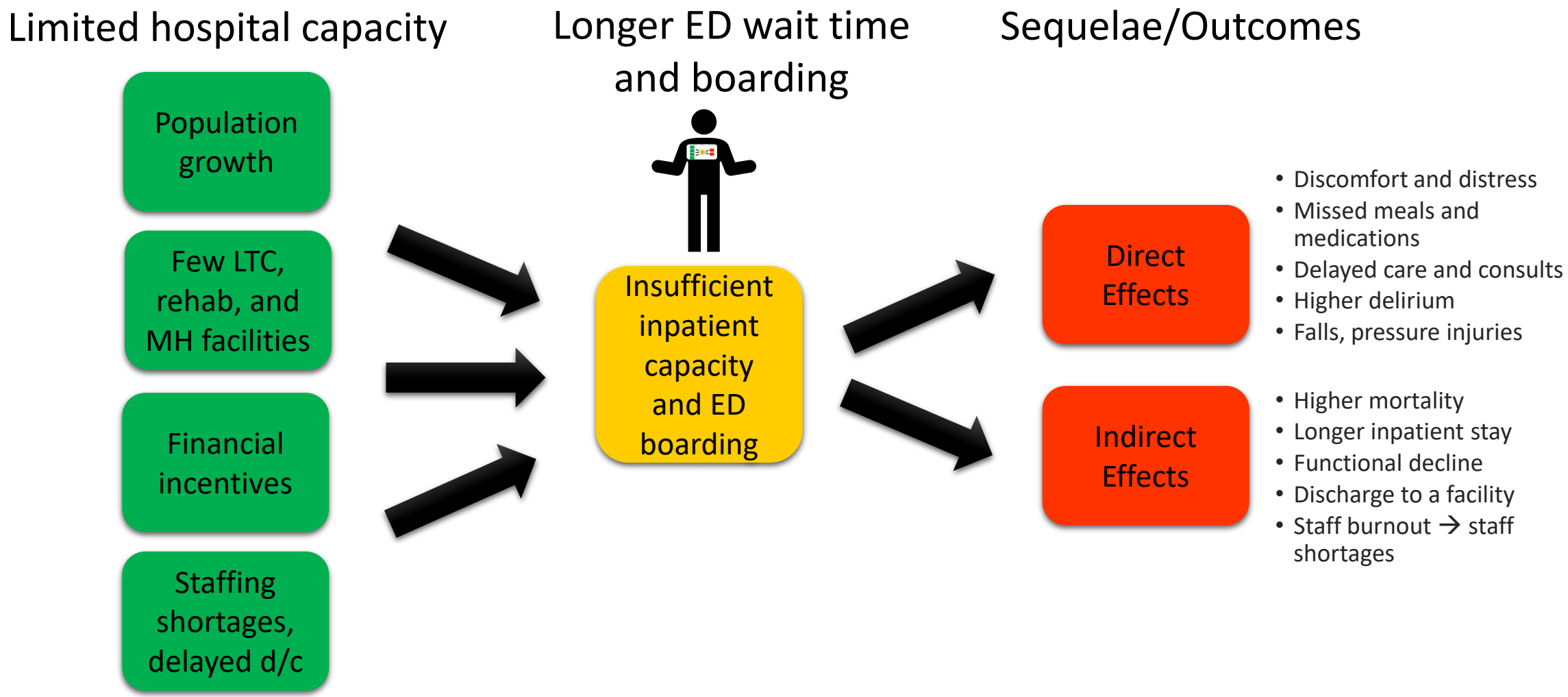
Disclosures: Advisor to Noven Pharmaceuticals

Syndrome-informed geriatric illness and injury paradigm

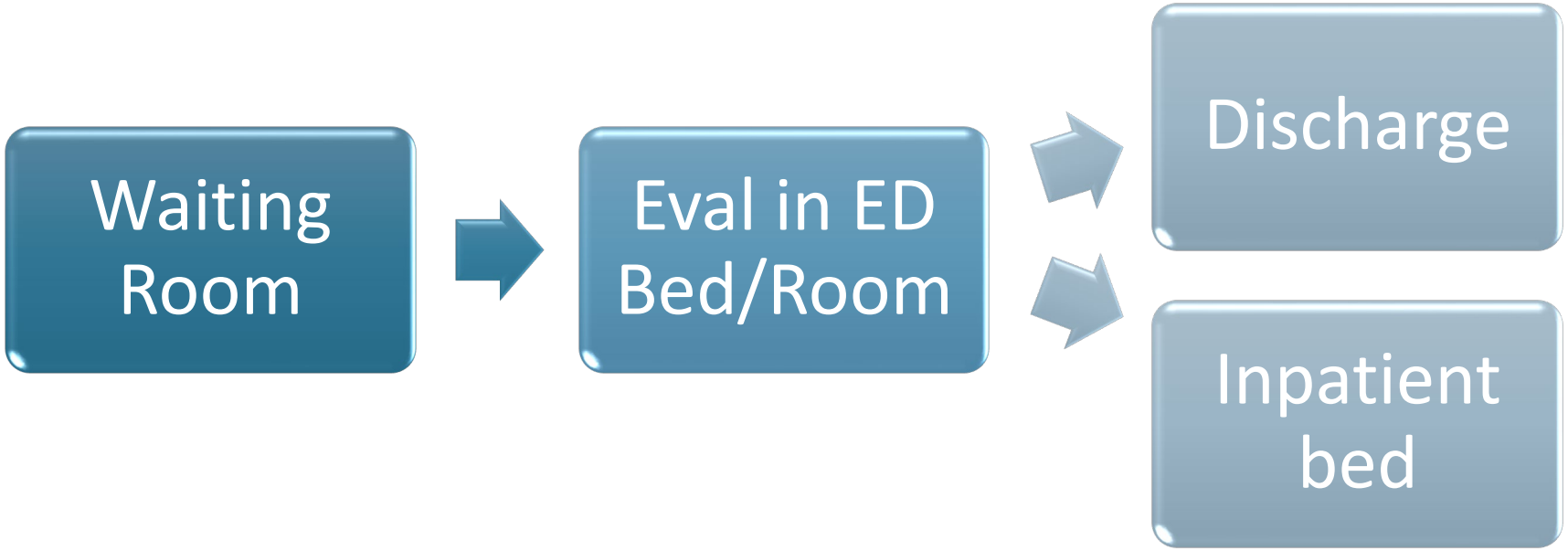



Predispose to Illness/Injury
Illness/Injury
Sequelae/Outcomes
Frailty
Gait Instability
Poly-pharmacy
Co-morbidities
Greater Illness/ Injury Severity
Direct Effects
Indirect Effects

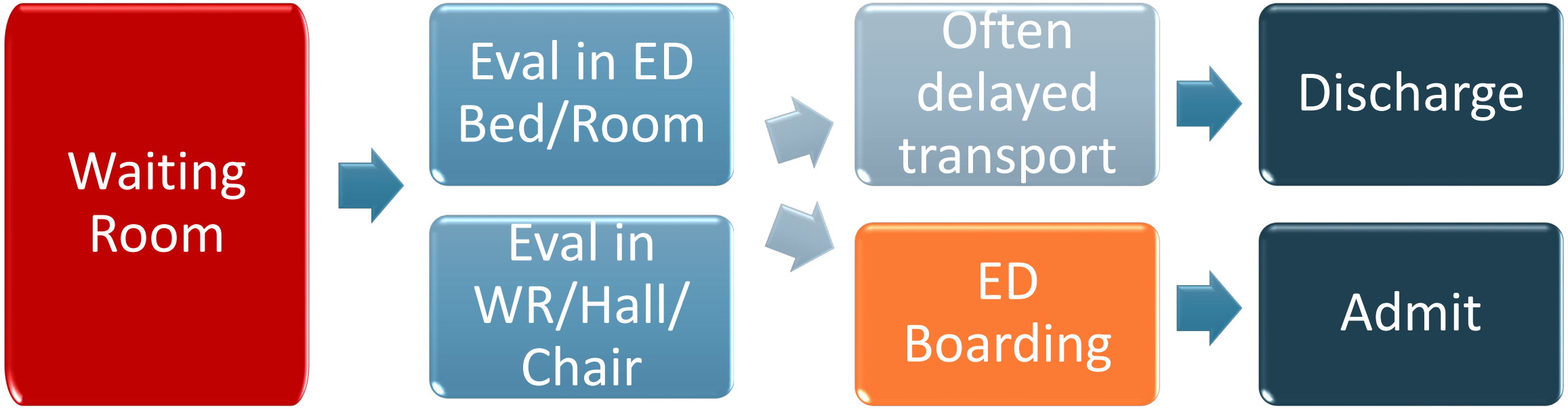
System-informed geriatric illness and injury paradigm



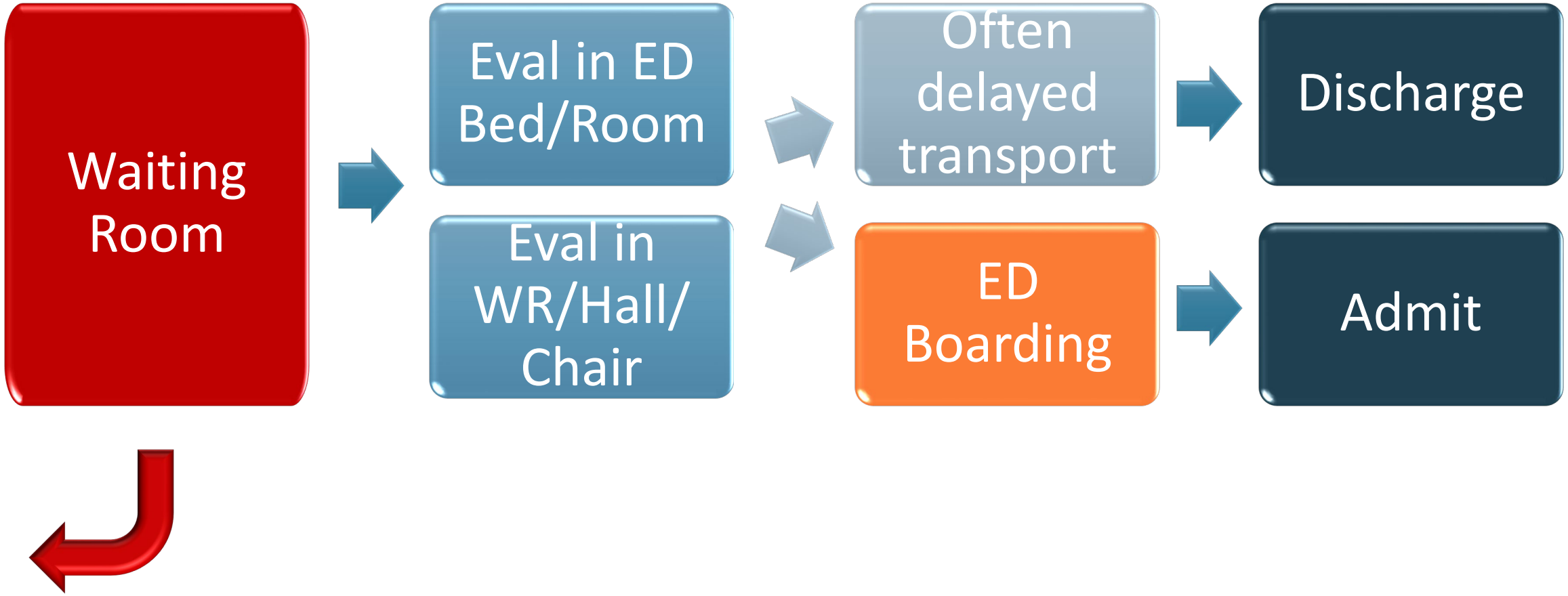
High hospital capacity → ED boarding → Longer wait times

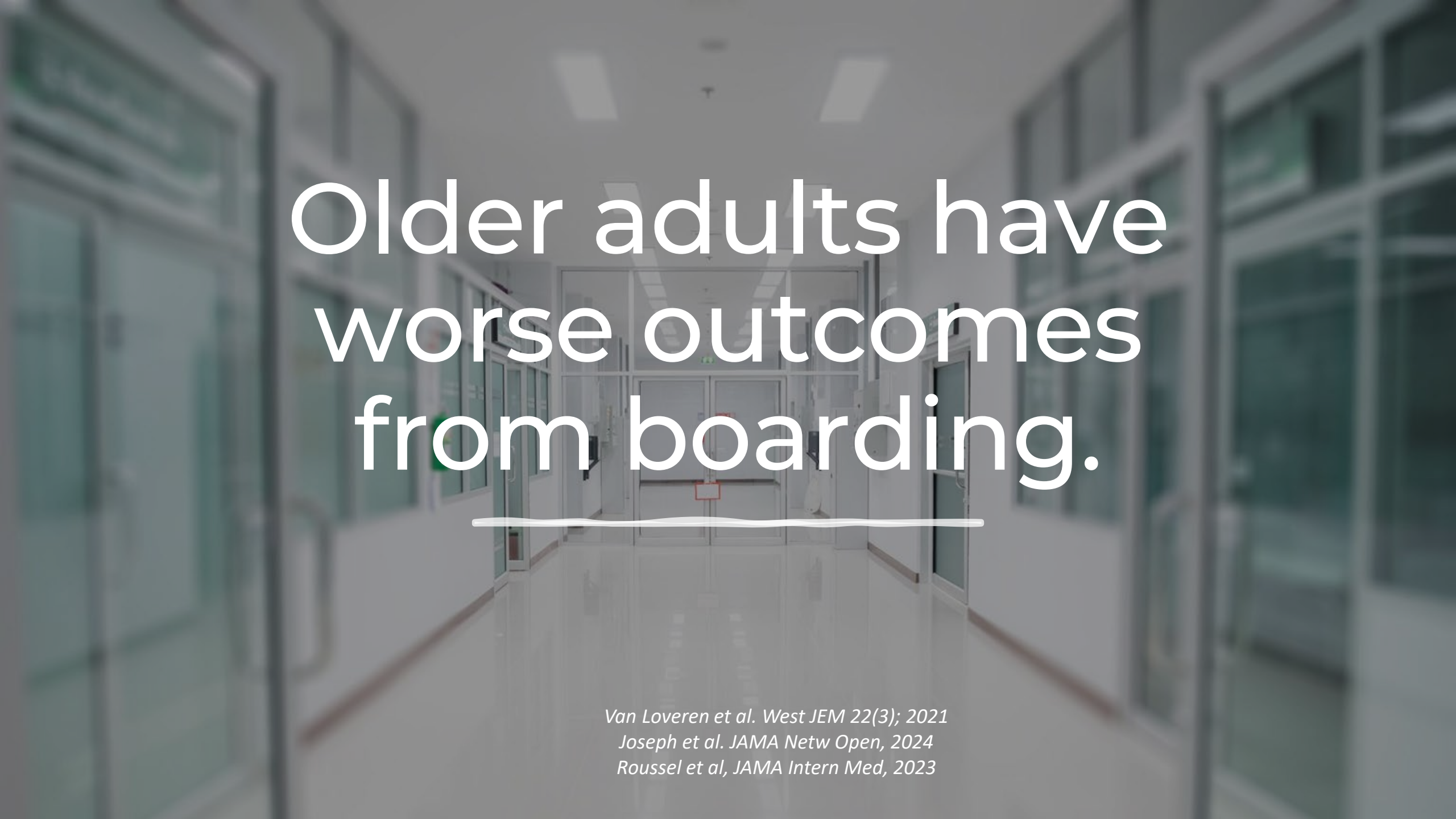


High hospital capacity → ED boarding → Longer wait times



High hospital capacity → ED boarding → Longer wait times





Older adults have worse outcomes from boarding.

Van Loveren et al. West JEM 22(3); 2021
Joseph et al. JAMA Netw Open, 2024
Roussel et al, JAMA Intern Med, 2023

Negative impacts of boarding and long ED LOS

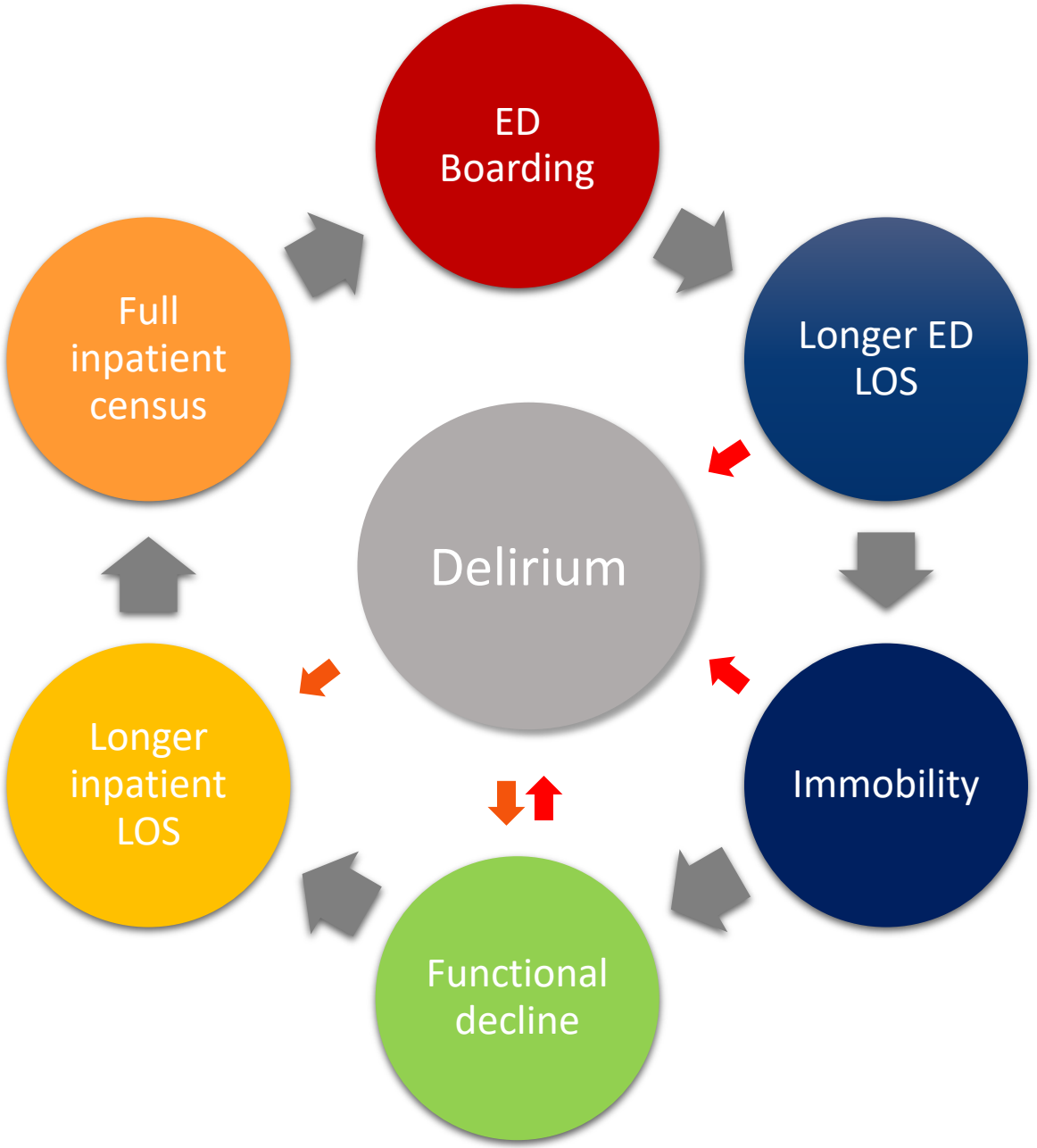
Increased time in **hallway** beds → **Higher** rates of delirium

Longer **boarding** time → **Higher** risk of inpatient delirium

ED overnight stay vs inpatient → **Higher** mortality

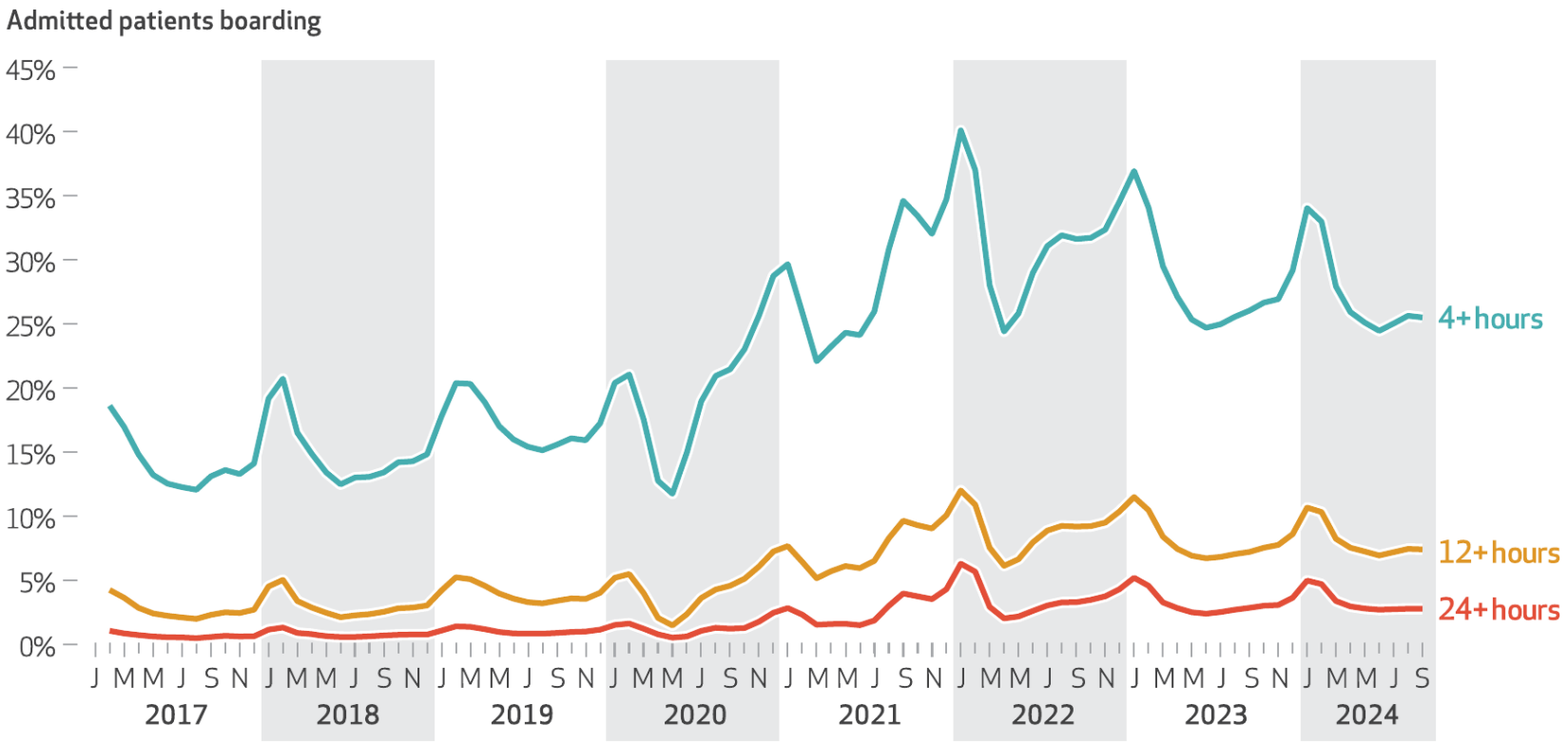
More **delirium** → **Longer** inpatient LOS

Van Loveren et al. West JEM 22(3); 2021
Joseph et al. JAMA Netw Open, 2024
Roussel et al, JAMA Intern Med, 2023



Adapted from: Joseph et al, Boarding in the Emergency Department: Specific Harms to Older Adults and Strategies for Risk Mitigation, Emerg Med Clin of NA 2025

Boarding rates are rising



46.2 million ED admissions, Epic Cosmos, 2017 to 2024. Boarding peaks each winter.

Peak, January 2022

40.1% boarded more than 4 hours

6.3% boarded more than 24 hours

Average yearly rise

+2.5% over 4 h

+1.0% points over 12 h

+0.5% points over 24 h

Janke AT, Burke LG, Haimovich A. Health Aff. 2025;44(6):739-744.

Boarding harms older adults

Delirium or severe agitation

236,169 admissions, 7 Mass General Brigham EDs

2% higher odds

for each hour of boarding (OR 1.02)

- With dementia and 8 hours of boarding, risk rose **more than 7-fold**

In-hospital mortality, age 75+

1,598 patients (median age 86), 97 French EDs

15.7% vs 11.1%

night in the ED vs on a ward (aRR 1.39)

- Among patients who needed help with daily activities, aRR **1.81**
- More adverse events and a longer hospital stay (median 9 vs 8 days)

Joseph JW, et al. JAMA Netw Open. 2024;7(6):e2416343. Roussel M, et al. JAMA Intern Med. 2023;183(12):1378-1385.

Boarding in trauma (1 of 2)

Study	Patients and setting	Key finding
Hwang 2006	158 hip fracture admissions, mean age 83, US	Crowding linked to missed and delayed pain assessment
Carr 2007	509 intubated blunt trauma patients, US	Each ED hour associated with 20% higher pneumonia risk
Mejaddam 2013	224 moderate to severe TBI, US	ED stay not linked to neurologic outcome
Jo 2015	1,801 hypotensive admissions (306 trauma), Korea	Crowding linked to higher mortality, strongest in trauma
Wu 2015	852 in hemorrhagic shock, China	Crowding delayed transfusion and procedures
Siletz 2017	241 trauma ICU admissions, US	Longer ED stays, fewer complications
Huang 2018	777 admitted trauma patients, US	Direct communication and reserved beds cut ED stays
Hymel 2020	Level I trauma center, 12 months, US	Longer non-trauma boarding associated with longer trauma ED stays

Boarding in trauma (2 of 2)

Study	Patients and setting	Key finding
Jaffe 2020	1,700 critically ill trauma patients, US	Rapid admission pathway cut ED stays
Stey 2022	113,097 injured ICU admissions (TQIP), US	ED stays over 6 hours not linked to mortality after matching
Ramzee 2023	7,026 admitted trauma patients, Qatar	Longest ED stays were older, with more comorbidities
Crawford 2024	477 hip fractures, mean age about 78, US	Longer boarding delayed surgery
Lane 2024	2.2 million in national trauma data (TQIP), US	Longer ED stays at Level I than Level II centers
LaRosa 2024	6,781 trauma activations, US	Fastest dispositions were the sickest and youngest
Chan 2025	191,031 trauma admissions (TQIP), US	ED stays of 12+ hours delayed VTE prophylaxis

Mortality is a complex outcome and boarding is only one piece

6,781
trauma activations
LaRosa 2024

Left the ED within 60 min
Sickest: sent to the OR or ICU fast

17.5% mortality

13 injury severity score

Stayed longer than 60 min
Less injured: waited or boarded

2.8% mortality

5 injury severity score

The patients who stay longest were less sick to begin with, so long ED stays look safer than they are. Crude mortality comparisons by ED LOS underestimate the harm of boarding.

Ramzee 2023 and Siletz 2017 found the same pattern: longer ED stays had fewer deaths or complications. Source: LaRosa S, et al. J Surg Res. 2024;304:237-245. Ramzee AF, et al. World J Emerg Med. 2023;14(2):96-105. Siletz A, et al. J Surg Res. 2017;214:102-108.

Solution #1:
Create interdisciplinary solutions and processes ahead of time

Create alternatives to admission and pathways for rapid admission



Alternatives to admission:

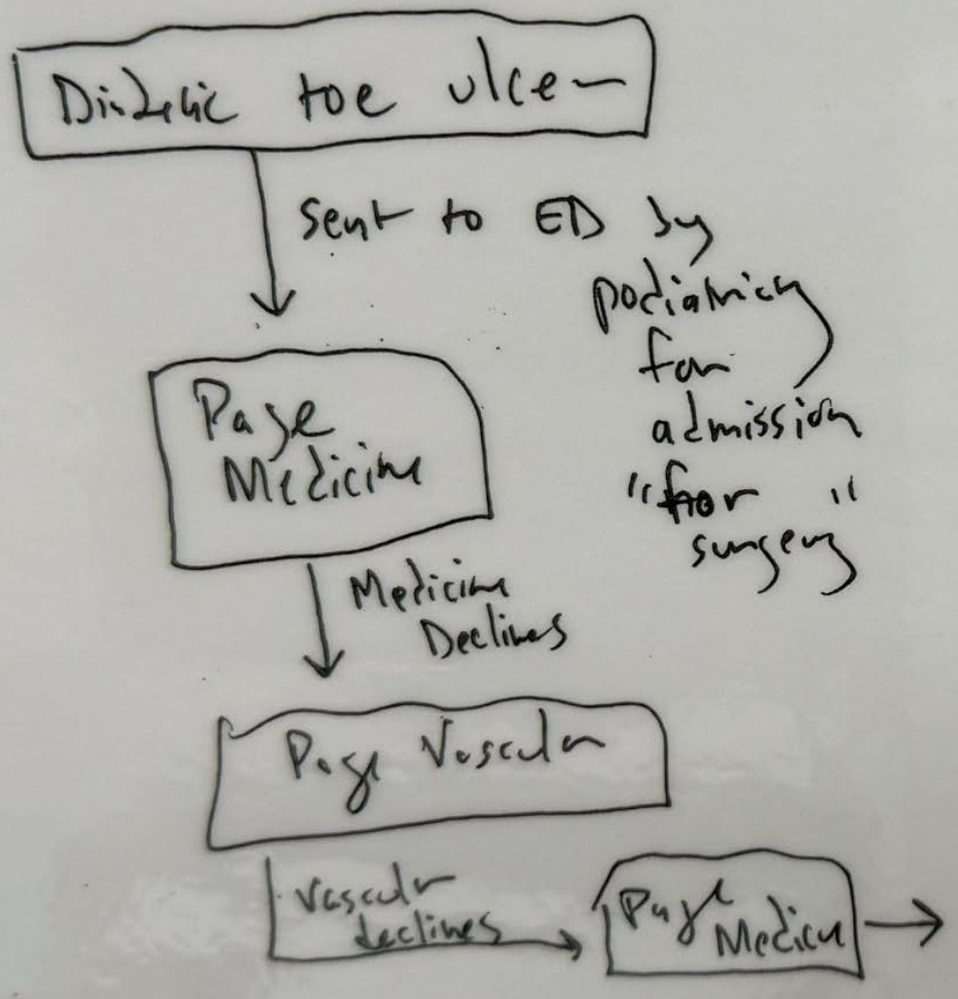
- Acute care/hospital at home
- Next day follow up clinics
- Home visits with RN, NP/PA, paramedics



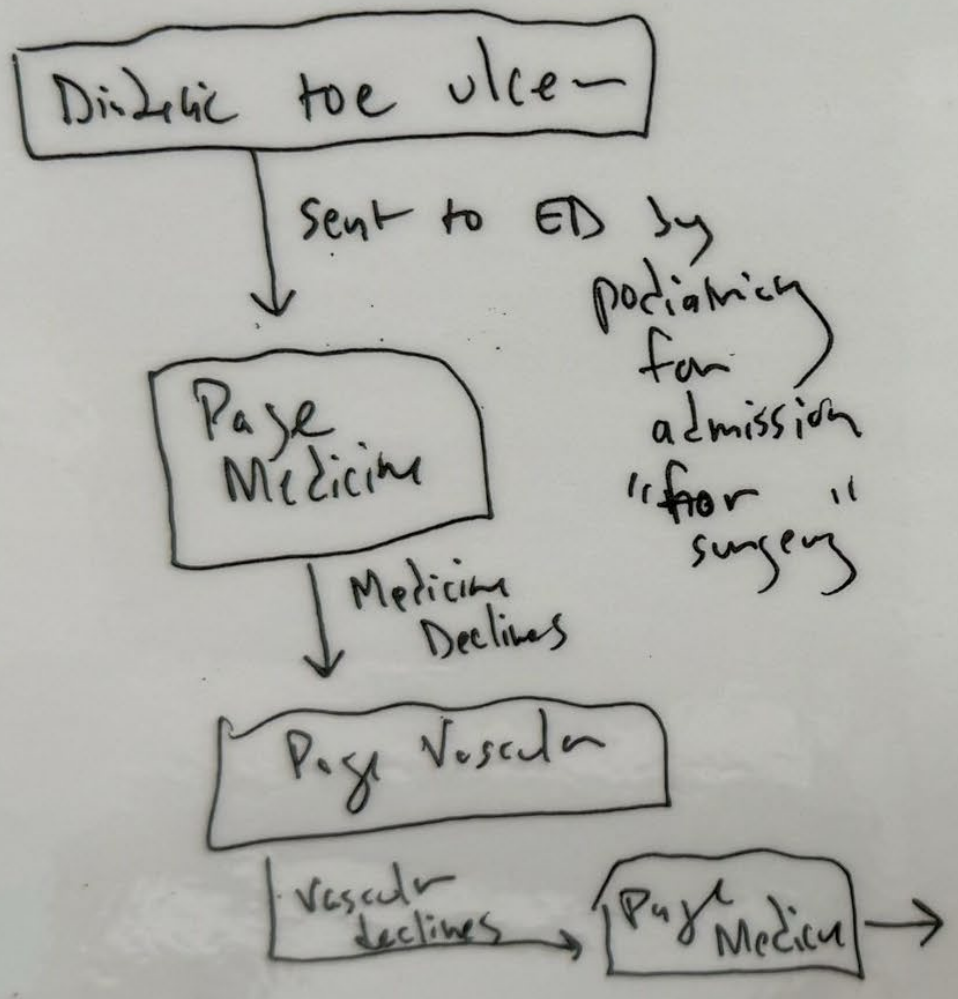
Clear pathways for admission:

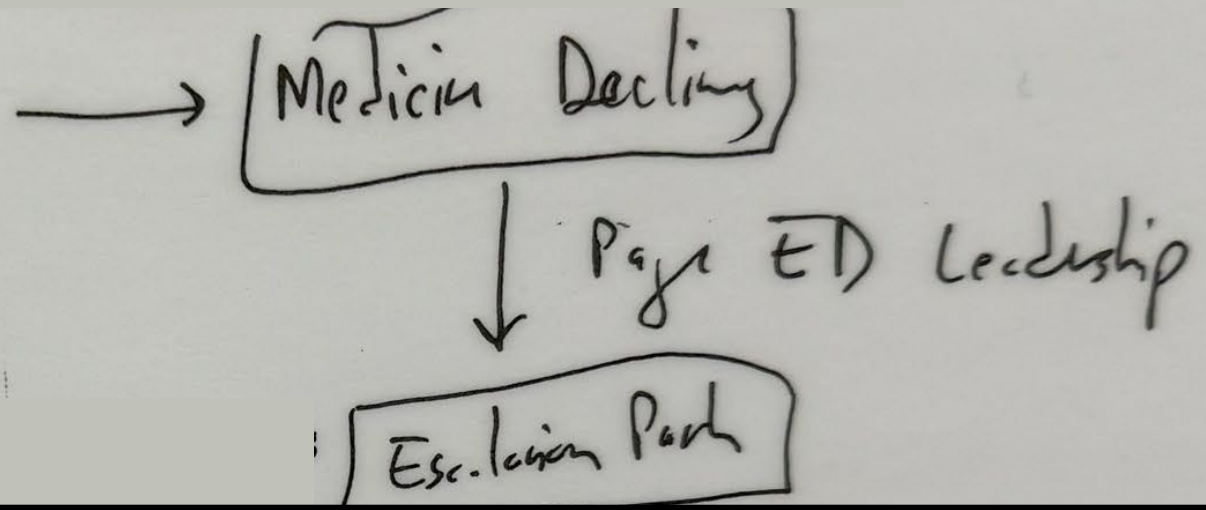
- Rib fractures: level of care, admitting team
- Hip fractures: level of care, admitting team
- Diabetic foot ulcers: medicine vs podiatry vs vasc

TOE TREE SPLIT FLOW

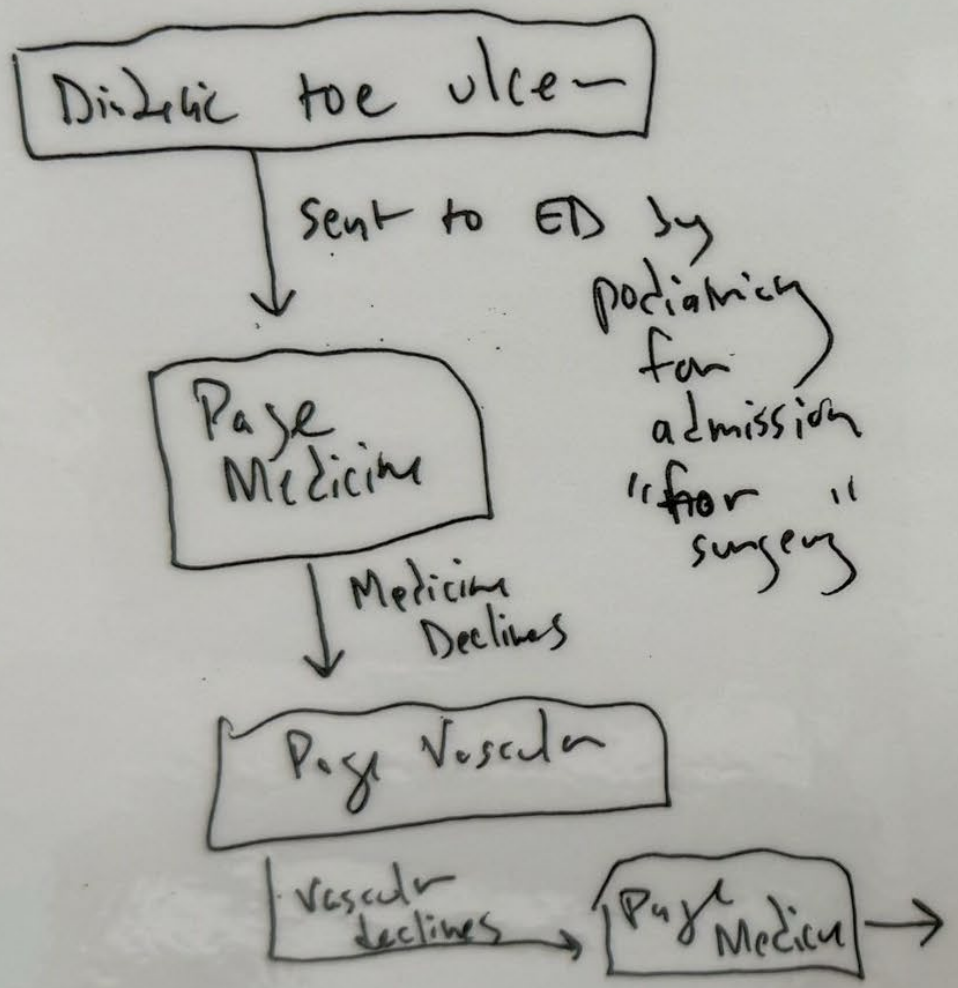


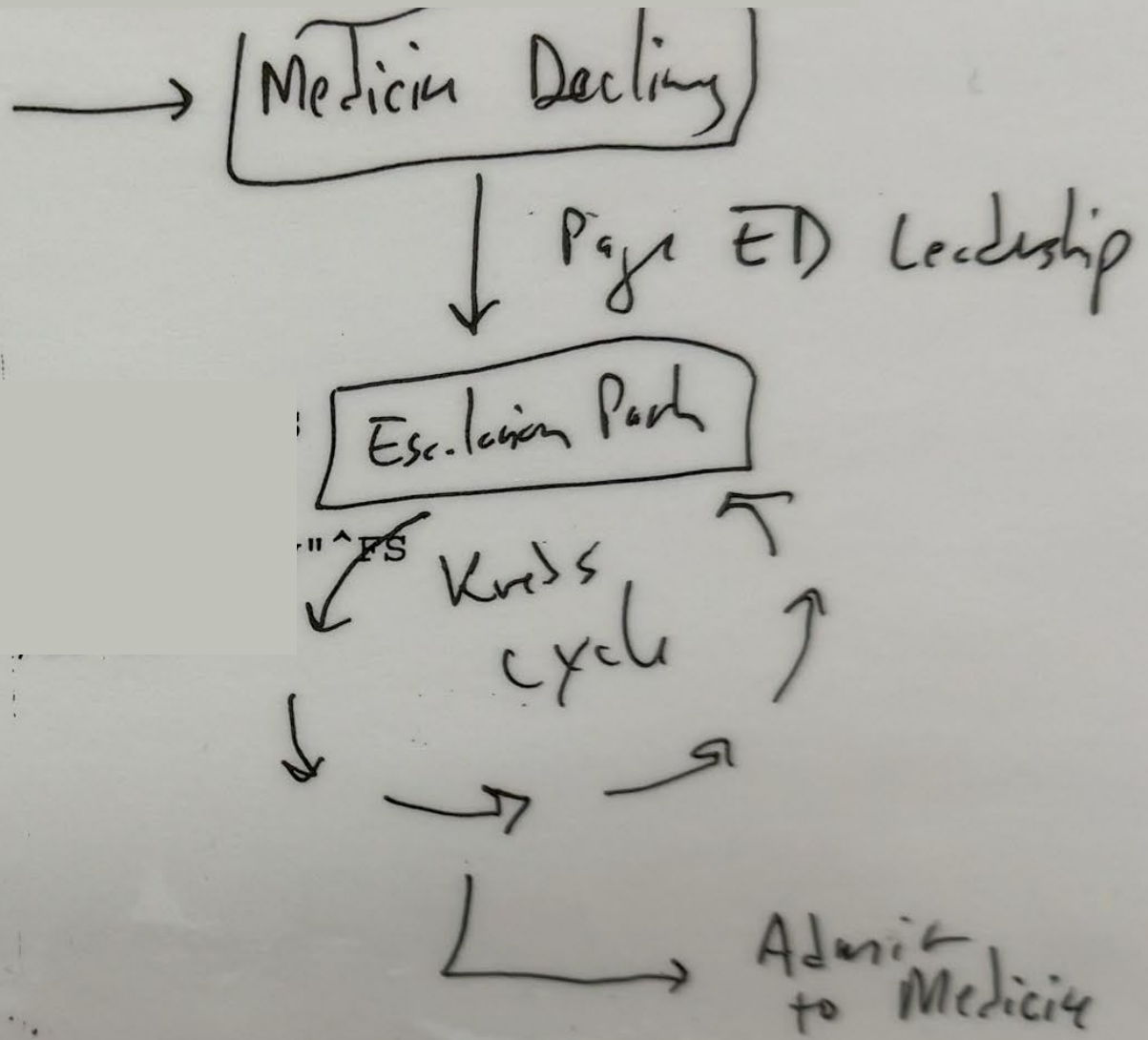
TOE TREE SPLIT FLOW





TOE TREE SPLIT FLOW





Admission pathways shorten ED stays: Observation/short stay beds

A faster path to a bed

Minor injuries needing short stay or inpatient care



ED **Direct call** **Reserved bed**

- The ED calls the trauma team **directly**, so the admission decision comes sooner
- Two beds are **held for these patients**, so they leave the ED instead of waiting

Communication and reserved beds

777 admitted trauma patients, Michigan community hospital

389 min baseline ED LOS

–74 min direct ED-to-trauma call

–165 min plus 2 reserved beds

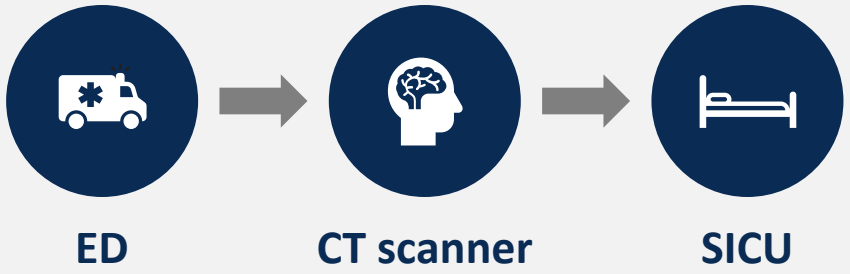
- Reserved beds shortened waits in every age group

Huang D, Bastani A, Anderson W, et al. Am J Emerg Med. 2018;36:1874-1879.

Admission pathways shorten ED stays: SICU beds

The one-way street

How the pathway moves critically ill patients



- Patients go from the ED to CT, then **straight to the SICU**
- They do not come back to an ED bed to wait
- The ED bed opens for the next patient

Rapid admission pathway

Critically ill trauma patients, Boston Level I center

5.9 h → 1.5 h

mean ED length of stay

- Still worked during high crowding
- Sustained from 2013 to 2018
- No significant change in survival to discharge

Jaffe TA, Kim J, DePesa C, et al. Am J Emerg Med. 2020;38:2028-2033.

Solution #2: Reduce harm from ED boarding of admitted patients

Prioritize beds for the highest risk patients

Reduce the harm from boarding



Reduce boarding of high-risk patients:

1. Prioritize beds for older, at-risk patients with dementia or risks for delirium.
2. Smooth elective admissions.
3. Expedite discharges (e.g., discharge lounges).
4. Surge protocols and continuous monitoring/dashboards.

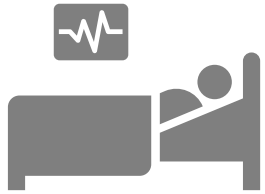
Joseph et al, Boarding in the Emergency Department: Specific Harms to Older Adults and Strategies for Risk Mitigation, Emerg Med Clin of NA 2025

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Advance care and reduce harm while boarding:

1. Dedicated teams to care for boarding patients.
2. Reduce harms from boarding with:
   - Early mobilization
   - Consult orders
   - PT/OT
   - Diet orders
   - Home meds
   - Minimize sleep interruption
   - Reduce alarms and tethers

Joseph et al, Boarding in the Emergency Department: Specific Harms to Older Adults and Strategies for Risk Mitigation, Emerg Med Clin of NA 2025

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Reduce the harm from boarding

Move ***select*** boarding patients from the ED hallways to inpatient hallways

- Decreases ED boarding and inpatient LOS
- Is preferred by patients to boarding in ED hallways
- Is not associated with adverse patient outcomes

→ Shorter wait time, lower LWBS, higher revenue

Viccellio A, et al. The Association Between Transfer of Emergency Department Boarders to Inpatient Hallways and Mortality: A 4-Year Experience. *Ann Emerg Med.* 2009; Viccellio P, et al. Patients Overwhelmingly Prefer Inpatient Boarding to Emergency Department Boarding. *J Emerg Med.* 2013; Alishahi Tabriz A, Birken SA, Shea CM, Fried BJ, Viccellio P. What is Full Capacity Protocol, and how is it implemented successfully? *Implementation Science.* 2019; Gilligan P, Quin G. Full capacity protocol: an end to double standards in acute hospital care provision. *Emerg Med J*. 2011 Jul; 28(7):547-549; Willard E, Carlton EF, Moffat L, Barth BE. A Full-Capacity Protocol Allows for Increased Emergency Patient Volume and Hospital Admissions. *J Emerg Nurs*. 2017 Sep; 43(5):413-418; Watase T, Fu R, Foster D, Langley D, Handel DA. The impact of an ED-only full-capacity protocol. *Am J Emerg Med*. 2012 Oct; 30(8):1329-1335; Villa-Roel C, Guo X, Holroyd BR, Innes G, Wong L, Ospina M, Schull M, Vandermeer B, Bullard MJ, Rowe BH. The role of full capacity protocols on mitigating overcrowding in EDs. *Am J. Emerg Med*. 2012 Mar; 30(3):412-420; McKenna P, et al. "Emergency department and hospital crowding: causes, consequences, and cures." *Emerg Med J.* 2019

Key points

Challenge #1: Boarding is rising

Over a third of older adults admitted from the ED board over 3 hours.

Challenge #2: Older injured patients wait longer

Boarding delays workup, diagnosis, transfusion, procedures, and surgery and leads to more delirium, longer LOS, and functional decline.

Solution #1: Plan processes ahead of time

Build interdisciplinary rapid admission or observation pathways and alternatives to admission.

Solution #2: Reduce boarding and harm from boarding

Prioritize beds for the highest risk patients and advance their care while they board.





Thank you

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