


Calculated Risks

ENSURING ACCURACY AND
EQUITY IN HOSPITAL RESOURCE
ALLOCATION SOFTWARE

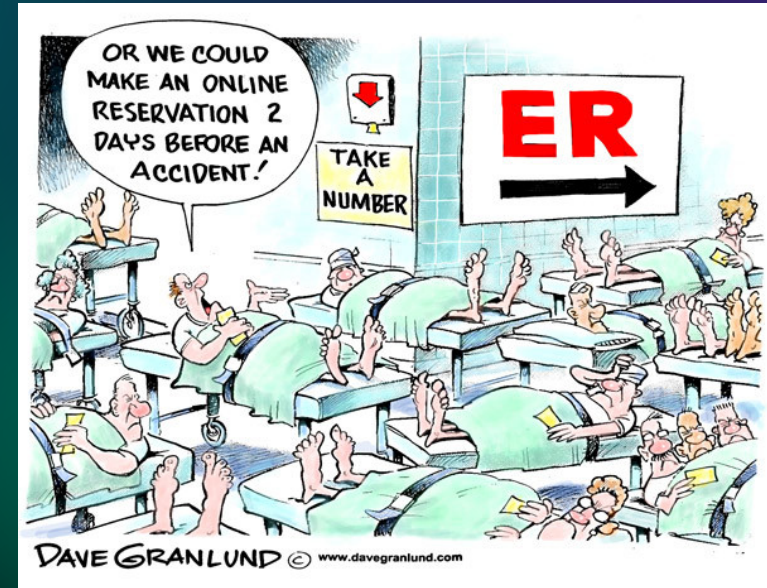
Kat Hefter



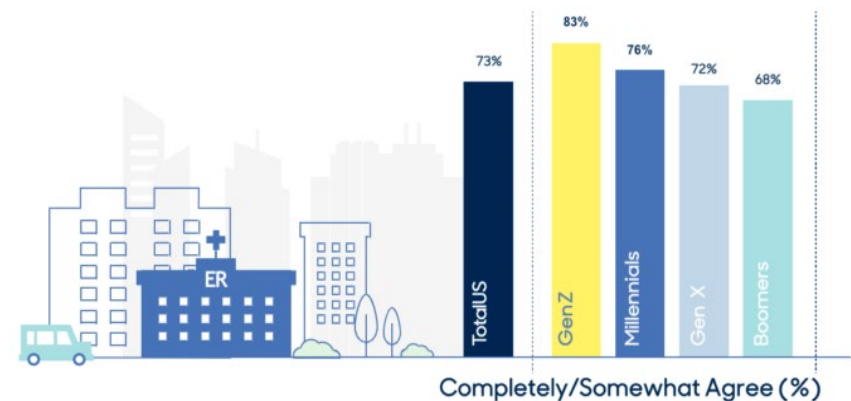
A photograph of a hospital ward, likely an intensive care unit, during a crisis. The room is filled with hospital beds, some of which are occupied by patients. A healthcare worker in full personal protective equipment (PPE), including a blue surgical cap, face shield, and white gown, is walking through the aisle. The room is dimly lit, and the overall atmosphere is one of a busy, resource-strained medical facility. The text "Our medical system faces a crisis of resources." is overlaid on the left side of the image in a white, serif font.

Our medical system faces a crisis of resources.

EDs are a social safety net.



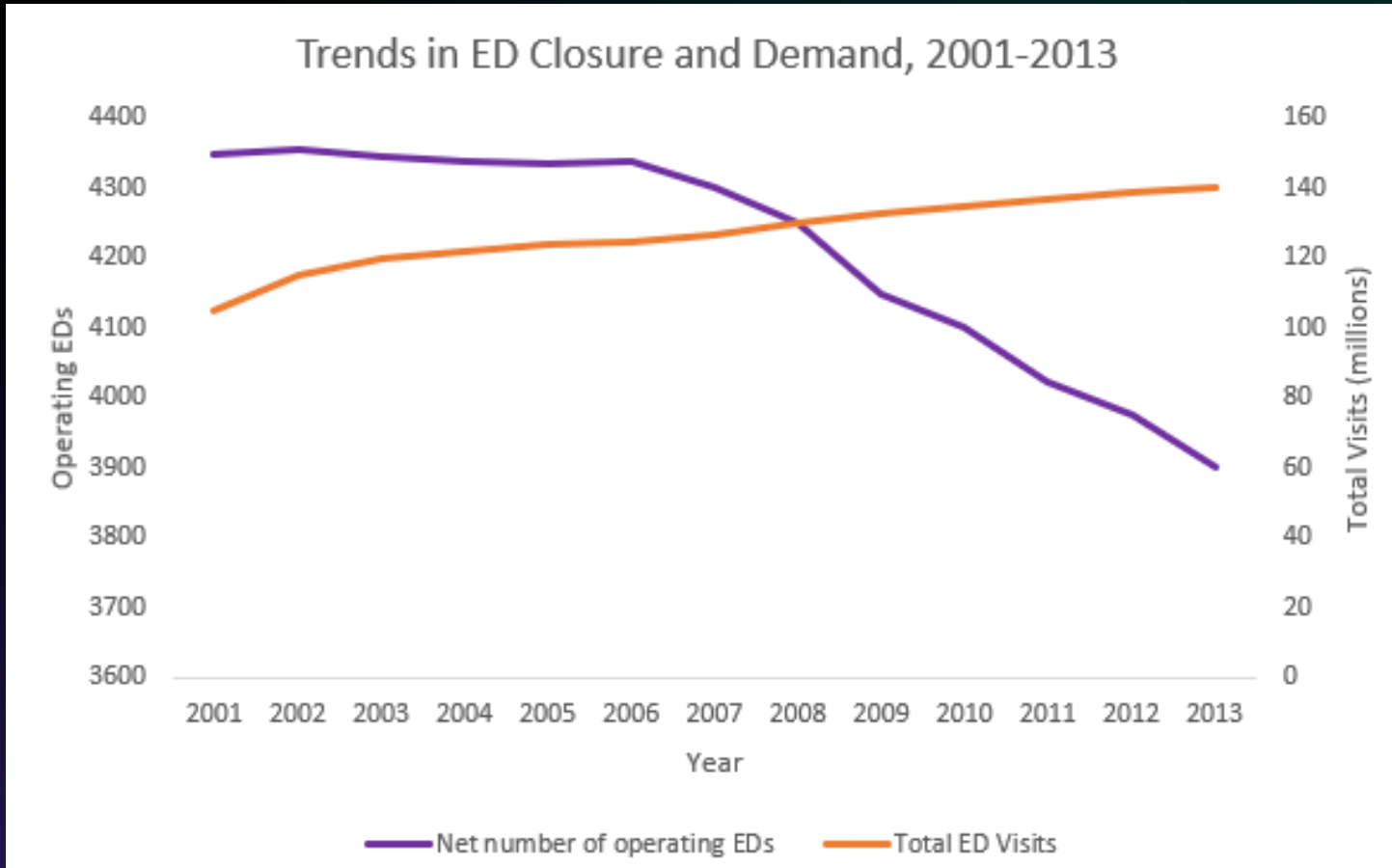
If I have an urgent medical need, it's easier to go to the ER than to get a doctor's appointment:



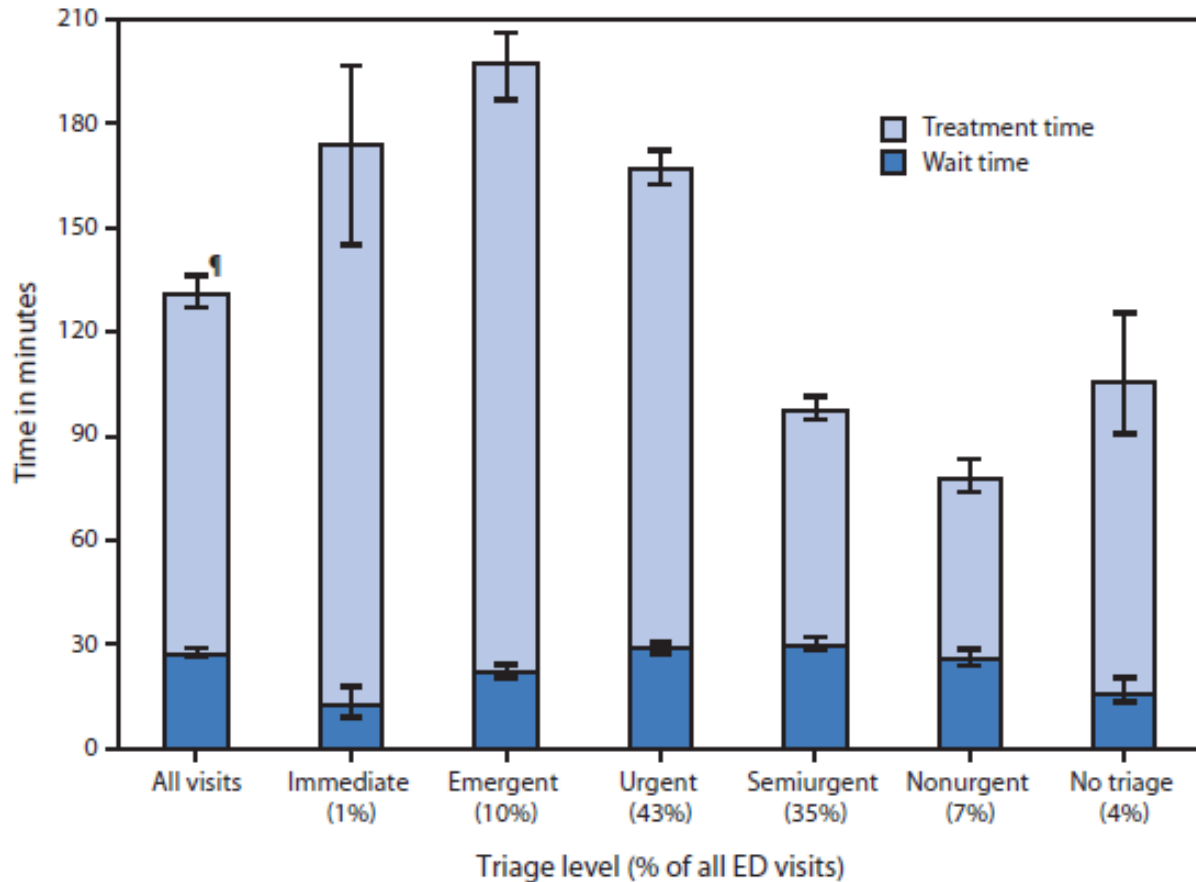
Emergency departments (EDs) face overcrowding and shortages.

90% of EDs

- Report overcrowding as a recurrent problem.
- Experience absences or shortages of critical medicine.



Misallocation of resources has deadly consequences.



- Delays in care:
 - increase overcrowding.
 - increase demand on EDs.
 - raise overall operating costs.
 - may increase relative risk of mortality by 25%.

Current strategies
rely on practitioner
subjectivity.

Is This a High-Risk Situation?

Based on a brief patient interview, gross observations, and finally the “sixth sense” that comes from experience, the triage nurse identifies the patient who is high risk. Frequently the patient's age and past medical history influence the triage nurse's determination of risk.

ESI Handbook, page 11



IMPLEMENTATION HANDBOOK
2020 EDITION

ESI

EMERGENCY SEVERITY INDEX

A Triage Tool for Emergency
Department Care

Version 4

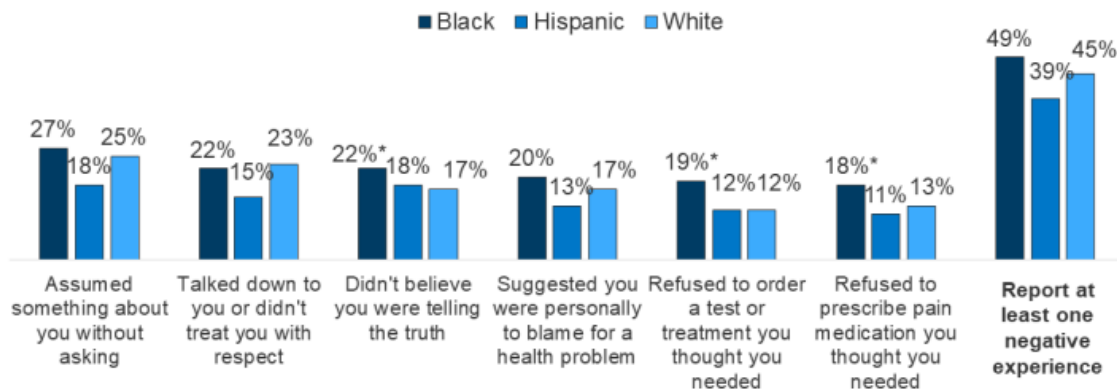
ENA
EMERGENCY NURSES
ASSOCIATION

But medicine's long history of bias calls subjectivity into question.

Figure 26

Black Adults More Likely Than White Adults To Report Providers Not Believing Them, Refusing Tests/Treatment, Or Pain Medication

In the last 3 years, have you ever felt that a doctor or health care provider...? (percent saying "yes")



SOURCE: KFF/The Undeclared Survey on Race and Health (conducted Aug. 20-Sept. 14, 2020). See topline for full question wording.

* Indicates statistically significant difference between Black and White adults ($p < 0.05$)

KFF

Physicians commonly underassess pain and under-prescribe pain medication for people of color.

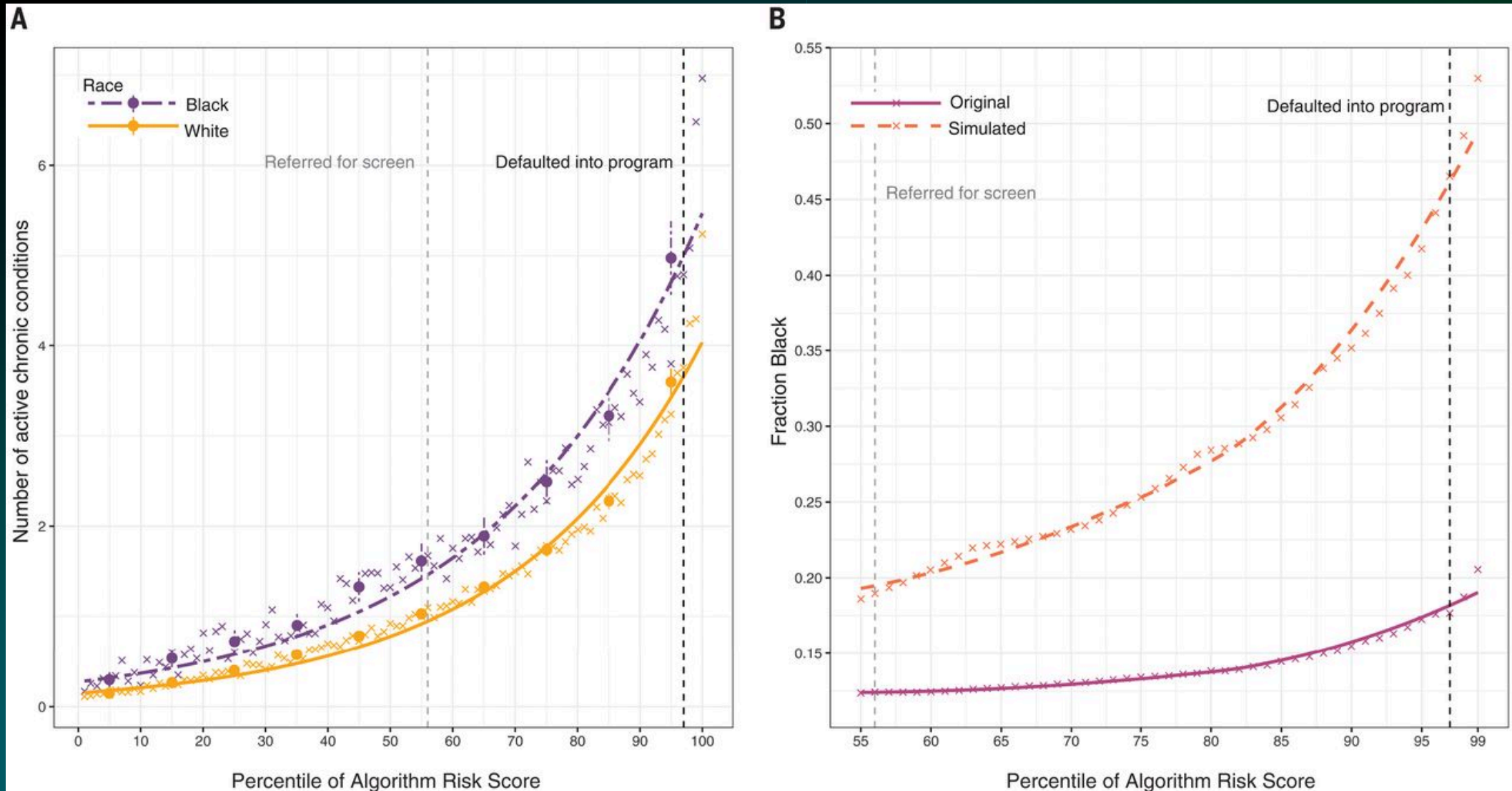
Black patients face longer ED wait times than white patients.

Women are less likely to receive ICU treatment, regardless of illness severity.

Physicians prioritize referrals and wait time targets.

Practitioners suffer from cognitive biases like anchoring, confirmation bias, and diagnostic bias.

Although machine learning may reduce biases, it is certainly not immune to them.



No effective
safeguards exist to
protect people from
discriminatory AI in
this domain.

Recommendation 1: Grant the FDA jurisdiction over medical resource allocation systems (MRAS)



FDA's prior work on SAMD makes them an ideal regulatory body.



Breakthrough Devices program and Small Businesses program support developers.



FDA's trade secret practices balance harms of algorithmic disclosure with public safety.



FDA approval may encourage hospital adoption.

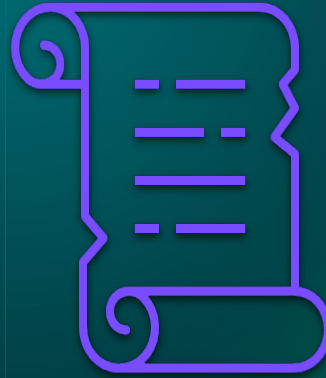
Implementation:

Construe §201(h)(B) of the Federal Food, Drug, and Cosmetic Act

"[a device is] an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including any component, part, or accessory, which is...

(2) intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals..."

to include medical risk assessment systems.



Congressional Amendment

Executive Order



Agency Interpretation

Recommendation 2: Identify and endorse standardized MRAS



NATIONAL ASSOCIATION OF
Community Health Centers

- Increases hospital buy-in.
- Spurs innovation.
- Enables practitioners to apply their expertise to find a software that works well with their workflow.
- Could lead to trainings and other means to improve adoption.



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ADVANCING EMERGENCY CARE 



AAPCHO

Next Steps

Grant Jurisdiction

Executive Order to grant FDA jurisdiction over medical resource allocation systems as a medical device

Spur Innovation

Ask medical organizations like ENA and ACEP to identify and endorse model systems

Establish an AI Bureau

Congress should establish an AI Bureau with regulatory, enforcement, and advisory powers to guide the future of AI in all domains

Questions?

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