

Increasing Value in the Emergency Department: Innovations to Improve Cost and Quality



October 25, 2015

Bigger, Badder, Stronger – or – Smaller, Better, Faster?

Richard D. Zane, MD

*George B. Boedecker Professor and Chair
Department of Emergency Medicine
Executive Director, Emergency Services
University of Colorado Health*

Nir Harish, MD, MBA

*Robert Wood Johnson Foundation Clinical Scholar
Clinical Instructor, Department of Emergency Medicine
Yale University School of Medicine*



School of Medicine

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS



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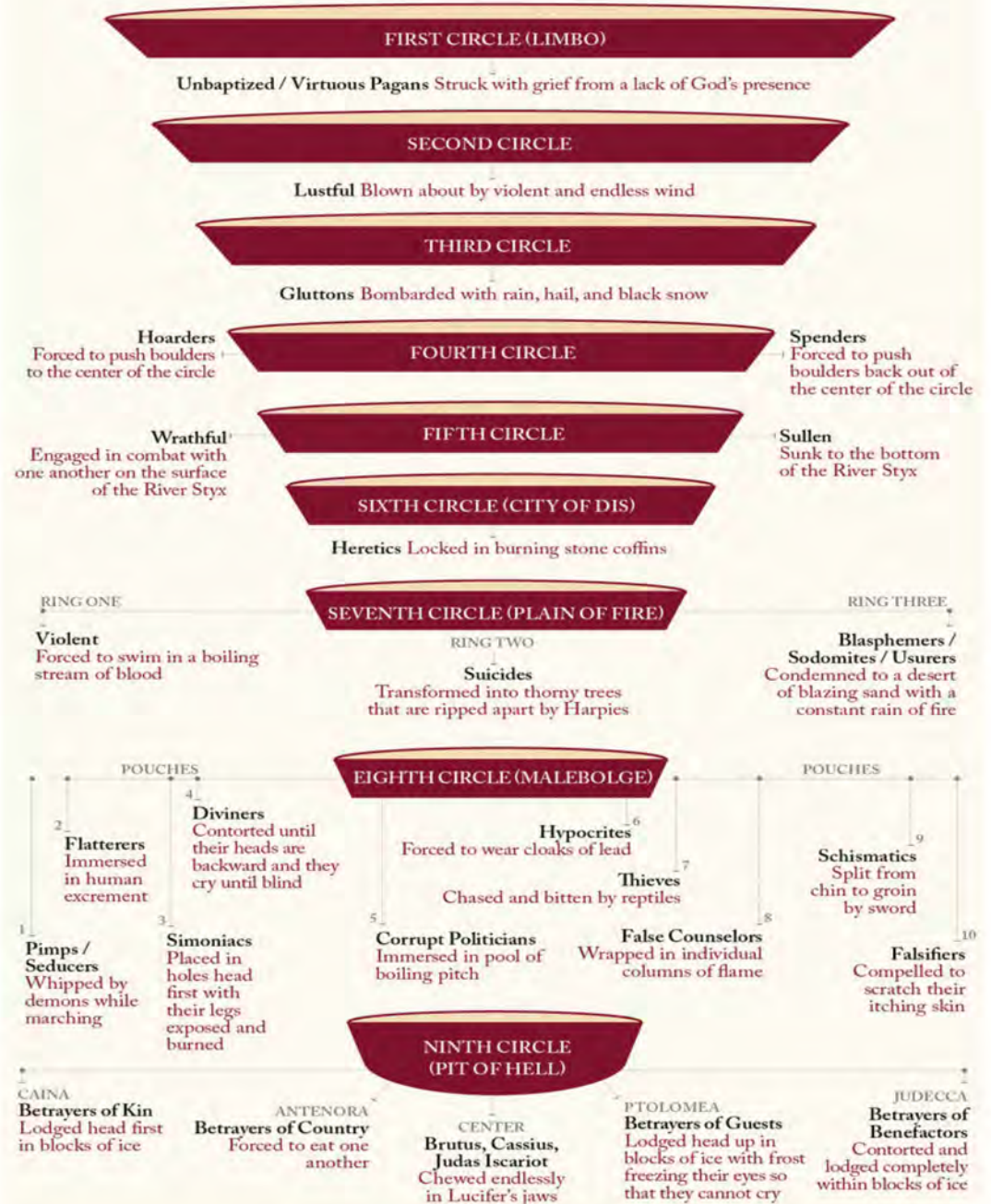
Dante's Circles of Well: The Future of Emergency Care

Nir J. Harish
Richard D. Zane



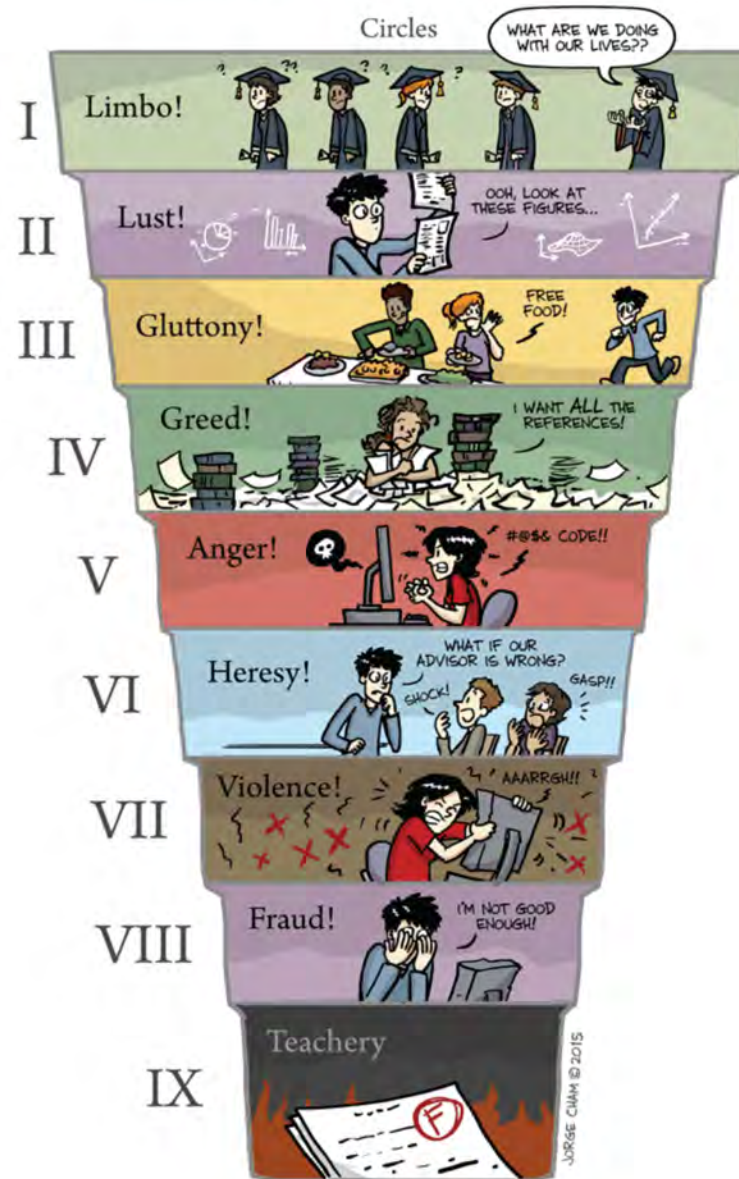
Abandon All Hope, You Who Enter Here

Punishments meted out to sinners in Dante Alighieri's Inferno



DANTE'S INFERNO

(ACADEMIC EDITION)



IF A PICTURE IS WORTH A
THOUSAND WORDS...

What does emergency
care look like today?



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Mission of
Emergency Medicine

*We care for
those in crisis*



What is the scope of the mission?

- Acute, Episodic and Unscheduled Care
 - Emergent, Urgent, Primary
 - Safety Net
 - Emergency Sensitive Condition
- Beyond unexpected emergency or accident
 - Diagnostic Center
- Systematized and Integrated
- Fulcrum between Inpatient and Outpatient Care







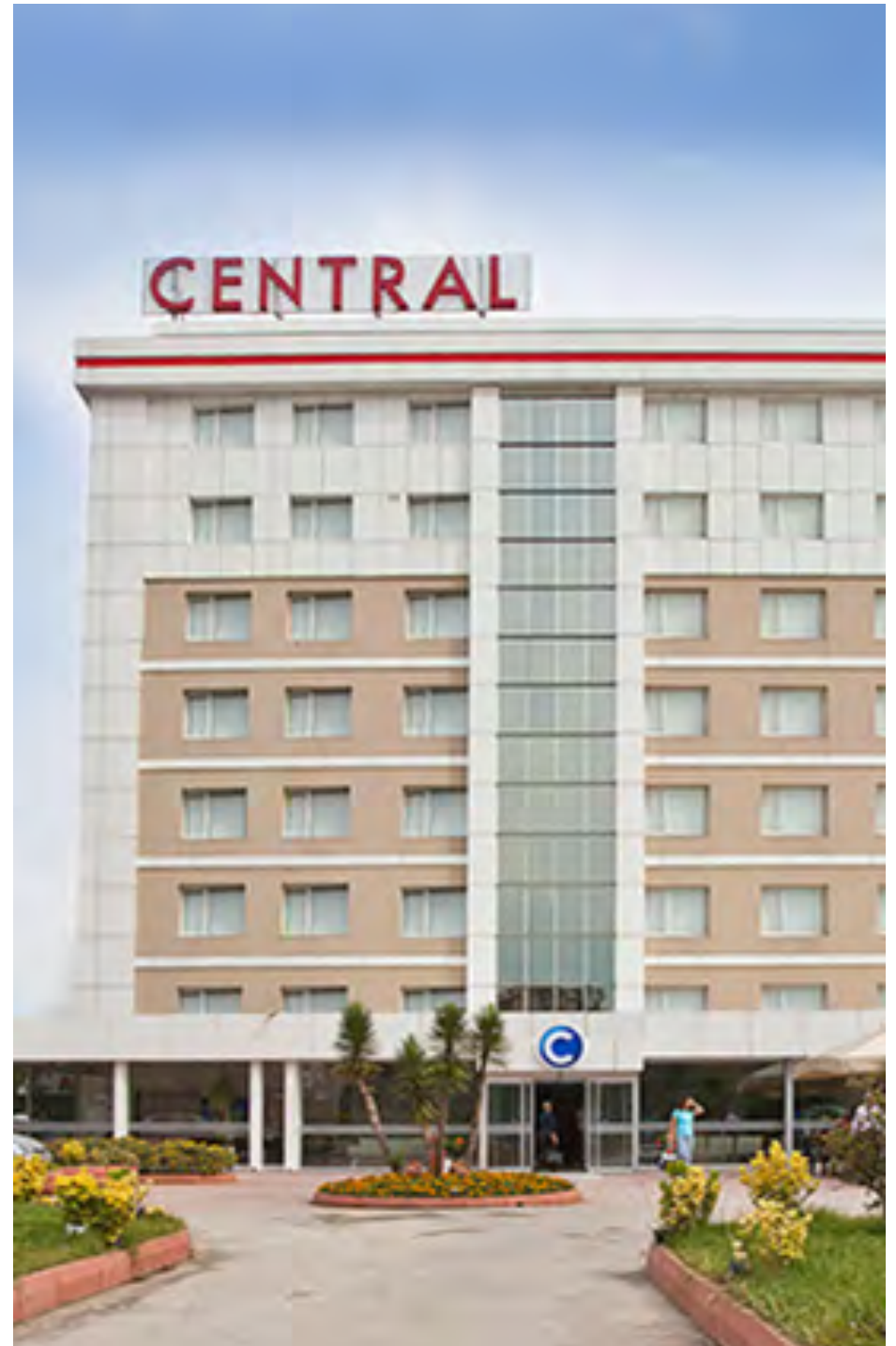


Centralizing care made sense historically

- There were no Emergency Physicians
- Diagnosis was time- and labor-intensive
- Many conditions required admission
- ← • Transportation was challenging
- Paper charts (!)

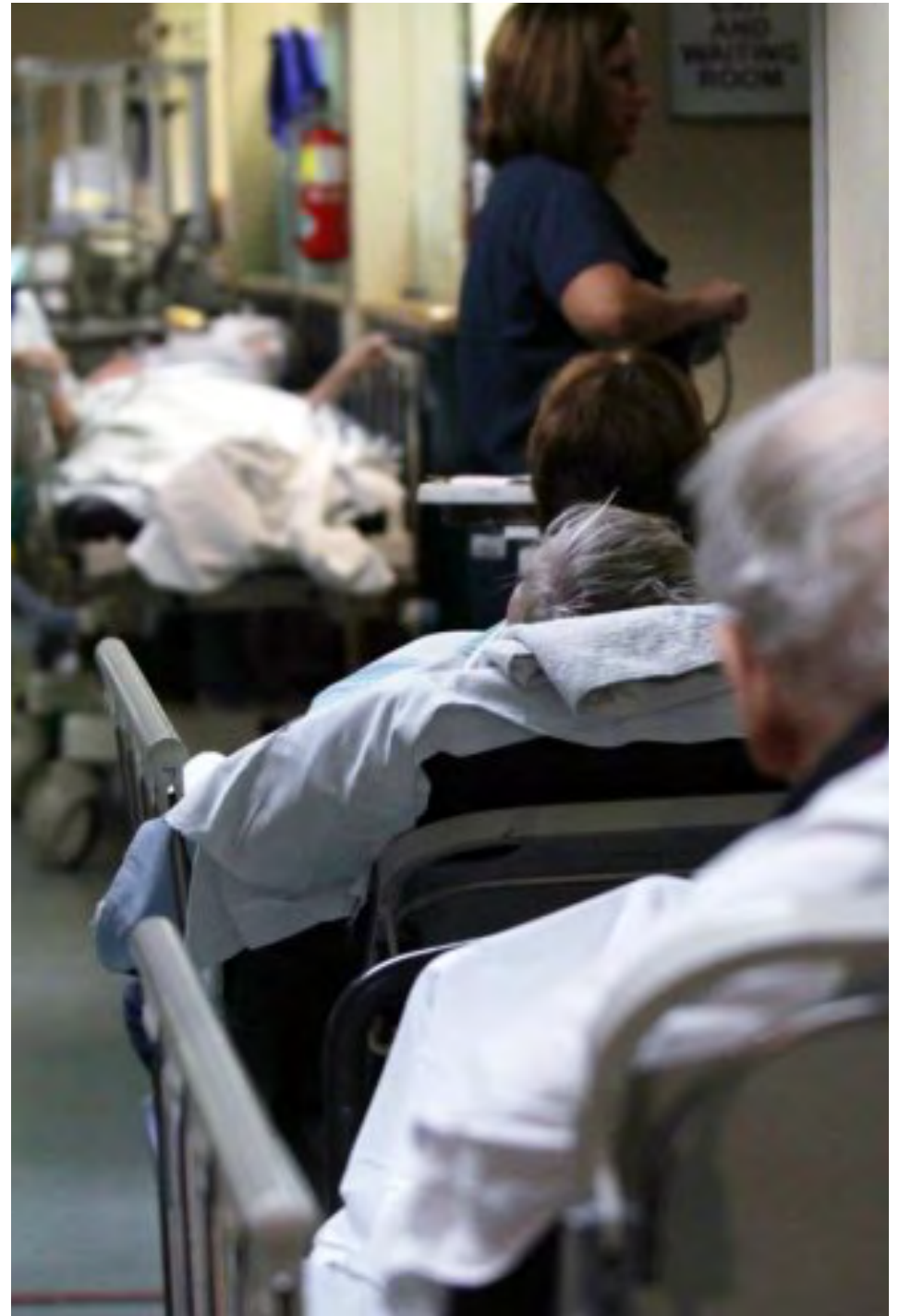
And has benefits today

- Operational efficiency
- Less redundant equipment
- Reduces need for inter-facility transfers
- Educational benefits



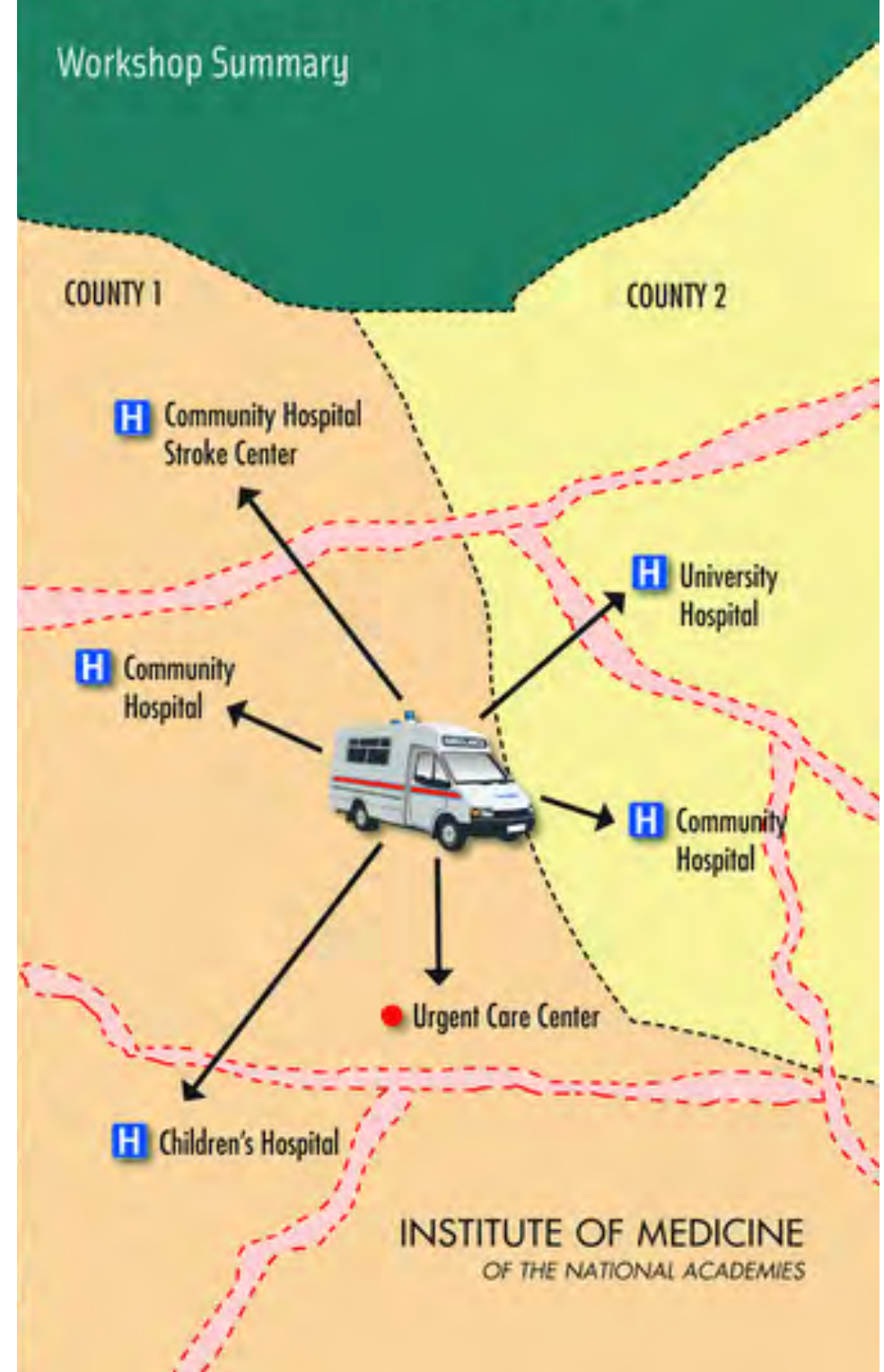
But does centralized care still make sense?

- 136 million ED visits in 2011, an 8% increase from 2006
- Growth in ED utilization has outpaced population growth
- Even with 1,000+ bed megahospitals, crowding and boarding have not gone away
- Can we really fit more people into our EDs?



But does centralized care still make sense?

- The nature of the health care system around us has changed
 - Trauma Designations
 - Centers of Excellence
- New imperative to get patients to the right facility at the right time



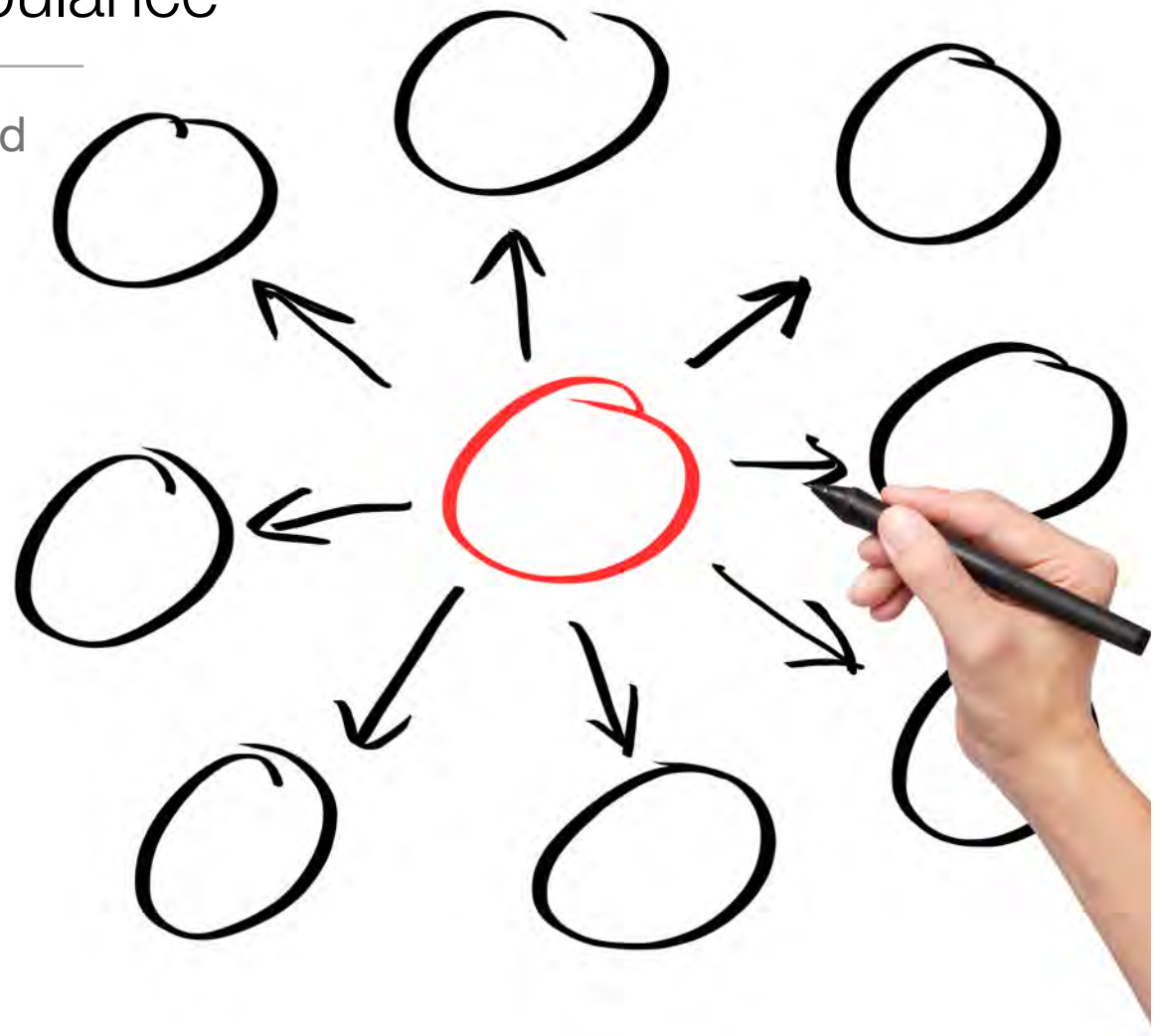
The Burning Platform

- ED is the fulcrum between inpatient and outpatient care
 - Spend 2%, control 20%?
- Imperative to contain costs
 - Public and private payers
 - Rising out-of-pocket spending
 - Risk-sharing, e.g. ACOs
- Payment models will change
 - Fee-for-service is going away
 - What is the role of EM?



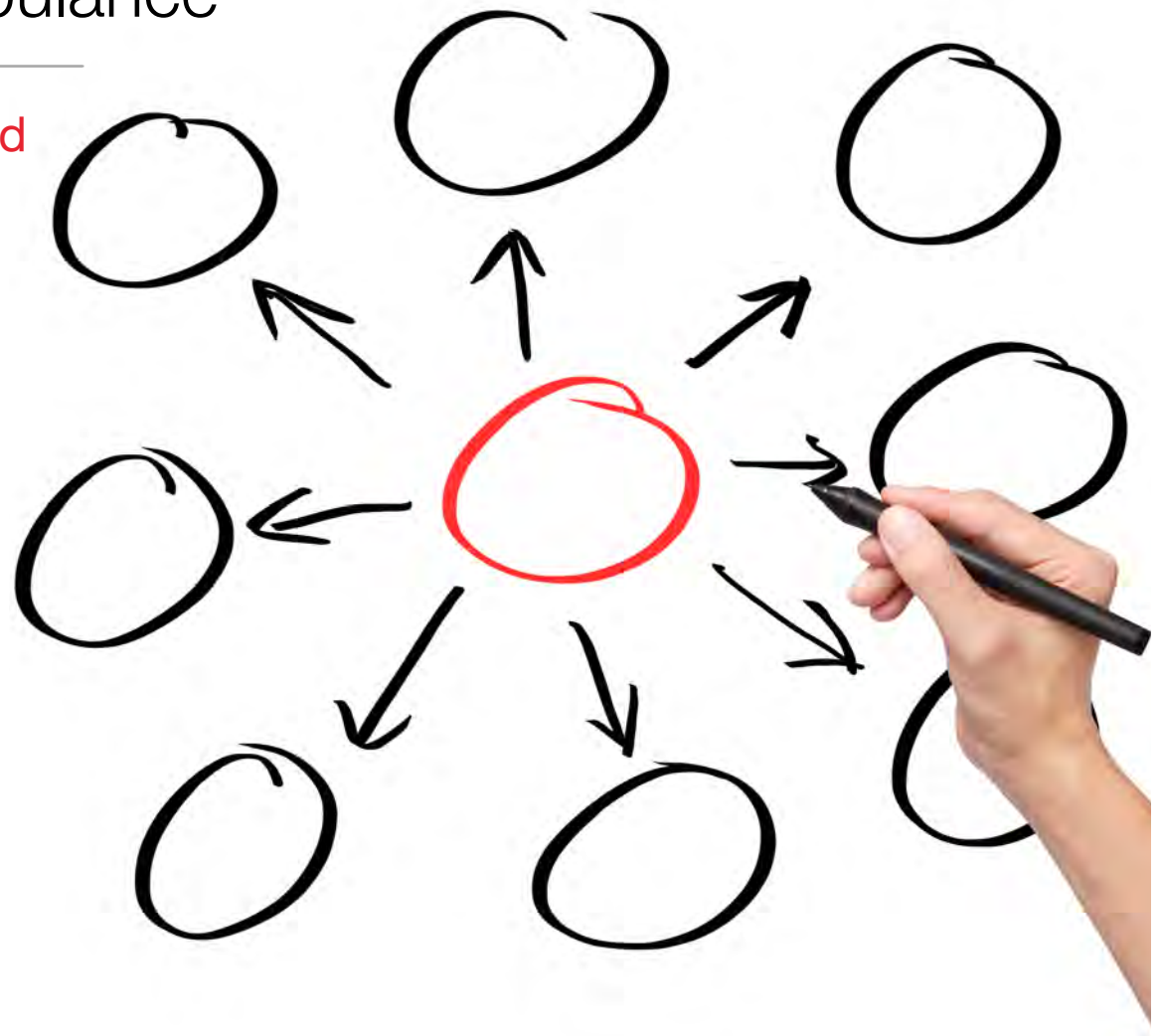
Times have changed since the horse-drawn ambulance

- Technology for diagnosis and communication
- Tele-health and remote monitoring
- Emergency Medicine has evolved
- Advanced paramedicine



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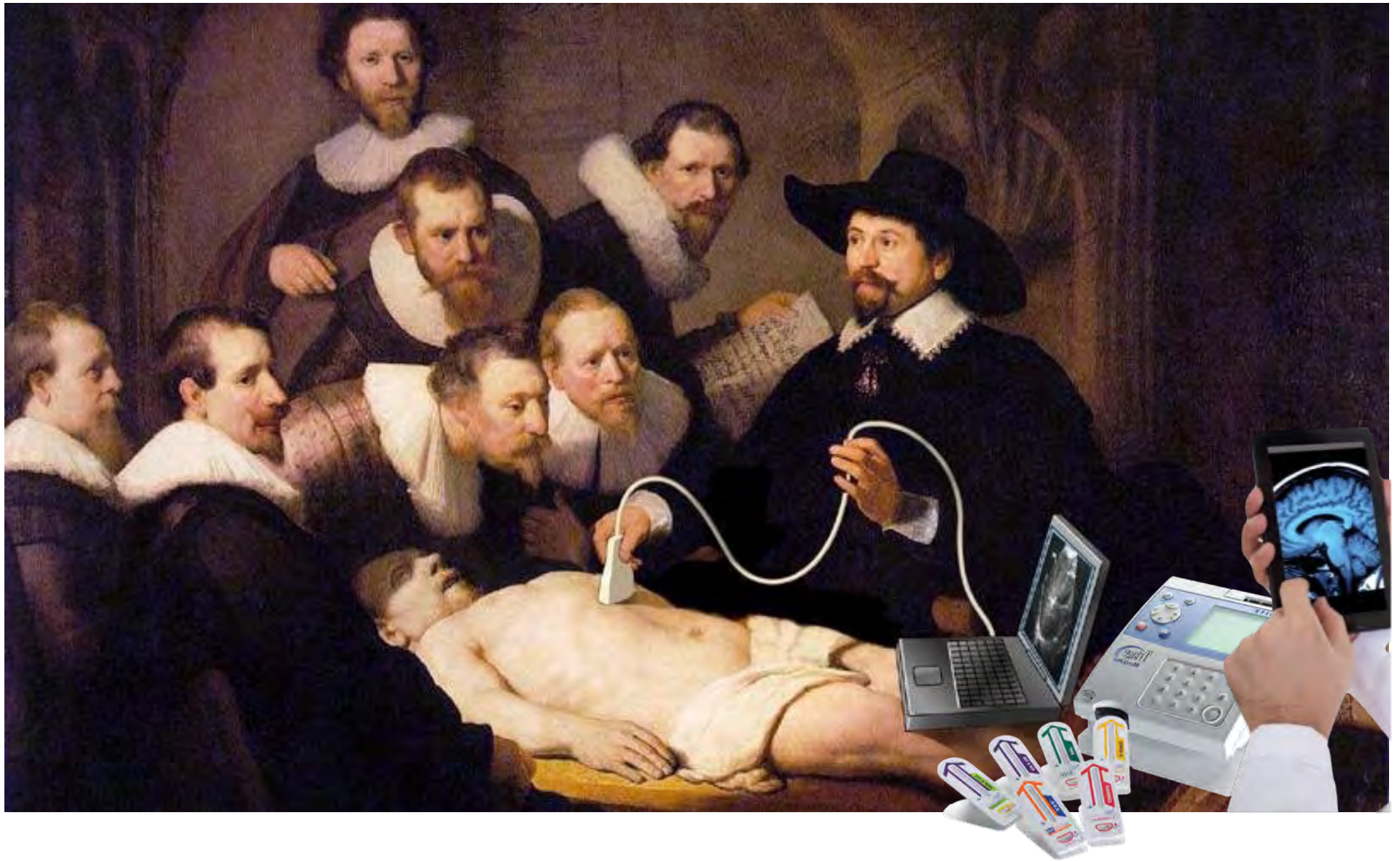
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Advances in technology

Remember invasive
angiography?

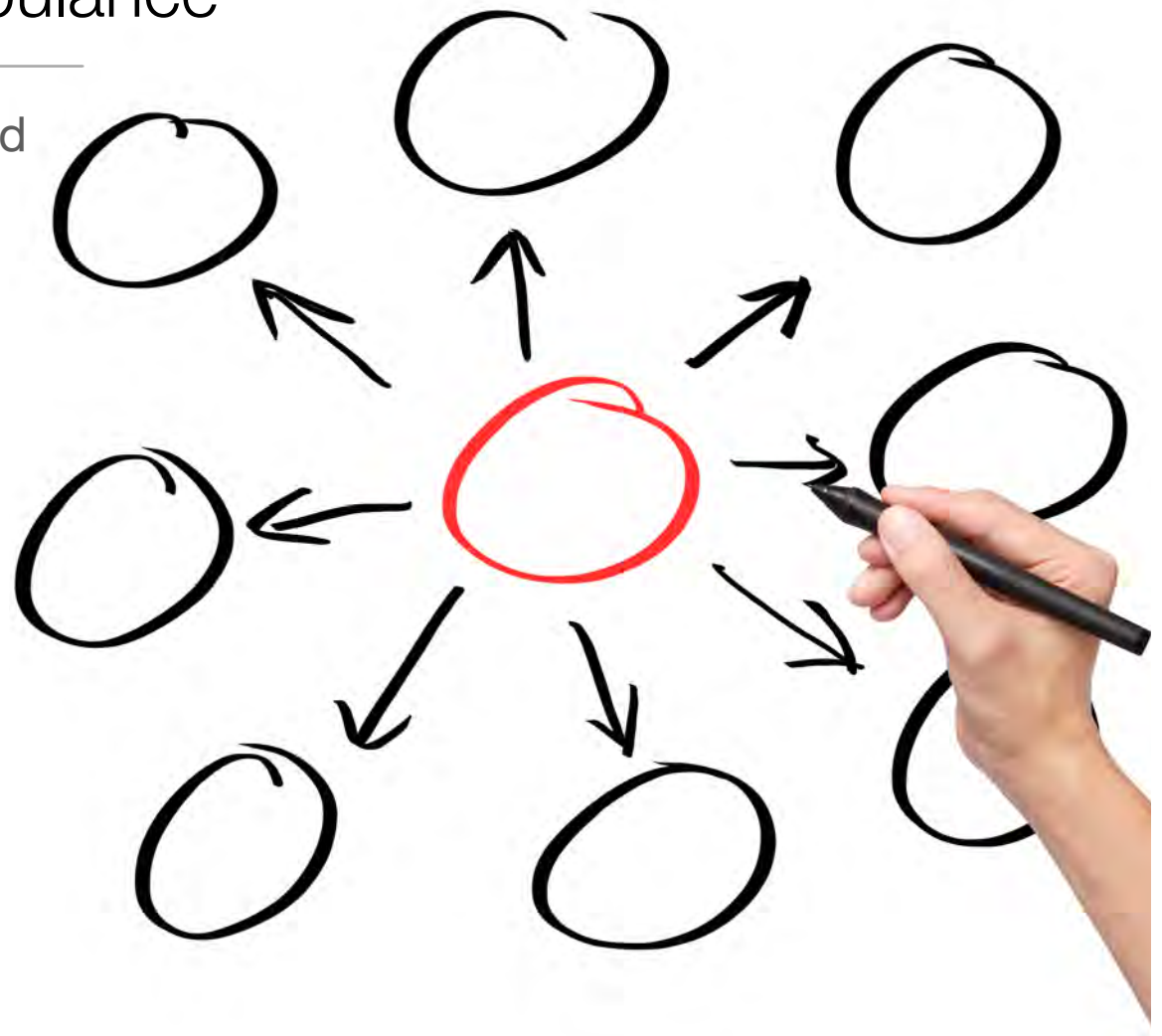


Advances in technology

Imaging, Lab and
Communication

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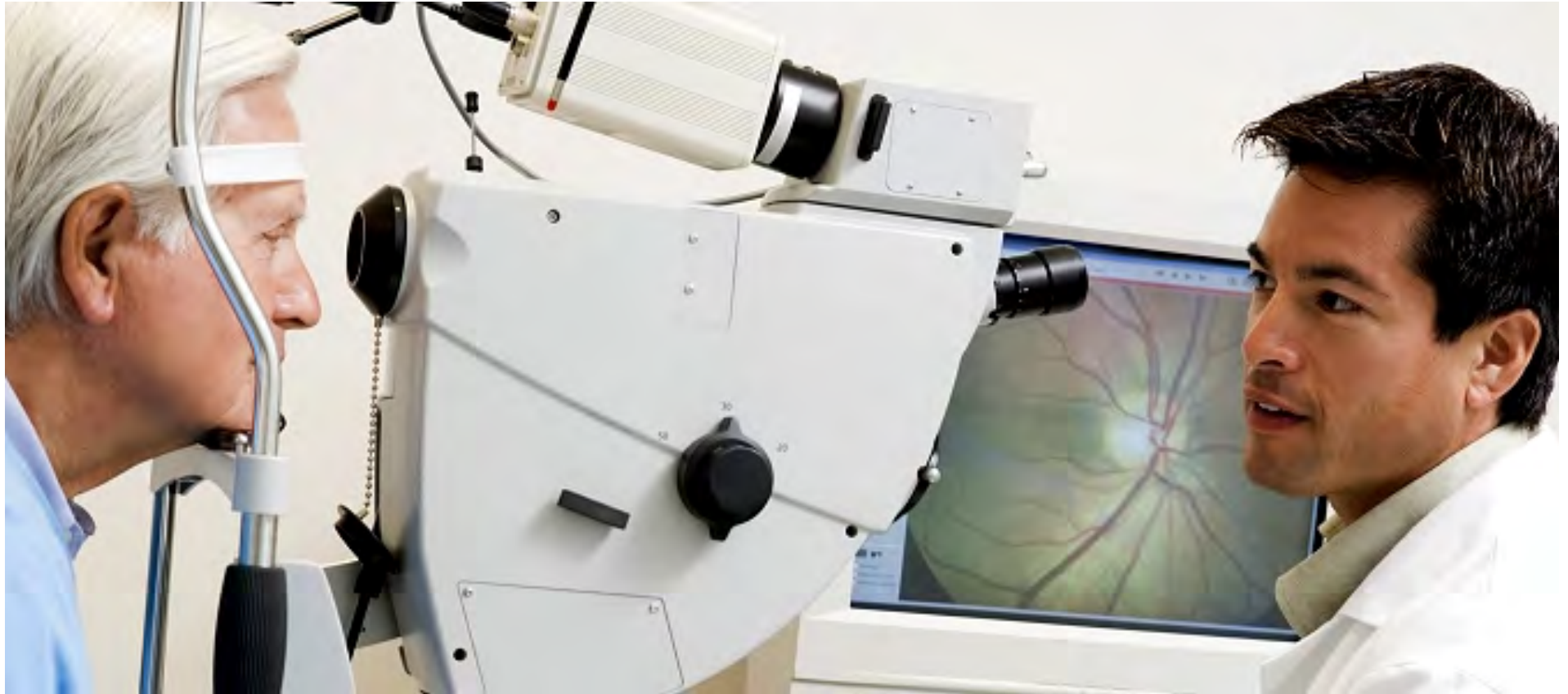
Tele-health:
Radiology

Used in >50% of US EDs.
Still radical.



Tele-Health:
Stroke

Who needs an on-site
neurologist?

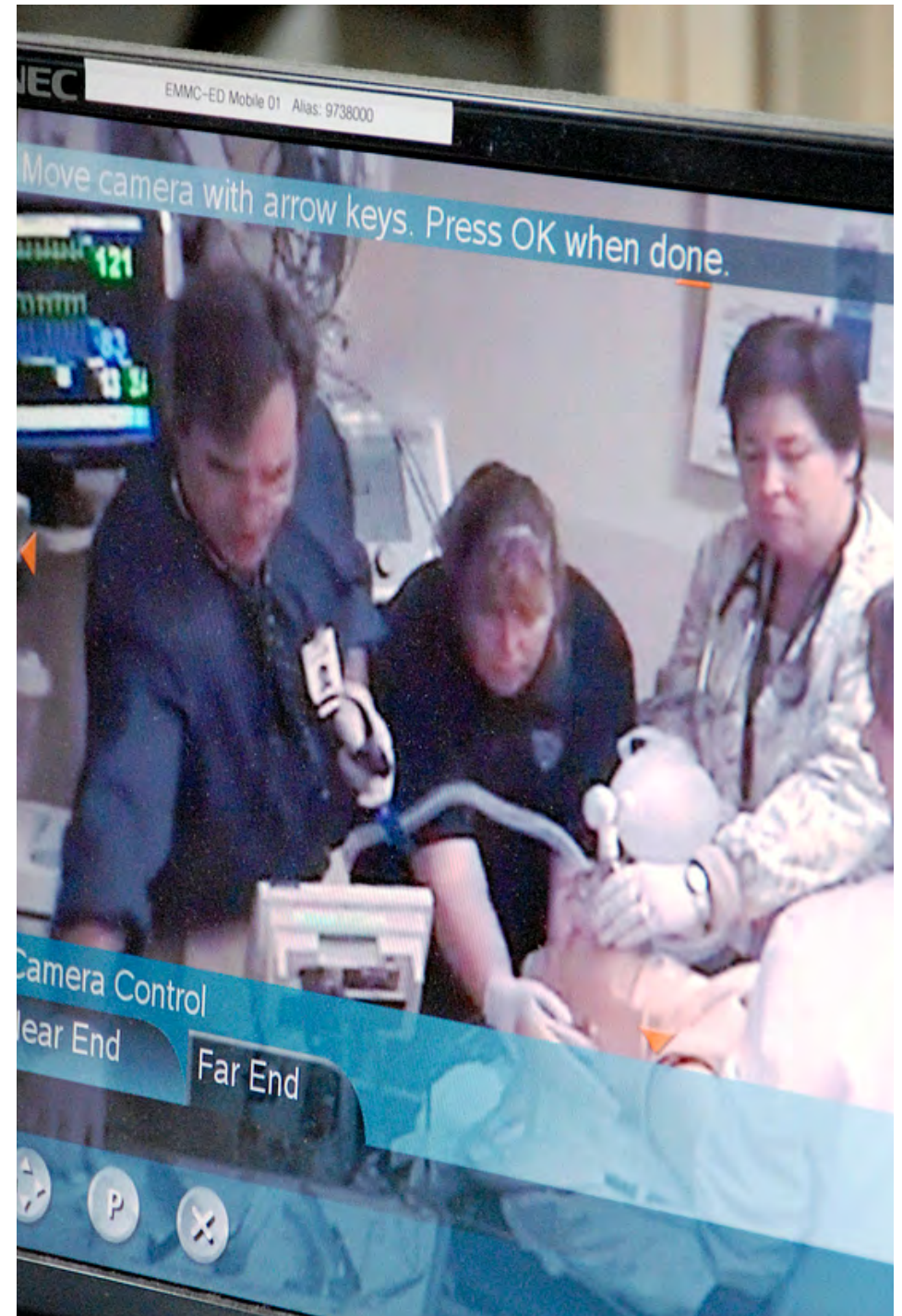


Tele-Health:
Ophthalmology

Brings ophthalmology to
any bedside

Tele-Health: Emergency Medicine

ED-to-ED



Tele-Health:
Emergency Medicine

Direct-to-Patient

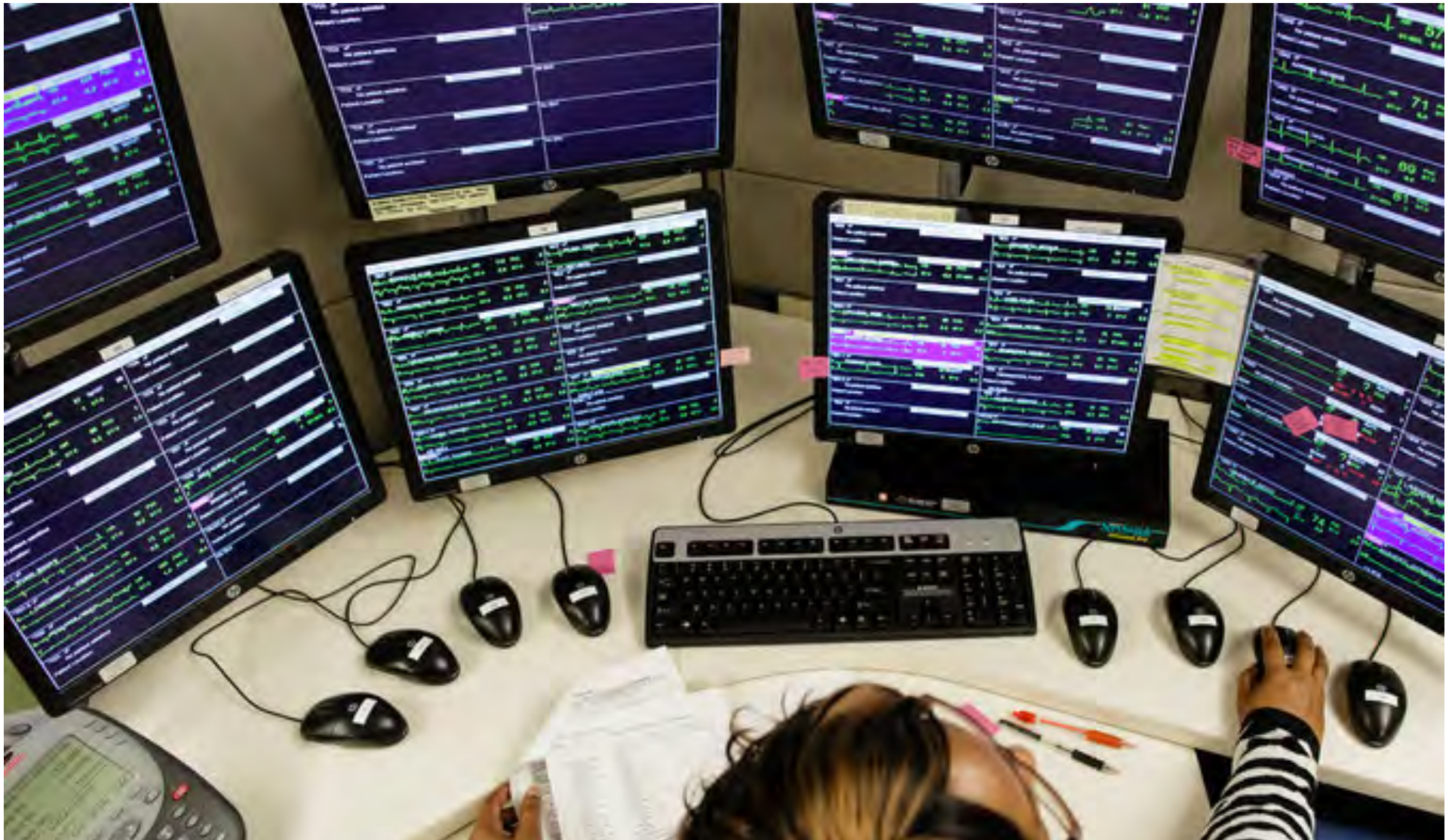
JeffConnect™



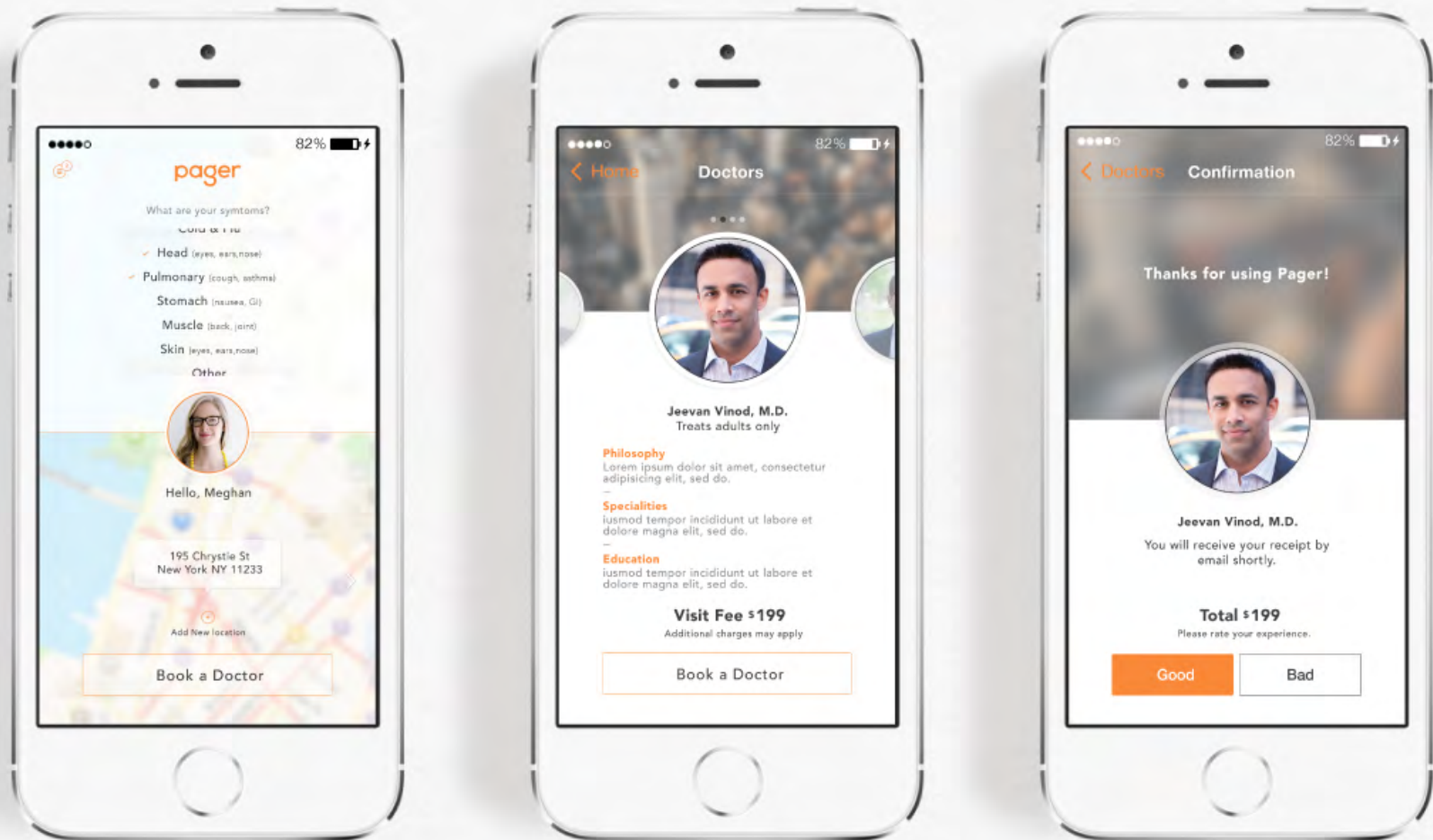


Home Admissions

Mount Sinai Health System &
Johns Hopkins University



Remote Monitoring

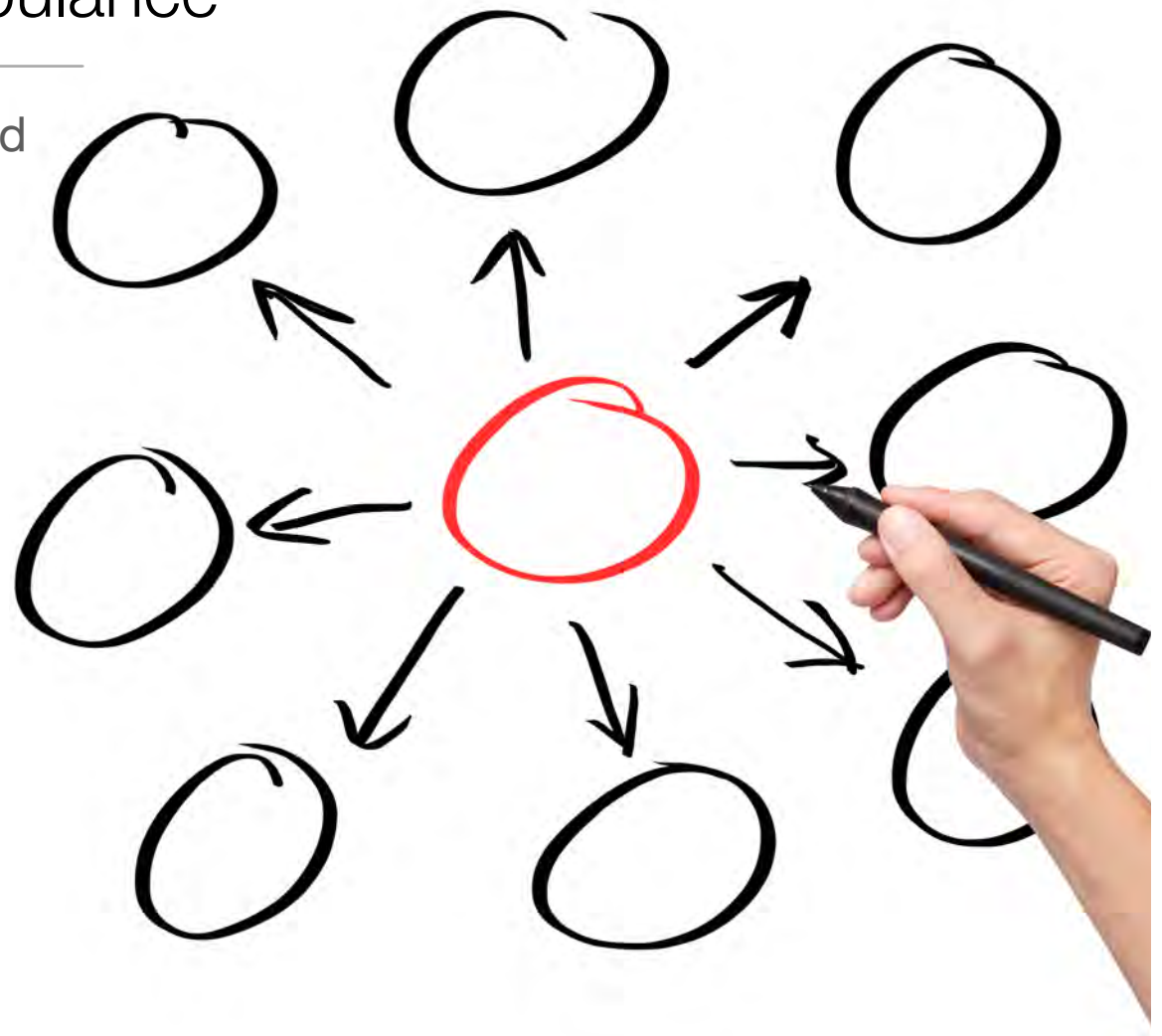


Emergency Physician
House Calls

Pager

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The Evolution of Emergency Medicine

Emergency Medicine is no longer limited to acute stabilization and treatment.

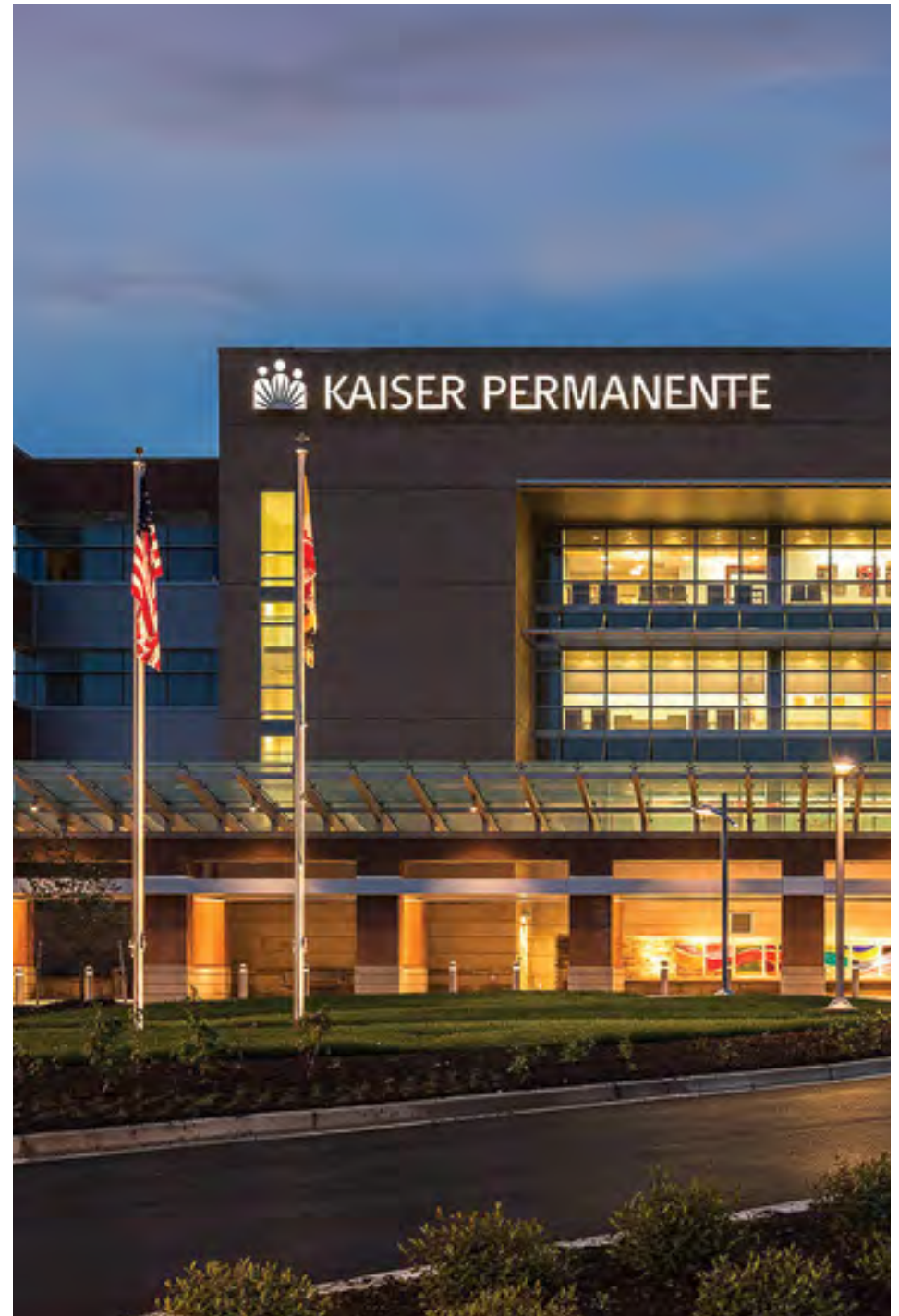
We have become...

- The diagnostic hub of the health care system
- A faster, better alternative to short-term hospitalization
- Active participants in the health of our communities and populations



Kaiser-Permanente: Diagnostic Center

- The ED is becoming the diagnostic hub of the health care system, and Emergency Physicians are increasingly seen as diagnosticians
- KP-Colorado has formalized this role through RADAR: The Regional Acute Diagnostic and Referral Center
 - Outpatient diagnostic center staffed by EPs
 - Patients referred by PCPs or other Kaiser clinics
 - Urgent diagnostic testing — serial troponins, CT for appendicitis, etc
 - Only sent to hospital if an urgent diagnosis is made



ED Observation Units

- EM today goes beyond initial treatment and stabilization
- ED-run, protocol-driven
- 36% of EDs had an OU in 2007. Now hard to imagine building an ED without one.
 - Replace >10% of admissions
 - Reduce LOS by up to 38%
 - Save >\$1,500 per patient
- Now even FSEDs and “super urgent cares” have OUs



University of Michigan: EC3

- The scope of EM is also growing past just initial stabilization of critical patients
- First of its kind: 9-bed ICU embedded in the ED
- Staffed by EM-Intensivists
- Immediate access to intensive care without worrying about bed availability
- Patients who can be rapidly stabilized in EC3 may no longer require ICU admission



Population Health

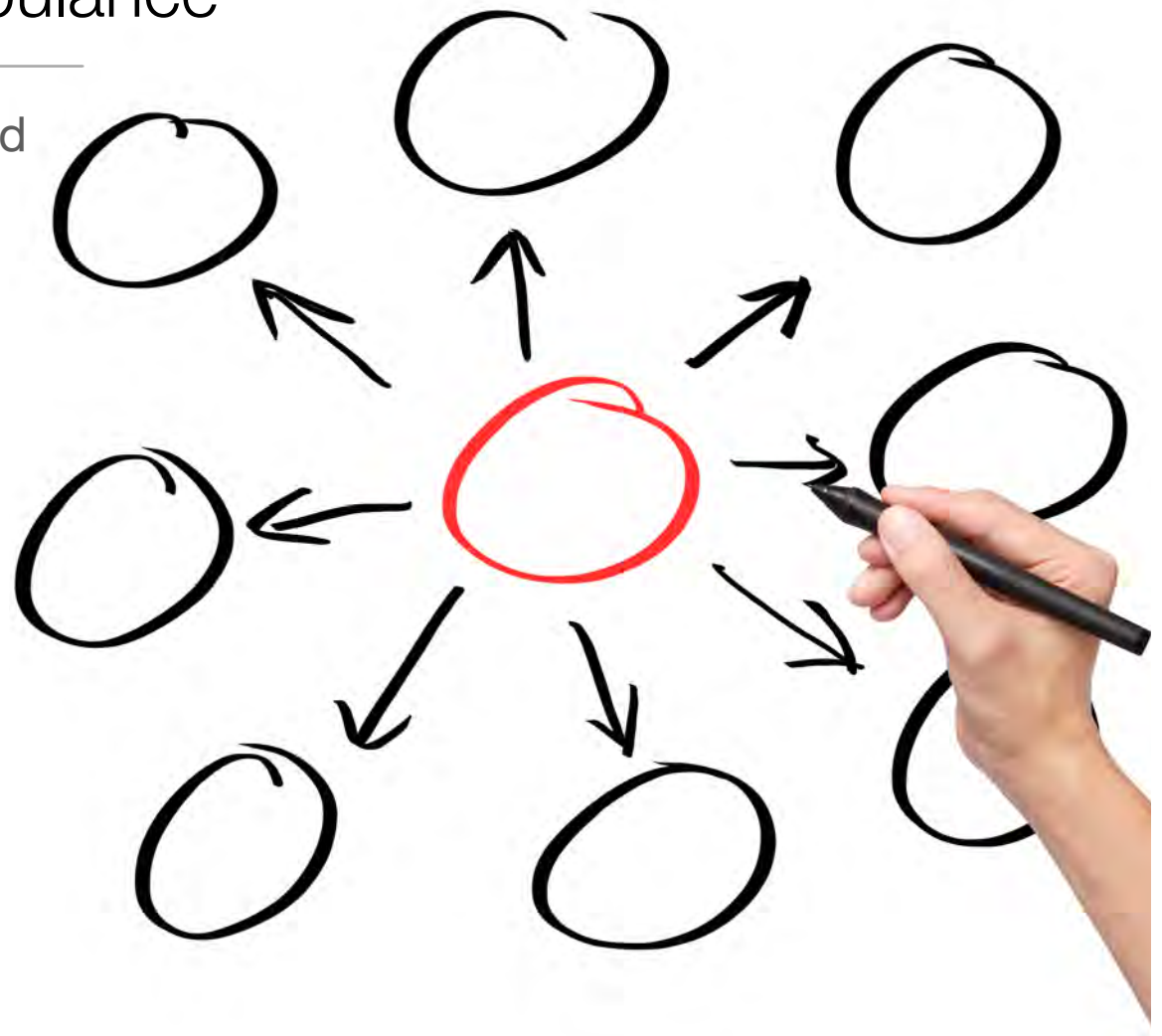
- Emergency Medicine discovered its role in population health, in part, through frequent utilizers
- Instead of complaining about “inappropriate use” of the ED, we are starting to embrace our role as the gateway to health:
 - Hotspotters programs
 - Bridges to Care
 - Project Access
 - Health Leads

BRIDGES TO CARE



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Community Paramedicine

- Paramedics are providers on wheels. Why just for emergencies?
- Geisinger's Mobile Health Team Pilot (March 2014—June 2015)
 - Requested by PCP, cardiologist, or post ED or hospital discharge
 - Prevented 168 inpatient days among 704 patients
 - Reduced ED visits and admissions for CHF by 50%
 - Readmissions for CHF fell by 15%



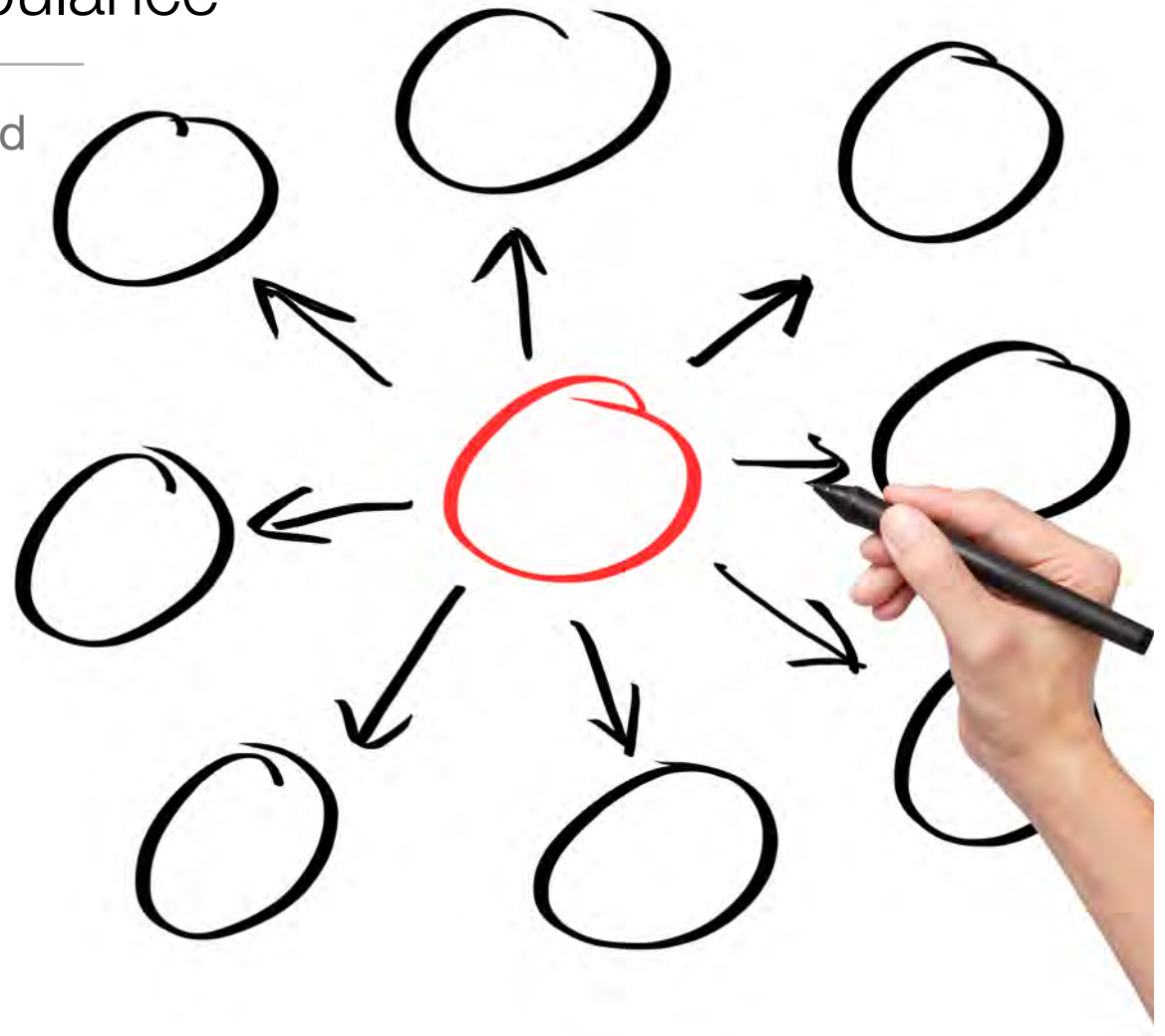
Mobile Stroke Units

- Paramedics are diagnosing STEMI. Why not strokes?
- Ambulance with small CT and hospital tele-stroke services
- tPA is initiated en route in consultation with neurology
- UTHHealth, Cleveland Clinic, UC Health



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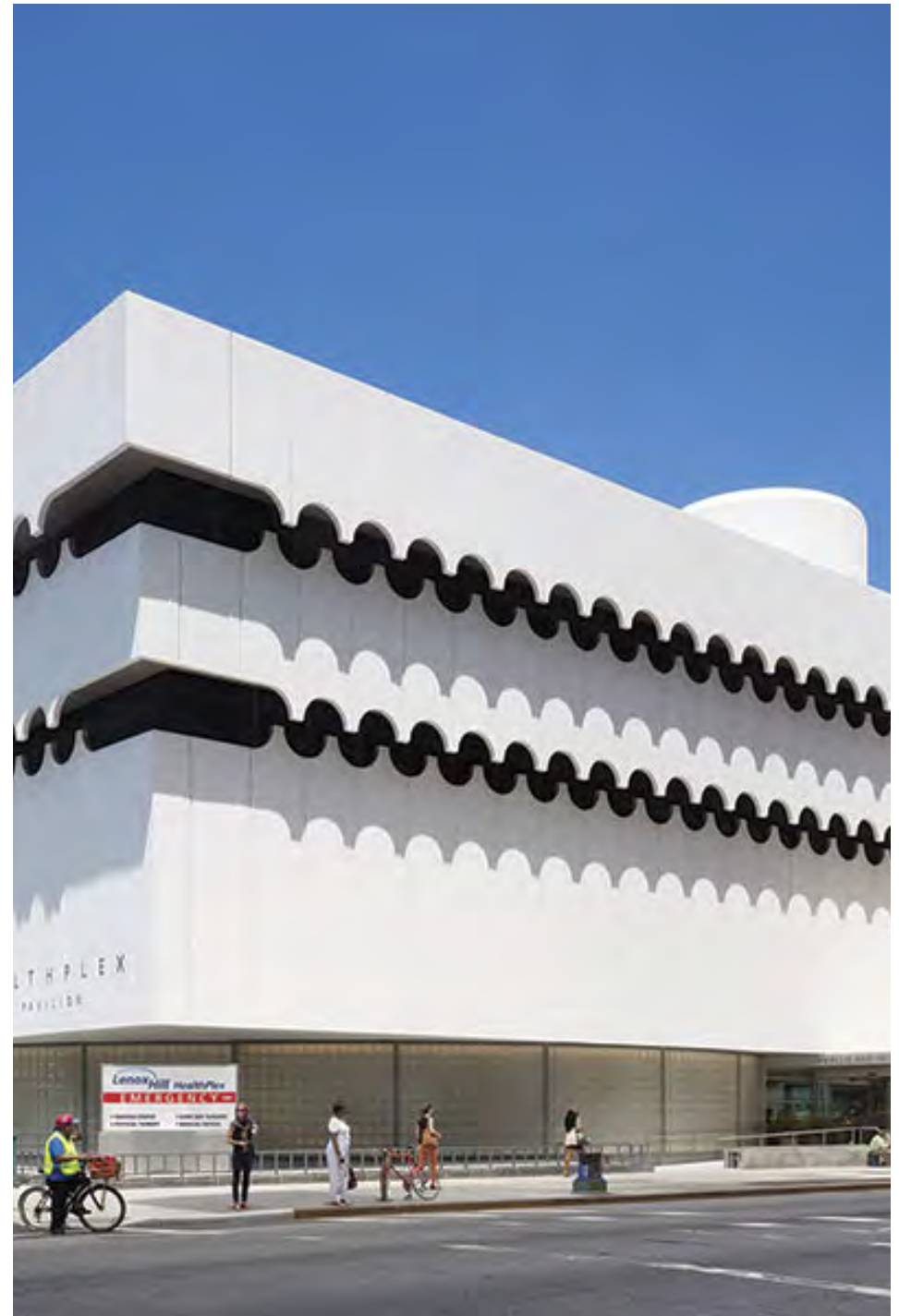
The Ultimate Experiment

Taking the ED out of
the hospital



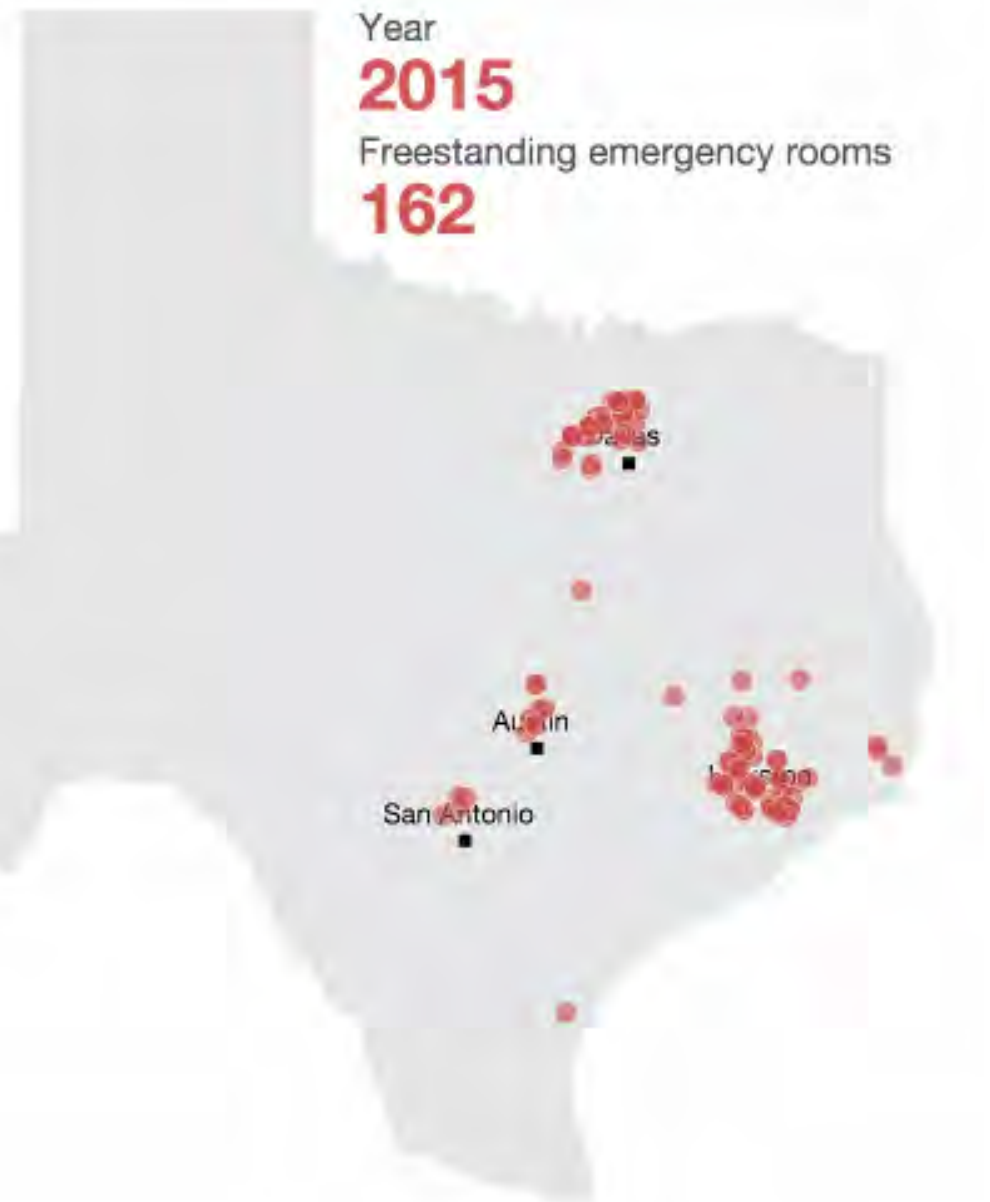
Hospital Satellite EDs

- In 2009, these accounted for 86% of FSEDs
- Akron General Hospital showed some (limited) decrease in central ED volume with opening 2 FSEDs
- In large systems with multiple inpatient hospitals, patients who need admission can go to whichever facility has bed availability
- Integration with health system facilitates rapid transfer protocols
 - Akron: 100% DTB time < 90 min from 2 FSEDs



Independent FSEDs

- Recent rapid growth in states that do not require CON
- Texas, Florida and Colorado
- 22 FSEDs in TX in 2002, today there are more than 162
- CMS does not recognize independent FSEDs as EDs
- Ongoing evolution in regulation of independent FSEDs





Aurora Central

7 Beds
1 MD, 1 RN, 1 tech, 1 admin
CT, X-ray, US
Moderate complexity labs
Telehealth



Colorado Springs "Micro" hospital

- ED: 8 ED beds, 3 obs beds
- 22 inpatient beds
- 4 ICU beds
- 3 Operating Rooms






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Dante's Circles of Hell





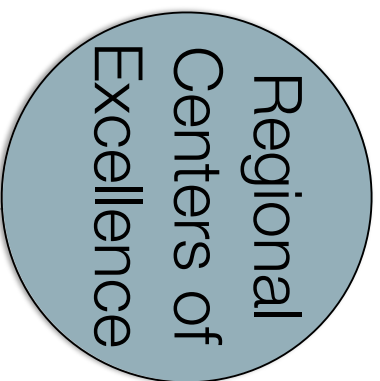
Traditional
high-acuity
hospital
ED



The Circles of Well

Model for Emergency Care

Complexity of Care



Decentralization

The Circles of Well

Model for Emergency Care



Complexity of Care



Decentralization

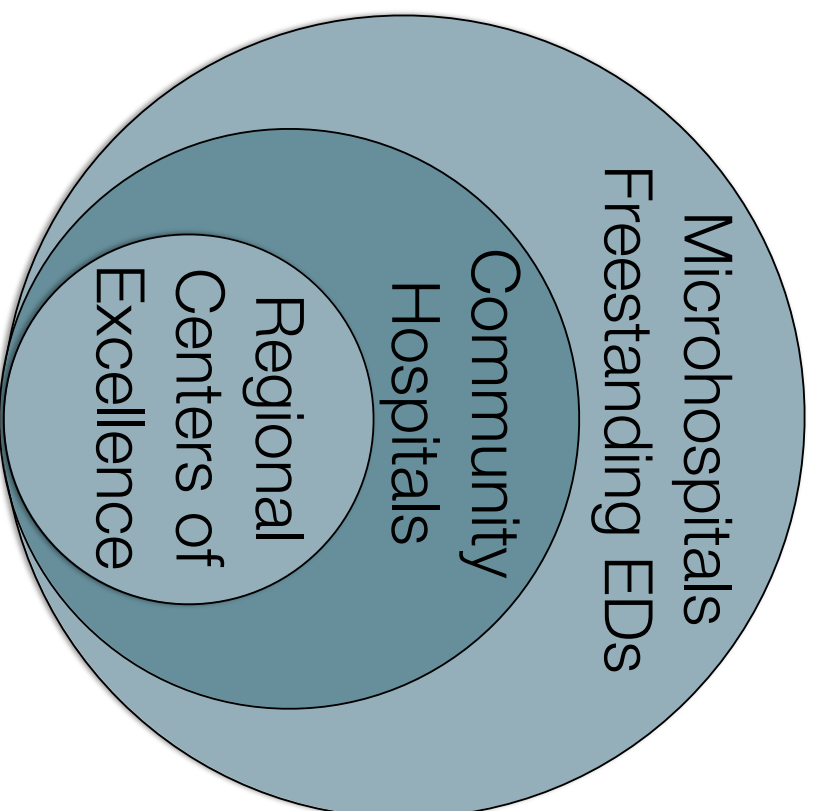


The Circles of Well

Model for Emergency Care



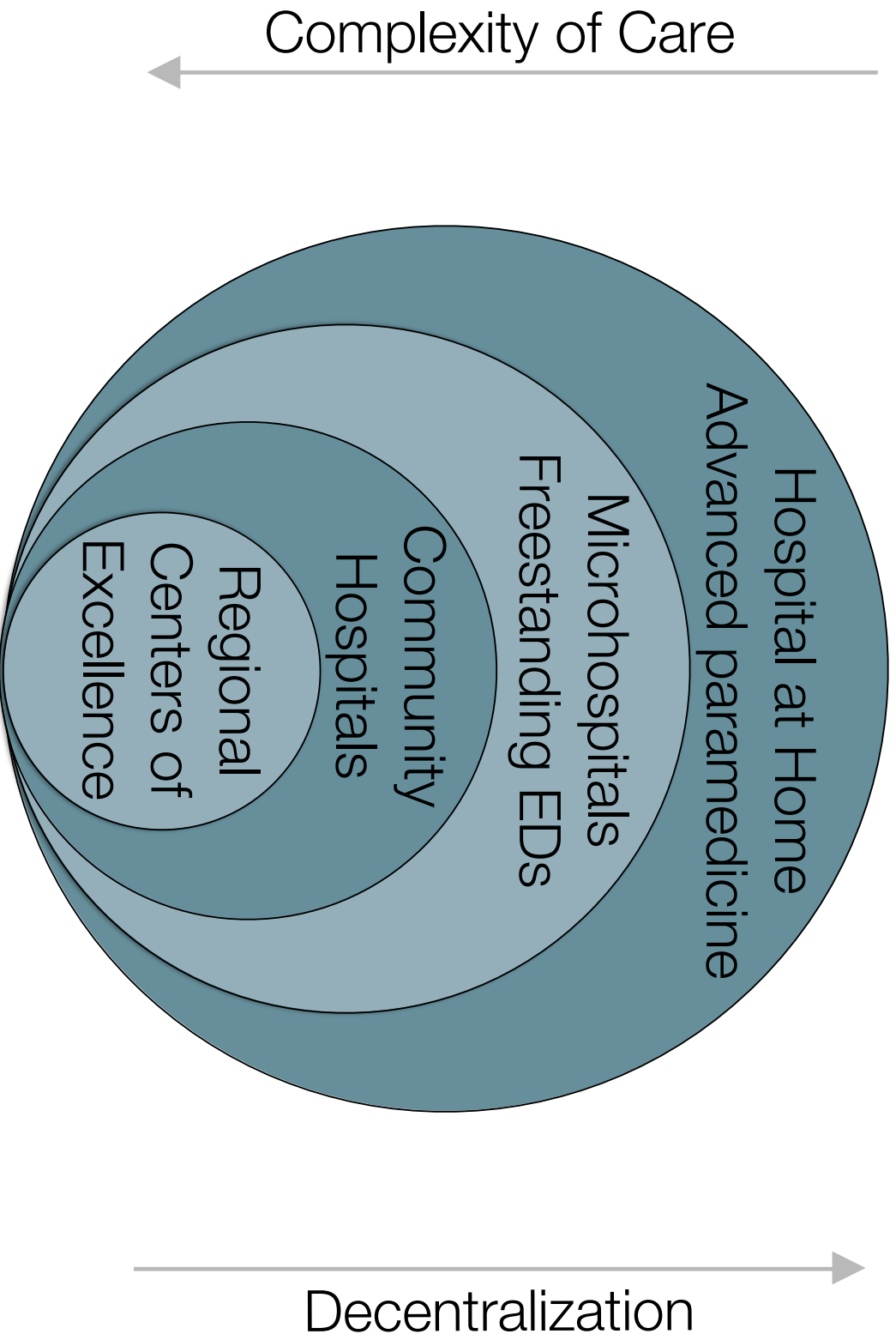
Complexity of Care



Decentralization

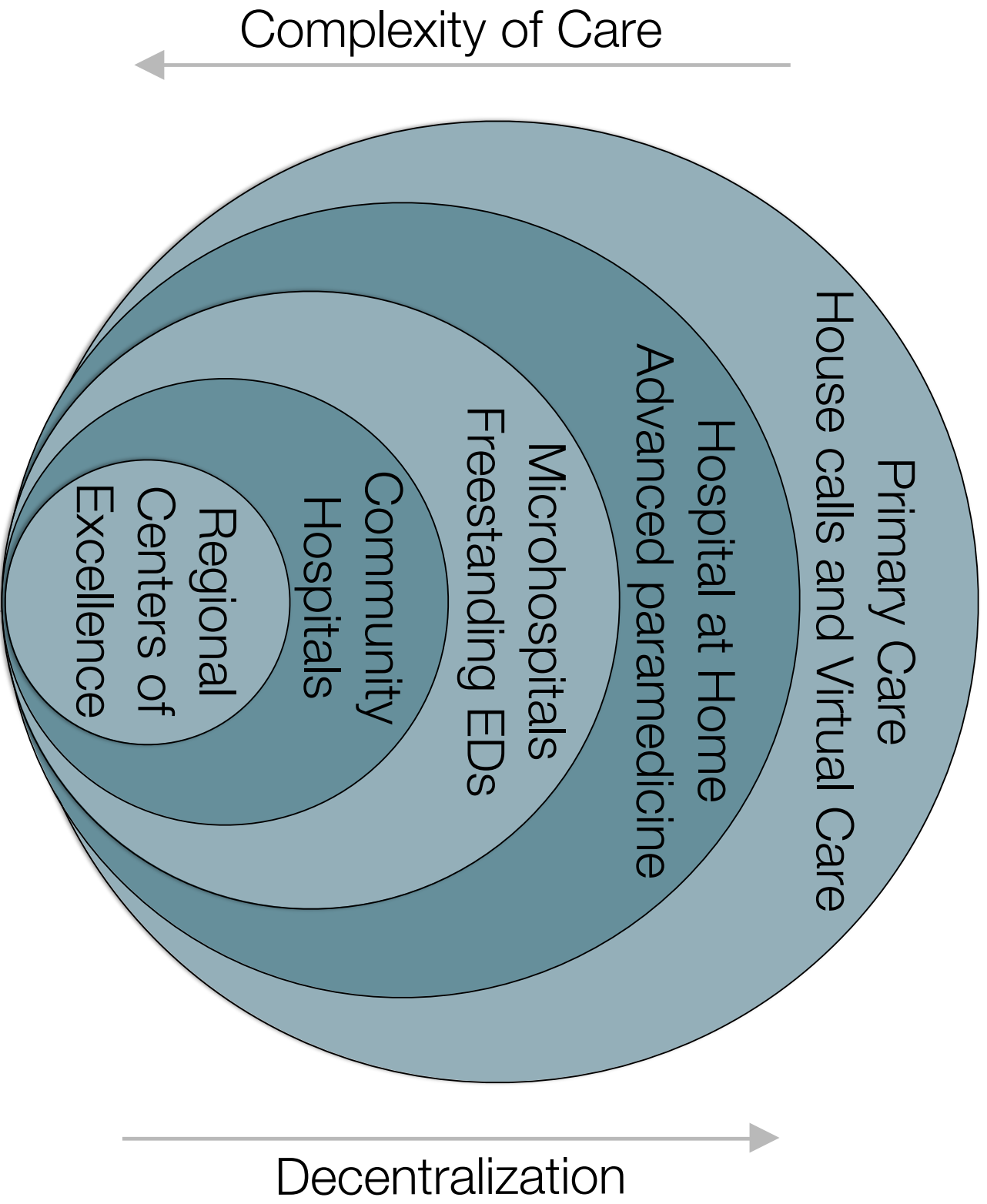
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