

Artificial Intelligence and Burnout

Cause or Cure ?

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Objectives

- Discuss burnout in health care.
- Discuss how the very process of the healthcare- patient relationship has influenced burnout.
- Describe how the computer in general and the EHR specifically have contributed to burnout.
- Explore the role of AI in either decreasing burnout or making it worse.

Burnout



Coined the Term
“ Burnout”

Herbert Freudenberger PhD



Maslach Burnout
Inventory

Christina Maslach PhD

Physician Burnout

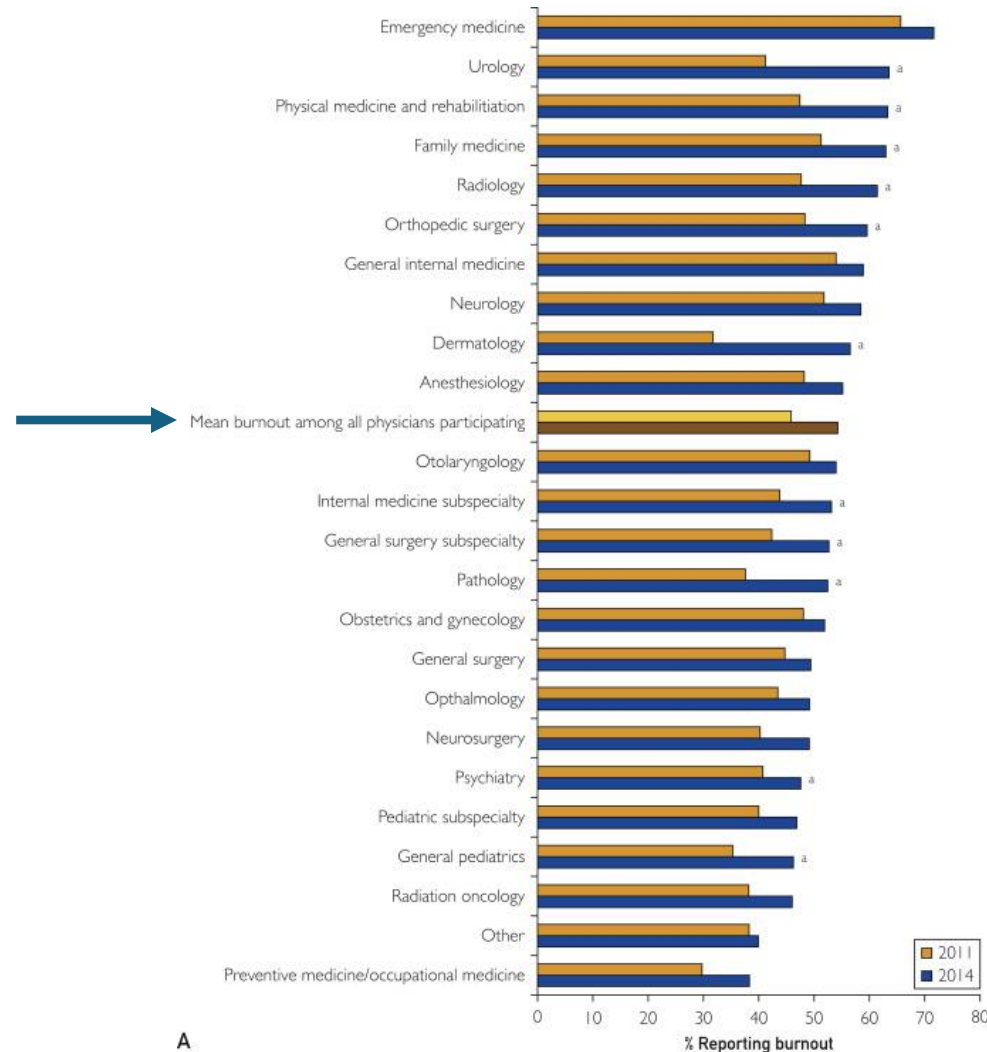
Definition

- Occupational Related Syndrome:
- Emotional exhaustion (9)*
- Depersonalization in relationships (5)
- Reduced sense of personal accomplishment (8)

* MBI Items

Burnout Incidence by Specialty 2011-2014

Mean= 54.4%



2018 = 77.8 %

Physicians Foundation
Survey

Shanafelt et al Mayo Clin Proc.
2015 Dec;90(12):1600-13

Burnout Definition

- “Burnout represents a pathological response to stressors in one's work environment”.
- Reframe:*
- “Burnout is a normal response to a pathological work environment!”

Squiers J, Lobdell K, Fann J DiMaio J. Physician Burnout:Are We Treating the Symptoms Instead of The Disease. Ann Thoracic Surg 2017;104:1117-22.

*Steve Moffic personal communication

WTF

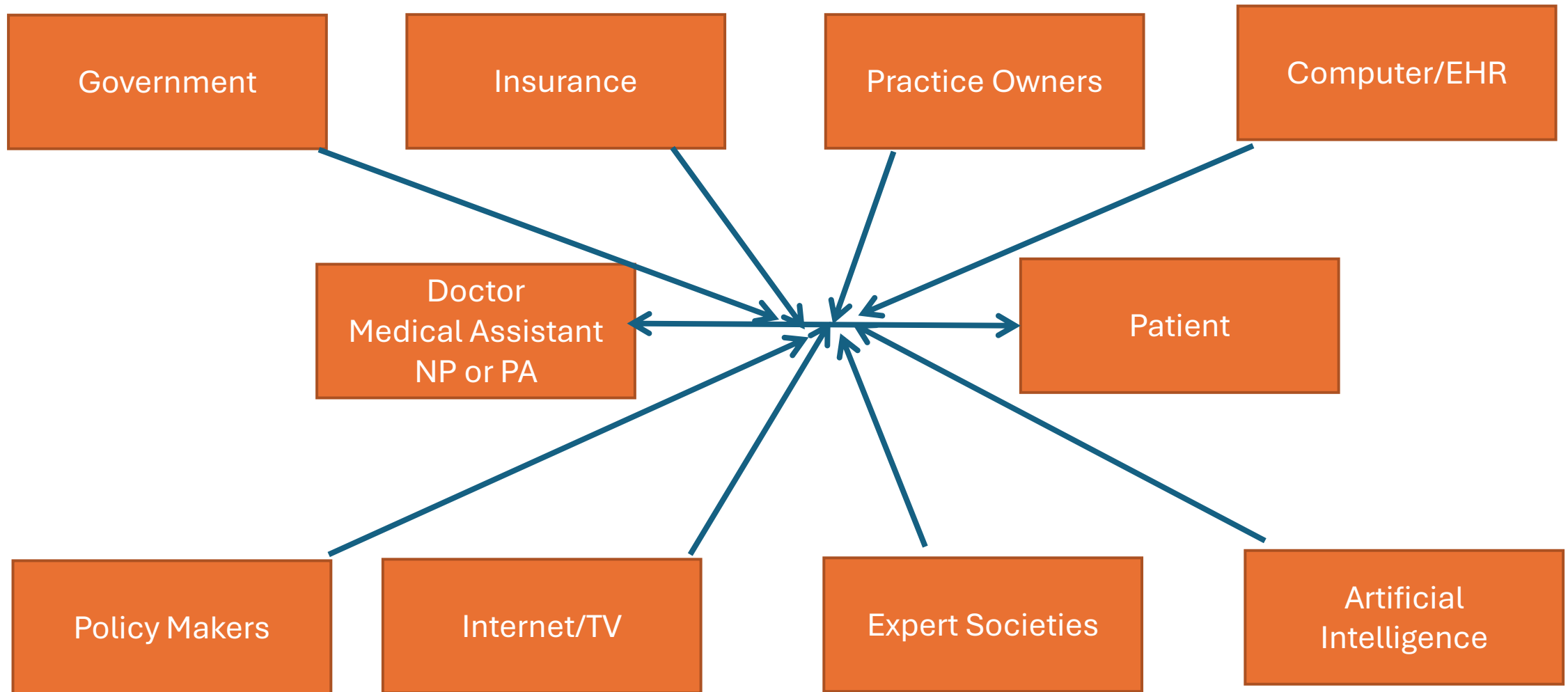
W T F

(What are the Facts)

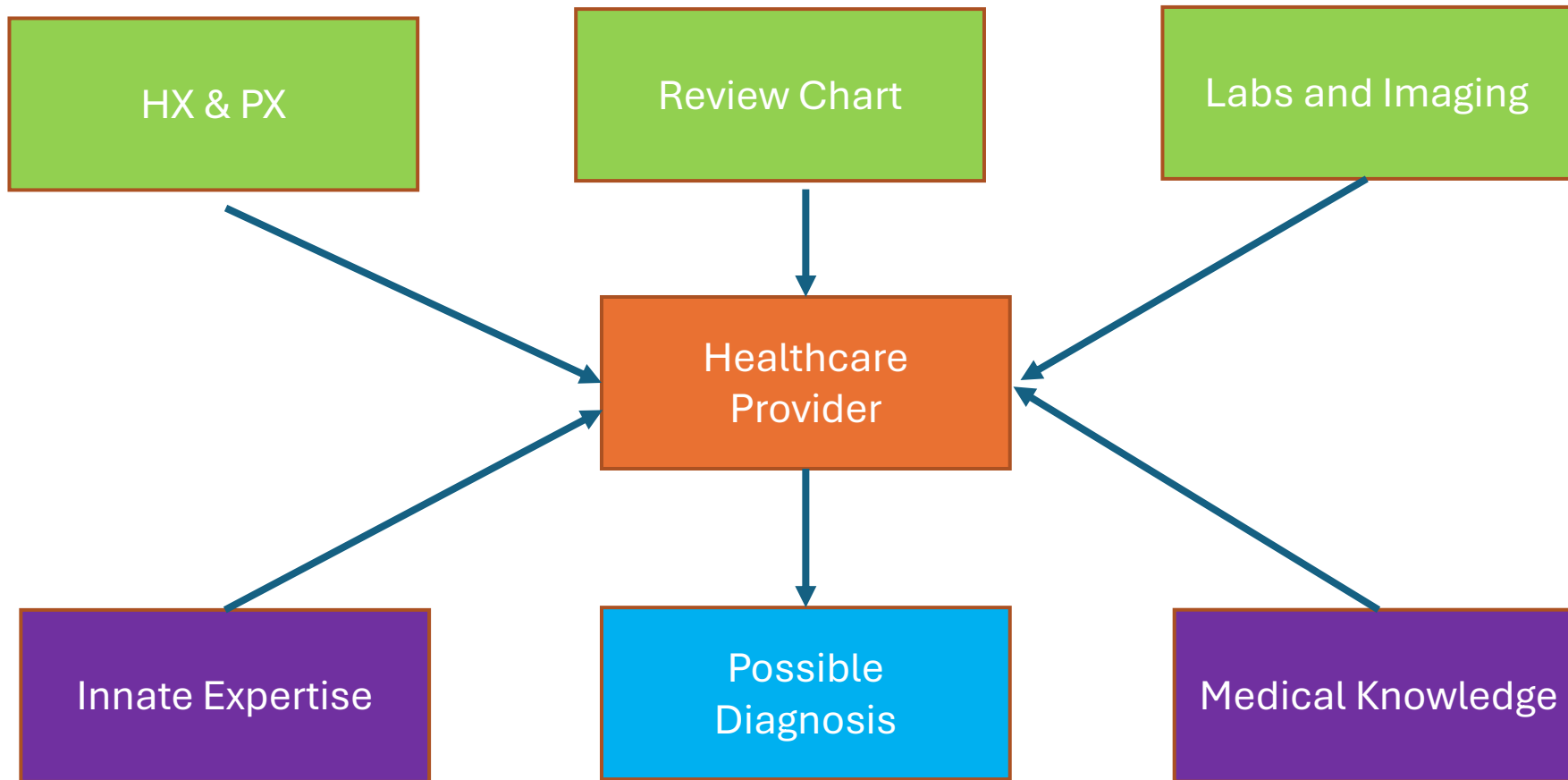
Exam Room 50 years ago



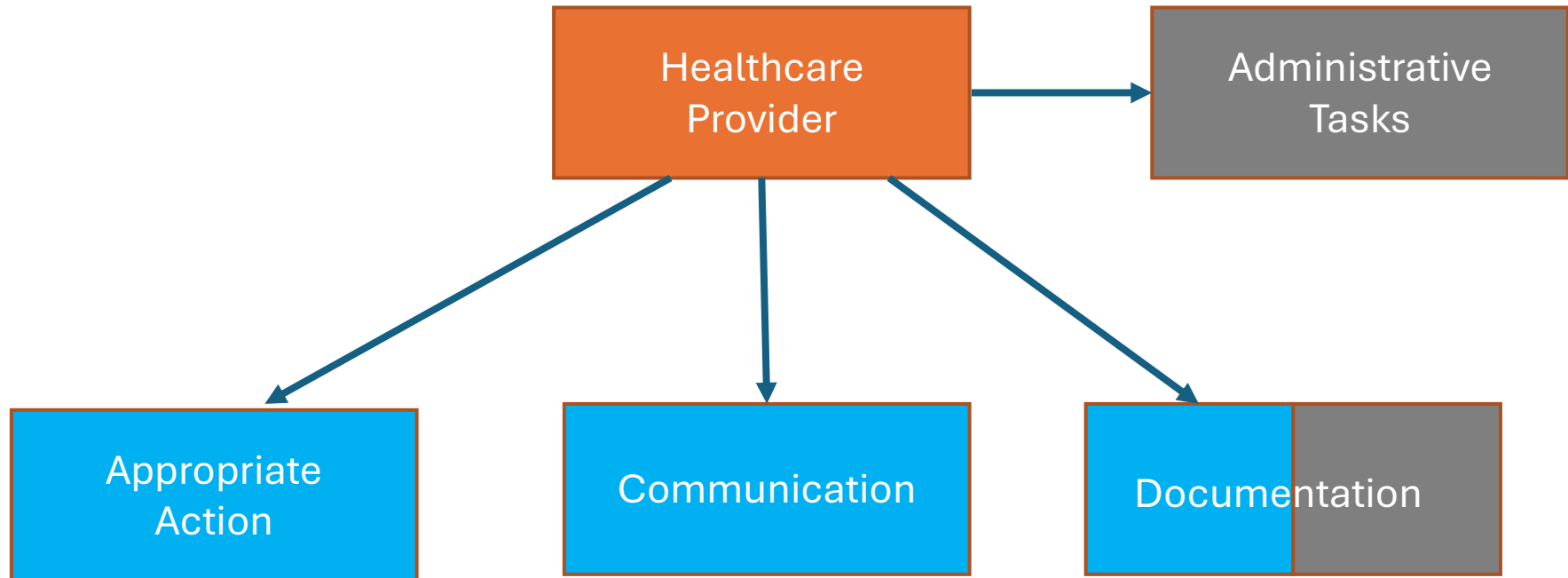
Exam Room Today



The Process



The Process----> Action

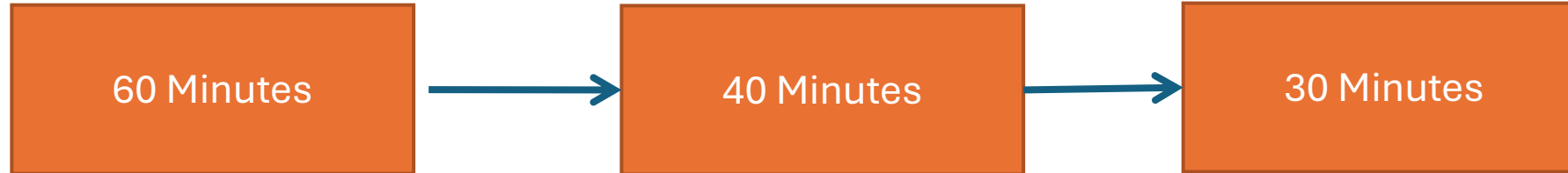


Physician Burnout Stressors

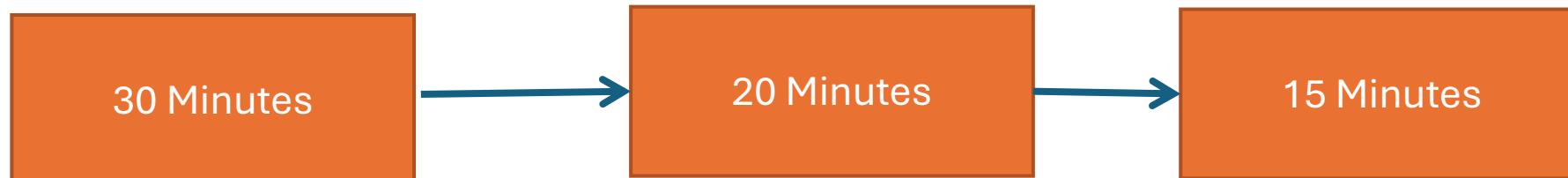
- Doubling time of medical knowledge
 - 1950: 50 years
 - 1980: 3.5 years
 - 2020: 73 days (projected)
- Increased complexity of patients and medicine
- Administrative demands
- Loss of Autonomy

Patient Visits

- New Patient

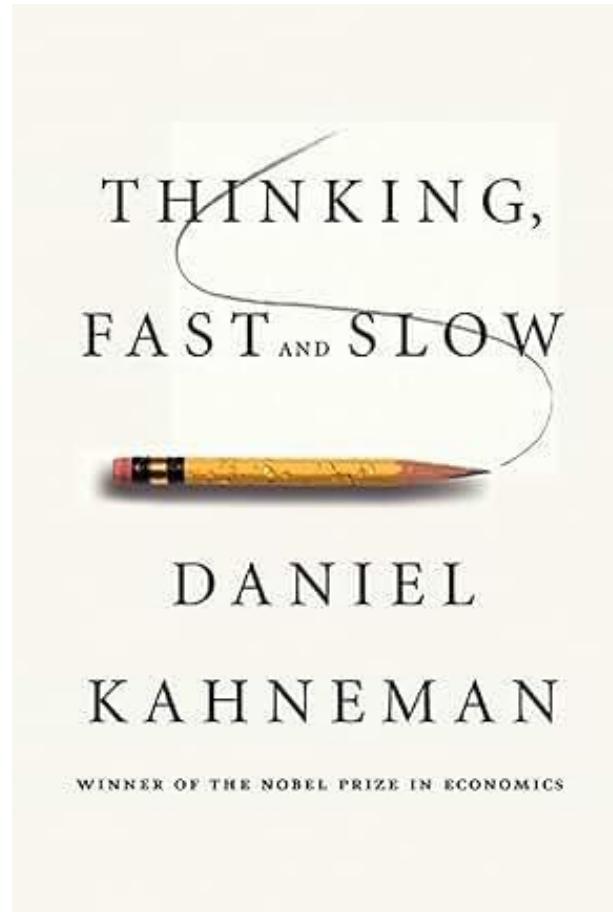


- Follow-up Patient



The Medical Industrial Complex

Thinking



Cognitive Load Theory

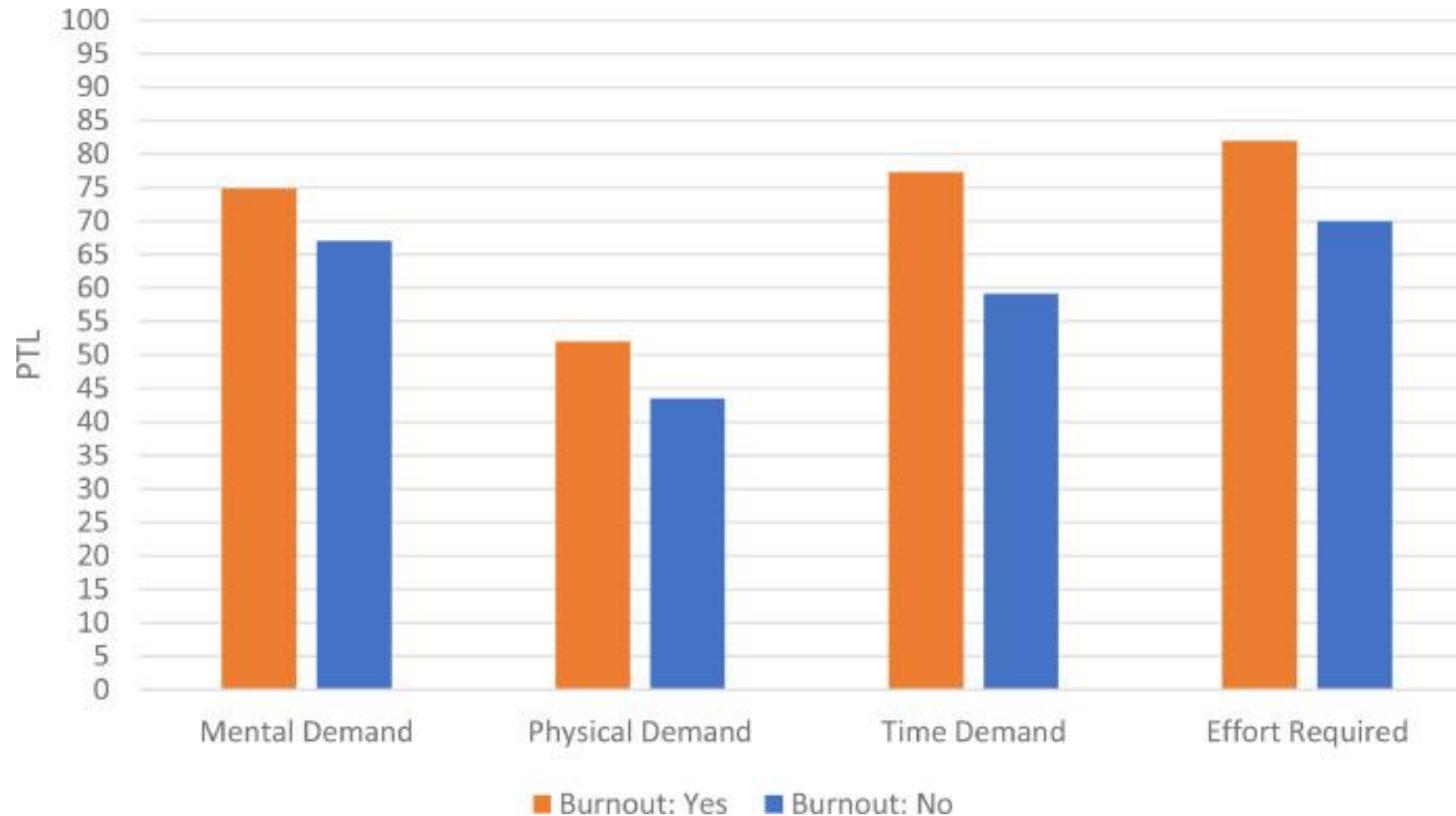
Limitations on working memory:

- Intrinsic
 - Difficulty of task
- Extrinsic (Work to obtain and process information)
 - Environment
 - Information presentation
- Germaine
 - Our skill

Cognitive Overload



Four domains of PTL* based on presence or absence of burnout symptoms.



* Physician Task Load

Technology to the Rescue ?



EHR

- Positive

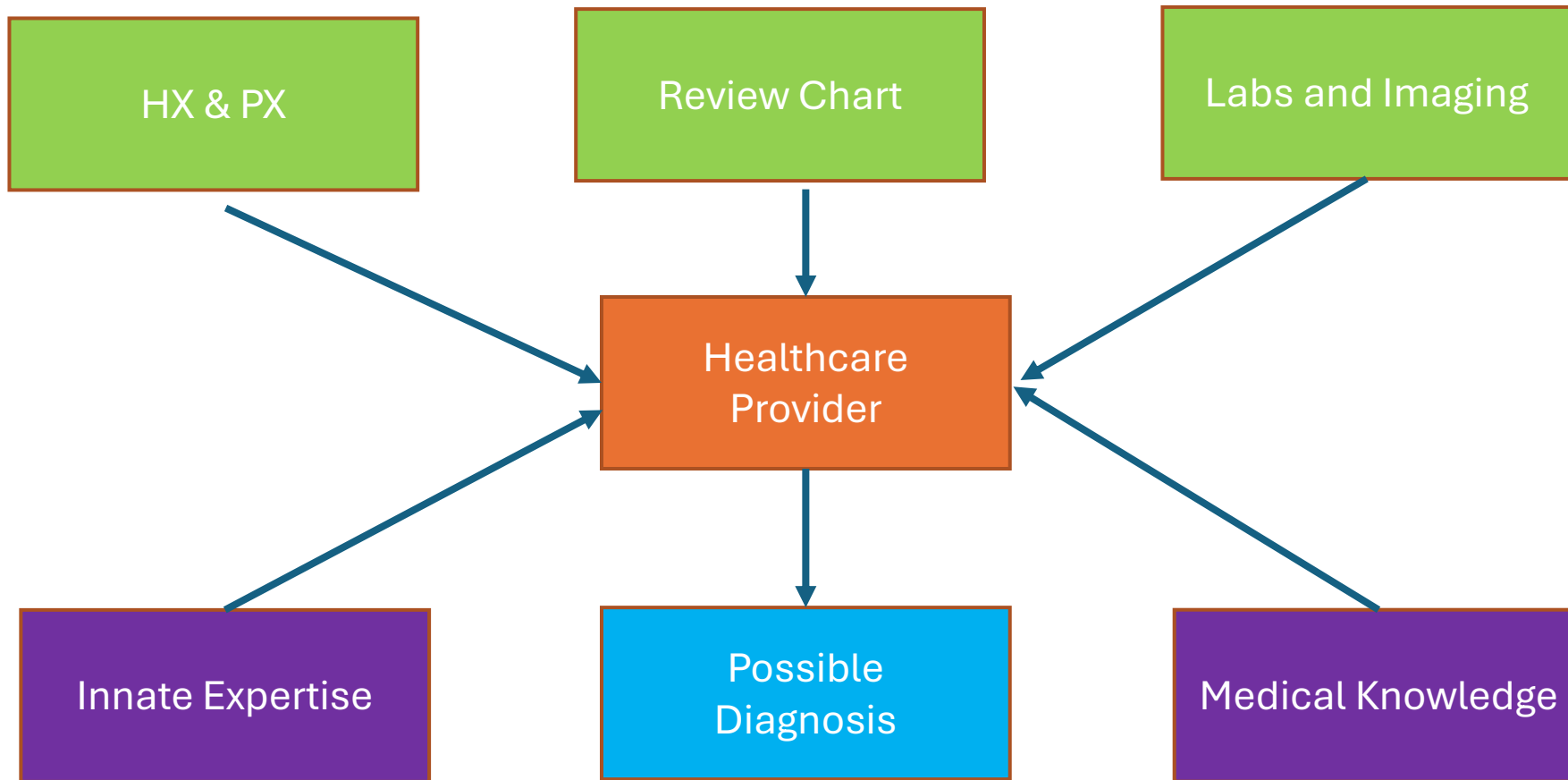
- Improves communication
- Decreases errors
- Decreases redundancy

- Negative

- Not designed as physicians' workflow
- Repetitive cut and paste notes
- Increases deskwork
- Decreases clinical care
- Increases burnout

Varghase A, New York Times Magazine May 16.2018
Shanafelt T. Mayo Clin Proc 2016;91(7) 836-848
Sinsky C Ann Intern Med. 2016;165:753-760.
Harris, DA. Applied Nursing Research 2018;43:36-4

The Process



AI Data Handling

- Data gathering and summarization
- Data synthesis

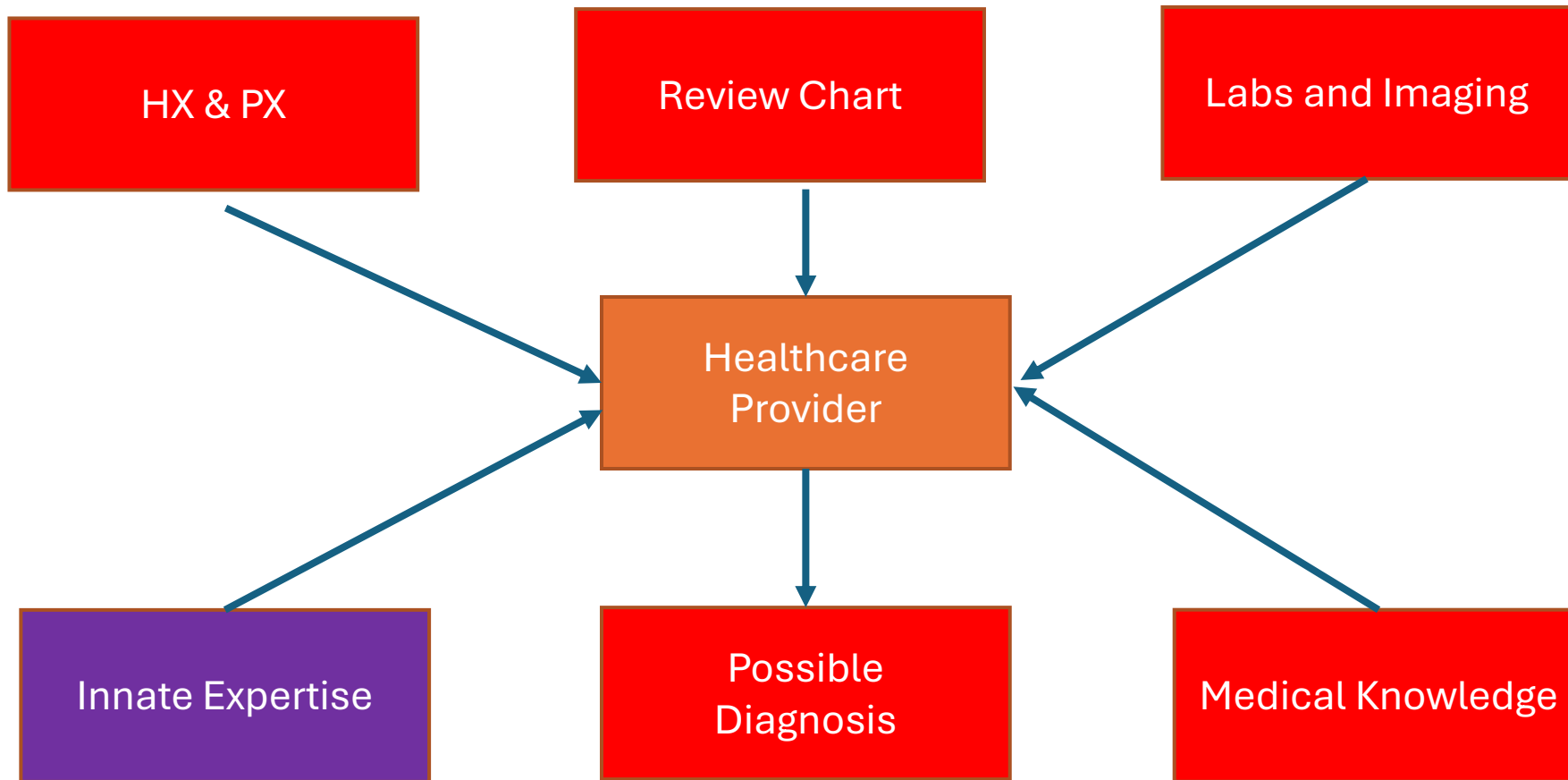
From

- Clinical assessments
- Physiologic observations
- EHR
- Medical literature

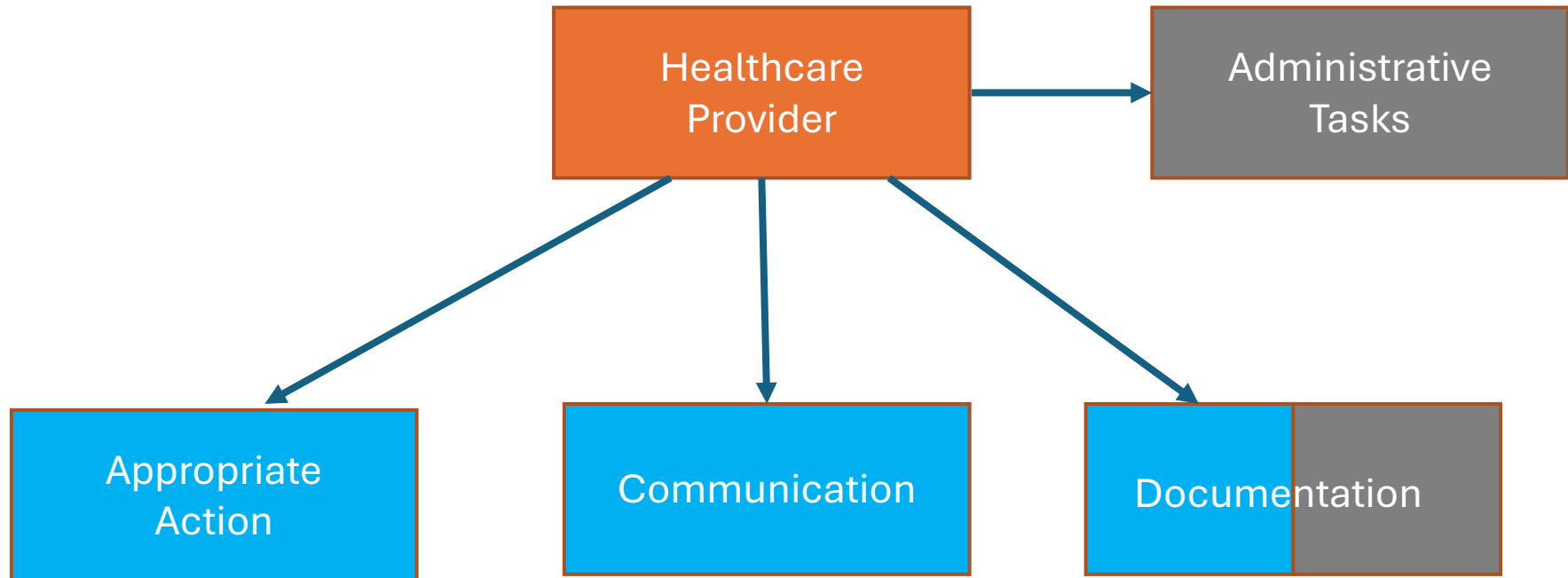
Physician Usability

Systems usability scale (0-100) **1 point**  = Physician task load score (0-400) **.57 point** 

The Process/ AI



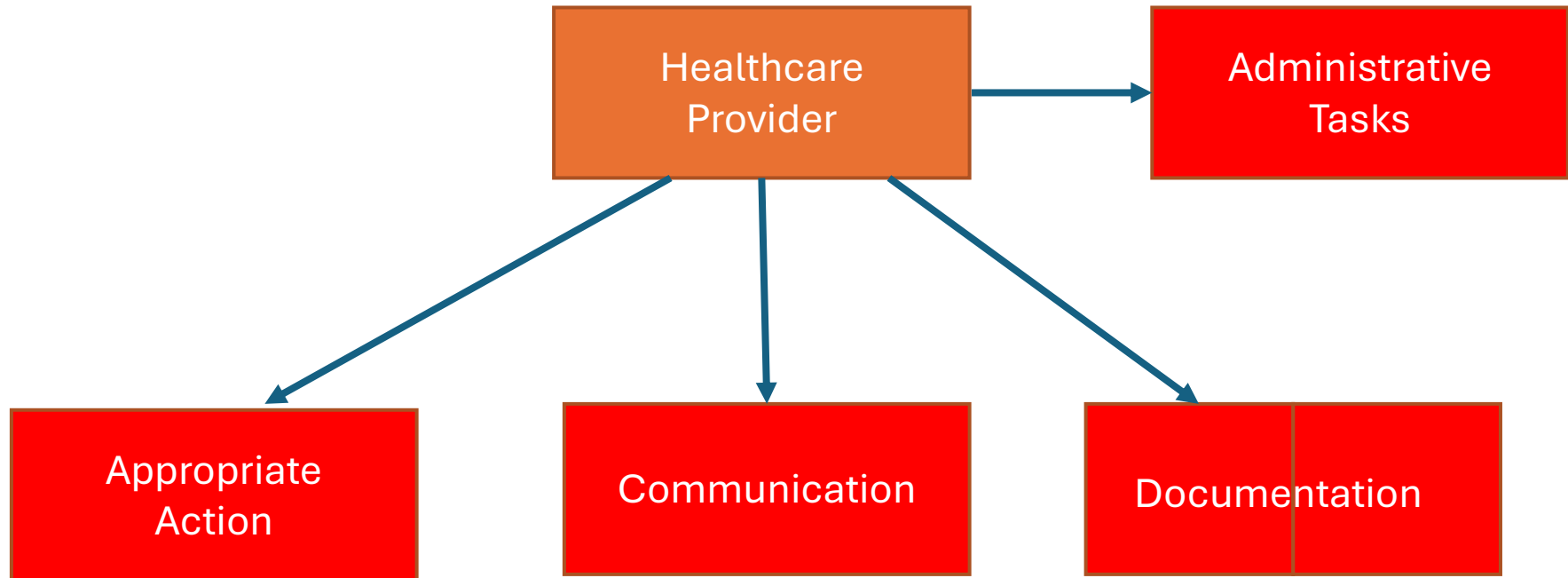
The Process----> Action



Clinical and Cognitive Processes impacted by AI

- Data synthesis
- Documentation
- Appropriate action
- Structure asynchronous activities and outcomes

The Process----> Action

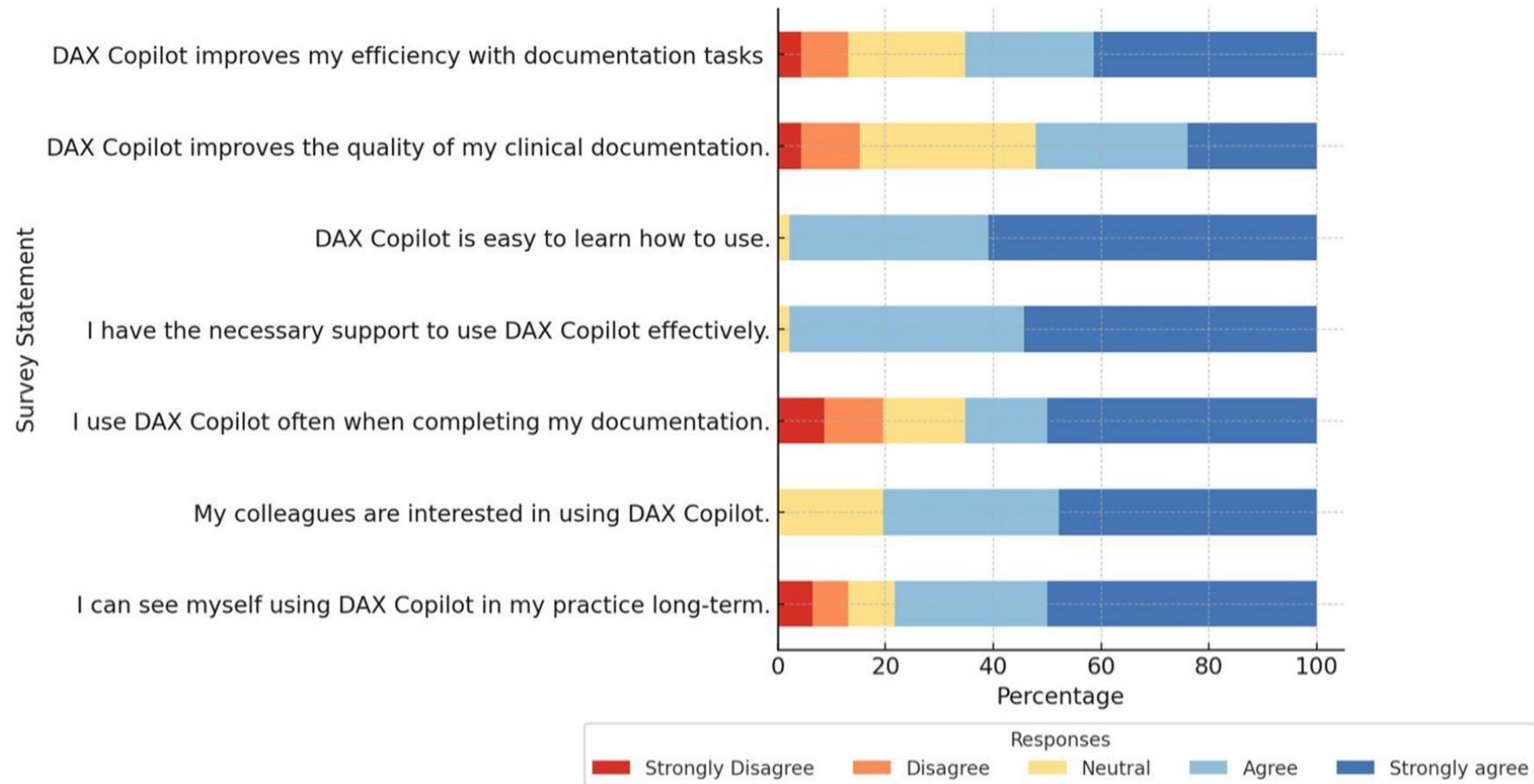


DAX Copilot Ambient AI Scribe Technology

- Physician Task Load. -24.42 (0-100scale)
- Burnout – 1.94 (0-10 scale)
- System Usability +10.92 (0-100 scale)
- Median time saved 20 minutes*

*per half day

Physician Usability



Worsen Burnout

- Transfer negative feelings about EHR to EHR- AI
- Healthcare organizations using AI to increase productivity and decrease patient interaction time
- Over reliance and forfeit their own judgment and knowledge

Resiliency

Essential Dimensions

Meaning, Mastery and Autonomy

Will Artificial Intelligence Cause or Cure Burnout?

Will Artificial Intelligence Cause or Cure Burnout?

YES!

Stakeholders

- EHR vendors
- Healthcare systems
- Frontline clinical care staff
- Frontline technical experts

Monitor and Standardization

- Standardization
- Algorithm
 - Performance
 - Unintended consequences
 - why
- Cognitive load and workload
 - EHR event log
 - End user surveys
 - Direct observation

System Approach Barrier Myths

- Necessary steps conflict with organization objectives
- Effective intervention cost prohibitive
- My opinion:
 - AI can support objectives
 - Save money
 - Reduce burnout

Strategies

- Recognize
 - Drivers
 - Economic case
 - Research
-
- Harness power of leadership !

Conclusion

- Burnout is an ethical problem
 - Harm to providers
 - Harm to patients
 - Expensive
- Systemic approaches can work
 - Mayo clinic decreased burnout by 7% over 2 years
 - ACEP decreased burnout by 11 % 2017-2018
- AI can be part of the solution