Human Factor Relevance in Quality and Safety

Module 1. Integrative Model: Patient Safety and Clinician Wellbeing Series

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What are Human Factors and Ergonomics (HFE)?

Definition:

- Scientific discipline
- Concerned with understanding the **interactions** among humans and other elements of a system
- Applies theoretical principles, data and methods

Purpose:

To optimize human well-being and overall system performance.

- Patient safety is one component of system performance.

Range of HFE:

- Physical, cognitive and organizational (macro) ergonomics

Goal of HFE Method:

- **Fit the system to the people instead of fitting people to the system**

Ergonomics

1. **Physical ergonomics-** deals with human body's responses to physical and physiological work loads
2. **(Neuro)Cognitive ergonomics-** deals with brain and mental processes and capacities of humans when at work.
3. **Organizational ergonomics-** deals with organizational structures, polices and processes in work environment;

Phases of awareness of human factors influence on healthcare workers*…..
……and therefore their patients.

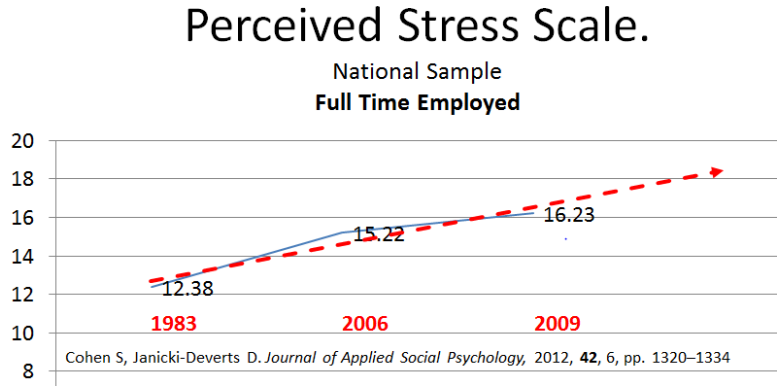
"I'm right there in the room and no one even sees me."

"I'm right there in the room and no one even acknowledges me."

You've got to deal with me. I'm massive.

*From current organizational /systemic contributions

Increasing Stress at Work- Nationally



1. **Increasing prevalence of <u>Burnout</u>- Up 9% in 3 years**
   - **Costly effects on clinicians, patients, hospital operations.**
2. **Costs of <u>personnel</u> (especially benefits) have <u>increased</u>.**
3. **Costs of <u>technology</u> has <u>decreased</u>.**
4. **Leads to: <u>"Disintermediation"</u>-** removing the (supportive) intermediary who used to help with processes (increases **shadow work**).

Shadow Work

Job Metrics: only pick up "productivity" units:
- RVUs, patients per day
- Grant $ brought in
- Publications per year, etc.

Costs get offloaded
from businesses
to the consumer's time

Work Life Examples

- **Dictation service (human typists)**
  -> "Dragon"→ multiple errors to correct
  -> Or type all notes yourself (How well do you type?) .
- **Credentialing duties**
  "Paperwork" MSO staff help
  →**online,** software is strict, requires precisely typed input done by clinician alone .
- **"Education mandates** expand —multiple authorities. To be completed by means of individual **Computer Based Training (CBT)** on own time.
- Computer operational issues, orders-must guess precise wording of build to get correct order, no synonyms. Time **on phone with IT support.**
- **EMR not intuitive:**→ training adapt to the vendor's terminology and design.

"Shadow work": "All the unpaid, unseen tasks we do on behalf of businesses and organizations that fill your day *"

Real Life Examples

- **Gas Attendant-**> pump your own gas
- **Cashier**-> Scan & bag your own items
- **Parking attendant-**> Kiosk and hope it works to get in and out
- **Travel agent**-> book own flights
- **Bank Teller-**> Online banking, ATMs
- **IKEA effect**: pre-assembled furniture →assemble your own furniture

*Adapted from: Lambert C. Shadow Work: The unpaid Unseen jobs that fill your day. Counterpoint Press 2015
McKay B, McKay K. Shadow Work and the Rise of Middle-Class Serfdom The Art of Manliness. August 31, 2015.

Healthcare Failure Mode and Effect Analysis (HFMEA) *Real work -- Prescribed work= Shadow work*

Shadow Work Exercise:

"The unseen, unpaid jobs that fill your day."

Count off by number 1-10. Think of possible shadow work at your work phase #. Report back to group.

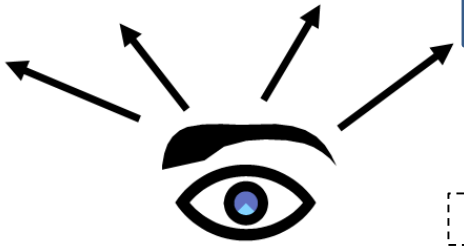
View from healthcare decision-makers (Prescribed work)

1. Office Start up → 2.W arm up computer Software booting EMR booting → 3.Patient Arrive On time, right location → 4.Financial Pre-meeting → 5.Waiting Room receptionists Clinical based forms given to patient → 6. Nursing VS taken and documented → 7.EMR record review preparation →

Shadow Work

8.Patient Interview/ Evaluation/ Procedures → 9.Writing Orders and Labs → 10.Writing Notes and Diagnosis Billing

Shadow Work



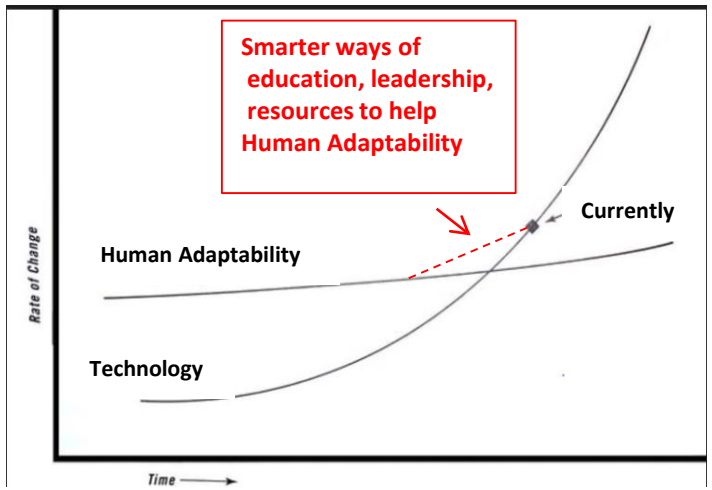
View from clinician seeing patients (Real work)

https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/downloads/GuidanceForFMEA.pdf

Technology: Exponential Growth of Processing Power.

Moore's Law*:
Computer power of microchips will double every two years

Technology outpaces human adaptability



- **Increased connectivity, expectations beyond work hours**
- **What is the impact of work increasingly invading down time, recuperation, family time?**
- **Incrementalism- gradual and persistent job creep**
- **Normalization of deviance** Examples ? Group A
- **Group think environment perpetuates process**

Examples? Group B

"The gradual process through which unacceptable practice or standards become acceptable".

"A pattern of thought characterized by self-deception forced manufacture of consent and conformity to group values."

*Adapted from Teller E. and Moore G. in Friedman T. Thank you for being Late. Farrar, Straus Giroux Publishers 2016

The Impact of Clinician Burnout
Multiple Dose-related Relationships

Institutional & Patient Toll

- Increased **medical errors** (200%)
- Increased **malpractice claims**
- **Disruptive Behavior**
- **Reduced empathy** for patients
- Decreased **patient satisfaction**
- Decreased **career satisfaction**
- Reduced patient **adherence to treatment** regimens

$p < 0.001$
Two tailed

JAMA Internal Medicine | Original Investigation | PHYSICIAN WORK ENVIRONMENT AND WELL-BEING

Association Between Physician Burnout and Patient Safety, Professionalism, and Patient Satisfaction
A Systematic Review and Meta-analysis

Maria Panagioti, PhD; Keith Geraghty, PhD; Judith Johnson, PhD; Anli Zhou, MD; Efharis Panagopoulou, PhD; Carolyn Chew-Graham, MD; David Peters, MD; Alexander Hodkinson, PhD; Ruth Riley, PhD; Aneez Esmail, MD, PhD

JAMA Intern Med. doi:10.1001/jamainternmed.2018.3713
Published online September 4, 2018.

The Impact of Clinician Burnout Multiple Dose-related Relationships

Financial Toll:

- 27% drop in **patient satisfaction scores**
- 40% of **turnover costs** attributed to work stress
- 114% increase of **medical claims by employees**.
- 30% of **short-term and long-term disability** costs.

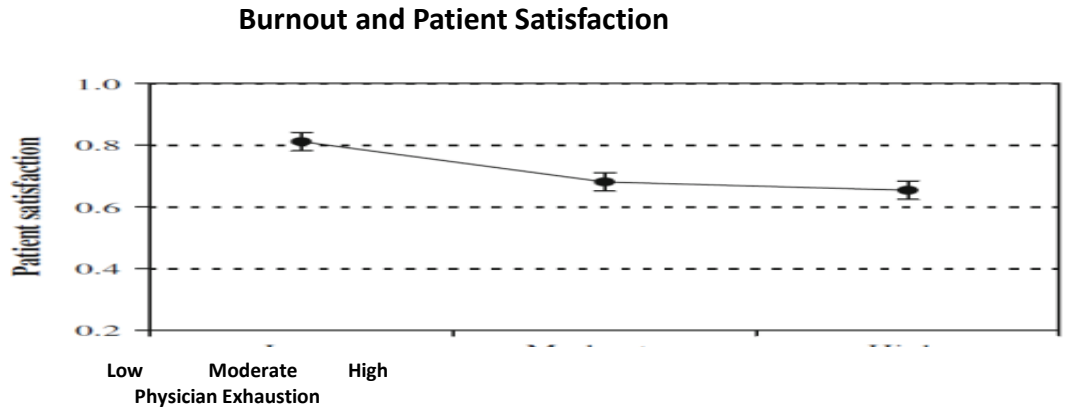


Fig. 1 Average patient satisfaction scores together with their standard errors as a function of physician emotional exhaustion levels

J Clin Psychol Med Settings (2012) 19:401–410

The Impact of Clinician Burnout

Multiple Dose-related Relationships

Personal Toll:

Higher Suicide Rate among physicians 400/year
Substance abuse
Divorce
Coronary Heart Disease:**1.4 to 1.79 x**
Depression

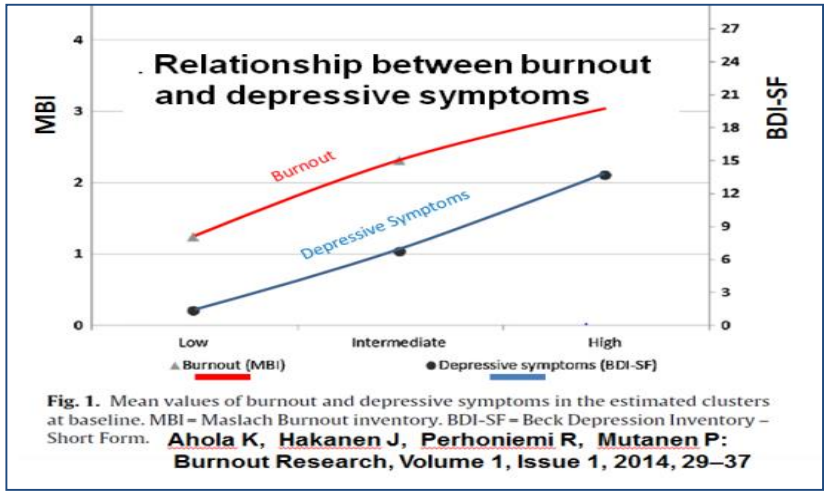
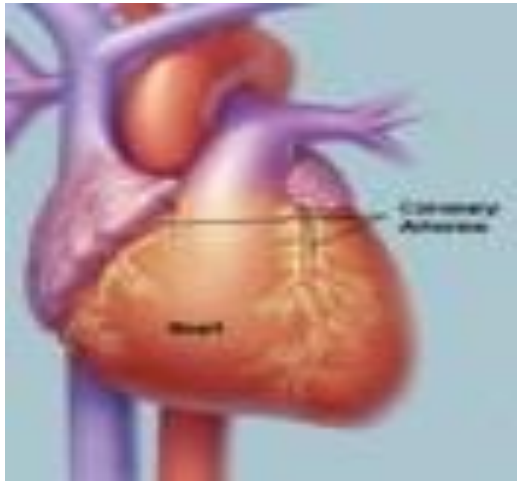


Fig. 1. Mean values of burnout and depressive symptoms in the estimated clusters at baseline. MBI = Maslach Burnout inventory. BDI-SF = Beck Depression Inventory – Short Form. Ahola K, Hakanen J, Perhoniemi R, Mutanen P: Burnout Research, Volume 1, Issue 1, 2014, 29–37



Toker S . et al Psychosomatic Medicine 74:840-847)

Perfect Storm

"An unusual combination of events or things that produce an unusually bad or powerful result"

Health Care Reform + Culture of Medicine

Health Care Reform	Culture of Medicine
"To Err is Human" (IOM) 1999 Patient Safety Movement- "just get it right" Leap Frog Group (Business consortium influencing healthcare financially-pursuing "value". Medicine's safety efforts to reduce error. Meaningful Use Criteria 2009 Affordable Care Act 2010 Pay for Performance (P4P) reimbursement model: Require "quality" metrics to measure performance Explosion of Quality Metrics CMS= #1700 National Quality Forum= #630 Little Scientific pushback Labeled "quality"- so has halo bias Comes from authorities, so must be good care.	<u>Internal Environment:</u> **Culture of Endurance**- "I don't want them to think I can't handle this" Altruism, perfectionism, obedience to authority. **Culture of Silence**- Can't be seen as a "trouble-maker"; My family is depending upon me. Can't loose my job, decades of education, high debt, history of personal sacrifice wasted. <u>Immediate External Environment:</u> New authority of choice says this is "good care" Self-effacement: "You are a professional, must put aside how you feel" "You are lucky to be working/training here"

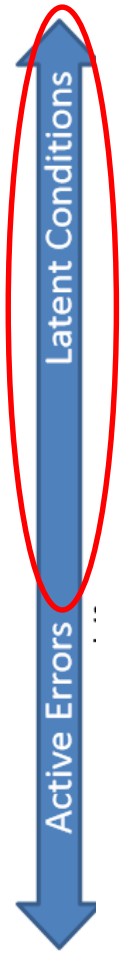
Upstream Factors in Latent Conditions for Error and Burnout

External Environment- Legal but downstream effect on health: Tobacco, pharmaceutical, carbon emission-based industries, etc.

Healthcare Ecosystem

"Blunt End" of patient care*

"Sharp End" of patient care*



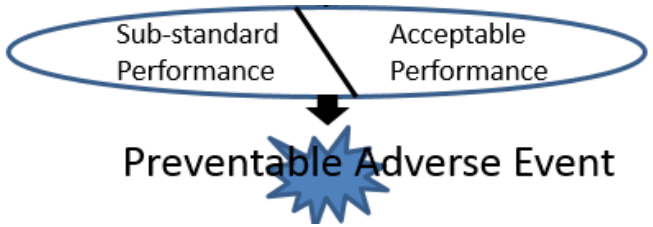
Fifth Tier **Macro Level**: Federal, State, Industry initiatives, Public Interest Groups, etc.

Fourth Tier **Meso Level:** Healthcare Medical Center Leadership and Management Decisions

Third Tier **Physical Environment Human-System Interfaces Org/Social Environment**

Second Tier **Nature of work:** Workflows, individual vs teamwork, etc.

First Tier **Micro Level:** Individual characteristics, interaction with staff, patients and families. knowledge, skills expertise, human factors at play.



Adapted from: Kerm Henriksen; Elizabeth Dayton; Margaret A. Keyes; Pascale Carayon; Ronda Hughes
Chapter 5, Understanding Adverse Events: A Human Factors Framework.
Patient Safety and Quality: An Evidence-Based Handbook for Nurses.
Hughes RG, editor.Rockville (MD):
Agency for Healthcare Research and Quality (US); 2008 Apr.

* From James Reason

Human Function Curve in Average Clinician/Staff

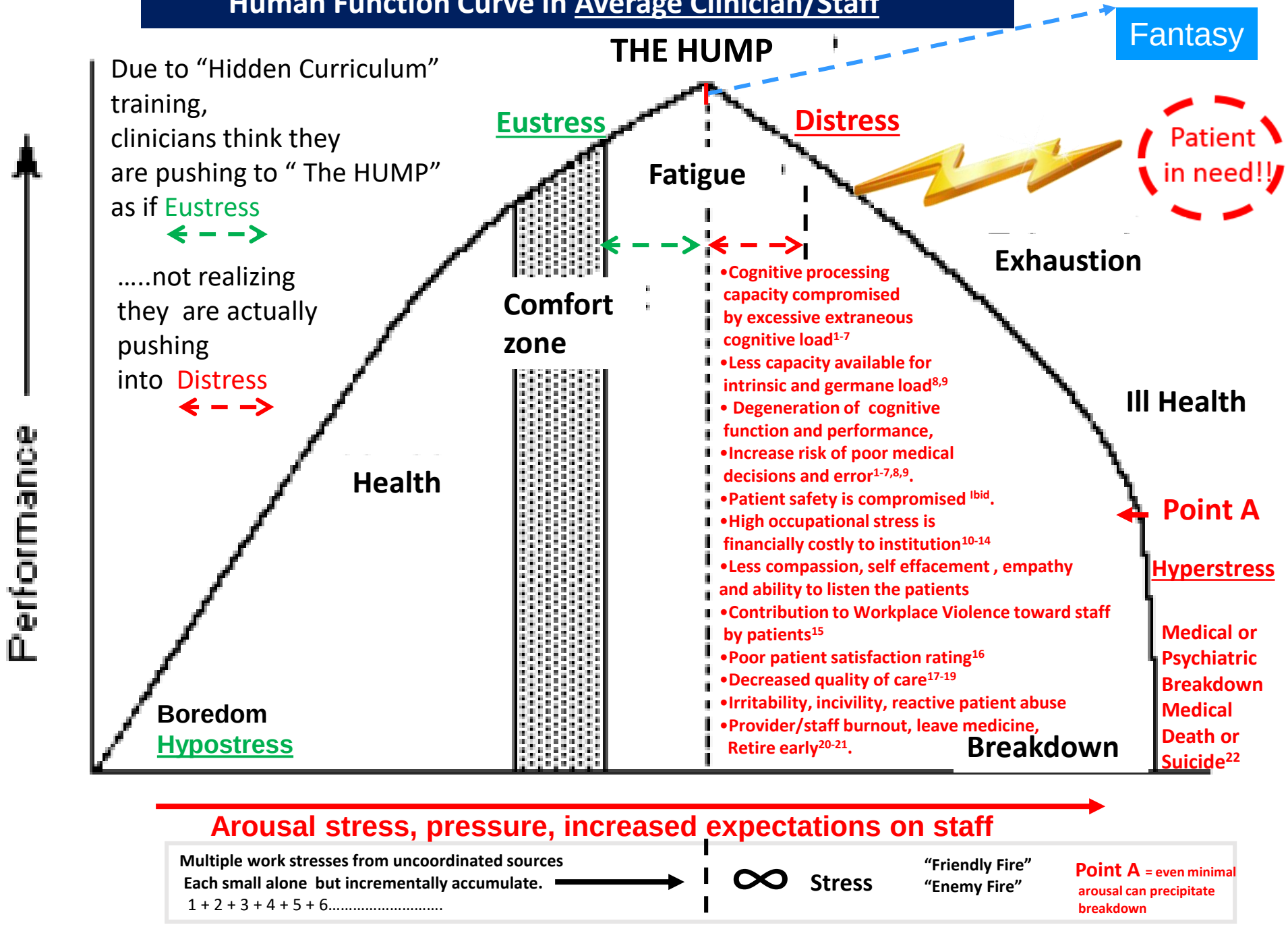


Figure 1. Adapted from: Nixon PGF. The Practitioner. (217):765-770. 1976[23]

Burnout and Staff-Patient Interaction

Burnout Criteria	Effect on Staff-Patient Interaction
• **Emotional Exhaustion**	• Delay of needed interactions with patient • Less tolerance, irritability • Not much left to give • Decreased Patient Satisfaction
• **Depersonalization/ Callousness**	• Withdrawal from patient • Decreased comp*a*ssion • Decreased listening to patient • Increased cynicism and sarcasm • Increased risk of patient-on-staff workplace violence
• **Decreased Efficacy** Perception of decreased efficacy becomes reality as burnout becomes worse	• Poor occupational confidence • Think making poor decisions • Later, actually making poor decisions • Cognitive Flexible Memory (CFM) switches to Habit Memory (HM) causes less differential diagnosis and poorer care plan • HM: Reflex responses to stimuli—survival mode • Cognitive impairments of decreased executive function.

Neural Resources (why patients see us)

- Neural Resources= brain power, synaptical currency, brain capital
- **Brain comprised of living cells, that need to be recharged with use.** 

Executive Function of Brain

(Controlled through Pre-Frontal Cortex)

Controls the ability to:

- ❑ **Focus**
- ❑ **Keep attention**
- ❑ **Self-control of behavior and speech**
- ❑ **Planning**
- ❑ **Organizing**
- ❑ **Perspective taking**
- ❑ **Cognitive flexibility**
  - ❑ **(to consider a good differential diagnosis)**
- ❑ **Medical and other decision making**
- ❑ **Ability to defer gratification**
- ❑ **Estimating time**
- ❑ **Working memory**

Other neural resources

(interact with executive function)
From other brain structures

- ❑ Memory
- ❑ Knowledge base
- ❑ Creativity
- ❑ Problem solving
- ❑ Experience
- ❑ Applied wisdom
- ❑ Depth perception
- ❑ Motor control, fine and gross.

Executive Function
Neural Resource
Used Up in These Processes:

- Focusing of attention
- Decision making (no matter the size of decision)
- Sorting, classifying
- Multitasking, getting back on track after interruption.
- Re-routing or switching from one mental task to another.
- Maintenance of goals
- Maintenance of information active in working memory
- Updating working memory
- Self-regulation: professionalism, self-effacement despite how treated,
  Maintaining “Aequinimitas” in setting of bleeding, injury, pain, etc.
- Emotion work: dealing with bad outcomes, distressed patients and families

Usual Human Factor Application:
Design Better to Avoid Confusion

Need Pre-Provider Application of Human Factors- To Reduce Systemic/Organizational Contributions to Error & Burnout

National
State
Industry
Regulatory
Mandates
Laws

Hospital System

Mitigate or Amplify Chaos ??

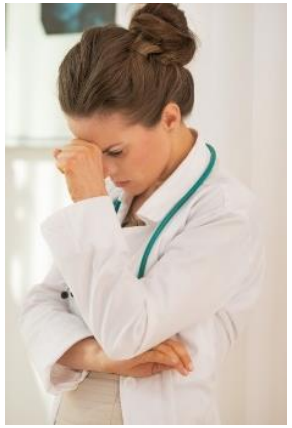
Influencers of Clinical Performance-->

Add 7th P : PRE –PROVIDER Factors

External system and organization induced

Influences on Clinical Performance

- Ambient Induced
- Clinician Situation Induced
- Endogenous



Provider

6 Ps of Human Factors in Healthcare Delivery

- **Procedures** — E.g. different hose adaptors for different gases in OR
- **Products** — E.g. escalation in infusion pump features
- **Peripherals** — E.g. Other equipment and factors in healthcare setting
- **Policy** — E.g. Hospital policies, hospital protocols
- **Patient** — E.g., psychosis, rigid belief system

Ambient Induced: Transitory emotional states, environmental, stress, fatigue, other.
Clinical Situation Induced: Counter-transference, Fundamental attribution error, specific emotional biases.
Endogenous: Circadian, infradian, seasonal mood variation, mood disorders, anxiety disorders, emotional dysregulatory states.

What can be done to attenuate these?

Adapted from 6 Ps: Lowe CM. Accidents waiting to happen: the contribution of latent conditions to patient safety. Qual Saf Health Care 2006; 15 (Supple 1):i72-i75.
Croskerry P, Abbass A, Wu AW. Emotional Influences in Patient Safety 2010. J. Patient Saf. 6 (4): 199-205.

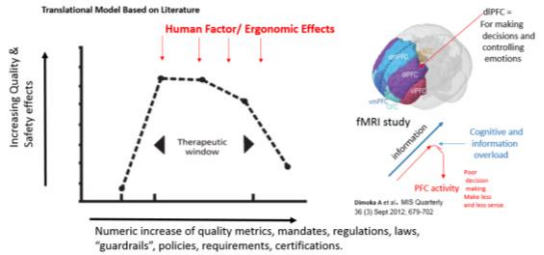
Parallel Stories: Missing the Systemic Issues

The Institute of Medicine (IOM) 1999 Report on Errors: Majority of errors are result of systemic factors, rather than substandard performance by individual healthcare workers[1]

Clinician Burnout: Majority due to systemic factors rather than substandard effort or attitudinal weakness of individual healthcare workers[2,3,4]

The Paradox:

Past a certain point, accumulation of well-intended interventions to improve quality, safety or value, contribute to health system dysfunction[5] .

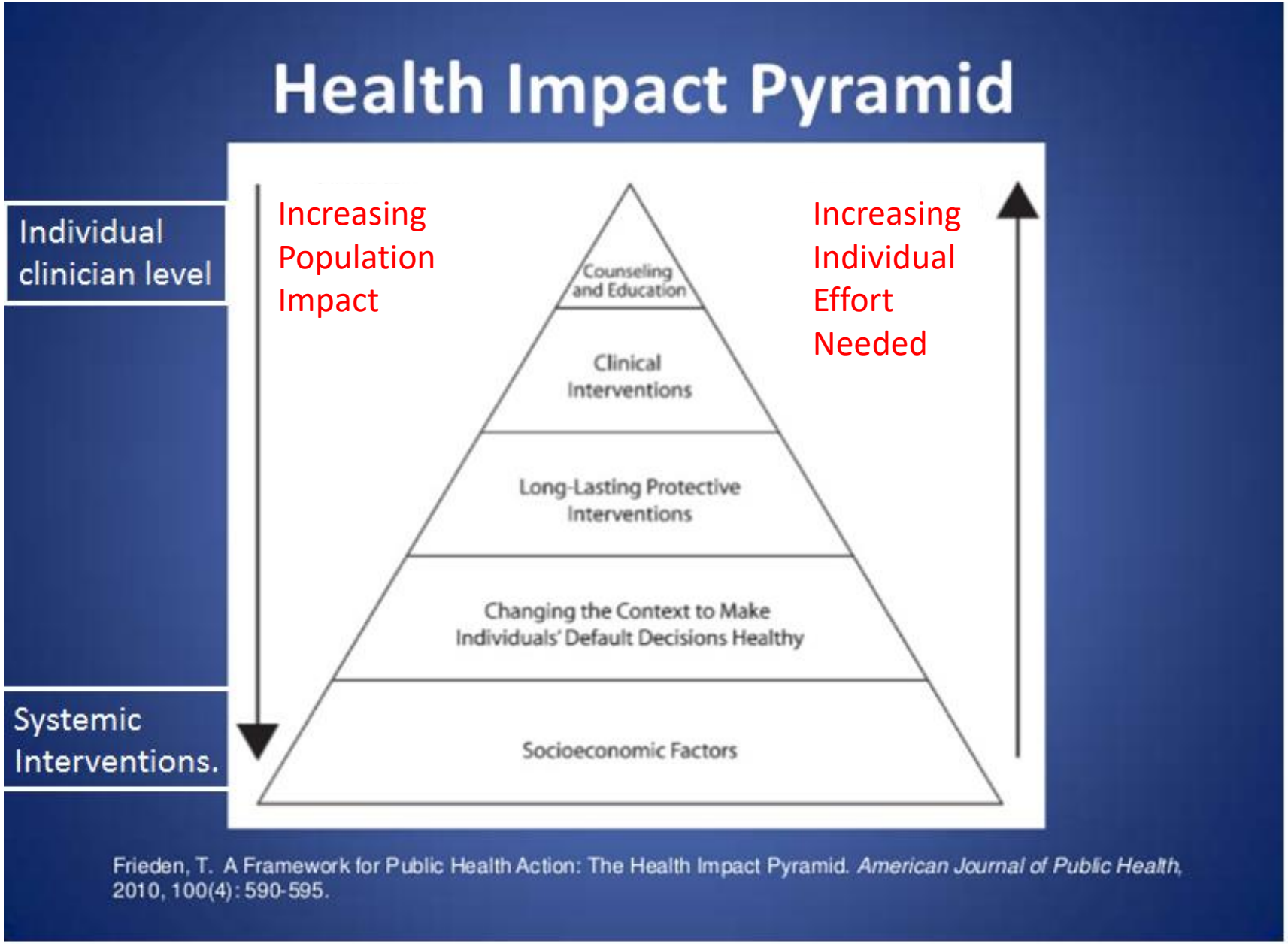


The Problem:

Majority of interventions for quality/safety as well as burnout have been directed at the end actor, the clinician and not systemically[5].

1. Kohn, L.T., Corrigan, J., Donaldson, M.S. , *To err is human: building a safer health system.* 2000, National Academy of Sciences: Washington, D.C
2. Friedberg, M.W., et al., *Factors Affecting Physician Professional Satisfaction and Their Implications for Patient Care, Health Systems, and Health Policy.* RAND Corporation, 2013.
3. Sinsky, C., et al., *Allocation of Physician Time in Ambulatory Practice: A Time and Motion Study in 4 Specialties.* Ann Intern Med, 2016. **165**(11): p. 753-760.
4. Atallah F, Privitera MR. Physician Burnout - The State of the State. MSSNY Talk Force on Physician Stress and Burnout Survey Findings. Medical Society of the State of New York's News of New York. Vol 73 (8): 6-8.
5. Sinsky CA, Privitera MR. Creating a Manageable Cockpit: A Shared Responsibility. JAMA IM 2018 in press.

Framework for Public Health Action



Current Healthcare Ecosystem

Excessive Cognitive and Emotional Load

Organizational/ Systemic factors in practice of medicine

Macro Level-
National, state, industry, regulatory

Socio-political Factors, Business of Medicine, Bad outcomes driving reactive preventive measures

Authorities'
Mandates
Laws
Regulations
Policies

Well-intended factors for safety and quality
Patients as primary concern

Not so well-intended factors, achieve maximal profit.
Shareholders as primary concern

Meso Level-
Hospital/ Healthcare system-

Malpractice Risk Management

Healthcare Organization
Mitigate or Amplify = ?

1. Leadership awareness of mechanisms of problem
2. Application of Human Factor/ Ergonomic methods
3. Implementation of organized and supported requirement completion

Human Factor Based- Leadership to reduce Latent Conditions.

Mandatories: Lists A and B. Compiled from different sources, some overlap.

Attachment A Mandatory Requirements
(Derived through MSO, Qual, Safety, Compliance offices and Work Group discussion).

Source	Requirement
HHS	HIPAA training
CMS, TJC	Safety Survey
SMH Policy	Sedation Privileging training
NYSDOH	Health report
NYSDOH	PPD
NYSDOH	Mask Fitting
OSHA	Infection Control
NYSDOH	Sepsis Training
NYSDOH	Flu Shot
Federal	NPI
Medicare	Time and Effort Survey
NYSDOH	Opiate Training
NYSDOH	Antibiotic Stewardship
SMH Policy	ICD-10 Training
SMH Policy	EMR Training
SMH Policy	EMR Update Training
SMH/Dept	Cultural Competence
Multiple	Yearly Mandatory In-Service Training
Private Payer/SMH Bylaws & Policy	Board Certification
Private Payer/SMH Bylaws & Policy	Maintenance of Certification
SMH/Dept	Code of Conduct
SMH Policy	ICARE Training
TJC	Attestation of Skill Demonstration- Restraints
U of R/ NYS	Sexual Harassment
Federal	Bullying/Implicit Bias/Diversity
SMH Policy/Specialty	ACLS Training/Updates
SMH Policy/ Specialty	Laser Training
SMH Policy/ Specialty	Radiation Training
SMH/ Policy/Specialty	Ultrasound Training
NYSDOH	Child Abuse Mandatory Reporter Training
U of R	Unconscious Bias Training
Dean	Annual Financial Disclosure
Career: RSRB	**Human Research Patient Protection**
Career: GME/UME	**Student evaluations**
Career: Clinic Trial Sponsor	**Clinical Trial training modules.**
Career related Payer/SMH Policy/ Bylaws Federal/NYS Education	**CME, Productivity reports, Teaching, Research/scholarly, career advancement DEA renewal, NYS License**
Career related: Funding Sources	**Career advancement Grant writing**

Attachment B Mandatory Requirements
(Derived from Learning and Development Team)

Attachment B

Compliance – Everyone
Compliance (Fraud, Waste, and Abuse)
HIPAA Privacy, Security, and Confidentiality of Information
HIV/AIDS Confidentiality
Joint Commission Readiness
Occurrence & Claim Reporting
Patient Identification
Patient Rights/Ethics/Complaint Process
Patient Safety, Team Communication, and Medical Health Care Error Reductio
Quality, Safety, and Performance Improvement

Compliance – Clinical
Continuity of Care Through Interdisciplinary Communication
Medical Record Documentation for Clinical Staff
Write Down, Read Back

Environment of Care – Everyone
Active Shooter
Amber Alert
Disaster Preparedness
Electrical Safety
Emergency Page Codes
Fire Safety
Firearms/Weapons
Hazard Communication
MRI Safety
Obtaining Public Safety/Security
Radiation Safety
Waste Management
Workplace Violence/De-escalating Potential Violence

Environment of Care – Clinical
Medical Equipment

Infection Prevention – Everyone
Bloodborne Pathogens Standard
Hand Hygiene
Infection Prevention – Ebola
Influenza - What You Should Know

Infection Prevention – Clinical
Prevention of Central Line Infections
Prevention of Surgical Site Infections

Patient Interactions - Everyone
Care of Patient Personal Belongings and Valuables
Fall Prevention
Health Care Proxy
Interpreter Services
Lifting and Transfers
Management of Suspected Abuse and Neglect
Patient Self-Determination Rights
Providing Better Care for People with IDD
Rapid Response Team
Stroke Recognition

Patient Interactions - Clinical
Anticoagulation Safety
End of Life Care
Ensuring Comprehensive Handoffs
eRecord/EMR Downtime Procedures
Health Literacy
Information for Clinical Decision Making
Medical Orders for Life-Sustaining Treatment (MOLST)
Medication Reconciliation
Multidrug-Resistant Organisms
Organ, Eye, and Tissue Donation
Pain Management
Restraint Use
Sepsis Management

UR at Work - Everyone
Code of eConduct
Code of Organizational and Business Ethics
Diversity and Inclusion
Interactions Between UR Medicine & Industry
Meal Periods and Rest Breaks
Policy Against Discrimination and Harassment
Professional Conduct Event Education
Professional Misconduct Reporting and the Impaired Professional
Smoke-Free Campus, Inside and Out

UR at Work - Clinical
Conflict of Care

Highland Hospital Employee General Modules
Access to Medication Storage
Bariatric Sensitivity
Employee Use of Social Media
Forensics
Highland Code of Conduct & Compliance Statement
Highland Promise

Jones Memorial Hospital Employee General Modules – Everyone
Patient Prisoner Population

Thompson Health Employee General Modules – Everyone
Incident Reporting
Non-Discrimination
Policies and Procedures
Public Relations
Quality Improvement
SBAR
Service Excellence

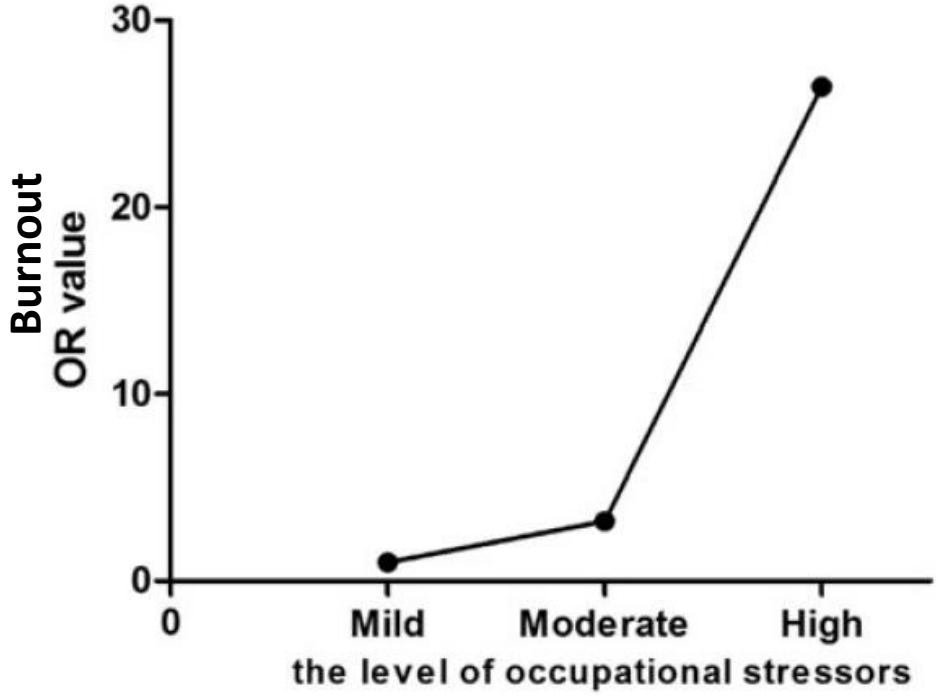
University of Rochester Employee General Modules – Everyone
Minimum Standards Programs for Minors
Patient Prisoner Population
Staff Handling of Unknown Substances
The ICARE Commitment

University of Rochester Employee General Modules – Clinical
Clinical Alarm Management

Organizational intervention to lessen impact on clinicians?

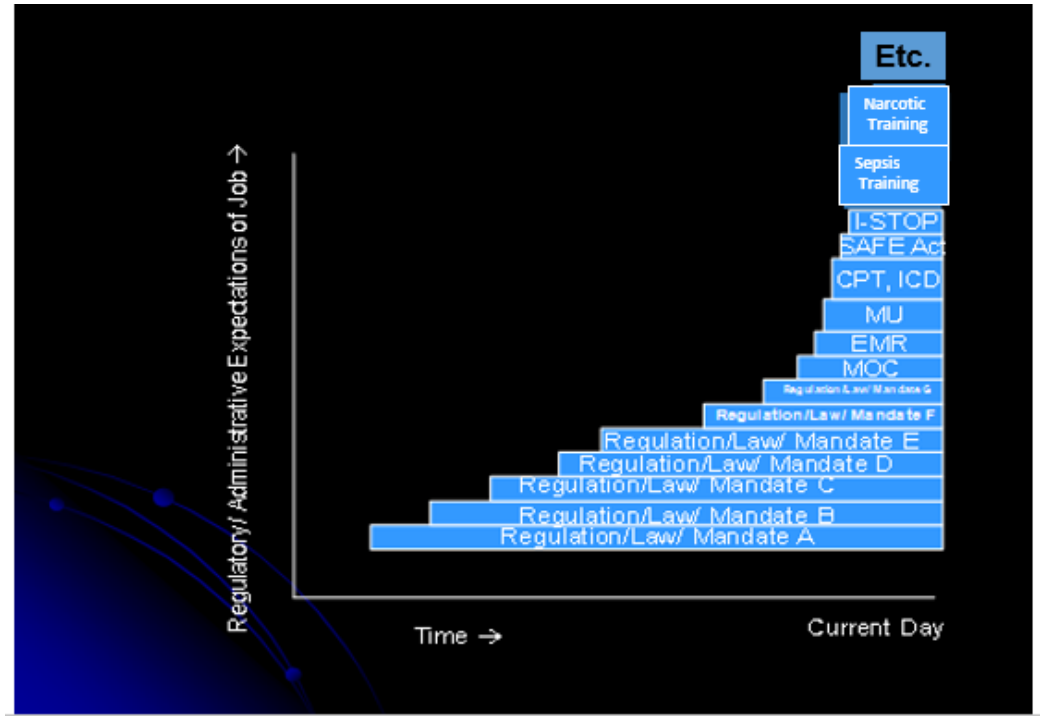
Cumulative Occupational Stressors Accelerate Risk of Burnout

(Non linear relationship)



Ji-Wei Sun et al. A non-linear relationship between the cumulative exposure to Occupational stressors and Nurses Burnout and the potentially emotion regulation factors Journal of Mental Health (2017) DOI:10.1080/09638237.1385740

Incrementalism

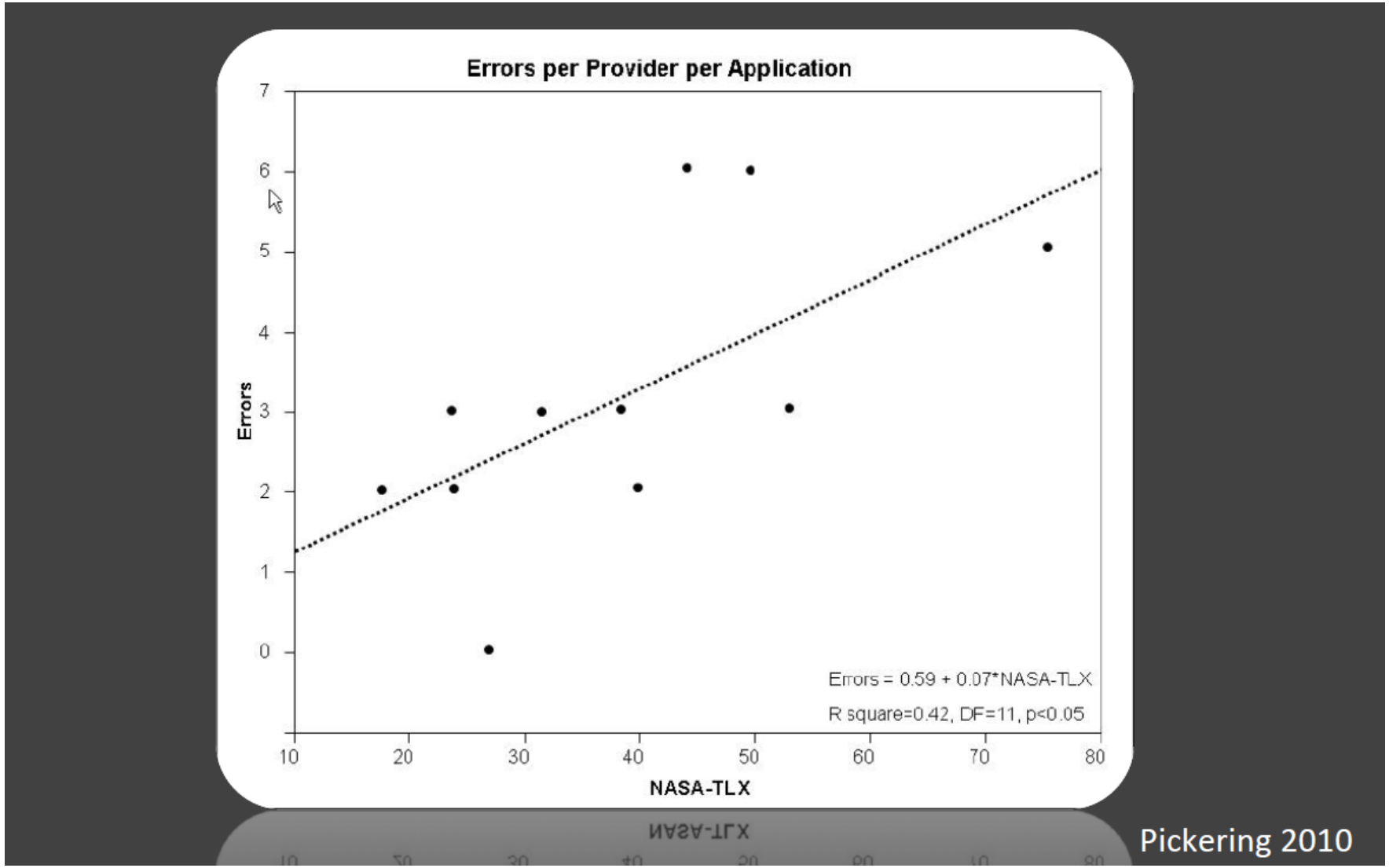


Increasing rate of expansion of expectations but one added at a time, incrementally increasing the stress.

NASA TLX on Workload

Demand	Rating Question	Rating 0 (very low) to 100 (very high)	X Weight	= Product
Mental Demand	How mentally demanding was the task?		3	
Physical Demand	How physically Demanding was the task?		0	
Temporal Demand	How hurried or rushed was the pace of the task?		5	
Performance	How successful were you in accomplishing what your were asked to do?		1	
Effort	How hard did you have to work to accomplish your level of performance?		3	
Frustration	How insecure, discouraged, irritated, stressed and annoyed were you?		3	
			Total weights = 15	Sum=
				÷ 15
				Mean Score=

Cognitive Load and Medical Error

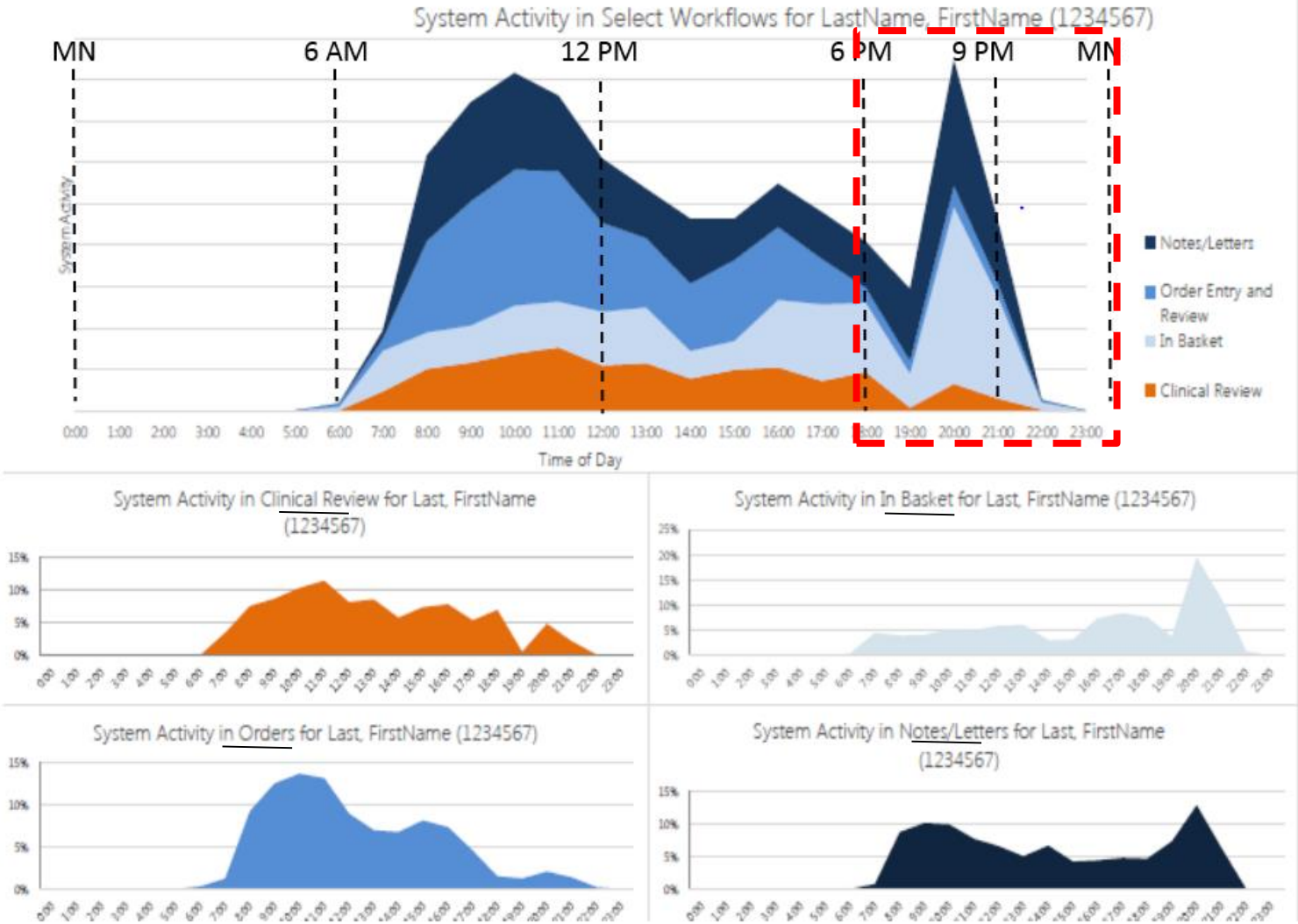


Pickering 2010

Human Impact: Example EMR Provider Efficiency Performance (PEP Data)

Estimated time of wakening is Circadian Time (CT) 0
CT 0≈ 5 AM

CT 13 = 6 PM **CT 16**= 9 PM **CT 19**= MN



Unintended consequence- invasion into Home life, family life and recuperation.

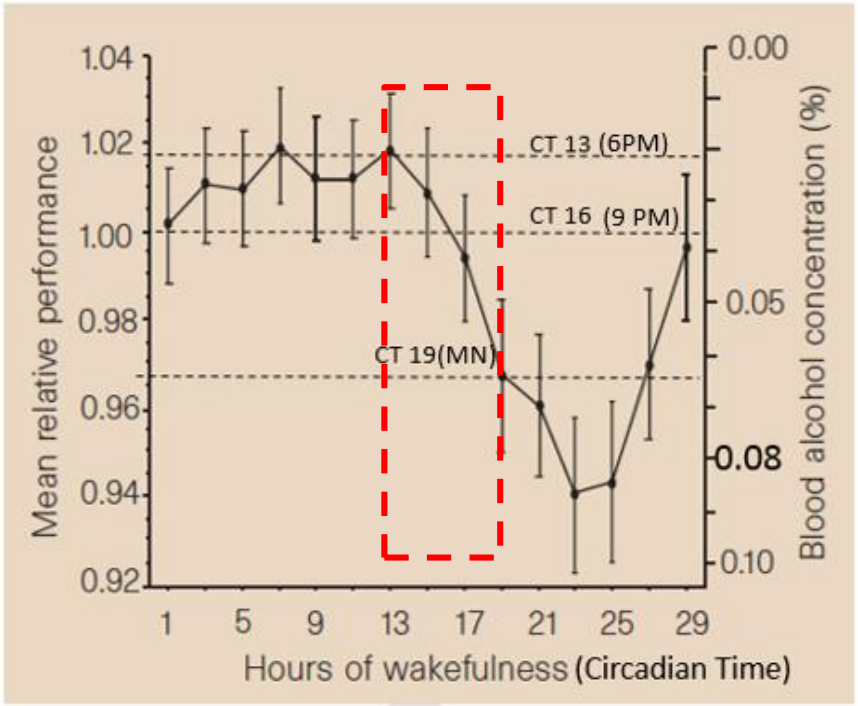


Figure 2 Performance in the sustained wakefulness condition expressed as mean relative performance and the percentage blood alcohol concentration equivalent. Error bars ± s.e.m.

Dawson D, Reid K. **Fatigue, alcohol and performance impairment.**
Nature 1997 Jul 17;388(6639):235.

EMR Work Bleeds into Home Life

Decreasing recharge time, family time.

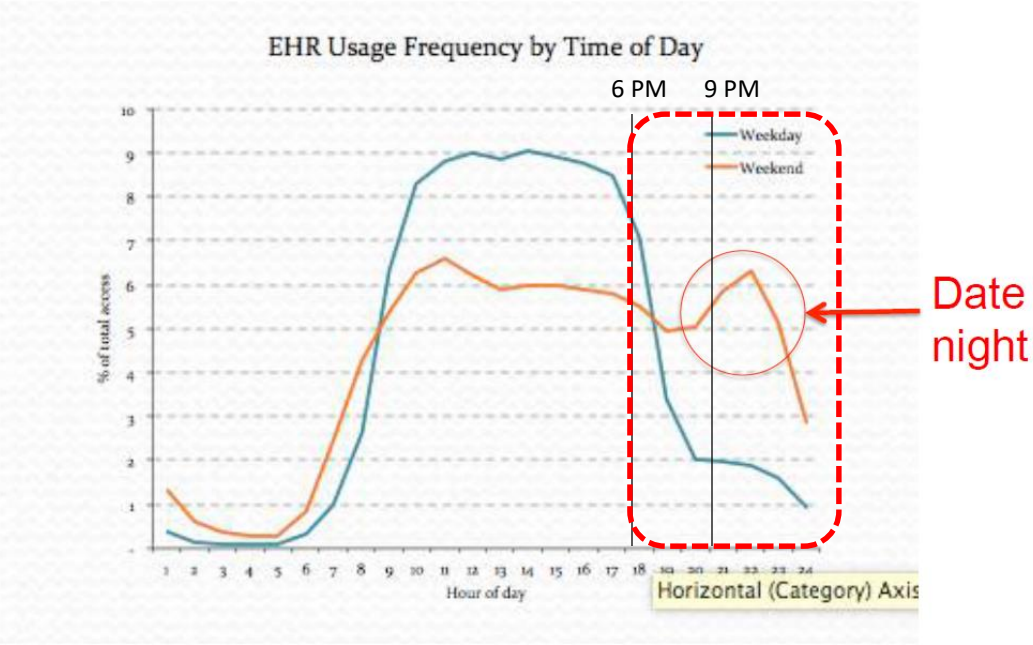
- Physicians spend **more than 10 hours per week** interacting with the EHR after they go home from the office, on nights and weekends.

If salaried, working at home= no increased short term cost to employer.
Clinicians keep showing up for work the next day.

So… **no managerial pressure** to suppress excessive work at home in "off time".

Long term costs due to burnout will go up!

"Pajama Time"
Sat nights belong to Epic



If working over 40 hrs. work/week:

- **Brain Efficacy= 35%** #

Extension of workplace into home life*:
(EHR documentation, phone calls, e-mails)

- **↓Job satisfaction** (r = -0.155, $p < 0.001$)
- **↑Job stress** (r = 0.252, $p < 0.001$)
- **↑Burnout** (r = 0.230, $p < 0.001$).

Excessive/ moderately high time on the EHR at home*

- **↑ odds of burnout by 46% ($p < 0.05$)**

Work Home Conflict (WHC)^:
'The need to perform both work and personal related tasks/ responsibilities simultaneously, resulting in ***conflict between work and home'.***

	Recent WHC	No recent WHC
Burnout	47.1%	24.0% +
Depression	50.4%	26.6% +
Seriously contemplating Separation or Divorce	14.0%	8.6% +
+ p<0.0001		

EHR Usage Courtesy of Christine Sinsky MD, VP for Clinician Satisfaction, AMA &
Brian Arndt MD, University of Wisconsin.

Levitin DJ. The Organized Mind. Plume Press 2014

* Privitera MR, Atallah F, et al.Journal of Hospital Administration. Vol. 7(4) 52-59. 2018

^ Dyrbye LN, Sotile W, et al. J Gen Intern Med 2014 Jan;29(1):155-61

- **Some clinicians like the convenience of access to EMR from home if they need to leave to get home to their children, family.**

- **Why can't we help them get their workflows efficient and get done in work day-- so they don't have to finish their work at home?**

1. How would you make a case to senior leadership to address reduction of regular EMR work at home ?

2. What are some organizational interventions to reduce regular EMR use at home and increase efficiencies at your unit, department or division?

Key Quality and Safety Leadership New Material

1. **Optimal workloads: Cognitive load, emotional load and physical load.**

2. **Optimal use of brain power (neural resource) applied to job--** cognitive and organizational ergonomics

3. **Look beyond Time on** (FTE) as below.

4. **Firmly preserve Employee Time off** / human needs / restoration / boundary between work and home
   - → **Need policy & culture supportive.**
   - → **Excessive "Free labor" will bite you later**
   - → **Must find better way to get all requirements of the job done at work, not bleeding into time off.**

5. **Be aware of "shadow work" (hidden work needing to be done that is off metrics) and work to reduce it**

6. **Be aware of pain points and affective (emotional) responses that can affect brain power and quality of decisions.**

7. **Apply neurocognitive/ ergonomic principles to IT interface design, workflows, and leadership**

8. **Work at top of license-** budget their executive function for best competency in decision making.

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