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

International Ergonomics Association  [www.iea.cc](http://www.iea.cc)
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.

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


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### 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.

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### 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

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

1. Office Start up
   - 2. Warm 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

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[Diagram of workflow process with nodes labeled as phases of care and arrows indicating flow]
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

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

“Smarter ways of education, leadership, resources to help Human Adaptability

“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.”
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
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.

Burnout and Patient Satisfaction

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

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

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**

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

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

“Blunt End” of patient care

“Sharp End” of patient care

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

Fourth Meso Level: Healthcare Medical Center Leadership and Management Decisions

Third Physical Environment Human-System Interfaces Org/Social Environment

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

First Micro Level: Individual characteristics, interaction with staff, patients and families.

Knowledge, skills expertise, human factors at play.

Sub-standard Performance

Acceptable Performance

Preventable Adverse Event

* From James Reason

Adapted from: Kerm Henriksen; Elizabeth Dayton;
Margaret A. Keys; 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.Rocksville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr.
Due to “Hidden Curriculum” training, clinicians think they are pushing to “The HUMP” as if Eustress

.....not realizing they are actually pushing into Distress

- Cognitive processing capacity compromised by excessive extraneous cognitive load^1^-^7^.
- Less capacity available for intrinsic and germane load^8^,^9^.
- Degeneration of cognitive function and performance,
- Increase risk of poor medical decisions and error^2^^-^7^,^8^,^9^.
- Patient safety is compromised ^Ibid^.
- High occupational stress is financially costly to institution^10^-^14^.
- Less compassion, self effacement, empathy and ability to listen the patients
- Contribution to Workplace Violence toward staff by patients^15^.
- Poor patient satisfaction rating^16^.
- Decreased quality of care^17^-^19^.
- Irritability, incivility, reactive patient abuse
- Provider/staff burnout, leave medicine, retire early^20^-^21^.

Point A = even minimal arousal can precipitate breakdown

Figure 1. Adapted from: Nixon PGF. The Practitioner. (217):765-770. 1976^23^.
<table>
<thead>
<tr>
<th>Burnout Criteria</th>
<th>Effect on Staff-Patient Interaction</th>
</tr>
</thead>
</table>
| **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 compassion  
|                           | • Decreased listening to patient  
|                           | • Increased cynicism and sarcasm  
|                           | • Increased risk of patient-on-staff workplace violence  |
| **Decreased Efficacy**    | • 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

6 Ps of Human Factors in Healthcare Delivery

- Provider
- Procedures
- Policy
- Products
- Peripherals
- Patient

Add 7th P: PRE – PROVIDER Factors
External system and organization induced

Influences on Clinical Performance

Ambient Induced

Clinicind Situation Induced

Endogenous

Hospital System
Mitigate or Amplify Chaos ??
Influencers of Clinical Performance-->

National State Industry Regulatory Mandates Laws

Adapter 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.

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?
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

Clinician Burnout: Majority due to systemic factors rather than substandard effort or attitudinal weakness of individual healthcare workers

The Paradox:
Past a certain point, accumulation of well-intended interventions to improve quality, safety or value, contribute to health system dysfunction.

The Problem:
Majority of interventions for quality/safety as well as burnout have been directed at the end actor, the clinician and not systemically.

Individual clinician level

Systemic Interventions.

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

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

Authorities’
Mandates
Laws
Regulations
Policies
Healthcare
Organization
Mitigate or Amplify = ?

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

Meso Level-
Hospital/ Healthcare system-

Malpractice Risk Management

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.**

<table>
<thead>
<tr>
<th>Source</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS</td>
<td>HIPAA training</td>
</tr>
<tr>
<td>CMS, TIZ</td>
<td>Survey Travel</td>
</tr>
<tr>
<td>SNMM Policy</td>
<td>Radiation Privileging training</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Health report</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>PPD</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Mask Fitting</td>
</tr>
<tr>
<td>CMS</td>
<td>Infection Control</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Sepsis Training</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Flu Shot</td>
</tr>
<tr>
<td>Federal</td>
<td>NPI</td>
</tr>
<tr>
<td>Medicare</td>
<td>Time and Effort Survey</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Dietary Training</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Antibiotic Stewardship</td>
</tr>
<tr>
<td>SNMM Policy</td>
<td>ICD-10 Training</td>
</tr>
<tr>
<td>SNMM Policy</td>
<td>EMR Training</td>
</tr>
<tr>
<td>SNMM Policy</td>
<td>SNMM Update Training</td>
</tr>
<tr>
<td>SNMM/Dept</td>
<td>Cultural Competence</td>
</tr>
<tr>
<td>Multiple</td>
<td>Yearly Mandatory In-Service Training</td>
</tr>
<tr>
<td>Private Payor/SNMM Bypass B Policy</td>
<td>Board Certification</td>
</tr>
<tr>
<td>Private Payor/SNMM Bypass B Policy</td>
<td>Maintenance of Certification</td>
</tr>
<tr>
<td>SNMM/Dept</td>
<td>Code of Conduct</td>
</tr>
<tr>
<td>SNMM Policy</td>
<td>ICARE Training</td>
</tr>
<tr>
<td>TAC</td>
<td>Attentration of Skill Demonstration- Restraints</td>
</tr>
<tr>
<td>U of R/NYS</td>
<td>Sexual Harassment</td>
</tr>
<tr>
<td>Federal</td>
<td>Bullying/Implicit Bias/Diversity</td>
</tr>
<tr>
<td>SNMM Policy/ Specialty</td>
<td>ACLS Training/Updates</td>
</tr>
<tr>
<td>SNMM Policy/ Specialty</td>
<td>Laser Training</td>
</tr>
<tr>
<td>SNMM Policy/ Specialty</td>
<td>Radiation Training</td>
</tr>
<tr>
<td>SNMM Policy/ Specialty</td>
<td>Ultrasound Training</td>
</tr>
<tr>
<td>NYSDOH</td>
<td>Child Abuse Mandatory Reporter Training</td>
</tr>
<tr>
<td>U of R</td>
<td>Unconscious Bias Training</td>
</tr>
<tr>
<td>Dean</td>
<td>Annual Financial Disclosure</td>
</tr>
<tr>
<td>Career: RHIB</td>
<td>Human Research Patient Protection</td>
</tr>
<tr>
<td>Career: GME/JUNE</td>
<td>Student evaluations</td>
</tr>
<tr>
<td>Career: Clinic Trial Sponsor</td>
<td>Clinical Trial training modules</td>
</tr>
<tr>
<td>Career related Payor/SNMM Policy/ Bypass Federal/NYS Education</td>
<td>CME, Productivity reports, Teaching, Research/ Scholarly, career advancement DSA renewal, NYS License</td>
</tr>
</tbody>
</table>

### Attachment B Mandatory Requirements
**Derived from Learning and Development Team**

- **Compliance – Clinical**
  - Care Quality of Care Through Interdisciplinary Communication
  - Medical Record Documentation for Clinical Staff
  - White Board, Read back
  - Environment of Care – Everyone
  - Active Shooter
  - Domestic Violence
  - Disaster Preparedness
  - Electrical Safety
  - Emergency Plan Ouelts
  - Fire Safety
  - Firearms/Weapons
  - Hazards Communication
  - MR Safety
  - Unplanned Public Safety/Security
  - Radiation Safety
  - Waste Management
  - Workplace Violence/Escalating Violence Violence

- **Environment of Care – Clinical**
  - Medical Equipment
  - Infection Prevention – Everyone
  - Bloodborne Pathogen 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
  - Care of Patient
  - Interpreter Services
  - Lift and Transfers
  - Management of Suspected Abuse and Neglect
  - Patient Self Determination Rights
  - Providing Better Care for People with Dementia
  - Respite Response Team
  - Stroke Recognition

- **Patient Interactions – Clinical**
  - Anticoagulation Safety
  - End of Life Care
  - Ensuring Comprehensive Handoffs
  - Efficient/EMR Courteous Procedures
  - Health Literacy
  - Information for Clinical Decision Making
  - Medical Orders for Life-Sustaining Treatment (MOLST)
  - Medication reconciliation
  - Multidrug-Resistant Organisms
  - Opioids, Opioids, and Tissue Denervation
  - Pain Management
  - Restraint Use
  - Sepsis Management

- **UR at Work – Everyone**
  - Code of Conduct
  - Code of Operational and Business Ethics
  - Diversity and Inclusion
  - Interactions Between JR/Medicine & Industry
  - Menu 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

**Organizational intervention to lessen impact on clinicians?**

- **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

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**Organizational intervention to lessen impact on clinicians?**

Increasing rate of expansion of expectations but one added at a time, incrementally increasing the stress.
### NASA TLX on Workload

<table>
<thead>
<tr>
<th>Demand</th>
<th>Rating Question</th>
<th>Rating (0 (very low) to 100 (very high))</th>
<th>X Weight</th>
<th>= Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Demand</td>
<td>How mentally demanding was the task?</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Demand</td>
<td>How physically Demanding was the task?</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporal Demand</td>
<td>How hurried or rushed was the pace of the task?</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>How successful were you in accomplishing what your were asked to do?</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort</td>
<td>How hard did you have to work to accomplish your level of performance?</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frustration</td>
<td>How insecure, discouraged, irritated, stressed and annoyed were you?</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total weights** = 15

**Sum** = 15

**Mean Score** = \( \frac{15}{15} \)
Cognitive Load and Medical Error

Errors per Provider per Application

Errors = 0.59 + 0.07 * NASA-TLX
R square = 0.42, DF = 11, p < 0.05

Pickering 2010
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.

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 working over 40 hrs. work/week:
- Brain Efficacy = 35% ≥

Extension of workplace into home life*:
- ↓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’.

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!

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

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!
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?

- 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. 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.