Addressing Human Factors in Burnout and the Delivery of Healthcare: 
*Quality and Safety Imperative of The Quadruple Aim*

**Michael R.Privitera MD, MS**
Professor of Psychiatry  
Director, Medical Faculty and Clinician Wellness Program  
University of Rochester Medical Center  
Chair, MSSNY Task Force on Physician Stress and Burnout.  
*[Michael_Privitera@urmc.rochester.edu]*
The Impact of Clinician Burnout
Multiple Dose-related Relationships

**Institutional & Patient Toll:**
- Increased risk of medical errors (200%)
- Increased malpractice claims
- Disruptive behavior
- Reduced empathy for patients, patient satisfaction,
- Reduced patient adherence to treatment regimens.
- Reduced career satisfaction

**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.

**Personal Toll:**
- Higher Suicide Rate among physicians - 400/yr.
- Substance abuse
- Divorce
- Coronary Heart Disease:
  CHD 1.4 fold up to 1.79 at high burnout levels.
  - Dysregulated HPA axis
  - Pro-inflammatory cytokines
  - Inflammation biomarker
  - Higher allostatic load
  - Depression.

Toker S. et al Psychosomatic Medicine 74:840-847)
Occupational Stressors that Contribute to Burnout

Six categories of Work Stress that can contribute to Burnout

1. **Excessive workload** - physical, cognitive and emotional
2. **Lack of control** - being able to influence work environment
3. **Poor balance between effort and reward** - material and intangible rewards.
4. **Lack of community** - culture of mutual appreciation and teamwork
5. **Lack of fairness** - resources and justice
6. **Value conflict** - moral distress of having to participate in suboptimal, unethical circumstances.


### Top 10 Work Related Stressors in NYS Physicians

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Description</th>
<th>% Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Length and degree of Documentation Requirements</td>
<td>65.99%</td>
</tr>
<tr>
<td>2</td>
<td>Extension of Workplace into Home Life (E-mail, completion of records, phone calls)</td>
<td>58.27%</td>
</tr>
<tr>
<td>3</td>
<td>Prior Authorizations for: Medications/Procedures/Admissions</td>
<td>54.74%</td>
</tr>
<tr>
<td>4</td>
<td>Dealing with difficult patients</td>
<td>51.89%</td>
</tr>
<tr>
<td>5</td>
<td>EMR functionality problems</td>
<td>51.05%</td>
</tr>
<tr>
<td>6</td>
<td>CMS/State/Federal laws and regulations</td>
<td>44.33%</td>
</tr>
<tr>
<td>7</td>
<td>Lack of voice in being able to decide what good care is</td>
<td>40.39%</td>
</tr>
<tr>
<td>8</td>
<td>Hospital/ Insurance company imposed Quality Metrics</td>
<td>38.87%</td>
</tr>
<tr>
<td>9</td>
<td>Dealing with difficult colleagues</td>
<td>31.49%</td>
</tr>
<tr>
<td>10</td>
<td>Requirement for increased CME/ Maintenance of Certification</td>
<td>31.49%</td>
</tr>
</tbody>
</table>

MSSNY Survey Fall 2016
The True Hospital Team Taking Care of the Patient

Clinicians + Administration

Favorable Leadership Scores significantly associated with decreased MD Burnout and increased MD Satisfaction p< .001 for both.

Strong Forces Discourage Clinician Self-Care and Speaking Up. Clinician External and Internal Scripts

External world environment
Medical Culture of Endurance and Silence

Internal world:
- Altruism, workaholic, perfectionism, obedience to authority.
- ‘I don’t want them to think I can’t handle this’.
- ‘Things kept getting in the way of me taking care of patients’.
- ‘My family is depending upon me’. 21 years of school, $250,000 in debt.

- New (authority of choice) regulations say this is ‘good care’ and led to believe possible to do --in context of all other requirements (though no one oversees the total demand).
- Complaining = whining
- You are a professional, self-effacement, put aside how you feel*
- Not differentiate eustress from distress or hyper stress.
- ‘You are lucky to be working/ training here’.
  - Don’t be ‘weak’.
  - Don’t be a ‘fanatic’.
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.

Model Based on Literature: ‘Therapeutic Window’ for Optimal Quality and Safety

Need Better Interagency Collaboration for Total Expectations

Human Factor/ Ergonomic Effects

Numeric increase of quality metrics, mandates, regulations, laws, “guardrails”, policies, requirements, certifications.

Model built from:

Triple Aim to Quadruple Aim

1. **Triple Aim.** Improving the U.S. health care system requires simultaneous pursuit of three aims:
   - Improving the experience of care
   - Improving the health of populations (later translated to quality)
   - Reducing per capita costs of health care. (Berwick D, Nolan TW, Whittington J. et al. 2008)\(^1\)

2. Berwick Brings The 'Triple Aim' To CMS (2010)\(^2\)

3. Triple Aim has separated the well-being of the health care workforce from system change initiatives. The separation has resulted in phantom limb pain, which is often expressed as burnout. Spinelli WM (2013)\(^3\)

4. The Triple Aim must be expanded to a Quadruple Aim, adding the goal of improving the work life of health care providers, including clinicians and staff. (Bodenheimer T, Sinsky CA 2014).\(^4\)

5. The key to delivery of the value of the Triple Aim is the fourth aim: creating the conditions for the healthcare workforce to find joy and meaning in their work and in doing so, improving the experience of providing care. (Sikka R Morath JM Leape L 2015).\(^5\)

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2. Fleming C. Health Affairs Blog. September 14, 2010
Cognitive Workload Risks

• Cognitive workload is known to be a risk factor to **workers and the people they serve** in such professions as:
  – Airline pilots
  – Air traffic controllers
  – Nuclear power workers.
  – Simultaneous Translator at UN

• Yet...... little attention to these risks discussed in the delivery of healthcare by clinicians.
Human-Organizational System Ergonomic Approach

Adapted from Karwowski 2005

Insufficiently appreciated in healthcare delivery
What are Human Factors and Ergonomics (HFE)?

Definition:
• Science of the interactions between humans and other elements of a system

Purpose:
To optimize human well-being and overall system performance.
• Patient safety is one component of system performance.

Range:
• Physical, cognitive and organizational (macro) ergonomics

Goal:
• Fit the system to the people instead of fitting people to the system

International Ergonomics Association  www.iea.cc
### NASA TLX on Workload

<table>
<thead>
<tr>
<th>Demand</th>
<th>Rating Question</th>
<th>Rating</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 $= 15$

Mean Score $= \frac{\text{Sum}}{15}$
% Incidents Radiation Oncology and NASA TLX Workload Score

Workload (NASA TLX Score) and Frequency of Radiotherapy Incidents $r = 0.87$, $p = 0.045$

Latent and Active Errors

• **Active errors** occur at the level of the frontline operator, and their effects are felt almost immediately. (‘sharp end’ of patient care).

• **Latent errors** tend to be removed from the direct control of the operator and include things such as *poor design, incorrect installation, faulty maintenance, bad management decisions and poorly structured organizations.* (‘blunt end’ of patient care).

Famous examples of latent errors:

• **Challenger** latent errors back 9 years, “**normalization of deviance**” (deviance becomes acceptable- potential for errors created as signals overlooked or misinterpreted and accumulate without notice)

• **Three Mile Island** latent errors back 2 years.

2000, National Academy of Sciences: Washington, D.C
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.

\[\text{Efficiency- Over 40 hrs. work/week:} \]
- (35% efficacy) *

\[\text{Extension of workplace into home life*:} \]
- ↓Job satisfaction \((r = -0.155, p < 0.001)\)
- ↑Job stress \((r = 0.252, p < 0.001)\)
- ↑Burnout \((r = 0.230, p < 0.001)\).

\[\text{Excessive/ moderately high time on the EHR at home*:} \]
- ↑ odds of burnout by 46% \((p < 0.05)\)

\[\text{Work Home Conflict (WHC)*:} \]
‘The need to perform both work and personal related tasks/responsibilities simultaneously resulting in conflict between work and home’.

<table>
<thead>
<tr>
<th></th>
<th>Recent WHC</th>
<th>No recent WHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnout</td>
<td>47.1%</td>
<td>24.0% *</td>
</tr>
<tr>
<td>Depression</td>
<td>50.4%</td>
<td>26.6% *</td>
</tr>
<tr>
<td>Seriously</td>
<td>14.0%</td>
<td>8.6% *</td>
</tr>
<tr>
<td>contemplating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorce</td>
<td></td>
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</tr>
</tbody>
</table>

Upstream Factors in Latent Conditions

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

* From James Reason

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“Blunt End” of patient care*

“Sharp End” of patient care*

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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.

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Sub-standard Performance  Acceptable Performance

Preventable Adverse Event

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Adapted from: Kerm Henrikson; 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.
Key Structures of The Clinician Brain

Brain - neurons are living cells. Need primarily glucose and oxygen.

Brain power = limited neural resource; when expend it, needs to be recharged
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
Attention

Prefrontal cortex

Attention is limited capacity resource used when we:

• Sort
• Sift
• Classify

• **Attention switch** (going between tasks, interruptions)- has high cost of neural resources.

• Decision making- small ones ≈ larger ones
  – Clicks Matter
Biologic Changes Brain of Burned Out Individual

- Sustained high secretion of norepinephrine and later cortisol

- Very Chronically—burned out stress response system with later hypo-cortisolemia, increasing risk of low grade inflammation—plaque on coronary arteries.

- **Anatomical changes to the brain and consequences**
  - Thinning of the pre-frontal cortex (less executive function)
  - Enlargement of the amygdala (moderates alarm/stress reaction) -> increased reactivity to stress
  - Less connectivity to Anterior Cingulate Cortex (less modulation of emotional distress)
  - Less connectivity to m PFC (less executive function)
  - Increased neurotoxicity from excessive Glutamate release that leads to:
    - Decreased grey matter of hippocampus, caudate and putamen (basal ganglia of the brain) decreased fine motor control.

- Similar **neuroimaging** findings of those with Early Life Trauma (i.e. extreme trauma effects similar to accumulated chronic every day high level stress)

Chronic Stress and Memory

Hippocampus

• Chronic psychosocial stress (4–6 weeks):
  – Impairs spatial short-term memory
    • No significant effect on learning or long-term memory

• Longer periods of stress (>12 weeks):
  – Impairs short-term as well as long-term memory

Alkadhi K. Brain Physiology and Pathophysiology in Mental Stress
ISRN Physiology Hindawi Publishing Corporation Volume 2013, Article ID 806104,
Severe Acute Stress.
Chronic Stress with lower level Acute Stress:
= Perception of Threat to Wellbeing

Limbic System
- increased arousal

Hippocampus: determine danger vs. reward
Amygdala: increased arousal proportional to strength of Emotional response.

Pre Frontal Cortex
- diminished arousal

Internally label with words what you are feeling to lower limbic system arousal and get Executive function back on line.
Cognitive Load Theory

Extraneous Load - burden in cognitive processing information that can be improved by better design.

Germane Load, manage the care, emotional work of patient care, work with families, operate EHR

Intrinsic Load: inherent level of difficulty. E.g. Diagnosis and treatment of CHF, HTN, CVA, Depression etc etc (thought to be immutable load)

Medical Decision Making (MDM) Normal

Mental Reserve Remaining Have access to Cognitive Flexible memory

Total Mental Capacity

There are inherent limits of working memory and information processing capability

Extraneous Load - Excessive

Germaine Load

Intrinsic Load

Medical Decision Making Impaired !!**

Mental overload/ poor decision outcome
Goal shielding -- loses larger context issues
Revert to Habit Memory

We need to reduce Extraneous Load

Goal is to reduce extraneous load and promote germane load.

Cognitive Flexible Memory (CFM):

1. Examine and weigh multiple factors
   • Synthesize information to make accurate differential diagnosis
   • Comprehensive care plan.
2. Planning next steps.
   • Be emotionally available to the patient and family

Habit Memory (HM):

1. Spares cognitive resources/less drain
2. Automates response
3. Goal Shielding occurs- hyper-focus on goal, other information shielded out.
4. Survival mode.
5. Leads to non-fund of knowledge errors.

Under High and Chronic Stress Habit Memory (HM) Takes Over.
What to do??

How do we apply Human Factors/Ergonomics?
### Conventional vs. Integrative Decision Making

- How successful leaders **think** is more important than what successful leaders **do**.
- **Most successful leaders studied are integrative thinkers**.

<table>
<thead>
<tr>
<th>STEPS</th>
<th>1. DETERMINING SALIENCE</th>
<th>2. ANALYZING CAUSALITY</th>
<th>3. ENVISIONING the DECISION ARCHITECTURE</th>
<th>4. ACHIEVING RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional Thinkers</strong></td>
<td>Focus only on obviously relevant features</td>
<td>Consider <strong>one-way linear relationships</strong> between variables in which more of “A” produces more of “B”</td>
<td>Break problems into pieces and work on them separately</td>
<td>Make “<strong>either-or</strong> choices; settle for best available options</td>
</tr>
<tr>
<td><strong>Integrative Thinkers</strong></td>
<td><strong>Seek less obvious but potentially relevant factors</strong></td>
<td>Consider multidirectional and nonlinear relationships among variables</td>
<td>See problems as a whole, examining how parts fit together and how decisions affect one another.</td>
<td>Creatively resolve tensions among opposing ideas; generate innovative outcomes. New idea may have elements of each, but is superior to both.</td>
</tr>
</tbody>
</table>

New Mandate From Authority XYZ

**Conventional Thinking**
- ‘Most conservative must be safest solution’.
- “Unbounded rationality” presumption, infinite resources to achieve.
- If A produces more B (quality), unlimited A must be great.
*Not seeing risks which are greater than perceived.*

**Integrative Thinking**
- See the whole problem and how the parts fit together.
- What might distract during clinical thinking and cause harm? (applies human factor principles)
- “Bounded rationality”:
- Limited resources to achieve calculated in.
⇒ **Satisficing**: Satisfy the requirement by means that are sufficient. Not perfect, but realistic.

**Skewed Perception**

"Unbounded rationality" presumption, infinite resources to achieve.

**Resolution:**
- Keep adding quality and safety mandates
- More ‘quality’ must be better *(halo bias)*
- Compliance creep: raise the bar on expectation, longer than needed training, expect perfect scores to qualify.

More balanced perception of risks and benefits as accounts for limited resource effect on outcome

**Resolution:**
- They can hold two opposing ideas in their minds at once.
- Forge an innovative solution that contains elements of both ideas but improves on each.

Most conservative interpretation ≠ quality or safety
Example: Hospital Level Ergonomic Decisions

**Macro Level**
National, state, industry, regulatory
Mandates, regulations, laws

**Meso Level**
Hospital/Healthcare system

- Authority 1
- Authority 2
- Authority 3
- Authority 4

- Your on your own, but have to comply.
- Deal with each mandate office separately.
- Figure out what each wants you to do.
- Computer Based Training (CBT) on your own time.
- No immediate help if CBT poorly operational.

**Management Choice**

- A
- B

**Hospital & Department-Based approaches**
Organized with support provided to expedite and guide compliance with people familiar with software operation, staff in other offices, requirements, etc.

4 Separate Hospital Admin Offices for Mandates 1, 2, 3, 4

Organized Administrative collaboration between mandate offices
Human Factor Budgeting Resources

1. Money
   - Personnel
     A. Optimal use of training/expertise
     B. Optimal workloads: Cognitive load, emotional load and physical load.
     C. Optimal use of brain power (neural resource) applied to job—cognitive and organizational ergonomics
       • Time on (FTE)
       • Time off / human needs / restoration / boundary between work and home → need supportive policy & culture
         • Excessive “Free labor” will bite you later
       • Be aware of “shadow work” (hidden work needing to be done that is off metrics)
       • Be aware of pain points and affective (emotional) responses that can affect brain power, quality, errors.
       • Work at top of license - budget their executive function in competent decision making.
       • Satisficing*: Combination of “satisfy” + “suffice”.
         • Save highest order brain power for more critical issues

   - Equipment/supplies

   - Maintenance costs

2. Space allocation

*Coined by Herbert Simon (1916-2001): Nobel Prize winner and one of the founders of fields of organization theory and information processing
Reason’s Swiss Cheese model of Defenses Against Error

Integrative Model: Patient Safety and Staff Wellbeing.
URMC Getting to where we want to be: Decrease Burnout – Improve Wellness

Year 1
Medical Faculty and Clinician Wellness Program

Wellness Strategic Planning Work Group
Phase I = Clinicians

1st Stage Project Focus
1. EMR Provider Satisfaction Campaign
2. Mobile team: Consultation and support to Chairs, Division Chiefs, Center Heads.
3. Coaching (Preventative)
4. Continued Wellness seminars
5. Medical Staff Office Project (requirement organization)
6. Leadership In-services
7. Wellness representation in all new clinician initiative groups
8. Resident Specific Issues with CLER
9. Clinician Wellbeing Measurement as Quality Indicator

Year 2
Phase II
Wellness Strategic Planning Work Group
Clinicians
Additionally Includes:
- Researchers
- School of Nursing Faculty
- Nursing Practice
- Social Work
- CMO
- Occupational Medicine
- Human Resources
- EAP
- Well–U
- BHP
- Biometric Screening
- Healthy Living Center
- Quality and Safety

Subcommittees:
- Phase I Clinicians
- Resident Wellness

3rd Stage Project Focus
1. Wellness as quality indicator
2. Zero Tolerance but spectrum of Interventions
- wellness integrated with disruptive interventions (PARS based)
3. Exosystem program development (ways to reduce stress on family life outside medicine)
4. Examine Shadow Work (unseen, unmeasured, unpaid jobs that fill your day)
5. Dept. level wellness efforts

Year 3
2nd Stage Project Focus
1. Constituency input into workflow solutions
2. Constituency input into Leadership ratings.
3. Strategy Group for stronger clinician/administrator partnerships
4. Integrate wellness efforts with disruptive behavior reduction efforts
5. Workflow and Scope of Practice committee
6. Wellbeing measurement for other sectors
7. Quadruple Aim Focus as Medical Center

Year 4
- Chief Wellness Officer
- Organizational Health Focus
- Organizational Ergonomics and Individual (Neuro)cognitive Ergonomics approach
- Vast array of wellness programs for
  - Medical Faculty
  - Clinicians
  - Residents
  - Medical Students
  - Researchers
  - Nursing Practice
  - Social Work
  - School of Nursing Faculty
  - Trainees
  - Staff
- Wellness Impact on all Medical Center Operations
- Wellness representative on all new initiative committees
- Integration into usual HR operations
- EAP
- BHP
- Coaching
- Education

= Work Groups

= 3 Stages of Projects
Burnout Interventions: Need Both

Individual-based Interventions
- Encourage recognition of Burnout in the face of Medical Culture of Endurance and Silence
- Individual interventions must be paired with organizational interventions
- Wellness Seminar series as “safe place’
- Avoid blaming the victim
- Normalize self care
- Normalize boundaries between work and home despite technology—by policy and/or culture
- Multiple individual interventions available
  - Mindfulness-based stress reduction
  - Resiliency training
  - Gratefulness
  - 3 Good Things
  - Yoga
  - Coaching
  - Employee Assistance- Wellness Division
  - Self Help websites and literature
  - Peer Support program
  - Clinician ombudsman to have work/life balance representation
  - Diet, exercise

Organizational Interventions
Most Important single issue: The Quadruple Aim Framework:
- Costs, Quality, Patient experience (Triple Aim),
  and Fourth Aim: Experience of providing care.
- Pay attention to human factors in delivery of care and inherent limitations
- Overcome the Medical Culture of Endurance and Silence
- Leadership style and concern is key
  - Message: Organization cares about the wellbeing of employees—(matters and goes a long way)
  - Leadership commitment to action
- Measure Burnout/ Wellbeing
- Use clinician wellness and career satisfaction metrics and tie these into quality of care, reduction of malpractice, errors, and patient satisfaction
- Establish: Wellness Initiative Strategic Planning Work Group
- Attempt to understand the front line problems:
  - Anonymous survey to learn pain points
  - Round table discussion of findings
  - Simplify access points and processes for clinicians to contribute to the organization making improvements
- Encourage stronger administrator/physician partnerships
- Organize and assist completion of all mandatories, regulations
- Encourage seeking help
  - No reporting of seeking mental health care on licensure, malpractice carrier, credentialing applications or renewals.
  - Confidentiality in seeking help
- Help organize and offer the individual interventions on the left in bold.
REFERENCES

Integrative Model: Patient Safety and Staff Wellbeing

Acute stress and error

Biologic changes of brain in burned out individual:
Anatomical changes to the brain and consequences
- Thinning of the pre-frontal cortex (less executive function)
- Enlargement of the amygdala (moderates alarm/stress reaction) -> increased reactivity to stress
- Less connectivity to Anterior Cingulate Cortex (less modulation of emotional distress)
- Less connectivity to m PFC (less executive function)
- Increased neurotoxicity from excessive Glutamate release that leads to:
  - Decreased grey matter of hippocampus, caudate and putamen (basal ganglia of the brain) decreased fine motor control.

Michel A. (February 2016) Burnout and the Brain. Association for Psychological Science.
Chronic stress and memory: 4-6 weeks affects short term memory
>12 weeks affects long term and short term memory.
Executive functions are the first cognitive functions that suffer when people are stressed:
Burnout effect on Cognitive Function:
Healthcare Failure Mode Effect Analysis (HFMEA).
Burnout/ Human Factors and Patient Safety.
Lyndon A. Burnout Among Health Professionals and Effect on Patient Safety. AHRQ PS Net. Perspectives on Safety. February 2016
Excessive decision making (clicks can be example) affecting executive function & behavior.
Aggressive and Depressive reactions from Burnout

Multiple Practice Factors affecting Burnout

Most errors in healthcare are systemic, not end actor. IOM Report.

More on Latent Conditions, organizational contributions to error.


Thwarted Care
Healthcare Failure Mode and Effect Analysis (HFMEA) Gap: Prescribed work vs. Real work

What might be better if was built under The Quadruple Aim instead of The Triple Aim?

1. Office Start up
   - Office environment
     - Temperature
     - warm, cold?
     - Window crack: draft,
     - Noise outside
     - Grass cutting and trimmer
     - Oxygen delivery - O₂ Tank fill (loud)
     - Lighting

2. Warm up computer
   - Software booting
   - EMR booting
   - New security restrictions
   - longer warm up to functionality
   - Shortcut to EMR working or need to go to Intranet?
   - Password ok or expired?
   - New software roll outs, learning curve time?
   - Software not working, need time on phone with IT support?

3. Patient Arrive On time, right location
   - Intro letter sent to patient about visit?
   - Correct address for this clinic?
   - Parking delays?

4. Financial Pre-meeting
   - Bring correct financial info with them?
   - Financial counsellors all here?

5. Waiting Room receptionists
   - Clinical based forms given to patient?
   - Pre-visit clinical rating scales given to patient to fill out?
   - Or is substitute secretary from different area?

6. Nursing
   - VS taken and documented?
   - EMR record review preparation?
   - Can nurses help on this particular clinic patient or does budget line funding prevent this?
   - Vital Signs obtained or do I need to do today for this clinic?

7. EMR record review preparation
   - EMR focus reports, billing, not clinical efficiency.
   - 30% decreased productivity to pre-EMR.
   - Are old records received?
   - Are they labelled in identifiable way?
   - Are they scanned in media section?
   - Is archive information labelled in identifiable way?
   - Financially driven community decisions on outside lab and imaging electronic uploads.
   - Have cooperative agreements been signed or financial barriers?
   - Are paper results scanned in somewhere?

8. Patient Interview/ Evaluation/ Procedures
   - EMR vender builder decisions on strict and narrow requirement on lab order name.
   - No drug synonyms allowed to get you to the right order.
   - E.g.: Patient on Depakote, want to order blood level.
     [Depakote= divalproex sodium = sodium valproate + valproic acid]
   - Cannot type in “Depakote” level, “divalproex sodium” level, or “sodium valproate” —not recognized.
   - ONLY recognizes “Valproic Acid” Level.
   - You must hunt, trial and error to find out what works.

9. Writing Orders and Labs
   - Ordering controlled substance:
     (E.g. NYS Health Commerce System controlled substance check)
     Password expired without warning.
     Must make up new password, never used within the last 50 passwords, complex security requirements.
     Need to do this to not break the NYS law.
     Patient is there waiting while you (stressfully) think up a new complicated password to write their prescription.

10. Writing Notes and Diagnosis Billing
    - Choose correct template type
      (multiple, budget line driven).
    - Template operation: F2 to next section, which can be ***, multiple choice drop downs, single choice drop down, or need to access *** wild card & write in.
    - Compliance Creep- more documentation expected locally than required by regulation.
    - More action for MD to do than used to be possible by Team documentation.

Voice recognition dictation:
- Software not working and not accurate transcription.
  - Do I stay on line with voice recognition software support or do without it?
  - Note bloat—satisfy insurance requirements.
  - Will be reviewed by non clinicians.
  - Software ‘Hard stops’ —demands an answer before can proceed.
  - Interrupts thought while thinking of DDx and Treatment plan.

Software “Autocorrect” function is working against you. Will not stop changing what you are writing to something incorrect.
- Choose a correct CPT Code with right qualifiers.
  - Choose correct ICD-10 diagnosis with “hard stop” demanding specificity of dx out of fear that may not be covered by insurance (instead of billing office back channel corrections). Interrupts your clinical thinking and note writing.
  - You may not clinically know the specificity of the diagnosis demanded, and forced to choose a specificity to avoid sanction for incomplete notes.

Meaningful use criteria to be met (regardless of reason for visit)
- Smoking cessation
- Send for old records
- Pain score
- Multiple screening questions
- Remember to stay on target to why the patient is here.
- Don’t miss anything.
- They need and expect full attention.

**The MFCWP Program:**
- Wellness Seminar Series - (11 per year)
  - Titles validate stress and encourage safe place to discuss stress.
- Academic mentorship for others
- Internal Website Resources for 24/7 access
- Multiple Department Grand Rounds (19)
- Individual Chair and Chief Tour (10)
- Anonymous Survey:
  - 3 Departments and all APPs
  - Data from survey, seminar evaluations and literature

- Wellness Strategic Planning Work Group
  - Survey and evaluation processing
  - Think Tank
  - List of recommendations to senior leadership January 2017.

- Wellness/Coaching Program
- Visiting Speakers: Alan Rosenstein MD, Christine Sinsky MD
- Coaching prevention expansion
- Medical Staff Office Project to organize mandatories
- Clinical Consultation for individual faculty and clinicians
- Department/division consultation
- Department Model: ‘Faculty Forum’-Department- level Wellness. Participatory management model. Constituency input in problem solving

**URMC Internal Partners:**
- Faculty Development Office
- EMR Provider Satisfaction Campaign
- URMC Strategic Planning Group
- HIT Innovation
- Provider Advisory Team
- Ambulatory Medical Directors
- Patient Experience Office
- Healthy Living Center
- Employee Assistance Program
- Behavioral Health Partners
- PFCC Clinical Council
- Occupational Medicine
- Existing Staff Wellness Initiatives
- Well-U
- Patient Advocacy Reporting System
- Resident Wellness: CLER initiative
- (Clinical Learning Environment Review)
- HR Business Partners

**External Partners**
- CHARM*: (National) Collaborative for Healing and Renewal in Medicine
- MSSNY Task Force on Physician Stress and Burnout
- Federation of State Medical Boards

*Current CHARM Collaborators: UPMC, MGH/ Harvard, Case Western, U Penn, Mayo, Columbia, Brown, Cornell, Johns Hopkins, UC Denver, Elbinger NC, TN, Lifespan, RI, URMC, Mount Sinai, Duke
Hierarchical Organizational Family

The IHI Triple Aim

The Quadruple Aim (AMA, FSMB, NAM, etc.)


Inattentional Blindness

Count how many times the players wearing white pass the ball

Answer = 16

Did you spot the gorilla?

Did you notice the curtain change color?

https://www.youtube.com/watch?v=f94o3B3csYI

Experience of providing care/human factors not a focus of attention

Patient experience

Better Outcomes

Improved Patient Experience

Lower Costs

Improved Clinicians Experience

The Experience of providing care/human factors not a focus of attention

Patient experience

Per Capita Cost

Input

(Flow of People and Ideas into System)

Closed Organizational Systems

The Enmeshed Organizational Family

The Self-Regulated Organizational Family

The Porous Organizational Family

Low Boundary

Permeability and Aggressive

Gatekeeping

High Boundary

Permeability and Lax

Gatekeeping

Output

(Flow of Organizational Members and Ideas Out of System)

Open Organizational Systems

Family

Organizational Leadership

Organizational Members

Organizational Family Members

Boundary

Gatekeeping

Answer = 16
Errors

• Definition of Error:
  • Failure of a planned sequence of mental or physical activities to achieve its intended outcome when these failures can’t be attributed to chance.

• Failures:
  1. **Actions do not go as intended** (error of execution)
     • **Slip** - observable, e.g. turned the wrong knob
     • **Lapse** - not observable, e.g. not recall from memory.
  2. **Intended action is not the correct one** (error of planning).
     • **Mistake** - action proceeds as planned, but fails to achieve intended outcome as planned action was wrong.
       • Incorrect assessment
       • Lack of knowledge of the situation.

Types of errors: Diagnostic, Treatment, Preventative, other.

2000, National Academy of Sciences: Washington, D.C

⭐ = Cognitive vulnerability from Burnout