“It’s better to burn out than to fade away” Neil Young
Conflict of Interest Disclosures for Speakers

1. I do not have any relationships with any entities producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients, OR

2. I have the following relationships with entities producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients.

<table>
<thead>
<tr>
<th>Type of Potential Conflict</th>
<th>Details of Potential Conflict</th>
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<tr>
<td>Grant/Research Support</td>
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<td>Consultant</td>
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<td>Speakers’ Bureaus</td>
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<td>Financial support</td>
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<td>Other</td>
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3. The material presented in this lecture has no relationship with any of these potential conflicts, OR

4. This talk presents material that is related to one or more of these potential conflicts, and the following objective references are provided as support for this lecture:
ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of The American Academy of Sleep Medicine and The Michigan Academy of Sleep Medicine. The American Academy of Sleep Medicine is accredited by the ACCME to provide continuing medical education for physicians.
Herbert Freudenberger 1973 "state of mental and physical exhaustion caused by one's professional life"

Christina Maslach 1978

“A correlational analysis revealed a large number of statistically significant findings. For instance, the longer staff had worked in the mental health field, the less they liked working with patients, the less successful they felt with them, and the less humanistic were their attitudes toward mental illness.”
Maslach indicated burnout has 3 inter related dimensions caused by prolonged exposure to stress.

- Emotional Exhaustion
- Depersonalization
- Low Personal Accomplishment

Maslach Burnout Inventory-General Survey (MBI-GS)
COPENHAGEN BURNOUT INVENTORY
SHIROM MELAMED BURNOUT MEASURE

Emotional

Cognitive

Physical
EXHAUSTION DISORDER

Criteria:
A) Patient experiences psychological and physical exhaustion for at least 2 weeks
B) Symptoms must have developed as a consequence of clearly identified stressors present for at least 6 months
C) Significantly lack of psychological energy or endurance dominates the clinical picture
D) At least four of the following symptoms have been present virtually everyday for the past 2 weeks.
   1. problems with memory or concentration
   2. significantly decreased ability to handle demands or to performed under time pressure
   3. emotional lability or irritability
   4. sleep disturbances
   5. significant physical fatigue and lack of endurance
   6. bodily symptoms such as muscular pain, chest pain, palpitations, GI symptoms, dizziness, or hypersensitivity to sound.

- source of stress must be from work or the private sphere

- if the patient fulfills criteria for MDD, dysthymic disorder, or GAD, then exhaustion disorder is to be used as a secondary diagnosis.
54.4% of MD’s had at least 1 symptom of burnout
Satisfaction with work life balance and burnout scores both worsened from 2011-2014
FIGURE 1. Burnout (A) and satisfaction with WLB (B) by specialty 2014 vs 2011. For 1A and 1B, specialty discipline is shown on the y axis and burnout (A) and satisfaction with WLB (B) are shown on the x axis. For 1C, satisfaction with WLB is shown on the y axis and burnout on the x axis. GIM = general internal medicine; OBGYN = obstetrics and gynecology; PM&R = physical medicine and rehabilitation; Prev = Preventive medicine, occupational medicine, or environmental medicine; WLB = work-life balance. *P<.05 from comparison 2014 to 2011.
FIGURE 1. (continued).
Suspicious Package Sent to Orthopaedic Department, Contains Stethoscope

By Lord Lockwell
Burnout general population 28% roughly unchanged since 2011
MD’s worked median 10 hours more per week than US workers (50 vs 40 hrs), with 41.8% of MD’s working 60+ hours. Despite this after adjusting for age, sex, and hours worked per week MD’s remained at increased risk for burnout compared to the population
MD’s also had a lower rate of WLB satisfaction 36% vs 61%
E-POCALYPSE

Stages of Meaningful Use
*Improving Outcomes*

- **Stage 1:** 2011-13
  - Data capture and patient access

- **Stage 2:** 2014-15
  - Information exchange and care coordination

- **Stage 3:** 2016-17
  - Improved outcomes

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**Stress Reduction**

**BANG HEAD HERE**

**Directions for use:**
1. Place on a FIRM surface
2. Follow directions in circle
3. Repeat step as necessary or until unconscious
4. If unconscious, cease stress reduction activity.
In 1776 he wrote: “A carpenter in London, and in some other places, is not supposed to last in his utmost vigor above 8 years... Great labor, either of mind or body, continued for several days together, is in most men naturally followed by a great desire of relaxation, which, if not restrained by force or by some strong necessity, is almost irresistible...If it is not complied with, the consequences are often dangerous, and sometimes fatal. “

“It will be found, I believe, in every sort of trade, that the man who works so moderately, as to be able to work constantly, not only preserves his health the longest, but, in the course of the year, executes the greatest quantity of work.“

Adam Smith, 1776 WON
EFFECTS ON QUALITY, SAFETY, AND COSTS

Nurse staffing, burnout, and health care–associated infection


Nurse survey data was linked to the Pennsylvania Health Care Cost Containment Council report on hospital infections and the American Hospital Association Annual Survey. Linear regression was used to estimate the effect of nurse and hospital characteristics on health care–associated infections.
CHRONIC BURNOUT, SOMATIC AROUSAL AND ELEVATED SALIVARY CORTISOL LEVELS 1999

Method: Sampled of full time nonshift employees of a large heavy machinery shop. Predominantly men, 37 workers with chronic burnout, 22 non chronic and 52 no burnout were compared using questionnaires and salivary cortisol measured at 0800 and 1600 during the workday.

<table>
<thead>
<tr>
<th></th>
<th>Low burnout</th>
<th>Nonchronic</th>
<th>Chronic</th>
<th>F(2,108)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tension</strong></td>
<td>8.44a</td>
<td>12.04b</td>
<td>14.71bc</td>
<td>28.27</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td><strong>Listlessness</strong></td>
<td>7.84a</td>
<td>12.33b</td>
<td>12.26bc</td>
<td>16.41</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td><strong>Postwork irritability</strong></td>
<td>5.24a</td>
<td>4.00</td>
<td>4.89b</td>
<td>6.82</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td><strong>Sleep quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties in falling asleep</td>
<td>1.47a</td>
<td>1.82</td>
<td>3.36a</td>
<td>6.87</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Early morning awakening</td>
<td>2.05a</td>
<td>2.24</td>
<td>2.75b</td>
<td>2.84</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Sleeping pills/tranquilizers</td>
<td>1.04</td>
<td>1.00</td>
<td>1.15</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>Tiredness on waking up</td>
<td>2.11a</td>
<td>2.52a</td>
<td>3.58a</td>
<td>9.46</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Difficulties in maintaining sleep</td>
<td>2.60a</td>
<td>2.47</td>
<td>2.90a</td>
<td>3.71</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td><strong>Insomnia</strong></td>
<td>8.78a</td>
<td>10.05b</td>
<td>12.75c</td>
<td>10.19</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

Within rows, means with different superscripts differ significantly (p < 0.05) using the Student–Newman–Keuls procedure.
SLEEP AND SLEEPINESS IN YOUNG INDIVIDUALS WITH HIGH BURNOUT SCORES WHOM CONTINUE TO WORK

SODERSTROM, M. 2004 SLEEP VOL 27

Method: sleep was recorded in 2 groups (high vs low burnout) during 2 nights, 1 prior to a workday and 1 before a day off, sleepiness ratings and daytime ratings were analized for the workday and the day off after the sleep recordings.

Figure 1—Diurnal pattern of sleepiness (Karolinska Sleepiness Scale; KSS) on a workday and on a day off in groups with high vs low levels of burnout scores. Differences between the groups in sleepiness on the day off were tested with t-tests; +++P < .001; ++P < .01; +P < .05. Paired t-tests within groups compared sleepiness levels for each point in time on the different days; +++P < .001; ++P < .01; +P < .05. aw refers to awakening; bt, bedtime.
Method: high burnout scores n=9, and low burnout scores n=11, compared during a workday and a day off with salivary cortisol collected on a workday and a day off, ambulatory sleep recordings were carried out in participants homes the nights prior to the saliva sampling.
12 white collar workers on long term sick leave (> 3 mos) and 12 healthy controls with high and low scores on melamed burnout questionairre had PSG at home and measured sleepiness, mental fatigue at different times of day and during weekends.
Method: Sixty clinically burned out on sick leave vs 40 health controls recorded symptoms with an e-diary for 2 weeks at random times per day.

Multilevel regression analysis showed:
-Sleep quality was directly related to recovery from fatigue the following day
-Impaired recovery from sleep was related to severity of exhaustion but not to severity of depression,
INFLUENCE OF SLEEP ON SYMPTOM IMPROVEMENT AND RETURN TO WORK IN CLINICAL BURNOUT
SONNENSCHEN, M. 2008. SCANDINAVIAN JOURNAL WORK ENVIRONMENTAL HEALTH

Table 2. Symptom improvement in clinical burnout. Recovery through sleep means a difference in the fatigue level in the evening and morning diary. All other scales range from 1 = not at all to 7 = very. The differences were calculated from disaggregated diary data in a multilevel analysis. The test value is a Wald test that follows a normal distribution: Z = estimate or standard error of the estimate. Burnout persons on partial sick leave or full sick leave at baseline did not differ with respect to symptom severity at baseline.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Clinical burnout group</th>
<th>Healthy reference group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Six-month follow-up</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>3.34</td>
<td>0.12</td>
</tr>
<tr>
<td>Recovery through sleep</td>
<td>1.38</td>
<td>0.14</td>
</tr>
<tr>
<td>Trouble falling asleep</td>
<td>2.96</td>
<td>0.15</td>
</tr>
<tr>
<td>Refreshing sleep</td>
<td>3.56</td>
<td>0.11</td>
</tr>
<tr>
<td>Depressed mood</td>
<td>2.79</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Methods: 59 BO employees on extended sick leave assessed symptoms for 2 wks using an E-diary. After 6 months they measurements were repeated and compared to control group.
SLEEP PHYSIOLOGY IN RECOVERY FROM BURNOUT
ERKSTEDT, M. BIOLOGICAL PSYCHOLOGY 2009

23 white collar workers on long term sick leave (> 3 mos) due to a B0 and 16 healthy controls had PSG after 6-12 months rehab.
ON THE NATURE OF BURNOUT-INSOMNIA RELATIONSHIPS: A PROSPECTIVE STUDY OF EMPLOYED ADULTS

ARMON, G. JOURNAL OF PSYCHOLOGICAL RESEARCH 2007

Method: healthy volunteers 1356 completed questionnaires during periodic health examinations 18 months apart, BO was assessed by Shirom-Melamed burnout measure, insomnia by the brief Athens insomnia scale.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Insomnia at T₂ (n=1234)</th>
<th>Burnout at T₂ (n=1227)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression at T₁</td>
<td>2.44*</td>
<td>1.13–5.27</td>
</tr>
<tr>
<td>Neuroticism at T₁</td>
<td>1.08</td>
<td>0.89–1.31</td>
</tr>
<tr>
<td>BMI at T₁</td>
<td>1.01</td>
<td>0.91–1.07</td>
</tr>
<tr>
<td>Age at T₁</td>
<td>1.06*</td>
<td>1.03–1.09</td>
</tr>
<tr>
<td>Gender</td>
<td>1.23</td>
<td>0.74–2.04</td>
</tr>
<tr>
<td>Follow-up duration (months)</td>
<td>1.00</td>
<td>0.99–1.00</td>
</tr>
<tr>
<td>Main effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burnout at T₁</td>
<td>1.93*</td>
<td>1.45–2.58</td>
</tr>
</tbody>
</table>

* P<.05.

Results: burnout significantly predicted the development of new cases of insomnia at 18 months follow up OR 1.93
Insomnia significantly predicted the onset of new cases of burnout at 18 month follow up. OR 1.64
Short sleep duration is dose-dependently related to job strain and burnout in nurses: a cross sectional survey.
BURNOUT PREVENTION AND INTERVENTIONS

Intervention programs can be either or combination of approaches

Individual directed: improve the individuals ability to handle stress and enhance competency

- CBT, psychotherapy, mindfulness counseling, adaptive skill training, communication skills training, social support, and relaxation exercises.

Organization directed: reduce the organizations stress on the employee

-work process restructuring, work shift and schedule readjustments, job evaluation, supervision to enhance job control and reduce job demand, and increase the level of participation in decision making.

Do these work?
BURNOUT PREVENTING: A REVIEW OF INTERVENTION PROGRAMS 2009

Systematic review of intervention studies on burnout on the individual, organizational, and combined programs

- Psychological health, general health, and sleep improved alongside improvement in burnout for all programs

- Individual interventions last 6 months or less

- Organizational interventions and combined interventions benefits generally lasted 12 months and over.

- All interventional results waned over time without refresher sessions
Figure Legend:
Forest Plot of the Effects of Different Types of Interventions on Burnout Scores
Subgroup analysis of individual study and pooled effects of physician-directed and organization-directed interventions on burnout scores. Each line represents 1 study in the meta-analysis, plotted according to the standardized mean difference (SMD). The squares show the SMD for each study, and the diamond represents the pooled SMD. Weights are from random-effects model.
SUMMARY

BO is quite prevalent amongst physicians almost 50%

BO sleep characterized by poor sleep quality, increased arousals, lower sleep efficiency, decreased SWS and REM. Perhaps leading to elevated cortisol levels.

BO individuals do not recover on the weekend whether they continue to work or if they on sick leave appears to be chronic state of elevated fatigue and sleepiness.

Improvement in sleep quality is associated with recovery and return to work as fatigue resolved.

Inadequate sleep quantity may increase risk for BO

Individual and organizational approaches are effective to reduce BO but wane over time.
OVERTRAINING SYNDROME OTS

Prolonged decline in performance (usu > 2 mos)
- premature fatigue
- emotional lability
- lack of motivation
- overuse injuries
- infections (usu respiratory)
- variable recovery
RECOVERY FROM ATHLETIC TRAINING

Hydration and Nutrition
Sleep and Rest
Relaxation and Emotional Support
Stretching and active somatic/physical rest

But how many of us properly take time to recover during or after the work week?
WORK HYGIENE

Indestructible Case:
Made of Cockroach Shells

Green Screen of Death:
24/7 Suggestion Box of Pure Evil

Protective Glass Shield:
Thwarts MRSA, Poop, Urine, Tears of Sadness

Self-Medication Buttons:
Up - Increase Xanax
Down - Decrease Xanax

OMG Button:
Activates Self-Destruction Sequence

FML Button:
Speed-Dials Mom for Moral Support

Time Travel Buttons:
Left - Travel Back to a Happier, Pager-Free Life
Right - Fast-Forward to a Bar, Beach Somewhere

 Pager Alerts:
45 Incredible Sounds, ranging from Highly Annoying (Cat Scream) to Full-On Irritating (Nails on Blackboard)