Fatigue Management Across the Spectrum: Resident to Fellow to Faculty

Steph Dewar and Andy Nowalk
Pediatric Residency Education
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Goals

1. Review concepts of workplace fatigue
2. Understand current ACGME standards for fatigue in residency training
3. Use small groups to develop strategies for managing and mitigating fatigue
Methods

Didactics and data about fatigue

Small group work with diverse roles
fatigue

/nəˈtɪɡ/ noun

1. extreme tiredness, typically resulting from mental or physical exertion or illness.
   "he was nearly dead with fatigue"
   synonyms: tiredness, weariness, sleepiness, drowsiness, exhaustion, enervation, languor, lethargy, torpor, prostration; war-weariness
   "his body was slumped from fatigue"
ACGME on Fatigue

• **Residents and faculty members** must demonstrate an understanding of their personal role in the recognition of impairment, including from illness, **fatigue**, and substance use, in themselves, their peers, and other members of the health care team.

• Each **program** must ensure continuity of patient care, consistent with the program’s policies and procedures, in the event that a resident may be unable to perform their patient care responsibilities due to excessive **fatigue**.

• The **program**, in partnership with its **Sponsoring Institution**, must ensure adequate sleep facilities and safe transportation options for residents who may be too **fatigued** to safely return home.
• Programs must:
  o educate all faculty members and residents to recognize the signs of fatigue and sleep deprivation;
  o educate all faculty members and residents in alertness management and fatigue mitigation processes; and,
  o encourage residents to use fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning.
Why do we make residents work so much?

• There’s not enough time to fit it all in
• The “good stuff” usually happens outside of the usual work hours
• Sometimes you learn a lot by observing a process
• It’s better to practice difficult situations with supervision to avoid harm
• In acute care settings, patients need doctors 24/7/365
Fatigue

• Feeling of tiredness that varies in intensity and duration
  • Sleepiness
  • Impaired vigilance
  • Impaired sustained attention

• Common Causes in Physician Training
  • Sleep Deprivation
  • Emotionally or physically intense exertion
  • Prolonged exertion
  • Complex tasks
  • Impairment

• Fatigued persons may be unaware of impaired behavior
Signs of Clinical Fatigue

- Moodiness, irritability
- Impoverished speech or flat affect
- Impaired problem solving
- Sedentary nodding off and micro-sleeps (5-10 second lapses in attention)
- Difficulty focusing on tasks
- **Medical errors**
Sleep

- Reliably relieves fatigue
- Adults need 7.5 - 8.5 hours daily
- Are you aware how much sleep that you need?
Two process model of sleep

- Controlled by
  - Process S – sleep drive that increases “sleep pressure”
  - Process C – Circadian rhythm drives wakefulness
    - Strongest in the early morning
    - Weakest in the late afternoon
Sleep Deprivation

• Impairs cognitive performance and fine motor skills
• Proven to impair clinical performance of physicians
• Acute Sleep Loss + Chronic Sleep Loss+ Circadian misalignment has a potent negative synergistic effect
Two process model of acute total sleep deprivation

Additional sleep pressure

Increased SWA
Slow Wave Activity

Increased TST
Total Sleep Time

https://smoens.files.wordpress.com/2010/12/class1_sleephomeostasis31.jpg
Negative Effects of Chronic Sleep Deprivation and Prolonged Shift Work

- Diminished performance
  - Decision making areas in the prefrontal cortex diminish and the amygdala becomes more active
- Accidents
- Obesity
- CV disease
Fatigue Mitigation

There is no effective intervention to restore full cognitive function other than restoring lost sleep.

**Fatigue mitigation goals:**

- Enhance alertness
- Maximize potential for effective rest
- Ensure Patient and Physician Safety
Fatigue Mitigation in the Moment

• Fatigued Colleagues are often unaware or impaired
  • IF YOU SEE SOMETHING, SAY SOMETHING!

• Strategic/Structured Napping (ACGME!!) can help
  • Proven to restore alertness during night shifts
  • Just 30 minutes will work
  • 02:00-03:00 seems to be the best time
  • Napping doesn’t affect ability to get daytime rest

• Brief periods of exercise can restore alertness during prolonged shifts (take the stairs!)
Fatigue Mitigation in the Moment

Caffeine!!

- 2 to 4 hours of effectiveness
- Restores alertness BUT NOT cognitive function
- Avoid within 5 hours of recovery sleep
- Diminishing return and increased toxicity with repeated boluses
Common Caffeine Formulations

• Tall (12oz) Pike Place: 235mg
• Medium (14oz) Dunkin: 210mg
• No Doz/Vivarin (one dose): 200mg
• Monster Energy (20oz): 160mg

• Green Mtn Keurig K cup: 75mg
• Mountain Dew (12oz): 54mg
• Black Tea (8oz): 47mg
• Diet Coke (12oz): 46mg

150mg – 600mg most effective dosing range
Fatigue Mitigation in the Moment: ACGME

• There must be a plan to relieve maximally fatigued trainees of patient care duties and safely transfer that care to another physician. – Call for help.

• Faculty, staff and trainees must know how to use this plan and be encouraged to use it. – It’s OK.

• Safe transportation home and sleep facilities must be provided. – Keys to call rooms in the lounge, take a nap.
Fatigue and Driving After a Shift

How do you know when you are too tired to drive?
Fatigue and Driving: Signs of Drowsy Driving

• Trouble focusing on the road
• Difficulty keeping your eyes open
• Nodding off or yawning
• Drifting from your lane, missing signs or exits
• Not remembering driving the last few blocks/miles
• Closing your eyes at stoplights

You must nap **before** driving or get a ride if overtired!!!!
Fatigue Mitigation: ACGME Professionalism

• Residents and faculty members must demonstrate an understanding of their personal role in the assurance of their fitness for work, including:
  • management of their time before, during, and after clinical assignments
  • recognition of impairment, including from illness, fatigue, and substance use, in themselves, their peers, and other members of the health care team

• Physicians are expected to adjust their lifestyle so they can be physically and mentally prepared to provide excellent care for patients without outside prompting
Fatigue Mitigation: Lifestyle/Night Float/Sleep

• Exercise
  • Submaximal aerobic exercise relieves fatigue in the short term
  • Physicians enrolled in exercise programs report less work dependent fatigue symptoms
  • 150 minutes weekly is a good starting point.
    • 30 minutes 5 times/week

• Prophylactic Napping
  • 30-40 minutes
  • Before a prolonged or night shift
  • Similar effectiveness to repeated 150 mg boluses of caffeine
Fatigue Mitigation: Maximizing Sleep Efforts

- Avoid exposure to sunlight when attempting to sleep after night shifts
- Make your sleep area in as dark and quiet as possible
- Minimize electronic distractors (TV, pager, phone, iPad)
- Cooler room temps promote more restful sleep (<72 F)
- White noise can help mask variable outside noise and promote sleep
  - There are free apps!
- 8 hours of nightly sleep is preferred and at least 6 hours of sleep while on night float
Questions and Discussion
Small group activities

• Let’s shuffle!
• Each table needs (if possible)
  • Residents
  • Fellows
  • Attendings
Guidelines

• Introduce yourself to everyone at your table
• Be respectful
• Avoid story telling
  • “There was that one time I was on for 73 hours straight and stayed awake by snorting ground up Sweet Tarts…”
• Everyone contributes because everyone experienced fatigue
Discussion 1: Recognition

• Do you know how many hours of sleep per night that you need?
• Would you want a colleague to recognize their own fatigue and tap out?
• Would you want a colleague to point out your own fatigue to you?
• How?
Discussion 2: Mitigation

• What do you do to minimize your risk for fatigue BEFORE working?
• How do you most effectively mitigate fatigue DURING a shift?
• How do you make the switch?
  • nights to days
  • after a 24 hour call
Final thoughts

• Fatigue is dangerous to you and your patients
• When you see something, say something
• Use fatigue mitigation techniques judiciously and effectively
  • That means caffeine, too
• Continue to think about better ways we can help residents and faculty manage this