24 Hours? No Problem!
Staying Awake Though The Night Shift

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BSN: December 2010
BA: English Literature, 1985
RN: staff nurse, emergency department
Saint Elizabeth Regional Medical Center
Lincoln, Nebraska (original diploma 2003)
EMT-P: 1997 (Lincoln Fire & Rescue 2001)
CEN: Certified Emergency Nurse since 2006

Saint Elizabeth Regional Medical Center
Lincoln, Nebraska
Burn Unit: Rotating Day/Night 12-hour shifts

Emergency Department 12-hour Night Shifts

Bethesda-Chevy Chase (Maryland) Rescue Squad

12-Hour Overnights

Lincoln Fire & Rescue

24s
the night shift
(my natural habitat)

Let's get to know each other

What shift do you work?
- Nights
- (8 or 12s?)
- 24s
- Rotating
What does your life look like?

- Job
- Family
  - (spouse, kids, parents)
- House
  - (dishes, laundry, lawn, attic, basement...)
- School
- Pets

Nocturnal

- 1910: average American slept 9 hours/night
- 1913: Edison invents the light bulb
- 1990s: average American sleeps 7.5 hours/night
“Night as Frontier”

- “Land of Opportunity”
- “Fewer Class Distinctions”
- “Decentralized Authority”
- “Lawlessness”
- “Helpfulness”

(Murray Melbin, 1987)

Advantages of the night shift

- “There is less management around—actually there is \textit{no} management around.”

“It feels as if you own the world: There is no one else around, and anyone you do meet is normally shocked to be awake at night.”

Reynolds, 2008
Insomnia (2002)
- C. Nolan (director)
- A. Pacino
What happens on the night shift…

Shift Work

- Health Implications of Shift Work:
  - Dangerous For Your Patients?
  - Dangerous For Your Health?
  - Dangerous For Your Career?

Terrible schedules: the Navy “watch” system

- 19th Century:
  - Two Watches
  - Four Hour Watches
  - At least they had grog!
Terrible schedules!
Firefighters

- “A-B-C”: every third
- Kelly Days
- Chicago Mayor Edward Kelly (1936)

Shift work:
Dangerous for your patients?

- New England Journal of Medicine:
  “Effect of Reducing Interns’ Work Hours on Serious Medical Errors in Intensive Care Units.”

(Landrigan et al, 2004)

Traditional Schedule: (3 Interns)
0700-1500
0700-0700-1200
0700-1500

Intervention Schedule: (4 Interns)
0700-1500
0700-2200
2100-1300
The Study

- 2203 patient-days
- 634 admissions
- 2888 hours of direct observation of interns

The Results:

- Traditional Schedule: 35.9% more serious medical errors.
- BUT...
- Traditional Schedule: Mortality: 12.7%
- Interventions Schedule: Mortality: 14.5%

“Healthcare worker fatigue and patient safety”
• lapses in attention and inability to stay focused
• reduced motivation
• compromised problem solving
• confusion
• irritability
• memory lapses
• impaired communication
• slowed or faulty information processing and judgment
• diminished reaction time
• indifference and loss of empathy

“To Err is Human, But for Some Nurses, a Crime”
American Journal of Nursing (Shalo, 2007)

“When Nurses Make Mistakes”
NYT (Brown, 2011)

“…and in a real dark night of the soul, it is always three o’ clock in the morning,…”
Fitzgerald (1936)
Shift Work Sleep Disorder

- ICD-9: 327.36 - Circadian rhythm sleep disorder, shift work type
- DSM 307.45 Circadian rhythm sleep disorder

“When good sleep goes bad”

- Sleep apnea
- Narcolepsy
- Shift work paralysis

What is Sleep?
“When Do Fish Sleep?”

How Do SEALS Sleep?

Seal migration (three month tracking map)
uni-hemispheric slow-wave sleep

The pineal gland and melatonin

The CHEMISTRY of sleep

Pineal Gland
Melatonin

- Light
  - decreased melatonin = wakefulness

- Darkness
  - increased melatonin = sleep

“Adverse metabolic and cardiovascular consequences of circadian misalignment” (Scheer et al, 2009)

- 28 hour “day”:
  - Increased serum glucose
  - Increased insulin
  - Decreased epinephrine levels
  - Decreased LEPTIN

Leptin

- Hormone
- Acts on the hypothalamus
- Suppresses appetite
  (Binds to same sites as appetite stimulants)
Shift work: Dangerous for your health!
- Food availability
- Meals out of synch with body rhythms

- Obesity
- Diabetes
- Cardiovascular Disease

circadian rhythms
- Highs and lows
- Most alert: 0900-1100
- Lows: 0100-0400 & 1300-1600

How do WE stay awake?
- Meditation, life force, chi, balance
- NOT THAT LECTURE
The History of Coffee

- Ethiopia: Kaldi: 9th Century
- 13th Century
- Italy 1890s
- Italian occupation of Ethiopia (1940s)

Europe discovers coffee (1601)

“...black as soote, and tasting not much unlike it.”
George Sandys

Coffee vocabulary

- Espresso
- Barista
Coffee vocabulary

- Cappuccino
- Latte

Brewing the perfect coffee

- Roast
- Grind
- Coffee maker
- Temperature
  Between 195-205 degrees F
  Six minute brew time

(French Press)

(French Press)
Caffeine content of

- Tea 30 – 50 mg/ 6 oz cup
- Drip coffee 100 – 200 mg/ 8 oz cup
- Espresso 100 mg/ 2 oz cup
- Cola 34 mg/ 12 oz can
- Mtn. Dew 54 mg/ 12 oz can
- Red Bull 80 mg/ 8 oz can
- Decaf coffee 5 – 15 mg/ 8 oz cup

Caffeine & Men & Men
Caffeine & Women & Women

Journal of Applied Social Psychology
Memory, Psychomotor & Negotiation skills (under stressful conditions)

(St.Claire & Hayward, 2010)

FDA limits on caffeine (in “cola-like” drinks)

- 71 mg / 12 ounce serving
- (Does NOT apply to “energy drinks.”)
“Food Additive” v “Supplement”

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medicalizing sleepiness

- Diagnosing sleepiness
- Medicating sleepiness

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Modafinil: (Provigil)

- Army (1999): 40 hours of wakefulness
- Flight studies
- Math: better
- Physical abilities: better
- Mood questionnaire: little advantage
“Between modafinil & dextroamphetamine… there are indications that modafinil is the less efficacious…. Modafinil is more likely to produce side effects which could be problematic in aviation operations.”

Modafinil: (Provigil)
- Air Force (2006) 72 hours of wakefulness
- Ground operations
- Better physical and mental performance
- Side effects: headache and nausea

Enantiomer: molecular “flip”
- Amphetamine (Benzadrine) & Dextroamphetamine (Dexedrine)
- Modafinil: (Provigil) & Armodafinil: (Nuvigil)
Armodafinil: (Nuvigil)

My experience

- Anecdotal
- Not scientifically or statistically valid
- Cannot be extrapolated to the experiences of other patients or subjects

- Rx
- Expensive
- Letter of need
- Coupons
- Samples
- Effects
- Side effects
napping

Energy Drinks

What’s in this stuff?
- taurine
- glucuronolactone
- caffeine
- B vitamins
- glucose.
- Vegetarian
- Kosher
- Halal
Dietary Supplement Health and Education Act (1994)
- Vitamins, minerals, herbs/botanicals & amino acids

Energy Shots

amphetimines
- Amphetamine (Benzadrine)
- Dextroamphetamine (Dexedrine)
- Adderall
amphetamines
- Military use
- Athletic use
- Academic use
  - FDA schedule II medication

Caffeine
  v
Dextroamphetamine
  v
Modafinil

“It’s always darkest before the dawn.”
- The English theologian and historian Thomas Fuller
  - “It is always darkest just before the day dawnorth.”
Six AM: “the golden hour”

- Exercise
- Change activity/environment
- Aromatherapy
- B-12
- Qat
GOOD MORNING!

Caution: Shift work puts you at greater risk for MVC!

0700: SLEEP!
- Melatonin
- Blackout shades
- Temperature
- Benadryl
- Teas
- Oils
- Phones
- Families and noise
agrypniaphobia

Fear of Insomnia

Who Dares Disturb Our Slumber?

25% Bleeding man beseeching us to warn the others
23% Girlfriend who thought you’d be into that
19% Neat-dover neighbor with iPod
15% Flight attendant wanting to know if we’d like chicken or beef
11% Warden telling us it’s time
7% Less Than Jake

theonion.com

Welcome home…
WARNING:
Night Shift E/R Nurse Napping
If you knock on this door, it better be an emergency!

Nap Well.
Work Safe.
Drive Carefully.
Sleep Tight.

Questions?
Comments?
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