80-hour Work Week: Better for the Resident, Better for the Patient

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Considerations

- **Traditional job**
  - 40 hours/week
  - 2 days off/week
  - Maximum shift: 12hr
  - Days off for national holidays
  - 1960 hours/year

- **Resident**
  - 80 hours/week
  - 1 day off/week
  - Maximum 30hr shift
  - Days off for national holidays: not guaranteed
  - 3920 hours/year
Origin of the 80-hr Work Week

- **March 5, 1984 - Libby Zion**
  - Intern and 2nd year medicine resident diagnosed the patient with “viral syndrome with hysterical symptoms”
  - Died of serotonin syndrome caused by meperidine (Demerol) and an MAOI, phenelzine (Nardil)
  - Sidney Zion: “You don’t need kindergarten to know that a resident working a 36-hour shift is in no condition to make any kind of judgment call—forget about life-and-death.”

- **1989 – New York State Department of Health Code 405**
  - Bell Commission

- **July 2003 - ACGME adopted 80hr work week**

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Current Regulations

- **2003 ACGME Regulations**
  - Call scheduled no more than every third night*
  - One (24-hour) day in seven free of patient care*
  - Limit of 80 duty hours per week*
    *Averaged over four weeks*
  - 24-hour limit on continuous duty, up to 6 hours for transfer, debriefing, didactic activities
  - A 10-hour minimum rest between duty periods

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Sleep Deprivation

- After 24hrs of wakefulness, cognitive function is equivalent to an EtOH level of 0.1%, most states consider this level unsafe to drive a car. ³

- Well-rested physicians outperform sleep deprived physicians in: ⁴
  - Memory tests
  - Mathematical skills
  - Visual attention
  - EKG interpretation

⁴ Robbins. Sleep deprivation and cognitive testing in internal medicine house staff. West J Med. 1990; 152(1):82-86.
Medical Errors

- Institute of Medicine reported 5
  - Medical errors as the cause of:
    - 1 million patient injuries per year
    - 98,000 deaths per year

Medical Errors

- Effect of Reducing Interns’ work hours on serious medical errors in the intensive care unit. 6

- Interns made 36% more serious medical errors during the traditional schedule than during the intervention schedule of 16 hr shift and 63 weekly hours (P<0.001)

- Interns made 21% more serious medication errors during the traditional schedule (P=0.03)

- Interns also made 6X as many serious diagnostic errors during the traditional schedule (P<0.001)

Surgical Errors

- **Effect of sleep deprivation on surgeons’ dexterity on laparoscopic simulator**
  - 20% more errors ($p=0.009$)
  - 14% longer to complete tasks ($p=0.009$)

- **Effect of sleep deprivation on performance of simulated laparoscopic surgical skill**
  - The number of task specific errors were significantly greater in the fatigued state ($p<0.001$)

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Operative Case Load

- Myth: Decreased operative cases in the 80hr work week
- Despite a 19% decrease in work hours
  - No change in exposure to trauma, emergency surgery, or critical care patients
  - No change in resident operative case load
  - However, there was noted a down-shift in cases to lower level residents

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9 Malangoni, etal. Life after 80 hours: the impact of resident work hours mandates on trauma and emergency experience and work effort for seniors residents and faculty. *J Trauma*. 2005;58:758-761.
Maximizing Resident Education

- Decreasing non-patient care centered activities
  - Computerized data gathering
  - Use of physician extenders
  - Simplified admission and discharge paperwork
  - Computerized order entry and progress notes
Resident Education

- Average 105±0.7 hrs/wk in 2001 for general surgery residents \(^{10}\)
  - 25 additional non-working hrs/wk

- ABSITE scores
  - Mean percentile scores for all residents significantly improved after hours restrictions \((p=0.02)\) \(^{11}\)


Health Benefits

- Sleep deprivation
  - Increase in HTN, DM, obesity, depression, anxiety, heart attack, stroke, alcohol use \(^{12}\)
  - Increased risk of first trimester miscarriage \(^{13}\)

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Quality of Life

Surgical residents’ perceptions\(^{14}\)

- 88% reported improvement in how well rested they felt
- 71% improvement in quality of their personal relationships
- 72% improvement in quality of their parenting
- 31% report the 80hr work week increased their willingness to become a parent or have additional children
- 75% of residents agreed with the statement “all things considered, the work hour requirements are a good thing”

Summary

- Efforts should be made to minimize medical errors
- Sleep deprivation has been shown to negatively impact health
- Surgical cases are not reduced by 80hr work week
- Non-educational activities should be avoided to make efficient use of time
- ABSITE scores increased in the 80hr work week
- Residents have better quality of life
References


4 Robbins. Sleep deprivation and cognitive testing in internal medicine house staff. West J Med. 1990; 152(1):82-86.


9 Malangoni, etal. Life after 80 hours: the impact of resident work hours mandates on trauma and emergency experience and work effort for seniors residents and faculty. J Trauma. 2005;58:758-761.


14 Irani, etal. Surgical residents' perceptions of the effects of the ACGME duty hour requirements 1 year after implementation. Surgery 2005;138:246-53.