Duty Hours Five Years Later: For Better or Worse?

A look back and a look forward…

Featuring Lawrence Smith, MD & Eileen Reynolds, MD

Moderator: Vineet Arora, MD

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Show of hands…

- Did you finish training pre-duty hours?
- Did you finish training with duty hours?
- Are you currently a resident?
- Do you think restricting duty hours has improved residency training?
- Do you think restricting duty hours has improved patient care?

Outline

- Five years ago…
  - Difficult choice for IM residency programs
- Reports since ACGME duty hours
  - Studies of patient outcomes
  - Perceptions of education, wellbeing and care
  - Effects on ambulatory care
- Recent developments

ACGME Duty Hours 2003

- To improve resident sleep deprivation and patient safety
  - Maximum 80 hours per week
  - Consecutive duty period of 30 hours
    - "24 + 6"
  - One day off per week on average
  - Minimum of 10 h off between shifts
- "Back porch" estimate

Bell, et al, 2008

Difficult Choice for IM Programs

- 80 hr/week not a problem for IM
- 30 h rule challenges the importance of "overnight call"

- IM programs forced to choose between
  - Preserving overnight call with 24+6 "*Continuity at night*"
  - Shift-work system with float coverage during the night for at least 10h* "*Continuity during the day*"

IM Program Directors Listserv 2008

"I understand that some programs have completely eliminated "overnight" call, and have substituted night float in all aspects of the program. I am trying to understand the magnitude of the change. Does anyone have a program where residents **NEVER** work 24+6?"

"Can anyone share ideas for how to make night float more educational?"

Overnight Call vs. Night Float

Domain	Overnight call "24+6"	Night float
Education	Post-call residents miss conferences	Night float residents miss conferences
Handoffs	Handoff on post-call day	Handoff on night of admission
Professionalism	Fatigue, burnout with long hours	Shift work mentality, lack of investment
Resident health	MVA, needlestick injury, burnout	Circadian disruptions

Overnight Call and Resident Health

- Motor vehicle accidents *(Barger, et al)*
  - Increased risk of MVA or near-miss incident with extended (overnight) shift
    - OR 2.3 (95% CI 1.6-3.3) MVA
    - OR 5.9 (95% CI 5.4-6.3) near miss

- Needlesticks *(Ayas, et al)*
  - Percutaneous injuries more frequent with extended shift
    - OR 1.61 (95% CI, 1.46-1.78)

Effect of Duty Hours on Patient Care: National Studies

Author	Study Pop	Comparison group	Results
Volpp, 2007			
Volpp, 2007			
Shetty, 2007			

Strengths

- Large rigorous studies with nationally representative patient sample

Limitations

- Not RCT so possible confounders
- Focus on mortality only
- Explores effect of duty hours policy in total but not care by residents exclusively

Effect of Duty Hours on Patient Care: Institutional Studies

Author
Horwitz 2007
Landrig… 2006

Strengths

- Examines effect of duty hours on patients cared for by residents

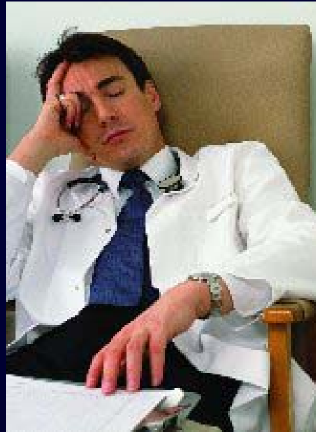
Limitations

- Single institution
- Unclear if findings are due to reductions in resident fatigue
  - Possible that other factors preferentially affected teaching service (Horwitz)
  - Suggestion that attendings and fellows contributed to improved care (Landrigan)

Perceptions: Education, Wellbeing & Care

Attendings *(Reed, et al. 2007)*

- Improved resident wellbeing BUT worsened education and continuity of care
  - Faculty report doing more direct patient care



Residents

- Improved wellbeing BUT worsened education *(Goitein L, 2005)*
- Reported reduction in errors due to fatigue but increase in errors due to discontinuity *(Myers, et al. 2006)*

Medical Students

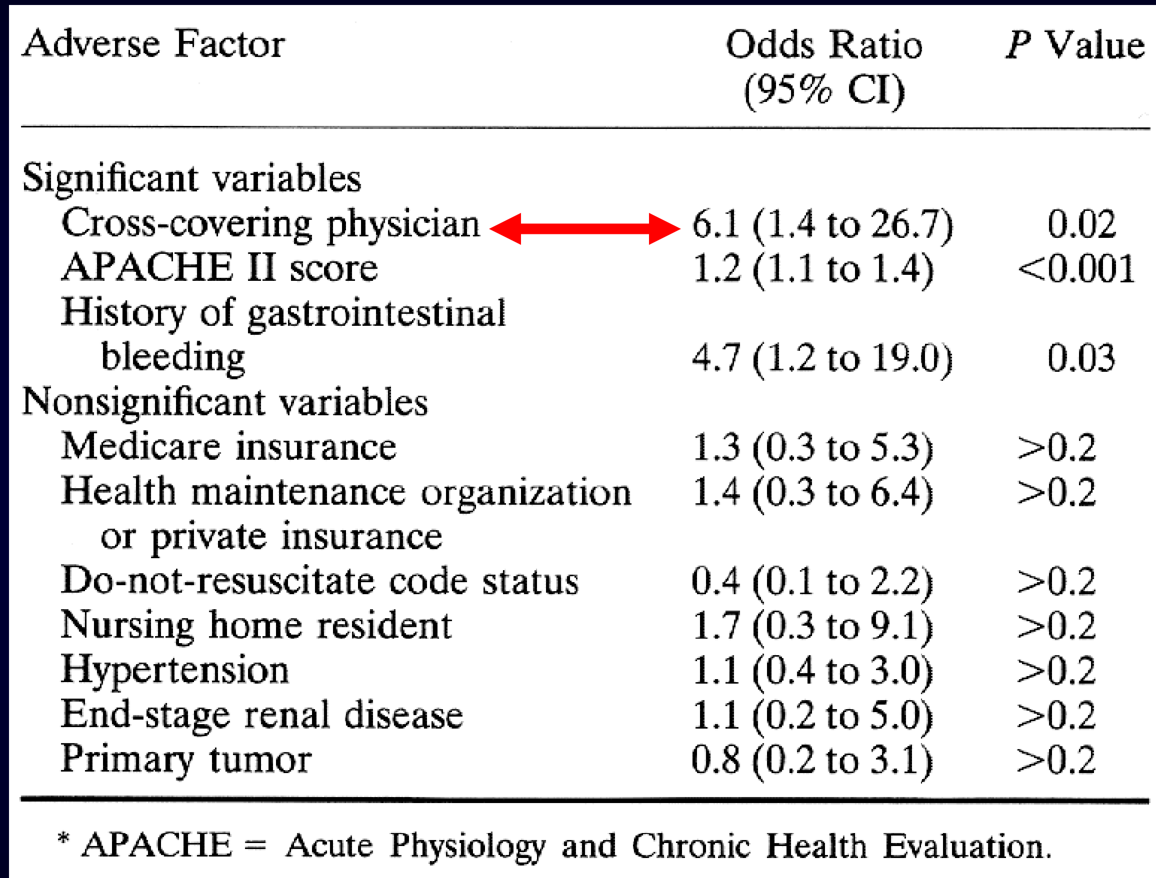
- No change education *(Kogan, et. al. 2004, Nixon, et al. 2007)*
  - Anecdotal reports of excessive student hours to make up for loss of residents led to LCME student duty hours policy (2005)

Concern with Discontinuity

- More handoffs with duty hours
  - 20% increase at UCSF *(Vidyarthi, et al.)*
- Handoff quality suboptimal
  - Lack of formal training and electronic infrastructure *(Horwitz, et al.)*
  - Unstructured and variable *(Vidyarthi, et al.)*
  - Information loss and uncertainty in decision making *(Arora, et al.)*
- Creation of shift work mentality
  - Less invested in care

Discontinuity and Patient Care

- Assess whether preventable adverse events related to various risk factors
- Trend for protective effect when patients primary intern on call OR 0.6 (0.3- 1.3)
- Applauded duty hour reform, but need to improve cross coverage care



Adverse Factor	Odds Ratio (95% CI)	*P* Value
Significant variables		
Cross-covering physician	6.1 (1.4 to 26.7)	0.02
APACHE II score	1.2 (1.1 to 1.4)	<0.001
History of gastrointestinal bleeding	4.7 (1.2 to 19.0)	0.03
Nonsignificant variables		
Medicare insurance	1.3 (0.3 to 5.3)	>0.2
Health maintenance organization or private insurance	1.4 (0.3 to 6.4)	>0.2
Do-not-resuscitate code status	0.4 (0.1 to 2.2)	>0.2
Nursing home resident	1.7 (0.3 to 9.1)	>0.2
Hypertension	1.1 (0.4 to 3.0)	>0.2
End-stage renal disease	1.1 (0.2 to 5.0)	>0.2
Primary tumor	0.8 (0.2 to 3.1)	>0.2

* APACHE = Acute Physiology and Chronic Health Evaluation.

Petersen, et al. 1994

What about Continuity Clinic?

- 1/3 of IM residency training is for ambulatory experiences
  - Includes required continuity clinic
  - Pre-2003, weekly clinic day with same preceptor
- Reports that weekday clinic now challenging
  - Admitting days (esp post-call) avoided
    - Loss of "continuity" with patients and with preceptor
  - Some programs trying to build inpatient call schedule around a fixed annual clinic schedule

Effect of Duty Hours on Continuity Clinic: 3 site study

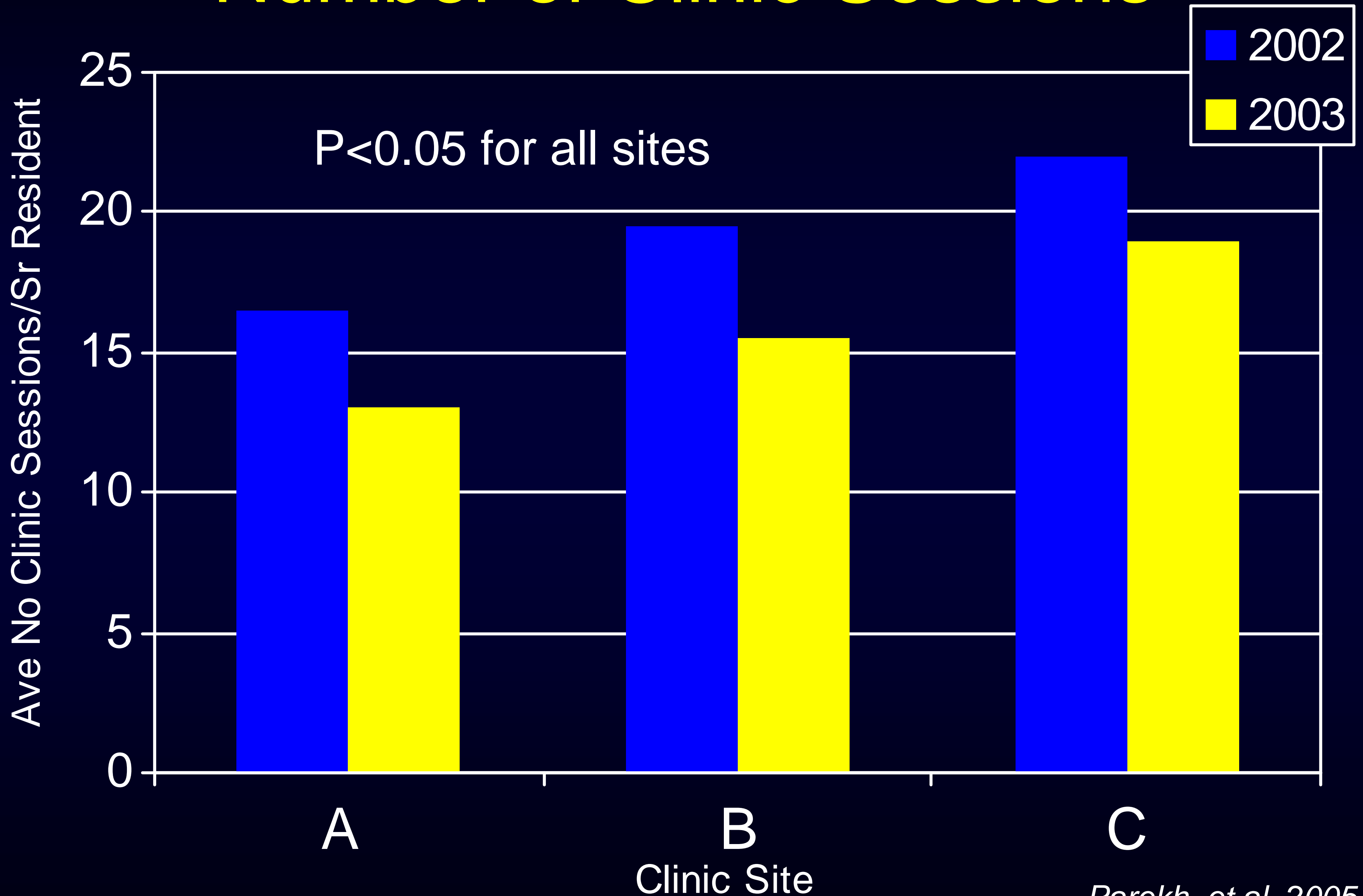
- Number of patients seen in resident clinics decreased at all sites (UCSF, U of Michigan, U Washington)

Clinic Site	Patients seen Jul–Dec 2002 (pre-duty hours)	Patients seen Jul–Dec 2003 (post-duty hours)
A	62.2	33.9*
B	67.4	54.7*
C	98.5	87.7*

*$p<0.05$

Parekh, et al. 2005

Number of Clinic Sessions



2009 Proposed IM Requirements

- Key changes for ambulatory care
  - Increase # of clinics from 109 to 150 during 30 months of IM residency
  - Continuity clinic faculty to develop “a longitudinal relationship” with their assigned residents

Current reports by ACGME

- Compliance is high
  - 9% of reviewed programs cited
  - First year residents work most
- Committee on Innovation in the Learning Environment
  - Investigate more than just duty hours such as supervision, handoffs, and burnout
    - Pilot projects underway

APDIM Learning Environment Task Force

- Address work compression with duty hours
  - Eliminate administrative tasks like scheduling routine tests and appointments
- Promote better sleep hygiene
  - Napping, education, transportation, grouped shifts
- Improve communication during transitions
  - Standardized sign-out

Related Efforts

- Institute of Medicine
  - Committee on Optimizing Graduate Medical Trainee Work Schedules to Improve Patient Safety
    - Report to be issued in Winter 2008
- European Working Time Directive
  - Current maximum is 56h/week for *all workers*
  - Limit will decrease to 48h/week in 2009
    - Junior doctors NOT exempt

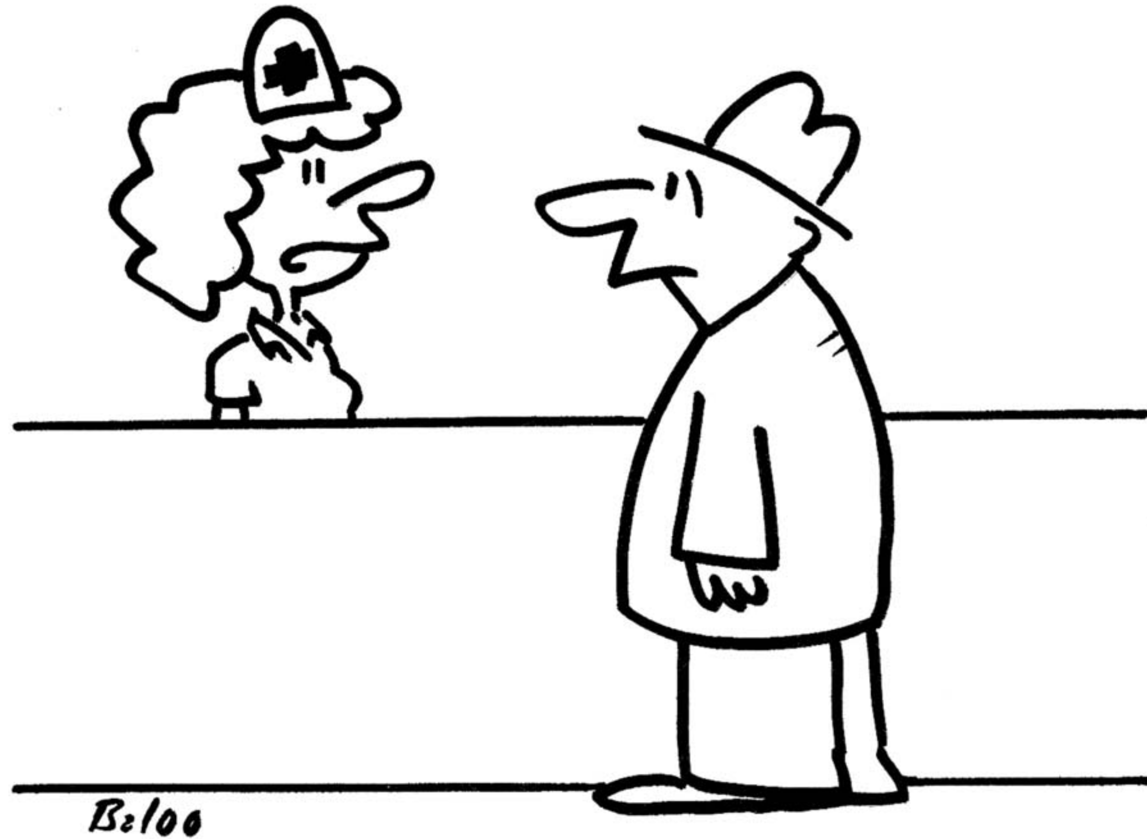
Discussants

- Dr. Larry Smith
  - "A look back"
  - What can we learn from the past?
  - Perspective from NY with over 10 years of experience with duty hours
- Dr. Eileen Reynolds
  - "A look forward"
  - The future of IM residency training and effects of duty hours
  - Need for innovative solutions

DISCLAIMER: Dr. Reynolds is not speaking on behalf of ACGME or RRC-IM

Of course under the new contract 24 hour cover will be optional, you could also opt to do 36 or 48 hours a day!

CITY CLINIC



"You have a 24-hour virus? Sorry, sir — we just work an 8-hour day here."

Q & A

Thank You!

- Special thanks to Larry Smith and Eileen Reynolds
- Meeting Chairs: Michael Fine & Rachel Murkofsky
- Sarajane Garten, SGIM
- Ingrid Philibert, ACGME
- Cheryl Ulmer, Institute of Medicine
- Arpana Vidyarthi, Vikas Parekh, Leora Horwitz for their contributions
- Jeanne Farnan, Shalini Reddy, Holly Humphrey

Extra slides

Intervals Between Clinics

- No change in average interval BUT Maximum intervals between clinics increased for senior residents
  - up to 56 days between sessions at some sites (range 35 to 56 days)
- Lack of significant change in average interval reflects addition of “make-up” clinics
  - senior residents often had more than 1 clinic during certain weeks