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Presentation before
Committee on Optimizing Graduate Medical Trainee
(Resident) Schedules to Improve Patient Safety
Institute of Medicine
Washington, DC
December 3, 2007

Outline

- Evidence of harms to patients
- Evidence of harms to residents
- What does the public think?
- The ACGME guidelines

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Resident Work Hour RCT

	Traditional Schedule	Interventional Schedule
Mean hours work per week	84.9	65.4
Mean hours sleep per week	45.9	51.7
Attentional failures per call	5.5	2.6
Serious medical errors/1000 p-d	136.0	100.1
Nonintercepted serious medical errors/1000 p-d	44.8	28.6

Source: NEJM 2004;351:1829-37 & 1838-48

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Dangers to Residents

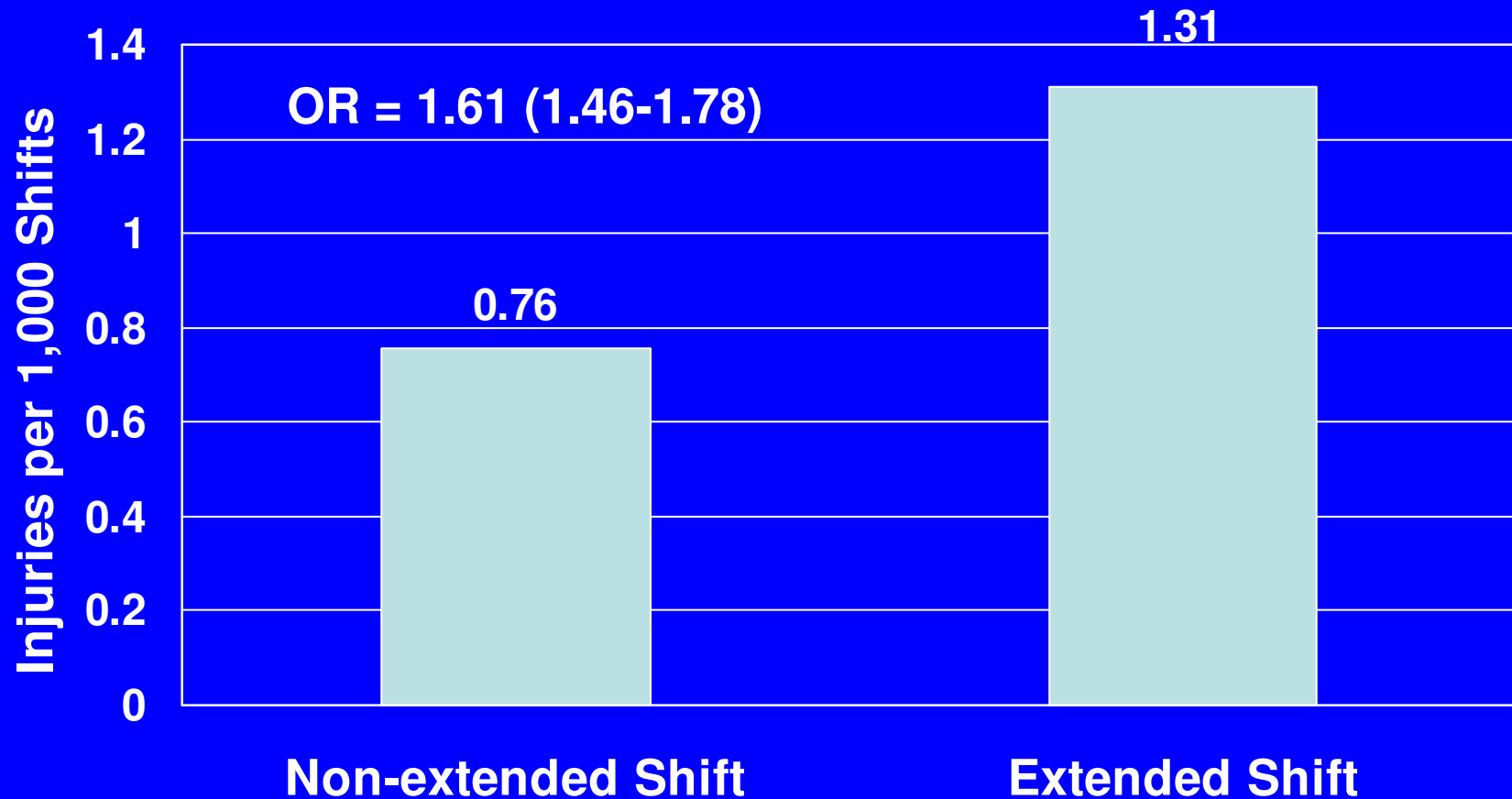
- Depression
- Adverse pregnancy outcomes
- Motor vehicle crashes
- Needlestick injuries

Source for pregnancy outcomes: NEJM 1990;323:1040-5

Resident Work Hour Survey

- Prospective survey of 2737 residents
- 17,003 monthly reports
- After an extended shift:
 - Motor vehicle accident: OR = 2.3 (1.6-3.3)
 - Near-miss: OR = 5.9 (5.4-6.3)
- In months with \Rightarrow 5 extended shifts
 - Fall asleep while driving: OR = 2.4 (2.3-2.5)
 - Fall asleep while stopped: OR = 3.7 (3.6-3.8)

Resident Work Hours and Risk of Daytime Percutaneous Injury

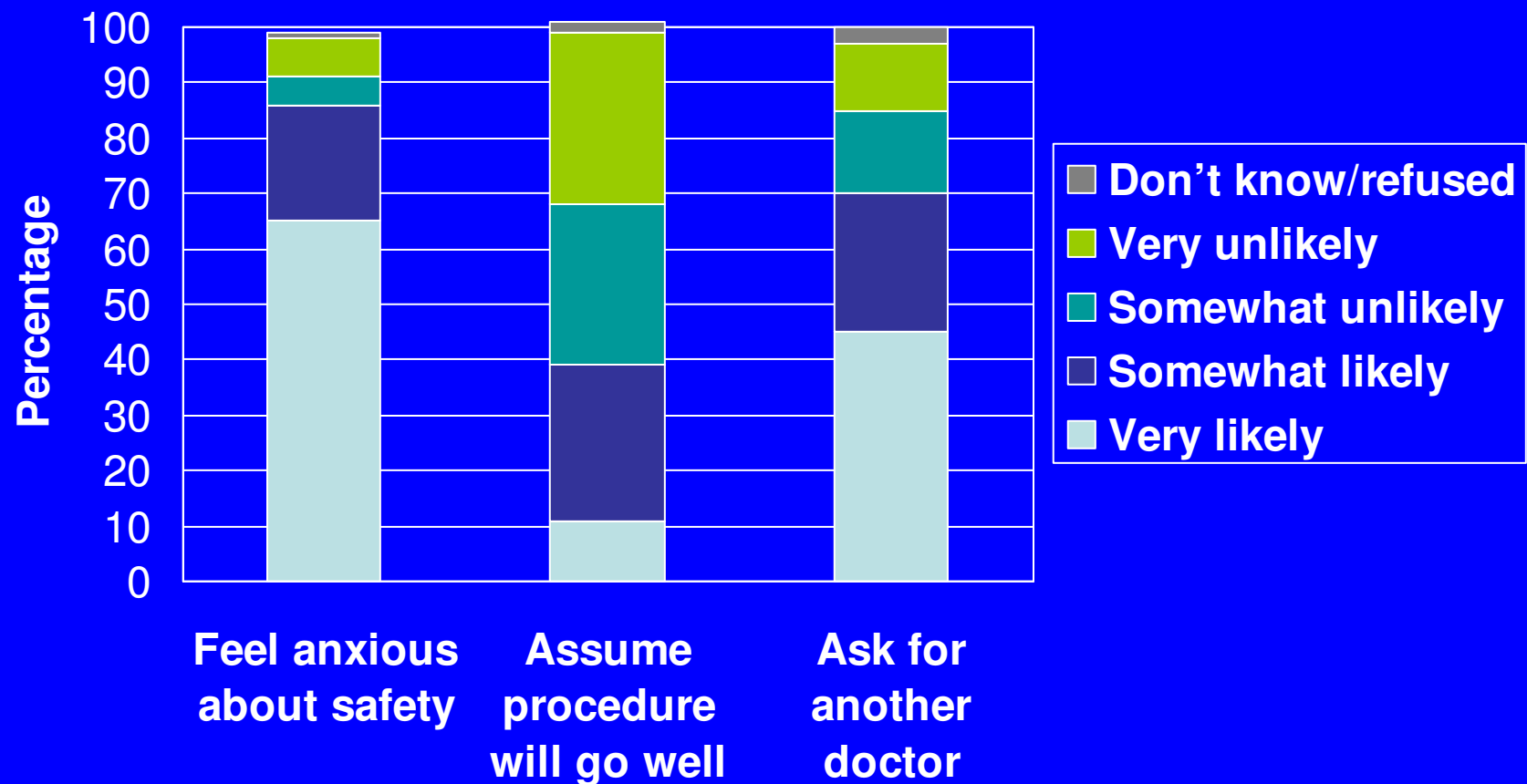


Source: JAMA 2006;296:1055-62

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- *What does the public think?*
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How Would you Feel if you Learned Your Doctor had been on Duty for 24 Hours?



Source: National Sleep Foundation. "Sleep in America" Poll, 2002 (n=1010)

What are Others Doing?

- European Working Time Directive for Residents
 - Previously: 76 hours per week
 - 2004: 58 hours per week
 - 2009: 48 hours per week
- Federal Agencies
 - Federal Aviation Administration
 - Federal Railroad Administration
 - Federal Motor Carrier Safety Administration
 - U.S. Coast Guard

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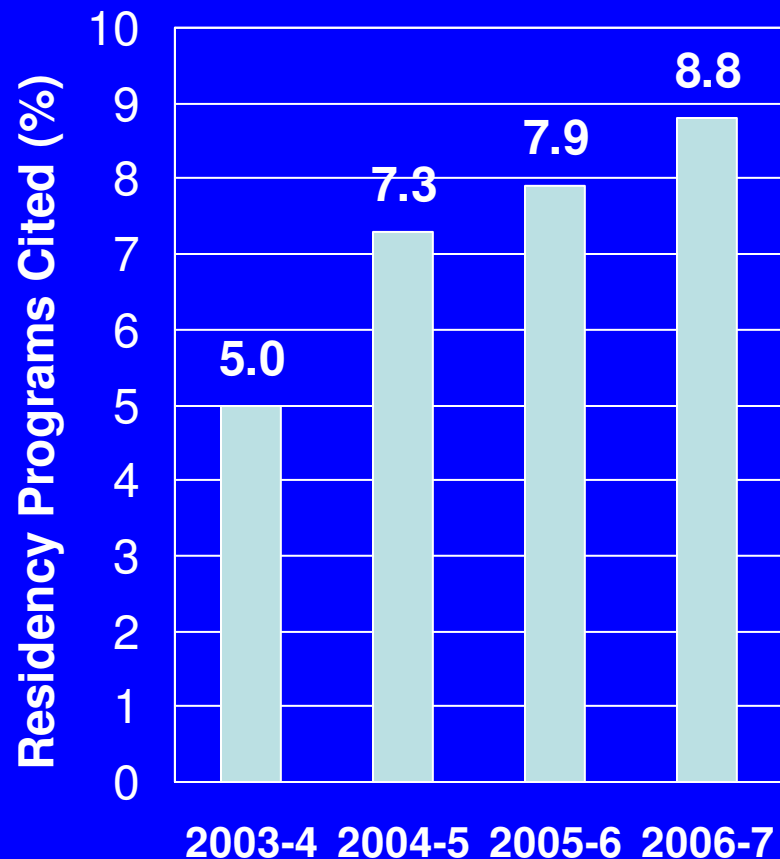
Resident Work Hour Proposals

- 2001: PC, AMSA, CIR petition to OSHA for ≤ 80 hours/week, call \leq every third night, ≤ 24 hours on call, one day off per week
- 2002: OSHA denies petition
- 2001, 2003: Congressional legislation
- 2003: ACGME institutes voluntary guidelines

Resident Work Hour Proposals

	OSHA Petition/ Federal Legislation	ACGME
Maximum Hours per Week	80 hours, no averaging	88 hours averaged over 4 weeks
Maximum Shift Length	24 hours	30 hours
Maximum On-Call Frequency	Every third night, no averaging	Every third night, averaged over 4 weeks
Mandatory Off-Duty Time	24 hours off per week, no averaging	24 hours off per week, averaged over 4 weeks
Whistleblower Protections	Yes	No
Enforcement	Civil penalties	Voluntary approach
Public Disclosure of Violating Hospitals	Yes	No

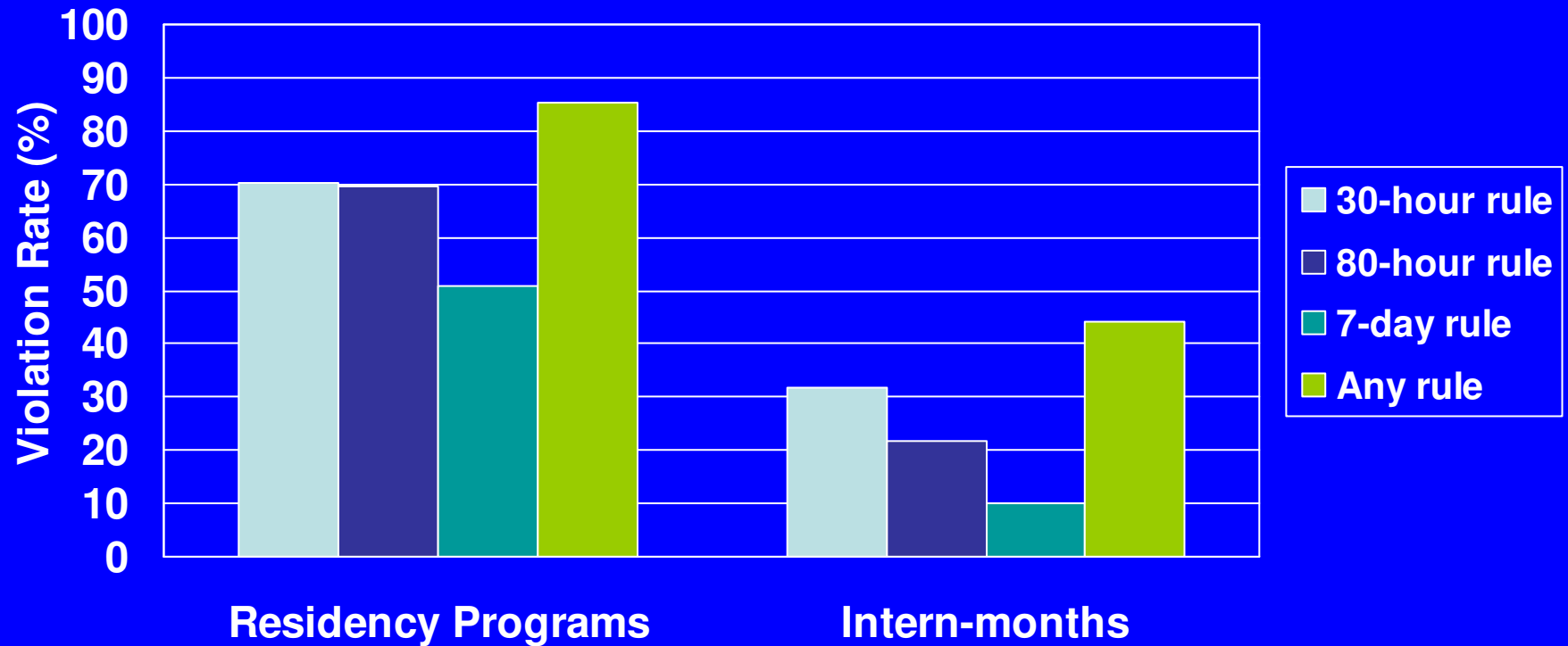
ACGME Guideline Enforcement



- 1/3 of residency programs up for accreditation per year
- 2.9% of all citations in 2006-7 were for duty hour violations
- 10 complaints received in 2006-7

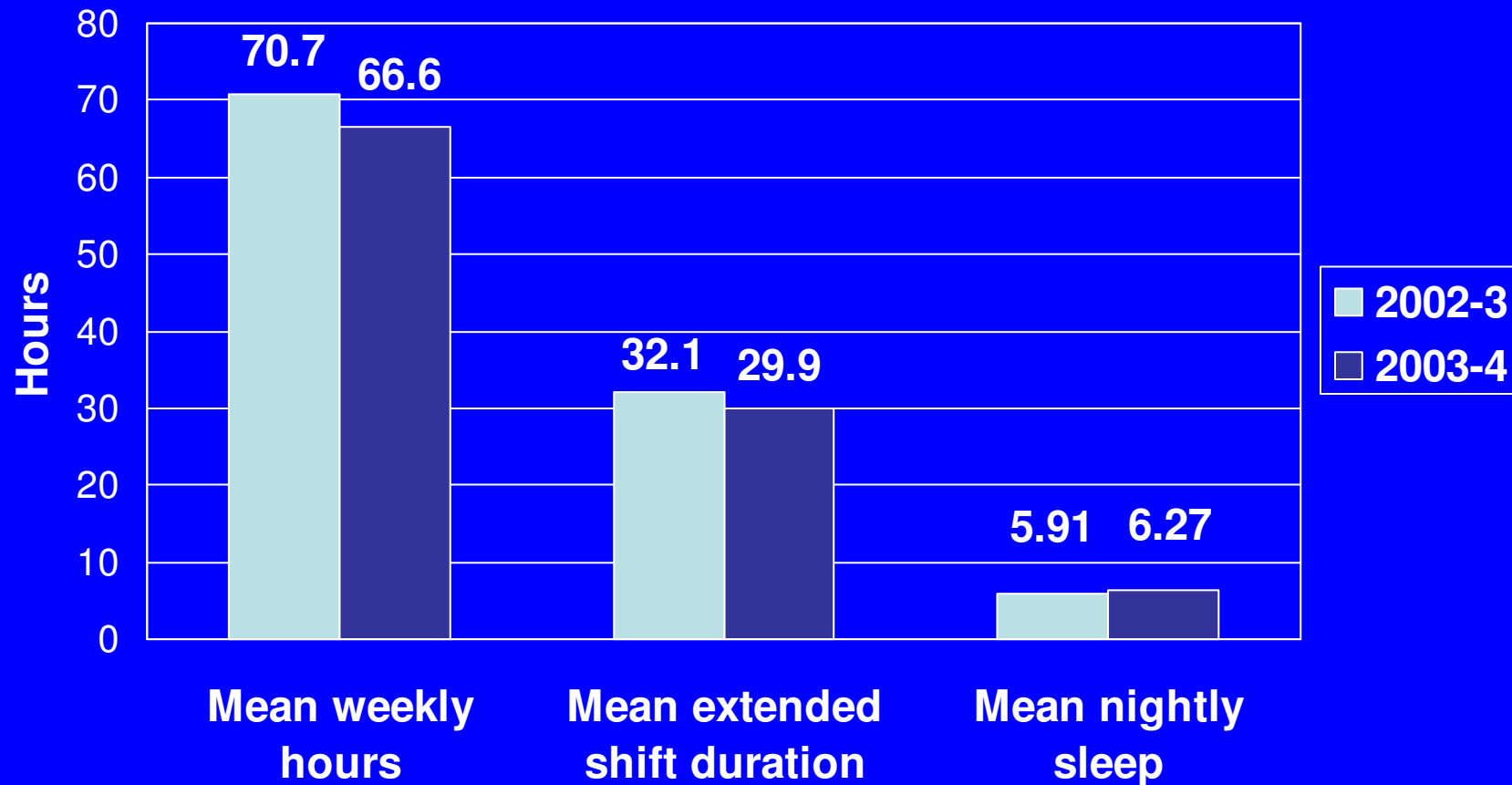
Source: http://www.acgme.org/acWebsite/dutyHours/dh_achieveSum0607.pdf

Intern Compliance with ACGME Guidelines, 2003-4



Source: JAMA 2006;296:1063-70

Impact of ACGME Guidelines



Summary

- Evidence of harms to patients
 - Strong
- Evidence of harms to residents
 - Strong
- What does the public think?
 - Most oppose current practices
- The ACGME guidelines
 - Not adequately enforced





Survey of Monthly Resident Work Hours and Medical Errors

	1-4 Extended Shifts (OR*; 95% CI)	>4 Extended Shifts (OR*; 95% CI)
Adverse patient outcome	8.7 (3.4-22)	7.0 (4.3-11)
Death	3.2 (0.1-106)	4.1 (1.4-12)

*Compared to months in which the residents worked no extended shifts

Source: PLoS Medicine 2006;3:e487