

Quick Review of the NRT Fatigue Management Guidance

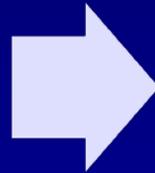
NIEHS Workshop, 10-7-14



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CPWR

My presentation is in 2 sections

**Review
key
literature
on fatigue**



**Review NRT
guidance on
fatigue
management**

FIRST SECTION:

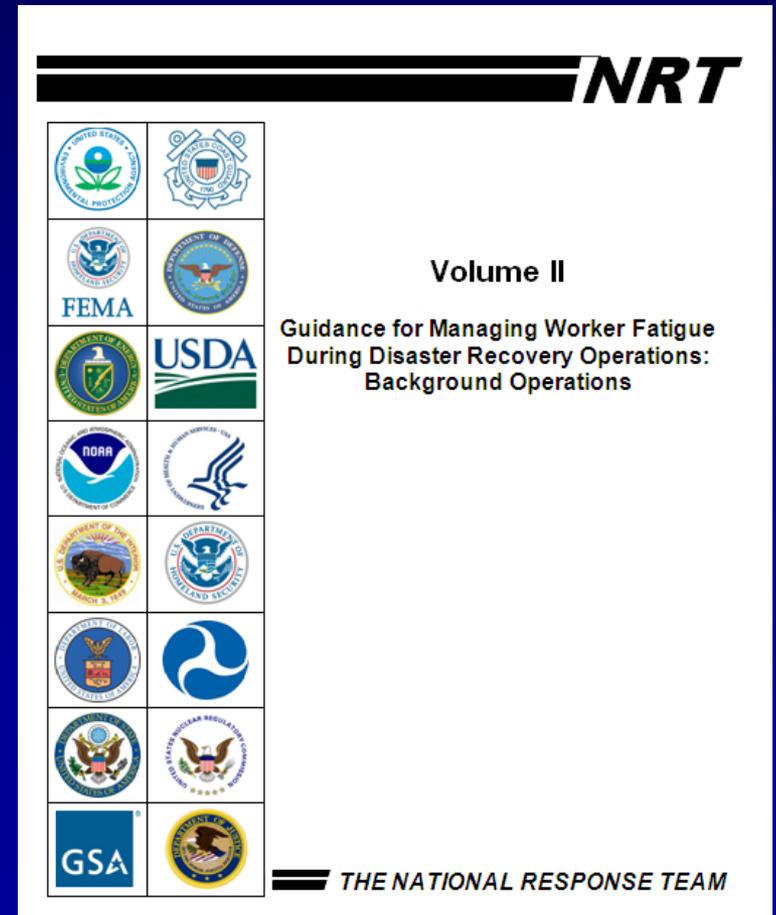
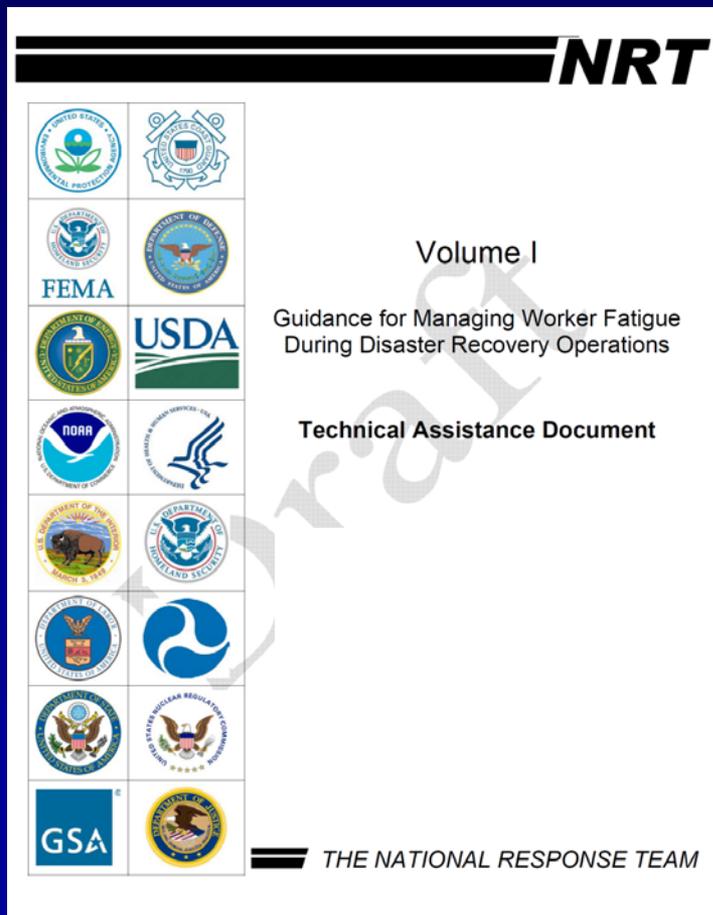
Overview of the literature on fatigue

Dr. Claire Caruso, NIOSH
developed this overview

There are 2009 National Response Team volumes on fatigue management

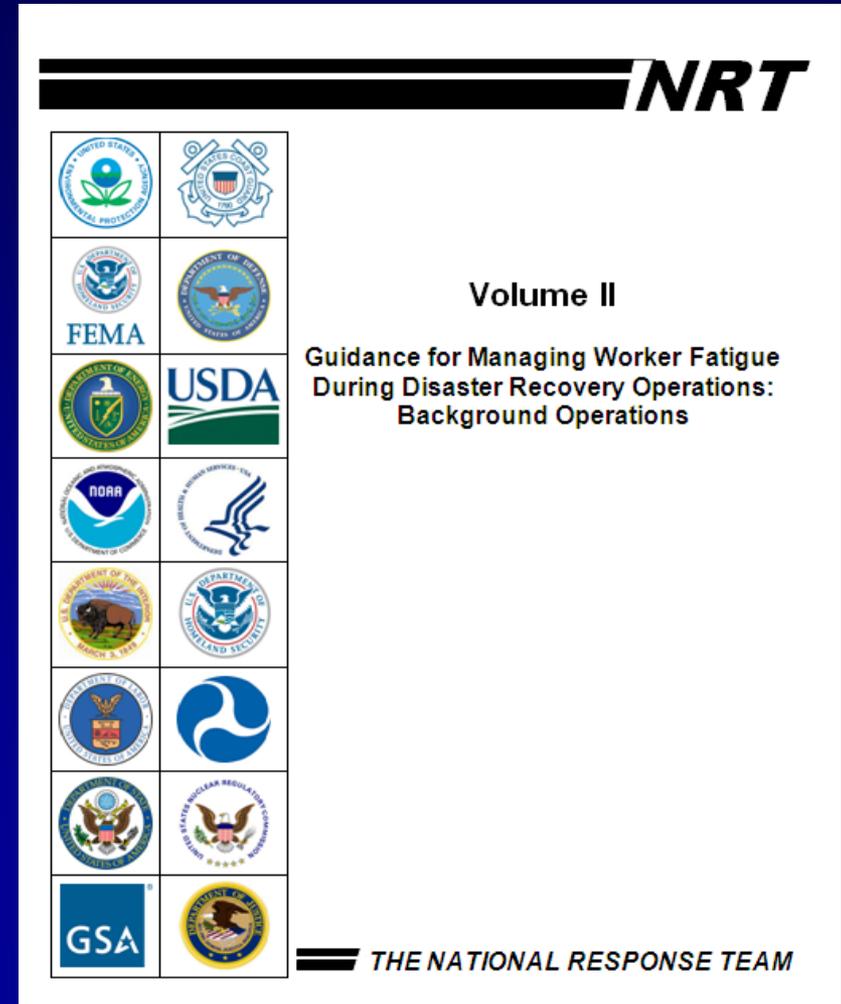
Technical Assistance Document

Background



We'll start with Volume II, the background document

Excellent
literature
search by
Jan Shubert,
EPA and
Claire
Caruso,
NIOSH



KEY POINT: Responders can not recognize their own decline or have enough training or experience to avoid it



Arendt et al., 2005; Van Dongen et al., 2003

Shift work leads to shorter sleep patterns with more disturbances

One-third of night workers experience long-term insomnia and excessive sleepiness

(Drake et al. 2005)

**12 hour shift, USAR
Team members, Kansas
grain elevator explosion
1998, FEMA**



17 hours awake impairs performance similar to being drunk

17 hr awake = BAC 0.05%

24 hr awake = BAC 0.10%

(NC MS Units: 3.5)

(Dawson & Reid, 1997; Williamson & Feyer, 2000; Arendt et al. 2005)

After 12 hour shift,
Dennis Clark, Kansas
grain elevator explosion
1998, FEMA

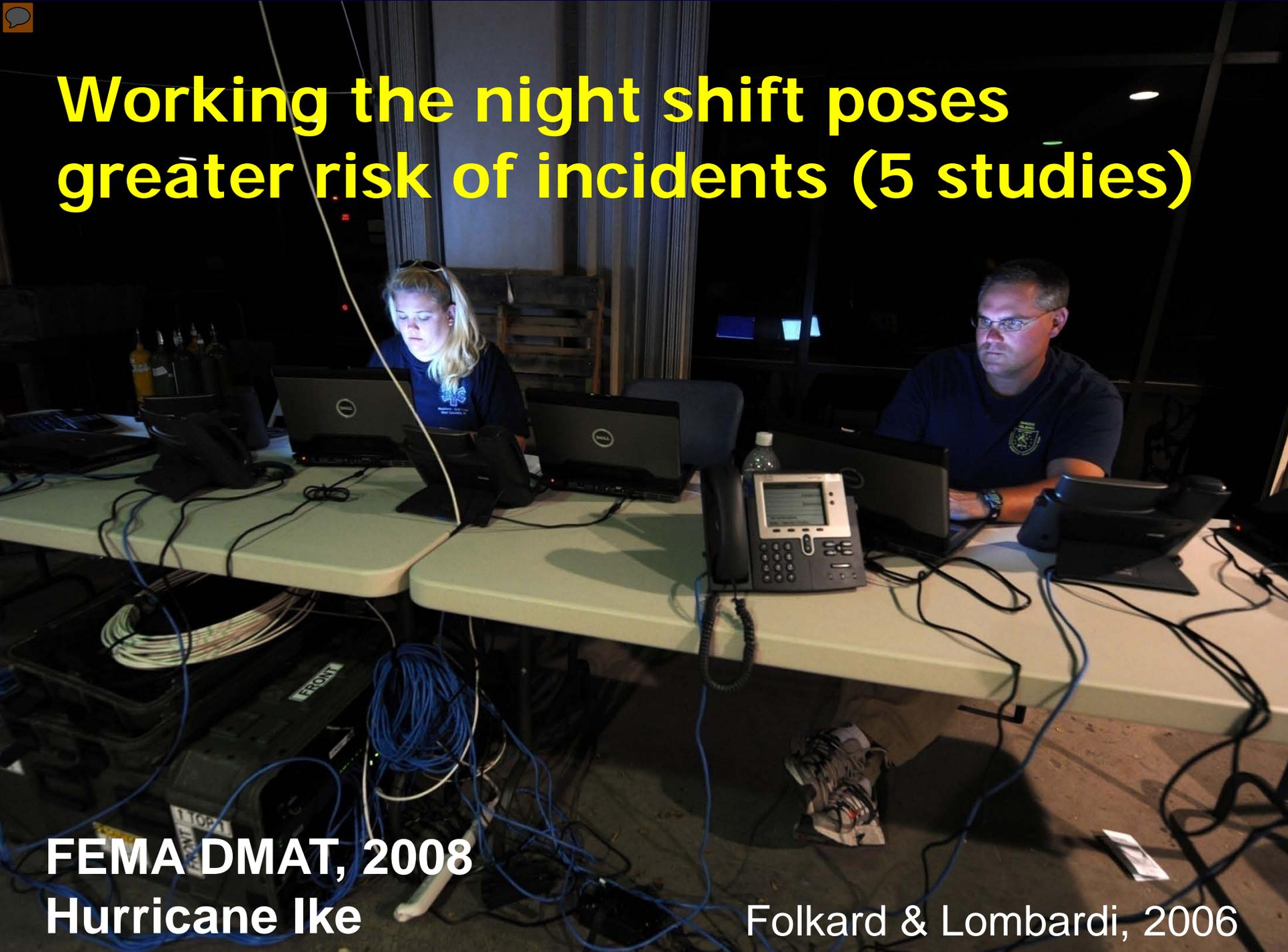


Injury risks increase across Duty Hours

Folkard & Lombardi (2006) pooled findings from 4 studies

- 10-hr shifts increased risk by 13%
- 12-hr shifts increased risk by 28%

Dembe et al. (2005) indicates possible **dose response** : injury rates increase as work hours increase



Working the night shift poses greater risk of incidents (5 studies)

FEMA DMAT, 2008
Hurricane Ike

Folkard & Lombardi, 2006

Literature on long hours



There are fewer studies, but the number is growing

FEMA, Winfield, MO

6-08



Long work hours result in higher injury rates

Dembe et al. Occup Environ Med 2005

- **110,236 job records** for nationally representative sample of U.S. workers over **13-year period**
- **61% higher injury rate** for workers in jobs with overtime schedules

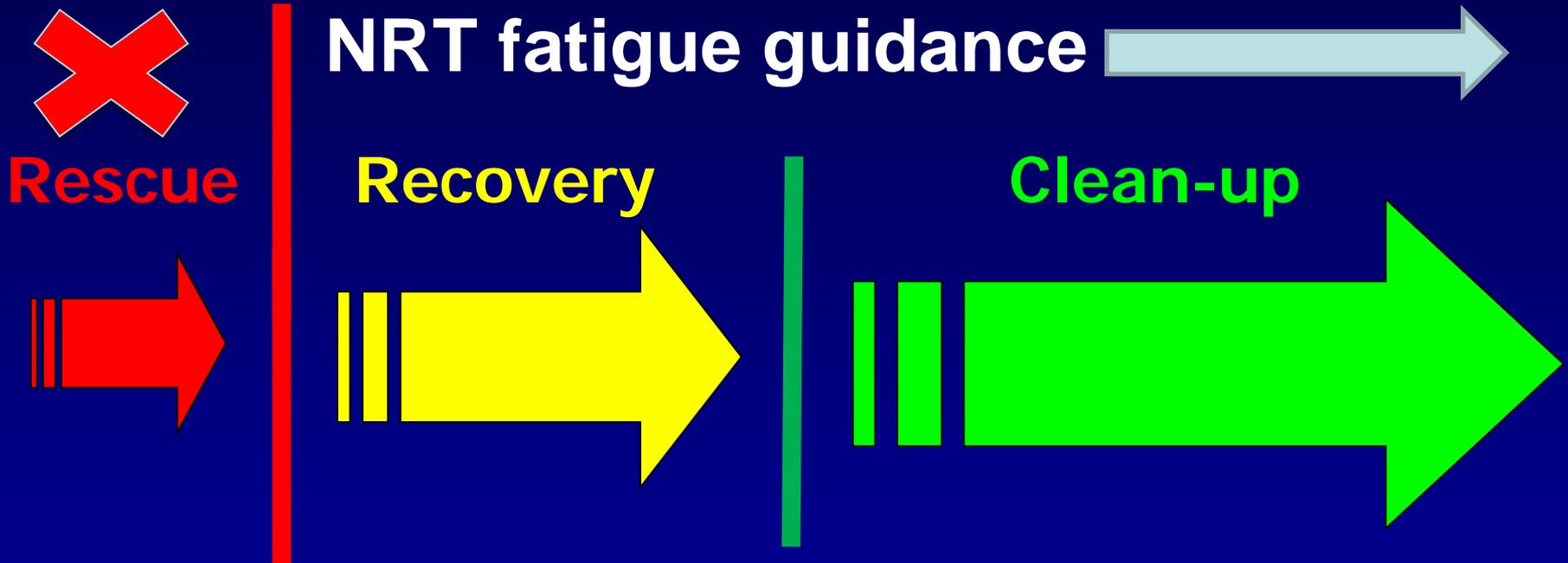
Shift work and long hours impact families

- Delay of marriage, childbearing (Jacobs, 2004)
- Divorce: **men 6 fold increase**; women 3 fold increase (Presser, 2000)

Second section: Overview of the NRT Guidance



NRT guidance does *not* cover the rescue phase, which is often the most exhausting



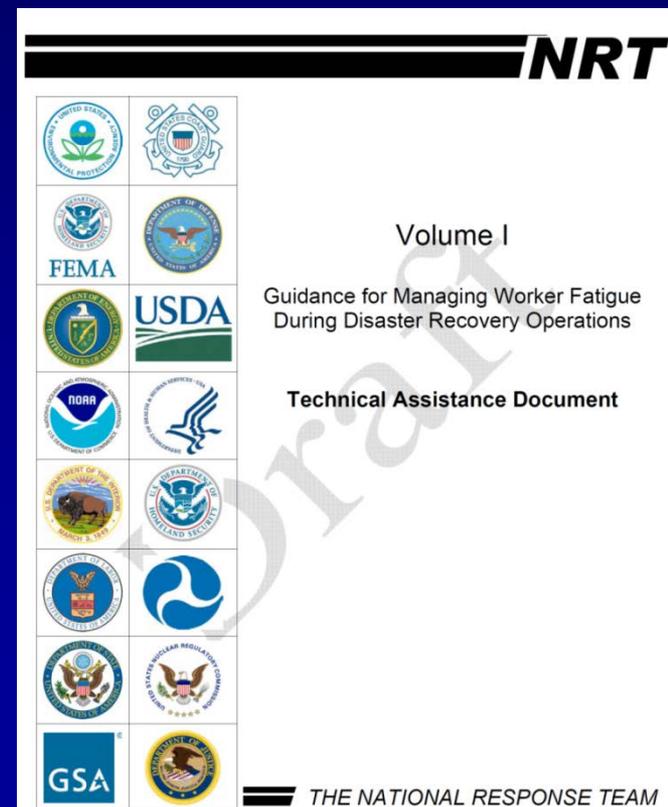
Volume I, the Technical Assistance Document, manages fatigue at two levels:

1. Organizational Program
2. Incident-Specific Plan



The agency program and site plan have common elements

1. Assessment
2. Identification of fatigue risk factors
3. Controls
4. Evaluation



The guidance contains a risk assessment tool

- Evaluates added risk due to fatigue
- Considers exposure and severity weight factors

Can we work this into training?



The NRT guidance focuses on five key risk factors and stressors

1. Time
2. Living conditions
3. Nature of work
4. Site conditions
5. Emotional issues

How many now use the NIEHS Clearinghouse pocket guides?

PowerPoints and pocket guides for:

- Hurricanes
- Wildfires
- Earthquakes
- Dirty bombs
- Avian Influenza
- Japanese response



<http://tools.niehs.nih.gov/wetp/>

Discussions questions

- 1. Does your organization already have training materials on fatigue?**
- 2. Would you be able to modify existing training to include a module on fatigue management? If so, what curricula?**
- 3. What is the ideal method for integrating climate change training into our programs?**
- 4. What value is the NRT fatigue guidance for our work?**

**Thank you.
Any questions?**

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