LEANING TOWARDS SCREENING: RULING OUT MITOTIC DESEASE

Godo Savinsky
Structure and Qualification:

2630 volunteer firefighters
• 86 fire stations including
• 18 fire stations with EMT-Basic trained fire fighters

2751 professional firefighters
• all professional firefighters are EMT (520h)
• 800 are EMT Paramedics (3yr)
• 21 fire stations and 34 rescue stations

Responses
• 253,686 medical responses
• 34,713 technical assistance and firefighting
IS THERE GOOD AND BAD SMOKE?

There are up to 1000 different substances in smoke

Some of them are harmful

Firefighters inhale substances from the smoke and also absorb them through the skin

Even if we think it smells good, it can be dangerous

Thanks to all the international studys and analysis about the risks for firefighters
THE THREE STEPS

1. Create Awareness
   - short term - fast and cheap -

2. Education
   - mid term -

3. Equipment
   - long term and expensive -
ENLIGHTENMENT

How we look at our heroes…
CREATE AWARENESS

- Lectures & communication
- Service regulations
- Concept for hygiene at the scene
- Analysis of early deaths
- Change the view to the heroes

©Rüdiger Piorek
EDUCATION

• Develop the curriculum
  ➢ Use the respirator
  ➢ Use mask and filter (cold smoke)
  ➢ Protect your skin
  ➢ Change your PPE on the scene (smell & see)
  ➢ Don’t drink, eat or smoke at the mission site before you have washed face and hands
  ➢ Don’t transport the used suites and hoses in the driver’s cabin
EQUIPMENT

Fire Stations

- Showers between garage and restrooms
- Spatial separation of clean and dirty areas
- Air lock
- Space for cleaning and storage
EQUIPMENT

Hygiene modules
• Modify the fire engines with a hygiene module for the washing of face and hands

Protective gear
• Change to a pool of PPE
• Purchasing more PPE
  • 2700 for 900,-€ each
• Rethink the process of cleaning the PPE
• Purchasing of clothes to change for the way back to the fire station
CURRENT STUDIES

Biomonitoring
• DGUV study (German Social Accident Insurance)
• Search for polycyclic aromatic hydrocarbons
• Collecting blood and urine samples before and after a exposure
• Compare different functions of firefighters to the guy who is cleaning the hoses

Wipe sample
• Comparison of the driver´s cabins of different fire engines
• Collecting samples with a white sheet, looking for fire residues

Start of a register of exposures (smoke log)
• 30% create awareness
• 30% education
• 30% equipment
• 10% care for the affected firefighters & further studies
EMS is Painful

Focus on EMS Safety

Focus on the EMS Workforce

Comparison of Public Safety Provider Injury Rates
Joe Suyama, MD, Jon C. Rittenberger, MD, MS, P. Daniel Patterson, PhD,
David Hostler, PhD, CSCS
How Can We Prevent Injury

- Functional Movement Screening (FMS)
  - Movement assessment trying to find individuals limitations and asymmetries
  - Screen → Corrective exercises

- Who can perform screen?
  - Physical therapist
  - EMS provider who has done training
    - Safety officer
    - Wellness officer
  - Complete course and take test

https://www.functionalmovement.com/system/fms
What Happened in Indy?

• Performed FMS screening on 146 individuals
  – Volunteers
  – New hires as part of our academy
• 2 follow up exams after screening
  – 30 and 90 days
• Followed injuries from January-October
  – Looked at reported injuries
  – Looked at associated costs of the injuries
What Did We Find

146 screened

29 completed

117 Incomplete

IU Department of Emergency Medicine
What Did We See (21 Injuries)

<table>
<thead>
<tr>
<th></th>
<th>Completed FMS</th>
<th>Did not Complete FMS</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injuries</td>
<td>8 (38%)</td>
<td>13 (62%)</td>
<td>24%</td>
</tr>
<tr>
<td>Work Hours Lost (per person)</td>
<td>50</td>
<td>100.6</td>
<td>50.6</td>
</tr>
</tbody>
</table>

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## Show Me the Money!

<table>
<thead>
<tr>
<th></th>
<th>With FMS</th>
<th>No FMS</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury Cost (per person)</td>
<td>$1,732.88</td>
<td>$2,317</td>
<td>$584.12</td>
</tr>
<tr>
<td>Cost to Replace Work hours</td>
<td>$863</td>
<td>$1,789</td>
<td>$926</td>
</tr>
<tr>
<td>Total Cost of Therapy</td>
<td>$224</td>
<td>$532</td>
<td>$308</td>
</tr>
</tbody>
</table>

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Summary of Findings

• Overall saw a total savings of > $37K over 10 months on 21 injuries
• Minimal investment in personnel
  – Can train safety officers and others
• Follow up was extremely difficult
  – Lost motivation
  – Hard to schedule
Barriers

- Must have a champion for this program
- When to introduce the program
  - Initial orientation
  - Mandatory training?
- Follow up is key
  - Are they doing corrective exercises?
  - Trend towards improved outcomes
Conclusions

• EMS is a house of pain!
• Consider FMS as part of your injury prevention strategy
• There are cost savings to be had
• Can lead to decreased stress for EMS providers

Dan O’Donnell,
Dapodonn@iu.edu
@cubsbank

IU Department of Emergency Medicine
Combating Fatigue in EMS: An Evidence-Based Guideline

Peter Taillac, MD, FAEMS
2019 Eagles Conflagration
Evidence-Based Guidelines for Fatigue Risk Management in Emergency Medical Services

NHTSA-Convened Expert Panel on Fatigue in EMS

- EMS Providers
- EMS Medical Directors
- EMS Researchers
- Sleep Medicine
- Fatigue Science
- Risk Management
- Consumerism

- Recommendation of the National EMS Advisory Council
- GRADE Process for EBGs used
Recommendation #1

Use a fatigue/sleepiness survey instrument to measure and monitor fatigue in EMS personnel

- Assess the magnitude of the fatigue problem for your agency
- Assess yearly
- Make adjustments to fatigue management plan based on results
Recommendation #2

Recommend that EMS personnel work shifts shorter than 24 hours in duration

- Shifts less than 24 hours in duration are associated with:
  - improved outcomes related to
    - safety,
    - performance,
    - acute fatigue,
    - sleep,
  - and other outcomes than are shifts greater than or equal to 24 hours.
Recommendation #3
Recommend that EMS personnel have access to caffeine as a fatigue countermeasure

- There is no recommended optimal dose...
- Evidence shows that consumption of caffeine during shift work has positive effects on:
  - performance,
  - acute fatigue,
  - and acute sleepiness
- Duh...
Recommendation #4
Recommend that EMS personnel have the opportunity to nap while on duty to mitigate fatigue

- For shifts >12 hours or overnight
- Evidence shows that napping during shiftwork reduces feelings of acute fatigue (sleepiness)
- Nap length not specified
  - 10-15 minutes proven beneficial
- Can I hear an “Amen”?!
Recommendation #5
Recommend that EMS personnel receive education to mitigate fatigue and fatigue-related risks

- Evidence shows that education and training in sleep health and fatigue has a positive impact on sleep and related outcomes among shift workers (i.e., sleep quality)
- Refresher training every 2 years
SUMMARY OF EVIDENCE-BASED RECOMMENDATIONS

Five recommendations comprise the 2018 Evidence Based Guidelines for Fatigue Risk Management in EMS.¹²

These recommendations include:

1. Recommend using fatigue/sleepiness survey instruments to measure and monitor fatigue in EMS personnel.
2. Recommend that EMS personnel work shifts shorter than 24 hours in duration.
3. Recommend that EMS personnel have access to caffeine as a fatigue countermeasure.
4. Recommend that EMS personnel have the opportunity to nap while on duty to mitigate fatigue.
5. Recommend that EMS personnel receive education and training to mitigate fatigue and fatigue-related risks.
Most Excellent Implementation Guidebook

NASEMSO website: https://nasmso.org/projects/fatigue-in-ems/

IMPLEMENTATION GUIDEBOOK
2018 FATIGUE RISK MANAGEMENT GUIDELINES FOR EMERGENCY MEDICAL SERVICES

October 2018

By:
P. Daniel Patterson, PhD, NRP
University of Pittsburgh

Kathy Robinson, RN, EMT-P
National Association of State EMS Officials

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