TOTAL WORKER HEALTH AND FIREFIGHTER OBESITY

A PARTICIPATORY, MIXED-METHODS RESEARCH APPROACH

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PARTICIPATORY ACTION RESEARCH

“Participatory research attempts to break down the distinction between the researchers and the researched, the subjects and objects of knowledge production by the participation of the people-for-themselves in the process of gaining and creating knowledge. In the process, research is seen not only as a process of creating knowledge, but simultaneously, as education and development of consciousness, and of mobilization for action (Gaventa 1988: 19)
Participatory research and NIOSH Total Worker Health

“Participatory ergonomics has its roots in an understanding that effective work redesign requires taking into account workers’ first-hand knowledge of their jobs, including the sources of variance in job demands and constraints”

“...a participatory process such as PE is highly relevant to success of the NIOSH Total Worker Health (TWH) program.” (Punnett et al and CPH NEW 2013)
Aims of the FORWARD study

- To explore **occupational and behavioral risk factors** for obesity in firefighters in large So. California dept.

- Participatory research approach to develop an ongoing collaboration with firefighter stakeholders and to ultimately develop feasible interventions for reducing obesity and CVD risk
  - Research Advisory Committee
  - Focus Groups and targeted interviews
Research Advisory Committee

- Prior to beginning the FORWARD study – developed a committee of “stakeholders” who worked together to develop a feasible research design, adapt and design questionnaires, and contribute to the interpretation of findings.

- Regular meetings throughout the study - included research team, Wellness Fitness (WEFIT) coordinator, WEFIT Medical Director, representatives from union, Chief Officer Association, and rank and file FF.
Part I: Research Advisory Committee/Focus Groups of FF’s
- Participatory Action Research approach
- Develop a firefighter work and health questionnaire

Part II: Start survey
- 15-month data collection
- N ≥ 357
- Obesity measures (BMI, body fat %, and waist circumference at WEFIT exams)

Conduct sub-study
- 6-8 month data collection, N ≥ 80
- Physical activity monitoring (Actigraph)
- Food record diary
- A short form of the firefighter work and health questionnaire (test-retest reliability)

Part III: Data Analysis
- Archival data for call information

Part IV: Focus groups of FFs/Final report
- Evaluation of the study and recommendations for preventing obesity in firefighters
Five main causes of obesity raised by FF

1) fire station eating culture (“hot brown and plenty of it”, traditions)
2) night calls and sleep interruption (24 hour shifts)
3) supervisor leadership and physical fitness (inconsistent leadership)
4) sedentary work (more desk work, promotion = less physical)
5) age and generational influences (younger cohorts more interested in “health”)

(Dobson et al AJIM, 2013)
Part IV Focus Groups and Interviews
(Aug-Nov 2013)

Goal: To disseminate and discuss the FORWARD study findings with different FF stakeholder groups to:

- Inform and raise awareness re: obesity and FORWARD study
- Evaluate different stakeholder perspectives (Union, Battalion Chiefs, Peer Fitness Trainers (PFT), other ranks)
- Discuss feasibility and develop recommendations for interventions.

A combination of interviews and focus groups were conducted due to the difficulty of scheduling some groups (e.g. Battalion Chiefs)
## Participants

<table>
<thead>
<tr>
<th>Focus Group/Interview</th>
<th>Date</th>
<th>Duration</th>
<th>No. Participants</th>
</tr>
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<tr>
<td>Executive Board Local Union focus group</td>
<td>July 25, 2013</td>
<td>65 minutes</td>
<td>8</td>
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<td>High Call firefighters focus group</td>
<td>Aug 13, 2013</td>
<td>71 minutes</td>
<td>2</td>
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<td>Peer Fitness Trainer focus group</td>
<td>Aug 28, 2013</td>
<td>1 hour 35 min</td>
<td>5</td>
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<td>High call firefighter - Phone interview</td>
<td>Sept 30, 2013</td>
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<td>Slow station firefighter - In-person interview</td>
<td>Oct 18, 2013</td>
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<td>Staff Captain focus group</td>
<td>Oct 21, 2013</td>
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<td>Battalion Chief - In-person interview</td>
<td>Nov 1, 2013</td>
<td>1 hour 23 min</td>
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<td>Battalion Chief - Phone interview</td>
<td>Nov 14, 2013</td>
<td>47 minutes</td>
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Methods

Findings from the FORWARD survey served as the basis for discussions during focus groups and interviews:

The following findings were found to be associated with obesity:

- **More than 16 shifts** (frequent overtime shifts) (11.5 times higher risk than FF 8-11 shifts in past month)
- **Few daily calls** (1-4 calls) / **Many daily calls** (8-15 calls)
- **Low supervisor support for exercise**/Sedentary work (sitting for long periods of time)
- **Health behaviors** (days of moderate-vigorous exercise on duty/leisure time, stressful eating, and quantity/quality of sleep on duty and off-duty)
Qualitative Findings

Firefighter responses reflect:

a) what they thought about the findings and
b) what could be done to improve things.
Overtime Shifts = higher risk of obesity

- Most firefighters said 24 hour shifts and overtime (90% > 10 24 hour shifts/month) took its toll through fatigue/lack of quality sleep, eating poorly and being too tired to work out.

- But most said it was “part of the job”:

  You need your rest. It's hard because you want to work. You want to make money, because that's what we're here for, but you go home and you just like ... kind of slap yourself - why did I do that? Yeah, because we all signed on for it. We didn't want to work at Kinko's. ... Yeah, so it's kind of accepted. It's tolerated, you know. (Firefighter about 72 hour shift)

- Frequent Overtime Shifts (16 or more/month) – 6.6% of FF – most said doing it because of “financial need.”
Daily Calls (slow/busy) = obesity

- Busy stations more likely to have sleep interruption and fast eating,
- Slow stations – possible boredom, not enough physical activity
- General agreement between all FF stakeholders, that rotation between stations as an intervention idea, was not feasible or desirable for the firefighters

**Personality:**
So you have guys who are generally motivated Type A personalities who are attracted to those high call volume stations. So by taking a bunch of guys who aren't real motivated and putting them at busy houses isn't going to necessarily fix anything for those guys. . . . You take the motivated guys and you put them in a slow house, and . . . they're going to go nuts. So there are a lot of things that I see that are problematic with trying to address that factor in itself (Firefighter/PFT)

**Seniority:**
Right, this guy is senior he just got his opportunity to get on a truck company where he can save nights, he’s done 10 years on a busy station, why are you going to make him rotate? . . . Seniority is pretty much the Holy Grail. (Battalion Chief)
• Inconsistency in Captain supportiveness for working out:

*I can talk about my shift I had. I had one fireman that was pretty regular, and one fireman that never worked out. The time is there for them to do it. It’s not mandatory, so it’s not up to me as their supervisor to get on them to go work out. I’m giving them the time. They know they have the time, so it’s their choice if they want to work out or not. (Captain)*
Low Supervisor Support = Ban on Team Sports

- 2012 ban on team sports in stations $\Rightarrow$ “low morale”

As far as sports go... we have a certain segment of our population that enjoy sports... and don't see sports as working out. There's a whole stigma of working out and that's why they do it [sports] and... it's fun and it's -- you don't even know you're working out... and that got removed. That segment of the population now doesn't work out at all because they really aren't the gym guy pushing weights, all that other stuff... but they like basketball, volleyball, other things like that... that's been removed. So for those -- and I'd say it's like 10-15% of our population, are that type of guy.” (Union Leader)
Fire Station Eating Culture: “Hot, brown and plenty of it”

- FORWARD food diary findings show need for nutritional improvement in the fire station e.g. less sugar, fat, sodium etc.

- Conflicting qualitative findings around eating culture/behaviors. Some say it varies from station to station, but general belief that things are changing for the better ex. healthier meal choices, focus on low-carb diets more common.

  …So it just depends on every station, every shift is different. Some shifts nobody even talks to each other and they all cook their own stuff and then some shifts everybody is at the table together and they eat, so - it's very random. But for the most part, I've seen mostly that there is a pretty good health kick going on as far as eating - eating habits. (Firefighter)

- All stakeholders agreed that future interventions could be focused on improving the nutritional environment of the fire station.
Summary: What do the qualitative findings mean for a TWH approach to interventions?

- Some occupational risk factors (e.g. overtime, busy/slow station) were generally thought of as “fixed” parts of the job and mutually beneficial to FF and management = investment in status quo?
  - But - union has agreed to possible “cap” at 16 shifts/month max – still in contract negotiations.

- Low Supervisor Support for workouts and “low morale”
  - Possible intervention area - reflects policy change in upper management – union and researchers investigating possible effects on physical activity levels before and after, organizational campaign around physical activity may be a possibility.

- Expand nutritional awareness along with a focus on some occupational factors → expand the role of Peer Fitness Trainers into nutrition education
Conclusions

- Occupational risk factors from the research were prioritized differently by researchers and firefighters.
  - Ex. Firefighters prioritize economic benefit (overtime) and workplace flexibility (deciding on type of station) over decreasing occupational exposures that may pose a health risk (e.g. rotating between busy/slow houses).

- Still some occupational factors could be targeted for interventions (expand role of PFT (org support), analysis of team sports ban, overtime cap etc.)

- Focus group methodology and PAR help to “map” high leverage intervention targets → HEROES program attempt to “integrate” health promotion and work organization change…
Acknowledgements

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Welcome questions
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