Reproductive Health of Women Firefighters

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Specific Aim 1: Using formative research methods we will examine cultural and structural barriers to maintaining health and wellness among female firefighters. We will explore how these barriers negatively affect the recruitment of female firefighters. A series of focus groups and semi-structured interviews will be conducted with three important groups in the national fire service: (a) current female firefighters; (b) female national fire service leaders; and, (c) male national fire service leaders.

Specific Aim 2: Through semi-structured interviews with former female firefighters, we will examine the occupational experiences, health concerns, and factors related to the decision to leave the fire service prior to retirement.

Specific Aim 3: Based on health barriers and concerns identified in Specific Aims 1 and 2 as well as domains identified as key concerns in our previous research, we will conduct a national epidemiological survey of women in the fire service to examine the health status, health beliefs, and perceived health challenges of female firefighters. This survey will be the first comprehensive health and safety assessment of female firefighters nationally.
Current FEMA-Funded Project

- **Specific Aim 1 [Epidemiology]:** To conduct a 2-year prospective cohort study of career and volunteer female firefighters focused on key health concerns including: a) maternal and child occupational health risks; b) cancers, with a focus on reproductive cancers; c) behavioral health risks; d) cardiovascular risk factors; e) injury and f) morale and perception of department support.

- **Specific Aim 2 [Laboratory Analysis]:** Evaluate brominated fire retardant concentration and toxicity of breast milk collected from lactating firefighters at baseline and at intervals after a structure fire, compared to breast milk from non-firefighters.

- **Specific Aim 3 [Health Practice Recommendations]:** Based on results from Specific Aims 1 and 2, synthesize the available scientific data on occupational risk factors for women in the fire service, in conjunction with our stakeholder advisory panel, including key fire service leaders, health researchers, occupational medicine physicians, policy experts, human resource leaders, and national experts in obstetrics and gynecology. Based on this evidence base, the panel will provide policy recommendations and suggestions for prevention to guide the decisions of firefighters, fire service organizations, healthcare providers, and management related to the safety and health of female firefighters and to protecting maternal and child health.
How we got them

- iWomen
- Past research participants
- IAFF list
- NVFC
- Firefighter Close Calls/The Secret List
- Facebook
- Twitter
Response

▪ “As you know, the studies and information on cancer and women in the fire service is so sparse, that it’s a welcome relief when we know there is work being done to include our population.”

▪ “I would love to participate as this is a HUGE issue in my life. I am active duty on the tower truck, and see quite a bit of fire! I was active duty till 24 weeks, and went back at 10 weeks post partum. My daughter is exclusively breast fed, and I pump my entire 24 hour shifts. I have collected lots of advice on how long to pump and dump, but would LOVE to be a part of anything that can help come up with conclusive answers!!”

▪ “I am looking for information to begin drafting a policy on this subject. I have already been researching the law side of it. Reading and interpreting the law is one thing, but I want to be able to provide the best information to your firefighters.”
Women Firefighter Study: Domains

- General Health Concerns
- Discrimination & Harassment
- PPE & Equipment
- Safety Concerns
- Injuries
- Cardiovascular Disease
- Cancer
- Reproductive Health
Reproductive Health
Reproductive Health: Concerns

- Under-studied
- Little known about:
  - Child health impact
  - Occupational exposures for mothers
- Concerns
  - Chemical, biological, radiologic exposures
  - Shift schedule
  - Extreme physiological strain of emergency response
  - High ambient temperature and noise
Recent research: Miscarriage rates among female firefighters were at least 2.3 times higher among FFs compared to the U.S. National average of 10% (Jahnke, 2018)

- Preterm birth was higher among female FFs than the general population
▪ On average, women reported pregnancy at end of 1\textsuperscript{st} trimester
▪ Most did not restrict duties until 2\textsuperscript{nd} or 3\textsuperscript{rd} trimester
▪ \textit{10\%} did not restrict duties at all
Reported Miscarriage

Firefighters:

- 1st pregnancy: 22.6% miscarriages
- 2nd pregnancy: 25.9% miscarriages
- 3rd & 4th: 30.6% & 31.7%

National Average: 11-22%
Pre-Term Birth

Pre-term birth (before 37 weeks)
  • 11-16.7% (2-4th pregnancies)

National Average: 9.6%

Other birth outcomes: jaundice, low birth weight, gestational diabetes & hypertension similar to general population
<table>
<thead>
<tr>
<th>Question (n=1820)</th>
<th>Yes</th>
<th>No</th>
<th>I don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your department have any policies related to pregnancy?</td>
<td>58.5%</td>
<td>23.9%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Does your department have any policies related to maternity leave?</td>
<td>66.3%</td>
<td>20.1%</td>
<td>13.6%</td>
</tr>
</tbody>
</table>
Pregnancy Policy

- Concerning that nearly ¼ of depts have **no pregnancy policy**
- Education for both genders on reproductive health
- More research on risk factors and birth outcomes in order to direct policy and practice
- NFPA Standard 1582 (section 9) policy that addresses timelines and equipment/PPE considerations
NFPA 1582, Section 9.18 Pregnancy and Reproductive Health

9.18.1 Fire Departments shall make available to all male and female fire fighters educational materials outlining the risks from fire fighting on reproductive health.

9.18.2* It is recommended that members who become pregnant report the pregnancy immediately to the fire department physician. Once informed of the pregnancy the fire department physician shall inform the pregnant member of the numerous hazards to the pregnancy and the fetus encountered during routine fire fighting tasks.

9.18.2.1 If the member requests an alternative duty assignment in an environment deemed safe for the pregnancy and the fetus, the physician shall provide appropriate restrictions for essential job tasks 1, 3, 5, 6, 7, and 8 that are unsafe for her or her fetus.

9.18.3 During later stages of pregnancy the member will eventually be unable to safely perform essential job tasks 1, 2, 3, 4, 5, 6, 7, 8, and 9 due to issues with diminished aerobic capacity, balance, speed, and agility. As with any other member, when performance due to medical issues is of concern, the AHJ shall inform the fire department physician and a medical evaluation will be performed to determine the need for restricting the member from those activities that they are not able to safely perform.
County rules that pregnant firefighter must do regular duties until she gives birth

By: Michelle Rutano-Johnson

Florida county won't let pregnant firefighter do light duty

Associated Press

VERO BEACH, Fla. — A Florida firefighter who is seven-months pregnant is being told by her bosses that she will have to carry out her normal duties until she gives birth.
Questions we are working on…

- More detail about duties being performed when miscarriage occurred
- Cause of miscarriage and at what stage of pregnancy
- Differences between career and volunteer firefighters
- Examine men & women firefighters
In Vitro Fertilization Register model: Hazard ratio = 1.46 (95% confidence interval: 1.10, 1.94)
Questions???

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