



FIRST RESPONDER  
Center for Excellence



WOMEN IN FIRE

# OB/Gyn Health Resource Guide for Firefighters

**Firefighters are required to work in extreme conditions that may impact their health. Below are considerations for OB/Gyns when making decisions about clearance for duty.**

The NFPA has determined essential job tasks for firefighters to be:

1. **Wearing personal protective gear (weighing on average 50 lbs.) and self-contained breathing apparatus (SCBA)(an additional 15-20 pounds)** while conducting firefighting tasks such as lifting and carrying heavy objects, advancing hoselines, using power tools, forcing entry through doors and/or windows, and making rescues in extreme temperatures for prolonged periods of time.
2. Wearing SCBAs with a positive pressure facepiece or HEPA filter that requires **increased respiratory workload**.
3. **Exposure to known and expected carcinogens** (e.g. benzene, PAHs, arsenic, asbestos) through inhalation and/or dermal absorption.
4. Potentially **climbing 6 or more flights of stairs** in full PPE carrying tools of approximately **20-40 lbs.**
5. Wearing encapsulating and insulated PPE that leads to **significant fluid loss** and can **elevate core temperature** to 102.2°F.
6. Wearing PPE during search and rescues **dragging a person (up to >200 lbs)** to safety.
7. Wearing PPE while **advancing hoseline approximately 150ft.** often upstairs or ladders.
8. Wearing PPE while **performing strenuous tasks** such as climbing ladders, crawling in dark, narrow or uneven services that may be icy or wet – and in instances that might include downed power lines and other hazards.
9. Performing tasks over a long period in an unpredictable environment that **may not have scheduled rest periods, meals, or hydration.**
10. **Operating fire trucks/other vehicles** with emergency lights and sirens.
11. Conducting critical, time sensitive work in **stressful and hazardous environments.**
12. **Communicating while wearing full PPE** in the presence of high background noise and poor visibility.
13. **Functioning as a team** where sudden incapacitation can result in mission failure, risk of injury or death.
14. **Working in shifts.** Career firefighters typically work in 24 or 48 hours shifts and volunteer firefighters typically are on call 24 hours a day, 7 days a week. The known implications of shift work (e.g. increased risk of cancer, cardiovascular disease, fertility issues, and miscarriage) are of concern.



## PREGNANCY OUTCOMES

### Miscarriage

Firefighters were **2.3 times more likely to miscarry** than general population <sup>[2,3]</sup>. **Volunteer firefighters experienced higher risk of miscarriage** compared to career firefighters.

### Pre-term Labor

Approximately 12% of livebirths to female firefighters were < 37 weeks gestation. <sup>[4]</sup> Compared to the general US population, **female firefighters had 2.8 times the risk of pre-term birth.** Going to **light duty during the first trimester**, compared to the third trimester was associated with **37% reduction in risk of preterm birth** although the result was not statistically significant.



Follow this link, [bit.ly/3oEudty](https://bit.ly/3oEudty) or Scan the QR code for screening tools, resources, references & more



## GYNECOLOGIC HEALTH & FERTILITY

**There has been limited research on the influence of firefighting on fertility and gynecologic health, but emerging research suggests that:**

- Female firefighters have **30% lower age-adjusted anti-müllerian hormone levels** compared to the general population <sup>[1]</sup>, which may influence fertility and age at menopause.
  - Self-reported **infertility and fertility treatment utilization is also high** among female firefighters, based on self-report <sup>[2]</sup>. Approximately 16% of female firefighters reported experiencing infertility, and 81% who experienced infertility utilized fertility treatment, which may be a marker of infertility severity.
- Male firefighters have been found to be 46% more likely to access IVF than their peers.*

### Labor and Delivery Complications

Research has suggested that female firefighters are at elevated risk (RR:1.55) of labor and delivery complications.<sup>[5]</sup>

### Breastmilk (*in press*)

While initial data from a pilot study suggested an increase in carcinogens up until 72 hours post fire, a larger follow-up study by Jung et al. that measured polybrominated diphenyl ethers (PBDEs) and aryl hydrocarbon receptors (AhRs) found there was **not a difference in PBDEs or AhRs between pre-fire and 24, 48, or 72 hours post incident breastmilk**. Further, there was not a statistically significant difference between the levels of PBDEs or AhRs among firefighters and non-firefighters. It should be noted that **this study was limited to only these two classifications of chemicals**, which is not an exhaustive list of all chemicals to which firefighters are exposed.

## Child Health Outcomes

Preliminary evidence suggests offspring of male firefighter are at increased risk for birth defects. They were 3 times more likely to have total anomalous pulmonary venous return, 80% more likely to be born with cleft palate, 2.2 times more likely to have cleft lip, and 2.2 times more likely to have transverse limb deficiency than non-firefighters.

These associations have not been studied in female firefighters.

## Cancer

**Firefighting has been classified as a Group 1 Carcinogen by the International Agency for Research on Cancer.** Cancers with sufficient evidence for elevated risk in firefighters include bladder and mesothelioma. Cancers with limited evidence for elevated risk in firefighters include colon, melanoma, and non-Hodgkins lymphoma.

While data is limited due to small sample sizes, there is **some evidence that women firefighters may be at increased risk for breast, cervical, and ovarian cancer** due to the risks of the job.

## Risk Considerations During Pregnancy





	Trauma	Chemicals	Other Risks
<b>First Trimester</b> 	fetal trauma is <b>mitigated</b> due to the location of the uterus	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide	Heat, noise, radiation, shift work, infections
<b>Second Trimester</b> 	fetal trauma is <b>increased</b> due to the intra-abdominal position after 13 weeks	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide	Heat, noise, radiation, shift work, infections
<b>Third Trimester</b> 	fetal trauma is <b>increased</b> due to the intra-abdominal position after 13 weeks	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide	Heat, noise, radiation, shift work, infections
<b>Lactation</b> 	No additional risk	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide	Pumping and dumping considerations post-fire

Table adapted from NFPA 1582, Appendix C, Table C.7