

Supplementary File 1 for: Firefighter occupational factors and the risk of preterm birth: results from a cohort of women firefighters in the United States

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Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
<u>Outcome of interest</u>			
Preterm birth	Did your Xth pregnancy result in (select one)...	Livebirth; Miscarriage; Stillbirth; Pregnancy terminated; I am still pregnant	Only livebirth pregnancies were considered. Categorized as:
	Was your baby from pregnancy X born more than 3 weeks before his/her due date?	1= Yes 0= No 2= Don't know/don't remember	Yes (preterm): 1 No (full-term): 0 Missing: 2
<u>Individual-level occupational factors</u>			
Employment status	Are you primarily a career or volunteer firefighter?	1=Career; 2=Volunteer	Career: 1 Volunteer: 2
Wildland firefighter status	Are you a wildland firefighter?	1=Yes, wildland only; 2=Yes, I do wildland in addition to working for a career/volunteer department; 0=No	Structural: 0 Wildland/combination: 1, 2
Shift schedule	What is your shift schedule? (career firefighters only)	1= 24 hours on/24 hours off; 2= 24 hours on/48 hours off; 3= 24 hours on/72 hours off; 4= 48 hours on/96 hours off; 5=24 hours on/24 hours off/24 hours on/24 hours off/24 hours on/4 days off; 6=72 hours on/96 hours off; 7=10 hours on/14 hours off; 8=9 hours on/15 hours off; 9=12 hours on/12 hours off; 10=8 hours, 5 days a week; 0=Other	Less than 24 hours on shift: 0, 7-10 24 or more hours on shift: 1-6
<u>Pregnancy-specific occupational factors</u>			

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Measure	Survey question(s)	Survey responses	Categorization/Definition
Working fire/rescue calls at pregnancy start	Were you actively running fire or rescue calls when you found out you were pregnant for your pregnancy?	1=Yes; 0=No; 2= Don't know/Don't remember	Yes: 1 No: 0 Missing: 2
Number of fires during pregnancy	Approximately how many working fires did you fight during your pregnancy?	Write in response (possible response range 0-100 fires)	Categories split at tertile values: 0 fires 1-4 fires > 4 fires
Was work restricted during pregnancy?	Were your duties restricted during your pregnancy?	1=Yes; 0=No; 2=Don't know/Don't remember	Yes: 1 No: 0 Missing: 2
Timing of start of work restriction	Approximately how many weeks into your pregnancy were you when your duties were restricted?	Write in response (possible response range 0-40 weeks)	Categories split at pregnancy trimester definitions: 1 st trimester: 0-12 weeks 2 nd trimester: 13-26 weeks None/3 rd trimester: 27+ weeks or report of no restrictions taken
<u>Other individual-level variables</u> Highest education completed at time of survey	What is the highest grade or year in school you completed?	1= Grades 9-11 (some high school); 2=Grades 12 or GED (high school graduate); 3=College 1 year to 3 years (some college or technical school); 4=College graduate (4-year degree); 5=Advanced degree (graduate or professional school)	Some college or less: 1, 2, 3 College and above: 4, 5

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Measure	Survey question(s)	Survey responses	Categorization/Definition
Body mass index (BMI) at time of survey	What is your current weight in pounds? What is your height?	Write in response Feet: write in response Inches: write in response	Weight (pounds) converted to kilograms (kg) and height (total inches) converted to meters (m) $BMI = \text{weight (kg)} / (\text{height (m)})^2$. BMI was categorized: $\leq 24.9 \text{ kg/m}^2$ $25\text{-}29.9 \text{ kg/m}^2$ $\geq 30 \text{ kg/m}^2$
Smoking at time of survey	Have you ever smoked a cigarette, even just a puff? Have you smoked at least 100 cigarettes in your entire life (note: 5 packs = 100 cigarettes)? Have you smoked a cigarette, even just a puff, in the past 30 days?	Yes; No Yes; No Yes; No	Never smoker: (1) Have never smoked a cigarette, or (2) Have not smoked more than 100 lifetime cigarettes Former smoker: Smoked at least 100 lifetime cigarettes but have not smoked in the past 30 days Current smoker: Have smoked at least 100 lifetime cigarettes and have smoked in the past 30 days
Race	Which one of these groups would you say best represents your race?	1= White; 2= Black; 3= Asian; 4= Native Hawaiian or Pacific Islander; 5= American Indian or Alaska Native; 6= Other	White: 1 Other: 2, 3, 4, 5, 6
Ethnicity	Are you of Hispanic, Latina, or Spanish Origin?	1= Yes; 0= No	Hispanic, Latina, or Spanish: 1 Not Hispanic, Latina, or Spanish: 0
Married or in partnership	What is your current marital status?	1= Married; 2= In a registered domestic partnership or civil union; 3= Widowed; 4= Separated; 5= Divorced; 0= Never married;	Yes: 1, 2 No: 0, 3, 4, 5

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Household income	What is your annual household income from all sources?	1= Less than \$25,000; 2= \$25,000 to \$50,000; 3= \$50,001 to \$75,000; 4= \$75,001 to \$100,000; 5= More than \$100,000	> \$75,000: 4, 5 ≤ \$75,000: 1, 2, 3
Menopausal status	How would you describe your menstrual status?	1= Premenopause (before menopause, having regular periods); 2= Perimenopause (changes in periods, I have not gone 12 months in a row without a period); 3= Postmenopause (after menopause)	Premenopausal: 1 Perimenopausal: 2 Postmenopausal: 3
Current rank	What is your rank in your fire department?	1= Firefighter; 2= Firefighter/Paramedic; 3= Driver Operator; 4= Lieutenant; 5= Captain; 6= Battalion Chief; 7= Deputy Chief; 8= Fire Chief; 9= Other Chief; 10= Paramedic only; 11= Other	Firefighter: 1 Firefighter/Paramedic: 2 Driver Operator: 3 Lieutenant: 4 Captain: 5 Chief: 6, 7, 8, 9 Paramedic: 10 Other: 11
Other pregnancy-level variables			
Age-at-pregnancy	How old were you when you became pregnant your 10 th time?	Write in response (possible response range 12-50 years)	Age plus square of age

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Measure	Survey question(s)	Survey responses	Categorization/Definition
Gravidity	How many pregnancies (resulting in birth or miscarriage) have you had in your lifetime?	Possible responses: 0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 10+	Based on response, participants were asked about each pregnancy, where a higher number corresponded to a more recent pregnancy. For example, if you have had 3 pregnancies, Pregnancy 1 refers to your oldest child and Pregnancy 3 is your youngest. Previously pregnant: All pregnancies after Pregnancy 1 Not previously pregnant: Pregnancy 1
Previous preterm birth			Any livebirth (occurring during or outside of the fire service) resulting in preterm birth (see outcome ascertainment above) that occurred prior to the index pregnancy: Yes: At least one pregnancy that occurred before index pregnancy did result in a preterm livebirth No: Pregnancies that occurred before index pregnancy did not result in a preterm livebirth Nulligravid: Index pregnancy is first reported pregnancy

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Gestational hypertension	Were there any other pregnancy or medical complications encountered by either yourself or your baby during your Xth pregnancy?	No; Yes (please explain) If Yes: write in response	Yes: write in responses that included “Gestational hypertension”, “Hypertension”, “Preeclampsia” and “Blood pressure” Not reported: All other responses
Work restricted by doctor recommendation	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Doctor checked No: Doctor unchecked
Work restricted by department	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Department checked No: Department unchecked
Work restricted by self	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Self checked No: Self unchecked
Department policy regarding pregnancy and/or maternity	Does your department have any policies related to pregnancy? Does your department have any policies related to maternity leave?	Yes; No; Don’t know/don’t remember Yes; No; Don’t know/don’t remember	Yes: At least one marked Yes No: Both marked No Don’t know: (1) Both marked Don’t know/don’t remember or (2) one marked No and one marked Don’t know/don’t remember