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Occupational use of high level disinfectants and fecundity among nurses ¹

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1 Supplementary material

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Table S1. Demographic and occupational characteristics by use of protective equipment among women exposed at baseline to high level disinfectants who were attempting pregnancy in Nurses' Health Study 3 (n=322).

	Any Protective Equipment when using HLDs?			p-value*
	Never (n=94, 29%)	Yes, 1 type (n=149, 46%)	Yes, 2+ types (n=79, 25%)	
Age, yrs†	32 [29, 36]	33 [30, 36]	35 [31, 38]	0.002
Current BMI, kg/m ²	23.7 [21.3, 27.4]	23.5 [21.6, 28.9]	26.5 [23.0, 33.5]	0.007
White, n (%)	90 (95.7)	140 (94.0)	70 (88.6)	0.16
Hispanic Ethnicity, n (%)	5 (5.3)	7 (4.7)	3 (3.8)	0.94
Smoking Status, n (%)				0.88
Never Smoker	75 (79.8)	113 (75.8)	60 (76.0)	
Former Smoker	5 (5.3)	9 (6.0)	3 (3.8)	
Current Smoker	14 (14.9)	27 (18.1)	16 (20.3)	
Married, n (%)	72 (76.6)	110 (73.8)	60 (76.0)	0.87
Nulligravity, n (%)	58 (61.7)	91 (61.1)	41 (51.9)	0.33
Highest nursing degree, n (%)				0.36
B.S.N./R.N./M.S./Ph.D.	90 (95.6)	144 (96.6)	73 (92.4)	
Student/A.D./L.P.N.	4 (4.3)	5 (3.4)	6 (7.6)	
Typical Work Schedule, n (%)				0.86
Days or Evenings Only	57 (60.6)	80 (53.7)	45 (57.0)	
Nights Only	18 (19.2)	33 (22.2)	15 (19.0)	
Rotating Shifts	19 (20.2)	36 (24.2)	19 (24.1)	
Frequency of Nursing Work, n (%)				0.99
1-20 hrs/week	4 (4.3)	6 (4.0)	3 (3.8)	
21-40 hrs/week	63 (67.0)	102 (68.5)	52 (65.8)	
> 40 hrs/week	27 (28.7)	41 (27.5)	24 (30.4)	
Frequency of Moving or Lifting a Heavy Load, n (%)				0.23
None	17 (18.1)	27 (18.1)	14 (17.7)	
1-5 times/day	49 (52.1)	66 (44.3)	32 (40.5)	
6-15 times/day	25 (26.6)	37 (24.8)	22 (27.9)	
>15 times/day	3 (3.2)	19 (12.8)	11 (13.9)	
Current Occupational Exposures, n (%)				
Antineoplastics	17 (18.1)	16 (10.7)	21 (26.6)	0.009
Radiation	29 (30.9)	6 (4.0)	4 (5.1)	<0.001
Aerosol Drugs	0 (0.0)	6 (4.0)	2 (2.5)	0.13
Anesthetic Gas	11 (11.7)	20 (13.4)	16 (20.3)	0.24

Frequency of HLD Used at Baseline?				<0.001
< 1 hour per week	86 (91.5)	104 (69.8)	51 (64.6)	
≥ 1 hour per week	8 (8.5)	45 (30.2)	28 (35.4)	
Type of HLD Used at Baseline?				<0.001
Type Unknown	82 (87.2)	45 (30.2)	13 (16.5)	
Type Known‡	12 (12.8)	104 (69.8)	66 (83.5)	
Type of Protective Equipment Used, n (%)				
Ventilated disinfection system	0 (0.0)	1 (0.7)	28 (35.4)	
Water resistant gown	0 (0.0)	0 (0.0)	50 (63.3)	
Protective gloves	0 (0.0)	146 (98.0)	77 (97.5)	
Eye protection	0 (0.0)	1 (0.7)	48 (60.8)	
Respiratory protection	0 (0.0)	1 (0.7)	27 (34.2)	

*p-value tests for any differences across categories and was calculated using chi square tests (or Fisher's exact test where appropriate) for categorical variables and Kruskal-Wallis tests for continuous variables.

†Values are presented as median [25th, 75th percentile] unless otherwise noted.

‡Use of protective equipment was similar across all types of HLDs (e.g. Glutaraldehyde, Ortho-phthalaldehyde, Peracetic acid, and hydrogen peroxide)

Table S2. Sensitivity analysis for the association of high level disinfectant (HLD) use and fecundity among women attempting pregnancy in Nurses' Health Study 3 (n=1,739).

	Ever Used HLD?		
	Never	Yes, prior to baseline	Yes, at baseline
Current Model (n=1739)	1.0 (REF)	1.26 (1.08, 1.47)	1.12 (0.98, 1.28)
TTPs within 2 years of exposure assessment (n=1421)	1.0 (REF)	1.24 (1.04, 1.48)	1.14 (0.98, 1.33)
Generalized gamma outcome distribution (n=1739)	1.0 (REF)	1.36 (1.18, 1.57)	1.19 (1.05, 1.34)
Truncate pregnancy attempts >12 months to 12 months (n=1739)	1.0 (REF)	1.16 (1.02, 1.33)	1.08 (0.96, 1.22)
Further adjusted for gravidity (n=1739)	1.0 (REF)	1.28 (1.09, 1.49)	1.12 (0.98, 1.29)

All models adjusted for age, race, BMI, smoking status, marital status, frequency of nursing work, frequency of lifting/moving a heavy load, and current exposure to radiation, antineoplastics, anesthesia gas, and aerosol drugs.

Figure S1. The directed acyclic graph for the association between currently exposure to high level disinfectants (HLD) and fecundity among women attempting pregnancy in Nurses' Health Study 3 (n=1,739).

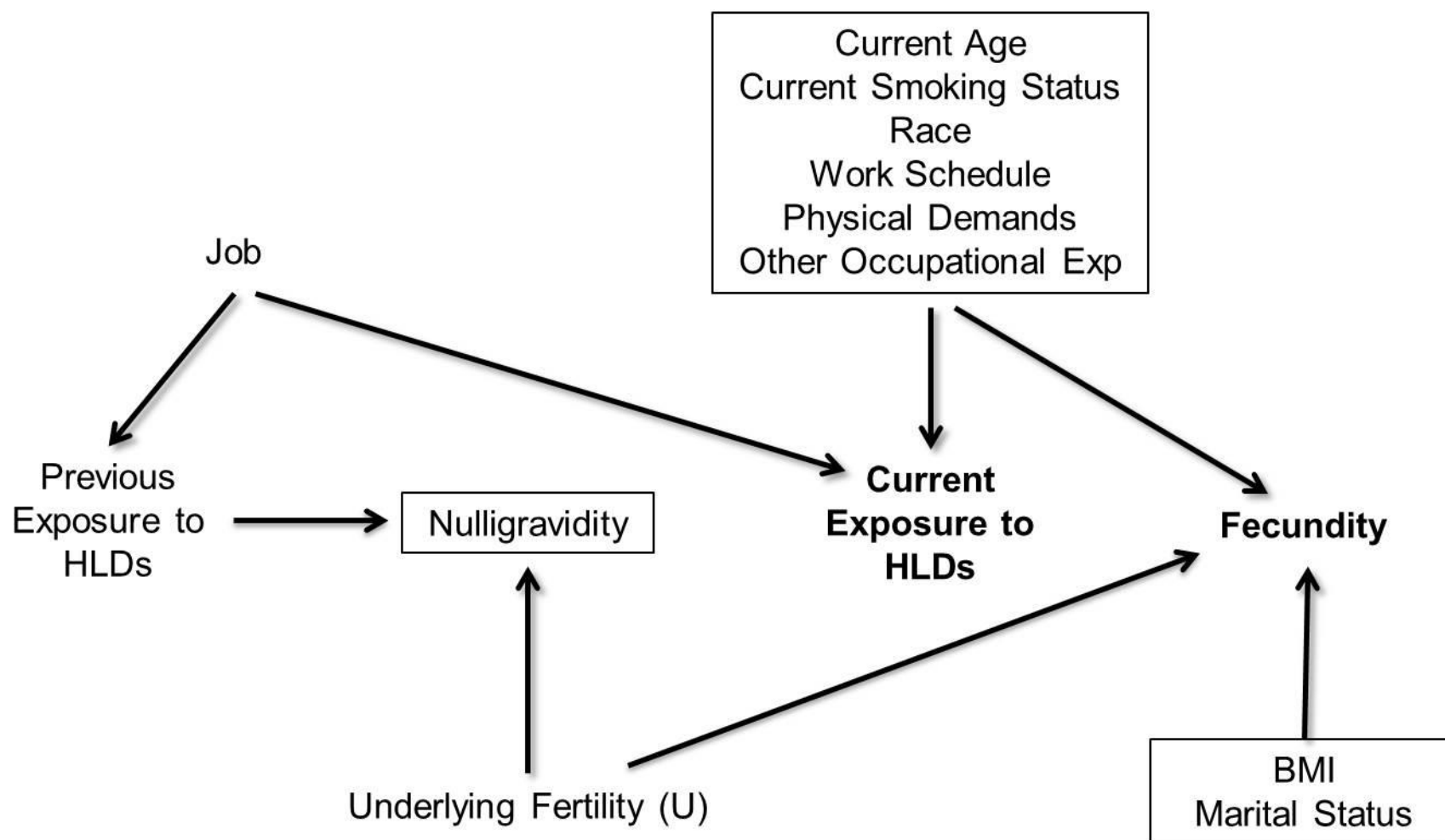
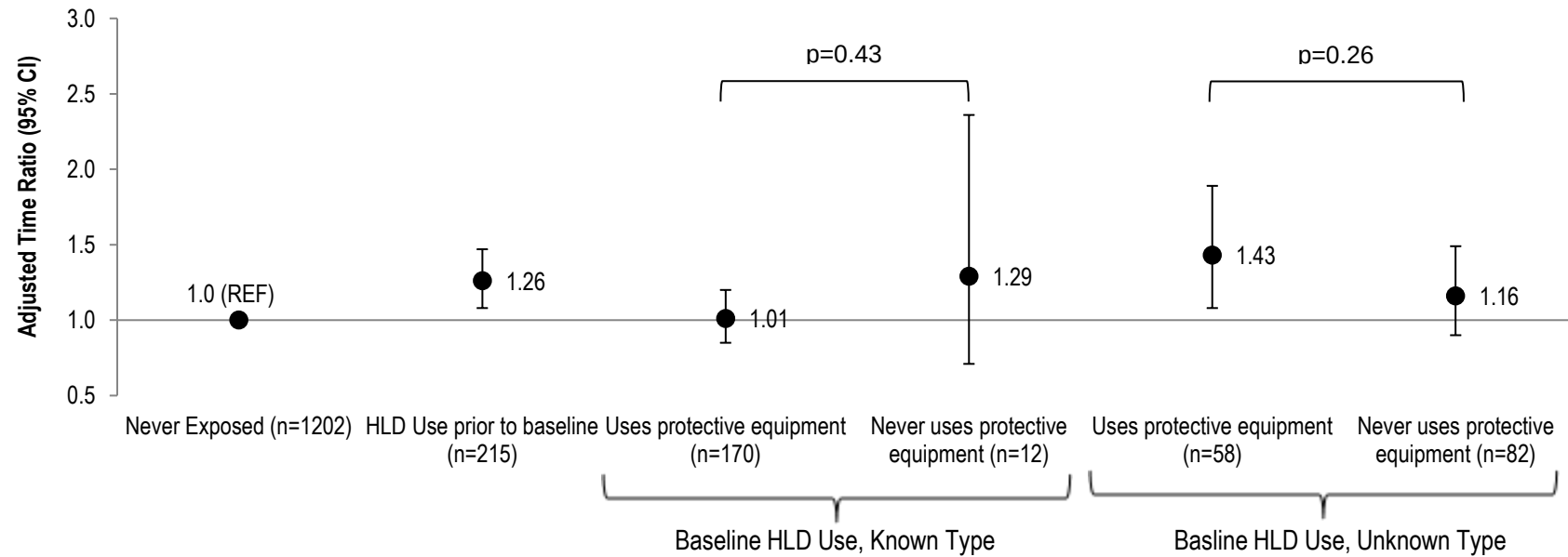


Figure S2. Association between type of high level disinfectant (HLD) reported at baseline and fecundity by use of protective equipment use among women attempting pregnancy in Nurses' Health Study 3 (n=1,739).



Accelerated failure time models with log normal distribution adjusted for age, race, BMI, smoking status, marital status, frequency of nursing work, frequency of lifting/moving a heavy load, and current exposure to radiation, antineoplastics, anesthesia gas, and aerosol drugs were used to estimate the time ratios (TRs) and 95% confidence intervals (CI).