

Work and Reproductive Health in the Healthcare Industry

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CONTENT AND OBJECTIVES

I. Background and epidemiology

- Occupational factors that affect reproductive health positively and negatively

II. Hazards of concern for nurses

- Strategies to reduce exposure to hazards while working

III. Medical legal framework

- Your rights, employer's responsibilities

IV. Case studies

- Back strain, infertility, and miscarriage
- Teamwork for solutions

MALE REPRODUCTIVE HEALTH



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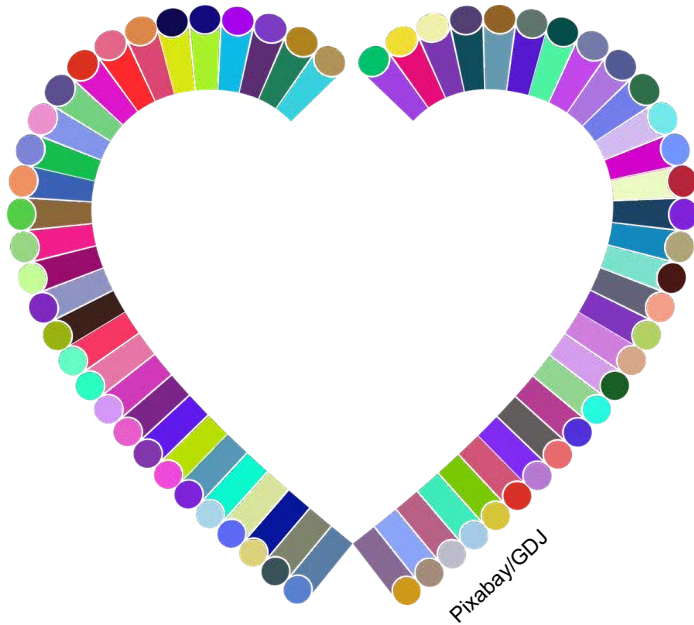


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I. BACKGROUND

Love and work are the cornerstones of our humanness. —Sigmund Freud



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WORKING WHILE PREGNANT



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A or B: What do you think?

- Which group has the higher rate of preterm birth?
 - A) Women who work for income throughout their pregnancy
 - B) Women who mostly stay home throughout their pregnancy
- Which occupational group has the lower rate of small for gestational age babies?
 - A) Nurses
 - B) Workers in other industries

EPIDEMIOLOGY

EXPECTED RATES OF ADVERSE OUTCOMES¹:

- 1 in 5 recognized pregnancies: Early pregnancy loss or miscarriage
- 1 in 10 pregnancies: Preterm birth
- 1 in 10 newborns: Low birth weight
- 1 in 10 couples: Infertile
- 3 in 100 newborns: Birth defects
- 1 in 100 pregnancies: Fetal death (stillbirth)

OCCUPATIONS AND OUTCOMES

- **European study²**
 - 13 birth cohorts, n>200,000 mother/child pairs
 - Employment during pregnancy vs not employed:
Less preterm birth (OR 0.86, CI 0.81–0.91)
 - Nurse vs other jobs: Less SGA risk (OR 0.91, CI 0.84–0.99)
 - Food industry vs other jobs: More preterm birth
(OR 1.50, CI 1.12–2.02)
- **National Birth Defects Surveillance study³**
 - 8977 cases over 6 years, 3833 controls
 - Example: offspring with oral cleft
 - Health care work protective (OR 0.80, CI 0.65-0.98)
 - Janitorial work increased risk (OR 1.43, CI 1.01-2.02)

SOME LOW PAYING JOBS

MAY INCREASE RISK OF ADVERSE OUTCOMES

- **French study⁴:** Maternal deprivation plus 3 or more occupational hazards during pregnancy increased risk of preterm birth (RRa= 3.9; CI 1.2-12.4)
- **Swedish study⁵:** Class differences in maternal working conditions explained 14 to 38 percent of low-birth-weight births and 20 to 46 percent of preterm births.

A or B: What do you think?

- Which group has the higher rate of preterm birth?
 - A) Women who work for income throughout their pregnancy
 - B) Women who mostly stay home throughout their pregnancy
 - Answer: B
- Which occupational group has the lower rate of small for gestational age babies?
 - A) Nurses
 - B) Workers in other industries
 - Answer: A



II. HAZARDS OF CONCERN FOR NURSES



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Hazard ≠ Exposure ≠ Disease

Hazard: Static



Human Contact

Inhalation
Ingestion
Skin absorption
Injection
Placental transfer

Exposure

(Dynamic,
Through
Biological
Uptake)

Absorption
Distribution
Metabolism
Excretion

**Target
Organ(s)
Contact**

**Biologic
Change**

Repair &
physiologic
adaptation

**Health
Effect**



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Adopted from NAS/NRC.Human Biomonitoring for Environmental Chemicals 2006 <http://www.nap.edu/catalog/11700.htm>



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A or B: What do you think?

Baby Doe was born deaf, microcephalic, and small for gestational age. Which virus is the most likely cause?

- A) Cytomegalovirus
- B) Parvovirus B-19

BIOLOGICAL

Occupational reproductive hazards impacting nurses

- Cytomegalovirus (CMV)⁶ – the silent killer
- Fifth Disease (Parvovirus B19)⁷
- Maternal illness due to Influenza, MRSA, or COVID-19
- Vaccine preventable: Hepatitis B, measles, mumps, rubella, and varicella zoster
- Many others, such as STIs, Zika, and zoonotic diseases, but these are not typically transmitted occupationally in health care

CHEMICAL

Occupational reproductive hazards impacting nurses^{8,9}

- Hazardous drugs
- High level disinfectants
 - Glutaraldehyde, ethylene oxide, and formaldehyde
- Anesthetic gases

PHYSICAL

Occupational reproductive hazards impacting nurses

- Strenuous work¹⁰
 - Over 22 pounds lifted more than 10 times per day
 - Abdominal trauma and placental abruption
- Shift work, night shift, and long hours¹¹
 - Shift work and preterm delivery: OR 1.13 (1.00-1.28)
- Radiation
 - 500 mrem max for women who have declared a pregnancy

EMOTIONAL HAZARD VS. BENEFIT OF WORK



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HOW TO PROTECT YOURSELF

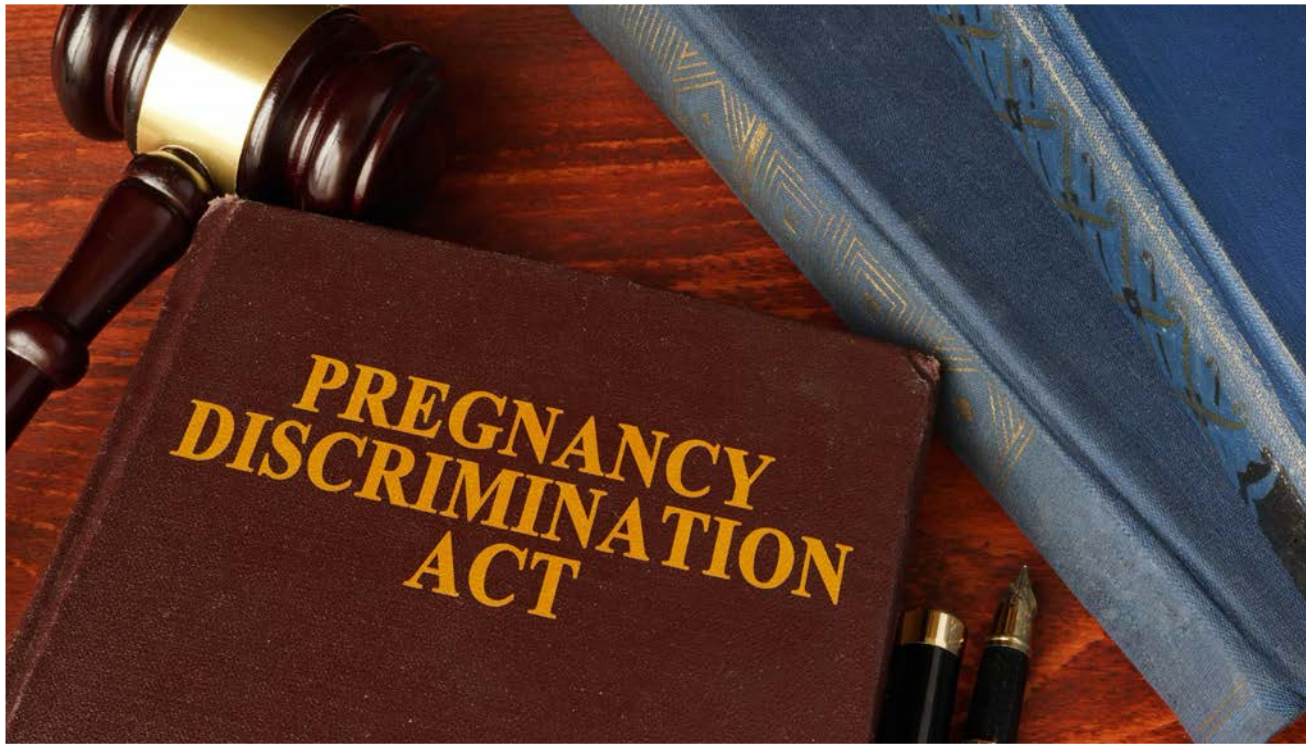
- Biological
 - Universal precautions like hand washing, PPE
 - Infection control policies like patient isolation
 - Immunizations
- Chemical
 - Avoid or use properly with PPE, exhaust hoods, gas scavenging
- Physical
 - Use lift equipment, work reasonable shifts
- Emotional
 - Manage stress
- Take the same precautions at home as at work



A or B: What do you think?

Baby Doe was small for gestational age, microcephalic, and deaf at birth. Which virus is the most likely cause?

- A) Cytomegalovirus
- B) Parvovirus B-19
- Answer: A; CMV is a leading cause of congenital health effects, especially deafness



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III. MEDICAL LEGAL FRAMEWORK



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WORKING WHILE PREGNANT: YOUR RIGHTS

What gives you the right to request and receive a 17-pound lifting limit, frequent restroom breaks, and access to snacks at work during pregnancy?

- A) Pregnancy Discrimination Act
- B) WA Industrial Safety and Health Act
- C) Americans with Disabilities Act
- D) WA Healthy Starts Act

PREGNANCY DISCRIMINATION ACT (PDA)

Federal law, protects pregnant women from job discrimination

- Employers with at least 15 employees (or 8 in WA) may not refuse to hire, deny promotion, or take negative action on the basis of pregnancy or childbirth.
- Employers may not implement fetal protection policies; workplace reproductive policies must avoid gender discrimination.
- Employer must offer job-related modifications (or accommodations) for pregnant workers when the employer does so for other employees who are similarly limited in their ability to perform job functions.



AMERICANS WITH DISABILITIES ACT (ADA)

Federal Standard

- Requires that employers make a reasonable accommodation to limitations of otherwise qualified individuals with disabilities, unless it results in undue hardship to the employer
- Disability: an impairment that substantially limits one or more major life activities.
- May include complications of pregnancy like anemia, sciatica, gestational diabetes, preeclampsia, morning sickness, swelling in the legs, or depression
- Accommodations: Modified schedule, work from home, frequent breaks, other
- ADA accommodation request requires a doctor's note



WA STATE LAWS

More worker friendly

- **WA Healthy Starts Act:** Requires employers with 15 or more employees to grant any pregnant woman certain accommodations on request, including breaks for restroom, sitting, eating, and drinking, and 17-pound lifting limit; no doctor's note needed
- **Washington Law Against Discrimination (WLAD):** Some protections like PDA but applies to employers with eight or more employees

PAID FMLA AND JOB SECURITY

State and Federal Standards

- WA provides 12 weeks of paid family and medical leave to eligible workers, for all employers, large or small, starting in 2020
- Generally cannot be fired during the 12 weeks of leave
- Federal FMLA: Offers eligible workers 12 weeks unpaid time off within a 12-month period, applies to large employers with >50 workers

Washington State Industrial Safety and Health Act (WISHA)

Employer's Responsibilities

- General duty clause requires covered employers to provide their employees with a workplace free from recognized hazards
 - Washington State Industrial Safety and Health Act (WISHA) is Washington's state-based OSHA
 - Permissible exposure limits consider the worker, not the developing fetus
- Workers have a **Right to Know** the contents and health hazards of chemicals per Safety Data Sheets (SDS)

WORKERS' COMPENSATION

Usually not applicable

- Provides medical care and wage replacement for on-the-job injuries and illnesses that are caused by the unique conditions of work
- Usually not applicable to adverse reproductive outcomes, which are multifactorial and/or idiopathic in most cases

WORKING WHILE PREGNANT: YOUR RIGHTS

What gives you the right to request and receive a 17-pound lifting limit, frequent restroom breaks, and access to snacks at work during pregnancy?

- A) Pregnancy Discrimination Act
- B) WA Industrial Safety and Health Act
- C) Americans with Disabilities Act
- **D) WA Healthy Starts Act**
- Correct answer: D, WA Healthy Starts Act, but only if the worker requests the provisions, & ≥ 15 workers



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IV. CASE STUDIES



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BACK STRAIN

- 25 y/o G0P1 inpatient nurse at 35 weeks gestation is doing more manual handling tasks, including patient transfers and repositioning in bed, due to staff shortages. She has had a couple of twinges of back pain lately.
- Should she A) Start FMLA now, B) Request an ADA accommodation, or C) Request Healthy Starts Act accommodation?



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KNOW YOUR RIGHTS



- **WA Healthy Start Act:** Employer must limit lifting to 17 pounds if the pregnant worker requests it (*right answer*)
- **ADA:** N/A for uncomplicated pregnancy
- **PDA:** She can't be reassigned, placed on involuntary leave, or fired because she is pregnant
- **FMLA:** 12 weeks of paid leave in WA, but do not take it now; save this for after birth
- **WISHA (WA's OSHA):** No ergonomic standard, so the employer can ask her to lift any amount unless accommodation is requested



SAMPLE LETTER FROM WORKER

Uncomplicated Pregnancy, State of WA

April 23, 2021

To: Bob Jones, HR Director

From: Jane Doe, Inpatient Nurse, 3rd Floor

Dear Mr. Jones,

I am an Inpatient Nurse at University Hospital. I work 40 hours a week, usually 7 am – 3 pm, M-F. I am 35 weeks pregnant with a due date of June 4, 2021.

I am writing to request an accommodation for my restriction of no lifting more than 17 pounds for the remainder of my pregnancy, approximately April 24 to June 4, which is permitted under the WA Healthy Starts Act for uncomplicated pregnancies. I plan on returning to regular duty on September 15, 2021 after taking FMLA for the birth of my child from approximately June 4 – September 14.

I believe that assisting hospital patients with standing or walking and repositioning patients in bed may exceed the 17-pound limit, and I request accommodation such as doing patient assists only with a Hoyer lift. I look forward to meeting with you to discuss options for accommodating my lifting limits.

INFERTILITY



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- 28 y/o G0P0 OR nurse cannot conceive after three years of trying. She wants to know if her job is the cause.
- Which OR hazard is most concerning for infertility:
 - A) Prolonged standing,
 - B) Anesthetic gases, or
 - C) Instrument disinfectants



LEGAL FRAMEWORK



- **PDA:** Employer can't reassign her (Johnson Controls Case) (*unless she requests reassignment*)
- **FMLA:** N/A. She can't take leave for concerns that work chemicals contribute to infertility. She might get leave for f/u appointments to infertility specialist.
- **ADA:** N/A. Wanting to conceive is not a disability.
- **WISHA:** General duty clause applies (workplace free of recognized hazards), but exposure limits do not consider protecting the fetus



WHAT TO TELL YOUR DOCTOR

Ask for referral to infertility specialist

- Etiology is mostly non-occupational and has not changed in the past 25 years¹²
 - Male factor (hypogonadism, post-testicular defects, seminiferous tubule dysfunction) – 26%
 - Female factor (ovulatory dysfunction, tubal damage, endometriosis, cervical factor) – 44%
 - Coital problem – 6%
 - Unexplained – 28%

A CONCERNING HISTORY

This would warrant further investigation

"I sterilize surgical instruments using a glutaraldehyde product. I wear nitrile gloves but not a gown or face shield. I use the countertop but not an exhaust hood. I do this about an hour per day. The odor gets pretty strong. My partner is a police officer. He practices at the shooting range every Friday."



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EXPOSURE CONSULTATIONS



Chemical exposure cases may warrant referral to the NW PEHSU

- Health care team including exposure scientists provide consultations
 - Call 1-877-KID-CHEM (1-877-543-2436) or email pehsu@uw.edu
- Helpful information includes:
 - The specific product name or actual chemical name would be most helpful, as well as the safety data sheet
 - Detailed description of your work process, PPE, and ventilation system
 - Detailed description of partner's work



RESOURCES

References for patient and provider

- Mother to Baby fact sheets¹³
- NIOSH health hazard evaluations¹⁴
- OSHA and glutaraldehyde (web browser)
- Product safety data sheet (web browser)
- OSHA and NIOSH webpages on occupational reproductive hazards^{15, 16}
- Chemical hazard databases: ChemHAT¹⁷
- PubMed search

FINDINGS

- OSHA “best practices” document¹⁸
 - Exhaust ventilation under a hood
 - Elbow length gloves
 - Face shield
- PubMed article: longer time to conceive associated with use of high-level disinfectants (*right answer*), completely attenuated by use of ≥ 2 types of PPE¹⁹



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PARTNER EXPOSURE

Shooting ranges: Notorious for lead



Photo by Nancy Beaudet

- Lead is well known reproductive hazard for both men and women
- Take home exposure could occur
- Per ACOG committee opinion²³, "Lead Screening During Pregnancy and Lactation," pregnant women at risk of take-home exposure are supposed to have a lead test



ACTION ITEMS

Case of infertility with occupational exposure to glutaraldehyde and partner exposure to lead

- See an infertility specialist
- Consider consulting an occupational exposure specialist for concerns about glutaraldehyde and lead
- At work, either use ≥ 2 PPE and exhaust, or request not to sterilize equipment while trying to conceive
- Ask about a blood lead test for both partners

MISCARRIAGE



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- 23 y/o G2P0 nurse's aide just found out she is pregnant and about 8 weeks along. She had a first trimester miscarriage last year and fears something she caught at work was the cause.
- To prevent infection, should she
- A) Wash hands with betadine scrub,
- B) Use strong disinfectants daily on all surfaces she touches, or
- C) Use universal precautions?



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RISK FACTORS

1 in 5 recognized pregnancies end in early pregnancy loss. Cause is usually unknown.

The following may increase risk²⁰:

- Advancing maternal age over 35
- Medical conditions in the mother
 - Infection, diabetes, obesity, thyroid disease
- Medication and substance use
 - Smoking, alcohol
- Environmental factors
 - Lead, air pollution

A CONCERNING HISTORY

- Works in home health providing personal care, such as bathing and feeding, to end stage cancer patients, some of whom are immunocompromised. She spends about an hour in each of four different homes per 8-hour shift. She uses gloves but not necessarily a mask if she knows the client well. She's concerned that her exposure to patients with infectious disease will cause her to have another miscarriage.

BEST ADVICE

Keep working, adhere to infection control

- Universal precautions (hand hygiene, PPE)
 - *(right answer)*
 - Soap and water is adequate for CMV prevention
- Avoid excessive use of disinfectants
- Keep your job

OTHER GOOD ADVICE

- Minimize other environmental exposure
 - Dietary exposure to mercury, including certain types of fish;
 - Pesticides;
 - Potentially toxic household products;
 - Remodeling involving old paint or solvents;
 - See Information for Families, <https://prhe.ucsf.edu/info>²¹
- Eat a healthy diet, manage stress, get moderate daily exercise and adequate sleep
- Prenatal care including immunizations and prenatal vitamins

TEAM BASED APPROACH

Teamwork is the best approach to support occupational reproductive health.

- Employer
- Human resources department
- Legal services and advocates
- Health care provider
- Occupational health & safety specialist
- Worker/patient

OBJECTIVES RECAP

I. Background and epidemiology

- Occupational factors that affect reproductive health positively and negatively

II. Hazards of concern for nurses

- Strategies to reduce exposure to hazards while working

III. Medical legal framework

- Worker rights, employer's responsibilities

IV. Case studies

- Back strain, infertility, and miscarriage
- Teamwork for solutions

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