Before male readers breathe a sigh of relief and think, “Glad I don’t have to worry about that,” think again. Unprotected exposure to reproductive hazards doesn’t just affect female Sailors who are pregnant or who are considering getting pregnant.

Potential reproductive hazards and recommendations for control are indicated on your ship’s Industrial Hygiene survey. See your medical department for a copy of this survey. Don’t hesitate to speak with your medical department representative (MDR). Read the Navy and Marine Corps Public Health Center Technical Manual NMCPHC-TM-OEM 6260.01C April 2010.

Quick Facts

What are reproductive hazards?
Reproductive hazards are substances or agents that may affect the reproductive health of women or men or the ability of couples to have healthy children. Hazards may be chemical, physical or biological. Examples of reproductive hazards are lead (chemical), radiation (physical) and certain viruses (biological).

What are the routes of exposure?
Workers may be exposed to reproductive hazards by breathing them in (inhalation), by contact with skin (dermal) and by swallowing them (ingestion).

What are the potential health effects of exposure?
Potential health effects include infertility, miscarriage, birth defects and developmental disorders in children.

Can a worker expose his/her family to these hazards?
Yes, a worker can expose his/her family to these hazards by bringing them home from the workplace, for example, on his/her skin, hair, clothes, shoes, tools or car. It is important to prevent these exposures by the use of workplace engineering controls, proper work practices and good hygiene.

When I check out hazardous materials from the HAZMINCEN or paint locker, what do I look for on the Material Safety Data Sheet (MSDS)?
Read Section 3: Hazards Identification. Look for the words “mutagenic effects”, teratogenic effects” or “toxic to the reproductive system.” Mutagens are agents that causes biological change at the molecular (DNA) level and Teratogens are chemicals that can cause toxic effects on a developing fetus. Then make sure you read and follow the steps outline in Section 7, “Handling and Storage” as well as Section 8, “Exposure Controls/Personal Protection.”

Source: National Institute for Occupational Safety and Health (NIOSH), 1999 and Occupational Safety & Health Administration, 2010
Quick Facts, cont.

Protecting Yourself from Reproductive Hazards

1. Store chemicals in sealed containers when they are not in use and always wash hands before eating, drinking, or smoking.

2. Wear the proper personal protective equipment (e.g., gloves and respirators) to avoid skin contact with chemicals. If chemicals contact the skin, follow directions for washing provided in the material safety data sheet (MSDS) at http://www.cdc.gov/niosh/topics/chemical-safety/#msds.

3. To prevent home contamination:
   - Change out of contaminated clothing and wash with soap and water before going home.
   - Store street clothes in a separate area of the workplace to prevent contamination.
   - Wash work clothing separately from other laundry (at work if possible), and avoid bringing contaminated clothing or other objects home.

4. Participate in all required safety training and medical surveillance programs such as following the heat stress guidelines.

<table>
<thead>
<tr>
<th>Type of Exposure</th>
<th>Lowered Number of Sperm</th>
<th>Abnormal Sperm Shape</th>
<th>Altered Sperm Shape</th>
<th>Altered hormones/Sexual Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethylene Dibromide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Styrene and Acetone</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding (e.g. Cadmium)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mercury Vapor</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Heat</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Military Radar</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromine Vapor</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Radiation (Exposure to high levels as the result of a workplace accident)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2,4-Dichlorophenoxy acetic acid</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Types of Reproductive Hazards

<table>
<thead>
<tr>
<th>Physical</th>
<th>Possible Results Of Unprotected Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>• Infertility</td>
</tr>
<tr>
<td>Biological</td>
<td>• Miscarriage</td>
</tr>
<tr>
<td></td>
<td>• Low birth weight</td>
</tr>
<tr>
<td></td>
<td>• Birth defects</td>
</tr>
<tr>
<td></td>
<td>• Fetal or newborn death</td>
</tr>
</tbody>
</table>

### Off-Duty Hazards & Lifestyle Choices

Automotive repair, house painting and pottery glazing. Drinking alcohol, smoking during pregnancy and drug abuse.

### Who Can Be Affected?

Men, non-pregnant women and pregnant women.

### Concerned About Occupational Exposures On Reproductive Functioning?

If you are pregnant or are trying to become pregnant, you may be referred to see an occupational health physician.

If you are pregnant, inform your chain of command.

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### How can you learn more?

Navy Safety and Occupational Health (SOH) program manual, OPNAVINST 5100.23 (series), CH-29.


PIN: 806083; Management of Reproductive Hazards in Navy Shore Workplaces; available from defenseimagery.mil

# Chemical and Physical Agents

## Reproductive Hazards for Women in the Workplace

<table>
<thead>
<tr>
<th>Agent</th>
<th>Observed effects</th>
<th>Potentially exposed workers/Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cancer treatment drugs (e.g., methotrexate)</strong></td>
<td>Infertility, miscarriage, birth defects, low birth weight</td>
<td>Health care workers, pharmacists</td>
</tr>
<tr>
<td><strong>Ethylene Oxide</strong></td>
<td>Spontaneous Abortions</td>
<td>Workers who sterilize medical devices, equipment, supplies or non-medical items.</td>
</tr>
<tr>
<td><strong>Carbon disulfide (CS2)</strong></td>
<td>Menstrual cycle changes</td>
<td>Viscose rayon workers</td>
</tr>
<tr>
<td><strong>Lead</strong></td>
<td>Infertility, low birth weight, developmental disorders</td>
<td>Battery makers, solderers, welders, radiator repairers, bridge repainters, firing range workers, home remodelers</td>
</tr>
<tr>
<td><strong>Ionizing radiation (e.g., X-rays and gamma rays)</strong></td>
<td>Infertility, miscarriage, birth defects, low birth weight, developmental disorders, childhood cancers</td>
<td>Health care workers, dental personnel, atomic workers. Pregnant females may not receive more than 500 mrem (i.e., 0.5 rem or 5 mSv) of ionizing radiation during the course of a pregnancy</td>
</tr>
<tr>
<td><strong>Strenuous physical labor (e.g., prolonged standing, heavy lifting)</strong></td>
<td>Miscarriage late in pregnancy, premature delivery</td>
<td>Standing times should also be reduced. OPNAVINST 6000.1C exempts pregnant women from standing at parade rest or at attention for longer than 15 minutes. In hot conditions, this time should be decreased and, preferably, standing at attention should be allowed only momentarily. Climbing ladders and lifting bulky or awkward weights should be avoided in the third trimester of pregnancy.</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td>Decreased fertility</td>
<td></td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Pregnant women should not discharge firearms after 20 weeks of gestation. They should wear hearing protection whenever noise exceeds 84 dBA. Extended exposures (more than 12 minutes) above 104 dBA should be avoided after 20 weeks of gestation, even with the use of hearing protection. Consider job rotation after the 20th week of pregnancy for women working around intense sound levels.</td>
<td></td>
</tr>
<tr>
<td><strong>Vibration</strong></td>
<td>Care should be taken to avoid contact between the abdomen and vibrating tools or objects.</td>
<td></td>
</tr>
<tr>
<td><strong>Heat</strong></td>
<td>Body temperatures shall not exceed 102°F during the first trimester of pregnancy. Supervisors must be especially responsive to early signs and/or symptoms of heat exhaustion in pregnant women (confusion, agitation, dizziness, visual disturbances, numbness, weakness, muscle cramping, involuntary muscle contractions, swelling/edema, nausea, vomiting, abdominal cramping, and uncontrollable shivering).</td>
<td></td>
</tr>
</tbody>
</table>
Occupational Exposures of Reproductive or Developmental Concern - Worker’s Statement

After your supervisor has completed the other side, please fill this out and have it with you when you see the health care professional who will help with your evaluation. PLEASE PRINT.

Worker’s Name

Rank/Rate/Job Code

Today’s Date

Age      Sex      Phone (work) ( ) - Phone (home) ( ) -

Females only:
Are you pregnant? Yes No
Number of previous pregnancies
How many were: Live births
Stillbirths
Miscarriages
Abortions

Males only
How many children have you fathered (ever)?

All workers
How many years have you had your current job?
What did you do at your previous job?

What does your spouse or mate do at work?

Have you ever gotten sick or injured because of your job? No Yes
Give details of any “yes” answers here

Have any of your children had birth defects? No Yes

Do you have any illnesses you see the doctor for regularly? No Yes

Do you take medications regularly? No Yes

Do you use any other drugs, including tobacco? No Yes

How much alcohol do you usually drink per week? < 6 drinks: 6 to 14 15 to 21 22 or more

Reason for consultation

What reproductive or developmental hazards are you most concerned about?

In your activities at home, recreation, hobbies, second job, etc., are you exposed to any of the following? (check all that apply)

Chemical Agents
Inorganic chemicals
Organic solvents and fuels
Metals (lead, cadmium, etc.)
Pesticides:
Pharmaceuticals/drugs
Other hazards (specify)

Physical Agents
Irritating radiation
“Noise” (intense sound):
Thermal stress (heat or cold)
Vibration

Biological Agents
Bacteria
Endotoxins ( aflatoxin)
Protozoa
Viruses

Physical Conditions
Irregular or shift work
Strenuous work

Worker’s Signature

NMCPHC-TM-OEM 6260.01C April 2010