

# International Hazard Datasheets on Occupation



## Surgeon

### What is a Hazard Datasheet on Occupation?

This datasheet is one of the International Datasheets on Occupations. It is intended for those professionally concerned with health and safety at work: occupational physicians and nurses, safety engineers, hygienists, education and Information specialists, inspectors, employers' representatives, workers' representatives, safety officers and other competent persons.

This datasheet lists, in a standard format, different hazards to which surgeons may be exposed in the course of their normal work. This datasheet is a source of information rather than advice. With the knowledge of what causes injuries and diseases, is easier to design and implement suitable measures towards prevention.

This datasheet consists of four pages:

- Page 1: Information on the most relevant hazards related to the occupation.
- Page 2: A more detailed and systematized presentation on the **different hazards** related to the job with indicators for preventive measures (marked as and explained on the third page).
- Page 3: Suggestions for **preventive measures** for selected hazards.
- Page 4: **Specialized information**, relevant primarily to occupational safety and health professionals and including information such as a brief job description, a list of tasks, notes and references.

### Who is a surgeon?

A surgeon is a medical doctor who practices surgery. Surgeons perform operations to correct deformities, repair injuries, prevent diseases, and improve body functions in their patients. They also examine patients to determine the necessity of operations, estimate risks to patients, and determine the best operating procedure.

### What is dangerous about this job?

- Surgeons may be injured by sharp objects (needles, blades, etc.).
- They may be shocked by contact with electrical medical equipment.
- Contact with hot surfaces of disinfecting and drying equipment may cause skin burns.
- Surgeons may inhale excessive amounts of anesthetic gases and disinfectants.

### Hazards related to this job

Specific preventive measures can be seen by clicking on the respective in the third column of the table.

<b>Accident hazards</b> 	<ul style="list-style-type: none"> <li>• Stabs and cuts from sharp objects, especially needle-sticks and cuts by blades.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Burns and scalds from hot water and steam used in sterilizing equipment, or from machines that supply hot air for the purpose of drying.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Electrical shock from faulty or improperly grounded equipment, or equipment with faulty insulation.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Acute back pain resulting from awkward body position during the operation.</li> </ul>	
<b>Physical hazards</b> 	<ul style="list-style-type: none"> <li>• Exposure to scattered radiation released while carrying out x-rays and fluoroscopy during the operation (e.g. to urology surgeon from fluoroscopy).</li> </ul>	
	<ul style="list-style-type: none"> <li>• Exposure to ionizing and non-ionizing radiation released from various instruments used during patient's examination and treatment (e.g., lasers).</li> </ul>	
<b>Chemical hazards</b>	<ul style="list-style-type: none"> <li>• Inhalation of anesthetic gases (ethyl-ether, ethyl-bromide, ethyl-chloride, halothane, methoxy-fluorane, nitrous-oxide).</li> </ul>	

	<ul style="list-style-type: none"> <li>Inhalation of disinfectants (e.g. tri-cresol-phosphate, iodine, isopropyl-alcohol).</li> </ul>	5
	<ul style="list-style-type: none"> <li>Skin defatting, irritation, and dermatoses because of frequent use of soaps, detergents, disinfectants, etc.</li> </ul>	
	<ul style="list-style-type: none"> <li>Irritation of the eyes, nose, and throat because of exposure to airborne aerosols containing washing and cleaning formulations (some of them alkaline), or to droplets of washing liquids.</li> </ul>	5 6
	<ul style="list-style-type: none"> <li>Latex allergy caused by exposure to natural latex gloves and other medical devices.</li> </ul>	7
	<ul style="list-style-type: none"> <li>Skin allergy caused by the powder inserted into the surgical gloves.</li> </ul>	
<b>Biological hazards</b>	<ul style="list-style-type: none"> <li>Infections due to the exposure to blood, body fluids or tissue specimens possibly leading to blood-borne diseases such as HIV, Hepatitis B and Hepatitis C.</li> </ul>	8 9 10 11
	<ul style="list-style-type: none"> <li>Surgeons using a CO2 laser may become infected with HPV (human papilloma virus).</li> </ul>	
	<ul style="list-style-type: none"> <li>Sharps injuries which occur during an operation may lead to infection.</li> </ul>	
	<ul style="list-style-type: none"> <li>Mental stress and burnout stemming from the feeling of direct responsibility for the patients' health and as a result of death of patients.</li> </ul>	
	<ul style="list-style-type: none"> <li>Stress, strained family relations, and burnout due to shift and night work, overtime work, and contact with sick patients, in particular accident victims and their relatives.</li> </ul>	
<b>Ergonomic, psychosocial and organizational factors</b>	<ul style="list-style-type: none"> <li>Physical stress caused by excessive standing during the operation.</li> </ul>	12
	<ul style="list-style-type: none"> <li>Exposure to severely traumatized patients, multiple victims of a disaster or catastrophic event or severely violent patients may lead to post-traumatic stress syndrome.</li> </ul>	13

## Preventive measures

- 1 Handle sharp objects with extreme care; use special safety receptacles to store used hypodermic needles and scalpels until disposal. Use safety needles, if available.
- 2 Install ground fault circuit interrupters; call a qualified electrician to test and repair faulty or suspect equipment.
- 3 Wear a radiation dosimeter (badge or other) when exposed to radiation; comply with all safety instructions to reduce exposure to a minimum.
- 4 During laser surgery, protect eyes by means of goggles with special lenses designed for work with lasers.
- 5 Install air conditioning with effective general ventilation in the operating room to reduce heat stress and remove odors, gases, and vapors.
- 6 Provide protective goggles and eye wash bottles or fountains.
- 7 Surgeons sensitive to natural latex must use non-latex or powder-free latex gloves and avoid contact with other latex products.
- 8 Follow established appropriate infection control precautions assuming blood, body fluids and tissue are infectious
- 9 Routinely use barriers (such as gloves, eye protection (goggles or face shields) and gowns)
- 10 Wash hands and other exposed skin surfaces after coming into contact with blood or body fluids

**11** Follow appropriate procedures in handling and disposing of sharp instruments or needles

**12** Wear specially designed orthopedic shoes to alleviate leg fatigue caused by prolonged standing.

**13** Procedures and counselling services should be available to workers exposed to post-traumatic stress syndrome

---

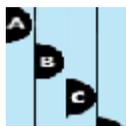
## Specialized information

---

**Synonyms** Surgeon, general; surgeon, specific; operative surgeon

---

**Definitions and/or description**



Performs surgery to correct deformities, repair injuries, prevent diseases, and improve body functions in patients. Examines patient to verify necessity of operation, estimate possible risk to patient, and determine best operational procedure. Reviews reports of patient's general physical conditions, reactions to medications, and medical history. Examines instruments, equipment, and surgical setup to ensure that antiseptic and aseptic methods have been followed. Performs operations, using variety of surgical instruments and employing established surgical techniques appropriate for specific procedures. May specialize in particular type of operation, as on nervous system, and be designated neurosurgeon (medical ser.). May specialize in repair, restoration, or improvement of lost, injured, defective, or misshapen body parts and be designated plastic surgeon (medical ser.). May specialize in correction or prevention of skeletal abnormalities, utilizing surgical, medical, and physical methodologies, and be designated orthopedic surgeon (medical ser.) [DOT].

---

**Related and specific occupations**

Physicians (all kinds); surgeon assistant; surgeon, chief; surgical orderly (medical ser.); surgical pathologist (med. ser.); surgical technician (med. ser.); surgical technologist; also specific surgical specialties such as colon and rectal surgery; general surgery; neurological surgery; ophthalmology; orthopedic surgery; otalaryngology; plastic surgery; thoracic surgery; urological surgery

---

**Primary equipment used**

Catheters; masks; medical supplies (scalpels, syringes, needles, bandages, gauze, sterile pads, plaster dressings, etc.); lasers, monitoring equipment; saws, sterilization equipment; stethoscope; sphygmomanometer; thermometers; tweezers, watch

---

**Workplaces where the occupation is common**

Operating theaters of hospitals and other health care institutions

---

**References**

ILO Encyclopaedia of Occupational Health and Safety, 4th Ed., ILO, Geneva, 1998 (various chapters, see the index volume).



Hunter's Diseases of Occupations, 8th Ed., Edward Arnold Pub., London, 1994, p. 561-571.

---

Production of this hazard hatasheet was sponsored by Israel Institute for Occupational Safety and Hygene

---

*Published by the HDOEDIT (© ILO/CIS, 1999) program. Updated by AS. Approved by DG. Last update: 16.11.2000.*