

Safe. HANDLING OF
/HAZARDOUS DRUGS



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No child should die of cancer

Definition of Hazardous Drugs

Hazardous drugs are capable of causing toxicity to personnel and others who come in contact with them. Drugs are classified as hazardous when they poses any one of the following characteristics.

CHARACTERISTICS OF HAZARDOUS DRUGS

Teratogenicity

Fertility
Impairment

Genotoxicity

Carcinogenicity





Genotoxicity

- The ability to cause a change or mutation in genetic material



Carcinogenicity

The ability to cause cancer



Teratogenicity

- Ability to cause defects in fetal development or fetal malformation

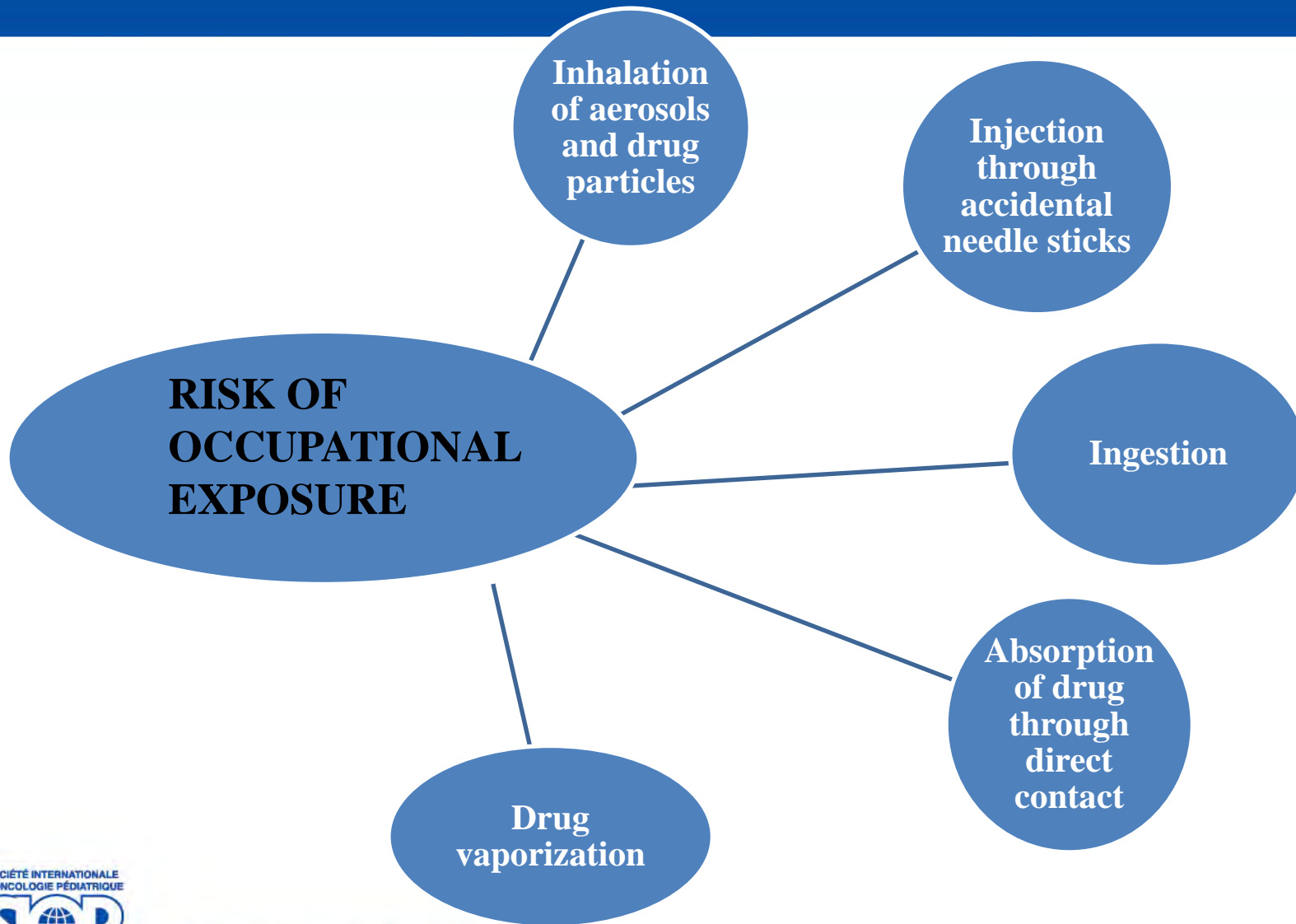


Fertility Impairment

- Studies have documented fertility impairment and adverse reproductive outcomes in both men and women



RISK OF OCCUPATIONAL EXPOSURE



**Preparation
of drugs**

**Spill
management**

**Transportation
of Cytotoxic
drugs**

**OCCASION
OF
EXPOSURE**

**Disposal of
Hazardous
waste**

**Administration
of drugs**

**Handling of
body fluids**

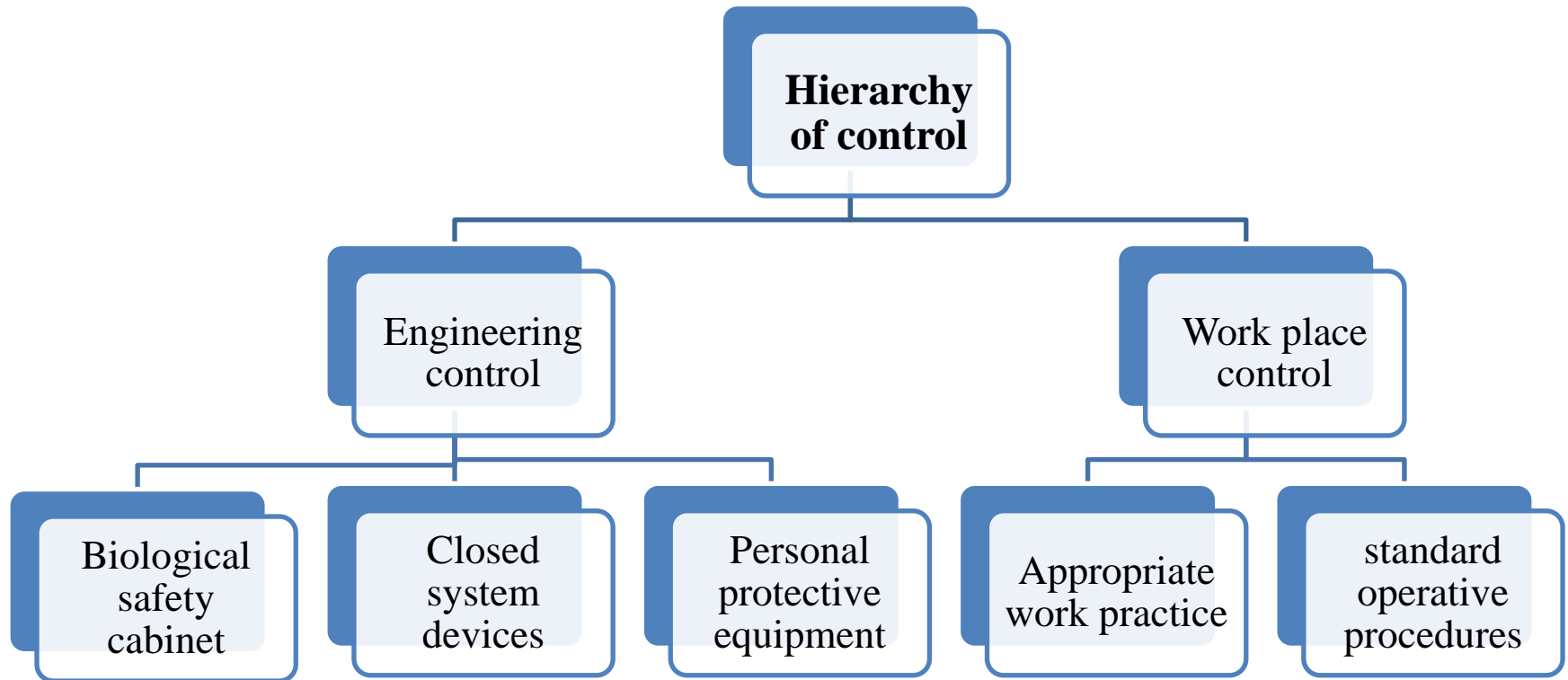


- “Working with hazardous drugs does not equal exposure. Improper handling or protection put all in the environment at risk”

(Martha Polovich, 2008)



Hierarchy of control



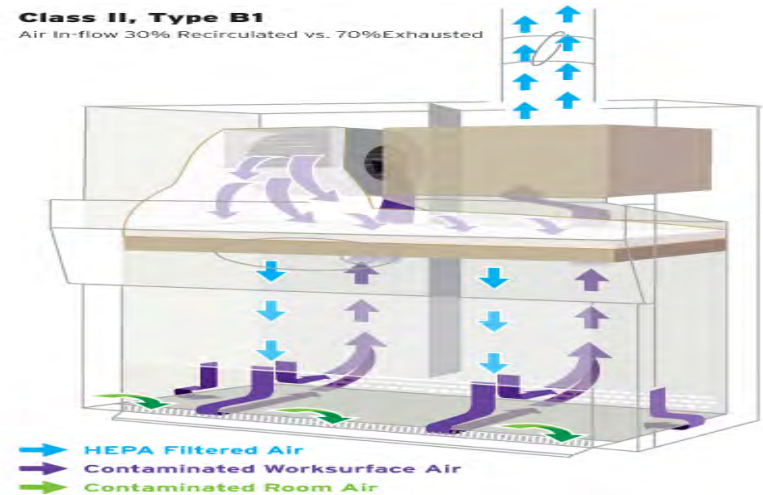
Biosafety cabinet (BSC)

Class II type B or class III
vertical airflow is
recommended

- Have an open front
- A downward airflow
- Hepa - filter
- Should be in a restricted location
- Door should be kept closed
- No eating or drinking allowed
- PPE STILL required

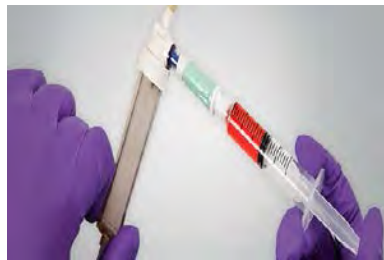


Class II, Type B1
Air In-flow 30% Recirculated vs. 70% Exhausted



CLOSED SYSTEM DEVICES

- Closed system drug-transfer device (CSTD): a drug transfer device that mechanically prohibits the transfer of environmental contaminants into the system and the escape of hazardous drug or vapor concentrations outside the system
- <http://www.carefusion.com/ourcompany/video-gallery?video=3782301558001>



Personal Protective Equipment



GLOVES nitrile gloves

- Dispensing meds and personal care
- Double glove for meds and handling waste & body fluids for hazardous medication (one short cuff worn under long cuffed)
- Change after 30 minutes of wear time



Gown

- Fluid resistant gown for personal care
- Change immediately if contaminated / splashed / sprayed



Mask with visor

- Dependent on splash risk
- If there could be a splash of body fluids to the face, wear a mask with visor or mask with goggles (e.g. emptying urine into toilet)



N-95 respirator and goggles if risk of aerosolization



Precautions during drug administration

Perform all work below eye level

Have access to spill kit

Use administration sets, needles and syringes with locking connections

Gather all supplies for drug administration

Inspect the delivery bag and its contents prior to handling

Don PPE before handling



Precautions Post Administration

USE PPE

Use PPE **WHEN HANDLING BODY FLUIDS** or **LINEN**
approx 48 hours post chemotherapy

Toilets double flushed with lid down

Proper waste disposal



Linen Handling



Use gown & gloves when handling soiled linen
approx 48 hours post chemotherapy



Wash it immediately
double wash
put soiled linen directly in washer
Wash separately



In Hospital

Place contaminated linen in an impervious laundry bag
labeled hazardous drugs



Disposal of hazardous waste

- Hazardous waste containers must be available in all areas where HD are prepared and administered
- Should be puncture proof
- Have a lid that seals securely
- And be labeled with an appropriate warning



Cytotoxic spill management

- Blood and body fluids within 48 hours of Cytotoxic drug
- Oral chemo especially if liquid
- IV or other parenteral cytotoxic medication that has leaked





Spill kit contains



- 1 gown (disposable ,non permeable with back closure)
- 1 pair of shoe covers
- 2 pairs of appropriate thickness chemotherapy –type gloves
- 1 pair of utility gloves
- 1 pair of chemical splash goggles
- 1 respirator mask approved by NIOSH
- 1 disposable dust pan
- 1 plastic scraper
- 2 plastic –lined disposable towels
- 2 disposable sponges
- 1 puncture-proof container
- 2 large heavy-duty waste disposal bag
- 1 hazardous waste label



Spill Management

- [D:\Sample video\Two week IC\Day 2\Cytotoxic Drugs - Managing Cytotoxic Spills.flv](#)



Accidental exposure



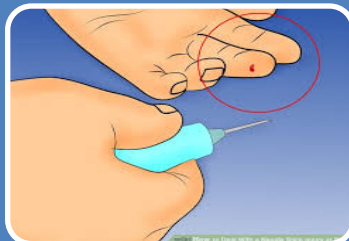
Eyes

- Immediately flush affected eye(s) at eye wash station for at least 15 minutes, and report, or go to Emergency
- If contact lenses are present, remove and throw in biomedical waste



Skin

- Remove contaminated clothing immediately and wash affected area first with water then with soap and water for 10 minutes (non-disposable clothing should be placed in a double laundry bag. At home, pre-wash clothing twice separately in hot water)



Needle Stick

- Immediately wash puncture site with soap and running water for 15 minutes
- Let it bleed freely
- Clean with alcohol



Accidental exposure



Inhalation

- Move from area of exposure and seek emergency treatment immediately



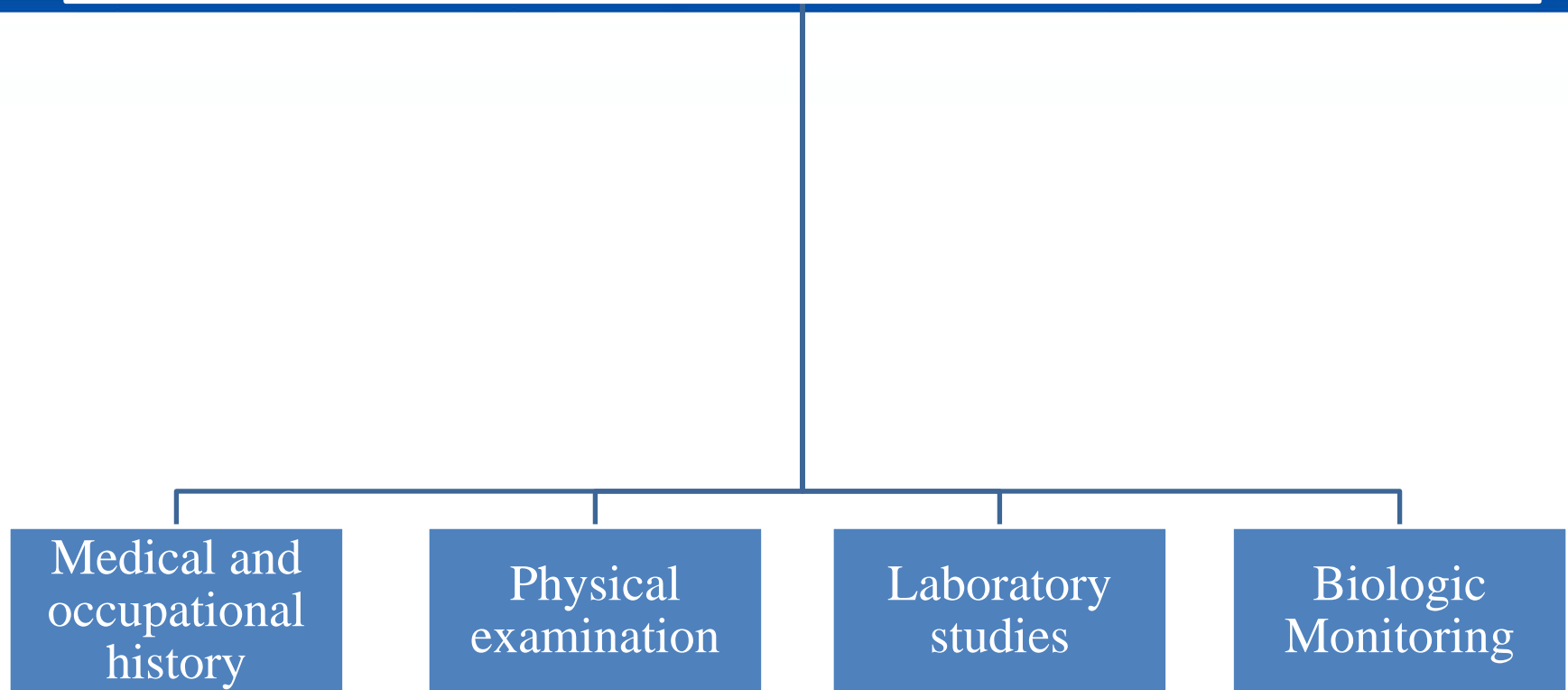
Ingestion

- Flush mouth with copious amounts of water and seek emergency treatment

Make sure to document any event of exposure as per institutions policy



Medical surveillance of HCW handling HD



History

- A thorough history is best and most effective
- Questionnaire for medical and occupational history
- Work history estimating drug handling history –weather wear PPE use of **bsc**

Physical examination

- Least helpful source of surveillance
- Base line exam useful for documentation of any preexisting findings
- Periodic exam should focus on skin and mucous membrane ,Look for rash ,irritation
- target organ/system –hepatomegaly, splenomegaly
- Target Systems –hematopoietic, hepatic, renal and urinary

Laboratory studies

- Complete blood count
- Altered liver function test
- Reticulocyte count
- Urine microscopy or dipstick for blood

Biological monitoring

- Value of performing is limited-because may be exposed to multiple agents
- Is the measurement of a specific agent or its metabolite in body fluid of exposed worker
- Difficult to choose which agent to monitor
- Not possible to perform on all employees for many agents regularly
- Not included in routine medical surveillance



Essential components of medical surveillance

Maintain record of all workers who are exposed to HD

Have all HD handlers complete a questionnaire annually

Conduct periodic observation of drug preparation and administration practices

Document spills, spill cleanup activities and accidental exposure

Share the results



Education and training



Staff education and training

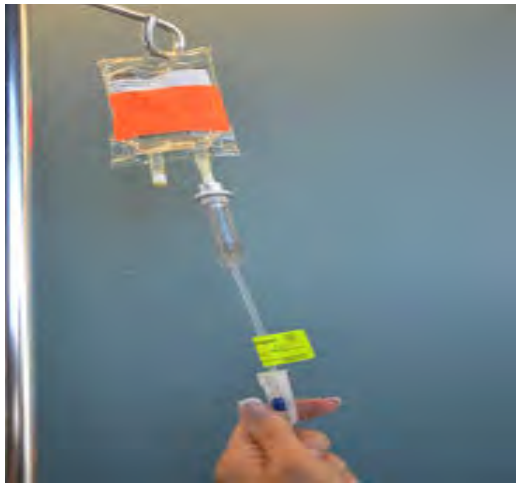
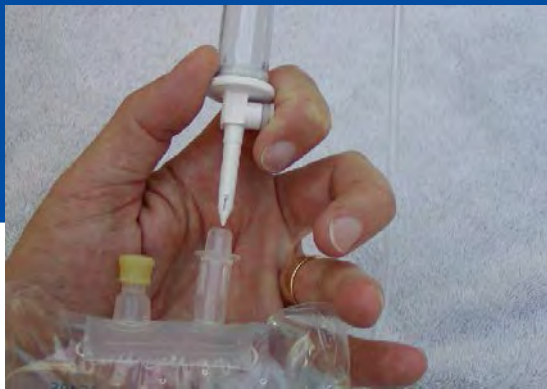
- Staff initial education
- Periodic education and training



Patient and family education

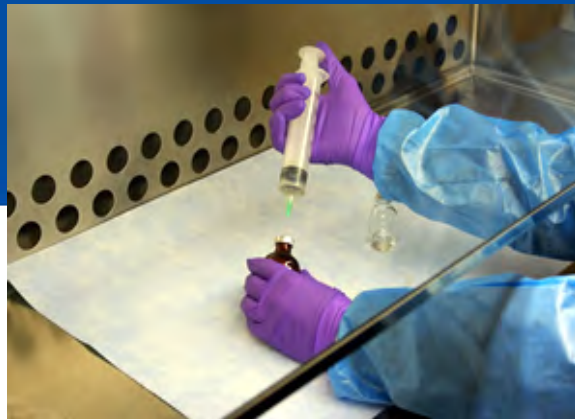
- Post chemotherapy handling of body fluids
- Linen handling





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WARNING!

CYTOTOXIC
HANDLE WITH CARE

Antineoplastic (or Cytotoxic) Drugs Work Area

Potential Reproductive Health Hazards

PPE Must be Worn in this Area

Contact _____

For further information

In the event of skin or eye contact:
immediately flush with water for 20 minutes.



Reference

