



Occupational Skin Disorders

Contact Dermatitis:

Irritant contact dermatitis syndrome(ICD).

- 1- Substance specifications(PH,solubility, physical type,concentration)
- 2- Environmental factors(temperature, pressure,humidity)
- 3- Personal factors(age,gender,ethnic,Atopy, previous skin disorders,affected area)

>80%

Table 18-1. Examples of contact irritants and allergens.

Irritants

Soaps/detergents
Water
Acids/alkalis
Organic solvents
Metalworking fluids

Allergens

Chromate
Epoxy resins
Biocides
Fragrances
Formaldehyde
Rubber chemicals
Methacrylates

Table 18-4. Causes of phototoxic (photoirritant) reactions.

Coal tars

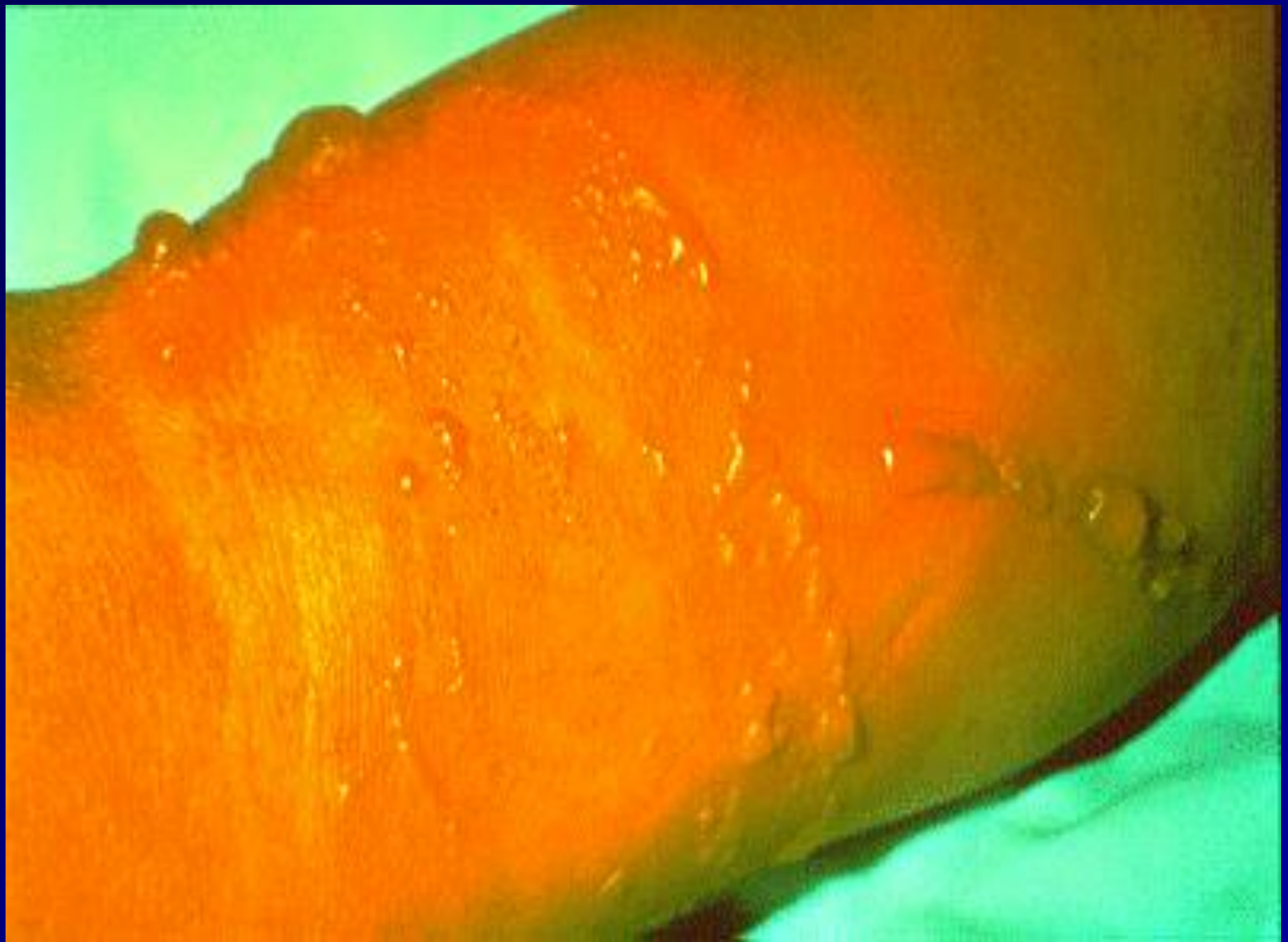
Furocoumarins: Psoralen; 8-methoxypsoralen;
4,5,8-trimethylpsoralen

Aminobenzoic acid derivative: Amyl-ortho-dimethyl-
aminobenzoic acid

Dyes: Disperse blue 35

Drugs: Sulfonamides; phenothiazines; tetracyclines; thiazides













Specific types of cutaneous irritation:

1- Hydrofluoric acid burns.

throbbing pain,redness,swelling,paleness,necrosis, demineralization.

Treatment: washing,removal of clothes, Ca^{++} , Mg^{++} , NH_4^+ .

Ca Gluconate injection(local & 5mm beyond). Debridment, Ca Gluconate IV injection.

Serum Ca^{++} monitoring. EKG. (2.5% Body surface, Death)



2-Cement Burns.

Alkali, Boots, Gloves, Hurry, Necrosis, Scar.









3-Fiberglass dermatitis:

Seizing agents & ACD.

Folds, Sweat, Scabies.

Dx.

SL. Hardening & Resistance.







5-Allergic Contact Dermatitis:

Very important. Leave the job.

Type 4.

4 Days(Induction). 24-48 Hours.

Only skin No Mucus membrane.

Rash,Erythema,Pruritus,Papule, Vesicule,Bullae.

Scalp,palm & sole,Interdigit,Eyelids,But **Axilla**.



DDx:

Atopic dermatitis

Psoriasis

Pustular eruptions of Soles & palms

Herpes simplex & zoster

Id reaction(Trichophyton on feet)

Dyshidrotic & nummular eczema

Drug eruptions

ICD

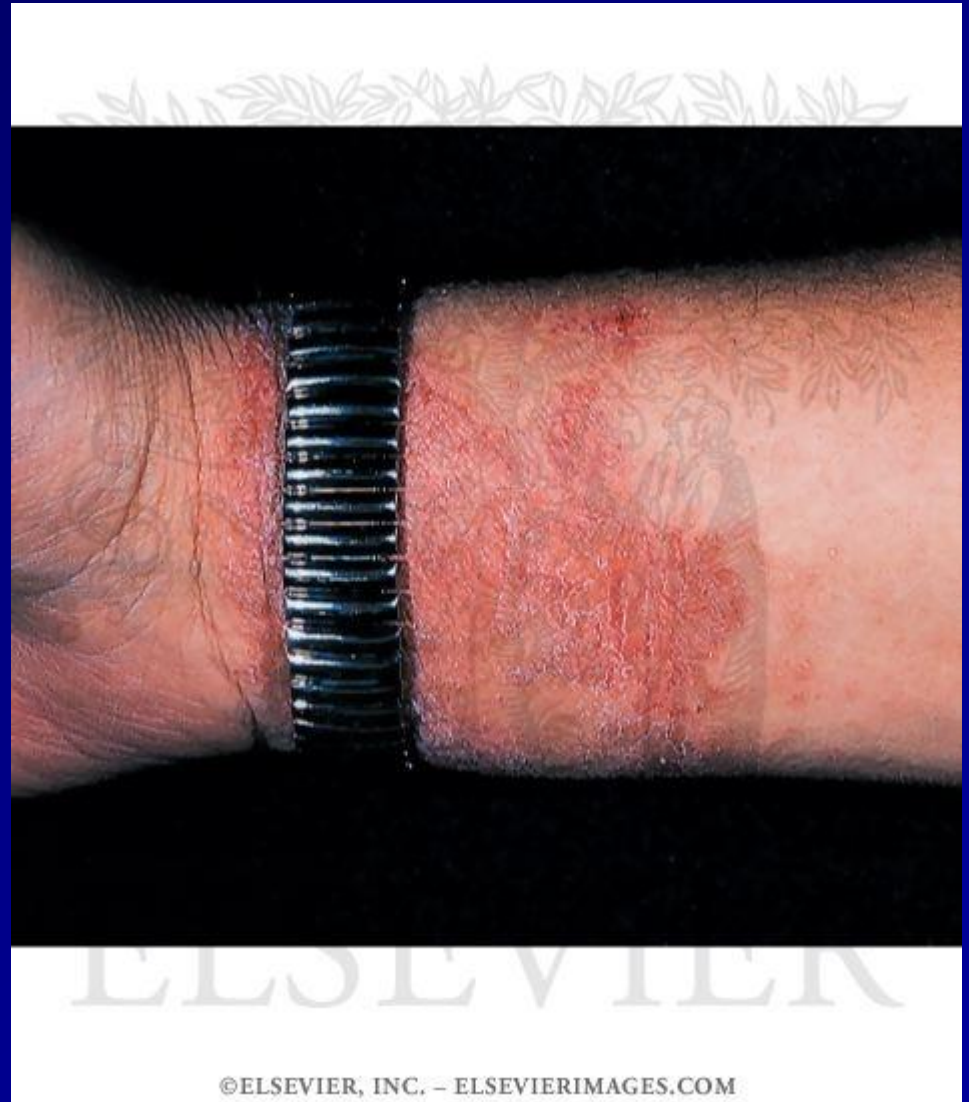




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Photoallergic reactions:

Immunologic, Less common than phototoxic, UVA.

Photopatch test, Chin & upper eyelids.

Positive Test = Erythema+ Mild edema + Numerous & small closely set vesicles.

Table 18-7. Patch test interpretation codes.

1 +	= Weak reaction, nonvesicular, erythema, mild infiltration
2 +	= Strong reaction, erythema, edema, vesicles
3 +	= Extreme reaction, spreading, bullous, ulcerative
4	= Doubtful, faint erythema only
5	= Irritant reaction
6	= Negative
7	= Excited skin reaction
8	= Not tested

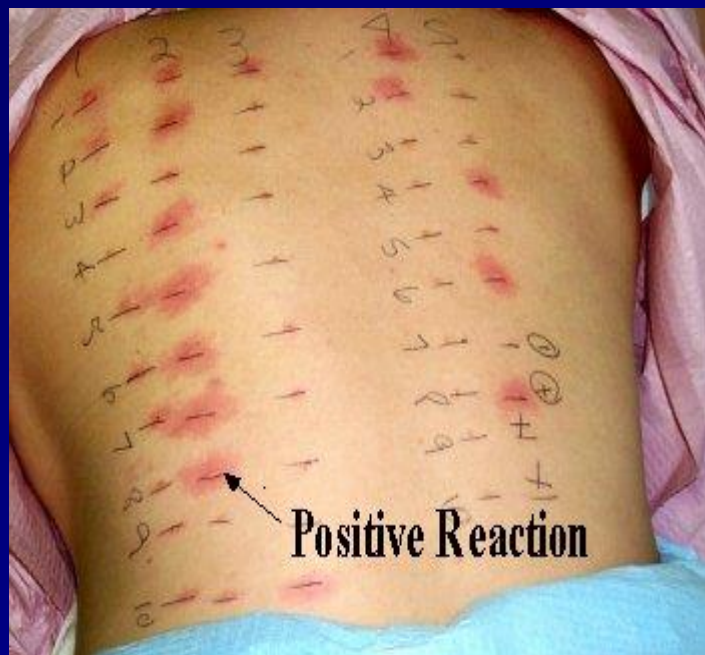


Table 18-6. Causes of photoallergic reactions.

Halogenated salicylanilides

Tetrachlorosalicylanilide

3,4,5-tribromosalicylanilide

4,5-dibromosalicylanilide

Phenothiazines: Chlorpromazine, promethazine

Fragrances: Musk ambrette

Optical brighteners (stilbenes)

Sunscreens: PABA esters

Compositae plants

Table 18-9. Additional occupational series for patch testing.

Hairdressing

Bakery

Dental

Epoxy

Fragrance

Isocyanate

Oils and cooling fluid

Methacrylates: dental, nails, printers

Photographic chemicals

Plant

Plastics and glues

Rubber additives

Textile colors and finish

Operational definition of occupational ACD.

- 1- History
- 2- Priority.
- 3- Same morphology.
- 4- Provocative use test.(PUT).
- 5- Repeat open application test,(ROAT).
Inner aspect of arm,2 times daily for 7-28 days,

Treatment:

Wet dressing (Burow`s),GCS topical & oral.
Oral Anti histamine & ABS but not local.

4-Pigmentary changes: Melanosis & Leukoderma. Px. Acral.

Table 18-5. Chemicals causing leukoderma.

Hydroquinone
Monobenzylether of hydroquinone
Monomethylether of hydroquinone
Para-tertiary-butylphenol
Para-tertiary-butylcatechol
Para-tertiary-amylphenol
Para-isopropylcatechol



6-Contact Urticaria:

1- Nonimmunologic (Non allergic):

Gardeners: Insects, caterpillar hair.

Cooks: fruits, fish, meat,

Medical personnel: Alcohol, Dimethyl sulfoxide.

2- Immunologic (Allergic) contact urticaria:

Latex, Type I, All devices containing Latex. Mild symptoms to DEATH.
Kiwi, Banana, Skin prick test (CPR), Test with glove.

FDA Law.





Hevea brasiliensis (WILLD.
ex A. JUSS.) MUELL.
©Thomas Schoepke

Biological Causes:

1-Bacterial Diseases:

Staphylococcal & Streptococcal Infections.

Wound infections. Furunculosis. Paronychia.
Atopy & Staph colonization.
(Food industry)





Cutaneous Mycobacterial infections:

Inoculation of MT hominis. Prosector's wart, (Pathologists).

Necrogenic wart, Anatomic tubercle, (Surgeon, Morgue attendants)

Butcher, Farmers (Bovis).

Difficult smear & culture.

Warty plaque, SL, Scar.

Atypical Mycobacterial infections:

M. Marinum, (fish tanks & Pools).

Papule + clear exudation.

Treatment = Rifampin or Etambutol.

DDX Sporotrichosis.



TB



Anthrax:

Bacillus anthracis. Malignant pustule.
Dermal-Inhalation-Ingestion.
Jobs.



Cutaneous anthrax
skin infection

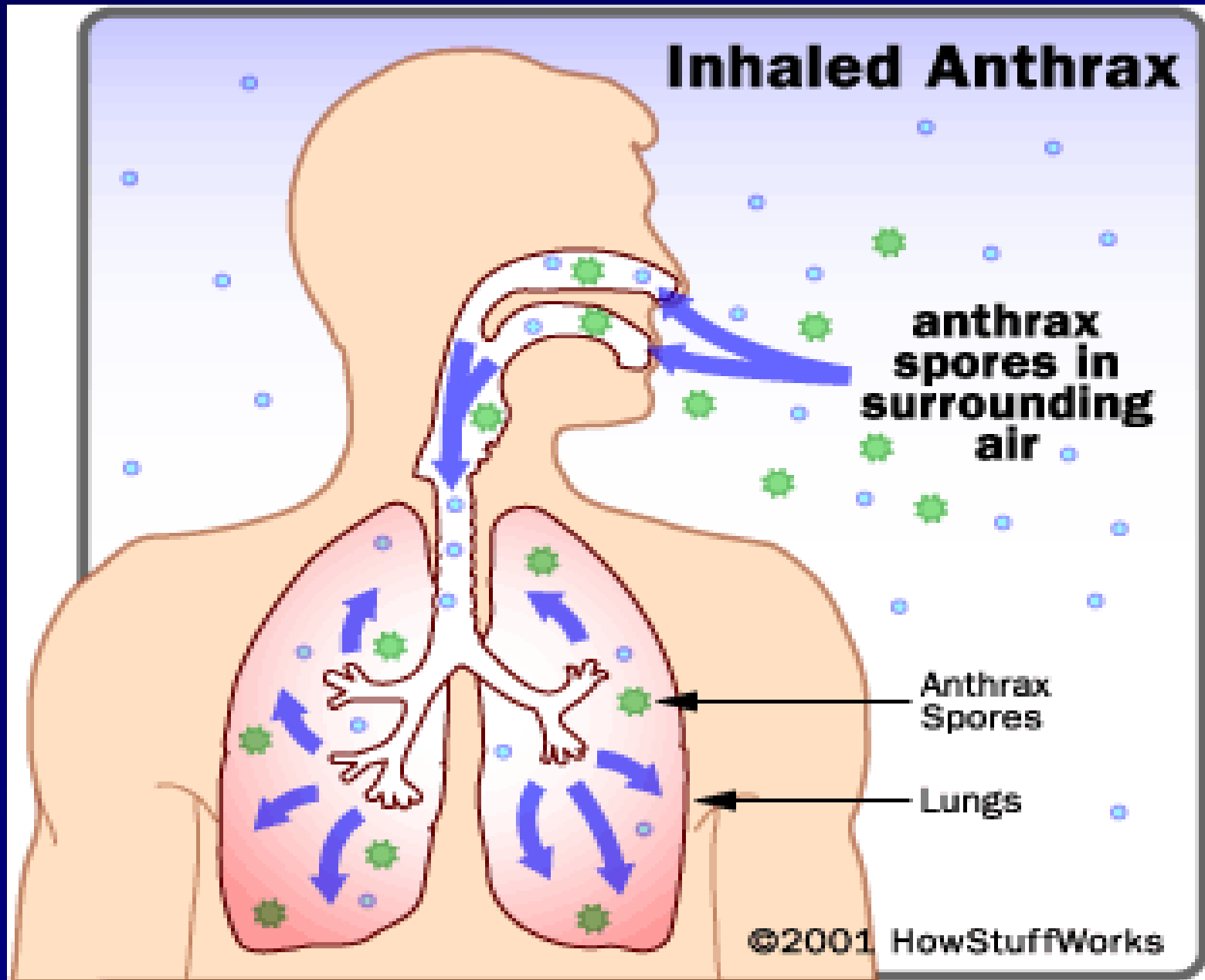


ADAM.





Inhaled Anthrax



Gastrointestinal Anthrax

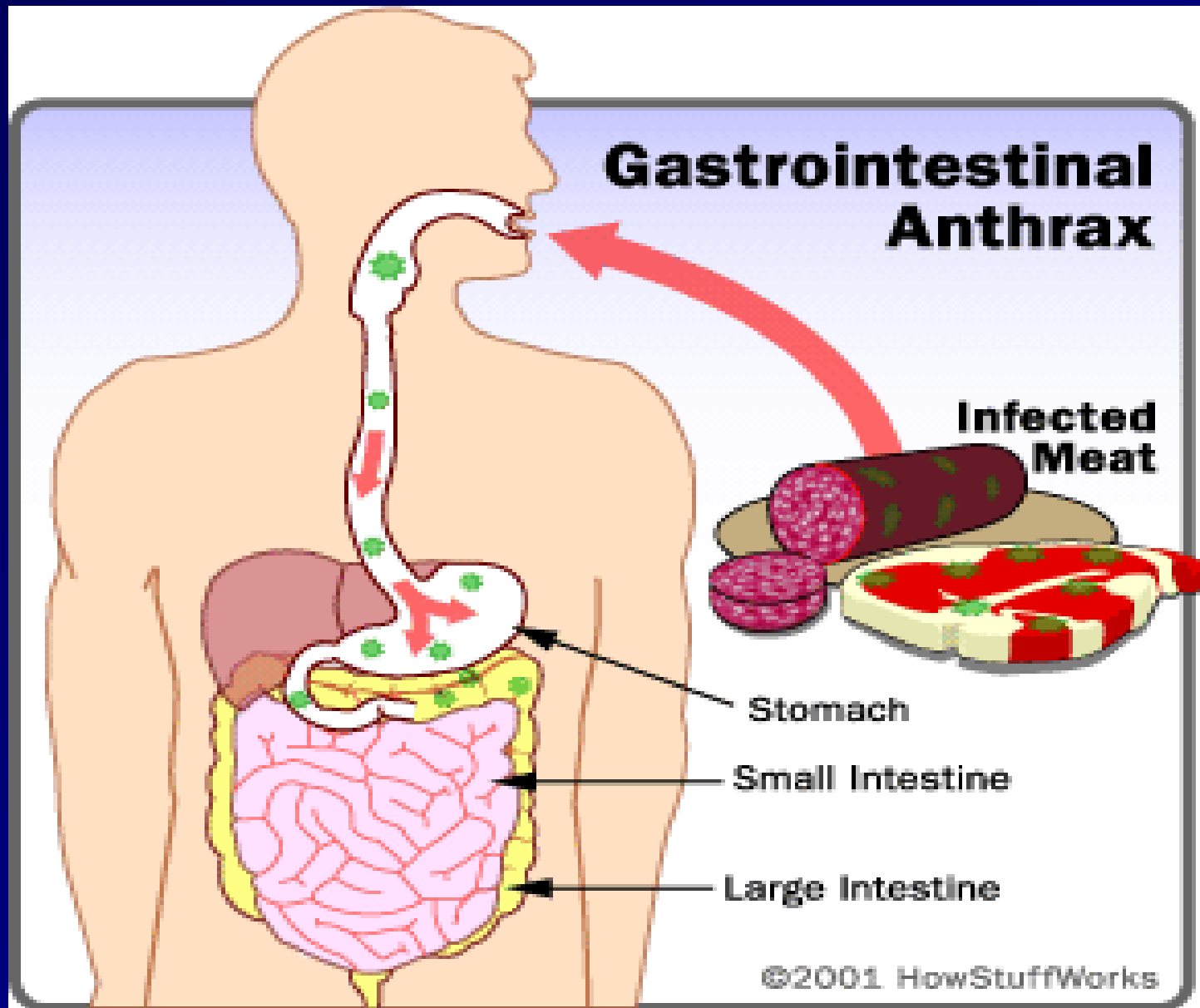
Infected Meat

Stomach

Small Intestine

Large Intestine

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Erysipeloid:

%100 Occupational. *Erysipelothrix rhusiopathiae*.

Bacillus Gram +. Maculopapular, purple, itching,

Raised, No L.N. SL.

Fish handlers & butchers.





2-Viral Diseases:

Herpes Simplex. Most common, HSV, Jobs,

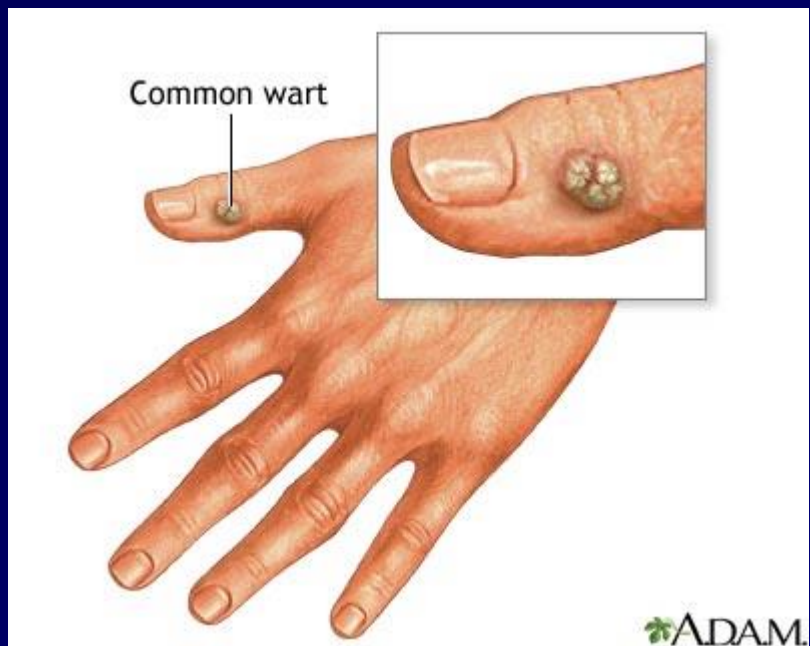


Viral Warts.

HPV, 35 Types, Jobs, Hands,
Needs a wound.

Molluscum contagiosa.

Boxers, Wrestlers, ...



Orf.

Parapox virus, S.L. Jobs.

Always on fingers. Fever, LN.

E.M. Like Eruption after 10-14 days.



ASM MicrobeLibrary.org © Walton and Suchman



3-Fungal Infections:

Candida:

Most common, Albicans,
Hands, Nails, Inter digits.
Glove.

Risk Factors.



Dermatophytes:

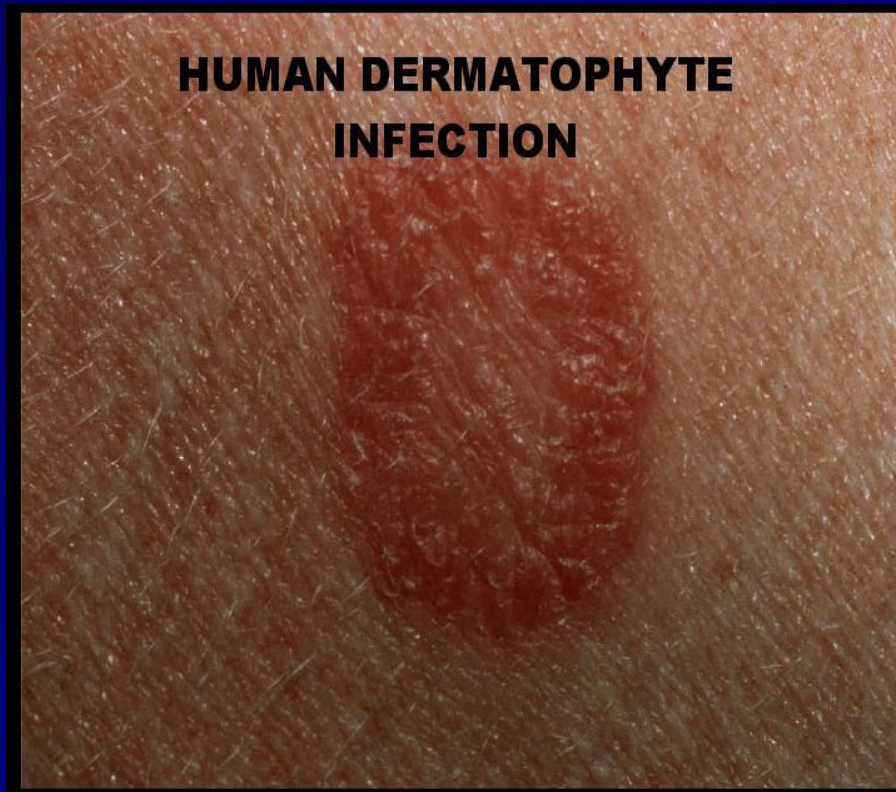
Trichophyton verrucosum: pyoderma like. Jobs.

Trichophyton mentagrophytes: (Tinea pedis & manus)

Microsporum canis: Pets.

Microsporum gypsum: (Soil)

Onychomycosis:





Dermatophyte



Sporotrichosis:

Sporothrix schenckii, Soil,

1-Fixed, limited to inoculation area, Nodular, ulcerative.

2-Nodular, more common, enlarges slowly, Nodular lymphangitis.

Treatment= Solution of KI. In severe cases Amphotericin.



4-Parasitic Diseases.

Protozoa:

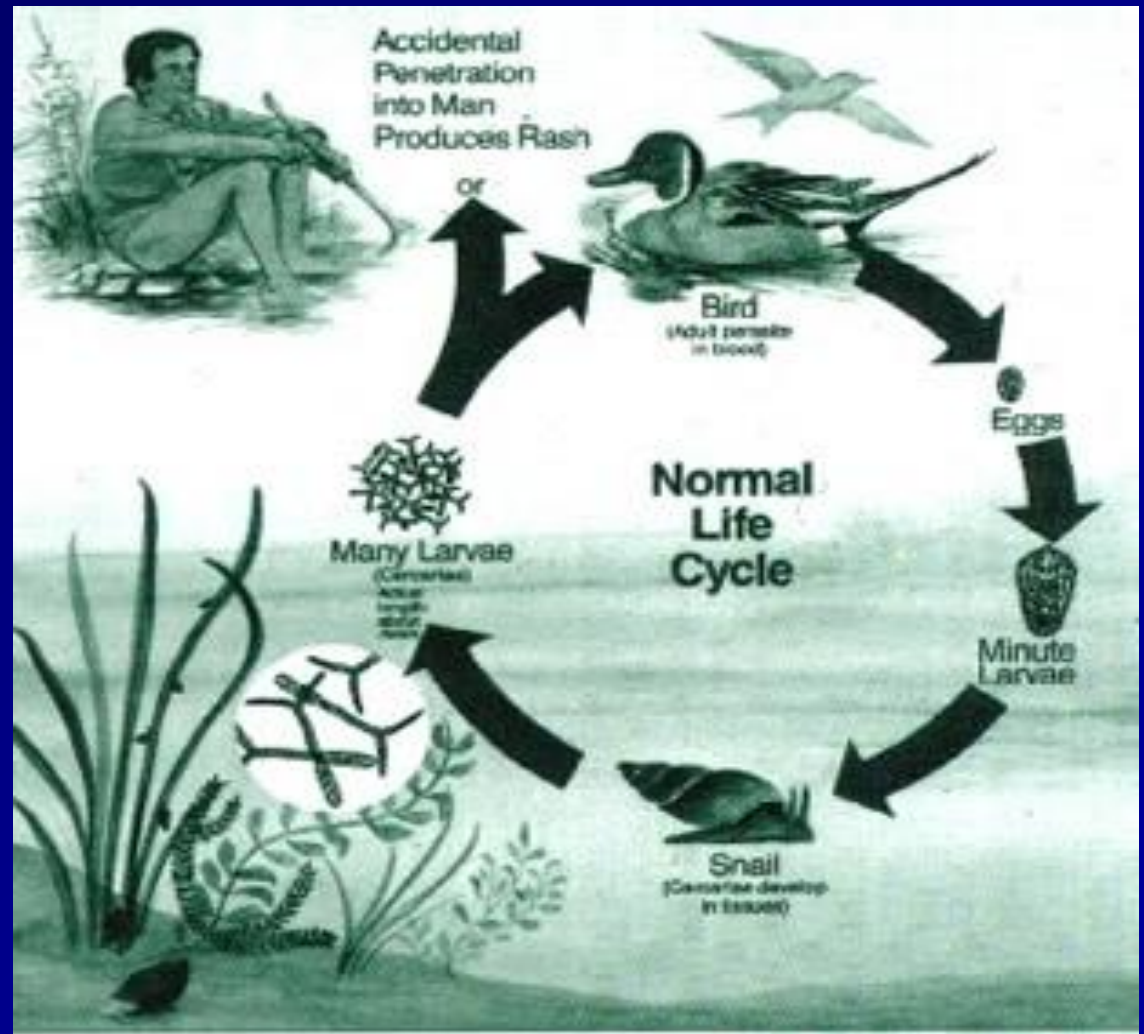
A: Cutaneous Leishmaniasis.

Oriental sore. *Leishmania tropicalis*. Sand fly.



B: Helminths:

Swimmer's itch. Urticaria. Jobs.



Larva migrans,
Creeping eruption, Thread like eruption, Necator Americanus &
Ancylostoma Braziliense. Jobs.



Arthropods:

Toxin—Allergy—Irritation.
Outdoor workers.

A: Scabies.

Crowded, Contagious.



Physical Causes:

1-Mechanical Trauma:

Friction

Callus-Trauma- Fissure-Infection.
Disability.



2-Heat: Burns.

Miliaria:

Retention, Itch, Intense,
Crystallina, Rubra (ACD),
Profunda (Exhaustion)



Intertrigo:

Folds, Infection, 3rd & 4th
Spaces, Jobs.



Heat urticaria.
Acne & Acne rosacea.
HSV.



Cold:

Frostbite.

Vasocostriction, Numbness,
Redness, White, Swollen, Necrosis,
Side effects: Raynaud's & SCC.

Treatment.

Jobs.



Chilblains(Perniosis):

Extrimities, Vasomotor instability,
Red-Blue ,Swelling.

Treatment.



Vibration Syndrome:

Raynaud`s, White or Dead fingers.

Pale—Cyanosis—redness.

Clumsy hands.

Disability rate.

30—300 Hz.



Acroosteolysis,(Vinyl Chloride Disease):

Tank, Raynaud's, Lytic lesions,
Scleroderma.



Ionizing Radiation:

Jobs, Acute or Chronic.

Acute radiodermatitis=1000 R.(48 hours Then Again)

Redness—edema—white

General symptoms.Some days.

Redness—echymosis—bullae—

Severe pain—New skin(Atrophy)

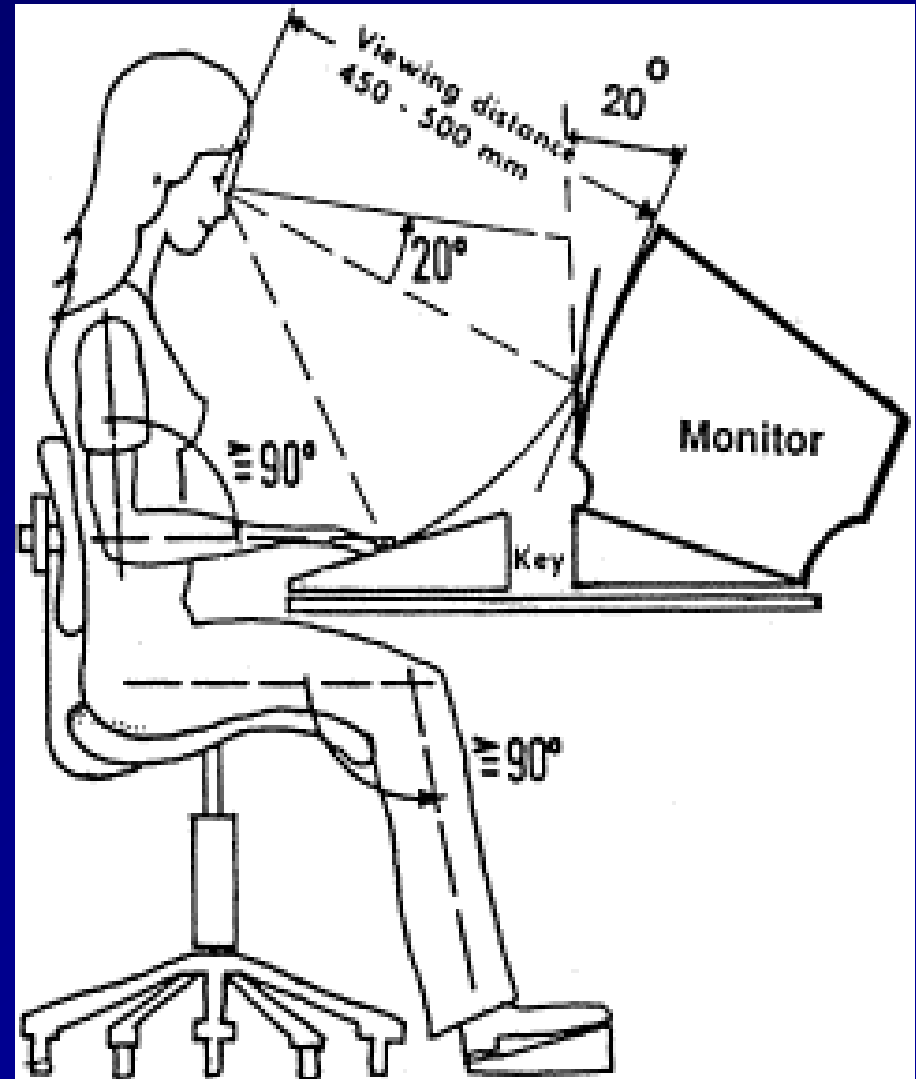
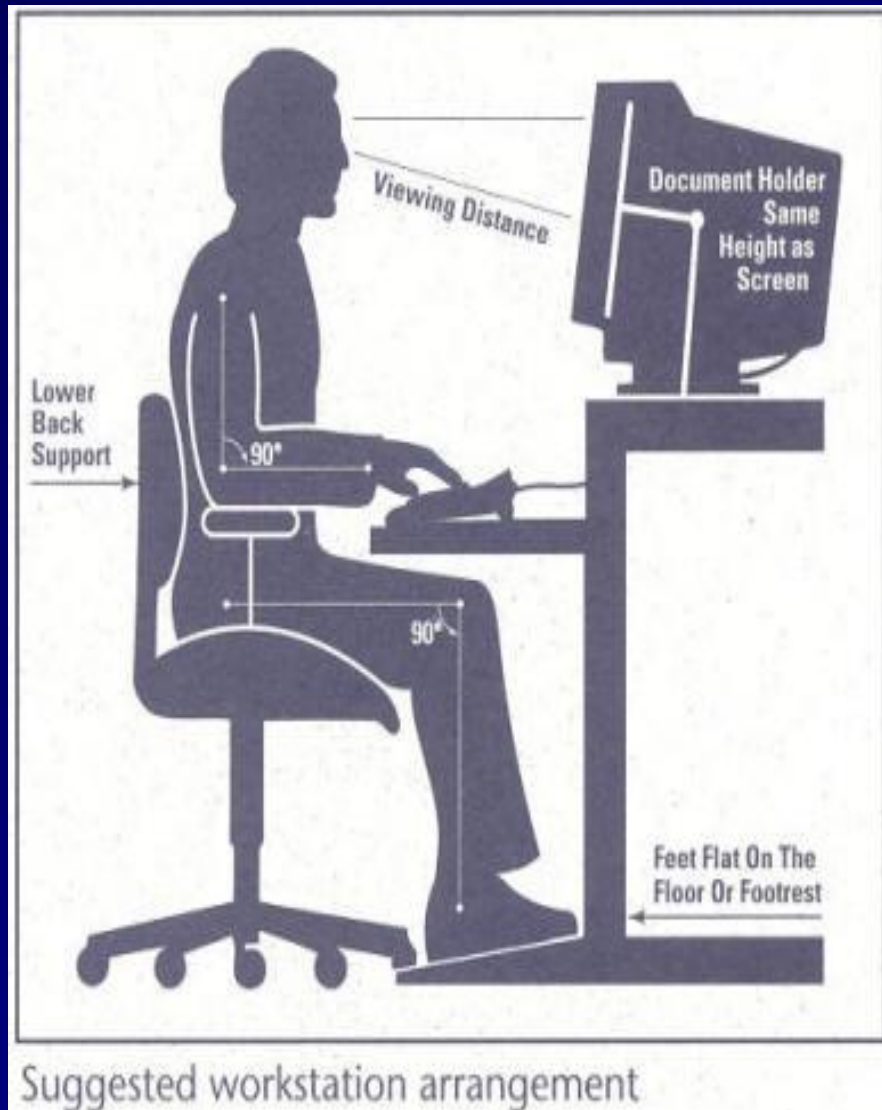


Chronic radiodermatitis:
300-800 R/week.(Total 5000-6000
R)

Atrophy+Telangectasia+
Hypopigmentation

Video Display Terminals.

No Ionizing radiation, or EMF. Ergonomic problems.



Occupational Acne:

Oil Acne(Folliculitis):

Jobs, Sites, Comedons, pustules.

Acne Cosmetica.

Acne mechanica.

Acne tropical.(TREATMENT)

Acne McDonald`s.

Table 18-2. Examples of acne in the workplace.

Type	Occupation
Cosmetic acne	Actors, models, cosmetologists
Acne mechanica	Auto and truck mechanics, athletes, telephone operators
Ultraviolet acne	Models, lifeguards
Oil acne	Machinists, auto mechanics, fry cooks, roofers, petroleum refinery workers, rubber workers, highway pavers



Acne



Chloracne:

Yellow cyst, Halogenated materials.

Sites, (nose). Hypertrichosis,

Hyperpigmentation, (P.C.T.).

Nails, Meibomian glands, neuritis,
hepatitis.

Treatment.

Table 18-3. Chloracne-producing chemicals.

Polyhalogenated naphthalenes

Polyhalogenated biphenyls

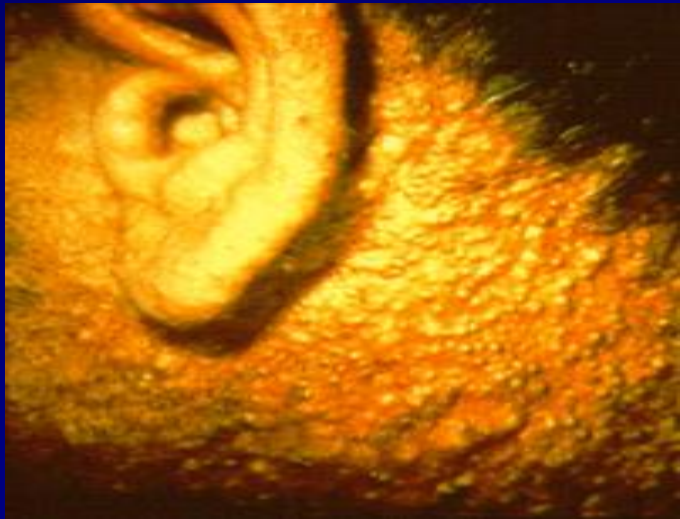
Polyhalogenated dibenzofurans

Contaminants of polychlorophenol compounds:

herbicide 4, 5-T

Contaminants of 3, 4-dichloroaniline and related herbicides

Dichlorodiphenyltrichloroethane (DDT) (crude trichlorobenzene)



Chloracne



Occupational skin Cancer.

Causes:

1-U.V.

SCC & BCC,A(320-400)B(290-320)

C(100-290).Jobs.

Melanoma.

Xeroderma pigmentosa.

2-P.A.H.

Phothosensitization,
Synergism.

3-Arsenic.

Arsenicalism,Jobs,

4-Ionizing Radiation.

5-Trauma.Scar,Repeated.





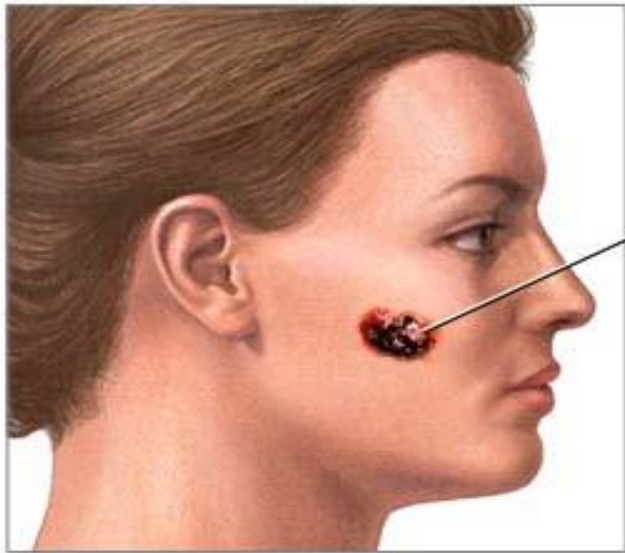


Picture of Squamous Cell Carcinoma









Malignant
melanoma

ADAM.





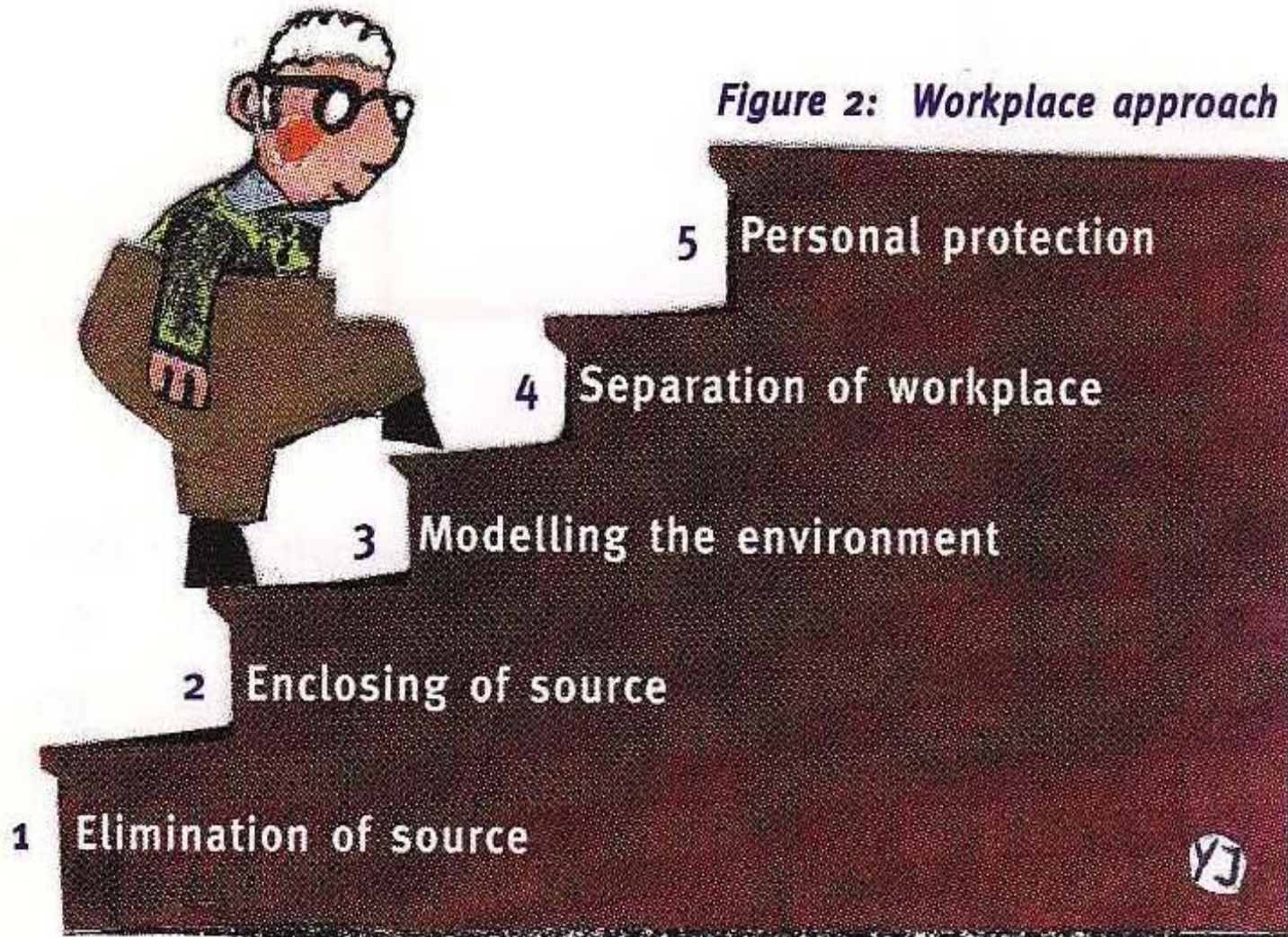
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Figure 2: Workplace approach

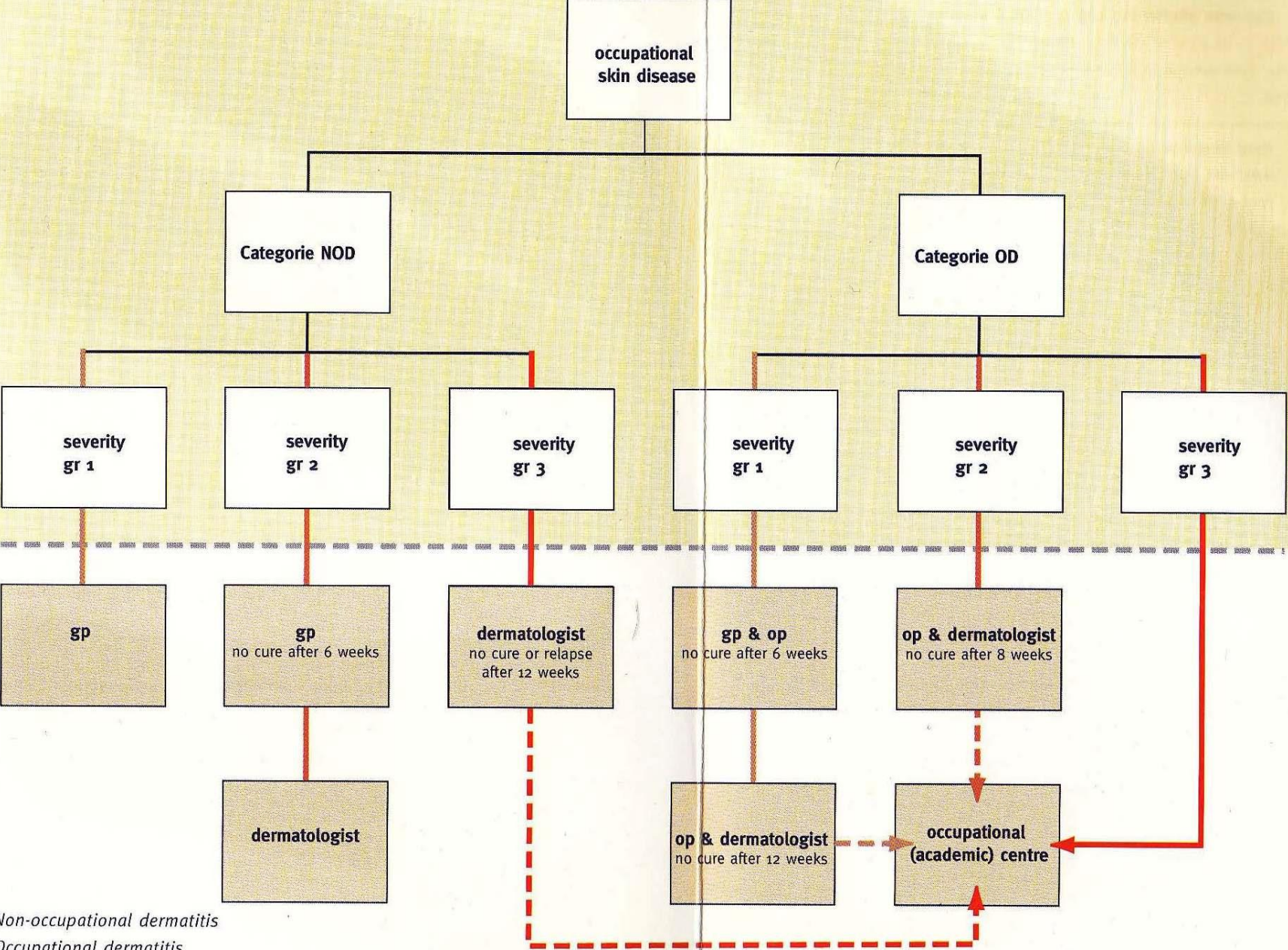


the lower..., the better...



What questions do you have?

Figure 1: Management of contact dermatitis: the operational plan



Classification

Action

NOD Non-occupational dermatitis
OD Occupational dermatitis
gp general practitioner
op occupational physician