

# **Hazards in Healthcare**

# INFECTIONS



# Nosocomial Infection

## Nosocomial Infection

(also called “hospital acquired infection”) can be defined as:

- An infection acquired in hospital by a patient who was admitted for a reason other than that infection.

An infection occurring in a patient in a hospital or other health care facility in whom the infection was not present or incubating at the time of admission.

- This includes infections acquired in the hospital but appearing after discharge, **and also occupational infections among staff of the facility**

Infection that first appears between 48 hours and four days after a patient is admitted to a hospital or other health-care facility.

Patient care is provided in facilities which range from highly equipped clinics and technologically advanced university hospitals to front-line units with only basic facilities.



Despite progress in public health and hospital care, infections continue to develop in **hospitalized patients**, and may also affect hospital staff.

Many factors promote infection among hospitalized patients: decreased immunity among patients; the increasing variety of medical procedures and invasive techniques creating potential routes of infection; and the transmission of drug-resistant bacteria among crowded hospital populations, where **poor infection control practices** may facilitate transmission.



Prof. Ashraf Zaghloul

# Epidemiology of hospital acquired infections

**Nosocomial infections occur worldwide and affect both developed and resource-poor countries.**

Infections acquired in health care settings are among the major causes of death and increased morbidity among hospitalized patients. They are a significant burden both for the patient and for public health.

A prevalence survey conducted under the auspices of WHO in 55 hospitals of 14 countries representing 4 WHO Regions shows that the highest prevalence of nosocomial infections occurs **IN**

# Intensive care units and in acute surgical and orthopaedic wards



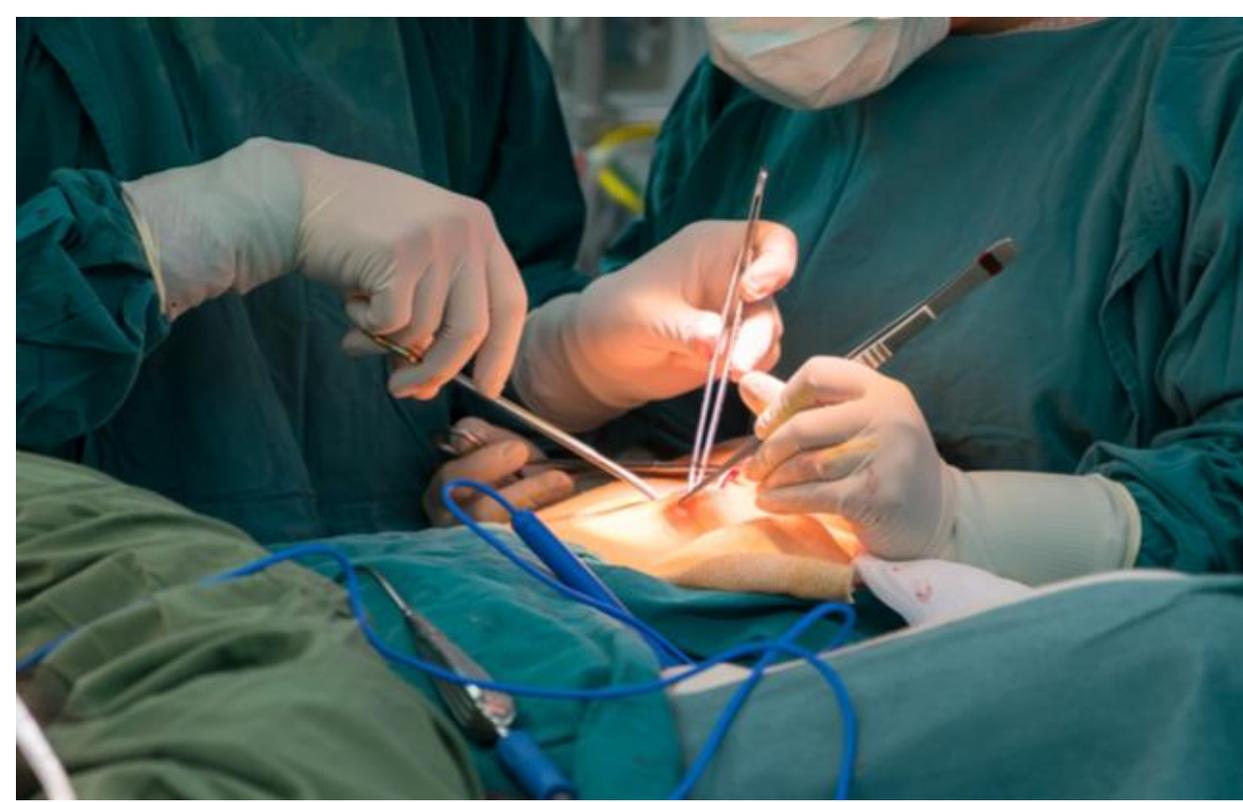
Infection rates are higher among patients with increased susceptibility because of old age, underlying disease, or chemotherapy.



# Most common hospital acquired infections for surveillance

## 1- Surgical site infection

Any purulent discharge, abscess, or spreading cellulitis at the surgical site during the month after the operation



# Surgical site infections



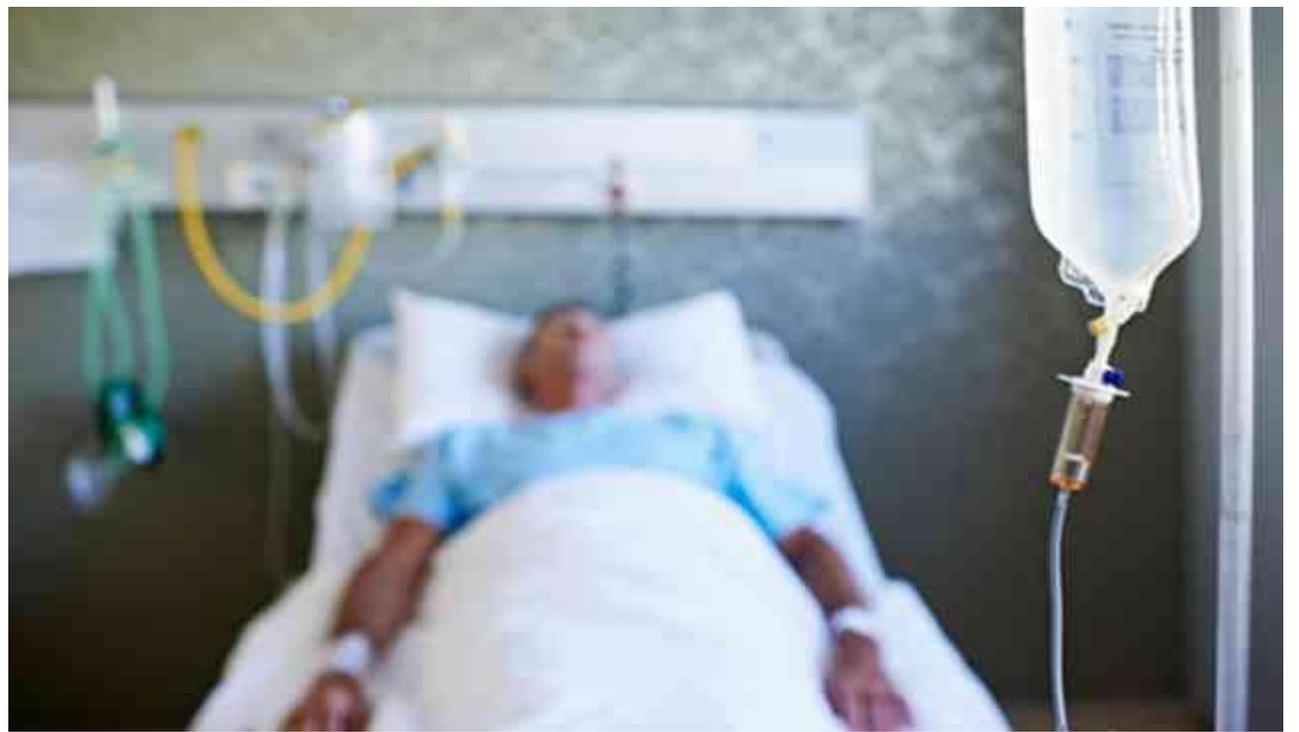
## 2- Urinary infection

Positive urine culture (1 or 2 species) with at least  $10^5$  bacteria/ml, with or without clinical symptoms

# 3- Respiratory infection (nosocomial pneumonia)

Respiratory symptoms with at least two of the following signs appearing during hospitalization:

- cough
- purulent sputum
- new infiltrate on chest radiograph consistent with infection



# 4- Vascular catheter infection

Inflammation, lymphangitis or purulent discharge at the insertion site of the catheter



Peripheral venous  
catheter

Peripheral arterial  
catheter

# 5- Septicaemia

Fever or rigours and at least one positive blood culture

# Other nosocomial infections

## **Skin and soft tissue infections:**

Open sores (ulcers, burns and bedsores) encourage bacterial colonization and may lead to systemic infection.

# Gastroenteritis

The most common nosocomial infection in children, where rotavirus is a chief pathogen: Clostridium difficile is the major cause of nosocomial gastroenteritis in adults in developed countries.

# Sinusitis

and other enteric infections, infections of the eye and conjunctiva.

# Endometritis

and other infections of the reproductive organs following childbirth.

# **EMERGING” & “RE-EMERGING Diseases**

**Emerging infectious diseases** whose incidence in humans has increased in the past 2 decades or threatens to increase in the near future have been defined as "emerging".

**Re-emerging diseases** that once were major health problems globally or in a particular country, and then declined dramatically, but are again becoming health problems for a significant proportion of the population.

Diseases thought to be adequately controlled making a "comeback" are "re-emerging"



# SELECTION OF IMPORTANT EMERGING INFECTIOUS DISEASES FROM THE LAST DECADE

2013 Influenza virus A/H7N9

2012 Middle East respiratory syndrome (MERS) e coronavirus

2011 Escherichia coli 0104:H4

2010 Huaiyangshan virus, associated with severe fever and thrombocytopenia syndrome (SFTS)

2009 Influenza virus A/H1N1

2008 Plasmodium knowlesi Lujo virus

2005 Human retroviruses HTLV3 and HTLV4

2004 Re-emergence of influenza virus A/H5N1

2003 SARS corona virus

# PROTECTION AGAINST EMERGING INFECTIOUS DISEASES

The preventative methods are

- Vaccination,
- Isolation of cases
- Use of Personal Protective Equipment

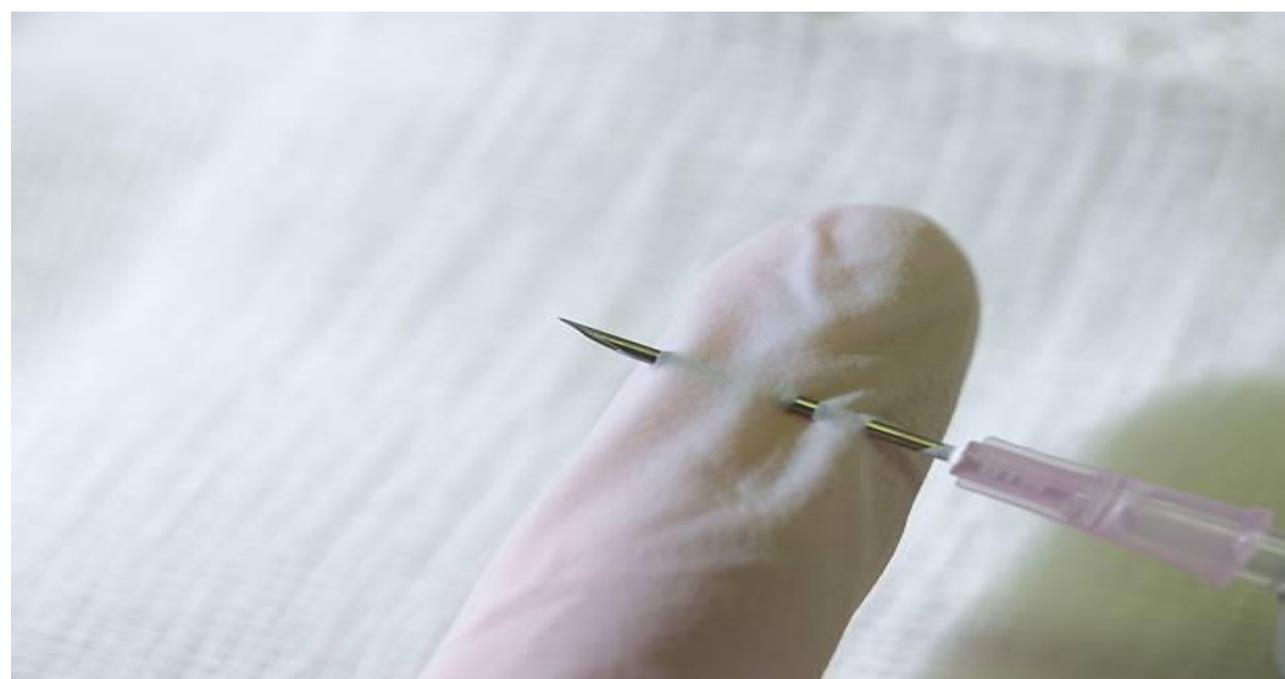
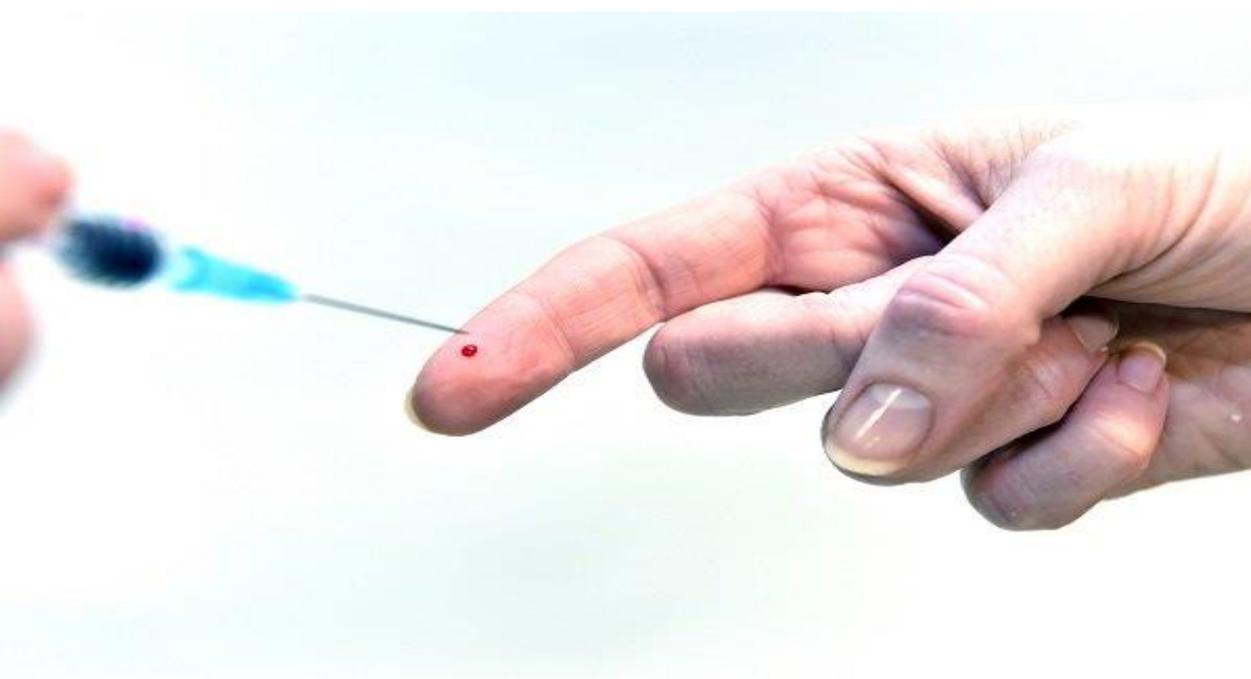
# Radiation

# Medical Diagnostic Imaging Department

## Radiation



# Sharp Injury



Sharp Injuries are skin penetrating stab wounds caused by sharp instruments and accidents in a medical setting.

These instruments include needles, lancets, scalpels and broken glass.

Diseases associated with  
**N**eedle **S**tick **I**njuries are the  
blood-borne pathogens  
**HBV, HCV and HIV**



- 44% Nurses
- 28% Physicians
- 15% Laboratory Technicians
- 13% Others  
Students,  
Housekeeping /  
Maintenance,  
Clerical / Admin.,  
Dental,  
Research,



- 40% During device use
- 40% After use of device, before disposal
- 15% During or related to device disposal
- 5% During device re-capping



- 31.5% Patient room
- 28.8% Operating room
- 9.4% Emergency department
- 4.8% Outpatient clinic / office
- 4.8% Intensive / Critical care unit
- 4.0% Procedure room
- 16.7% Others

# Anaesthetic Gases



Prof. Ashraf Zaghloul

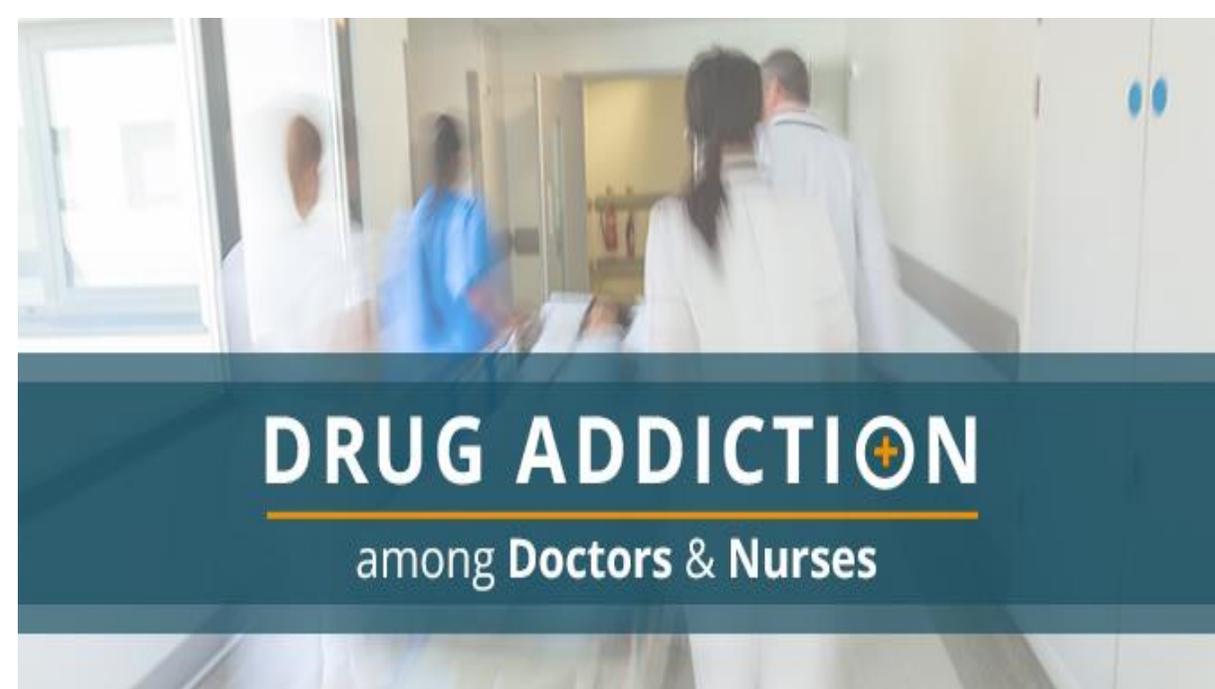
# Medical Waste



# Stress



# **Drug Addiction**



# DRUG ADDICTION

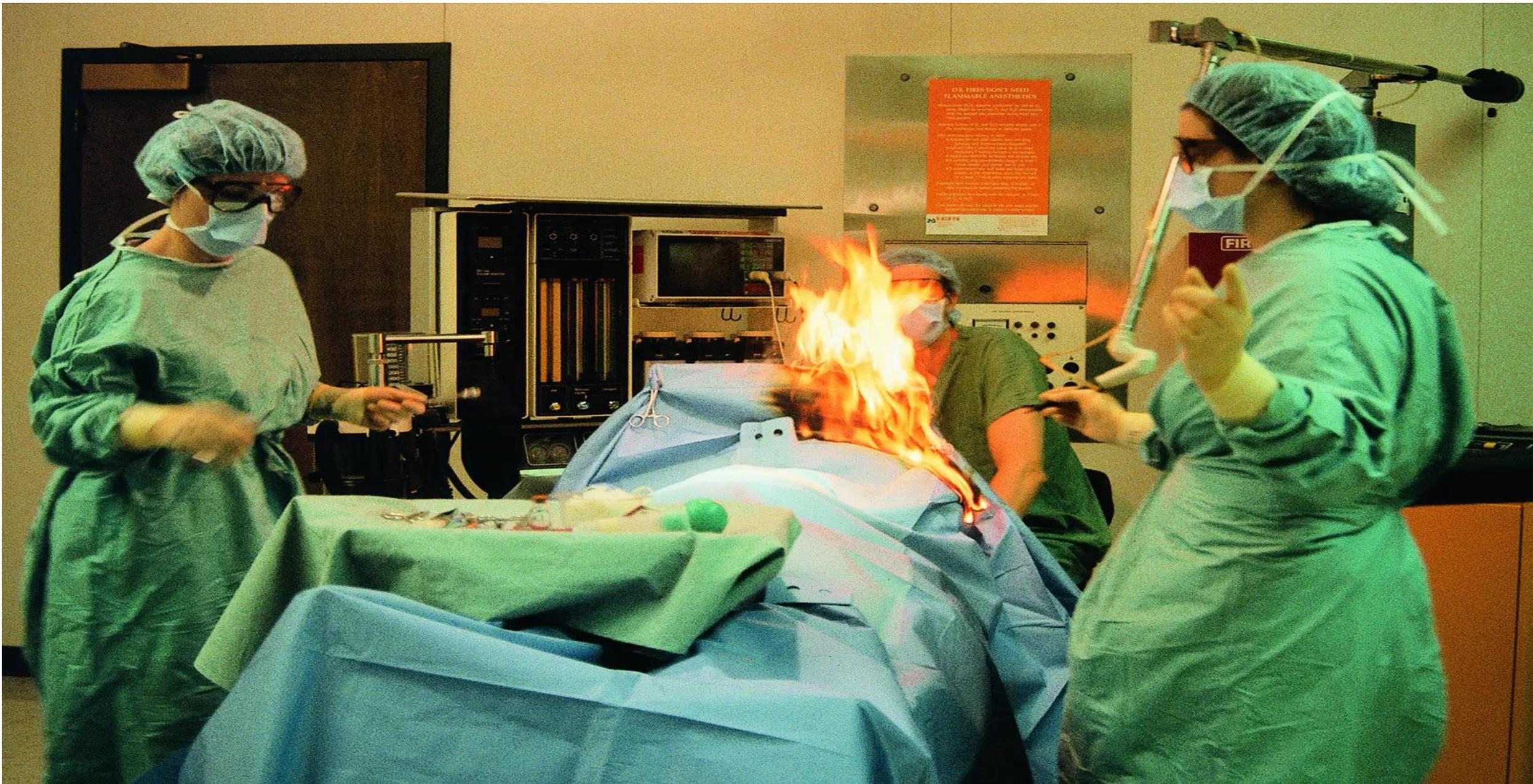
among Doctors & Nurses



# Violence



**Fire**



Prof. Ashraf Zaghloul

# Latex Allergies



# Back Pain

