SEPSIS

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INTRODUCTION

The word sepsis is of Greek origin and meant "perishable matter" or a disease proceeding with symptoms of suppuration and ending most often unfavorably. In the 19th century, after the discovery of microbes, the word "sepsis" was used to describe the effect of bacteria present in the blood on the body. Sepsis was then described as "blood poisoning". In Poland, the name "sepsis" became popular, derived from "seroka", i.e. the blood of a wounded or killed animal.

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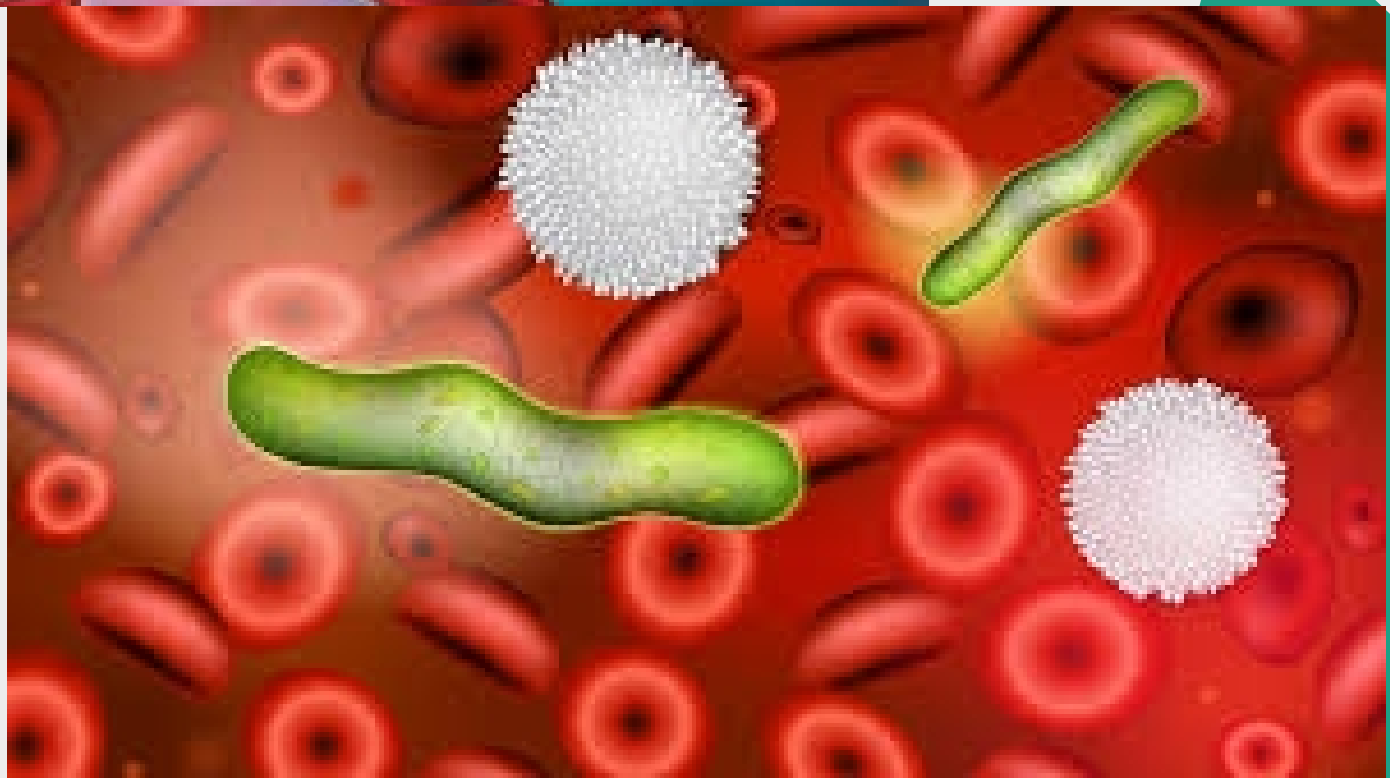
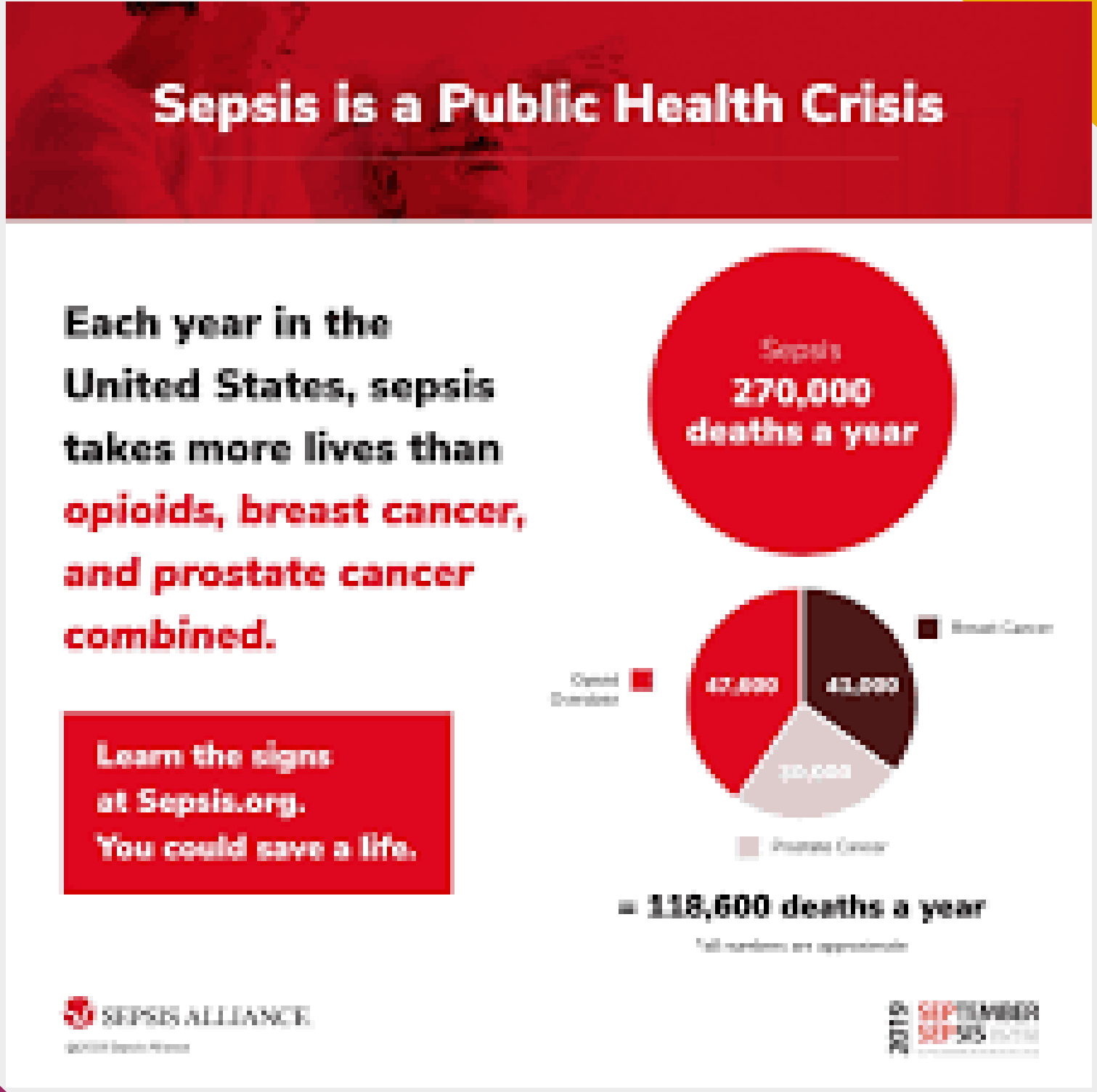


SEPSIS - DEFINITION

Sepsis has been defined as life-threatening organ dysfunction caused by an inappropriate (disregulated) response of the body to infection.

- Simplified definition of sepsis: Sepsis is a life-threatening condition that arises when the infection response damages the body's own tissues and organs.



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THE MOST COMMON CAUSES OF SEPSIS

Meningitis

- Infection of unknown origin
- Viruses, such as SARS-CoV-2

Skin and soft tissue infection

Pneumonia

Catheter-related infection

Bloodstream infection

Abdominal infection

Examples

- appendicitis
- infectious diarrhea
- gallbladder infections, etc.

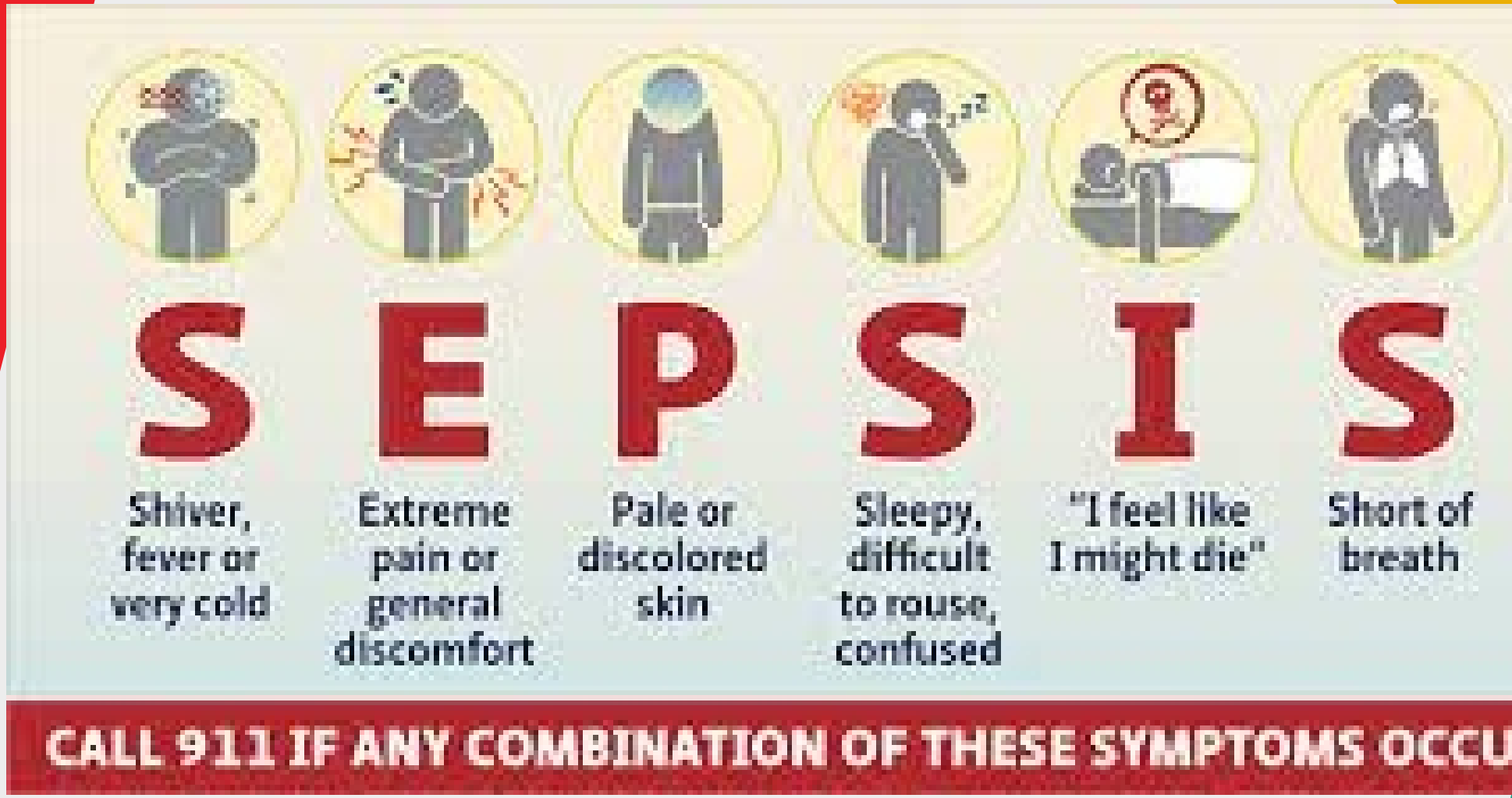
Urinary tract infection

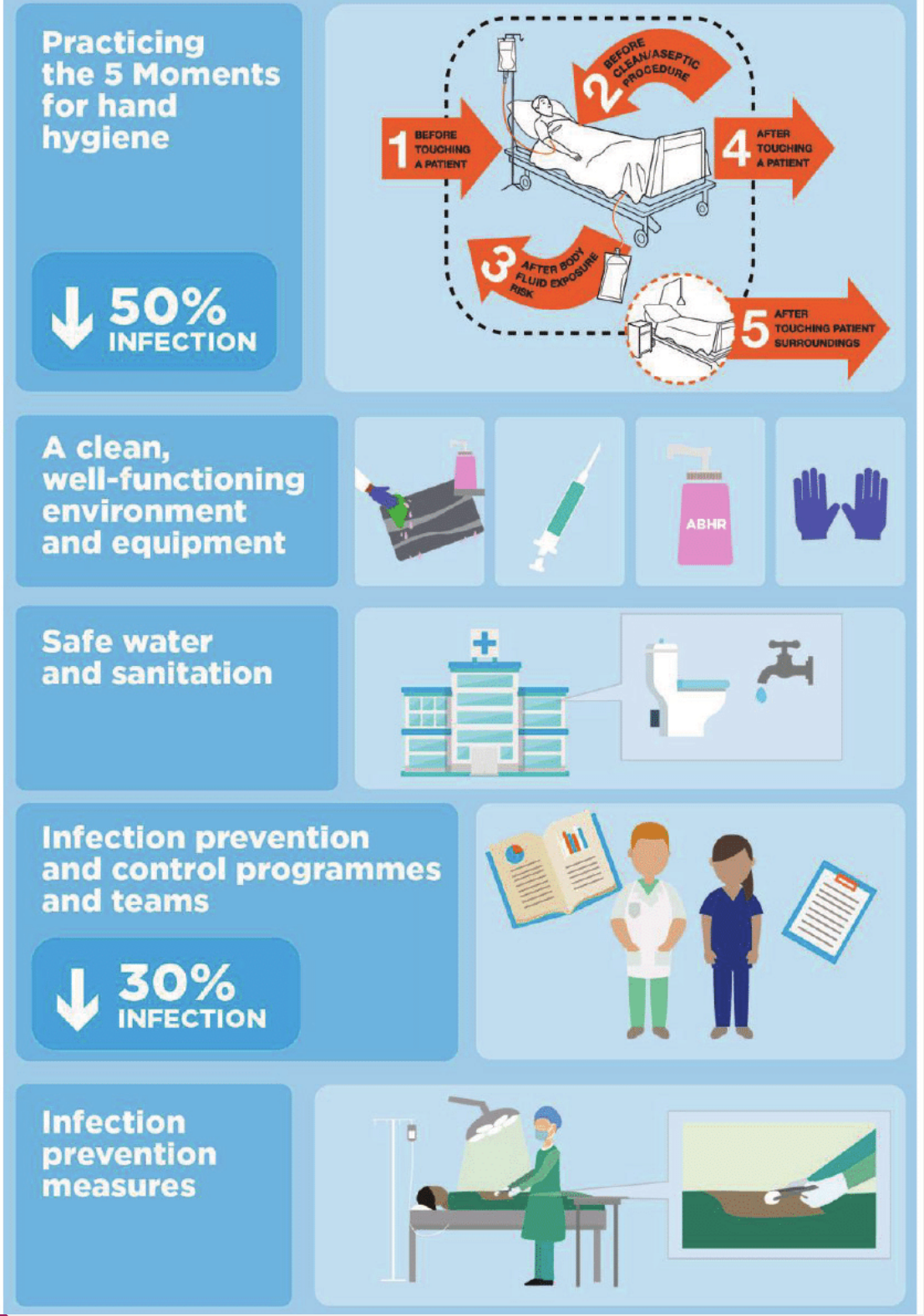
Reasons

- The type of microorganism does not determine the course of sepsis and microorganisms do not have to be present in the blood. In most cases, there is no pre-existing immune deficiency, although it is a risk factor for sepsis.
- Infections and inflammations that cause sepsis primarily involve various organs, including the abdominal cavity (e.g. peritonitis, cholangitis, acute pancreatitis), urinary system (pyelonephritis), respiratory system (pneumonia), CNS (neuroinfections), endocardium, bones and joints, skin and subcutaneous tissue (wounds in as a result of injuries, bedsores and postoperative), reproductive system (e.g. infection of an empty fetal egg in pregnant women). The focus of infection is often latent (e.g. teeth and periodontal tissues, paranasal sinuses, tonsils, gallbladder, reproductive system, abscesses of internal organs).

Bloodstream infection

- **Primary** – from catheter, of unknown origin, with no other source of infection
- **Secondary** - pneumonia, urinary tract infection urinary tract infection, gastrointestinal tract infection gastrointestinal tract, surgical site infections operated, infections of skin and subcutaneous tissue subcutaneous tissue, other


S E P S I S
Shiver, fever or very cold
Extreme pain or general discomfort
Pale or discolored skin
Sleepy, difficult to rouse, confused
"I feel like I might die"
Short of breath
CALL 911 IF ANY COMBINATION OF THESE SYMPTOMS OCCUR



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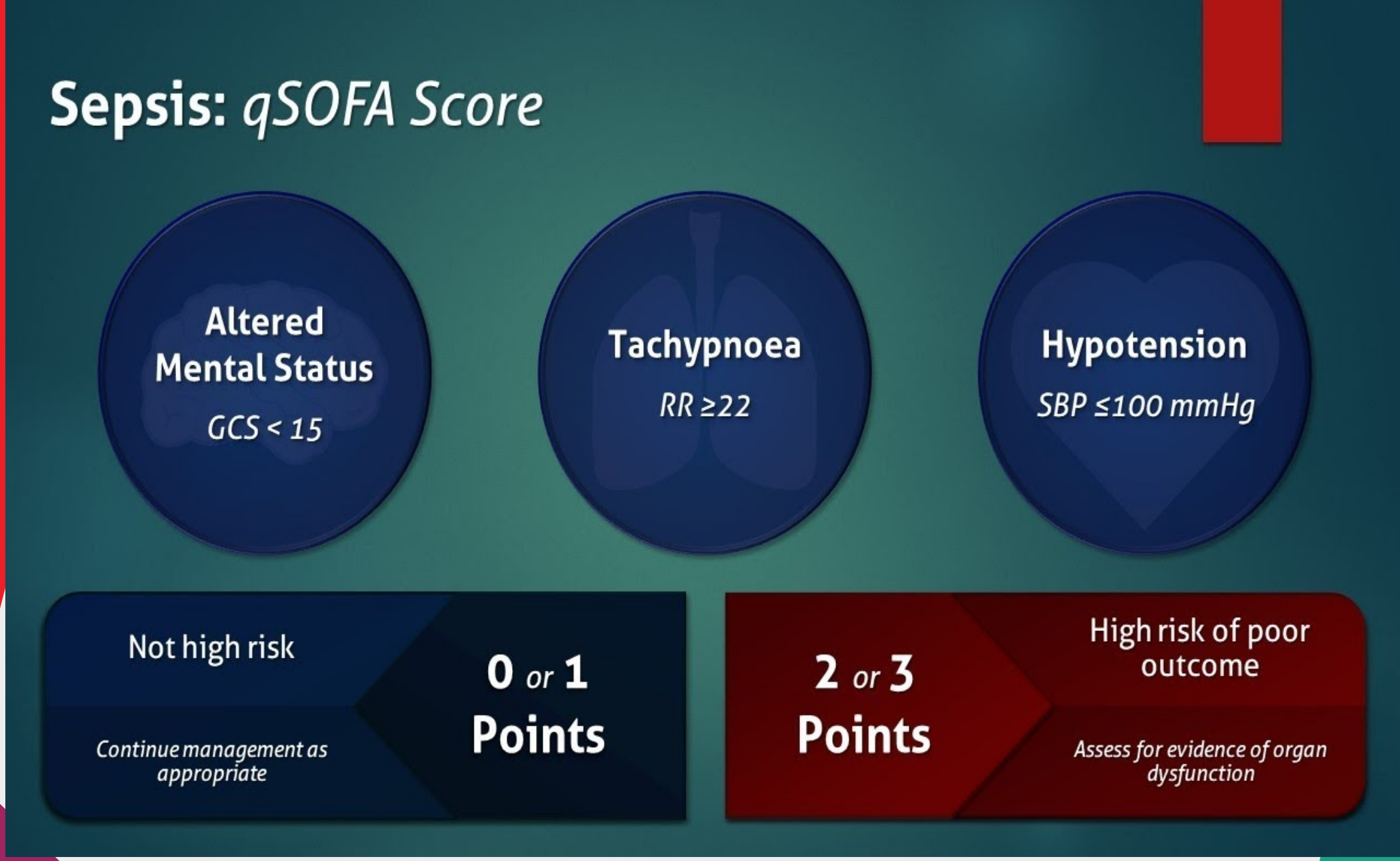
Sepsis: *qSOFA Score*



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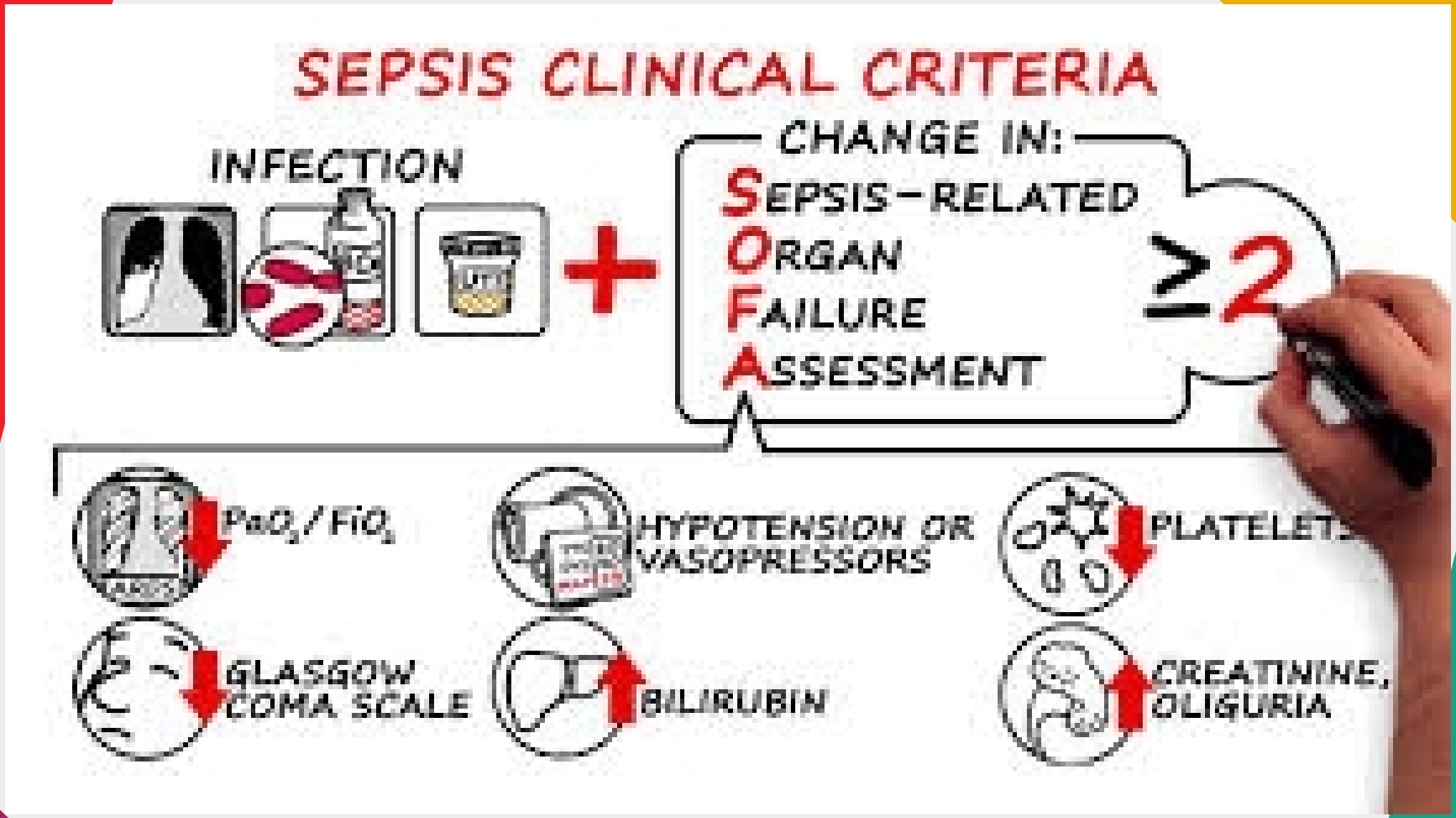

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Task package according to the Surviving Sepsis Campaign

Within 1 ha:

1) determine blood lactate concentration

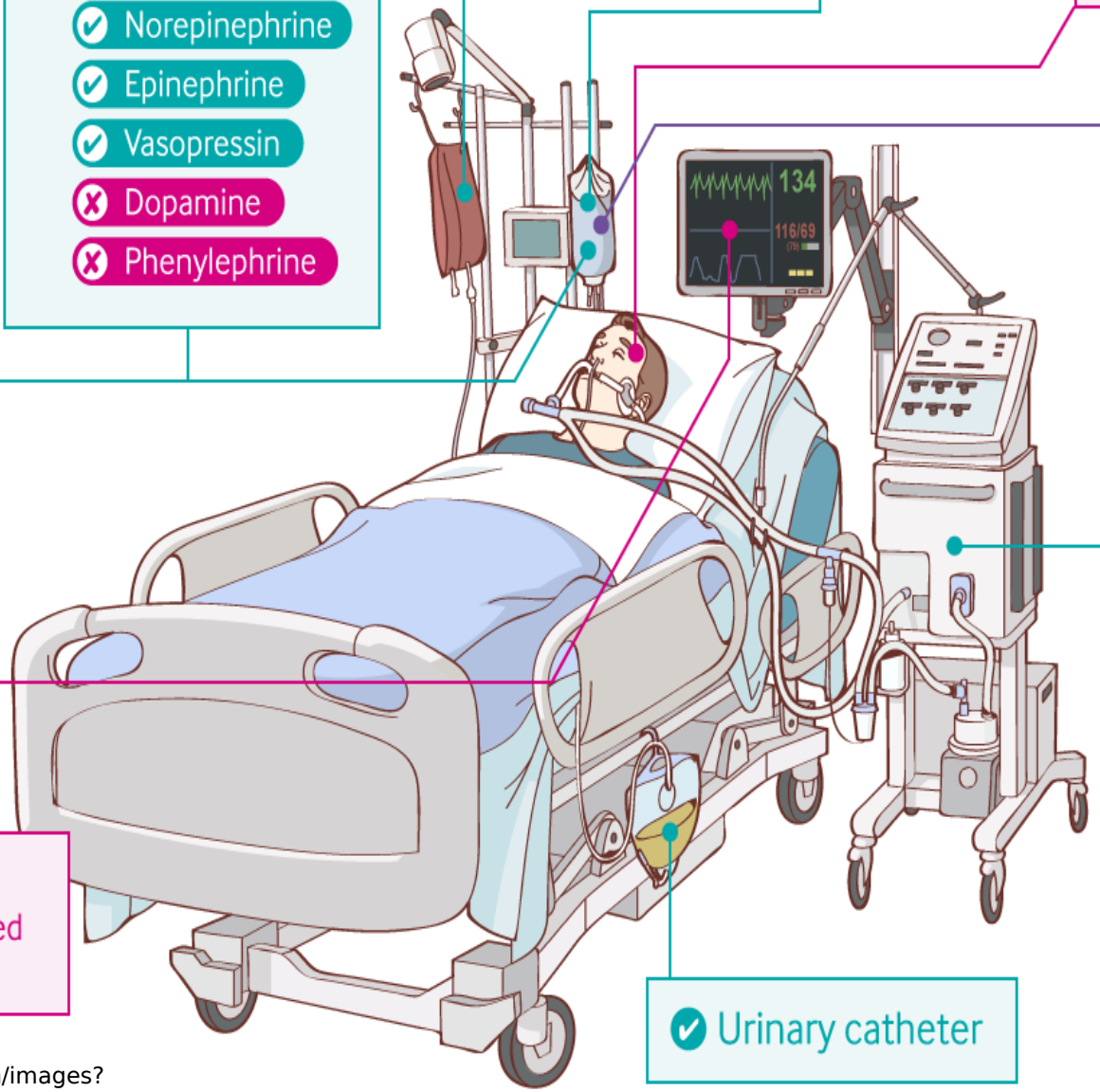
2) draw blood for cultures (before using antibiotics)

3) use broad-spectrum antibiotics

4) initiate rapid transfusion of 30 ml/kgc of crystalloid solution if hypotension is present or blood lactate concentration is ≥4 mmol/l (36 mg/dl)

5) use vasoconstrictors for hypotension unresponsive to initial intensive fluid therapy to maintain mean arterial pressure (MAP) ≥65 mm Hg.

Treating sepsis: the latest evidence



Antibiotics
Early administration

Fluids
Several liters initially
- Colloids
- Crystalloid
- Starches
- High chloride

Vasopressors
1–6 hours after onset
- Norepinephrine
- Epinephrine
- Vasopressin
- Dopamine
- Phenylephrine

Enteral feeding

Insulin therapy

Deep sedation

Molecular targeted therapies

Lung protective ventilation

Goal oriented therapy

EGDT
Early goal directed therapy

Urinary catheter

Designed by:
Will Stahl-Timmins

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Indications for blood cultures during hospitalization

- In the case of hospital-acquired fever, blood for culture should be drawn in at least the following patients:
- ICU hospitalization
- Central vascular line established
- Fever in a patient with a side reaction to a venflon
- Clinical picture of SIRS
- Immunodeficiency
- Fever in a patient with deterioration of general
- Fever in a patient with a urinary bladder catheter and difficulty in verbal communicating

Stages of blood culture

- Collection of material
- Transport of material
- Culture on liquid media (manual,
- automated)
- Direct preparation from liquid culture with feedback to the physician
- Screening on to solid media from liquid culture
- Identification
- Drug susceptibility assessment with evaluation of mechanisms of resistance

Interpretation of the result

Positive result - a positive result is indicated by culturing from at least two blood samples of the same species of microorganism. In most cases, growth is observed within the first 24-48 hours. The exceptions are the more demanding species of bacteria, mycobacteria and fungi.

Most common mistakes made when taking blood for culture

- 1. insufficient blood volume
- 2. insufficient number of samples
- 3. test performed after implementation of therapy antimicrobial therapy
- 4. collection of blood through a vascular catheter used for another purpose
- 5. improper preparation of the patient's skin
- 6. storage of blood samples at improper temperature

Septic shock

- Sepsis, in which disorders on the cardiovascular, metabolic and cellular levels are so profound that they significantly increase mortality is diagnosed if, despite adequate fluid resuscitation, there persists:

- 1) hypotension requiring the use of vasoconstrictor drugs to raise mean arterial pressure ≥65 mm Hg, and

- 2) serum lactate levels >2 mmol/L (18 mg/dL)

SEPTIC SHOCK
RISK FACTORS

SUPPRESSED IMMUNE SYSTEM

EXTREME AGE (INFANTS or ELDERLY)

PROCURED ORGAN (TRANSPLANT)

SURGICAL PROCEDURE

INDWELLING DEVICES

SICKNESS

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WORK CARD

1)What is sepis?

2)How we can prevent sepis in hospital?

3)List qSOFA criteria.

4)How can we treat sepsis?