

# SEPSIS

## DEFINITIONS

### SYSTEMIC INFLAMMATORY RESPONSE

SYNDROME = 2 out of 4

Temperature	> 38 or < 36
Heart Rate	>90
Respiratory Rate	>20 or PaCO <sub>2</sub> < 4.3
White Cell Count	>12 or < 4

Conceived in 1992, the SIRS score defines a clinical response to a non-specific insult of either infectious or non-infectious origin. The insult provokes a complex inflammatory cascade which is initially protective but which may later become destructive with loss of circulatory integrity and multi-organ dysfunction.

SIRS is often used to define sepsis in those in who an infection is suspected, but will also be present in many other disease processes such as trauma, pancreatitis and mesenteric ischaemia.

### Definitions

The following are definitions of common terms used when patients are unwell with infection.

**Infection:** invasion by microorganisms of normally sterile tissue characterised by an inflammatory response.

**Bacteraemia:** the presence of bacteria in the blood stream. This does not always cause a SIRS response.

**Sepsis:** systemic response to infection, defined as SIRS in addition to a documented or presumed infection. Mortality 10-15%

**Severe Sepsis:** sepsis with organ dysfunction. Mortality 17-20%. Organ dysfunction includes:

- Lactate >2
- Coagulopathy
- Liver dysfunction
- Oliguria <0.5ml/kg/h or AKI
- Thrombocytopenia

- Hypoxia
- Delirium or reduced GCS

**Septic Shock:** sepsis with systolic BP <90mmHg or >40mmHg drop from baseline which is refractory to fluid resuscitation with 30ml/kg crystalloid. Mortality 43-54%.

### **Discussion**

The SIRS criteria will not detect all those with significant systemic infection, especially in the elderly (who may just present with delirium) or immunosuppressed. Beta blockers may mask tachycardia that would normally accompany a systemic infection. Respiratory rate is the most sensitive marker for severity of illness.

It is worth mentioning that a new set of definitions were devised in 2016 at the Third International Consensus Definitions for Sepsis and Septic Shock. The definition uses the SOFA criteria (Sequential Organ Failure Assessment) instead of the SIRS criteria. SOFA is an ICU based mortality score and is not in itself a clinical predictor of sepsis and is of limited value in the early identification of sepsis. It has also not been prospectively validated and so for the time being we recommend that doctors in the department continue using SIRS.

For further discussion on the use of the SIRS and SOFA scores you can check out this page on Lifeinthefastlane which has takes a look at the evidence for the two scores:

<http://lifeinthefastlane.com/ccs/sepsis-definitions/>