

# INFORMATION FOR PATIENTS

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## Sepsis concerns us all! What you should know about it



DEUTSCHLAND  
**ERKENNT  
SEPSIS**

Eine Kampagne des Aktionsbündnisses  
Patientensicherheit e. V. und seiner Partner



AKTIONSBÜNDNIS  
PATIENTENSICHERHEIT



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## INTRODUCTION

Sepsis is commonly known as blood poisoning. Sepsis is the most severe form of infection. In sepsis, the body's natural immune defence system attacks the body's own tissues and organs.

**Sepsis is an emergency.**

**Early recognition and treatment saves lives!**

Too many people get sepsis who are not in hospital. But most people do not know what sepsis is, or don't know the early signs of sepsis. With at least 85,000 deaths per year, sepsis is now one of the most common causes of death in Germany, with twice as many people dying in hospital from sepsis as from stroke and heart attack combined. About eleven million people in the world die of sepsis every year. As a result, sepsis is a serious problem for society and health economics. In 2017, the World Health Organisation (WHO) classified sepsis as a global threat. The WHO then passed a resolution on the special need to improve measures to prevent, diagnose and manage sepsis.

Our three sepsis guides\* were created for the following target groups:

- general population
- doctors, nurses and other health care workers
- management staff of outpatient and inpatient healthcare facilities

These guides are designed to make people more aware of sepsis, and to inform people about the condition in a suitable way for each target group: what causes sepsis, the signs and symptoms of sepsis, how to treat it and how to prevent it.

The need for these guides is clear in particular when new pathogens like SARS-CoV-2, Ebola, or MERS emerge, which can theoretically also lead to sepsis. But apart from pandemics with new pathogens: “Could it be sepsis?” is a question we should always ask whenever someone becomes very seriously ill.

We hope that these guides will help to save lives and reduce the long-term consequences of sepsis.

Sepsis concerns us all!

\* You can find the guides for doctors, nurses, and other health care workers, and for outpatient and inpatient management, at:  
<https://www.aps-ev.de/handlungsempfehlungen/>.

# 1 WHAT IS SEPSIS?

Sepsis (also known as "blood poisoning") is the most severe form of infection and is fatal if left untreated.

According to the World Health Organisation (WHO), the majority of deaths from sepsis can be prevented by avoiding infections, early detection and emergency treatment.

**SEPSIS is ALWAYS an EMERGENCY!**

**IMMEDIATE hospital treatment is vital for survival!**

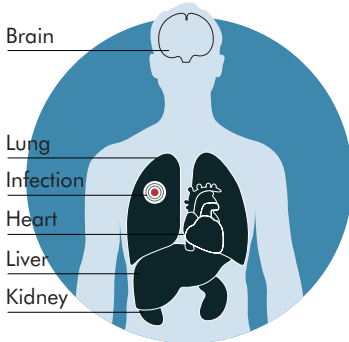
**DIAL EMERGENCY NUMBER: 112**

**or the**

**MEDICAL ON-CALL SERVICE: 116 117**

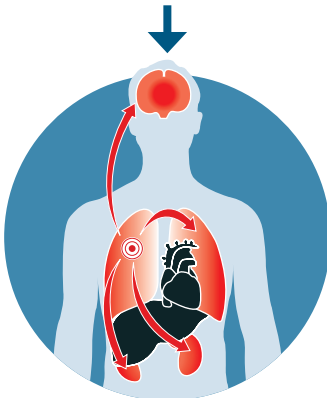
**for clarification of suspected sepsis.**

## HOW SEPSIS DEVELOPS



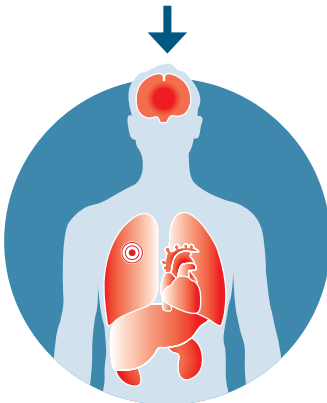
### **A local infection spreads to the rest of the body**

A local inflammation such as pneumonia or a severe soft tissue infection (infected wound with redness and swelling) fools the body's natural defences and the pathogens enter the bloodstream. Invading microorganisms and the harmful substances they produce cause the immune system to mount a strong response.



### **Sepsis**

This immune response can be so strong that the body can no longer control it. The misfiring immune response can harm and destroy healthy tissues and organs. This is known as sepsis.



### **Septic shock and multiple organ failure**

Cardiovascular failure and a sudden drop in blood pressure can develop. This is called "septic shock". Subsequently, vital organs stop working one by one or all at the same time. This is called multiple organ failure and often leads to death.

Fig. 1 "What is sepsis?", source: Author's own design, based on Global Sepsis Alliance

## 2 SEPSIS CAN AFFECT ANYONE!

Somebody in the world dies from sepsis every 3 seconds<sup>1</sup>.

### **In Germany<sup>2</sup>**

- ▶ sepsis causes at least 85,000 deaths every year and is one of the most common causes of death
- ▶ there are at least 230,000 cases of sepsis every year
- ▶ 80% of sepsis cases are in people who are not in hospital
- ▶ around 75 % of those who survive sepsis suffer long-term effects
- ▶ a large proportion of sepsis cases and deaths are preventable through early detection and treatment, vaccination and prophylaxis

Anyone can get sepsis – certain groups are more at risk.



## RISK GROUPS



**People with chronic diseases, such as lung, liver or heart disease**



**Individuals with weakened immune systems, such as people with diabetes, cancer, dialysis or AIDS**



**People with no spleen**



**Premature or newborn babies, children**



**People over 60 years of age**

Fig. 2 "Risk groups", source: Author's own design, based on Global Sepsis Alliance

### 3 WHEN DOES SEPSIS HAPPEN?

Sepsis develops in a person with an infection. It is the most severe complication of infection. Infected wounds are not the most common cause of sepsis.

Sepsis **can** result from:

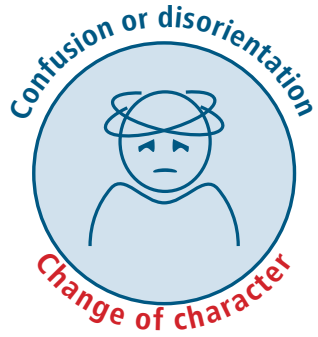
- pneumonia
- a urinary tract infection
- inflammation in the abdomen
- the aftermath of surgery
- a cut or bite (a scrape or a scratched mosquito bite)
- tubes or devices in the body (permanent/port catheters, joint replacements, pacemakers, etc.)

### 4 COULD IT BE SEPSIS?

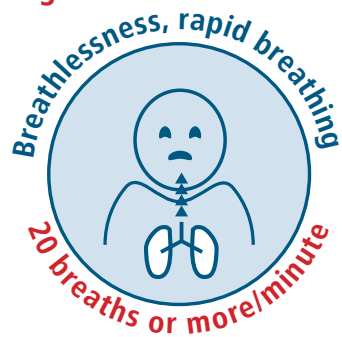
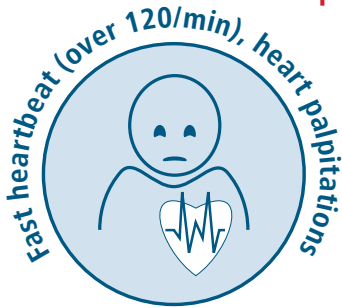
The symptoms of sepsis are non-specific at the start and hardly different from normal flu.

It could be sepsis if at least one of the following signs of illness are present (see Figures 3 and 4):

# SEPSIS SIGNS IN ADULTS AND CHILDREN



**"seems different from usual"**  
**"completely changed"**



**"feels like I'm going to die"**  
**"never felt this ill / severe pain"**

Fig. 3 "Sepsis signs in adults and children", source:  
Author's own design, based on Sepsis-Stiftung (Sepsis Trust); RKI

## SEPSIS EMERGENCY SIGNS IN NEWBORNS



- Body temperature abnormally cold/ feverish
- Is breathing heavily
- Is vomiting repeatedly and/or has diarrhoea
- Slow reactions/movements
- Difficulties with suction
- Has seizures

Fig. 4 "Sepsis signs in newborns", source: Author's own design, based on Sepsis Trust

**Sometimes symptoms are difficult to assess. If you think your child may be seriously ill, or there are signs that are causing you concern, call the family doctor or paediatrician or the emergency medical service (116 117).**

**German Coalition for Patient Safety recommends:**

**If you notice an infection and at least one sepsis symptom, always call 112!**

**Ask the doctor or person answering your call:**

**"Could it be sepsis?"**

**Be persistent – don't let them "brush you off"!**

**Call emergency  
services  
112**

## 5 TREATMENT OF SEPSIS

If the diagnosis of sepsis is confirmed in the hospital, the next step may be transfer to the intensive care unit (ICU).

Treatment should start as soon as possible after diagnosis. Treatment involves these vital measures:

- draw blood for blood cultures
- draw blood for laboratory tests (functionality of the organs and cardiovascular system)
- give antibiotics
- give intravenous fluids (“put on a drip”)
- monitor urine production
- apply an oxygen mask, or medication to stabilise blood pressure, if necessary

Other measures may be needed to find where the infection started and treat that area with surgery (to remove the local focus of infection).

## 6 LONG-TERM EFFECTS OF SEPSIS

Around 75 % of those who survive sepsis suffer long-term effects. They can be very different, and some only develop years later.

Some types of physical damage are common but not immediately obvious, while others are plainly visible. There may also be psychological and social effects.

Not only those affected, but also their relatives can be under great strain after a sepsis.

## **1. Common but not immediately obvious physical damage**

This kind of damage is mainly brain damage and nerve damage, which then leads to cognitive disorders and muscle and nerve weakness. The brain damage usually does not show up in radiology exams (e.g. magnetic resonance imaging, MRI).

The disorders may have the following symptoms:

- severe reduction in fitness (mental and/or physical)
- "Fatigue syndrome": sleep disorders, leaden tiredness after only slight exertion, chronic exhaustion, poor concentration and memory and reduced mental resilience
- reduced responsiveness
- problems with sight and speech/language
- balance problems and dizziness
- breathing problems
- muscle weakness
- chronic pain, polyneuropathy

We recommend that anyone with these problems be referred to a clinical neuropsychology or cognitive neurology facility for assessment and treatment.

## **2. Obvious physical damage**

These are amputations and other physical damage from essential surgery (e.g. abdominal wall weakness, organ damage such as heart and kidney dysfunction).

After a prolonged artificial coma, most intensive care patients wake up completely immobile. Then the weaning from artificial respiration begins, which takes place during sepsis therapy, and this takes time and energy. Every movement of the body has to be relearned step by step and the damaged organs have to regenerate.

### 3. Psychological effects

The most common mental health effects are depression (anxiety, hallucinations and nightmares) and post-traumatic stress disorder (PTSD). These conditions can be treated with suitable psychotherapeutic measures and by processing the incisive experiences.

### 4. Social effects

These are a result of the long-term health condition, which in many cases results in disability. People living with the long-term effects may experience stress with the people around them due to a lack of understanding of the new problems. Talking to other sepsis survivors and their families e.g. in self-help groups can be very helpful.

There are currently no specific rehabilitation programmes for sepsis survivors, and many doctors and therapists are unaware of these problems. However, today Long Sepsis is described as comparable to Long Covid. That's why you should describe your current symptoms to your doctor in detail. Say that you have had sepsis and say when you had it. Your doctor can then refer you to a specialist. Your health insurance company can also advise you on possible benefits.

Early rehabilitation is important:

- physiotherapy
- occupational therapy
- psychotherapy
- clinical neuropsychology/cognitive neurology
- orthoptics (experts for treating eye problems)
- speech therapists (experts for speech and language problems)
- rehabilitation
  - inpatient treatment combined with therapy.
  - there are no (early) rehabilitation programmes specifically for sepsis yet, so try to find a centre that covers most or all of the long-term effects you have.

## Accept help!

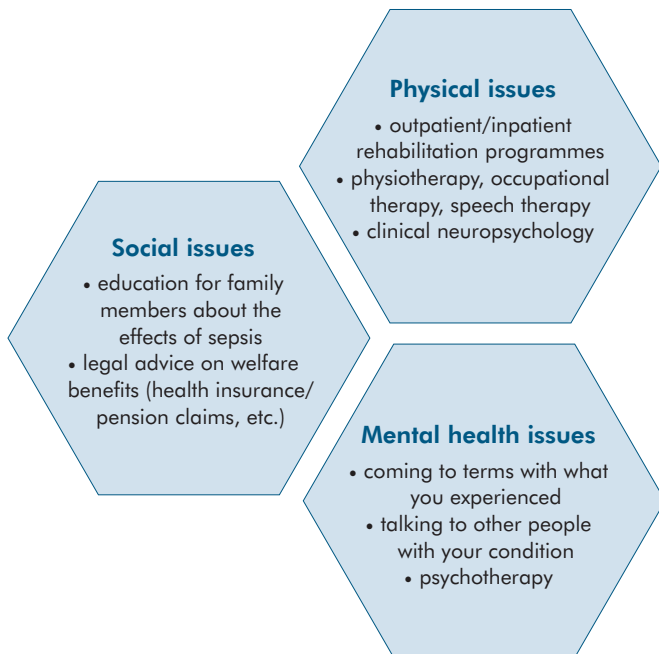


Fig. 5 "Ways to manage long-term effects of sepsis", source: Author's own design, based on Sepsis Trust

**Early measures tailored to the individual effects help to support those affected and contribute to their recovery.**

The long-term effects of sepsis can also be a major burden for those around you. Take care of yourself and seek support.

**Deutsche Sepsis-Hilfe e. V. informs, advises and supports you! +49 700 737 74 700**



## 7 PREVENTING SEPSIS

### HOW TO PROTECT YOURSELF?

- **Observe general hygiene**  
for example hand-washing and food hygiene
- **Check vaccination status regularly, catch up on missing vaccinations immediately**
- **Disinfect, treat and observe wounds**
- **Prevent and treat chronic diseases**
- **Take every infection seriously and treat it consistently**
- **If necessary: wear mouth and nose protection**
- **Raise awareness! Inform people close to you about sepsis and help spread the knowledge**

### PREVENTION

Fig. 6 "Preventing sepsis", source: Author's own design, modified from prevention flyer

**Sepsis and its long-term effects are often preventable through prevention of infections, early detection and treatment as an emergency!!**

What's important:

- always remember it could be sepsis. Know the symptoms. If you recognise two or more signs of sepsis (p.11/12), call 112 for emergency assistance. The medical on-call service at 116117 can also help clarify suspected sepsis.
- especially in babies and toddlers, older adults and people with a chronic illness: if they have an infection, remember it could be sepsis
- keep an eye on insect bites and skin injuries, apply an antiseptic if necessary
- effective treatment of infections
- get vaccinated against preventable infections such as pneumonia, flu, and measles
- maintain effective treatment of chronic diseases (such as diabetes)
- a healthy lifestyle and good hygiene

## **Everything that protects against infections helps to prevent sepsis.**

Important vaccinations:

- pneumococcal vaccination to prevent bacterial pneumonia
- flu and Covid jab every year
- all vaccinations recommended by the Standing Committee on Vaccination at the Robert Koch Institute (known to your family doctor)

Hand hygiene helps prevent infection:

- wash your hands regularly and thoroughly (20 - 30 seconds) with soap and water
- especially after going to the toilet and after blowing your nose, after touching animals or raw meat, before preparing food and before eating
- use hand sanitizer before and after contact with sick people

## 8 MORE INFORMATION

Further information and help is also available from:

- Aktionsbündnis Patientensicherheit e. V.  
(German Coalition for Patient Safety)  
[www.aps-ev.de](http://www.aps-ev.de)
- Global Sepsis Alliance  
[www.global-sepsis-alliance.org](http://www.global-sepsis-alliance.org)
- Sepsis-Stiftung (Sepsis Trust)  
<https://www.sepsis-stiftung.eu/>
- Deutsche Sepsis-Hilfe e.V. (German Sepsis Self-Help Group)  
<https://sepsis-hilfe.org/de/>
- Deutsche Sepsis-Gesellschaft (German Sepsis Society)  
<https://www.sepsis-gesellschaft.de/>
- Robert Koch Institute  
<https://www.rki.de/DE/Content/InfAZ/S/Sepsis/Sepsis.html>  
[https://www.rki.de/DE/Content/Infekt/Krankenhaushygiene/Haendehygiene/Haendehygiene\\_node.html](https://www.rki.de/DE/Content/Infekt/Krankenhaushygiene/Haendehygiene/Haendehygiene_node.html)  
[https://www.rki.de/DE/Content/Kommissionen/STIKO/Empfehlungen/Impfempfehlungen\\_node.html](https://www.rki.de/DE/Content/Kommissionen/STIKO/Empfehlungen/Impfempfehlungen_node.html)
- Information on the long-term effects of sepsis  
<https://www.sepsisfolgen.info/>
- Addresses of clinical neuropsychology experts in Germany  
<https://www.gnp.de/behandlerliste>
- National Association of Statutory Health Insurance Physicians  
<https://www.kbv.de/html/sepsis.php>

## 9 BIBLIOGRAPHY

- 1 Rudd KE, Johnson SC, Agesa KM et al. Global, regional, and national sepsis incidence and mortality, 1990-2017: analysis for the Global Burden of Disease Study. *Lancet*. 2020 Jan 18;395(10219):200-211. doi: 10.1016/S0140-6736(19)32989-7.
- 2 Fleischmann-Struzek C, Mikolajetz A, Schwarzkopf D et al. Challenges in assessing the burden of sepsis and understanding the inequalities of sepsis outcomes between National Health Systems: secular trends in sepsis and infection incidence and mortality in Germany. *Intensive Care Med*. 2018 Nov;44(11):1826-1835. doi: 10.1007/s00134-018-5377-4.

# LEGAL INFORMATION

## **Publisher**

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### **Quote**

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## COMMENTS AND FEEDBACK

This guide was made available for public comment prior to publication.

Not all participants in the final round of comments agree with all of the content. A record of the comments is available at: [www.aps-ev.de/kommentierung/](http://www.aps-ev.de/kommentierung/).

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