

Introduction: This is a short toolbox talk to give you some information on *Staphylococcus aureus* bacteraemia (SAB). Use this toolbox talk to share information at huddles, safety briefs and meetings to introduce changes and increase awareness with your staff.

What is *Staphylococcus aureus*?

S. aureus is a micro-organism that is commonly found on the skin and mucosa without causing any problems. It can also cause infection and disease if it enters the body. This can occur as a result of broken skin, invasive devices or medical procedures. Once *S. aureus* enters the body it can cause mild to life threatening illness. This can include skin and wound infections, abscesses or joint infections, infections to the heart valves (infective endocarditis), pneumonia and bacteraemia.

What is *Staphylococcus aureus* bacteraemia (SAB)?

SAB is a serious systemic blood stream infection and can be caused by meticillin resistant *Staphylococcus aureus* (MRSA) or meticillin susceptible *Staphylococcus aureus* (MSSA). Symptoms can include pyrexia, tachycardia, localised swelling and discharging wounds.

What are the risk factors for developing a SAB?

Risk factors for a SAB include recent hospitalisation, invasive devices, surgery, wounds, exfoliating skin conditions, haemodialysis, person who injects drugs (PWID) or previous SAB.

How is the source of a SAB investigated?

The patient may require investigations to find the source of infection and can include ECHO, TOE and MRI. Common sources include invasive devices, skin/soft tissue/wounds, septic arthritis, osteomyelitis, discitis, endocarditis, prosthesis, infected DVT/septic thrombophlebitis and pneumonia.

Further specimens may be required e.g. urine, pus, wound swabs, prosthetic material.

How is a SAB treated?

SABs are treated with IV antibiotics for a minimum of 2 weeks. Depending on the source of infection the patient may require antibiotics for up to 6 weeks. Patient will either require to stay in hospital or be referred for outpatient antibiotic therapy (OPAT).

Source control can include removal of infected invasive devices, incision and drainage of collections, washout of joints.

Adverse Patient Outcomes

S. aureus is a major cause of bacteraemia and is associated with significant morbidity and mortality compared with bacteraemia caused by other micro-organisms. The source of infection can influence outcomes, with higher mortality rates for patients who develop infective endocarditis (23.9%). For patients with a SAB secondary to an invasive device, mortality rates are varied – central line mortality rate (20.5%), PVC (16.9%) and haemodialysis line (6.8%). The mortality rate for patient who

develop a SAB that are associated with an orthopaedic prosthetic joint is variable depending on severity of infection, but can be as high as 14.6%.

Local and National Approach to SABs

The Infection Prevention and Control Team (IPCT) carry out mandatory SAB surveillance which is reportable to Health Protection Scotland (HPS) quarterly.

If the source of a SAB is identified as PVC or CVC the IPCT will review the appropriate invasive device documentation in the ward and report findings as necessary to SCN, LN and Chief Nurse. In addition the completion of a DATIX may be required.

What can you do to prevent SABs?

- Compliance with hand hygiene, including 5 key moments and 6 steps for hand hygiene
- Adherence to invasive device insertion and maintenance criteria and ensure documentation is kept up to date
- Remove invasive devices as soon as they are no longer required
- Skin, soft tissues and wound care
- Encourage patients with hand hygiene
- Provide patients who have invasive devices with infection prevention advice and patient information leaflet

Teachback Questions

1. What are the risk factors for developing a SAB?
2. What are the adverse patient outcomes following a SAB?
3. What patient investigations may be carried out to identify the source of a SAB?
4. How can you prevent a patient developing a SAB?