

A scanning electron micrograph (SEM) showing various bacterial structures. In the foreground, there are several large, spherical, yellowish-green bacteria, likely Staphylococcus aureus, with a textured surface. Behind them are more complex, irregular structures in shades of blue and brown, possibly representing Group A Streptococcus or other cellular components.

Infections in people who use drugs: Staphylococcus aureus and Group A Streptococcus

What workers need to know

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Produced by Scottish Drugs Forum
in partnership with NHS Lothian



There has been an outbreak of infections amongst people who inject drugs across Edinburgh and the Lothians, since late 2014. Of particular concern are the infections caused by two different bacteria: Staphylococcus aureus (*S. aureus*) and Streptococcus pyogenes (*S. pyogenes*). *S. pyogenes* are more commonly referred to as Group A Streptococcus (GAS) and for the purposes of this resource will be referred to as GAS. Many people have been admitted to hospital due to being infected with one or both of these bacteria.

The use of any street drug carries with it a risk of bacterial infection, however the 2014-15 outbreak has been linked with ethylphenidate based stimulant drugs (brand names include: Burst, Blue, Blue Stuff).

This resource aims to support staff working with people who use drugs and will give information on:

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Brief Intervention Information



S. aureus and GAS are part of the body's natural bacterial flora and are commonly found in peoples' nose, throat, skin, groin or anal area. Most of the time these bacteria do not cause any problems, however infection occurs when these bacteria enter the body via a wound (including injecting sites). The infection can be caused by their own bacteria, other peoples' bacteria, bacteria from environmental objects like soft furnishings or towels and in the case of *S. aureus* household pets.

These bacteria can be passed person to person, as well as through sharing drug paraphernalia (such as injecting equipment, spoons, filters, pipes to smoke drugs etc). There is also the possibility the substance itself is contaminated, however in the case of the 2014-15 outbreak it is believed *S. aureus* and GAS are being spread person to person.

Risk Reduction Advice

- Wash hands and maintain good personal hygiene
- Oral use of substances such as wrapping in cigarette paper and swallowing (called bombing) or smoking as an alternative to injecting and snorting
- If injecting, wash hands and injection site thoroughly prior to use. New injecting equipment and paraphernalia should be used for every injection. Filter substance prior to injecting and (if injecting stimulant substances such as ethylphenidate or methiopropamine) do not use citric or vitamin C. Ensure substance is injected directly into a vein (intra muscular and sub-cutaneous injection are associated with a greater amount of tissue damage which in turn helps bacterial infection to develop)
- If possible, stop use altogether (support person to look at their treatment options)
- If the person feels unwell, or has any of the symptoms of *S. aureus* or GAS infection (see below) they should seek medical advice quickly



Signs and Symptoms

S. aureus and GAS can cause a range of symptoms in many areas of the body ranging from localised skin and soft tissue infection to wide spread and serious systemic infection. A person can experience one or more of these symptoms.

- Heat, swelling, redness, aches and pain around wound, joint or muscles
- Pus and/ or unpleasant smell from site of wound
- Wound that will not heal
- Abscess
- Cellulitis – red, painful, hot, swollen, tender, blistered skin
- Fever, chills
- Fast heartbeat
- Dizziness, confusion, disorientation
- Shortness of breath, fast breathing, difficulty breathing
- Coughing up mucus
- Pain in chest
- Headache
- Unexplained 'bruising' or rash
- Sore throat, difficulty swallowing
- Sore ear(s)
- Vomiting, nausea and diarrhoea

Staff and people who use street drugs should be aware of these symptoms.

If Someone has Symptoms

Left untreated these infections often become progressively worse and can lead to death. Early identification and treatment is vital.

If a drug user has any of the symptoms mentioned above they should seek medical attention. Depending on the symptom this can be via their general practitioner, calling NHS 24 or if symptoms are severe people should be encouraged to attend Accident & Emergency (with support where possible). In an emergency call 999.



*Image from CDC/ James Archer
*Symptoms symbol created by
Lemon Lui, The Noun Project (Top Left)



What are Staphylococcus Bacteria?

There are many types of Staphylococcus bacteria the most common being Staphylococcus aureus (*S. aureus*). *S. aureus* is part of the body's natural bacterial flora. It can be found in the nose or on people's skin, groin or anal area. Most of the time *S. aureus* does not cause any problems.

S. aureus infections are caused when bacteria gets into a break or cut in the skin (such as a break caused by intravenous drug use, touching broken skin with unclean

hands etc.) and can be passed on from person to person. *S. aureus* infections can be broadly classified into two groups: skin and soft tissue infection and invasive infection.

In Edinburgh and the Lothians during the 2014 – 15 outbreak people with *S. aureus* infection commonly presented with serious conditions such as blood stream infection, endocarditis and a number of abscesses covering the body (not just at injecting sites).

What are Streptococcus Bacteria?

As with Staphylococcal bacteria, there are also a number of Streptococcus bacteria and infections can vary in severity from mild throat infections to life threatening infections. The Streptococcal bacteria associated with people who use drugs across Lothian is known as Group A Streptococcus (GAS) also known as *Streptococcus pyogenes*. Again, people can carry these bacteria in the nose, throat, skin, anal and genital areas and have no symptoms of illness. GAS can be passed on from person to person.

GAS infections can be broadly classified into two groups: minor and invasive infection. GAS can cause extremely severe infections such as necrotising fasciitis (commonly referred to as flesh eating disease).

In Edinburgh and the Lothians during the 2014–15 outbreak people with GAS infection commonly presented with serious conditions such as cellulitis, blood stream infection (including septicaemia) and necrotising fasciitis.

How a Drug User Becomes Infected with *S. aureus* and/or GAS

Person to person:

The most common way for an individual to become infected by either *S. aureus* or GAS is person to person. They can be spread in droplets in the coughs or sneezes of someone with an infection or through contact with infected wounds or sores on the skin.

Injecting drug use:

People who are injecting stimulant substances e.g. ethylphenidate, methiopropamine report a higher frequency of injecting per day as well as poor technique when under the influence (for example a higher incidence of sharing injecting equipment*, missed hits and not filtering the solution prior to injecting). Both these factors contribute to the possibility of people's own bacteria (*S. aureus* and GAS) entering the body via wounds associated with injecting.

* Sharing of injecting equipment also increases the risk of contracting a blood borne virus for example, hepatitis C and HIV.

Contaminated substance:

In some cases the substance being used could be contaminated with *S. aureus* and/ or GAS and if this is the case an individual would be susceptible to infection by using the substance especially by injecting drug use (intravenous, intramuscular, subcutaneous), snorting and rectal drug use. (Smoking and oral use of any drug carries less of a risk of invasive infection compared to other methods of drug use). It is important to mention *S. aureus* and/ or GAS is not visible to the eye therefore a person would not be able to tell if their drug is contaminated.

Sharing of drug paraphernalia:

It is also possible to become infected with GAS and *S. aureus* by sharing injecting equipment, spoons, filters, snorters (for inhaling drugs up the nose) and pipes (for smoking drugs) due to unwashed hands contaminating these objects.

Risk Reduction Advice

- Wash hands and maintain good personal hygiene
- Oral use of substances such as wrapping in cigarette paper and swallowing (called bombing) or smoking as an alternative to injecting and snorting
- If possible, stop use altogether (support person to look at their treatment options)
- If the person feels unwell, and has any of the symptoms of *S. aureus* or GAS infection they should seek medical advice quickly
- If injecting, wash hands and injection site thoroughly prior to use. New injecting equipment and paraphernalia should be used for every injection. Filter substance prior to injecting and do not use citric or vitamin C. Ensure substance is injected directly into a vein (intra muscular and sub-cutaneous injection are associated with a greater amount of tissue damage which in turn facilitates bacterial infection developing)



What to do if Someone has Symptoms

If a person is not treated quickly *S. aureus* and/ or GAS may become progressively worse and can lead to death.

If a drug user has any of the symptoms mentioned below it is important they seek urgent medical support. Depending on the severity of the symptoms drug users should be advised (and supported if possible) to attend their GP, call NHS 24 or go straight to Accident & Emergency. In an emergency call 999.

Signs and Symptoms of S. aureus and GAS infection

The symptoms of S. aureus and GAS can vary depending on the type of infection.

(Please note that not all of these symptoms need to be present.)

- Heat, swelling, redness, aches and pain around wound, joint or muscles
- Pus and/ or unpleasant smell from site of wound
- Wound that will not heal
- Abscess
- Cellulitis – red, painful, hot, swollen, tender, blistered skin
- Fever, chills
- Fast heartbeat
- Dizziness, confusion, disorientation
- Shortness of breath, fast breathing, difficulty breathing
- Coughing up mucus
- Pain in chest
- Headache
- Unexplained 'bruising' or rash
- Sore throat, difficulty swallowing
- Sore ear(s)
- Vomiting, nausea and diarrhoea

Staff and people who use street drugs should be aware of these symptoms.

Treatment of Infection

S. aureus/ GAS can be treated with antibiotics; however, the more severe the infection the more intensive the treatment becomes. The majority of people who have been using ethylphenidate based substances (or similar) and have S. aureus/ GAS infection have been admitted to hospital due to the severity of their symptoms.

Drug Treatment and Recovery

If a person wants to stop using drugs and finds they cannot; treatment should be considered. Encourage people to contact their drug service, GP or hub for more information.

Risk to Staff

Due to both bacteria being easily spread person to person it is essential staff practice good hygiene.

Staff working with a person who has an infection caused by *S. aureus*, GAS or both can reduce their chances of infection by:

- Washing hands regularly
- Keeping any cuts clean and covered
- Practice good personal hygiene

Should a staff member come into contact with someone who has a *S. aureus*/ GAS infection - for example, by touching an infected site or being exposed to the pus that it produces, they should wash their hands thoroughly using warm water and soap, or alcohol hand gel if soap and water is not available.

The spread of bacteria is usually prevented if a person with the bacterial infection has been receiving antibiotics for 24 hours or longer.

Further information and useful links

(references available on request)

Scottish Drugs Forum

www.sdf.org.uk

Directory of Scottish Drug Services

www.scottishdrugservices.com

Scottish Needle Exchange Directory

www.sdf.org.uk/index.php?CID=747

Information relating to *Staphylococcus aureus*

<http://www.nhs.uk/conditions/Staphylococcal-infections/Pages/Introduction.aspx>

Information relating to *Streptococcus pyogenes* (Group A *Streptococcus*/ GAS)

<http://www.nhs.uk/conditions/Streptococcal-infections/Pages/Introduction.aspx>

NHS Lothian

<http://www.nhslothian.scot.nhs.uk/>

Health Protection Scotland

www.hps.scot.nhs.uk

Advice and Support

Individuals can access the services below for advice and support in relation to drug use.

Harm Reduction Team, Spittal Street Clinic 0131 537 8300
GP Practices Various
Crew 2000 0131 220 3404

or Local Hub (see below)

Edinburgh contact points:

NE Recovery Hub, 5 Links Place, Edinburgh.....0131 554 7516
SE Recovery Hub, 2 Craigmillar Castle Road, Edinburgh0131 661 5294
NW Recovery Hub, 10 Pennywell Court, Edinburgh0131 332 2314
SW Recovery Hub, 1st Floor, ELS House, 555 Gorgie Road..... Edinburgh, OR Wester Hailes
Healthy Living Centre, 380 Calder Road, Edinburgh..... 0131 453 9448 or 0131 453 9406

East and Mid Lothian contact points:

SMS East Lothian.....0131 446 4853
SMS Midlothian0131 660 6822
MELD0131 660 3566

“Gateways to Recovery” Clinics

Mondays, 1pm to 4pm Roodlands Hospital, Out Patients Dept, Haddington
Tuesdays, 11am to 4pmMidlothian Substance Misuse Service, Glenesk Centre, Dalkeith
Thursdays, 11am to 4pm..... East Lothian Substance Misuse Service, The Esk Centre, Musselburgh
Fridays, 9.30am to 12.30pmat Eastfield Health Centre, Logan Lea Centre, Penicuik

West Lothian contact points:

WLDAS01506 430225
Social Work Addictions Team01506 282844
West Lothian NHS Addictions Service..... 01506 282845

Drop In Clinics

Mondays, 9:30am-11:30am Bathgate Primary Care Centre
Tuesdays, 1:30pm-3:30pm.....Strathbrock Partnership Centre, Broxburn
Tuesdays, 2:00pm-4:00pm.....Linlithgow Health Centre, High Street, Linlithgow
Wednesdays, 1:00pm-3:00pm..... Howden Health Centre, Livingston
Thursdays, 5:30pm-7:30pmPsychiatry Dept, St John’s Hospital, Livingston
Fridays, 9:30am-11:30am Whitburn Health Centre



Main Office
91 Mitchell Street, Glasgow, G1 3LN
t: 0141 221 1175
f: 0141 248 6414

Edinburgh Office
139 Morrison Street, Edinburgh, EH3 8AJ
t: 0131 221 9300
f: 0131 221 1556

Find drug services in your area:

www.scottishdrugservices.com

Hepatitis Scotland:

www.hepatitisscotland.org.uk

e: enquiries@sdf.org.uk

Charitable Status
Scottish Drugs Forum (SDF) is a company limited by guarantee, registration no. 106295 with charitable status and is also a registered Scottish charity, registered SC008077

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