INPUD

International Network *of* People *who* Use Drugs

Issue 2
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ANTHRAX WARNING!

IF YOU USE HEROIN YOU COULD BE AT RISK

Information for heroin users

This leaflet contains graphic medical images!

BACKGROUND:

On the 17th June 2012, a heroin injector presented to a Berlin Hospital with symptoms of cutaneous anthrax i.e. infection at the injection site. Symptoms were black eschar (black dry scab), massive swelling, erythema (redness) and thrombosis.

Diagnosis was confirmed at the Robert Koch Institute by PCR, and serology showed that this was an anthrax infection due to the injection of an anthrax-contaminated batch of heroin.

Subsequent to the crisis in Scotland during 2009/10, where an outbreak of anthrax infected 47 people, causing 14 fatalities; further cases and deaths have been reported this year in Germany, Denmark, and France. Scotland has again been affected, with a confirmed case in Lanarkshire on 24th July this year. Although at the time of this publication, no further cases have been reported on the European mainland, anthrax infection continues to infect, hospitalise, and kill heroin users throughout the UK.

The spores found in the heroin responsible for the recent cases in Germany were shown to be indistinguishable from those found in the 2009/10 cases in Scotland. This suggests that the same batch of heroin could be responsible.

Research published subsequent to the 2009/10 outbreak has produced no evidence of nefarious intent, with the heroin likely being contaminated by the use of bone-meal based cutting agents, or contact with animal hides whilst in Turkey, during transit from the Afghan source. (1)

Given that the global regime of drug prohibition ensures that there is no quality control of street heroin, the identification and removal of contaminated heroin from circulation is impossible, and as such, the recurrence of such outbreaks seems almost inevitable.

Given this fact, batches of contaminated heroin will inevitably recur on the market, causing further needless illness and death. These outbreaks will occur in the future without warning, due to the fact that contaminated heroin has no readily identifiable traits or characteristics – it cooks, runs, tastes and looks like unadulterated heroin.

We want to provide this basic information not only to injecting and smoking heroin users, but also to professionals who may be in contact with them, and people who are able to talk with the drug using communities.

Who contracted anthrax in the 2009-10 outbreak?

All confirmed cases had a history of recent heroin use. Some had deliberately injected into veins or muscle - or accidentally injected into muscle or the fatty tissue just beneath the skin. Some reported only smoking heroin. Some were homeless, others were in settled accommodation. Some – not all – were on methadone treatment.

Ages ranged from late 20s to mid 50s. More men were affected than women, but this does not mean men are more susceptible to anthrax than women, or that women are safer.

Confirmed new cases:

In August and September 2012, there were four more confirmed cases of anthrax infections among people who use heroin in the United Kingdom; two of which resulted in

hospitalisation and two heroin users dying within a month of each other in Blackpool.

An individual from East Cheshire and another from North Wales have both been hospitalised, presenting with symptoms of anthrax poisoning through contaminated heroin. In the East Cheshire case, it is reported that the contaminated heroin was purchased in the Wrexham area. The origin of the contaminated heroin in the North Wales case is not known.

The most recent known case, reported on 2nd November 2012, involved the hospitalisation of a heroin user in Oxford. The Health Protection Agency's Thames Valley Unit has warned that some batches of heroin in circulation in Oxfordshire and the wider Thames Valley may be contaminated with anthrax.

This brings the number of anthrax cases reported in the EU since June 2012 to 12: four in Germany; two in Denmark; one in France; and five in the UK - one in Scotland, one in Wales and three in England (two fatal, one recovering).

There appear to be no further cases reported elsewhere in Europe at this time.

WHAT IS ANTHRAX?

Anthrax is a bacterium, which creates spores that can infect the body, producing lethal poisons and causing death.

Anthrax releases three factors: lethal factor (LF), edema factor (EF) and protective antigen (PA). PA and LF form a lethal toxin, which kills macrophages and inhibits B-cell and T-cell function so minimising the immune response to anthrax.
Anthrax spores are highly resistant to adverse conditions. It will survive boiling, organic solvents such as ethanol, and high variations of pH.

Anthrax infection among heroin users is most likely to be acquired through:

Injection - Spores entering the bloodstream, skin or tissues under the skin (such as fat or muscle) via injection of contaminated heroin.

Inhalation - Smoking/chasing/snorting: Breathing in spores while smoking or snorting contaminated heroin.

Routes of infection:

There are three main routes of infection:

- **cutaneous** (e.g. via injecting),
- **inhalation** (e.g. inhaling spores through smoking/sniffing)
- **gastrointestinal** (e.g. swallowing, or smuggling internally)

With inhaled anthrax, it was initially thought that spores infect the alveoli in the lungs, but some recent evidence suggests that the spores infect higher up, in the nasopharynx, and only later infect the lungs.

Smuggling heroin:

We strongly advise that people choosing to smuggle heroin internally by swallowing, or by anal and vaginal insertion, be aware that they may be at risk of infection. Compounding this will be the understandable reluctance in presenting to A&E for fear of possible legal implications. This could result in severe life threatening conditions through gastrointestinal or related internal infections.

Rapid diagnosis and treatment with antimicrobials and other adjuvant therapies are essential to minimise disease progression and death.

Can you identify the contaminated heroin?

No. The anthrax spores are too small to be seen with the human eye. The mixture in the cooker/spoon or foil will look, smell and taste the same as an uncontaminated mix.

Anthrax contaminated heroin will cook up, and run on foil in exactly the same way that an uncontaminated batch would.

Can you filter out the anthrax spores?

We do not know how many spores would be in one hit, but there is evidence involving animal studies that it doesn't take many spores to kill a sheep. This indicates that even small amounts of the anthrax bacteria can cause infection, illness and death.

The Sterifilt filter is **not** fine enough to remove anthrax spores.

You could try using a .22-micron wheel filter, but this is **not guaranteed** to remove the anthrax spores. The small number of spores left will still create illness.

Sterifilt filter

If you are using a wheel filter, wet the filter first (with sterile, or boiled and cooled water) this stops a lot of the drug being absorbed by the filter. **The risk however is not removed and may not even be reduced.**

Boiling the mix as a hit will not kill anthrax. There is a **possibility** that anthrax spores might be killed if boiled for 5 minutes, but this is impossible with the volume of liquid used in a hit.

Always use new needles/ syringes if at all possible.
Create safe space and share nothing!

White vs. Brown heroin:

The only 'safe' heroin to use would be pharmaceutical diamorphine from a reputable source in a sealed vial. White 'street' heroin can't be guaranteed in either origin, or purity, so could also potentially be contaminated.

SIGNS AND SYMPTOMS:

Early identification of anthrax can be difficult, especially among heroin users whose general health may be poor anyway.

How someone reacts also depends on whether the spores entered through the bloodstream (via injection or sniffing) or through the lungs (via smoking / chasing / snorting).

So look out for anyone who uses heroin and is feeling poorly – especially if they have a wound, redness or swelling at, or close to, an injecting site.

Other early symptoms can be similar to other illnesses like the flu, or feeling nauseous or even having difficulty breathing.

Someone may be infected with anthrax if he or she shows any of the following:

Anthrax infection at an injecting site (below the skin, in sub-cutaneous fat or muscle tissue):

- Infection (redness and swelling) of the injection site or an area close to it.
- Tenderness/pain/discharge of fluid or pus from wounds.
- A raised temperature and feeling generally unwell and weak, with aches and pains including headache.

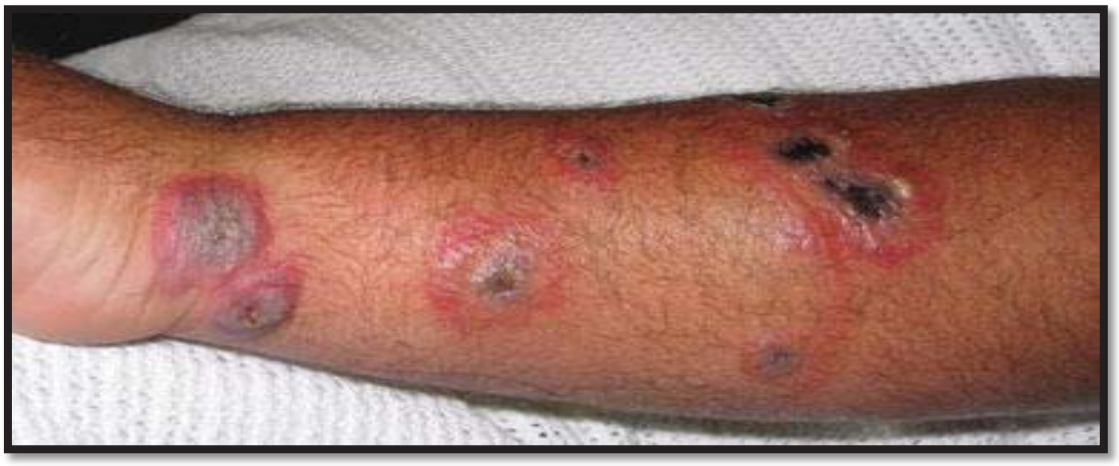
Anthrax infection in the skin (classical cutaneous/skin anthrax)**:**

- Usually occurs 2-12 days after exposure.
- Usually begins as a raised/swollen itchy red bump, similar to an insect bite.
- Within 1-2 days, develops into a clear blister/abscess and then an ulcer that may be painless. It may also be black in the centre.
- Feeling flu-like with fever, headache and/or nausea.
- Person-to-person spread of cutaneous anthrax is extremely rare.

Anthrax infection though inhaling (inhalation anthrax):

- Flu like illness (fever, headache, muscle aches, cough), which may cause breathlessness and chest pains.
- Rapid deterioration of consciousness – lapsing into a coma. This might be confused for an overdose, but unlike an OD, it will not be reversed by naloxone.

What to look out for:

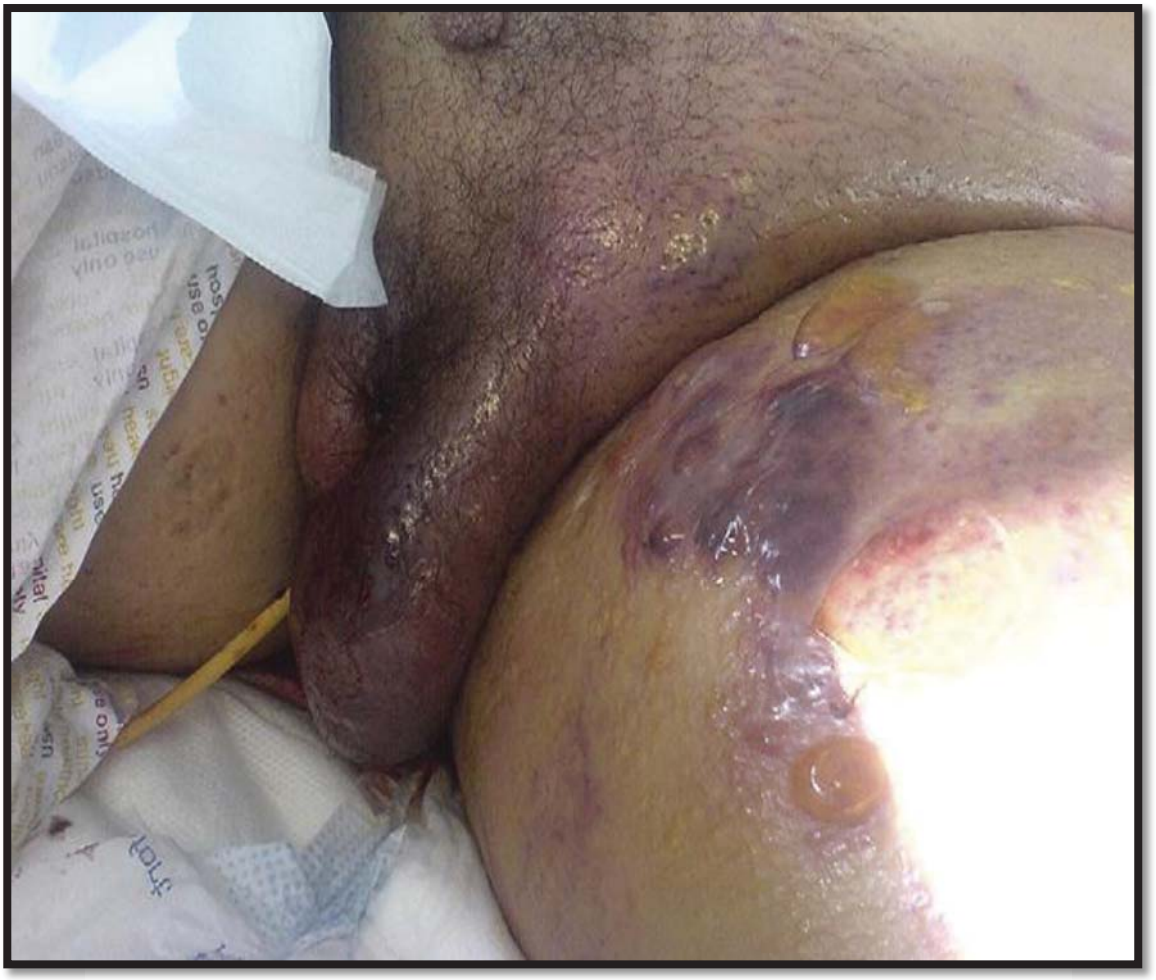


Cutaneous lesions with anthrax (photo www.nja.com.au)

Advanced infections:

INPUD has received permission to use some clinical images of advanced anthrax infection. This is with view to encouraging heroin users, who believe they may have been exposed to anthrax, to **seek urgent medical attention**.

Please be aware that the following images are not images of early presentation, but images of advanced infection when early treatment with antimicrobials and other adjuvant therapies are not accessed.



Injectional anthrax from groin injecting, showing skin necrosis involving the medial aspect of her left thigh and labia majora.

Photograph reprinted with permission of the American Thoracic Society. © 2012 American Thoracic Society from 'An overview of anthrax infection including the recently identified form of disease in injection drug users'.

Surgical debridement of necrotic skin and fascia of a patient with injectional anthrax and compartment syndrome of the right arm.

Photograph reprinted with permission of the American Thoracic Society. © 2012 American Thoracic Society from 'An overview of anthrax infection including the recently identified form of disease in injection drug users'.

What to do if someone has symptoms:

If a heroin user shows any of the described symptoms, you should **actively assist** them to be seen urgently by their nearest hospital accident and emergency department or GP.

Things you can do include:

- **Helping them find their way to hospital or GP surgery.**
- **Accompanying them to hospital or surgery.**
- **Arranging for someone else – family or friend – to be there with them.**

Early Identification:

The timescale of 1-12 days for symptoms to present may depend on the frequency of heroin use, the route of administration, and the current health of the individuals using heroin. If they're in poor health to begin with, the clinical presentations may vary, as will the timescales for symptoms to present.

TREATMENT:

Early diagnosis and treatment with *potent* antibiotics are essential in any of the three clinical forms of anthrax: cutaneous, gastrointestinal and pulmonary. Unfortunately, the bacteria have evolved resistance to common antibiotics including ciprofloxacin, doxycycline and beta-lactam type drugs.

The 2001 US outbreak, the 2009/10 outbreak in Scotland, and the more recent European and UK experience with people who inject drugs, have once again shown that this infection, while rare in developed areas, is still a significant risk to our community.

Are there risks to family, friends or medical staff?

- The risk to non-heroin using individuals appears to be minimal.
- There are no documented cases of infection spreading from one person to another as a result of any form of intimate physical or sexual contact.
- There is a potential risk from touching skin lesions, especially where skin is broken.
- Healthcare advice should be taken on the best way to heal a wound.
- Small wounds can be covered with a waterproof dressing.
- Wounds should be dressed and not leak through the dressing.
- Care should be taken to avoid contact with the wound or any wound discharge by wearing single use gloves to dress wounds or to clean up any spillages.
- Afterwards, remove gloves and wash hands with soap and water.

Person to person contact:

There is no data suggesting that patient-to-patient or person-to-person transmission of anthrax occurs. Therefore, while standard barrier precautions are recommended for all hospitalized anthrax patients, the use of airborne protection measures is not indicated.

Contact isolation precautions should be used for patients when draining cutaneous anthrax lesions. Healthcare workers or household contacts should only receive post-exposure prophylaxis if it is determined that those persons were exposed to anthrax aerosol or surface contamination

References:

(1) Molecular epidemiologic investigation of an anthrax outbreak among heroin users, Europe.
www.ncbi.nlm.nih.gov/pubmed/22840345

Useful links:

The International Network of People who Use Drugs (INPUD)
www.inpud.net

Scottish Drugs Forum (SDF)
www.sdf.org.uk

The Australian Injecting and Illicit Drug Users League (AIVL)
www.aivl.org.au

Health Protection Agency, UK
www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/1317135273668

An overview of anthrax infection including the recently identified form of disease in injection drug users:
www.ncbi.nlm.nih.gov/pubmed/22527064

New Drugs Lean Towards Anthrax Targets:
www.medindia.net/news/new-drugs-lean-towards-anthrax-targets

INPUD would like to thank the Scottish Drugs Forum and Jenny Scott for their assistance with the production of this information sheet, and the American Thoracic Society for the use of their medical images