

Specific Facts for Our Drum-makers, Drummers & Dance Community regarding ***B. anthracis*** (the bacteria in Anthrax)

Note from the author: I am not a doctor, but I have checked my facts as are cited at the end of this article. I endeavored to be extremely thorough, so this is long. Key points are bolded in case you prefer to scan through. This is in the plainest English possible, and certain medical/scientific data are omitted in order to 'give the key points' in plain English. It is not comprehensive. A simple Google search on b. anthracis inhalation will bring anyone to highly-detailed scientific information for those who wish to read further. You may also search for splenic fever. You can utilize references listed at the end.

VadoDiomande is currently suffering from inhalational b. anthracis – since this type of infection is extremely rare, difficult to contract, not visible, and hard to diagnose, my focus is on this rare form of the infection. Cutaneous (or skin) b. anthracis also poses a danger to the drum-maker/hide handler, but it is a highly invisible form as you will read and see, and is thus relatively easily combated.

Initial Drum-maker Safety Precautions – but read everything below!

As a community, we are working on finding out EXACTLY how to obtain the safest materials possible...meanwhile, take these other precautions. Please. Rare or not, it is a risk and we can easily take precautions.

- #1 Priority – Work in a well-ventilated space.
- Use a Hepa Filter air purifier.
- Use disposable gloves and a mask in all cases, even if you think the skins are fine.
- Use razor blades only once, or boil hair shaving/cutting tools for 30 minutes after each use. Dispose of used blades wrapped in cardboard so sharp edges are covered and then in a plastic bag.
- Wash exposed skin with soap and hot water regularly and wash the clothes and shoes you wear when working (regular machine washing of these clothes is ok).

Let's Change The Words We Use!

I will only use the name ***b. anthracis*** herein. Part of the unwieldy terror surrounding this tragedy with Vado Diomande is the word Anthrax. In everyday use, Anthrax is a biological weapon of terror. Vado does NOT have this Anthrax. Weapons-grade anthrax is: scientists prod the bacteria to release all water molecules from their cells, transforming them into hard, tiny beads that withstand a wide range of temperature and weather conditions. They then treat those beads and condense them into a powder or aerosol. This makes weapons-grade Anthrax. Vado, on the other hand, has a naturally-occurring bacteria called bacillus anthracis. This rod-shaped bacteria is the base used by scientists who wish to make weapons-grade anthrax. That's how they are related, but saying "anthrax" seems unnecessarily inflammatory. Okay, moving on...so what is ***b. anthracis***?

In plain English, what is this stuff?

B. anthracis is a bacteria that takes the form of **spores**. It is inactive, and can be found in soil or in a dead carcass. Before the animal died, the spore thrives off its blood and then the bacteria killed the

animal. As the body decomposed, or the hide was taken from it, the spore then goes back to an inactive state on the hide and will re-awaken if it gets oxygen again. **To the drum-maker (and wool sorter, etc.) this is the danger.** I will repeat however, again and again, a **RARE danger.** **Many drum-makers would be sick otherwise, no?!**

There are **three forms** of human-contracted ***b. anthracis*** that are a danger to humans. We can get one of the three by a certain type of handling contaminated carcasses, hides, wool, hair, and bones; and ingesting contaminated meat.

1. ***b. anthracis* of the human skin:**

If a drum-maker handles an **infected** dead carcass' hide, and they have an **open wound**, they **can** get **cutaneous** anthracis. It is dangerous, not deadly unless entirely left untreated, and is extremely visible. It begins as a painless, itchy, reddish brown bump that enlarges and becomes swollen. The lesion usually turns into a blister then opens and becomes black in the center. It can be readily diagnosed, and responds very quickly and with a 95 plus % efficacy, to antibiotics.

Smart Idea: Wear gloves and proper clothing when handling unprocessed skins before they are soaked and during shaving, on the remote chance....

QuickTime™ and
TIFF (Uncompressed)
are needed to see this
picture.

2. and 3. **Other types of *b. anthracis*:**

There are **two** other types of ***b. anthracis*** infections to humans: gastrointestinal and inhalational. **Gastrointestinal** is the **rarest**, and comes from eating infected, undercooked meat (usually of caribou, goat or perhaps cow). It does not occur frequently because the cooking, even undercooking, seems to usually kill enough of the bacteria. I suppose there are other reasons as well that I did not endeavor to look up. However, if contracted, this strain is virulent. **Smart Idea: People, cook your meat because even a one-in-a-million chance is one too many.** Ask for medium to well done in a restaurant. **Inhalation *b. anthracis*** we'll talk about next.

Inhalation *b. anthracis* is very, very, very rare. Here are the key points to know:

- a) In order to contract **enough** bacteria, there are **certain conditions** that allow for it. First, the animal gets infected by grazing the spores in the soil. Once it's infected (via grazing on the soil), the animal will die. It can then re-enter the soil or be passed by taking its hide, or via other scavenger animals. This can happen in almost any country. It's a naturally-occurring phenomena, and yet rare. **Spores are inactive, however, until they find the perfect conditions.** Inactive ***b. anthracis*** stays in soil and can last for decades if not a century. Then, the infected hide must be handled in such a way that the spores survive. For example, these spores do not thrive well in the cold nor in extreme heat (like boiling water). If the spores manage to survive the conditions, then there are **other** conditions that must still occur.

- b) Because the spores are **electro-statically charged**, they tend to **not move** very easily. Tens of thousands don't just fly off the hide and into your nose by a simple rustling of it. Of course, very vigorous movements with a contaminated hide, in a highly-confined area, with no ventilation....not good. Spores also don't cluster so easily, and so each one would fly its own path.
- c) Got it? They are inactive until given oxygen in the right conditions, and don't move in the air easily. **Another condition that must then exist seems to be the size** that can get in. *Endospores* (a term referring to the type/size of spores that can travel and get through to infect someone) *are 1 micrometer by 1.5 micrometer in size. Endospores are then phagocytosed by macrophages and carried to regional lymph nodes. Spores then germinate inside macrophages and become vegetative cells, which leave the macrophages and multiply in the lymphatic system. (In other words...spores must fall within a certain size range, and then successfully go through a transformation to infect a person.)*
- d) **Lastly, you'd have to breath A LOT of spores of this size in!** Because they don't like to move around, and usually travel individually, you'd have to work in a confined, unventilated space to start. Estimates of how many vary, but most say at least several thousand (which is a lot and very infrequently found in a single hide). The space needs conditions too...like having all gloss paint on every wall so that if they fly around, they fly in many directions once spurred (by using a razor to cut hide or remove hair, i.e.). Your nose is not magnetic, so it's not inclined to draw in spores, so you'd have to be working with your face close to it. *AND, it still takes several thousand spores of the right size. Lastly, reports even say that it's still hard to get an infectious dose even with the right conditions. Therefore being worn down, tired, having a chest cold, asthma, or pneumonia might also be contributory.*

Spore counts? Let's put it this way: a lethal dose of bio-terror-grade-anthrax *which is super-charged and super-concentrated* is reported to result from inhalation of 10,000-20,000 spores usually by an aerosol-propelled means. 2,500 can infect, but not be deadly at all if treated. Moreover, in 2001 in the U.S. mail Anthrax cases, some were contaminated with 100 billion to 1 trillion anthrax spores per gram. Of the 11 who got those *weapons-grade* anthrax letters, five died. Weapons-grade anthrax, in such high dosages, didn't even kill every single person. We can see that inhalational b. anthracis of the naturally-occurring kind, then, does pose an infinitesimally low risk!

But, as we now know well, it can happen as a very rare occurrence. So, let's keep reading.

More about the spores:

- **In most cases** the spores are easily killed by sunlight or other sources of ultraviolet light.
- **Many** aerial spores can be trapped by a simple HEPA or P100 filter. Inhalation of anthrax spores can be prevented with a full-face mask using appropriate filtration. **Unbroken skin can be decontaminated by washing with simple soap and water.** One man from Australia also uses a **Hepa filter in the room and places a strong magnet** six feet away from his work area. He then boils the magnet for 30 minutes after each shaving and uses straight bleach to clean the filter. Again, catching "many" spores is not catching enough. Using a filter, mask and gloves is a good idea in any case.
- **Killing all spores** is another story. The U.S. Navy Manual on Operational Medicine and Fleet Support, entitled Biological Warfare Defense Information Sheet states "Disinfection of contaminated articles may be accomplished using a 0.05% hypochlorite solution (1 tbsp. bleach per gallon of water). Spore destruction [however] requires steam sterilization." Anthrax spores are killed by boiling (100C or 212F) for 30 minutes (the actual reported time is considerably less). If boiling as a means of disinfection, the spores must be in liquid suspension (to ensure killing) and in a sealed container (to avoid aerosolization or vaporization of droplet nuclei containing spores). Now, realize, this is of weapons-grade

anthrax. Natural *b. anthracis*? We will find out – we are contacting New Zealand and Australia officials, as well as U.S. officials to find out.

Other notes/facts related to the true level of the likelihood and danger:

- More than **95%** of all cases of ***b. anthracis*** are **cutaneous**.
- In inhalational ***b. anthracis***, the spores are ingested by alveolar macrophages, which transport them to the regional tracheobronchial lymph nodes, where germination occurs. What does this mean? Even after you inhale it, they have to be transported in order to become active. They change nature in doing this 'move,' and this is why **we cannot get it from an infected person's breath**. The actual spore has been definitively changed during the ingestion and germination.
- The largest reported epidemic of ***b. anthracis*** anthrax occurred in Zimbabwe from 1978 through 1980, with an estimated 10,000 cases. Essentially all were cutaneous, with very rare cases of gastrointestinal disease and eight cases of inhalational anthrax. Very, very few died and rapid diagnosis was hampered.
- **There have been a few incidences documented worldwide** including the U.S. and so it's not unique to any area or country or people. You can see this for yourself just by doing a web search.

Direct facts related to drum-makers and our community:

- Hide and fur exporters and importers in most countries are **REQUIRED** to prove the animal was inoculated while it was alive. This is not always fail-safe or available.
- *Because sporulation of **b. anthracis** requires oxygen and therefore does not occur inside a closed carcass, regulations in most countries forbid postmortem examination of animals when anthrax is suspected.* In other words, we cannot tell if a carcass' hide is *b. anthracis*-free, once it's deceased. (I will do my best to find out more about this, and send an update if I find out anything).
- Because it takes a lot of spores to get infected, and in all those conditions above, once even infected skins are processed (soaked and shaved), there is a **<0 %** chance of getting infected. This is why **ready-made drums, and tanned hides, or processed wool, or bone jewelry, cannot infect someone. You cannot become infected by playing drums. And so, NO, dance studios and drum markets are not unsafe!**
- Yes, a bit of hair is left around the rim of a drum sometimes. **NO**, you cannot contract the bacteria from this processed hide while playing or handling drums.
- In order to get infected, we repeat, it takes a lot of spores. Any location that has a few or "some" spores is not considered hazardous. This includes having been near Vado, in his house or van, etc. We hope this is clear!
- Cutaneous *b. anthracis* requires less and not-as-specific spores. Always wear gloves and protective gear as a safety precaution when working with hides, no matter how remote the chance. (see the precautionary measures for people who work with raw hides outlined at the top)

Final Notes:

- **Of interest** to our community might be the following sites I ran across. I don't know the source of their information, but I thought I'd pass it on. Use your own judgement! This person addresses strengthening your immune system, and in a way relates it to b. anthracis/Anthrax. <http://healthyherbs.about.com/library/weekly/aa022402.htm> Also, check out a drummer's web site regarding drummers, handcare, and even a note on anthrax. <http://home.acceleration.net/clark/PaperVu/handcare.htm>
- **Regarding myself**, the writer of this, Krista C. Retto: **I'm not a doctor, nor a scientist.** For those of you who don't know me, I am a West-African dancer in the community for 17 years, and a very close friend of Vado and Lisa Diomande. Once I found out Vado was sick, being a nurses' daughter, and out of intense concern and love, I gathered my facts from a zillion sources. I had most but not all of them checked by the NY Dept. of Health. Janine and Alex, Lisa's sister-in-law and her brother also provided some of the web research. For government info:
<http://www.nyc.gov/html/doh/html/home/home.shtml>.
Urgent medical questions should be directed to your physician.

The anthrax Vaccine Immunization Program in the U.S. Army Surgeon General's Office can be reached at 1-877-GETVACC (1-877-438-8222). <http://www.anthrax.osd.mil>. Populations at risk for infection are supposed to be offered this vaccination as an option.

REFERENCES

Both utilized and cited by other references cited. Some are very scientific, some to/from the medical community, some by lay persons or interviews... It is overwhelming if you just dive in without being able to put it all into context. And, please, if you're going to go into the references, realize I did not put them in any order and certainly am not able to cross-check their accuracy.

<http://www.bt.cdc.gov/agent/anthrax/faq/vaccination.asp>

http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-communic-factsheets-anthrax_fact.htm

http://www.chestnet.org/education/online/pccu/vol15/lessons15_16/lesson16.php

http://en.wikipedia.org/wiki/Anthrax_disease

http://www.cdc.gov/ncidod/dbmd/diseaseinfo/anthrax_g.htm

<http://textbookofbacteriology.net/Anthrax.html>

<http://64.233.179.104/search?q=cache:me25TDBY8mwJ:www.cdc.gov/ncidod/EID/vol9no8/pdfs/03-0205.pdf+anthrax+empyema+sheep&hl=en&gl=us&ct=clnk&cd=13>

<http://www.cdc.gov/ncidod/EID/vol7no6/jernigan.htm>

http://www.emergingworlds.com/mc_article.cfm?link=Q_and_A_on_Anthrax.htm,,,

<http://www.iaff.org/safe/content/Anthrax/Presentation.htm>

http://www.state.nj.us/health/er/documents/clinician_guide.pdf

<http://www.biosecurity.govt.nz/imports/animals/standards/hidshgic.ice.htm>

http://www.seacoastonline.com/2001news/exeter/e10_21b.htm

<http://www2.luresext.edu/international/UNCFALemaya.htm>

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2985910&dopt=Abstract

<http://www.duras-project.net/index.php?id=7&lang=eng>

<http://www.pharmpress.com/shop/samples/Zoonoses.pdf>

<http://www.fao.org/DOCREP/004/X6543E/X6543E03.htm>

<http://64.233.179.104/search?q=cache:KJoxZoh6GnsJ:www.controlofbiohazards.com/Documents/AnthraxCase%2520Jan2004%2520->

[%2520Dec2004.pdf+anthrax+goat+ivory+coast&hl=en&gl=us&ct=clnk&cd=22](http://64.233.179.104/search?q=cache:KJoxZoh6GnsJ:www.controlofbiohazards.com/Documents/AnthraxCase%2520Dec2004.pdf+anthrax+goat+ivory+coast&hl=en&gl=us&ct=clnk&cd=22)

<http://www.biodefenseeducation.org/archivefeb2004,,,>

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