

Blood on the field



Our town safety coordinator asked about blood borne pathogens and how to decontaminate our athletic fields [natural grass]. During a PONY tournament, blood got on the grass and the employees did not know what they should do. I was not sure how to answer it either. Can you help us with this issue?

North Carolina

BY DR. GRADY MILLER

Professor, North Carolina State University

Questions?

Send them to
Grady Miller at
North Carolina State University,
Box 7620, Raleigh, NC 27695-
7620, or email
grady_miller@ncsu.edu

Or, send your
question to
David Minner at
Iowa State University, 106
Horticulture Hall, Ames, IA 50011
or email
dminner@iastate.edu.

Well this is a question that when first asked, I had to shrug my shoulders as I did not know what to recommend. Over the past several months I have done some reading and asked a couple of sports trainers what they are asked (or required) to do for blood cleanup. An early realization is that the recommendation for cleaning blood from soft, highly permeable surfaces like turfgrass vary depending on who you listen to and/or what you read. There seems to be no standard recommendations.

So, let's take a step or two backward and look at the issue at hand. First, the concern over infectious diseases related to pathogens found in blood (and other body fluids) has grown due to the fears of contacting HIV and hepatitis B or C (HBV and HCV). But I actually found no report that HBV, HCV, or HIV has ever been transmitted to humans from a soft floor covering such as a carpet or from a surface such as turfgrass. Nonetheless, disinfection of an area contaminated by blood seems to be a prudent infection-control practice.

The greater risk for infection transfer is from the direct contact with blood from an injured person. Blood that is splashed into the eyes or mouth or contact with broken skin is a more significant issue. As a safety precaution, it is suggested that you do not come in contact with someone else's blood or attempt to clean a blood spill if you have a cut or abrasion on your skin.

If you must deal with cuts or

blood spills, it is strongly suggested that impervious gloves be worn. So, keep your first aid kits stocked with gloves. For public facilities it is also suggested (mandated for some) that you have a National Standard Body Fluid Clean Up kit. These kits contain gloves, disinfectants, and a bio-hazard bag. While this may sound excessive, the kits are in small first-aid boxes and are available for less than \$15 from online retailers or sports medicine companies.

Blood cleanup is easiest on non-permeable surfaces, such as floors and counter tops. Complications arise when cleaning permeable or absorbent surfaces. The Center for Disease Control (CDC) and public health community recommends that contaminated carpet be carefully (without splashing) pre-treated with a mild detergent solution, allowing approximately 10 minutes of time for the disinfectant to work. Blot up treated blood with paper towels (wearing gloves) and then immediately place contaminated paper towels in a plastic bag and seal for disposal. Then the treated area should be thoroughly saturated with a standard EPA-registered chemical germicide, used according to label directions, to further inactivate pathogens of concern. Then the carpet should be cleaned . . . To me, turfgrass has some similarity to carpet and could be disinfected in a similar fashion. One difference is that we are not so worried about stains. Our concern is decontamination first and turf health second. So, I kept searching out other cleanup recommendations.

It seems that California has the most extensive legislation associated with cleanup of human blood. The California Medical Waste Management Act has provisions for cleaning up "trauma scene waste." The cleanup procedure focuses on using a 10 percent solution of ordinary household bleach (sodium

hypochlorite). The bleach solution is applied to the blood and allowed 30 minutes contact time. Afterwards the area should be cleaned using absorbent paper towels. Bag used cleanup materials as solid waste, discard gloves, and wash hands thoroughly using hand soap.

A prominent US university had directions for a response team to use for blood cleanup with "small outdoor spills" on their Environmental Management Department's website. Their procedure also suggested using a 10 percent bleach solution to flood the spill area, allowing it to stay in place for 15 minutes. Then they suggested that a 5-gallon bucket of clear water be used to disperse the disinfected spill. This certainly seems easy enough as bleach is readily available and inexpensive. Making a 10% solution (1 part bleach with 9 parts water) is fast and easy. In addition, it should not cause any long-term negative effects on the turfgrass health, especially once it is further diluted with water.

The one issue that will potentially cause some folks problems is delaying the sporting event for the cleanup. It seems callous to mention this issue since the cause of the problem is an injured person, but I know this will come up. Sorry, I can't help you with that one.

Note: Some synthetic turf manufacturers do not endorse bleach use on their synthetic fields. I doubt a 10% bleach solution followed by clean water would cause any issues with synthetic fields. But to be on the safe side, check your field warranty before adopting that as a standard procedure. If bleach is not suitable, ask your company representative to recommend a commercial disinfectant that you can include in your "spill kit." Follow those label directions when cleaning a spill. ■