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Mr. Jay Chappell
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Dear Mr. Chappell

Attached are the results of testing on the DW-5K wireless, FL series of SlimKey MD™ keyboards, and the DT-OM optical desktop mouse. The testing was done by Pathologists Associated (www.palab.com) a group used by Ball Memorial and Ball State University for many testing applications. The tests were requested by me and conducted by Lynn Hale, MT (ASCP), SM, MBA, the Lead Tester of the Microbiology Section of Pathologists and Kelly Beeson M.Ed., MT (ASCP), Pathologists Associated Ball Memorial Hospital School of Medical Technology

In the first pass of testing all three devices were treated with the Methicillin Resistant Staphylococcus Aureus (MRSA.) They were then disinfected with normal hospital cleaning agents. After 15, 30 and 60 minutes (normal testing spans) it was found that there were no growths of the culture. Conclusion: "10% bleach solution does decontaminate the devices."

The second pass was made to disinfect for hepatitis C. After careful consultation at the local and state level it was determined that since this disease is spread by contact with infected blood, to test for blood residue after cleaning with a bleach solution. The conclusion of the testing was that "10% bleach solution does decontaminate surfaces. There was a caveat that "care must be used in covering the entire surface.

Additional testing was done by the Ball State Biology Department. These tests, done on the iKEY Model DW-5k Keyboard, indicated a verification of the professional testing laboratories findings regarding the decontamination of the device. This time E. coli bacteria were used as the infectious agent. The device was also exposed to Ultraviolet radiation an additional decontaminant and found to operate well after exposure. Temperature and pressure tests were also conducted with satisfactory results.

In my opinion this testing discloses that the iKEY devices are easily decontaminated with readily available commercial disinfectants. Additionally the Model DW-5k wireless keyboard is very rugged and appears to be well suited for use in the medical community.

Richard Bellaver, Professor
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Recommended Cleaning Procedures for IKEY Keyboards

The Basics of Disinfecting

- People who use multi-user equipment should wash their hands after each use.
- Gloves must be removed and hands washed after providing patient care and prior to use of portable equipment. A powder-free brand glove is suggested.
- Since iKey equipment has been tested to be easily disinfected it is not necessary to have a plastic cover to prevent damage to the keyboard from liquids and to ease disinfection.
- If iKey equipment is taken into a patient's room, it must be disinfected prior to use for another patient.
- If the equipment is used in areas of heavy interaction with pathogens and it is used by more than one person it should be cleaned by each new user.
- To insure protection from infection, iKey equipment should be cleaned at the end of each scheduled shift.

Recommended for Disinfecting

- Soap and water is not sufficient to remove bacteria.
- This iKey product has been tested and proven to operate after cleaning with normal hospital and household cleaners. Such cleaners, with the manufactures' claims as listed below, can be used to disinfect against the agents specifically recommended.
- The most effective use of theses disinfectants is to allow the solution remains to remain on the keyboard for 10 minutes before wiping off.
- However, blood products can remain on the disinfected areas after use of these products. If there is the possibility of blood contamination it is strongly recommended to remove all blood traces, and assure blood borne diseases are eliminated; cleaning with a 10% solution of bleach is required. (Freshly-prepare a 10% solution of household bleach (1 part bleach and 9 parts water; or add a ½ cup bleach to 1 quart of water.)
- It is best to use a cotton swab to massage the bleach solution between the keys of the keyboard.
- Let the bleach set for 10 minutes before wiping dry.

Hand Washing

Hand washing is the single most important means to reduce transmission from one individual to another and from one piece of equipment to an individual. Therefore, washing hands as promptly and as thoroughly between patient contacts and after contact with blood, body fluids, secretions, excretions and equipment or articles contaminated by them is an important component of infection control. The purpose of the surgical hand scrub is to reduce resident and transient skin flora (bacteria) to a minimum. Resident bacteria are often the result of organisms present in the hospital environment. Because these bacteria are firmly attached to the skin, they are difficult to remove. However, their growth is inhibited by the antiseptic action of the scrub detergent used. Transient bacteria are usually acquired by direct contact and are loosely attached to the skin. These are easily removed by the friction created by the scrubbing procedure.

After nails are cleaned and trimmed:

- Wet hands with warm water.
- Apply institutionally provided soap to the hands according to the manufacturer's written instructions, if given.
- Rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Pay particular attention to areas often overlooked (ie, the backs of the hands, fingertips, the thumb and inner web).
- Rinse hands with warm water and dry thoroughly with a disposable towel.
- Use towel to turn off the faucet.

Tested Cleansers

SANI-CLOTH® PLUS Germicidal Disposable Cloth:
A dual chain quaternary/alcohol solution impregnated in a wiping cloth. A non-woven disposable cloth for use in hospitals and other critical care areas where the control of the hazards of cross-contamination is required. Contains 14.85%alcohol and is ideal for general hard surface disinfecting. To kill TB, MRSA, VRE, HIV-1, Staphyloccocus aureus, Salmonella cholerasuis, Pseudomonas aeruginosa, Influenza A2/Hong Kong, Avian Influenza (Bird Flu), Escherichia coli (pathogenic strain), and Herpes Simplex Type 2 - all in five (5) or less. EPA-registered; meets CDC and OSHA guidelines.

Lysol® Brand I.C. Ready To Use Disinfectant Cleaner: Kills 99% of bacteria in 30 seconds on hard, nonporous surfaces. Affective against TB, poliovirus, HIV-1 (Aids virus), rotavirus, RSV, staph, strep, salmonella and pseudomonas. Meets requirements for OSHA Bloodborne Pathogens Standards for Decontamination.

Clorox® Disinfecting Spray Leaves Hard, Nonporous Surfaces Disinfected In Ten Minutes. Virucidal (Including Hiv-1), Germicidal, Bactericidal, Fungicidal And Tuberculocidal. Kills And Prevents The Growth Of Mold And Mildew. Contains No Cfcs. Epa Registered

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Gloving

Gloves also play a significant role in preventing transmission of microorganisms. They provide a protective barrier and prevent gross contamination of the hands when touching blood, body fluids, secretions, excretions, mucous membranes and non-intact skin (OSHA has mandated the wearing of gloves in its Bloodborne Pathogens Final Rule). Gloves prevent the transmission of microorganisms on the hands of personnel to patients during procedures that provide the opportunity of contaminating patient areas, especially mucous membranes and non-intact skin. Gloves also prevent the hands of personnel contaminated with the organisms from patients or fomites to transmit these organisms to another patient. Wearing gloves in no way obviates the need for hand washing before and after removing gloves. Gloves do have small, unapparent defects and are easily torn during procedures. Failure to change gloves between patients is a serious infection control hazard.

Follow these procedures if you are cleaning up a spill of blood or PIM:

When clean up involves blood or PIM that is on a keyboard or flat surface, you should first delineate and mark the spill area so that others do not inadvertently enter the area until clean up is complete. Put on personal protective equipment before beginning clean up. Minimal equipment consists of gloves, goggles, mask, and coveralls or other outer garment.

Small spills should be wiped up with paper towels, then decontaminated with a proper disinfectant. Spill kits designed for cleaning up small spills (less than 8 ounces) of potentially infectious material are commercially available.

Large spills can be quickly contained by creating a circular barrier around the perimeter of the spill with an absorbent material (hy-dri, kitty litter, diatomaceous earth). Residual liquids in the center of the ring can be soaked up with additional absorbent or absorbent pads. Place the absorbent in a biohazard waste bag.

Soak the area for at least 20 minutes with a disinfectant **(freshly-prepared 10% bleach solution)**. You can be liberal with disinfectant but don't apply so heavily that it begins to run. Allow at least 20 minutes for the disinfectant to complete the decontamination. You can use the small hand broom and dustpan to clean up the spill.

Deposit all clean up material in bio-waste disposal bag and close tightly. The bag should be secured in a bio-harzard "burn box." Call your local Hazardous Materials Handling Facility or Biological and Medical Waste Disposal Services and arrange for bio-waste pick up.

Carefully remove gloves, coveralls, and boots, (if used) and discard in a biowaste bag. If used, the facemask should also be disposed. Goggles can be disinfected, rinsed and reused. The dustpan and broom can also be disinfected, rinsed, air-dried and reused.

After cleaning and disinfecting your equipment, return it to its proper storage area. Replace PPE, bags, and other items so that they will be available for future use.

Advice for cleaning up spills of blood borne pathogens.

Potentially infectious material (PIM) includes: (1) the following human body fluids:
Blood, semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Have these materials on hand for cleaning up spills:

- A durable container to store the clean up supplies
- Several bio-hazard labeled bags
- Disinfectant - freshly-prepared 10% solution of household bleach (1 part bleach and 9 parts water; or add a scant ½ cup bleach to 1 quart of water) or other commercial chlorine or iodine based disinfectant)
- Inert absorbing material (e.g., diatomaceous earth, hy-dri, kitty litter, absorbent pads)
- A small dust pan and hand brush
- Personal protective equipment, including several pairs of latex gloves, goggles, face masks, coveralls, and paper boots
- A heavy cardboard box
- A roll of paper towels
- Antiseptic wipes