

EAST CAROLINA UNIVERSITY

INFECTION CONTROL POLICY

Campus Recreation and Wellness

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Approved By:

Department Chairman

Administrator/Manager

Chairman, Infection Control Committee

Infection Control Nurse

I. Purpose: This Infection Control Policy is established to help safeguard personnel from the transmission of infection during rendering of emergency care. All ECU personnel, students, and other healthcare workers are to comply with all Infection Control Policies.

II. Personnel:

- A. All new and current employees will comply with employment screening as outlined in the Prospective Health Policy. All Employee Health records will be maintained by Prospective Health.
- B. Employees who have potential for blood or other potentially infectious material exposure will be offered hepatitis B vaccine at no charge to the employee.
- C. Any staff or student who has an exposure to a communicable disease through a needle stick or other means will report that exposure to their supervisor in the Campus Recreation and Wellness and follow-up will be done per Bloodborne Pathogen Exposure Control Plan, Tuberculosis Exposure Control Plan, or Prospective Health Policy depending on exposure.

Accidental exposures to chemicals and radiation will be reported on an incident report form. The person exposed to these hazards will be evaluated according to ECU Policy. Refer to the Radiation Safety Manual, the Biological Safety Manual, and the Chemical Hygiene Plan.

- D. Employees will receive education on infection control, standard precautions and OSHA standards upon employment and yearly thereafter.
- E. This policy will be evaluated every three (3) years and as needed due to change in practice or standards.

III. Physical Layout:

- A. Recreational Services programs are conducted in areas and facilities both within and outside the campus of East Carolina University.

IV. Procedures:

- A. Hand washing should be done with antimicrobial soap and water immediately after handling any injury with blood and other potentially infectious materials. Sinks are available in indoor facilities and hose bibs may be employed for the use of running water on outdoor fields and facilities. If hand-washing facilities are not immediately available, antiseptic hand cleaners in conjunction with clean cloth/paper towels or antiseptic towelettes will be provided.

- B. Aseptic technique should be strictly observed with any emergency aid treatment if accidents happen or with open wounds.
- C. Standard precautions will be observed on all patients. Gloves are worn if hands may be exposed to blood and other potentially infectious materials. Pocket resuscitators will be utilized if cardiopulmonary resuscitation (CPR) is to be administered.

Health care workers who have exudative lesions or weeping dermatitis shall refrain from handling patient care equipment and devices used in performing invasive procedures and from all direct patient contact until the condition resolves. Open wounds or sores should be covered with a protective dressing.

- D. Procedures performed by the Campus Recreation and Wellness consist of First Aid, Cardiopulmonary Resuscitation (CPR), and Basic Life Support (BLS).
- E. If an accident occurs involving a spill of blood or other potentially infectious materials onto a facility surface, the area will be cleaned with an approved disinfectant.
- F. Personal protective equipment which includes gloves, pocket resuscitators, and antiseptic towelettes will be available in the First Aid Kits which will be on-site at activity locations for each program of facility.
- G. Refer to Appendix 1 for a list of common procedures that require minimum personal protective equipment.

V. Equipment and Supplies:

- A. Clean equipment is stored in the Safety Services supply cabinet located in the Intramural Sports Equipment Room in the Student Recreation Center

Reusable dirty equipment is cleaned in the laundry area behind the Customer Service desk in the Student Recreation Center. Towels and jerseys are cleaned in a washing machine and dryer located the laundry area of the Student Recreation Center.

- B. Equipment is inspected periodically and repaired or replaced as necessary. Reusable contaminated equipment is cleaned with an approved disinfectant or sterilized. Contaminated disposable equipment will be discarded in appropriate containers.
- C. Red bags are available in each First Aid kit for the disposal of contaminated trash. These red bags will be gathered by staff and sent for incineration. Gloves will be used when handling contaminated trash.

- D. Clean linen is stored in the Equipment Room, behind the Customer Service desk in the Student Recreation Center. Soiled linen is placed in leak-proof containers at the activity locations for routing to the laundry room behind the Customer Service desk. Gloves will be used when handling soiled linen.

- E. Refer to Appendix 2 for “Response to Fecal Accidents in Disinfected Swimming Venues”.

Appendix 1

Common procedures	Minimum equipment needed
1. Injury with open wounds	Gloves
2. Injury without open wound	None
3. Oozing of body fluids	Gloves
4. Cardiopulmonary Resuscitation (CPR)	Gloves, pocket resuscitators

Appendix 2

Responding to Fecal Accidents in Disinfected Swimming Venues

These recommendations are solely for management of fecal accidents in disinfected recreational water venues. The recommendations do not address use of other non-chlorine disinfectants because there is limited pathogen inactivation data for many of these compounds. Because improper handling of chlorinated disinfectants could cause injury, appropriate occupational safety and health requirements should be followed.

- A. Formed Stool (solid, non liquid)
1. Direct everyone to leave all pools into which water containing the feces is circulated. Do not allow anyone to enter the contaminated pool(s) until all decontamination procedures are completed.
 2. Remove as much of the fecal material as possible using a net or scoop and dispose of it in a sanitary manner. Clean and disinfect the net or scoop (e.g., after cleaning, leave the net or scoop immersed in the pool during disinfection). Vacuuming stool from the pool is not recommended*.
 3. Raise the free available chlorine concentration to 2 PPM, pH 7.2-7.5, if it is <2.0 mg/L. Ensure this concentration is found throughout all co-circulating pools by sampling at least three widely spaced locations away from return water outlets. This free available chlorine concentration was selected to keep the pool closure time to approximately 30 minutes. Other concentrations or closure times can be used as long as the CT inactivation value† is kept constant (Table 1).
 4. Maintain the free available chlorine concentration at 2.0 PPM, pH 7.2-7.5, for at least 25 minutes before reopening the pool. State or local regulators may require higher free available chlorine levels in the presence of chlorine stabilizers such as chlorinated isocyanurates§. Ensure that the filtration system is operating while the pool reaches and maintains the proper free available chlorine concentration during the disinfection process.
 5. Establish a fecal accident log. Document each fecal accident by recording date and time of the event, formed stool or diarrhea, free available chlorine concentration at the time of observation of the event and before opening the pool, the pH, the procedures followed to respond to the fecal accident (including the process used to increase free chlorine residual if necessary), and the contact time.
- B. Diarrhea (liquid stool)
1. See A1.
 2. See A2.
 3. Raised the free available chlorine concentration to 20 mg/L¶ and maintain the pH between 7.2 and 7.5. Ensure this concentration is found throughout all co-circulating pools by sampling at least three widely spaced locations away from

return water outlets. This chlorine and pH level should be sufficient to inactivate *Cryptosporidium* and should be maintained for at least 8 hours, equivalent to a CT inactivation value of 9600. A higher or lower free available chlorine level/inactivation time can be used as long as a CT inactivation value equaling 9600 is maintained for *Cryptosporidium* inactivation. State or local regulators may require higher free available chlorine levels in the presence of chlorine stabilizers such as chlorinated isocyanurates. If necessary, consult an aquatics professional to determine and identify the feasibility, practical methods, and safety considerations before attempting the hyper-chlorination of any pool.

4. Ensure that the filtration system is operating while the pool reaches and maintains the proper free available chlorine concentration during disinfection.
5. Backwash the filter thoroughly after reaching the CT value. Be sure the effluent is discharged directly to waste and in accordance with state or local regulations. Do not return the backwash through the filter. When appropriate, replace the filter media.
6. Swimmers may be allowed into the pool after the required CT value has been achieved and the free available chlorine level has been returned to the normal operating range allowed by the state or local regulatory authority. Maintain the free available chlorine concentration and pH at standard operating levels based on state or local regulations. If necessary, consult state or local regulatory authorities for recommendations on bringing the free available chlorine levels back to an acceptable operating range.
7. See A5.

*No uniform recommendations for disinfection of vacuum systems are available. However, if a vacuum system is accidentally used, the waste should be discharged directly to a sewer or other approved waste disposal system and not through the filtration system. The dilution effect of the pool water going through the hose may reduce the risk for high-level contamination of the vacuum system.

†CT refers to concentration (C) of free available chlorine in mg/L or ppm multiplied by time (T) in minutes. If pool operators want to use a different chlorine concentration or inactivation time, they need to ensure that CT values always remain the same. For example, if an operator finds a formed fecal accident in the pool and his pool has a free available chlorine reading of 3 mg/L and a pH of 7.5, to determine how long the pool should be closed to swimmers, locate 3mg/L in the left column of the table and then move right and read the pool closure time. The pool should be closed for 19 minutes. Example 2: the CT inactivation value for *Cryptosporidium* is 9600, which equals (20mg/L) (480 minutes) (i.e., 8 hours). After a diarrheal accident in the pool, an operator determines she can only maintain 15 mg/L. How long would hyper-chlorination take? Answer: $9600=CT=[(15)(T)]$, $T=9600/15=640$ minutes=10.7 hours.

§The impact of chlorine stabilizers (e.g., chlorinated isocyanurates) on pathogen inactivation and disinfectant measurement is unclear and requires further investigation. State or local regulations on chlorinated isocyanurates use should be consulted.

¶Many conventional test kits cannot measure free available chlorine levels this high. Use chlorine test strips that can measure free available chlorine in a range that includes 20mg/L (such

as those used in the food industry) or make dilutions for use in a standard DPD (N, N-diethyl-p-phenylenediamine) test kit using chlorine-free water.

TABLE 1. Free available chlorine concentrations and pool closure time* required for disinfection of pools after a formed fecal accident

Concentration (mg/L or ppm)	Pool closure time (minutes)
<0.4	105
0.6	72
0.8	55
1.0	45
1.2	39
1.4	34
1.6	30
1.8	28
2.0	25
2.2	24
2.4	22
2.6	21
2.8	20
3.0	19

*Theoretical pool closure times for 99.9% inactivation of *Giardia* cysts by free available chlorine, pH 7.5, 25 C were derived from the Environmental Protection Agency's (EPA) Disinfection Profiling and Benchmarking Guidance Manual. EPA data were generated from original pathogen inactivation data and modeled for use in drinking water treatment facilities. These data were used to develop the pathogen inactivation table from which these pool closure times were derived. The applicability of these data to pools, where water and disinfectant mixing may not be uniform, has not been shown. Therefore, these pool closure times do not take into account "dead spots" and other areas of poor pool water mixing.

CDC. Responding to fecal accidents in disinfected swimming venues. MMWR, May 25, 2001; Vol 50/No. 20, pp 416-17

