



AST Recommended Standards of Practice for Laundering of Scrub Attire

Introduction

The following Recommended Standards of Practice were researched and authored by the AST Education and Professional Standards Committee and have been approved by the AST Board of Directors. They are effective April 13, 2008.

AST developed the Recommended Standards of Practice to support health care facilities in the reinforcement of best practices related to the laundering of scrub attire in the perioperative setting. The purpose of the Recommended Standards is to provide an outline that health care workers (HCW) in the perioperative setting can use to develop and implement policies and procedures for laundering scrub suits. The Recommended Standards is presented with the understanding that it is the responsibility of the health care facility to develop, approve, and establish policies and procedures for laundering scrub attire according to established health care facility protocols.

Rationale

The following are Recommended Standards of practice related to the proper laundering of scrub suit attire. O.R. attire is worn in the semi-restricted and restricted areas of the surgery department. O.R. attire consists of the scrub suit and hair cover; depending on health care facility policies, shoe covers may be required, and the wearing of the mask is required in the restricted areas. The scrub suit consists of the scrub top/shirt and pants. Surgical site infections (SSI) have been traced to shedding of microbes from the skin of surgical team members. Scrub suits have been shown to reduce the body's particle shedding into the environment and therefore contribute to maintaining the clean environment of the surgery department.⁴

Standard of Practice I

It is the responsibility of each surgical department to follow recommended CDC and OSHA standards for O.R. attire.

1. Facility approved, freshly laundered O.R. attire should be donned by all personnel entering the operating room suite. This includes personnel who have worn the attire outside of the health care facility. Upon return, they should change before entering the semi-restricted or restricted areas of the surgery department to reduce the potential for cross-contamination.

Standard of Practice II

Surgical scrub attire can be a source of cross-contamination

1. Visibly soiled, wet, and/or contaminated scrub attire must be changed as soon as possible. Clean, freshly laundered attire should be donned to reduce the potential

- for cross-contamination and protect the HCW from possible exposure to blood-borne pathogens.
2. Soiled attire must be placed in a facility approved, designated container that is visibly marked for contaminated laundry.
 - A. Contaminated laundry is to be placed in a container, such as a bag marked with the biohazard symbol at the location of use. If the contaminated laundry is wet/soaked, such as with blood, body fluids, secretions and/or excretions, it is to be put into a container that will prevent the fluid from leaking or soaking through.
 - B. AST's recommendation is that contaminated O.R. attire should be handled in the same manner as described above for contaminated laundry.

Standard of Practice III

Facility-controlled laundry or facility-approved and monitored commercial laundry reduces the risk of contamination from uncontrolled environments.

1. Home laundering of O.R. attire to include scrub suits, cloth warm-up jackets, and cloth hats is not recommended. O.R. attire should be laundered at the health care facility or by a facility-approved and monitored commercial laundry company.
 - A. AST recommendation is that O.R. attire should not be laundered in a residential/non-commercial setting.
 - B. Uncontrolled or non-approved laundry services can increase the risk of spreading pathogens to patients, HCWs, and the general population.
 - C. Residential/non-commercial laundering of O.R. attire may contribute to the spread of harmful contamination in the home environment. Laundering processes have become particularly critical in light of the increasing number of resistant bacteria further increasing the risk of exposure to the HCW.⁹ Pathogens can survive the wash cycle of today's modern home laundry processes.⁸ Further microorganisms that survive the wash cycle may be transferred to the other fabrics contained in the wash, from the surfaces of the electric washer to the fabrics in subsequent loads, and to human hands from wet laundered fabrics. The risk of cross-contamination by household laundry was demonstrated beyond doubt after an outbreak of *S. aureus* skin infection occurred among a cohort of families sharing laundry facilities.¹³ The data provides support to the NIOSH study indicating that washing work wear at home exposes the family and community to long-range risks.¹⁰
 - D. The health care facility is required to launder items that are contaminated with blood and other potentially infectious material including body fluids, secretions, and excretions with the exception of sweat.¹⁵ This is in accordance with Standard Precautions.

AST recommends that to be in compliance with Standard Precautions, which provide methods for controlling the spread of blood-borne pathogens and preventing exposure of HCWs, residences and the general public to the pathogens, that residential/non-commercial laundry should not be advocated by a health care facility. As a brief review, the Standard

Precautions apply to exposure or the potential for exposure to blood and body fluids, secretions, and excretions with the exception of perspiration whether or not visible.⁵ Standard Precautions are established to protect HCWs and patients from contact with any sources that present as a source of contamination.

AST recognizes the controversy surrounding O.R. attire that is not visibly soiled. However, the shedding of skin containing microbes onto the attire may occur as well as non-visible contamination with microbes during wear. Therefore, this also mandates following Standard Precautions in preventing the spread of pathogens and laundering of attire performed by the health care facility.

To further support that laundering of O.R. attire should not be done in the residential environment due to non-visible contamination the following information was shared by Neely & Maley concerning a study to establish the ability of Gram-positive microorganisms survival on hospital fabrics¹¹:

A research study was conducted by the Shriners Hospital for Children and University of Cincinnati Department of Surgery in which the survival of *Enterococci* and *Staphylococci* on hospital fabrics and plastics was examined. Two test fabrics were used in the study: 100% cotton used in clothing; blended 60% cotton and 40% polyester that is used in scrub suits and lab coats. All *Staphylococci* tested had survived for at least a day on both types of fabrics. Data in this study indicate that *Staphylococci* and *Enterococci* have the ability to survive days to months after drying on hospital fabrics. The data from this study is also an indicator that *Staphylococci* and *Enterococci* can survive for extended periods of time on materials commonly worn by patients and HCWs.

- E. Health care facility laundry or facility-approved commercial laundry company comply and adhere to strict guidelines for water temperature; detergent concentration; use of oxidizing agents in specific, monitored amounts; water change cycles; and avoidance of overloading the washing machines. Additionally, the laundry facility is able to establish specific drying temperatures of the dryers which are not usually able to be controlled in the residential setting. It has been identified that the electric clothes dryer, not water temperature of the electric washer, has a more significant effect and role in eliminating bacteria from linen.⁹ Studies indicate that home electric dryers may not provide a temperature high enough to kill bacteria, viruses and other types of microorganisms.^{7,12}

The following information concerns the formulas used by health care facility laundry or commercial laundries⁶:

Commercial laundries use specific laundering formulas that facilitate microbial kill. Different formulas are used for different types of fabric. These formulas consist of multiple steps, which may include some or all of the following:

- Flushing or dilution: Use of high water levels and low temperatures to remove gross soil without “setting” stains.
- Break: Use of alkali salts to enhance soil removal and assist with microbial kill.
- Washing: Use of hot water and detergents with mechanical washing action.
- Bleaching: Use of an oxidizing agent, usually sodium hypochlorite, in defined concentrations to facilitate decontamination.
- Rinsing: Use of copious amounts of water to remove suspended soil and laundry chemicals.
- Finishing: Addition of laundry sour to neutralize remaining alkalinity. Softeners, optical brighteners, and antistatic agents also may be used on some fabrics.

Commercial laundries also must monitor the water temperature and the concentration of chemicals, especially during the bleaching step. Correct temperature and bleach concentration help facilitate microbial kill. Few, if any, home laundering situations or appliances have the capability of duplicating commercial processes.

Therefore, home laundering is not appropriate since laundry conditions cannot be effectively controlled.¹⁴

Standard of Practice IV

Clean, freshly laundered O.R. attire should be protected from contamination when transported from the health care facility laundry or facility-approved commercial laundry to the storage area.

1. Laundered O.R. attire should be placed in the proper container to be protected from contamination when transferred and stored.¹

Competency Statements

Competency Statements	Measurable Criteria
1. Certified Surgical Technologists (CSTs) and Certified First Assistants (CFAs) have the knowledge and skills in the prevention of bacterial contamination.	1. Educational standards as established by the <i>Core Curriculum for Surgical Assisting</i> and the <i>Core Curriculum for Surgical Technology</i> . ^{2,3}

<p>2. CSTs and CFAs have the knowledge and skills to protect themselves, other HCWS, the patient, and the general public from microbial and environmental hazards.</p> <p>4. CSTs and CFAs are knowledgeable of CDC and OSHA regulations and the implementation of the regulations in the work place.</p>	<p>2. The subject area of O.R. attire is included in the didactic studies as a surgical technology student including placement of contaminated O.R. attire in the proper container and laundry of the attire.</p> <p>3. Students demonstrate knowledge of the recommended practices of proper personal protection in the lab/mock O.R. setting and during clinical rotation.</p> <p>4. As practitioners, CSTs and CFAs perform the skills related to proper personal protection including donning and disposal of O.R. attire.</p> <p>5. CSTs and CFAs complete continuing education to remain current in their knowledge of PPE standards, including current information as related to the laundering of O.R. attire to include the scrub suit, warm-up jacket and cloth hat.</p>
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