White Coats: Time to Go?

Physicians adopted the use of white coats in the 19th century. Since then, this garb has become a near universal symbol. Recently, widespread recognition of a lack of cleanliness of white coats has led to a growing concern that these coats are unsafe. In fact, the use of white coats by medical personnel was officially banned in Great Britain in 2007 out of concern for their ability to serve as vectors for transmission of pathogens between patients (1). This newsletter will discuss the evidence for eliminating white coats from healthcare provider attire and review how some institutions have translated this evidence into practice.

Current Recommendations:
The 2014 SHEA guidelines on Healthcare Personnel Attire in Non-Operating-Room Settings (2) recommend that facilities adopt “bare below the elbows” (BBE) policies, encouraging providers to avoid long sleeves, wristwatches, jewelry, and ties during clinical practice. These guidelines recommend that facilities that allow use of white coats do the following:

- Professionals engaged in direct patient care have more than 2 white coats
- Health care workers (HCW) engaged in direct patient care should have access to convenient and economical means to launder white coats
- Coat hooks should be installed in patient care environments to promote removal of white coats during direct contact with patients

The Evidence:
No studies prove white coats are responsible for transmission of pathogens in healthcare settings. However, multiple studies provide microbiologic evidence that these coats quickly and universally become contaminated with pathogens.

Study 1: Microbial flora on doctors’ white coats

Wong et al. (3) conducted a cross sectional study evaluating the microbial flora on white coats used by 100 physicians. Investigators used a survey to determine the intervals at which these physicians exchanged dirty white coats for clean ones. Additionally, study personnel cultured the cuff, front pocket, and back of each white coat to determine: 1) counts of colony forming units (CFU) in cultures from the garment and 2) presence of pathogenic bacteria including Staphylococcus aureus and/or gram negative rods. S. aureus was the only pathogenic bacteria isolated. When S. aureus was detected, investigators swabbed the coat owner’s nose. Investigators then used phage typing to compare strains of S. aureus isolated from the white coat and physician’s nose. Study personnel also performed and
compared phage typing on S. aureus isolated from coats to S. aureus isolated from inpatients to determine if any cross transmission had occurred.

S. aureus was isolated from 29 coats. Fresher white coats, i.e. those exchanged on a weekly basis compared to longer times, had a smaller total bacterial burden, but the rate of S. aureus isolation did not vary with length of time in use. No cross transmission events were identified.

Study 2: Evaluating contamination of white coats versus freshly laundered uniforms

Burden et al. (4) conducted a randomized controlled trial evaluating: 1) difference in contamination between recently laundered, hospital-provided uniforms versus white coats, and 2) the time to bacterial contamination of recently laundered uniforms. One hundred residents and hospitalists were randomized to wear either a recently hospital-laundered short sleeved uniform or their own white coat, and study personnel obtained cultures from the white coats and uniforms after 8 hours. Study personnel also obtained cultures from a small subset of 10 recently laundered uniforms before donning and after 2.5, 5, and 8 hours of use respectively. White coats and recently laundered uniforms were equally contaminated by the end of an 8-hour shift. Furthermore, recently laundered uniforms had significant bacterial burden, including MRSA, after just 2.5 hours of use.

Barriers to Bare Below the Elbow (BBE) Policies:

1. Lack of evidence:
Currently, no one has evaluated the impact of BBE policies on rates of hospital-acquired infections. Moreover, only a few investigators have evaluated the association between BBE and hand contamination of healthcare workers. Farrington et al. randomized HCWs to wear white coat or BBE garb, and then used a fluorescent alcohol gel to evaluate the effectiveness of hand and wrist washing. HCW who were BBE had more effective wrist washing (5).

2. Patient perception:
People concerned about implementing a BBE policy commonly cite their belief that patients expect their physician to wear a white coat. Seven studies specifically examined patient attitudes about BBE policies. All 7 of these studies had “before-and-after” study designs. The intervention in each study was patient education about the high frequency of microbial contamination of white coats. All 7 studies showed a “before” preference consistent with “formal attire” (suit and tie, professional dress) with or without a white coat. However, the “after” preference in every study was dress consistent with a BBE policy (2).

3. Physician perception:
Similar surveys asking physicians about their attitudes about adopting BBE policies and abandoning the use of white coats have not been well designed or conclusive. However, authors of some of these studies have cited perceived concerns about the loss of professional image and the need to use the pockets of white coats to carry medical equipment and personal objects while working (6-7).

Dr. Mike Edmond has been a strong advocate for the use of BBE policies. Dr. Edmond first implemented a BBE policy at Virginia Commonwealth University (VCU) in 2009. He subsequently moved to a position at the University of Iowa Medical Center where a similar policy will be implemented in January 2016. BBE policies at both facilities are voluntary. In essence, these policies formally give healthcare personnel “permission” to wear scrubs instead of white coats but the policies do not mandate that white coats be abolished. Subsequent prevalence surveys about the use of BBE by VCU healthcare workers showed that
the health care providers adopted the BBE concept in 69% of their inpatient encounters; compliance rates with the BBE policy rose to 80% after the medical school purchased scrubs and vests for students (8).

**DICON recommendations:**

We currently believe that there should be a middle ground between the *status quo* and policies that ban the use of white coats by medical personnel and mandate the use of BBE. Because there is good evidence that white coats quickly and persistently become contaminated with pathogenic bacteria soon after use and because the degree of contamination increases with increasing duration of use, we recommend the following:

- White coats should be laundered regularly—at a minimum once a week.
- White coats should be removed during medical procedures, when caring for patients in contact isolation, and when contamination of coats is likely to occur in patient care (such as with moving patients, examining patients, and touching medical devices).
- A “bare below the elbow” policy is logical, simple, and safe. We encourage its use but do not believe it is the current standard of care.
- White coats probably represent no significant risk when worn during daily activities that do not involve the type of direct patient care described above.

**References:**

1. The Royal Crown  
   Medical Association. Accessed 12.1.15
5. Farrington RM, et al. “‘Bare below the elbows’ and quality of hand washing: a randomized comparison study.” *J Hosp Infect* 2010; 74:86-88.