

Bring back the white coats?

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Should we bring back the white coat? Is it time for this once-venerated symbol of medicine to re-establish itself amongst a new generation of fledgling practitioners? Or, is this icon of medical apparel nothing more than a potentially dangerous relic of a bygone era?

Introduction

The white coat has long been a symbol of the medical profession, dating back to the late-1800s. [1] It was adopted as medical thought became more scientific. [2] Doctors wore coats aligning themselves with the scientists of the day, who commonly wore beige coats, but instead chose white - the colour lacking both hue and shade - as representation of purity and cleanliness. [3] Nowadays, the white coat is rarely seen in hospitals, possibly due to suspicions that it may function as a vector for transmission of nosocomial infections. [4] This article addresses the validity of such concerns, by reviewing the available literature.

The vanishing white coat

Twenty years ago in the United Kingdom (UK) white coats were commonly worn by junior doctors while consultants wore suits. [5] The choice to not wear a white coat was seen as a display of autonomous, high-ranking professionalism. [6] Many older Australian nurses now recall when doctors commonly wore white coats in the hospital. Over the last decade, white coats have become a rarity in Australian hospitals. [7,8] There are many reasons why this change occurred. Table 1 outlines some common thoughts of doctors on the matter. Paediatricians and psychiatrists stopped using white coats as they thought that it created communication barriers in the doctor-patient relationship. [3] Society viewed white coats as a status symbol, [7] evoking an omnipotent disposition, which was deemed inappropriate. [6,7] In addition, it was thought white coats might be a vector for nosocomial infection. [6,9-13] With these pertinent issues, and no official policy requiring white coats, doctors gradually hung them up.

Table 1. Reasons for why doctors choose to wear or not wear white coats

Reasons why doctors wear white coats	Reasons why doctors do not wear white coats
For identification purposes [8]	No one else does [8]
To carry things [14]	Infection risk [5,8,14]
Hygiene [7,8]	Hot or uncomfortable [5,8,14]
To protect clothes [8]	Interferes with the doctor-patient relationship [6,14]
To create a psychological barrier [3]	Lack of seniority [5]
Patients prefer doctors in white coats [14]	
Looks professional [8,14]	

Hospital policies and white coats

In 2007 the British Department of Health published guidelines for healthcare worker uniforms, that banned the white coat from hospitals in England, [15] thereby producing a passionate controversy. [4] The primary reason for the ban was to decrease health-care acquired



infections, [9,12,16] which was supposedly supported by one of two Thames Valley University literature reviews. [6,13] Interestingly, these reviews stated there was no evidence to support the notion that clothing or specific uniforms, could be a noteworthy medium for the spread of infections. [6,13] On closer inspection of the British policy, however, they state: "it seems unlikely that uniforms are a significant source of cross-infection." [15] The text goes on to support the new uniform guidelines, including the abolition of the white coat, because "the general public's perception is that uniforms pose an infection risk when worn inside and outside clinical settings." [6] This statement lacks evidence, as many studies show patients prefer their doctors to wear white coats [7,14,17] and the notion of patients being concerned about infection risk are uncommon. [7] It would appear that the British Department of Health made this decision for some reason other than compulsion by evidence.

Despite significant discussion and debate, the United States (US) has chosen not to follow England in banning the white coat. [3,12,18] The US has a strong tradition associated with the white coat, which may influence their reluctance to abandon them so quickly. In 1993, the 'white coat ceremony' was launched in the US, where graduating medical students were robed in a white coat, as the senior doctors 'demonstrate their belief in the student's ability to carry on the noble tradition of doctoring.' [1] Only five years later, 93 US medical schools had adopted this practice. [1] This indicates that the white coat is a real source of pride for doctors in the US, however, tradition alone cannot dictate hospital policies. In 2009, the American Medical Association (AMA) passed a resolution to encourage the "adoption of hospital guidelines for dress codes that minimise transmission of nosocomial infections." [19] Rather than banning white coats, [16] the AMA proposed the need for more research, noting that there was insufficient evidence to support that there was an increased risk of nosocomial infection directly related to their use. [18]

The Australian Government National Health and Medical Research Council (NHMRC) published the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* in 2010, outlining recommendations for the implementation of infection control in all Australian hospitals, and other areas of healthcare, based on current literature. [20] It states that uniforms should be laundered daily, whether at home or at the hospital, and that the literature has not shown a necessity to ban white coats or other uniforms, as there is no evidence that they increase transmission of nosocomial infections. [20]

These guidelines, also contained the article that the British Department of Health used in support of banning white coats. [6]

The evidence of white coats and nosocomial infection

There are minimal studies done trying to assess whether white coats are potential sources of infection or not. [9-12] Analysis of the limited data paints a uniform picture of the minimal possibility for white coats to spread infection.

In 1991 a study of 100 UK doctors demonstrated that no pathogenic organisms were cultured from the white coats. [10] Notably, this study also found that the level of bacterial contamination of white coats did not vary with the amount of time the coat was worn, but varied with the amount of use. [10] The definition of usage was not included in the article, although doctor-patient time is the most likely interpretation. Similarly, a study in 2000 isolated no *Methicillin-resistant Staphylococcus aureus* (MRSA), or other infective organisms, but still concluded that the white coat was a possible cause of infection. [11] This study stated white coats were not to be used as a substitute for personal protective equipment (PPE) and it was recommended that they should be removed before putting on plastic aprons. [11]

A recent study swabbed MRSA on 4% of the white coats of medical participants, even though it was the biggest study of its kind, there was no statistically significant difference between colonised and uncolonised coats due to the population size. [9] This study has limitations in that it did not compare contamination with clinical dress, which could potentially show there is no difference. There appeared to be a correlation with the MRSA contaminated coats and hospital-laundered coats with four out of the six coats being hospital-laundered. [9] A potential major contributing factor to the contamination of white coats could be the frequency of washing white coats. A survey in the 2009 study showed that 81% of participants had not washed their coats for more than seven days and 17% in more than 28 days. [9] Even though the 1991 study showed that usage, not time, was the determinate for bacterial load, this does not negate a high amount of usage over a long period of time. [10] Interestingly, there may be a correlation with the MRSA contaminated coats and hospital-laundered coats. [9]

In response to the British hospital uniform guidelines, a Colorado study, published in April 2011, compared the degree and rate of bacterial contamination of a traditional, infrequently-washed, long-sleeved white coat, to a newly-cleaned, short-sleeved uniform. [12] Their conclusions were unexpected, such that after eight hours of wear, there was no difference in the degree of contamination of the two. Additionally, the study concluded that there was also no difference in the extent of bacterial or MRSA contamination of the cuffs of the physicians. Consequently, the study does not discourage the wearing of long-sleeved white coats [12] and concludes that there is no evidence for their abolition due to infection control concerns.

While, all these studies indicate the potential for organisms that cause nosocomial infections to be present on white coats, [10-12] the common conclusion is there is no higher infection risk from daily-washed, white coats, than any other clinical attire. [12] It needs to be recognised there are many confounding factors in all of these studies that compare attire and nosocomial infection, hence more studies are needed to clearly establish guidelines for evidence-based practice regarding this issue. Gaining an understanding of the difference in transmission rates between specialities could assist in implementing specific infection control practices. Studies that clearly establish transmission of organism from uniform to patient, and clinical data on the frequency of such transmissions, would be beneficial in developing policy. Additionally, nationwide hospital reviews on rates of nosocomial infections, comparing the dress of the doctors and nurses would contribute to gaining a more complete understanding of the role that uniforms play in transmission of disease.

Australian hospitals and white coats

Queensland State Infection Control Guidelines published by the Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), surprisingly had no details of recommended dress of doctors that could be found. [21] State guidelines like these, in combination with federal guidelines, influence the policies that each individual hospital in Australia creates and implements.

A small sample of hospitals across all the states and territories of Australia were canvassed to assess what the general attitudes were towards the wearing of white coats during patient contact and whether these beliefs were evidence-based. The infection control officers of each of the hospitals were contacted, by myself and the specifics of their policies attained, along with an inquiry regarding the wearing of white coats by students or staff. This data was collected verbally. Obviously there are limitations to this crude data collection it is the result of attempting to attain data not recorded.

On the whole, individual hospital policies emulated National Guidelines almost exactly, by not expelling white coats; instead encouraging them to be washed daily, like normal dress. Some hospitals had mandatory 'bare-below-the-elbows' and 'no lanyard' policies, while many hospitals did not. White coats were worn in a significant amount of Australian hospitals, usually by senior consultants and medical students (see Table 2). The general response from infection control officers regarding the wearing of white coats was negative, presumably due to the long sleeves and the knowledge that they are probably not being washed daily. [10,12]

Table 2. Relevant policies in place regarding white coats and if white coats are worn within hospitals in major Australian centres.

Hospital	Policy regarding white coats	White coat worn
Townsville Hospital	No policy	An Emergency Department doctor and surgeon
Mater Hospital – Townsville	No policy	Nil known
Royal Brisbane and Prince Charles – Metro North*	No policy	Medical students
Brisbane Princess Alexandra and Queen Elizabeth 2 – Metro South*	No policy	Medical students One consultant who requires his medical students to wear white coats
Royal Darwin Hospital	Sleeves to be rolled up	Nil known
Royal Melbourne Hospital	No policy	Nil known
Royal Prince Alfred Hospital – Sydney	No policy	Senior doctors, occasionally
Royal Hobart Hospital	No policy	Nil known
Royal Adelaide Hospital	No policy	Orthopaedics, gynaecologists and medical students
Royal Perth Hospital	Sleeves to be rolled up	Only known to be worn by one doctor
Canberra Hospital	Sleeves to be rolled up	-

*All the hospitals in the northern metropolitan region of Brisbane are governed by the same policy, likewise for Metro South.

This table shows white coats are not extinct in Australian hospitals and the policies in place pertaining to white coats reflect the Federal Guidelines. Policies regarding lanyards, ties and long-sleeves differed between hospitals. It is encouraging to note that Australia has not followed in the footsteps of England, regarding the abolition of white coats, as there is limited scientific evidence to support such a decision. The policies in Australia regarding white coats require daily laundering, although current literature even queries the necessity for this. [12] The negative image of white coats in Australian hospitals by the infection control officers is probably influenced by the literature that shows that white coats become contaminated. [9] The real discussion, however, is the difference in contamination of white coats and other clinical wear.

Meditations of a medical student...

My own views...

I have worn a white coat on numerous occasions, during dissections and lab experiments, but never when I am in contact with patients. According to the James Cook University School of Medicine dress policy, all medical students are to wear 'clean, tidy and appropriate' clinical dress. [22] No detail is included regarding sleeve length, colour or style, although social norm is a very powerful force, and the main reason that my colleagues and myself would not wear white coats is simply because no one else is wearing them. This practice is concurrent with a study on what Australian junior doctors think of white coats. [8]

Personally, I think that a white coat would be quite useful. It may even decrease nosocomial infection, as it has big pockets and could carry books and instruments, negating the need for a shoulder bag or putting items down in patient's rooms, thus becoming a potential cross-infection risk. In regards to the effects on patients, I think the psychological impact may have some effect, but this would be different for each individual. White coats are not the

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cause of nosocomial infections that are rampant in our hospitals, it is the compliance of health professionals washing their hands and adhering to the evidence-based guidelines provided by infection control organisations. In Australia these guidelines give freedom to wear the white coats, so why not?

Conclusion

White coats are a symbol of the medical profession and date back to the beginnings of evidence-based medicine. Suitably, it is appropriate to let the evidence shape the policies regarding the wearing and laundering of white coats in hospitals and medical practice. There has been much debate regarding white coats as an increased risk for nosocomial infection, [3,4,12,16,18] as many studies have shown that white coats carry infectious bacteria. [9-12] But, more notably, a study published in April 2011, showed that the bacterial loads on infrequently washed white coats did not differ from newly cleaned short-sleeve shirts. [12] The reason why Britain decided to ban white coats in 2007 is a mystery. Australia has not banned white coats, although there are some practitioners who choose to wear them, but is it far from the norm. [8] A nation-wide, formal re-introduction of white coats into Australian medical schools has no opposition from infection control according to the current evidence. "...Might not the time be right to rediscover the white coats as a symbol of our purpose and pride as a profession?" [1]

Conflict of interest

None declared.

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