

## LETTER TO EDITOR

**The White Coat and Medical Profession***Gurudutt Joshi**Department of Pediatrics, S.M.I.M.E.R. Surat-395002 (Gujarat), India***Abstract:**

White coat has been an identifying symbol for doctors; however certain other professions also use it. Additional purpose of this coat besides identification was to protect the doctor from acquired infections. Disputes arose about this attire, regarding effect of climatic conditions such as environmental temperature, humidity, personal attributions, patients and parent's opinion and also probably, as an agent which is said to be harboring various pathogenic organisms. Some studies or research work which has been carried out says that these organisms might play a role in nosocomial infections whereas, other studies refute it. Professional bodies have set up norms regarding place of wearing, hygiene and laundering about this apparel. In conclusion depending upon the conditions it can be inferred that at certain places, wearing of this apparel should be compulsory, whereas at other places it can be individualized. Various issues related to white coat are being discussed in this article.

**Keywords:** White Coat, Apron, Medical Professional

A white coat often popularly known as 'Apron' is usually a knee length coat either full sleeve or half sleeve worn by health care professionals, such as, doctors, nursing professionals, laboratory personnel, scientists, physiotherapists, optometrists, pharmacists, veterinary professionals and technicians. Before the middle of the 19 century only scientists who worked in laboratories used to wear laboratory coats which were beige (pale-pinkish-yellow) colored. Perhaps, the modern white coat was introduced to medicine in Canada by Dr. George Armstrong (1855-1933) [1, 2], who was a surgeon and president of the Canadian Medical Association.

The white colour was chosen with good reason as the new standard of the medical profession because it represented cleanliness, purity, goodness and calmness, and a visual reminder of the physician's commitment to do no harm. Nevertheless, controversies started arising with whether, when and where to wear white coat. In June 2009, the American Medical Association (AMA) [3] voted on a resolution recommending that the iconic white garment should be banned by hospitals, citing the probable spread of disease through frequently unsterilized coats splattered with the invisible aftermath of repeated exposure to sick patients. Douse *et al* [4], in a study concluded that, only 13% of doctors wore coats as they felt to be an infection risk (70%) and or they were uncomfortable (60%). Psychiatrists and Pediatricians were least likely to wear white coats because the patients they dealt with found them threatening and hence they interfered with doctor patient relationship [4] though, there was no statistical difference between doctor subgroups when age, sex and specialty was compared. Doctors who gave reasons to wear white coat stated that it prevents infection, protects clothes, for identification purpose, professional look, traditional and to hold books, whereas, those who gave reasons not to wear white coats, were, interference of doctor patient relationship, peer pressure, uncomfortable due to climatic conditions such as excessive hot and humid environment[4]. Similarly in an another study by Vijaylaxmi [5], 62% of pediatricians preferred not

to wear white coats, whereas 87% children (age of 8-15years) or their parents included in the study preferred that pediatrician should wear white coat. India being a tropical country with hot, semi arid/arid climate, temperature here often reaches to 40-45°C especially in summer and hot and humid in rainy seasons particularly in coastal areas[6], hence not only environment itself becomes uncomfortable to bear with, on top of that, wearing of apron leads to a three layer clothing for an individual making it further uncomfortable to work with, and higher the humidity, higher are the chances of increasing quantity of organisms on apron, this may hold also true in other countries with similar climatic conditions. The environment in neonatal nurseries should be maintained around  $28^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , with a relative humidity of 70 - 80%, this may be felt as excessively warm by the personnel working there [7], although this environment is essential for nursing premature babies, but it becomes uncomfortable for personnel working there with apron and without adequate air conditioning especially in summer and rainy seasons. Some patients have higher readings of blood pressure, when measured in Outpatient Department (OPD) or Clinics known as "White coat hypertension" which is defined as the occurrence of Blood Pressure (BP) values higher than normal when measured in the medical environment, but within the normal range during daily life, usually defined as average daytime Ambulatory BP (ABP) or home BP values (<135 mm Hg systolic and <85 mm Hg diastolic) [8-10]. The wearing and cleaning of white coats vary significantly among individual doctors and is said to somewhat dependent on their medical specialties. Potentially pathogenic bacteria such as *Staphylococcus* and *Micrococcus* were isolated

from staff uniform of the participants [11]. Weiner-Well *et al* [12] have found that white coats are colonized with pathogenic bacteria. In a study of 300 health care workers comprising of medical students, physicians and nurses, Gram positive *Bacillus* was the most common organism (79%) on the white coats in a study by Zohra [13]. In a cross sectional study of 149 attendees of medical and surgical rounds *Staphylococcus aureus* was isolated from 23% of the attendees [14]. Of greater concern has been the isolation of the some Methicillin Resistant *Staphylococcus aureus* and Vancomycin resistant *Enterococci* strains from patients and 69% have been on white coats of the medical personnel attending patients. Loh *et al* [15] have found white coats of medical students are contaminated with bacteria, much more heavily than those of residents and attending physicians. Sites with the highest contamination were the sleeves and the pockets. Though, there are several studies stating contamination of white coats of doctors with several types of organisms, studies are lacking, in literature that prove spread of infection from these coats to patients. As regards the hygiene of aprons, Wong *et al* [16] have found no biological reason for changing white coats more than once a week, or for excluding white coats from clinical areas, on the contrary, others recommended regular laundering and leaving the coats in the hospital itself. They encouraged laundering every three days because bacteria counts increased as the duration of use increased. They found that contamination of white coats peaked by the sixth day of use. In a study by Muhadi *et al* [17] it was found that the incidence of *Staphylococcus aureus*, was 32% on short-sleeved and 54% on long-sleeved white coats. *Bacillus* species was the second most common type of bacteria found. A study carried out in Denver, Colorado [18] has in fact concluded that

white coats carry no more risk of infection than regularly laundered standardized short sleeve uniforms which would be seen as the gold standard for infection control. Nonetheless, to decrease any possibility of infection a dress code for health care professionals was initiated by the National Health Service (NHS) [19] in the United Kingdom published in 2007 and updated in 2010 due to its popularity, Uniforms and work wear: Guidance on uniform and work wear policies for NHS employers: It, stated that “Although there is no conclusive evidence that uniforms and work wear play a direct role in spreading infection, the clothes that staff wear should facilitate good practice and minimize any risk to patients.” The report advises that those coming into contact with patients should wear short-sleeved shirts/blouses and avoid wearing white coats of any length due to the sleeves. Society for Healthcare Epidemiology of America (SHEA) [20], in 2014 recommended following for Healthcare Professionals (HCP) on white coats:

1. HCP engaged in direct patient care (including house staff and students) should possess two or more white coats and have access to a convenient and economical means to launder white coats (institution-provided on-site laundering at no cost or low cost).
2. Institutions should provide coat hooks that would allow HCP to remove their white coat (or other long-sleeved outerwear) prior to contact with patients or the patient's immediate environment.
3. Laundering:

A. Frequency: Optimally, any apparel worn at the bedside that comes in contact with the patient or patient environment should be laundered after daily use.

B. Home laundering: If HCPs launder apparel at home, a hot water wash cycle (ideally with bleach) followed by a cycle in the dryer or ironing has been shown to eliminate bacteria.

In nutshell, as the white coat is also adopted by other professionals, the issue of identification of a doctor is already dissolved. Chances of prevention of infection by wearing white coats raises doubts at places where the spread of most of the infective diseases are commonly spread by contact and or fomites. Of course, the question of comfort, due to extreme climatic conditions in tropical countries like India, is important, as discussed above. The role of apron really comes in at particular places, where any medical or surgical procedures are conducted, any exposure to serious and fatal emergencies, highly infectious conditions and handling epidemiological situations, such as Ebola, Swine flu etc., bio-medical sampling in laboratories and for the medical students, it may be prudent to wear apron in experimental laboratories. As there are no studies conducted so far which prove spread of infections from aprons, further research should be augmented in this field. The wearing of apron should be optional and with the precautions as recommended by various professional bodies, societies or organizations. The question of apron for traditional professional look and its use as utility bag is controversial and therefore may be individualized.

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