USE OF PRIVATE OWNED THEATRE WEARS: KNOWLEDGE OF CARE AND PRACTICE IN A LOW-INCOME SETTING

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ABSTRACT

Aim:

To ascertain the knowledge of theatre users on the use of theatre wears and adherence to standard practice in the of care of privately-owned theatre wears.

Background:

The need to strike a balance between reducing the cost of medical care in a dwindling economy, and ensuring prevention of infection transmission has led some hospital administrators to propose and adopt models and hybrids of models of surgical scrubs supply and laundering.

Materials and Methods:

A cross-sectional descriptive questionnaire-based study was carried out among 213 theatre users at a tertiary healthcare center. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0.

Results:

One hundred and fifty-nine (74.6%) theatre users procure their theatre wears and launder it by themselves. Majority of respondents affirmed to having adequate knowledge of care of aprons/boots – 167 (78.4%), and scrubs – 151 (70.9%). In practice, only 107 (50.2%) and 100

(46.9%) theatre users asserted to actually undertaking adequate care of their scrubs and aprons/boots respectively.

Conclusion:

Although most of the respondents asserted to having adequate knowledge of care of theatre wears, fewer number affirmed to actually practicing immediate and adequate care of the theatre wears after use. Practice should measure up with the knowledge of care. The disparity between knowledge and practice of care of theatre wears makes it therefore reasonable not to recommended it in our setting.

Key words: *Theatre wears, Private owned, Knowledge, Practice, Port Harcourt, Nigeria.*

INTRODUCTION

The history of operating theatre and surgical attire has been well documented,[1-3] and the first to use a sterile surgical gown was by a German Surgeon - Gustav Neuber of Kiel.[4] The attire worn by theatre staff has undergone some evolution in nomenclature from the "surgical greens" to "scrubs" coined in 1894 by Dr Hunter Robber, so called because they were worn in "scrubbed" environment.[5] Conventional modern surgical scrub came into routine use in the mid-twentieth century.[4] The principle behind guidelines on modern surgical scrubs, as documented by the American College of Surgeons, (ACS) was based on decorum, professionalism, common sense, and available evidence[6].

There are reports in literature of hospital staff uniforms/surgical scrubs being contaminated in the process of patient care,[7-11] hence some operating room/perioperative associations have developed guidelines to partly address the issue. The Association of Operating Room Nurses (AORN) published guidelines on surgical scrub, which has however been reported to increase healthcare cost without a concurrent reduction on surgical site infection.[12] Some other authorities and guidelines have de-emphasized the policy of home laundered scrubs.[13, 14] Several studies have been conducted on the issue of home and institutional laundry with different results.[5, 14-18] However, the position of the Centre for Disease control on this subject remains "an

unresolved issue".[19] In all, it does appear that the argument in favor of home laundry of surgical scrubs is the absence of evidence of increased risk of surgical site infection.[20]

Sterile surgical instruments, materials and patient-related wears like gowns and patient drapes are supplied by the Central Sterile Supply Department of the hospital, but aprons, boots, and scrubs worn by theatre users are not so provided in this setting. Ensuring safety and infection control forms the cardinal principles for care and maintenance of theatre wears.[21, 22] While aprons and boots are washed and decontaminated/exposed after use, daily washing and re-usage of surgical scrubs is the practice.[11, 23] Deviation from the norm may be associated with some negative consequences.[24, 25] This study aims at ascertaining the knowledge of theatre staff on the care and home laundry of theatre wears, and determining adherence to standard practice in the of use of privately-owned theatre wears.

METHODOLOGY

The study was carried out over three months from December 2019 to February 2020, at the University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria. The study instrument; a self-administered semi-structured questionnaire, was pre-tested in a similar work environment and corrections were made before commencement of study. Using the convenience sampling method, all health staff who gave their consent were included in the cross-sectional descriptive study done among theatre users (doctors, nurses, and other health staff) with self-administered semi-structured questionnaires.

The knowledge of the theatre users on the care of aprons, boots, and surgical scrubs were evaluated using the following stem questions: Do you know how theatre scrubs, boots and aprons are cared for? How should you take care of boots / aprons / scrubs after use? Does the health status of the patient affect how you care for the patient? Do you know about closed, open and semi-closed systems of care of theatre scrubs, aprons and boots? Similar questions were framed to ascertain what the

theatre users actually do in practice on the care of scrubs, aprons, and boots after use.

The projected number of theatre users was about 300. A total of two hundred and thirty (230) questionnaires were distributed using the convenience sampling method. Two hundred and thirteen (213) questionnaires were retrieved and analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0.

RESULTS

A total of 213 respondents who were doctors, nurses, students, and technicians were included in the survey. The demographic characteristics of the respondents summarized in Table 1.0 indicated that 84 (39.4%) were females and male respondents were 129 (60.6%).

Table 1: Socio-demographic characteristics of theatre users (respondents) (n = 213)

Variables	Frequency	Percentage
Sex		
Male	129	60.6
Female	84	39.4
Age		
16- 24 Years	24	11.2
25- 34 Years	56	26.3
35 - 44 Years	65	30.5
45 - 54 Years	54	25.4
55 - 64 Years	14	6.6
Marital Status		
Single	98	46.0
Married	115	54.0
Years in service		
Less than 1 Year	30	14.1
1-3 years	18	8.5
4-6 years	27	12.7
7-10 years	67	31.5
More than 10 years	71	33.3
Health staff category		
Medical Doctor	96	45.1

Nurse	56	26.3
Student	24	11.2
Others (Anesthetic Technician, laboratory staff etc.)	37	17.4

The productive age groups of 25 to 54 constituted 175 (82.2%) of the respondents. One hundred and thirty-eight (64.8%) respondents had spent seven years or more in service. Nearly half of the respondents (45.1%) were medical doctors.

Whereas the majority of respondents asserted to having adequate knowledge of care of aprons/boots – 167 (78.4%), and scrubs – 151 (70.9%), in actual practice, a far less percentage of them actually reported the correct practice (Table 2). From table 3, majority of respondents – 159 (74.6%) personally provided theatre scrubs by themselves.

Table 2: Knowledge and practice of theatre scrub, boots and apron are cared for (n = 213)

S/No	Variables	Yes	No
1	Claim of adequate knowledge of care of aprons and boots	167 (78.4%)	46 (21.6%)
2	Claim of adequate knowledge of care of theatre scrubs	151 (70.9%)	62 (29.1%)
3	Actual practice of immediate laundry of scrubs after use	107 (50.2%)	106 (49.8%)
4	Actual practice of immediate laundry of boots and aprons after use	100 (46.9%)	113 (53.1%)

Table 3: Source of Procurement of Theatre Wears (n = 213)

Variables	Frequency	Percentage
How theatre scrubs were obtained		
Provided by Staff	159	74.6
Provided by the Hospital	13	6.1
Provided by both	38	17.8
Don't Know	3	1.4

DISCUSSION

There are different models of laundering of operating room scrubs. The open system of laundry of operating room scrubs could be described as one in which the entire theatre users provide and launder their scrubs outside the hospital environment. When the wears of all operating theatre users are provided and laundered within the same hospital setting, it could be regarded as a closed system. This model ensures maintenance of standard care as it is done centrally and not by individual staff. With this model, the benefit of regular changes can be ensured as some studies revealed that there is a significant airborne bacterial level reduction with changing into a clean surgical scrub.[19, 26, 27] If some members of the operating team (for example perioperative staff) provide for and launder their scrubs by themselves (probably at home) it could be regarded as a semi-closed system. This nomenclature for theatre wears is similar to models of administration described earlier for the intensive care unit.[28-31]

Advocacy has been made against home laundry of operating room scrub for risk of infection transmission to home environment,[32] since studies have shown that pathogens in operating room environment are found on clothing of operating personnel.[7-11] The supposed advantages of this system are that it reduces administrative cost and lessens the workload on hospital laundry unit. Broussard & Kahwaji[33] chronicled the evolution of guidelines on infection control measures from universal precautions by Centre for Disease Control on HIV-related issues[34,35] to standard precautions[36, 37] and beyond. Aprons and boots are emphasized as personal protective equipment (PPE) in some of these guidelines, and lack of organizational support in providing PPE among others, has been reported as a barrier to compliance with standard precautions.[37]

The demographic characteristics of the participants in this study showed that all categories of theatre users were recruited and majority of them had been in the service of the institution for seven years or more. Also, almost half of the participants were medical doctors (surgeons and anesthesiologists) who are at the top hierarchy of service delivery in the theatre, and are therefore expected to have good knowledge and practice concerning

home care of theatre scrubs, boots and aprons. This study shares some similarity with a study done in Rwanda.[38]

This study showed that majority of the respondents self-procured and care for their theatre wears. This implies that there may be no uniformity in the care (cleaning, decontamination, and exposure to dry) of these theatre wears. Majority of theatre users asserted to knowing how to care for their theatre wears. However, nearly half of the respondents, 106 (49.8%) did not actually practice immediate and adequate laundry of their theatre boots, aprons, and scrubs. These findings are similar to the reports of another study in Rwanda Africa, where the knowledge of personal protective equipment was high but the practice was poor.[38]

It has been reported that operating uniform is a potential source of infection, and that this risk increases with time.[10, 19, 39] This significantly increases operating room air contamination.[26, 27] There have been reports of outbreaks of infection traceable to hospital staff theatre wears and others, with negative consequences to patients.[19, 40-43] However, a non-systematic review showed that there is no significant risk for surgical site infection.[20] This study reveals the inadequacy of this practice of private owned theatre wears as it demonstrates that a significant number of respondents, many of whom were doctors and had worked for more than 7years, did carry out the correct practice of: rinsing with water, cleaning with antiseptic, and exposure to dry for aprons and boots; and washing with soap and water / dry cleaning, exposure to dry, and ironing for theatre scrubs.

Use of private owned theatre wears is still being practiced mainly because of convenience to the health institutions. The need to strike a balance between reducing the cost of medical care in a dwindling economy, and ensuring prevention of infection transmission has led some hospital administrators to propose and adopt models and hybrids of models of surgical scrubs supply and laundering. This is especially the case in some developing economies with limited resources where home laundry of surgical scrubs is allowed or adopted as a policy. Though there is no concrete evidence of increased risk of surgical site infection, challenges of the open system and the impact

on individual users and the home environment seem to have been downplayed.

The limitations of this study are use of non-random sampling method (convenience) to select participants, and use of questionnaires which relies on the opinions of theatre users. Another study that directly and covertly observe theatre users in the process of caring for the wears (for those who do so in the hospital environment after use) may be more informative. A different study where microbiologic samples are taken from these theatre wears would also be helpful.[25]

CONCLUSION

This study found out that majority of theatre users procured their theatre wears and laundered it by themselves. Although most of the theatre users asserted to having knowledge of care of theatre wears, fewer number actually practiced immediate and adequate care of the theatre wears after use. Practice should measure up with the knowledge of care. Although studies have shown no direct association between this practice and surgical site infection, it may be associated with outbreaks of infection to both hospital staff and patients. Also, since there is no guarantee of adequate individual laundering of theatre wears even by the experienced members of theatre users in our environment, it is therefore reasonable not to recommended it in our setting.

Conflict of Interest: None

Ethical Statement: The approval of the research ethics committee of the University of Port Harcourt Teaching Hospital was obtained before the study was done.

Funding: The study was privately sponsored by the researchers.

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