

# Patient attitudes toward the use of surgical scrubs in a military hospital clinic

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**Objective:** To determine whether obstetrics and gynecology (ob/gyn) patients in a large military teaching hospital have a negative attitude toward the wearing of surgical scrubs by ob/gyn providers.

**Methods:** A convenience sample questionnaire on patient preferences, including two questions relating independently to military and civilian staff attire, was offered to clinic patients over a 2 month period. Univariate and multiple logistic regression analyses were used to identify patient groups less accepting of the surgical scrubs in clinics.

**Results:** Over ninety-one percent of respondents viewed surgical scrubs with a white coat to be acceptable clinical attire for military or civilian providers. Eight percent preferred the more formal uniform or business dress. Non-white and Hispanic patients had higher rates of preference for more formal dress.

**Conclusions:** The majority of ob/gyn patients surveyed did not view the use of surgical scrubs with a white coat negatively.

**Keywords:** physician attire, patient satisfaction, surgical scrubs

Patient attitudes and preferences concerning provider attire have been studied in several venues. Some researchers have shown a preference among adult patients for physician use of a white coat (Dunn et al 1987; Gjerdingen et al 1987; Colt and Solot 1989; Marino et al 1991; Cha et al 2004). Others have suggested that the white coat may provoke increased patient anxiety or serve as a barrier to communication (Lowes 1996; Ikusaka et al 1999). Most groups of patients prefer a more formal attire by their provider and are less approving of casual dress (Dunn et al 1987; Gjerdingen et al 1987; Colt and Solot 1989; Marino et al 1991; McKinstry and Wang 1991; Ikusaka et al 1999; Patterson et al 2003), while adolescent and pediatric patients may prefer more casual attire (Neinstein et al 1985; Barrett and Booth 1994). The majority of patients in an emergency room setting had no opinion concerning physician use of surgical scrubs (Colt and Solot 1989), while family practice residency program patients had a negative view of surgical scrubs (Gjerdingen et al 1987). Recently, Cha and colleagues (2004) showed that the wearing of surgical scrubs, with a white coat, by resident obstetrics and gynecology (ob/gyn) house staff, was the patient preference for physician dress.

Usual attire in the military clinic is a military uniform or surgical scrubs for military staff or business dress (shirt/tie/dress/slacks/skirt) or surgical scrubs for civilian provider staff. A white coat is often worn with the uniform and is usually mandated with surgical scrubs when worn outside of the operating room or a procedural environment. A command preference for the military uniform or civilian business-dress attire is usually advocated and often assumes patient preference. The questions on

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physician attire were included in our survey to determine whether ob/gyn patients in the military clinic/hospital setting have a positive or negative view of the use of surgical scrubs by their ob/gyn provider.

## Materials and methods

Over a 2-month period, women receiving ob/gyn services at Naval Medical Center, San Diego, CA completed a two page questionnaire relating to patient preferences and priorities. The primary endpoint of our initial study was to evaluate patient gender preference for ob/gyn providers (Lund et al 2005). Two questions on the survey also related to patient attitudes toward provider attire and are presented as a secondary endpoint in our current paper. The questionnaire was formatted on a two-sided standard automated data form and offered to patients receiving ob/gyn care at all of the department clinics, as well as to antepartum and postpartum inpatients. With receipt of the survey, each patient also received written and verbal explanations and instructions by clinic staff. Patients previously completing a questionnaire at any location were excluded from repeat sampling. The survey was approved by our Institutional Review Board without any written consents required.

Responses indicating no preference were combined with those preferring scrubs to evaluate the assumption that patients have a strong preference for more formal provider attire. Two-way tables were used to test association between each independent variable and the dependent variable (scrubs acceptable attire). Univariate chi-square tests were used to test for an association. Independent variables were combined into a multiple logistic regression model to test for independent relationships. One variable (duty status) was dropped from the model due to its strong association with age. All other independent variables were retained in the model.

## Results

This survey represents a diverse patient population (Table 1). Seventy percent of respondents were aged 20–39 years with 80% of the families represented being on active duty. Fifty-one percent were white with similar distributions of Asians (14%), African Americans (15%), and Hispanics (14%). The rank distribution was junior enlisted (29%), middle and upper enlisted (52%), junior officer (8%), and middle and upper officer (11%). Seventy-three percent were wives and 3% daughters of service members, whereas 24% were active duty members.

Two questions about wearing scrubs were included in this survey. Subjects were asked “If your provider is military,

**Table 1** Survey demographics

Variable	N	%
<b>Age</b>		
<20	104	6.8
20–29	704	45.8
30–39	373	24.2
40–49	164	10.7
50 and above	193	12.5
<b>Race/Ethnicity</b>		
African American	227	14.9
Asian	209	13.7
Hispanic	209	13.7
Pacific Islander	57	3.8
White	775	50.9
Other	45	3
<b>Rank</b>		
E1–E4	435	29.2
E5–E6	551	37.0
E7 and above	229	15.3
O1–O3	117	7.9
O4 and above	157	10.6
<b>Duty status</b>		
Active duty	1214	79.8
Retired	307	20.2
<b>Relation to service member</b>		
Self	372	24.4
Wife	1107	72.7
Daughter	43	2.9

**Abbreviations:** E, Enlisted; O, Officer.

do you prefer?” Possible answers were: “Uniform with lab coat,” “Surgical scrubs with lab coat,” or “No preference.” Subjects were also asked “If your provider is civilian, do you prefer?” Possible answers were: “Business clothes and lab coat (Shirt/tie, dress-slacks/skirt),” “Surgical scrubs with lab coat,” or “No preference.” For military providers over 83% of the respondents indicated they had no attire preference (Table 2). These responses were then recoded to reflect whether scrubs were acceptable by combining the second and third answers for each question. Of the 1544 surveys submitted, 1522 answered the question relating to military providers, 1490 the question concerning civilian providers, and 1481 responded to both. Over 91% of respondents to either question considered the use of surgical scrubs acceptable attire. Of the 1481 participants completing both of the above questions 96.9% of those who said scrubs were acceptable for military staff also said that scrubs were acceptable for civilian staff.

Univariate analysis of independent variables revealed a significant lack of acceptance for the use of surgical scrubs by age, race, and rank (Table 3). Younger patients were more

**Table 2** Military provider attire preference

	Military		Civilian	
	N = 1522	Total (%)	N = 1490	Total (%)
No preference	1265	83.1	1207	81.0
Prefer surgical scrubs with lab coat	132	8.7	171	11.5
Prefer uniform with lab coat	125	8.2	112	7.5

accepting of the use of scrubs while Asians and more senior enlisted were less accepting. Multiple logistic regression analysis was used to estimate adjusted odds ratios for the independent variables (Table 4). Asian, African American, and Hispanic patients had lower odds of accepting the use of scrubs than white women. Age, marital status, relationship of the patient to the active duty member, and rank, were not significant predictors for accepting the use of scrubs in the multivariate model.

## Discussion

By dichotomizing the responses into “negative (prefer uniform/business-dress)” versus “not negative (prefer scrubs and

**Table 3** Independent variable analysis of surgical scrubs acceptance

Variable	Accepting (%)	Not accepting (%)	P-value
<b>Age</b>			0.01
<20	95.0	5.0	
20–29	94.1	5.9	
30–39	88.6	11.4	
40–49	91.3	8.8	
50 and above	88.2	11.8	
<b>Race/Ethnicity</b>			<0.01
African American	91.2	8.8	
Asian	79.4	20.6	
Hispanic	91.8	8.2	
Pacific Islander	94.7	5.3	
White	94.7	5.3	
Other	95.2	4.8	
<b>Rank</b>			0.02
E1–E4	94.4	5.6	
E5–E6	90.8	9.2	
E7 and above	87.9	12.1	
O1–O3	94.0	6.0	
O4 and above	89.7	10.3	
<b>Duty status</b>			0.19
Active duty	91.9	8.1	
Retired	90.9	9.1	
<b>Relation to Service member</b>			0.66
Self	93.5	6.5	
Wife or daughter	91.1	8.9	

**Abbreviations:** E, Enlisted; O, Officer.

no preference)” (Table 3) we have shown that the majority of our patients do not view wearing surgical scrubs with a white coat in the clinical setting as negative. While others have shown a favorable response to scrubs (Cha et al 2004), we have simply shown that our patient population is accepting of the option. Others have also shown that most patients desire a certain degree of professionalism in the attire of their health care providers (Dunn et al 1987; Gjerdingen et al 1987; Colt and Solot 1989; Marino et al 1991; McKinsty and Wang 1991; Ikusaka et al 1999; Patterson et al 2003). Our results appear to show that the wearing of surgical scrubs with a white coat meets this expectation in our patients. These findings are consistent with those of Cha and colleagues (2004).

While the majority of respondents do not view surgical scrubs negatively, approximately 8% have a preference for the more formal attire. Although univariate analysis indicated more negative feelings towards the use of scrubs among older patients, more senior ranks, and in nonwhite and Hispanic groups (Table 3), the multivariate model showed significance only in the latter (Table 4). These findings would be at variance with a study by McKinstry and Wang (1991) which showed that older age and higher social status predicts a preference for the more “traditional” attire. Since our options all included the use of the white coat we conclude that the apparent small racial preferences for greater formality are independent of the physician’s coat. This increased racial preference in our study is strongest among the Asian category and may reflect a cultural characteristic preferring greater formality or preference for military professionalism.

Our results show that the wearing of surgical scrubs with a white coat is not viewed negatively by the majority of our patients. Since this acceptance of surgical scrubs with a white coat was demonstrated in several subgroups these findings may also be applicable to nonmilitary populations with similar demographic distributions. Although the majority of patients are accepting of scrubs and a white coat, providers should be sensitive to the fact that some nonwhite patient categories, particularly Asians, have a preference for the military uniform or more formal civilian dress. The degree of racial diversity within a population and the intensity of their preferences would determine the overall impact on patient satisfaction.

The results of our survey should be viewed with some caution since they were obtained from ob/gyn patients in a large military hospital/clinic and, therefore, may not be applicable to all patient settings. In spite of this limitation

**Table 4** Unconditional logistic regression of independent variables

Variable	Odds ratio	95% C.I.	P-value
<b>Age</b>			
Less than 20	1.76	0.64–4.86	0.27
20–29	1.57	0.94–2.64	0.09
30–39	1.00	–	–
40–49	1.48	0.77–2.87	0.24
50 and above	0.89	0.49–1.62	0.71
<b>Race/Ethnicity</b>			
African American	0.50	0.28–0.89	0.02
Asian	0.22	0.13–0.36	<0.01
Hispanic	0.53	0.29–0.98	0.04
Pacific Islanders	0.95	0.28–3.20	0.93
White	1.00	–	–
Other	1.13	0.34–3.78	0.85
<b>Rank</b>			
E1–E4	1.00	–	–
E5–E6	0.79	0.45–1.40	0.42
E7 and above	0.70	0.34–1.41	0.32
O1–O3	1.11	0.44–2.81	0.82
O4 and above	0.58	0.25–1.31	0.19
<b>Relation to service member</b>			
Self	1.00	–	–
Wife or daughter	0.84	0.48–1.47	0.53

**Notes:** Adjusted for duty status and relation to service member.

**Abbreviations:** E, Enlisted; O, Officer.

we feel that the results may be valuable in adding further insight into patient preferences relating to provider attire. Another limitation of this study is the potential lack of clarity of survey choices since pictures were not provided to participants as in the study by Cha and colleagues (2004). While this is a possibility, we consider the impact small in this military population since the choices are limited and the contrast clearly implied. To eliminate a bias towards “no preference” in the case of patient ambiguity an interesting feature for future study would be to eliminate the “no preference” option.

Although patient preferences are important in establishing guidelines for appropriate physician/provider attire, we acknowledge that additional considerations may be important. Particularly, in a military hospital setting, command discipline and “esprit de corps” may best be facilitated by more formal dress considerations. These same concerns may also prompt more structured dress codes in some residency training programs.

## Disclosure

The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government. The authors report no conflicts of interest.

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