

A Case Study :

A study of surgical gown requirement

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ABSTRACT

Surgical gowns are worn by doctors and nurses in the operating theatre to address a dual function of preventing transfer of microorganisms and body fluids from the operating staff to the patient, and also from patient to staff. Many of the performance requirements for surgical gowns are well documented. Surgical gowns must repel diseases and infections yet provide adequate freedom to move. The gowns must control the bacteria released into the theatre and aid in maintaining the sterile zone required for patient safety. They must provide for easy donning and doffing without contamination, yet not have openings where the barrier might be breached

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Successful creation of functional apparel products requires a disciplined, structured approach to design and development (Slater, 1998). An effective, integrated approach progresses through investigation of the design problem, delineation of design requirements and critical analysis of those requirements before arriving at a design solution. This is the best accomplished through four major thrusts. The first two, materials analysis and design analysis, initiate the process in a manner consistent with that described by Watkins (1995). The latter two thrusts, design development and evaluation, move in the direction of the design solution. This paper will focus on the design analysis component of the functional design process using a surgical gown case study to illustrate.

It seems appropriate to preface discussion of design analysis with a clarification of the term "functional apparel". All apparel items must meet minimal functional requirements including being supported by the body and allowing some degree of body movement. Likewise, all apparel products meet at least a minimal range of aesthetic requirements such as colour and texture. Therefore, it is helpful to envision apparel products as existing at some point along an aesthetic to functional continuum, where the location along the continuum reflects the balance of requirements. Examples of three common products clarify the continuum. Those items considered to be functional apparel, such as a surgical gown, have requirements dominated by performance needs and are located near the functional end of the continuum.

For present study, hospitals were selected from areas of Indore city. Different areas of Indore has been covered for sample cloth market hospital at Gangwal Bus Hospital, Bafna Hospital at Rajmohalla, Verma Union Hospital at Dhar Road, M. Y. Hospital, Nirmal Hospital at Rajendra Nagar. And 25 doctors were selected for the study and the sample was divided in 5 groups. There were several ways of collecting the data but the survey, interview observation were selected as method for study.

After the data have been collected, they were processed and analyzed under the following heads:

The results depicted in Table 1 show that 84 per cent doctors were satisfied with surgical gowns, while 16 per cent are not satisfied with surgical gowns.

The result depicted in Table 2 show that 100 per cent doctors used surgical gowns for their body safety.

The results depicted in Table 3 show that 100 per cent doctors preferred green and blue in surgical gown for the peaceful atmosphere.

It is clear from Table 4 that 12 per cent doctors were of opinion to change colour of surgical gowns while 88 per cent doctors did not want to change colour of surgical gowns.

The results of Table 5 indicate that 28 per cent doctors wanted to change in surgical gown and 72 per cent doctors did not want change of size in surgical gown.

The results depicted in Table 6 show that 24 per cent doctors wanted some change in fitting in surgical gown, while 76 per cent doctors did not want the change

Table 1 : Satisfaction with surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	5	3	4	5	4	21	84
No	-	2	1	-	1	4	16

Table 2 : Use of surgical gowns for body safety							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	5	5	5	5	5	25	100
No	-	-	-	-	-	-	-

Table 3 : Colour choice of surgical gowns							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Peaceful	5	5	5	5	5	25	100
Easy to clean	-	-	-	-	-	-	-

Table 4 : Change of colour in surgical gowns							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	-	2	-	1	-	3	12
No	5	3	5	4	5	22	88

Table 5 : Change of size in surgical gowns							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	-	2	2	1	2	7	28
No	5	3	3	4	3	18	72

Table 6 : Change of fitting in surgical gowns							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	1	3	1	-	1	6	24
No	4	2	4	5	4	19	76

of fitting of surgical gown.

The results of Table 7 clearly show that 100 per cent doctors were of the opinion for not any change of sleeves of surgical gowns.

gowns fastness.

The results presented in Table 9 show that 28 per cent doctors wanted some change in colour in surgical gowns and 72 per cent doctors did not want any change

Table 7 : Change of sleeve in surgical gowns							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	-	-	-	-	-	-	-
No	5	5	5	5	5	25	100

The results depicted in Table 8 show that 84 per cent doctors were satisfied with surgical gowns fastness, and 16 per cent doctors were not satisfied with surgical

in colour of surgical gowns.

The results depicted in Table 10 show that 32 per cent doctors wanted change in material and 68 per cent

Table 8 : Satisfaction with surgical gown fastness							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	5	3	5	4	4	21	84
No	-	2	-	1	1	4	16

Table 9 : Change of colour in surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	1	1	2	1	2	7	28
No	4	4	3	4	3	18	72

Table 10 : Change in the material of surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	-	2	1	2	3	8	32
No	5	3	4	3	2	17	68

Table 11 : Comfort in wearing the surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	5	2	4	4	4	19	76
No	-	3	1	1	1	6	24

Table 12 : Choice of open front in surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	-	-	-	-	-	-	-
No	5	5	5	5	5	25	100

Table 13 : Choice of length in surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	1	3	2	-	2	8	32
No	4	2	3	5	3	17	68

Table 14 : Cleaning of surgical gown							
Hospitals	Bafna	Verma	M.Y.H	Nirmal	Cloth market	Total	Percentage
Yes	5	2	3	1	3	14	56
No	-	3	2	4	2	11	44

doctors did not want any change in material.

The results depicted in Table 11 show that 76 per cent doctors feel comfortable to wear surgical gowns and 24 per cent doctors did not feel comfortable to wear surgical gowns.

The results of Table 12 show that 100 per cent doctors did not want open front in surgical gowns.

The results presented in Table 13 show that 32 per cent doctors wanted the change in length in surgical gowns, while 68 per cent doctors did not want to change any length in surgical gowns.

The results depicted in Table 14 show that 56 per cent doctors used to keep their gown by washing and 44 per cent doctor disposed their surgical gown after use.

Conclusion :

The data accumulated in the design analysis of existing products provides a firm foundation for

undertaking products redesign, the next step in the design process is to examine the data for relationship between structures, measurement and fit evaluation. Each learning from the analysis helps to define products requirements and informs the design and development process.

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