" **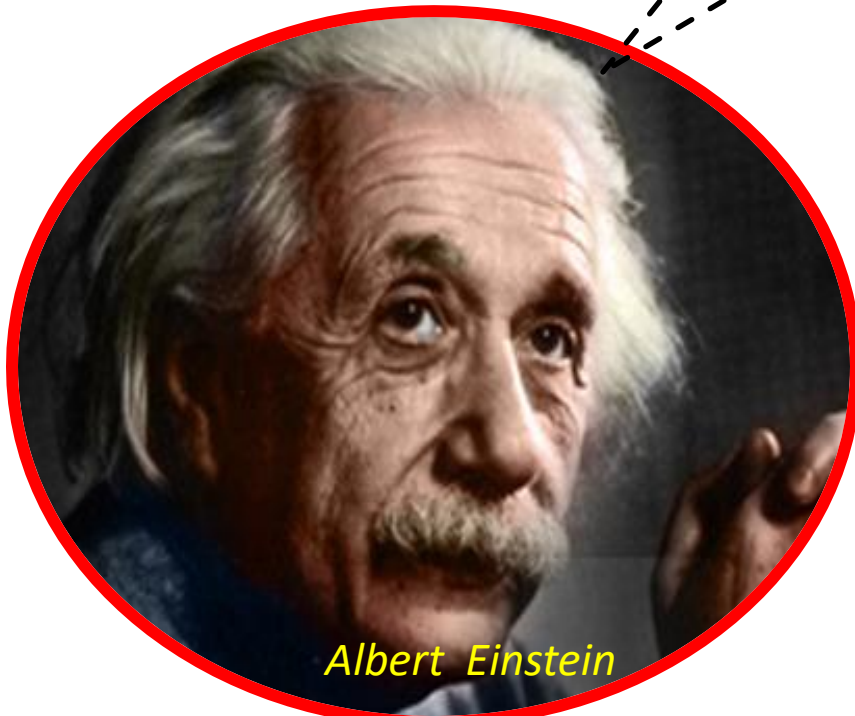It is not possible to solve the problem at the same level it originated. You need to rise above this problem, up to the next level to see it from other perspective"**
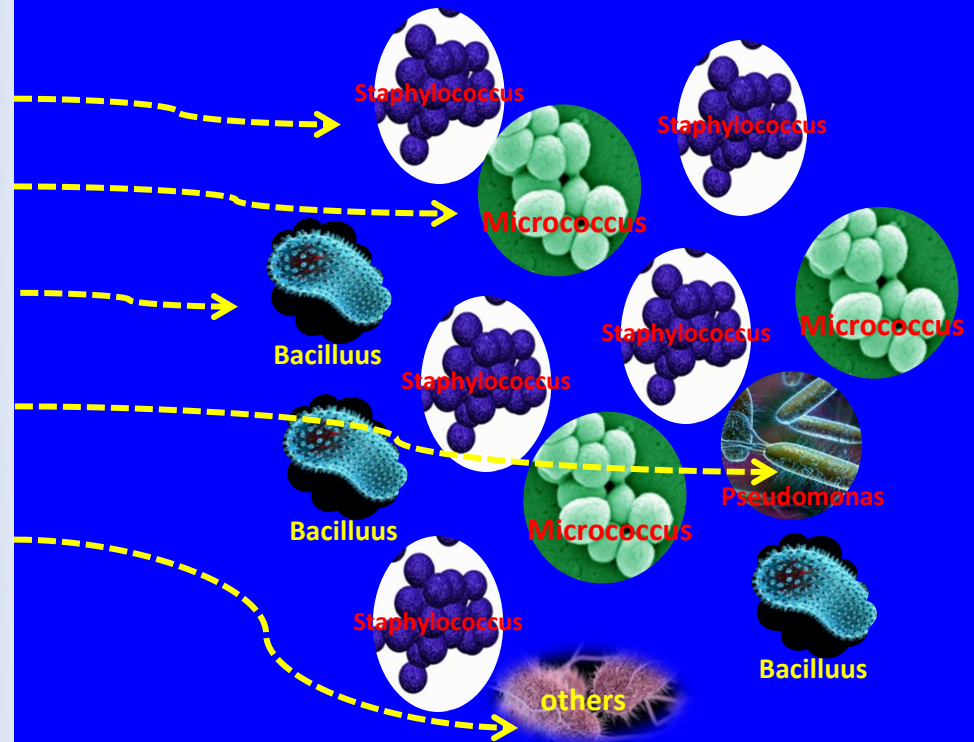
Albert Einstein

Hospital Acquired Infection:
One of the biggest Challenges.

Common Organisms found on Hospital linen

Genus	Number(%) of Samples
Staphyloccus	35%
Micrococcus	31%
Bacillus	7%
Pseudomonas	7%
Other Gram –ve Bacilli	11%
Other Gram +ve Bacilli	1%
Other moulds	6%
Not Identified	8%

Staphylococcus
Staphylococcus
Micrococcus
Micrococcus
Bacilluus
Staphylococcus
Staphylococcus
Bacilluus
Pseudomonas
Micrococcus
Staphylococcus
Bacilluus
others

Hospital Linen

Hospital Linen -a potential reservoir for microorganisms & could be a vector for disease transmission.

Each day different colored bed sheets in public hospitals : A Government of India's Initiative. (April-2016)

V I B G Y O R

"VIBGYOR" Color coding policy for bed sheets by Haryana Government in all it's district hospitals since 19th Dec 2016 .

VIBGYOR: An Empirical Analysis of Color Coding Hospital Bed Sheets, at a District Hospital of North India.

Dr.Prachi Verma* Dr.Payal Puri**,Dr.Veena Singh**Dhruv Sharma

Research Scholar Punjabi University, Patiala,
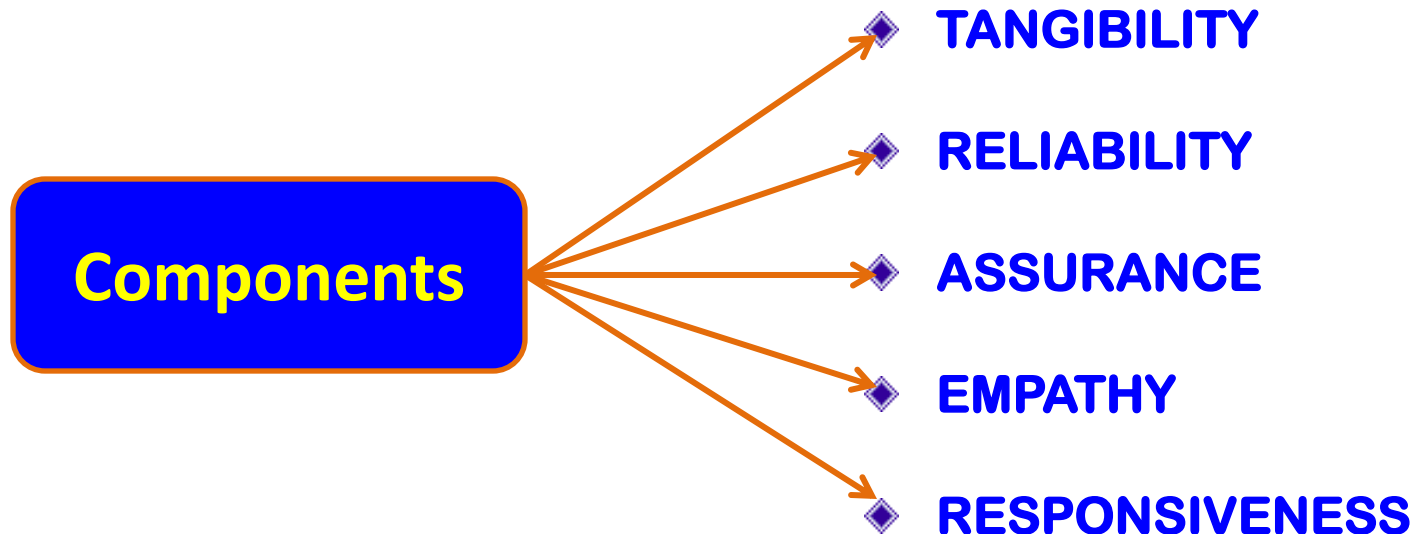
**District Hospital Panchkula, Haryana*

Objectives:

V	**MONDAY**
I	**TUESDAY**
B	**WEDNESDAY**
G	**THURSDAY**
Y	**FRIDAY**
O	**SATURDAY**
R	**SUNDAY**

- **To observe the difference in complaints regarding patient bed sheets before and after color coding bed sheets.**

- **To measure satisfaction levels with color coded bed sheets with various employees of hospital.**

- **To do service quality assessment of color coded bed sheets at the hospital.**

- **To know the functional problems and suggest improvement measures.**

SERVEQUAL MODEL
Service Quality Assessment Model

◆ **Developed by Parasuraman,Zeithmal et al. in 1988**

◆ **SERVEQUAL is considered as a robust scale for measuring service quality for service sectors.**

Components

→ **TANGIBILITY**

→ **RELIABILITY**

→ **ASSURANCE**

→ **EMPATHY**

→ **RESPONSIVENESS**

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Methodology-Questionnaire Design

- A modified questionnaire was designed based on the standard SERVQUAL Model .

- A total of 22 questions were included under the five headings: Tangibility, Reliability, Assurance, Empathy and Responsiveness.

- Views were collected regarding the satisfaction level of the respondents also.

Hypothesis Building

H1: There is a positive relation of service quality with satisfaction.

H1a-Tangibility is positively related to customer satisfaction.

H1b-Reliability has positive relation with staff satisfaction.

H1c-Assurance has positive relation with staff satisfaction.

H1d-Empathy has positive relation with staff satisfaction.

H1e-Responsiveness has positive relation with staff satisfaction.

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Hypothesis Continued

H2: All the determinants of service quality have significant impact on satisfaction.

H2a-Tangibility has a significant impact on staff satisfaction.

H2b-Reliability has a significant impact on staff satisfaction.

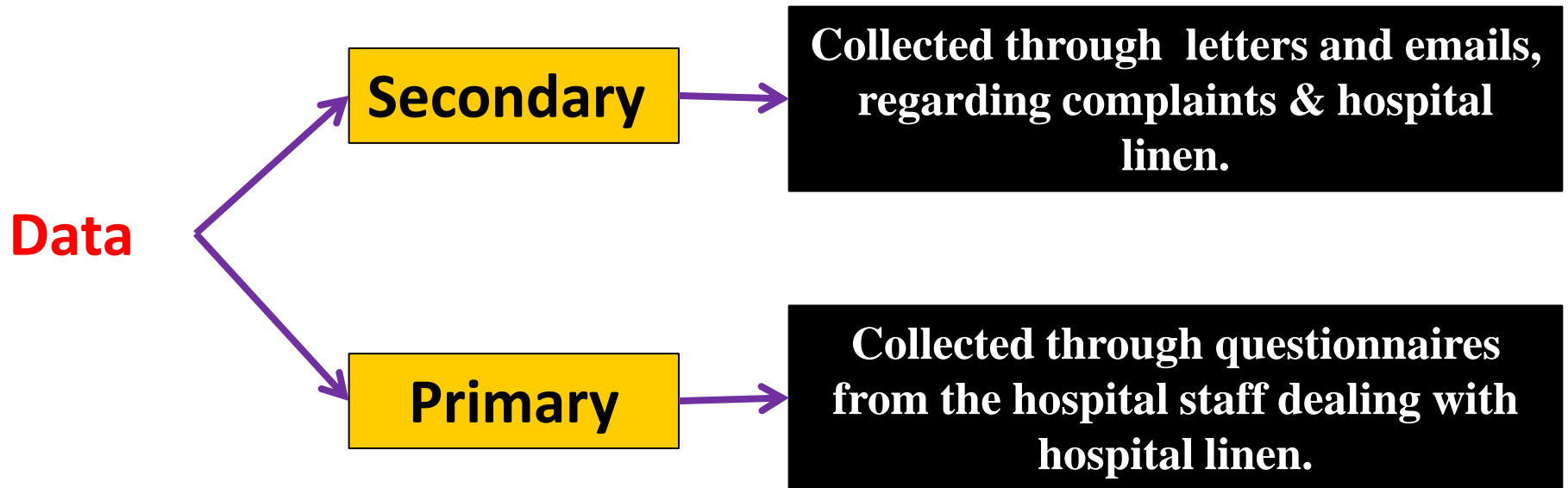H2c-Assurance has a significant impact on customer satisfaction.

H2d-Empathy has a significant impact on satisfaction.

H2e-Responsiveness has a significant impact on satisfaction.

Data Collection

District Hospital, Panchkula, Haryana –A 350 bedded hospital

Data

Secondary → Collected through letters and emails, regarding complaints & hospital linen.

Primary → Collected through questionnaires from the hospital staff dealing with hospital linen.

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Data Collection

Final Analysis done on 90 questionnaires.

Rejected questionnaires=7

Total questionnaires received back:97

Total questionnaires distributed.=110
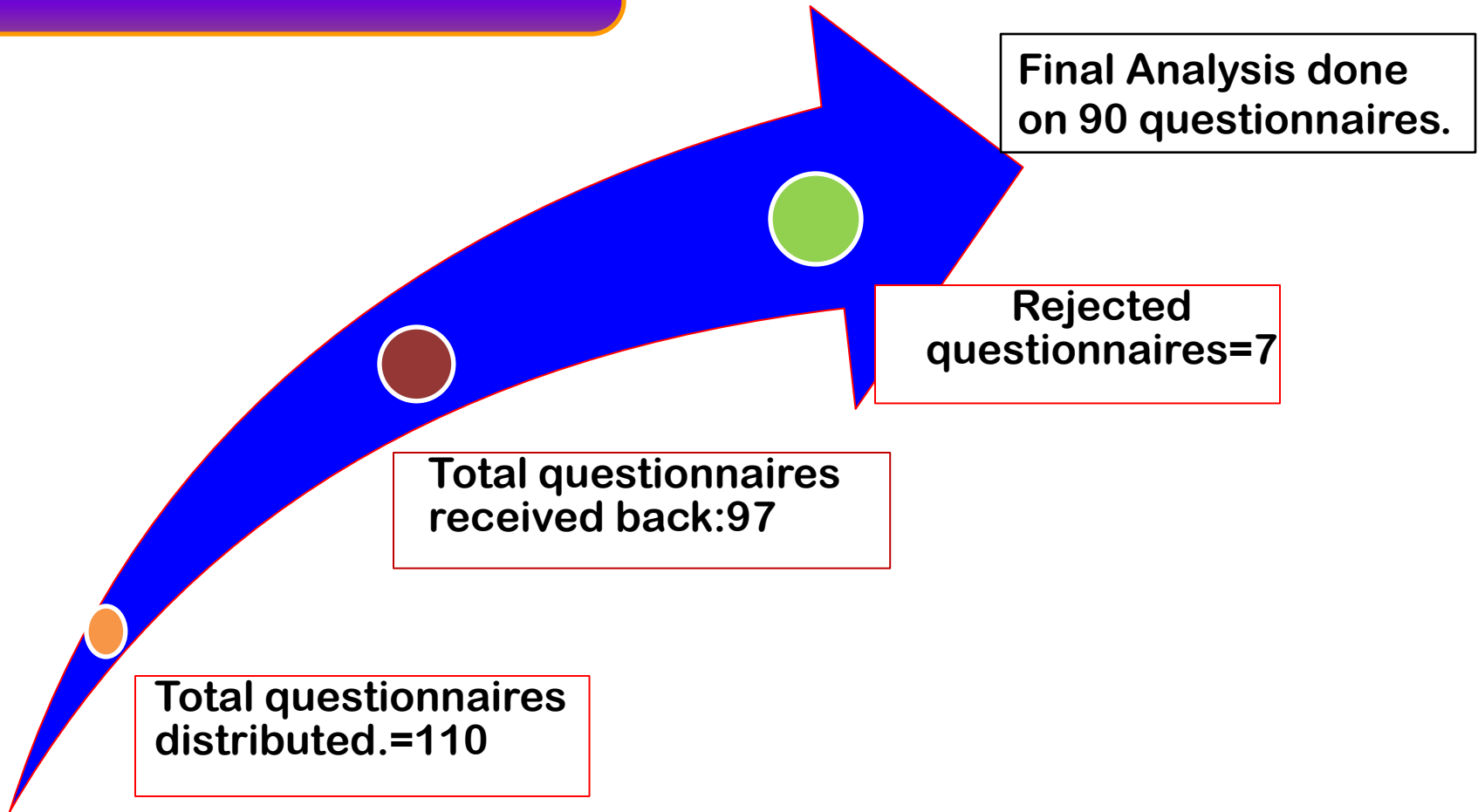
Scale used : 5 point Likert Scale.

Observations & Results

Complaints Regarding Hospital Linen

- Torn and unclean bedsheets — 58%
- Short Supply — 25%
- Poor Laundry Services — 17%

V I B G Y O R
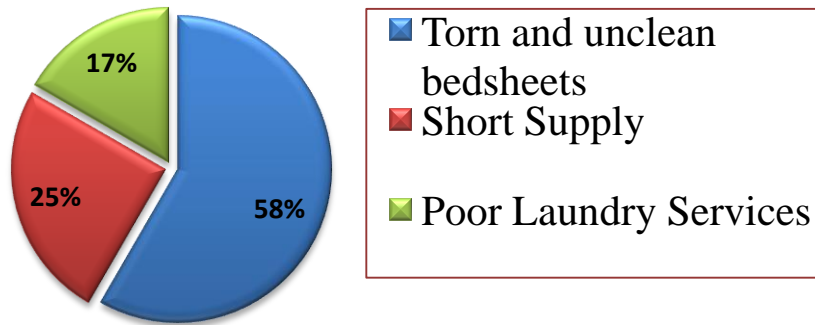
➡ **No Complaints reported.**

Reliability of the Measurement Scale

Antecedents	Cronbach Alpha α	No. of items
Tangibility	0.704	2
Reliability	0.892	5
Assurance	0.637	5
Empathy	0.475	3
Responsiveness	0.800	5
Satisfaction	0.641	2

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Mathematical representation of the research model

- $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon_1$

- Y= Overall Satisfaction.

- X1, X2, X3, X4, X5=Various determinants of service quality.

- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$=Co-efficients of service quality.

- ε_1=Error

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Correlation

Correlation Matrix-Satisfaction level of the Staff.

	S	T	Re	E	RP	A
Satisfaction	1					
Tangibility	.763**	1				
Reliability	.780**	.789**	1	.	.	
Empathy				1		
Responsivene						
Assurance						

Hence H1 is accepted **as H1a,H1b,H1c,H1d & H1e have shown a positive association between determinants of service quality and satisfaction.**

Regression

Regression-Service Quality Assessment

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.873[d]	.762	.751	.39485

H2 is partially accepted as all the service quality determinants do not have significant impact upon satisfaction.Therefore,H2b,H2c,H2d & H2e are accepted ..While H2a is rejected.

Step Wise Regression Analysis:

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics			
		B	Std. Error	Beta			Zero-order	Partial	Tolerance	VIF
4	(Constant)	-.998	.322		-3.103	.003				
	Re	**.414**		**.088**		**.388**	.455	.414	2.416
							.389	.608	1.644
							.304	.688	1.453
	Rp	.249	.099	.218	2.513	.014	.758	.263	.374	2.675
Predictors: Reliability,Empathy,Assurance,Responsiveness.										
a. Dependent Variable:S										

Analysis of Variance

	ANOVA					
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
4	Regression	42.404	4	10.601	67.996	.000ᵈ
	Residual	13.252	85	.156		
	Total	55.656	89			
d. Predictors: (Constant), mean Re, mean E, mean A, mean Rp						
e. Dependent Variable: means						

The table shows that the independent variables statistically significantly predict the dependent variable, i.e. customer satisfaction, $F_{(4, 85)} = 67.996$, $p < 0.01$ which indicated that the regression model is a good fit of the data and the variation explained by the model is not due to chance.

Functional problems

- **More number of sheets are required.**

- **Lack of storage space.**

- **Different sizes of bed sheets are required for special wards.(Eg.Pediatric)**

Picture Gallery

Take Home Message

- **Color coded bed sheets** is a successful way to ensure daily changing of bed sheets.

- **Hospital staff has shown significant level of satisfaction in managing these bed sheets with reduced complaints.**

- **Color coded bed sheets can be instrumental in reducing the hospital acquired Infections**

- **Color coded bed sheets should be implemented in all Public & Private hospitals**

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CLEAN LINEN: ABHI NAHIN TO KABHI NAHIN.

Thank you