

## Role of E-communication in Healthcare: Sustainable Healthcare Solution

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### Abstract

**Background:** Emerging new technologies have considerable potential for improving communication. E-communication in healthcare is a key to faster and efficient communication, reduction in paper consumption and increase in comfort level of end users. Environmental policy of the study hospital is aimed towards energy and resource conservation.

**Objective:** To study the cost effectiveness of e-communication in healthcare.

**Method:** A comparative study was conducted in a tertiary care NABH, ISO 9001:2008 and 14001:2004 certified teaching hospitals. A validated questionnaire based survey was conducted in 11 non clinical departments of the hospital. Comparative cost analysis of the paper consumption of the hospital (pre and post e-communication) was performed using t-test of ten different categories of stationery used.

**Results and Discussion:** A majority of health expenditure in hospitals are wasted through misallocation and technical and managerial inefficiency within hospitals. A combination of hospital cost data with service statistics will highlight areas in which waste can be reduced. In order to have a paperless system our in-house IT department employees undertook the task of creating a software program catering to the needs of the hospital. A significant reduction in total paper consumption was found after the implementation of e-communication (5% level of significance, p value <0.05). Operations team of the hospital used the highest no of A4 size papers (Rs. 7480/100 inpatients) as compared to MRD (Rs. 3453/100 inpatient) Radiology (Rs. 1707/100 inpatients), Billing (Rs. 898/100 patients). Frequency of raising General store indents markedly increased after starting e-communication leading to decreased manpower consumption and increasing comfort level to the end users.

**Conclusion:** Implementation of e-communication has resulted in a significant reduction in the cost incurred towards running the facility leading to surplus, giving more comfort to the end users and saving time. E-communication complies with the environmental policies i.e. environment conservation and resource conservation which helps to generate more time towards patient care.

**Keywords:** E-communication; Stationery; Cost effectiveness; Healthcare; Cost reduction

### Introduction

#### What this study adds

1. What is known about this subject?

E-communication in healthcare is a key to faster and efficient communication, reduction in paper consumption and increase in comfort level of end users.

2. What new information is offered in this study?

Role of e-communication in reducing the cost of healthcare delivery

3. What are the implications for research, policy or practice?

It will change the delivery of healthcare today and increase the profit margin for the hospitals and at the same time maintain high quality and comply with the environmental policy.

### Background

Healthcare system in India is rapidly changing and is becoming unpredictable. Hospitals aim for a good profit margin without compromising on quality healthcare delivery. But the major challenge is to reduce the operating cost of the hospital in order to increase the profit margin and at the same time maintain high quality and efficiency and comply with the various policies and regulations. Operational cost consists of medical consumables, manpower, regular repairs, stationary costs, maintenance expenses and hospital services like housekeeping

expenses and laundry etc. [1]. In the present scenario, striking balance between operating cost and revenue is a major challenging task for the hospital administrators.

Communication processes in healthcare system have undergone a major change by the use of electronic means of communication. Emerging new technologies have considerable potential for improving communication [2]. E-communication in healthcare is a key to fast and efficient communication, reduction in paper consumption and increase in comfort level of end users [3]. Nowadays, patients have increased access to health information on internet sites even though they may lack the ability to judge the quality of information obtained. Health care providers can access patient records as well as place orders electronically in health systems with integrated electronic medical records [4].

Use of electronic communication effectively is one way in which technology can change the delivery of healthcare today and increase

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the profit margin for the hospitals and at the same time maintain high quality and comply with the environmental policy [5].

### Aim

To study the cost effectiveness of e-communication in healthcare.

### Method

A comparative study was conducted in a tertiary care NABH, ISO 9001:2008 and 14001:2004 certified teaching hospitals. Retrospective data of ten different stationary items commonly used for inter-departmental communication relating to placing indents; requesting for repair work; printed discharge summary; inter-office note pads etc. was collected for a period of five years. In June 2011 e-communication was initiated in the tertiary care teaching hospital for online request of repair work; communication between administration department and other departments; discharge summaries, lab reports and placing general store indents. Data from stationary store was collected under two different heads: (1) Paper consumption in the entire hospital before starting e-communication and (2) Paper consumption in the entire hospital after starting e-communication. Data from General store was collected for the paper consumption while placing a general store indent. A validated questionnaire based survey was conducted in 11 non-clinical departments like Medical Record Department (MRD), Purchase department, Admission department, Third party Administration (TPA) section, Discharge typing pool, Accounts department, Operations team, billing department, Radiology department and Medicare section of the hospital to find their daily and monthly usage of A4 size paper. Comparative cost analysis of the paper consumption of the hospital (pre and post e-communication) was performed using t-test of ten different categories of stationary used.

### Results and Discussion

Majority of health expenditure in hospitals is wasted due to managerial inefficiency or improper allocation of funds. A combination of hospital cost data with service statistics will highlight areas in which waste can be reduced [2]. In order to have a paperless system our in-house IT department employees undertook the task of creating a software program catering to the needs of the hospital. A significant reduction in total paper consumption was found after the implementation of e-communication (5% level of significance, p value<0.05) (Figure 1).

Operations team of the hospital used the highest no of A4 size papers (Rs. 7480/100 inpatients) as compared to MRD (Rs. 3453/100 inpatient) Radiology (Rs. 1707/100 inpatients), Billing (Rs. 898/100 patients). There was a marked reduction in repair note consumption. Frequency of raising General store indents markedly increased after starting e-communication leading to decreased manpower consumption and increasing comfort level to the end users. There was an increase in A4 size consumption (Figures 2-7).

### Conclusion

Implementation of e-communication has resulted in a significant reduction in quantity of stationary usage which has been realized in terms of cost reduction towards running the hospital. Adopting e-communication has also helped in adding comfort to the end users and saving time. All these help in leading to surplus, in terms of running the healthcare facilities. Another advantage is e-communication complies with the environmental policies (i.e. environment friendly and resource conservation) thereby adding value towards the practice of ISO certification.

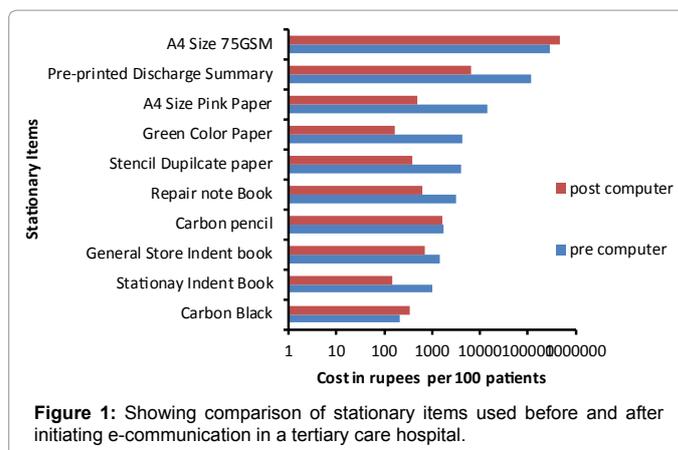


Figure 1: Showing comparison of stationary items used before and after initiating e-communication in a tertiary care hospital.

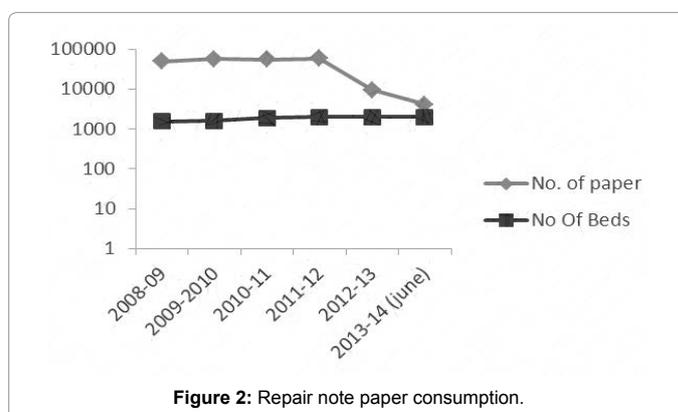


Figure 2: Repair note paper consumption.

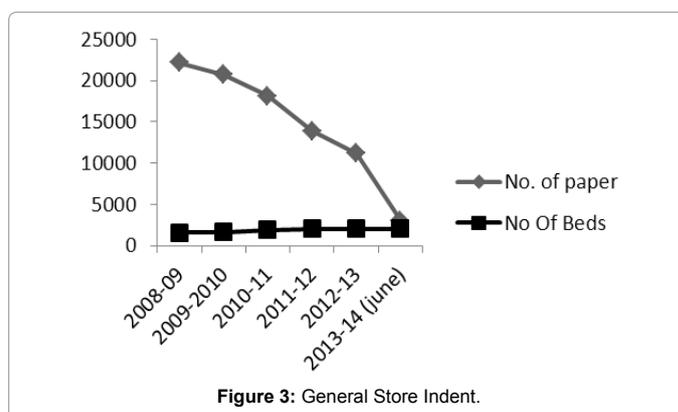


Figure 3: General Store Indent.

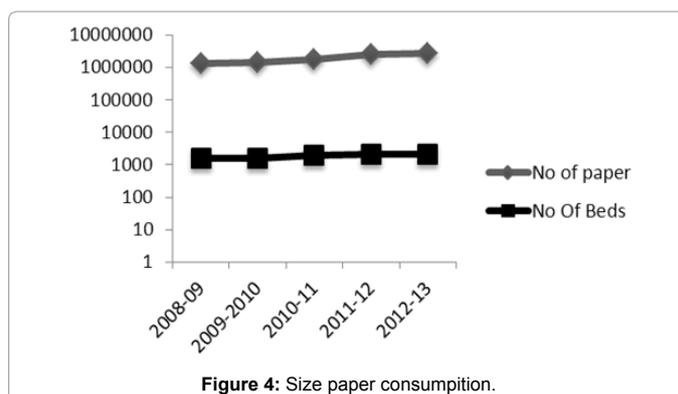


Figure 4: Size paper consumption.

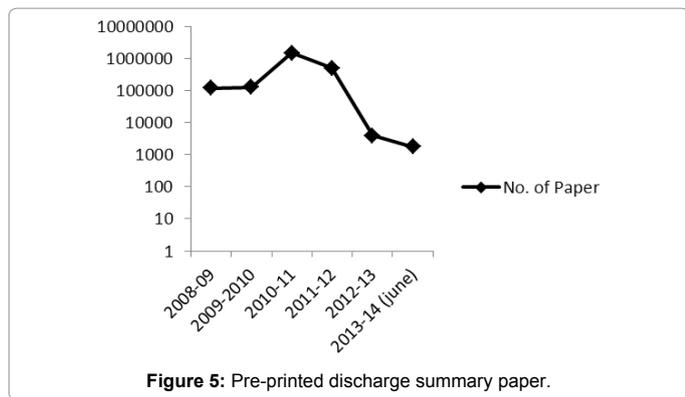


Figure 5: Pre-printed discharge summary paper.

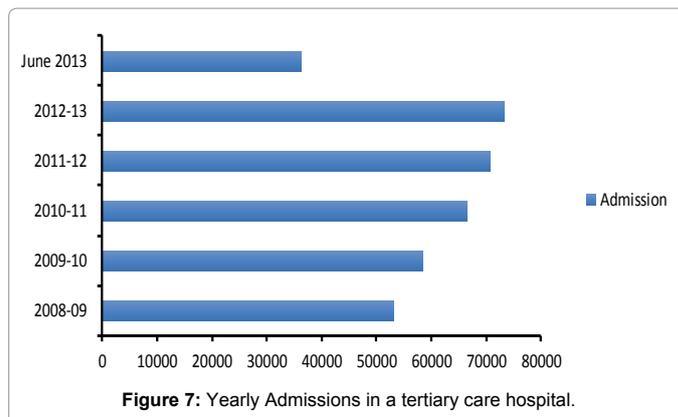


Figure 7: Yearly Admissions in a tertiary care hospital.

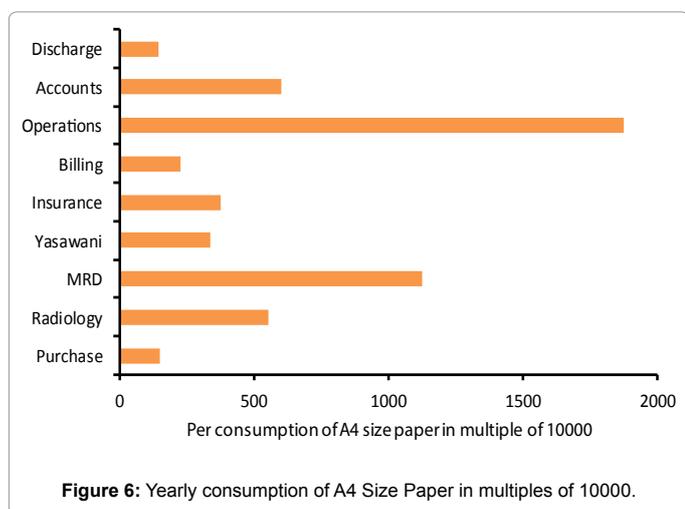


Figure 6: Yearly consumption of A4 Size Paper in multiples of 10000.

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