REVIEW ARTICLE

RELATIONSHIP BETWEEN POOR DOCUMENTATION AND EFFICIENT INVENTORY CONTROL AT PROVINCIAL MINISTRY OF HEALTH, LAHORE

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ABSTRACT

Background: Since 1990, efficient inventory control is identical for augmented health-care. Moreover, due to rapid rise in health-care cost and mortality rate; inefficient inventory control is a problem and is since too long, which is universal rather than a specific. Usually all firms face problems in controlling inventory. The health-care public institutions incur cumbersome cost on inventory but beside of this; deteriorations and shortage of life saving medicines, lab equipment, and accessories occurs which reveals the inability in efficient inventory control. This is gravely alarming for public health and opposing to get equitable economic growth. **Objective:** The study will establish a relationship between poor documentation and efficient inventory control at Provincial Ministry of Health, Lahore. **Materials and Methods:** Data collected from 60 staff members managing inventory at different hospitals located at Lahore premises, published reports, relevant journal, websites, and structured questionnaire. The study utilized Multiple Regression Analysis. **Results and Conclusion:** The key findings revealed that unavailability of adequate stationeries/stores records, unscheduled stock taking practices, and delay in posting stores records hinders significantly to effective and efficient performance of inventory control. The researcher also found flaws in current inventory control practices and procedures that allow superfluous costs.
Key words: Inventory management, record keeping, health industries

1. INTRODUCTION

Inventory control is a systematic way of getting right quantity, right quality at right time with reordering, storing, locating the goods by achieving desired service levels [1]. Moreover, inventory control verifies the balance, the cost and the quantity of held stock which correspond; total ordered, used and remaining quantities as well as placing next order [2].Previously, inventory management was not seriously treated and vagueness during planning, execution, controlling in supply chain networks led the firms headed for bullwhip [3]. However, on balance sheet it appears as the largest asset item [4]. In addition, Irungu and Wanjau (2011) and later cited by Radzuan et al., (2014) suggested that health-care institutes progressively adopting more inventory management systems to enhance performance, customer service and operational efficiency [5,6]. This study will find the relationship between poor documentation and efficient inventory control at Provincial Ministry of Health, Lahore, Pakistan.

Since 1990, efficient inventory control is identical for firms' success [7]; and may involve as much as 30 percent of organizational invested capital [8]. Subsequently, due to expensive inventories, it is imperative to avoid superfluous costs by aligning the inventory control [9]. Many researchers suggested inefficient inventory control can instigate incomplete supplies which tend to shift the consumer behavior [10,11]; and can upshot hasty buying; lost future transactions [12].Theories also suggested that inaccurate inventories, expiration, profligate and stock-outs [13] are significant factors affecting inventory control tools [14].

In addition, in public health-care, the inventory control is an integral part of supply chain. However, it is substantiation to mention that stock-out decreases curative and preventative health care services [15]. Therefore, health-care organizations are bound to have enough lifesaving drugs and simultaneously persuade stochastic demand [16]. In budget 2015-16, the Punjab Provincial Ministry of Health allocated colossal amount of 168 billion from 1.45 trillion Pakistani Rupees for healthcare [17]; serving to estimated population of more than 101.6 million [18]; with 2899 health care units for attainment of standardized health care deliverance and equitable economic growth [19]. Moreover, in December, 2015 an audit report discovered Punjab Institute of Cardiology, Lahore with expired critical medicines and accessories [20]. Furthermore, report found stocked-out in 98 out of 145 hospitals for Hepatitis C (HVC) injections and with idle or without Polymerase Chain Reaction (PCR) Lab equipment / accessories [21]; Gynecology department and Emergency department of each 2899 facility was found stocked-out with critical curative medicines, accessories, or equipments [22].
The stocked-out only from Punjab Institute of Cardiology (PIC) resulted increased patient mortalities with 112 deaths in the month of December 2015 [23, 24]; and 46,000 patients might be at high risk who medicated from same expired batches

[25]. On discovery of raised rate of deaths at PIC, the Procurement Commission was compelled to go with hasty buying with expensive options and superfluous costs of worth 5.6 billion rupees in lieu of expired medicines and 56 million rupees for appurtenance of 112 died victims as a compensation amount and 80 million rupees for vaccination, treating only 14,699 Hepatitis C (HVC) patients [26].

Furthermore, due to stocked-out at 2899 facilities; the infant mortality was highest with 78 per thousand in 2008 which rose to 89 per thousand in 2015 [27]. It is concluded that Ministry incurs cumbersome cost on inventory but beside of this; deteriorations and shortage of life saving medicines, lab equipment, and accessories revealing the inability of Ministry in efficient inventory control. Furthermore, the vision "Building a Healthier Punjab 2018" eventually needs great deal of efforts by removing lapses in inventory control.

In view of problem highlighted above, the research would discover the strategic importance of inventory at health-care facilities associated with Ministry of Health, with the aim of this ascertaining relationship between influencing factors affecting inventory control at Ministry's health-care facilities. This study will determine the relationship between poor documentation and efficient inventory control at provincial Ministry of Health, Lahore.
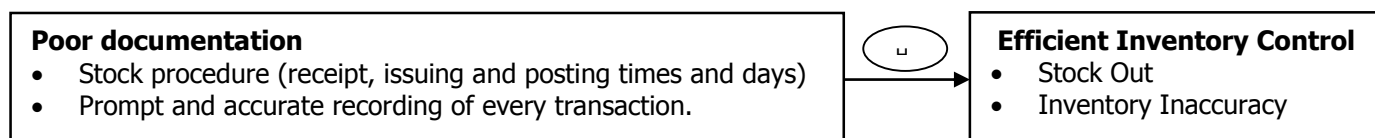

Figure 1: The figure presents the conceptual Framework.

1.1 Hypothesis: Formulation of research hypothesis is based on conceptual model.

> **H1:** There is a significant relationship between poor documentation and efficient inventory control

2. MATERIALS AND METHODS

The researcher sorted, tabulated, summarized, edited and coded the data according to its nature. This was done to alter the gathered information into a more presentable form. Moreover, this study used a quantitative, descriptive and cross-sectional correlation survey research design to identify the relationship between poor documentation and efficient inventory control at Ministry of Health. Primary analysis was through regressions. Analysis for the quantitative data was in two phases: Analysis for preliminary data and hypothesis testing. The researcher used the questionnaires; interview method and documents review for data collection.

2.1 Information and its Sources:

Information collected from the staff-managing inventory at different localities of Punjab Provincial Ministry of Health-Lahore, health-care inventory management professionals, published reports, handbooks, different Medical journal, business management journals, and websites. Author also collected information by structured questionnaire and documents review.

2.2 Target population and unit of analysis:

Target population is public sector health-care facilities working in premises of District Lahore under Ministry's domain, which are 70 Hospitals including teaching / tertiary Care Hospitals, District Headquarter Hospitals (DHQs), Tehsil Headquarters Hospitals (THQs), Rural Health Centers (RHCs) and Basic Health Units (BHUs).

2.3 Sampling technique and data collection:

The researcher will use random sampling method for data collection. This will constitute respondents from teaching / tertiary, District Headquarters (DHQs), and Tehsil Headquarters (THQs), Rural and Basic Health-care facilities of Lahore. Many researchers used this sampling technique in their research [28]. Sample size determined using Morgan table that states that if total population is 70 then sample size 59 would be good enough to represent and generalize the characteristics being observed [29]. Therefore, 60 out of 70 public sector health-care facilities constituted the sample size.

3. RESULTS AND DISCUSSION

Table 1: The table presents the Correlation Matrix.

Variables	M	SD	Poor Documentation	Inventory Control
Poor Documentation	4.19	0.430	1	0.889**
Inventory Control	4.23	0.458	0.889**	1

**Correlation Significant at 0.01 level 2-tailed test

In table, 1 result showed that the inventory control comprised higher mean score of 4.23 whereas poor documentation comprised the lower mean score of 4.19. Moreover, the correlation values expressed a positive significant association among poor documentation and efficient inventory control. Previous researchers are supporting the results [30]. A good managed and effective documentation improves optimum stocks and inventory inaccuracies [31]. Without active considerations of improved documentation, inventory control could not be managed efficiently.

Table 2: The table presents the results of Regression Analysis.

Variables	N	Model Summary		ANOVA		Coefficients		
		R	Adjusted R Square	F	P **	St. Beta*	t	P **
Poor Documentation	60	0.889	0.788	368.567	0.000	0.889	19.198	0.000
Inventory Control	60	0.801	0.635	103.479	0.000	0.801	10.172	0.000

* Standardized Beta Coefficient (Dependent Variable = Inventory Control)
Sig. (1 tail) **p

In table 2 result showed that with N=60 model summary for Poor documentation and inventory control gave R values (.899), (.801) and Adjusted R square values (0.788), (0.635) respectively. Thus, these models are predicting 79% and 64% of the variance in inventory control respectively and the model is meeting the assumption.

ANOVA values expressed F=368.567, p<.001) and F=103.457, p<.001 which are significant enough and significantly predicting inventory control. The Coefficients expressed that Standardized Beta give a measure of the contribution of each variable to the model. Large value of poor documentation, which is 0.889, indicated that a unit change in predictor variable has large impact on the inventory control. The t=19.198, 10.172 with Sig (p) < .001 values expressing a rough indication of the impact of predictor variable – a big absolute t value and small p value suggesting that poor documentation having a large impact on the efficient inventory control. Hence, poor documentation is significantly adding anything to the prediction.

The findings found out that the significance importance of documentation in the T-test which mean that the documentation still need intentions so the conventional and simple methods of entering stocks by lacking in best systems, which is also lagging them in sharing of information and management of their inventories well. Lastly, the regression values expressed that poor documentation had the highest beta coefficient, which meant that more emphasis should be taken for poor documentation.

4. CONCLUSION AND RECOMMENDATIONS

The study found a significant positive relationship between poor documentation and inventory control, which is one of the factors that are affecting efficient inventory control. This study revealed the lack of integrated inventory control systems for posting of inventory data while focusing on existing system due to worst performance, non-reliance on accuracy, compromising data integrity and data security matters, slow operations and presenting various challenges.

It also emphasized lack of stores records and inadequate stationeries have a direct effect on efficient inventory control. For receiving and issuing of goods, it investigated the stock procedures which were not being followed as per Ministry's policies and regulations and were negatively influencing the efficiency of inventory control by actions related to stock control and discrepancies during reconciliation of stock balances, misappropriation of stock and poor stock control recording.

The study also focused on discrepancies between physical and actual stock, unscheduled stock taking practices that is inadequate. Moreover, mismatched stocks were attributing factor for poor planning, frequent stock-out of critical items, pilferage and theft. Eventually, the purpose of this study was to determine the relationship between poor documentation and efficient inventory control, which was disruptive factor affecting efficient inventory control at provincial Ministry of Health, Lahore. Furthermore, for efficient inventory control the researcher recommends; health-care facilities could apply re-engineering and utilization of integrated inventory management systems for enhanced, prompt, accurate posting of every transactions and stock procedures by avoiding inventory inaccuracies and stock-outs.

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