FACTORS UNDERLYING THE UTILIZATION OF CARD PAYMENT FACILITY FOR AVAILING HEALTH SERVICES AT SANJAY GANDHI PGIMS, LUCKNOW (UP) INDIA.

SHUCHITA VERMA, KASTURI SHUKLA, FAIYAZ MANSOOR, RIMMA MANDAL, RAJESH HARSVARDHAN, LEELA MASIH, AV RINKOO, NITIN DUTT BHARDWAJ, HEM CHANDRA

Abstract: Payment through debit/credit cards is recently rising in hospitals, thus its utilization is a prime concern. Sanjay Gandhi PGIMS (SGPGIMS), a tertiary care medical hospital started the card payment facility in April 2011. **Objectives**: The present study was conducted to analyze the awareness and utilization patterns of card payment facilities and identify measures to promote this mode of payment. **Methods**: This cross-sectional study was done in 2 rounds. First round was conducted in February'2012 and second round in September 2013 with a purposive sample of 200 and 92 patients/relatives respectively. Prospective data was collected through structured questionnaires and retrospective data analysis was done to analyze the proportion of revenue generated through card payment out of total revenue (cash+swipe) for April'2011-January'2012 and April'2012-August'2013. **Results**: In the first round around 80% participants were aware about card payment facility at hospital but only 12% preferred paying through card. This is reflected in the swipe revenue collected during this period which was Rs. 4.88 million (6%) of the total revenue of Rs 80.6 million. The low utilization of card payment mode may be attributed to several factors like non availability of card, lack of facilities for card payment, overcrowding, connectivity and server problems, high waiting time. Thus, Hospital Administration initiated several steps like increasing awareness about card facility, signages, highlighting advantages of card payment, assisting new card payers, reducing connectivity and server problems. In the second study, as a result of these efforts, the preference for card payments had increased. The total revenue in second duration was Rs. 156.26 million out of which revenue generated through swipe amount was Rs.18.75 million. Thus, the share of revenue generated through swipe was 12% as against 6% in first phase indicating a 50% rise in swipe revenue. Payment through card was positively correlated with higher education ($r=0.58$, p-value<0.001) and higher income of the payer ($r=0.7$, p-value<0.001) but not correlated with age of payer, number of visit, or type of service availed. **Conclusion**: To promote the payment through cards, payers need to be made more aware about card payment facility especially on their first visit and provided more comfortable and user-friendly services.

Keywords: Card payment, Debit card, credit card, hospital, , utilization.

Introduction: Payment through debit/credit cards is rapidly rising for commercial purposes but is still a new facility in hospitals. A recent report in state capital Lucknow indicates that less than 20% hospitals in the city offer card payment facility [1]. Until recently, even the top tertiary medical care institutes like SGPGI and AIIMS did not offer card payment facility. This popularity is further limited because merchants providing card payment facility are charged for each transaction [2],[3]. The debit card therefore is mostly used for ATM transactions which suffers from several limitation, one of which is daily withdrawal limit [4] particularly when large amount of cash is needed like hospital admission. Thus, facility for card payment at hospitals will be a great help to the patients and their relatives. It is also beneficial for staff responsible for cash handling as it reduces the risk of wrong counting and related accountability issues [2].

On these lines, card payment facility was introduced on 27th April 2011 at Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow (UP), INDIA which is a 900 bed tertiary hospital having fully developed computerized HIS system. This study was conducted to evaluate the practical utility of card payment in tertiary level hospital setting, with the objectives of studying and analyzing: 1. the awareness and utilization patterns of card payment by patients/relatives; 2. the problems faced by the providers as well as the users of this facility.

Material and methods: The initial round of the study was done in February 2012, 10 months after card payment facility was introduced in hospital. This cross-sectional study was conducted through structured interviews of patients or their relatives, whoever was the payer for the services. The total revenue generated and the proportion of swipe amount in total revenue was studied from April 2011 to January 2012. After the results of this round were reviewed some initiatives were taken up by Hospital Administration to promote the card mode of payment.

The second round of the study was conducted in September 2013 for an in-depth analyses of the phase

I objectives and to evaluate the impact of Hospital Administration initiatives on promoting payment through cards. A cross-sectional study through a structured questionnaire was done on patients/relatives based on the payer for the service. To perform the study, various locations of the hospital were visited like OPD, in-patient areas, waiting area, different departments and the cash counters of hospital.

Baseline data was collected for patient's age, gender, gross annual income, education and occupation. If patient was not paying for the treatment, then baseline information of the payer was collected along with the relation of the payer with patient. Moreover, the payer (patient/relative) of the services was asked about their knowledge of card payment facility at hospital, type of card owned by them, source of funding for health services, their preferred mode for payment in hospitals (cash/card), reasons for this and any suggestions from them to promote usage of card payment mode. Further, revenue generated from swipe mode was also analyzed and compared for April'11-Jan'12 and April'12-Aug'13 durations.

The data was tabulated and summarized for analysis. Univariate analysis was done for studying the frequencies, mean and SDs and percentages. Bivariate analysis was done by cross-tabulations and calculation of correlations for selected variables.

Results: In the first round of study, a total of 230 payers were requested for interview out of which 200 agreed for participation in the study. Mean age of subjects was 48.2±6.7 years, 196 (98%) were males and 150 (75%) belonged to rural areas. 192 participants (96%) were aware about the credit/debit cards provided by banks but remaining 4% had never heard about it. 158 (79%) participants knew that card payment facility is available at the hospital whereas remaining 21% either were first-time visitors to SGPGI or had not come to hospital since the facility was introduced.

176 (88%) card owners were more comfortable with cash payments either due to habitual behavior, lack of time or technical problems with swipe machines and only 12 % preferred cash payments. Largest proportion of card payment was from in-patients whereas, OPD amounts being lesser, patients find cash payment much easier. Moreover, connectivity and server problems were found to slow down the swipe machines. Inadequate number of swipe machines further increased the waiting time leading to chaos during busy hours at busy billing points like discharge, OPD and pharmacy.

During Apr'11-Jan'12 the total revenue generation (cash+swipe) was Rs. 80.6 million out of which total swipe amount collected was Rs. 4.88 million. Thus, in this duration, share of swipe collection out of total revenue was 6%.

The poor utilization of card payment mode can be attributed to several factors like non availability of card, lack of separate counter for card payment resulting in overcrowding during busy hours, connectivity and server problems leading to prolonged waiting time. To increase the utilization, Hospital Administration initiated several steps like providing information to payers about card payment facility through signages, highlighting the advantages of card payment, provided assistance to new card payers, and reducing connectivity related problems and promptly solving server problems to improve swiping process. The second round of study was carried out to assess the impact of these efforts.

In the second round, a total of 124 patients were requested for participation of which 92 agreed for interviews. Baseline variables according to mode of payment are shown in Table I. Mean age of subjects was 42.26±16.7 years, 58 (63%) were males. 57 (52.4%) were educated less than XIIth standard. 54 (58.7 %) patients availed medical services, 34 (37%) patients surgical procedures and 4 (4.3%) patients visited for diagnostic services. 39 (42.4%) were first time visitors to hospital whereas 53 (57.6%) were follow-up cases.

76 (83%) participants were aware about the card payment facility in hospital whereas only 38 (41%) subjects preferred payment through card as it is easier to carry whereas the remaining either did not own a card (42.4%) or were habitual of paying cash. 55.4% had a debit card and 2.2% paid through credit card.

Major mode of financing was out of pocket as only 1 patient had health insurance. However, 77% people suggested that providing separate counters for card payment, dedicated counter for aged and disabled and providing sufficient swipe machines based on work load will lead to increase in card payments.

During April'12-Aug'13 the total revenue generated was Rs. 156.26 million out of which total swipe amount collected was Rs.18.75 million. Thus, the share of revenue generated through swipe out of the total revenue was 12% as against 6 % in phase I, indicating a 50% rise in swipe collection. Hence, it is evident that with some interventions, card payment may be promoted.

Payment through card was positively correlated with higher education in both cases when patient was the payer ($r=0.58$, p-value<0.001) as well as when relative paid for the services ($r=0.49$, p-value<0.001). Card payment also correlated with higher income of the payer be it the patients ($r=0.7$, p-value<0.001) or their relatives ($r=0.47$, p-value<0.001). However, no correlations were observed for other variables like age of payer, number of visit, or type of service availed.

Table I: Analysis of variables based on the mode of payment (Cash / Card)				
Variable		Payment mode		Total
		Cash	Card	
Type of service availed	Medical	28	26	54
	Surgical	20	14	34
	Diagnostic	2	2	4
First/follow-up visit	First	24	15	39
	Follow up	26	27	53
Who is the payer for hospital services?	Patient	19	16	35
	Relative	31	26	57
Problem faced in card payment	Overcrowding	45	21	66
	Server/connectivity problem	5	21	26
Will you use card facility in future?	Yes	29	42	71
	No	21	0	21
Suggestions by participants	Separate counter for swiping	21	36	57
	Separate counter for senior citizen and disabled	2	1	3
	Behavior of cash counter staff should be improved	5	2	7
	Query of patient should be answered by staff	4	1	5
	Adequate coins should be available for retuning small amount	7	0	7
	Number of swipe machine should be increased	3	2	5
	No suggestion	8	0	8
Total		50	42	92

Discussion: The objectives of the present study were to analyze the awareness and utilization patterns of card payment by patients/relatives and the problems faced by the providers as well as the users of this facility. Payers were mostly observed to have a preference for cash payment either when they did not own a card or due to a habit of paying cash. This is similar to a study which says that in addition to socio-economic studies, psychological factors like habit, also decide the payment preference through cash or card mode [3],[5].

We also found that card payment mode was more preferred by the in-patients as compared to out-patients. This may be because the payment amount is higher in IPD and the usual frequency of multiple payments is low as compared to a high traffic area like OPD which is usually followed by a visit to pharmacy and diagnostic departments.

In our study, payment through card was positively correlated with higher education and higher income in both cases when patient was the payer as well as when relatives paid for the services. However, no correlations were observed for other variables like age of payer, number of visit, or type of service availed. Other studies on debit card payment preference also report that socio-economic factors significantly decide the preference for mode of payment through cash or card [3],[5]. However this may have some implications for people from lower socio-economic strata that they may use this facility with some assistance. Thus, signages should be displayed to indicate card payment facility. Help desk may be set-up to guide the payers and provide them payment options with necessary help. However, as some studies have found that age, education and occupation were not associated with card usage [4], hence, this finding needs to be examined in detail in future studies.

Inadequate number of swipe machines and connectivity problems leading to high waiting time and overcrowding was found in both phase I and II studies indicating an urgent need of improvement in this direction. Overcrowding forces many patients/relatives to opt for cash payment to save time and avoid chaos especially during busy hours. Thus, separate counters for card payment equipped

with sufficient swipe machines based on work load and preferably dedicated counters for aged and disabled will also motivate people to use card payment facility. All the patients/relatives who paid through cards said that they will use this facility in future. However, around 50% cash payers wish to use card payment in future but only if the facility is improved. A study on card usage in Asia-Pacific region shows that on one hand Japan and South Korea are leaders in card usage, whereas citizens of India and China are lagging far behind [6]. Thus, card payment facility has a high potential but needs a lot of improvement in the direction of reducing waiting time and overcrowding for providing the much needed convenience to the payers. To increase the usage of card system, awareness should be created in patients especially on their first visit, about card payment facility. At the time of payment, preference may be asked for mode of payment.

The hospital technical staff should aim at improving the uptime of server through technical solutions like auditing the hospital network and regularly monitoring the technical problems in card payment. Further, employees should be trained to avoid mishandling of swipe machines and connectivity problems should be dealt with priority. Eventually, as the card system is adapted into the system, number of swipe machines may be increased based on work load. Moreover, some other limitations of card usage like lower acceptance of cards by at points of service, cost to merchants and potential of fraud also need special emphasis to enhance preference of card payment by customers [2],[5].

The strength of the study is that it is a relatively new study on preference of payment mode and utilization patterns done in a tertiary hospital setting. However, due to time constraints, sample size of the study is limited which may have implications for interpretation and representativeness of results.

Conclusion: We conclude that patients should be made aware, especially on their first visit, about card payment facility and at the time of payment, cash payers should be offered the facility for card payment. Considering the finding that psychological factors also determine preference for mode of payment, card owners from lower socio-economic strata opting for cash payment should be provided assistance for card payment by displaying signages and setting up help-desks. As around 50% paid payers wish to use card payment in future if the facility is improved, hence, issues like Inadequate number of swipe machines, connectivity problems leading to high waiting time and overcrowding should be dealt with priority.

The hospital technical staff should aim at improving the uptime of server through technical solutions like auditing the hospital network and regularly monitoring the technical problems in card payment. Further, employees should be trained to avoid mishandling of swipe machines and connectivity problems should be dealt with priority. Eventually, as the card system is adapted into the system, number of swipe machines may be increased.

References:

1. Shah P, Sharda S, Hospitals in UP prefer only cash. Times of India, Lucknow edition. TNN Dec 23, 2010. Available from www.epaper.timesofindia.com. Accessed on: 9th Nov' 2013.
2. Das A, Agarwal R. Cashless payment system in India – A roadmap. Technical Report 2010. Department of Mathematics. IIT, Mumbai. Available from: http://dspace.library.iitb.ac.in/jspui/handle/10054/1732. Accessed on: 12th Nov' 2013.
3. Shariq M. Factors affecting ATM Usage in India: An empirical analysis. *UTMS Journal of Economics* 2012;3(1): 1–7.
4. Premlatha JR, Sharma AK. A study of the factors affecting customer satisfaction for ATM services in Vellore district. International journal of marketing, Financial services & Management Research March 2012; 1(3): 114-121.
5. Mann RJ. Credit Cards and Debit Cards in the United States and Japan. Monetary and Economic Studies; January 2002: 123-160.
6. Card payments in Asia Pacific: The state of the nations. Report by KPMG. June 2009. Available from: www.kpmg.com. Accessed on: 20th Nov' 2013.

* * *

DHA student, deptt. of hospital administration,
SGPGIMS, Lucknow, E mail- shucheta.vrm@gmail.com
Adjunct Faculty, Sancheti Healthcare Academy, 11/12, Thube Park,
Shivaji nagar, Pune-05 (Maharashtra) India. kasturiagnihotri@rediffmail.com.
Trainee, of hospital administration,
SGPGIMS, Lucknow, faiyazmansoor23feb@gmail.comdepartment
Trainee, Asstt. Prof. department of hospital administration, SGPGIMS, Lucknow,

rimma.bhm@gmail.com,drrharsvardhan@yahoo.co.in
Nursing Superintendent, department of hospital administration,
SGPGIMS, Lucknow, leelah9j@yahoo.co.in
Senior Resident, Senior Resident,
department of hospital administration, SGPGIMS,
Lucknow, docavr@gmail.com, drnitindb@gmail.com.
Additional Professor & Head,
department of hospital administration, SGPGIMS, Lucknow,
hchandra555@gmail.com