ORIGINAL ARTICLES

ANALYSIS OF STAFF MEDICAL BILLS SUBMITTED THROUGH A MEDICAL SCHOOL CLINIC IN GHANA

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Abstract

Introduction: The Medical School Clinic (MSC) provides free healthcare for staff of University of Ghana Medical School (UGMS) and other schools of the College of Health Sciences. This study determined annual cost of medical bills and which category of staff are the beneficiaries of these claims through the MSC

Methods: This was a retrospective review of records, from January 2007 to December 2010 of staff medical bills and bills of dependants claimed through the MSC which is part of the UGMS in Korle-Bu.

Results: From 2007 to 2010, medical bills of staff and their dependants claimed through the MSC doubled from GH₵ 52497(US$ 47724.16) to GH₵ 118666(US$ 84761.36). Junior staff made the most claims (45.9%) while senior members and retired staff had higher annual medical bill per person. Claims by staff of UGMS administration alone constituted 28% of all claims from the UGMS. MSC had 51.7% of all claims by staff made directly at the MSC and 40% were from the Korle-Bu Teaching Hospital which provided specialist care including physician specialist, obstetrics &gynaecological, paediatric, eye, Ear Nose and Throat, diabetes, genitourinary and orthopaedic care for staff.

Conclusion: Medical bills of staff and dependants claimed through the MSC have escalated over the four year period. It will be efficient to provide certain basic chronic care services for the older adult staff (who from this analysis have higher annual medical bill per person) at the current operating hours of the MSC and enrol the majority of staff unto a prepayment health scheme

Key Words: University health facility, staff categories, medical bills, medical claims, Ghana.

Introduction

Providing adequate health care in low and middle income countries continues to be a challenge. The challenge of finding the most cost effective way of financing health care continues to beleaguer governments especially in developing countries such as Ghana[1,2]. To improve access to health care, the Government of Ghana in 2003, introduced the National Health Insurance Scheme (NHIS) as the main health financing system to reduce financial barriers to accessing health care[1,3]. All Ghanaian citizens and legal residents in Ghana are eligible for subscription to the scheme[4].

Some organizations and institutions in the country provide free health services for their staff at in-house clinics. The University of Ghana Medical School (UGMS) is one such facility. The university provides free health care through the Medical School Clinic The MSC was established in January 1977 to cater for the health needs of medical students, the staff of the Medical School and their families[5,6]. This responsibility has been expanded over time to include staff and students of the College of Health Sciences (i.e. staff and relations of College administrative members, staff and students of University of Ghana Dental School, School of Allied Health Sciences, School of Pharmacy, School of Nursing and Noguchi Memorial Institute)[5]. In situations where expert care is needed and it cannot be provided by the clinic, the case is referred to the Korle-Bu Teaching hospital which is a tertiary hospital.

At the medical school clinic the cost of service is free at the point of utilization. Members of staff and dependants of staff can also access specialist and general health care from other health facilities and are reimbursed for the cost of care. Medical claims of staff are made through the Medical School Clinic (MSC) and payments are made by the institution upon completion of a standard medical claim form at the MSC together with valid receipts and medical prescription or medical request form for the specific health care service provided. The medical claims are for prescriptions not available at the clinic, laboratory services, emergency and specialist medical care or medical aids (e.g. eye lenses) and for health care services provided at weekends and times outside the working hours of the MSC for staff and dependants.

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Staff health care cost to the Medical School also includes cost of medications which is given free to staff and dependants at the MSC.

By this prepayment financial arrangement, the expectation is that the patronage will be high among all categories of staff and especially among junior staff; who may be more challenged by financial accessibility to medical care in general[7]. The high patronage of the MSC by JS was demonstrated in a recent study on the patterns of health service utilization at the clinic[5]. Increasing frequency of claims by members of staff will greatly influence health care financing under the current reimbursement policy and the ability of the Medical School to provide quality health care to staff and their dependants [8, 9].

The aim of this study was to review annual cost of medical bills and which category of staff are the beneficiaries of these claims through the MSC over a four year period (2007 to 2010), i.e. to determine how much it cost and for whom. The results of this study will provide baseline information for a critical look at the policy of reimbursement of medical bills of staff and dependants through the MSC at the University of Ghana Medical School and other schools of the College of Health Sciences.

Methods

This was a retrospective review of records undertaken in June 2012, on cost of health care by staff through the University of Ghana Medical School (UGMS) clinic at the Korle-Bu Teaching Hospital over the period January 2007 to December 2010.

Site of study

The Medical School Clinic (MSC) is sited on the premises of the Medical School Administration at the Korle-Bu Teaching Hospital, Accra. It currently has one permanent Senior Medical Officer, one Nursing Officer and three support staff. Doctors from the Departments of Community Health and Family Medicine provide supplementary services especially when the resident doctor is not available. Similarly, nurses from the Department of Community Health provide nursing services when needed.

The clinic attends to between 25 and 35 clients daily. It renders out-patient curative services and has facilities for detention and observation over short periods, of clients who are deemed to require this clinically. Medical emergencies and severe disease conditions are referred to the Surgical-Medical Emergency of the Korle- Bu Teaching Hospital. Other conditions requiring specialist care are referred to appropriate specialist clinics in the Korle-Bu Teaching Hospital. The clinic works on week days from 8:00am to 5:00pm.

The MSC is not on the national health insurance scheme (NHIS), however, all clients accessing service at the clinic do not pay for services at the point of use. They are attended to and provided with all medications they need once these are available in the clinic. When these medications are unavailable, clients are provided with prescriptions to acquire them from other pharmacies. Clients are reimbursed for the cost of these medications by their respective institutions (e.g. Medical School, Dental School or College of Health Sciences).

Apart from medications, staff and dependants of staff can access health care from other health facilities and get reimbursed for the medical claims. Payments of claims are made by the institutions upon completion of a standard medical claim form at the MSC together with valid receipts and medical prescription or medical request form for the specific health care service provided. The medical claim form is endorsed by the Medical Officer in-charge of the MSC or other doctors who offer clinical services at the clinic. Claims are made in the name of the staff whether the service was provided for the staff or a dependant. Claims for dependants are made in the name of the staff only for persons who have been officially registered as dependants of the staff with the University.

Sampling Methods

It was a total enumeration of all medical claims by staff through the MSC from June 2007 to December 2010. A total of 5916 medical claim records were reviewed. Medical students and all other students from constituent schools of the College of Health Sciences were excluded from the medical bill analysis.

Data collection

An abstraction form was used to collect data on medical claim by staff from the medical claims register on:

1. Personal characteristics of staff, such as; Sex of clients and description of staff category i.e. Junior staff (JS), Senior staff (SS), Senior staff (SM) and Retired staff (RTD). These staff descriptions are standard categorizations by University of Ghana statutes
2. Department/Unit/school that staff who made the medical claim belonged to i.e. College of Health Sciences Administration, Dental school, School of Allied Health Sciences and Medical school and its constituent departments/units.
3. Number of individual staff who made medical claims and frequency of medical claims per staff category, beneficiary of the claim (e.g. self, spouse, child, family) as well as the year in which claim was made (2007-2010).
4. Data on health facility where health care service was provided to staff (e.g. Medical School Clinic, the Korle-Bu Teaching Hospital and other private and public health facilities) were collected. In addition, data on the type of health care service received (e.g. medications, laboratory services, inpatient and outpatient services, dental services) were collected.

5. Medical bills per staff category and per year from 2007 to 2010 were abstracted from the claims register. Data on the mean and total cost of medical claims per staff category for each of the four years were also collected.

Data analysis

Data from the abstraction form were entered into SPSS version 19, and analyzed. Data on number of staff and frequency of claims were disaggregated by sex and staff category. Main outcome measures analyzed for the study included, mean, and total cost of claim per staff category for each of the four years, proportion of staff in each staff category and the department they belong to, frequency of health facilities visited, the types of heath care services provided for staff and the beneficiaries of such services over the four year period.

Descriptive statistics such as frequencies, proportions, ratios, and mean values of the outcome measures were used for the analysis and were presented as tables. All cost elements were calculated using Ghana Cedi as the chosen currency, while the equivalent value in United States Dollars at prevailing exchange rate for the particular year (2007 to 2010) was stated to standardize the cost and for ease of understanding by international audience.

Ethical issues: Clearance was obtained from the Department of Community Health and authorities of the Medical School Clinic in Korle- Bu.

Results

Attendance to the MSC over the four year period showed that students(medical students and other students of the College of Health Sciences) constituted 27%, junior staff made up 21%, senior staff 18%, senior members 2.2%, retired staff 1.8% and dependants of staff constituted the majority of 30%.Overall, in the four year period (2007-2010), 1811 individual staff of different staff categories made 5916 medical claims through the Medical School Clinic to their institutions with a mean number of claims per staff of 3.2, as demonstrated in Table 1. The frequency of claims made varied among staff category and by sex with many more claims by male staff than by females. In terms of frequency of claims, junior staff had the highest frequency of 2716 (45.9%), constituting close to half of all the claims made. However, when the mean number of claims per person in each staff category was analyzed, senior staff had the highest mean (3.7), and junior staff had the lowest mean (2.8).

Table 1: Frequency of claims and mean number of claims made through the Medical School Clinic (MSC), from 2007 to 2010 by staff category and by sex

		Frequency of claims made by Staff			
Staff category	No. of staff who made claims	Male N (%)	Female N (%)	Total N (%)	Mean No. of claims per person
Junior Staff	961	1764 (49.5)	952 (40.4)	2716 (45.9)	2.8
Senior Staff	602	1099 (30.9)	1150 (48.8)	2249 (38.0)	3.7
Senior Member	143	468 (13.1)	88 (3.7)	556 (9.4)	3.6
Retired Staff	105	230 (6.5)	165 (7.0)	395 (6.7)	3.3
Overall	1811	3561 (100)	2355 (100)	5916 (100)	3.2

Table 2: Beneficiaries of claims made by staff over the four year period (2007-2010)

Staff category	Child N (%)	Husband N (%)	Wife N (%)	Self N (%)	Total N (%)
Junior Staff (JS)	445 (16.7)	27 (1.0)	275 (10.3)	1924 (72.0)	2671 (100)
Senior Staff (SS)	267 (12.1)	29 (1.3)	157 (7.1)	1753 (79.4)	2206 (100)
Senior Member (SM)	36 (7.1)	1 (0.2)	53 (10.4)	419 (82.4)	509 (100)
Retired Staff (RTD)	2 (0.6)	4 (1.2)	30 (8.6)	311 (89.6)	347 (100)
Total	750 (12.7)	61 (1.0)	515 (8.7)	4407 (77.6)	5733 (100)

Table 2 demonstrates that the beneficiaries of the claims through the MSC were staff themselves, children of staff and spouses. Among all the staff categories, the largest beneficiary of claims (over two-thirds of all claims) were staff themselves which constituted 72% of all claims made by JS, 79.4% among SS, 82.4% among SM and 89.6% among RTD. Spouses of staff (husbands and wives) were the lowest beneficiary of claims made over the four year period among JS and SS. Among JS and SS children made up the second largest group of beneficiaries of claims, 16.7% and 12.1% respectively. However, among SM and retired staff, wives of these senior members constituted the second largest group of beneficiary (10.4% and 8.6% respectively).

Table 3 indicates numbers of each staff category making medical claims through the MSC generally increased from 2007 to 2010. Junior staff were in the majority for each year and their numbers increased from 237 in 2007 to 260 in 2010 (an increase of 9.7%). Senior staff had the second highest number for each of the four years and their numbers increased from 120 in 2007 to 189 in 2010 (an increase of 57.5%). Number of senior members however, was low and remained fairly constant over the period (38 in 2007 and 36 in 2010). The number of retired staff, were relatively low compared to JS and SS, and doubled from 15 in 2007 to 32 in 2010. The total annual medical bills per each category of staff increased from 2007 to 2010 in both Ghana cedis and the United States dollar rate for the prevailing year as indicted in Table 3. Junior staff had the highest sum of claims for each of the four years, except in 2009 when the senior staff had the highest claim of GH₵ 28286.46 compared to that of JS (GH₵ 27650.51). The total sum of medical claims more than doubled over the four year period for JS (i.e. from GH₵ 21028.22 in 2007 to GH₵ 43978.57 in 2010), that for SS almost tripled (i.e. from GH₵ 15936.82 in 2007 to GH₵ 43527.03 in 2010). The sum of claims by retired staff although small in absolute terms, showed a fourfold increase (i.e. from GH₵ 3324.00 in 2007 to GH₵ 14939.78 in 2010). The cost by SM increased from GH₵ 12207.54 in 2007 to GH₵ 16220.56 in 2010 (an increase of 33%).

The total sum of medical claims through the MSC increased substantially from GH₵ 52496.58 in 2007 to GH₵ 118665.90 in 2010, more than a doubling of cost over the four year period. Mean cost of claim per staff category as displayed in Figure 1 indicated that SM and RTD relatively had higher mean in each of the four years except in 2010 when SS, had the highest mean. Junior staff however, had the lowest.

The average annual exchange rate for the period was from US$1= GH₵1.1 in 2007 to $1= GH₵1.4 in 2010

Year	Staff	No of Staff who made claim	Annual bill per staff category GH₵ (*US$ equiv*)	Annual bill by all staff GH₵ (*US$ equiv*)
2007	JS	237	21028.22 *(19116.6)*	52496.58 *(47724.16)*
	SS	120	15936.82 *(14488.2)*	
	SM	38	12207.54 *(11097.8)*	
	RTD	15	3324.00 *(3021.8)*	
2008	JS	246	32150.51 (26792.1)	80981.92 (*67484.93*)
	SS	144	24848.21 (*20706.8*)	
	SM	37	12964.08 (*10803.4*)	
	RTD	30	11019.12 (*9182.6*)	
2009	JS	218	27650.51 (*22120.4*)	85245.80 (*68196.64)*
	SS	149	28286.46 (*22629.2*)	
	SM	32	18322.25 (*4657.8*)	
	RTD	28	10986.58 (*8789.3*)	
2010	JS	260	43978.57 (*31413.3*)	118665.90 (*84761.36*)
	SS	189	43527.03 (*31090.7*)	
	SM	36	16220.56 (*11586.1*)	
	RTD	32	14939.78 (*10671.3*)	

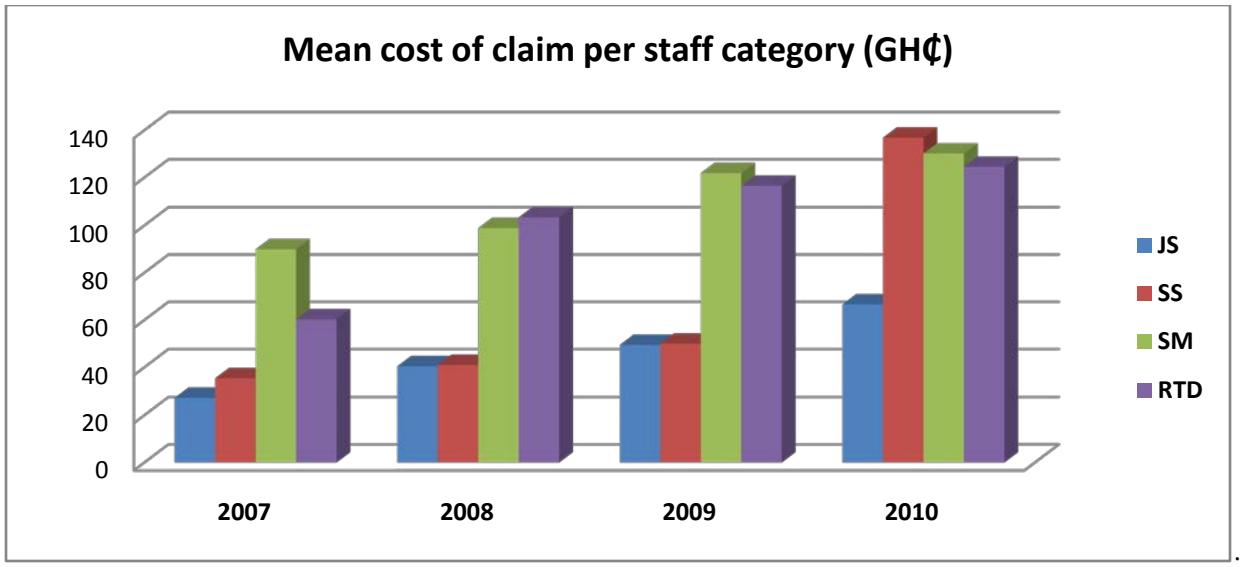

Figure 1: Annual mean medical claim per staff category, 2007-2010

Table 4: Distribution of Schools/Departments of staff who made claims through the MSC, 2007 to 2010

Department/School	Frequency	%
University of Ghana Medical School (UGMS)	3273	57.5
Dental School	1048	17.7
School of Allied Health Sciences	711	12.0
College of Health Sciences Administration	456	7.7
Retired Staff	124	2.1
College Library	82	1.4
Total	5694	100
Distribution for Departments/Units of UGMS		
UGMS Administration	933	28.5
Clinical Departments of UGMS	659	20.1
Security Unit of UGMS	369	11.3
Para clinical Departments of UGMS	326	10.0
Basic Sciences Departments of UGMS	239	7.3
Estate Unit of UGMS	183	5.6
Maintenance Unit of UGMS	175	5.3
Students Hostel of UGMS	126	3.8
Transport Unit of UGMS	115	3.5
Dean's Guest House	71	2.2
Medical School Clinic	54	1.6
Illustration Unit of UGMS	23	0.7
Total UGMS	3273	100

The departments/units or schools of staff who made medical claims (for health care provided for staff or dependants) through the MSC is displayed in Table 4. It showed that the highest claims were from staff of the University of Ghana Medical School (57.5%). Distribution of claims from other schools of the College of Health Sciences and the constituent departments/units of the UGMS are displayed in descending order of magnitude in Table 4. Staff from the UGMS Administration formed 933 (28.5%) of claims made by the entire staff of the UGMS.

Table 5 indicates that claims made by the MSC itself constituted more than half of all the health facilities where claims were made from, 2962 (51.7%). The Korle-Bu Teaching Hospital (KBTH) and its constituent specialist clinics formed the next largest group of health facilities from where claims were made 2327 (40.6%). The University Hospital situated at the Legon campus had the least number of claims (for health care provided for staff) through the MSC 20 (0.3%). The specialist clinics of the KBTH which provided health care for staff and dependants are as shown in Table 5

Claims for medications constituted more than half of all the claims made 3526 (61.5%). Some other services provided for staff included eye lenses and frames for spectacles 148 (2.6%), dental care 132 (2.3%), inpatient and admission services 66 (1.2%).

Discussion

Overall, junior staff (JS) constituted the highest number of individual staff who made claims through the MSC and also had the highest frequency of claims over the four years review period. This really is not surprising because junior staff had the highest percentage of clinic attendance among staff over the four year period.

Table 5: Health facility from where health care was provided (for staff and dependants) as basis for medical claims by staff, 2007 to 2010

Clinic visited by staff	Frequency	%
Medical School Clinic	2962	51.7
Korle-Bu Teaching Hospital (KBTH)	2327	40.6
Dental School Clinic	180	3.1
Private Health Facility	94	1.6
Other Gov. Health Facility	76	1.3
Korle-Bu Polyclinic	74	1.3
Univ. Hospital-Legon	20	0.3
Total	5733	100.0
Distribution for constituent Clinics of KBTH		
*Unspecified clinic	1427	61.3
Obstetrics & Gynae-cology (KBTH)	307	13.2
Eye Clinic (KBTH)	172	7.4
Child Health (KBTH)	153	6.6
Diabetes Clinic (KBTH)	104	4.5
Orthopaedic Clinic (KBTH)	67	2.9
ENT Clinic (KBTH)	41	1.8
Cardiothoracic Centre (KBTH)	33	1.4
Genitourinary Clinic (KBTH)	23	1.0
Total for constituent clinic of KBTH	2327	100.0

This finding is similar to findings in two earlier studies at the clinic in 1983 and 2011 respectively, which found the demand for health and frequency of clinic attendance were relatively higher for the lower ranked staff[5,6]. A previous study in the clinic[5] indicated that, lower level staff may be more financially challenged, may have much younger families and higher burden of diseases associated with low socioeconomic status and therefore for them, the free health care and the opportunity for reimbursement for health care services are great incentives[5].

Junior staff however, had the lowest mean number of claims per person (of claims made for themselves and on behalf of dependants) of 2.2, much lower than the overall mean among all staff categories of 3.2. The senior members (SM) had much higher mean (of claims for themselves and dependants) of 3.6, which indicates that though few, senior members make more frequent medical claims through the clinic; most probably because they themselves may be relatively older with older spouses both of whom may be suffering from chronic diseases, they require frequent (monthly) purchasing of medications and other health care services for their chronic medical conditions.

The RTD made most claims for themselves and also had the lowest proportion of claims for their children among the four staff categories which again is not surprisingbecause these children are now adults living on their own. Thus the beneficiaries of medical claims in this study generally reflect the age characteristics of the staff as well as the patterns of family living arrangements in Ghana[10,11].

Sex differentials were noticed in medical bills claimed by all the four staff categories, more males (60%) made claims through the clinic during the period than females. This finding is not unexpected given that the base population of the staff of Medical School and College of Health Sciences is predominantly male, accounting for the pattern of utilization of this policy as opposed to national health care utilization patterns where females predominate[12].

The total sum of medical claims (in Ghana cedi and its equivalent in United States dollar) by staff through the MSC more than doubledover the four year period. The total annual claims per each staff category also increased over the period such that it increased over fourfold among RTD, almost tripled for SS, more than doubled for JS and increased by a third in SM.

The elasticity of demand for health service is known to be negative, that is, the demand for health care increases when cost reduces[13]. This implies that with the non-payment of direct service fees by staff and dependants and the additional opportunity for reimbursement of medical claims for accessing health care elsewhere, the elasticity of demand for health care may become significant. Evidence abounds in Ghana and elsewhere in Africa (Kenya, Uganda and South Africa), of the existence of galloping consumer moral hazard exerting enormous strain on the health system as a result of introduction of pre-payment health financing systems or social health insurance schemes[1,14, 15] .

The highest burden of cost of medical bills through the MSC was incurred by staff of the University of Ghana Medical School-UGMS (57.5%).Among the constituent departments/ units of the UGMS, staff of the UGMS Administration alone made 28% of the total number of claims from staff of the Medical School. Thus staff of UGMS Administration made claims much more frequently than other staff of the UGMS; probably due to a much greater awareness onthe processes for accessingreimbursement for medical billsrelative to other staff of the UGMS.Equity and fairness will demand that so long as this facility is available, it is made equally accessible to all members of staff.

The Medical School Clinic provided majority of

health services for which claims were made, (52%), while the Korle-Bu Teaching Hospital (KBTH) and its constituent clinics made upa significant 41% of claims.Specialist services obtained by staff from KBTH included physician specialist care, Obstetrics & Gynaecological care, paediatric, eye, ENT, diabetes, genitourinary and orthopaedic care. The MSC cannot obviously provide such specialized services, however the medical bills resulting from such consultations demands a relook at the current medical bill reimbursement policy.

Considering the escalating cost of health care and doubling of medical bills every few years for staff and dependants through the MSC, the College of Health Sciences and the Medical School need to critically look at this medical claims and reimbursement policy. The college and medical school need to streamline strictly who qualifies as a dependent and what outpatient services should be reimbursed. The policy of free health care is for only close or immediate relatives of staff, but currently the enforcement of the regulation on the number of relatives a staff can enroll at the clinic is weak and left to the discretion of staff at the clinic. The Medical School/ College of Health Sciences in the interim need to develop more stringent criteria and enforcement for dependents qualifying for free services at the clinic and for whom medical bills should be reimbursed[5].

Another policy challenge is that, currently the MSC does not operate on weekends and after 5pm on weekdays, and therefore staff and dependants will need to seek health care outside these periods, for which medical bills will be incurred. A policy alternative is to consider enrolment of staff and their dependants onto a prepayment health financing scheme[4,15,16]. Staff could then access health care in other health facilities without additional health bills to the institutions.

In addition, the MSC should be equipped with the essential medications and other health care services for some common chronic conditions for the relatively older SM and the obviously older retired staff among whom the prevalence of chronic medical conditions may be higher. The analysis showed that SM and RTD staff had relatively higher annual medical bill per person compared to JS and SS. It will be efficient to provide certain basic chronic care services for the older adult staff at the current operating hours of the MSC and enroll the majority of staff unto a prepayment health financing scheme[17].

Some limitations for the analysis need to be mentioned, that personal cost and other opportunity costs to staff and dependants in seeking health care were not considered and that level of consumption i.e. number of staff in each institution relative to numbers who made claims were not considered. The analysis focused on staff who made claims through the MSC during the review period.

Conclusion

The study demonstrated that medical bills of staff and dependants claimed through the MSC doubled over the four year period, 2007 and 2010. Junior staff and senior staff made the most claims (they form the majority in clinic attendance among all staff) however, SM and RTDhad relatively higher annual medical bill per person. Staff of UGMS Administration constituted close to a third of all medical claims made by all UGMS staff.More than half of all medical bills claimed by staff were from services provided at the MSC and yet, another 40% were based on health care provided by the KBTH and its specialized clinics.

It will be efficient to provide certain basic chronic care services for the older adult staff (with high annual medical bill per person) at the current operating hours of the MSC and enroll the majority of staff unto a prepayment health scheme.

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