Identification and Prioritisation of Barriers to Quality Performance in Medical Education and Patient Care in Medical University in India

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ABSTRACT King George's Medical University (KGMU) is 100 years old and is one of the six medical universities in India. Like most other medical institutions here, there is no formal process of internal evaluation for improvement. This work was done to identify potential barriers to quality performance in medical education and patient care domains and to develop a methodology to prioritize them using qualitative and semi-quantitative techniques. About 30-faculty members identified around 42 barriers in the domains of education and patient care. Majority of the barriers were internal and required changes in systems and behavior. A stakeholder focused KGMU priority-setting matrix was developed to give each barrier a priority score ranging from 8-24. One-thirds (n=14) identified barriers obtained a priority score of ≥ 17 and were subject to external validation, using the same priority setting matrix, on 82 (81.7% males) stakeholders. Limited teacher postgraduate student interaction and less patient-physician interactions were identified as most important barriers in education and patient care domains, respectively, followed by barriers common to both domains (unaesthetic campus, irregular electricity and water supply and poor maintenance of equipment). Thus expedited action in domain specific as well as common priorities would potentially positively impact medical education as well as patient care. KGMU priority setting matrix was found to be a simple instrument, which could capture differences in perspectives of various stakeholders. It can be validated in similar settings elsewhere. There is a need to develop and validate methods of internal assessment and quality assurance within medical institutions in India.

INTRODUCTION

There is limited provision for internal evaluation of medical institutions in India. King George's Medical University (KGMU), is involved with teaching and training of undergraduate and post graduate medical students, research and patient care for 100 years and like most others medical institutions in India has not conducted formal internal evaluation targeted to improve performance. To identify potential barriers to quality performance and client satisfaction and to develop a methodology to prioritize them, faculty members formed an informal group called the Creative League (CL) and undertook this study.

METHODOLOGY

Setting: This study was conducted in March – November 2005 in KGMU, which is one of the

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six medical Universities in India. Attached to KGMU is Gandhi Memorial and Associated Hospitals, spreading over an area of 88000 sq. mts, with 2200 beds and the bed occupancy rate of 90-100%. It caters to 500,000 outpatients and 25,000 hospitalised patients and conducts about 18000 surgical operations annually. Presently it has 32 departments –including 9 super-specialty departments, 1200 undergraduates and 200 postgraduate students, about 300 faculty and 200 nurses. The university also has PhD Program in basic and clinical medical sciences.

Priority Setting Exercise: Initial part of the study involved problem identification, development of priority setting matrix and priority scoring through members of the CL. Participants of the CL were mid and junior members of the faculty either nominated by heads of various departments or volunteering for participation. To orient the CL, there were lectures on innovation and mentorship, delivered by established faculty in Human Resource Development. This was followed by a conventional brainstorming session (www.brainstorming.co.uk/tutorials/creativethinkingcontents.html; www. muex

tension.missouri.edu /explore /commdm /dm0463. htm).

The perceived barriers to quality performance were then categorised into decided domains through small group discussions (www.fhwa. dot.gov/reports/pittd/ smlgroup.htm.) by the CL. Thereafter a priority-setting matrix was developed focusing on the impact of problem on the stakeholders. Priority setting approach (www.virtualsalt.com/crebook2.htm) was used to give a consensus score to each of the barriers identified.

Internal Validity Testing: To test for internal validity of the matrix, the priority setting exercise was repeated after constituting a fresh "group" consisting of 6 CL members. This new group did independent coding of identified barriers in both domains. The priority scores thus obtained for individual problem was compared with that obtained initially. If the agreement was within $\pm$ 2 point, the priority setting matrix was considered valid.

External Validity Testing: To test for external validity, a subset of problems which scored high on priority score by the CL members were given to stakeholders, like patients, students (both undergraduate and postgraduate) and faculty for prioritisation using the same matrix. Thereafter, mean priority scores were compared across three categories of stakeholders using analysis of variance statistical test.

RESULTS

From 31 departments, 45 candidates, two-thirds male, attended the first orientation meeting conducted by an expert. In the age categories of 21- 30 years and 31- 40 years there were 42.2% and 46.7% participants, respectively while 11.1% were above 41 years. Most of them (70%) were born in a city. English was the medium of primary and secondary education for 41.7% and 50% of the faculty, respectively. Government institutions were attended for primary and secondary education by 43.3% and 56.7%, respectively. Among the faculty, 25% belonged to reserved category of other backward classes and 10% to scheduled caste. Thereafter, a subgroup of faculty from 16 departments became members of the CL and met regularly thereafter.

There were 4 meetings of the CL, one each for brainstorming, domain classification of problems, formation of a consensus priority setting matrix and for priority scoring. The last activity was done in small groups of 6-8 CL members with a pre-trained facilitator. The average numbers of participants was 30, ranging from 15- 45.

More than 80 problems were identified through brainstorming that pose as barriers to quality performance, out of which 42 fell in the domains of education and patient-care. Issues pertaining to infrastructure were common to both domains. The 38 remaining barriers relating to public image and interdepartmental/intradepart- mental interactions were, by consensus, found to be dependent on performance in education and patient- care domains and hence were not subjected to validation.

To assess the affect of various barriers on all

Table 1: KGMU Priority Setting Matrix

	Key Questions	1= Uncertain	2=Some Extent	3= Large Extent
1	How does the identified problem effect on the students?			
2	How does the identified problem effect on the patients?			
3	How does the identified problem effect on the public image?			
4	How does the identified problem affect the faculty?			
5	How does the identified problem impair general institutional growth and development?			
6	Can a dent be made in short term in the identified problem?			
7	Can the identified problem be dealt with no additional resources?			
8	Are you interested in working the identified problem?			

Table 2: Leading barriers to quality performance by King George's Medical University by members of Creative League (CL) and various stakeholders on external validation (EV)

Problems	Consensus priority score By CL (n= 30)	Priority score on EV (n=82) Mean ±SD	Priority score on EV faculty (n= 21) Mean ± SD	Priority score on EV by UG students(n=21) Mean ± SD	Priority score on EV by PG students (n=20) Mean ±SD	Priority score on EV by patients (n=20) Mean ±SD	P value
Education							
Limited teacher postgraduate student interaction*	22	14.65±3.35	14.14±3.82	15.48±2.91	15.65±2.32	Not Applicable	0.24
Curriculum planning and implementation not optimal*	17	13.87±3.48	13.24±4.02	15.86±2.20	14.20±3.11	Not Applicable	0.03
Limited utilisation of teachers' time for academic pursuits*	19	14.12±3.18	13.57±3.26	15.48±2.80	14.80±3.04	Not Applicable	0.13
No formal Training of teaching skills *17		13.49±3.06	13.33±3.50	13.19±3.27	13.70±2.87	Not Applicable	0.87
Student teacher mentorship programs not existent*	19	13.07±3.50	13.05±3.96	14.57±2.75	14.20±3.04	Not Applicable	0.30
No documentation of postgraduate activity*	19	12.90±3.93	14.19±3.78	13.71±4.17	13.40±3.53	Not Applicable	0.80
Patient Care							
Less patient- physician interaction time	20	15.95±2.83	16.24±2.88	16.57±3.12	15.15±3.22	15.80±1.88	0.42
Limited Involvement on our part	21	13.85±4.09	14.24±4.11	15.14±4.89	13.65±3.22	12.30±3.67	0.16
Working in Out Patients' Department not well organised	19	15.79±3.19	16.67±3.02	15.10±3.77	16.00±3.40	15.40±2.39	0.40
Common							
Poor maintenance of equipment	19	16.22±2.36	16.90±2.26	16.71±2.35	15.40±2.80	15.80±1.74	0.12
Unplanned, (dirty) Campus	19	16.45±2.47	16.14±2.85	16.95±2.09	16.00±2.34	16.70±2.60	0.57
Paramedical and non-medical staff's contribution to institution limited	21	15.67±2.85	15.95±2.91	15.95±2.97	15.65±2.80	15.10±2.85	0.76
Competition from other medical and diagnostic agencies	19	13.77±3.09	14.00±3.65	13.52±3.23	14.20±2.65	13.35±2.85	0.81
Irregular electricity & Water supply	20	16.29±2.44	16.29±2.53	16.52±2.32	15.40±2.48	16.95±2.35	0.23

*Analysis of variance comparing means of undergraduate (U.G.), postgraduate (PG) students and faculty only
All rest have been compared across the 4 categories of stakeholders using Analysis of variance

major stakeholders a KGMU priority-setting matrix was developed to arrive at a priority score by consensus forming process. The structure of the matrix and questions used to complete it from the perspective of various stakeholders is given in Table 1. Thus a problem could get a minimum of 8 and maximum of 24 points. The priority score given by the CL was by consensus method and is shown in Table 2. There was good internal validity of the matrix (data not shown).

To test for external validity, 21 faculty, 20 patients' or their attendants and 41 (21 undergraduate and 20 postgraduate) students from 19 departments did priority scoring for 14 given barriers individually. Over all there were 67 (81.7%) male respondents. The mean priority score of the group along with comparison of various stakeholders was given in Table 2.

DISCUSSION

Medical institutions have the responsibility of teaching, patient-care as well as research and each of these have different measures of performance as well as quality. Performance in any field can be assessed by specific measures, which are expressed in qualitative, quantitative or other tangible terms, that indicate whether current performance is reasonable and cost effective. Performance measures can include workload, like hospital and class room attendance, number of surgeries done or lectures attended, output-to-cost ratios, error rates, utilization rates of specific diagnostic services, timeliness measures, completion of courses etc. There can also be certain measures of quality, which may include stakeholder satisfaction rates and perceived benefit (www.whitehouse.gov/omb/circulars/a076/a076sa1.html). Quantitative measures of output and utilization tend to camouflage issues around quality. Therefore in our assessment of potential barriers to quality performance we have focussed on client satisfaction as a measure of "quality".

With globalization education has become a tradable service governed by the rules and regulations of GATS (Shahbudin, 2005: Suppl D: 4-10). International standards have been developed (www.wpro.who.int/publications/pub_9290610204.htm) and each country has evolved national policies to maintain standard of undergraduate and postgraduate teaching and training. However, the quality assurance can only

be done within the micro-level of the institution. One method is identification of barriers to quality performance and then finding solutions to each of them. The most important barrier identified by us in medical education was limited teacher postgraduate student interaction. It has been reported that such relationships are critical mediating factor in improved learning and performance and are a part of what has been labelled as the "hidden curriculum" (Haidet, 2006: S16-20). There is need to foster such relationships through mentorship and student pairing programs and assess their impact. Alumni can play a major role in mentorship programs. It is equally important to focus on other issues revolving along curriculum development and documentation. Curriculum must be developed in such a way to inculcate entrepreneurship culture among students. In this regards Indian Institute of Entrepreneurship is organising camp for students and teachers and medical institutions must tap at this valuable resource.

Patient-care within medical institutions forms a basis of practical training. There are two main areas in quality-focused efforts in patient care: quality assurance and quality improvement. Numerous quality assessment tools have been developed. Adherence to clinical guidelines and practice protocols are a measure of quality assessment. But this collection of tools and methods cannot be used cross-culturally or for rapid assessment. There is no agreed-upon model or rubric for thinking about raising the level of quality across the whole tangled health care (www.nhpf.org). We have assessed potential barriers to quality as such and not specifically for either quality assurance or improvement. The barriers identified by us are less patient-physician interaction time as well as limited involvement on our part, both of which can be attributed to increased workload and conflicting constrains to time. In addition we have also found the need for reorganizing work environment. One important quality measure of health care performance, not addressed in this work, is safety to the patients and doctors. However evaluation on safety scale may not be possible as autonomy, which is the rule in academic institutions, often offsets safety. Five successive systemic barriers currently prevent health care from becoming an ultrasafe industrial system: the need to limit the discretion of workers, the need to reduce worker autonomy, the need to make the transition from a

craftsmanship mindset to that of equivalent actors, the need for system-level (senior leadership) arbitration to optimise safety strategies, and the need for simplification (Amalberti, 2005: 756-64)

We have found that infrastructural improvement was required for better performance in the domains of medical education as well as patient care. There is an inherent inter-dependence of various institutional functions. Thus, there has to be a basic core competency in each of the three functions of teaching, patient-care and research, before an institution can excel in any one of them. While the government has been active in funding various large impact projects in the state, the media can play an effective role in bridging the gap of technology and capital funding by advertising various projects that are at a standstill due to either lack of funding or its inadequate utilization.

Priority setting has been used in health and industry for allocation of scarce resources (www.virtualsalt.com/crebook2.htm). It is a useful tool for making business and policy decisions. However it has very seldom been used in internal self-assessment of medical institutions. We, therefore, share our experience with this approach in an academic medical setting in the government set-up. KGMU priority setting matrix developed here has good internal and external validity and can be used for standardized inter-institutional comparisons.

In the realm of creative thinking (www.virtualsalt.com/crebook2.htm) identified problems could be internal or external to our systems. Those internal can be handed from within the systems and need commitment on our parts. The mindset of the people has to be changed to promote entrepreneurship and remove the stigma of failure faced even in situations where committed persons made stupendous efforts. Problems due to external forces or sources often need inputs from outside and require multi-sectoral coordination, often with financial inputs and definitive directives for amendment. Based on systematic brainstorming and priority setting, most of the barriers identified were internal, requiring systems as well as behaviour modification. The only external barriers identified were irregular water and electricity supply, requiring additional financial inputs.

Priority-scores given during development of the matrix and its external validation cannot be compared directly as method of deriving them are different. On external validation, it was seen that the consensus priority scores given by the CL members were consistently higher than the mean scores of combined stakeholders on external validation. This may reflect differential motivation of the two groups of respondents. This is a reflection of different expectations and perspectives of various classes of stakeholders. KGMU priority setting matrix was found to be a simple instrument, which could capture differences in perspectives of various stakeholders. It can be validated in similar settings elsewhere.

RECOMMENDATIONS AND CONCLUSIONS

Since medial education as well as patient care share common infrastructure within teaching institutions, their strengthening will have direct impact on performance and quality. There is a need to improve quality of student teacher as well as patient-doctor interactions and not just focus on quantitative outputs for assessing performance. Thus, institutional strategies for systematic self-evaluation to improve medical education and patient care have to be systematically evolved. This can be done by commissioned external agencies or through internal program with the assistance of specialists, backed by a supportive adminis-tration.

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