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Original Article

Institutional Performance and Progress at Rawalpindi Medical College & Its Allied Hospitals 2014-16- A SWOT Analysis

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Abstract

Background: A SWOT (strengths, weaknesses, opportunities and threats) analysis of institutional performance and progress at Rawalpindi Medical College and its Allied Hospitals during period of 2014-16 was conducted.

Methods: This cross sectional study using mixed quantitative and qualitative approach was conducted at Rawalpindi in December 2016 at Rawalpindi Medical College and Rawalpindi Medical College (RMC) and its three Allied Hospitals Data was collected through observation of all available administrative records and also through 30 in depth interviews and 4 Focus group discussions with senior administrative staff members, senior faculty staff members, Post Graduate Trainees of various specialties, nurses and paramedics, inpatients and undergraduates of RMC were carried out.

Results: The salient features of progress at RMC & Allied hospitals were provision of new advanced diagnostic and therapeutic equipment, induction of new personnel, initiation of new specialties, commencement of various programs for faculty, post graduate training and academic and extracurricular programs for undergraduates of RMC. Renovation of various buildings at RMC & Allied hospitals also took place while Research capacity was enhanced swiftly. Weaknesses in various areas were also identified in addition to all potential opportunities and threats.

Conclusion: The performance and progress at RMC and Allied hospital during period 2014-16 remained significant with few weaknesses too, by overcoming which, it can further strive for unparalleled quality in medical education.

Keywords: Institutional performance, SWOT, Quality

Introduction

In South Asian region, medical education is perceived as "the passport to a better life" and this necessitates the existence of institutions of variable standards.[1] Institutional evaluation of medical colleges based on generally accepted standards is important not only for the purpose of accreditation but there also is immense need of self evaluation of the institutions for improvement and quality enhancement of medical education.[2] In order to produce high quality doctors, not only meeting the proposed standards is important but transformation is also critical.[3,4]

Modernization in health care delivery system is not parallel to transformations in other industries due to lack of application of improvement tools like standardization of value-generating processes, performance measurement, and transparent reporting of quality.[5] Reevaluation of traditional roles and embracing continuous learning across the organizations is very important[6] Organizations succeeding in transforming themselves lead to considerably improved efficiency through approaches like top-management–led structural and governance change but additionally due to inexorable hard work of local operational redesign.[7]

SWOT analysis initially titled as TOWS matrix, is an analytic tool that evaluates Strengths, Weaknesses, Opportunities, and Threats of organizations with a purpose to yield strategic insights.[8-10] SWOT analysis enables organizers to envision and emanate practical and efficient outcomes that help organizations gather meaningful information and also to yield long-lasting change in order to amplify their potentials.[11] SWOT Analysis has also been successfully employed for analyzing strengths, weaknesses, opportunities and threats of an educational process or activities of medical education with intentions of improvement of service provision and practices of the medical education system.[12,13,14] It also revealed development opportunities as well as vulnerabilities to internal organizational and external environmental changes.[12-15]

According to Pakistan Medical & Dental Council, there are 144 Medical and Dental Colleges in Pakistan in 2016 aimed at producing competent health care

providers who can devotedly and dynamically play any significant role to improve our health care system.[16] Rawalpindi Medical College amongst them is a public medical institute in Rawalpindi city that along with its three Allied Hospitals (Benazir Bhutto Hospital, Holy Family Hospital and District Head Quarters Hospital) is effectively performing to impart evidence based research oriented medical education and also to provide best possible patient care. The purpose of this study was to evaluate the performance, transformation and progress of Rawalpindi Medical College and its allied teaching hospitals during last three years period. The evaluation was based on information extracted from various documented records and data and also from perspectives of various stakeholders including its administrative staff, faculty, health care providers, trainees, undergraduates and even patients themselves. The findings of this study will contribute in methodical, structured and evidence based strategies for future with an aim of enhancement of its quality and up gradation.

The objective of this study was determination of strengths, weaknesses, opportunities and threats of institutional performance and progress at Rawalpindi Medical College and its Allied Hospitals during period 2014-16.

Methods and Materials

This cross sectional study was conducted at Rawalpindi Medical College (RMC) and its three Allied Hospitals that are Benazir Bhutto Hospital (BBH), Holy Family Hospital (HHF) and District Head Quarters Hospital (DHQ) in December 2016. A combination of quantitative as well as qualitative methodology was used for this study. For quantitative assessment; information was gathered through observation of available records of all relevant departments, including the manually entered as well as computer based data, meeting minutes of academic council, monthly and annual reports of various administrative and teaching departments of RMC and Allied teaching Hospitals. The relevant quantitative data was entered in Statistical Package of Social Sciences (SPSS version 22) and descriptive analysis was performed where frequencies, percentage were calculated for categorical variables and means along with standard deviations for numerical variables. For assessment of improvement for few indicators like increase in equipment availability, positions of RMC amongst all medical colleges of university in all four professional examinations, percentages of successful candidates of RMC in exams, frequencies of research papers published in Journal of RMC etc during period 2014-16comparison was done with baseline values of period 2011-13. Comparisons were executed through z-test and dependent samples t test each at 5% level of significance. A p-value of less than 0.05 was considered statistically significant. For qualitative assessment, content analysis of 30 in-depth interviews and four focus group discussions was performed. The interviewees, selected through maximum variation purposive sampling within each category included the senior administrative staff members, members of academic council, and senior faculty staff members of basic as well as clinical departments. Interviews were conducted using structured interview guides for each category. Whereas four focus groups discussions were conducted each with a group of Post Graduate Trainees of various specialties, nurses and paramedics, inpatients of three Allied Hospitals and undergraduates of various academic years of RMC.

Results

Various salient features of progress of Rawalpindi Medical College (RMC) and its three Allied Hospitals; Benazir Bhutto Hospital (BBH), Holy Family Hospital (HHF) and District Head Quarters Hospital (DHQ) during the period January 2014 to December 2016 were evaluated and are hereby mentioned.Notable supplementation and addition of *physical resources and Infrastructure* took place at RMC and Allied Hospitals during 2014-16 that fortified the existent infrastructure and only new resources are mentioned in table 1. A total of 1861 Million PKR was utilized in these development initiatives, (1596 Million received through Annual Development Program, 123 Million by Personal Ledger Account and 115 Million through donations). From the total budget of RMC, the utilization rate was 98%.

Diagnostic and therapeutic equipments at 3 teaching hospitals e.g. X-ray machines, dialysis machines, ventilators, endoscopic & video Ultrasound system, ultrasonography machines, Suction machines, anesthesia machines, vital signs monitors, laproscopic system, ECG machine, Defibrillators, Cautery machines, Infusion pumps & Operation tables showed remarkable two folds increase as total frequency of above mentioned equipment was 415 at end of year 2013 that was increased to 829 till December 2016**.** The mean item number in each category of equipment was 11.22(±14.54) in 2013 that increased to 22.41(±14.54) and p-value of 0.00 exhibited through paired t test makes this difference, highly statistically significant.

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Table 1. Provision of additional resources at RMC & its allied hospitals in 2014-16

Rawalpindi Medical College	Holy Family Hospital	Benazir Bhutto Hospital	District Head Quarters Hospital
-New Lecture Theatres and furniture -New block of Department of Medical Education (DME) -Establishment of Research Unit -New buses -Libraries -Rawalian Park -Renovation of auditoriums, cafeterias at RMC. -TV rooms, Reading rooms,Sports room &-- Toilets at hostels -Up gradation of IT department of RMC -Construction of new RMC Science block with state of art lecture theatre.	-T/ICU/CCU equipment replacement. -stablishment of Department of Infectious Diseases (DID), Breast Registry centre & clinic. -Up gradation of Radiology department, Liver centre, mosque. -Road carpeting -New water supply system -Provision of new ICU ventilators, MRI and CT Scan -Provision of new ambulances for Multi organ failure/Liver centre	-Renovation of Accident & Emergency Department, its Operation theatre and installment of new equipment at ER. -Renewal of Pediatric department. -Refurbished departments of Gynecology, orthopediatric and urology department. -Reformation of entrance, corridoors Parking areas, Outpatient department, Library, roof top& patient Attendants area -Establishment of Dermatology indoor services.	-Replacement of Equipment -Renovation of Doctor's Library and building.

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Human resources were enhanced with induction of 150 teaching staff members on ADHOC basis in all disciplines, O6 medical officers at DME, Research Coordinator, 200 nurses & paramedics in Allied hospitals (including 15 nurses at DID, 30 technical paramedic) and 15 professional staff members in various categories. Establishment of first nursing college of Northern Punjab region was another revolutionary milestone of RMC.

Various patient care projects were initiated including commencement of new specialties at RMC that were Gastroenterology, Nephrology (Multi organ failure), Department of Emergency & critical care (DEC), Department of Infectious disease (First ever in any public health facility) with SNE's (Sanction for New Establishment) also for Pediatric surgery, Plastic surgery, Burn unit, nephrology, Infectious diseases, dermatology and critical care. To effectively manage the epidemic of Dengue in the region during last 3 years, RMC has resourcefully initiated Dengue patient care model at DID that resulted in significant reduction of mortality.

A Quality Assurance & sustainability system was also implemented in hospitals to ensure distinctive evidence based medicine and health care. Quality assurance program in gastrointestinal endoscopy promoted the liver centre of RMC as avant-garde in this technique. Financial Assistance program for Hospital employees was also initiated (BBH PKR 2 Lac, HHF PKR 1 Lac, DHQ PKR 1 Lac, RMC 1 Lac) in addition to allocation of sick rooms for employees and officers at BBH. *Information technology* at RMC was also developed with launch of new website of RMC constituting original and fresh content, professional design, user friendly navigation and rapid speed. Integrated Telemedicine program was renewed with contemporary modifications.

Faculty training was promoted with up gradation of faculty records, academic audit for National and International presentations, Annual research assignments and projects, guest lectures, faculty workshops, unit wise activities and multidisciplinary meetings. Weekly Clinic pathological conferences were modified with introduction of new computerized attendance record system and formulating bank of clinicopathological presentations. International visiting faculty induction elevated evidence based medical teaching at new zenith. 72 workshops, national & international conferences and seminars have been conducted at RMC. Two MRCP Practical assessment & clinical Examination Skills (PACES) crash courses were organized first time in Pakistan, at RMC with an aim to establish MRCP Examination centre in Pakistan. The University of Health Sciences certificate course in Medical training was designed collaboratively with University of Liverpool, UK at RMC.

Undergraduate training was further advanced through modifications in the curriculum, introduction of computer based Learning Objectives/outcomes based lecture model, more interactive lectures and Problem

based learning, integrated lecture with bed side clinical training model, publication of full academic calendars of lectures, new clinical work books. A new student's data base including computerized attendance record and academic evaluations, assessment records, results, demographics record system had been initiated with accessibility and active involvement of parents /guardians. Special student's counseling program, International and national electives/internship programs (450 students), summer camps, student patient assistance programs and skill monitoring were also commenced exclusively for undergraduates of RMC. New societies of students of RMC, for academic and extracurricular activities, were also established with standard operational procedures assigned for each society for first time. Number of various scholarship programs being offered to students at RMC exceeded 20. The Mentorship program for students of RMC was a momentous endeavor where 120 national and international faculty members (from UK, USA, UAE, Australia, Malaysia, Netherland, etc) provided meaningful learning opportunities to students.

The comparison of percentages of passing candidates of RMC and comparison of positions of RMC amongst University of Health sciences colleges during period 2011-13 and 2014-16 are displayed respectively in figure 1 and 2. The average percentages of passing candidates of three years each (2011-13 vs 2014-16) were 83.73% vs 89.57% for 1st professional exam part A, 84.58% vs 87.12% for 1st professional part B, 78.92% vs 89.27% for 2nd professional, 93.67% vs 89.29% for 3rd professional and 82.76% vs 73% for final professional exam. It displays improvement of percentages in all exams except third professional; difference being highly statistically significant with p-value 0.00 each for all five exams. The ranking of RMC showed improvement in both parts of first professional but deterioration was observed in second professional exams. Post graduate training and teaching program was enhanced with formulation of Post graduate forum, modification of curriculum, provision of standard format for writing diagnosis in ER & OPD, NICE guidelines management instruction, facilitation in dissertation formulation and multidisciplinary meetings. New assessment model of PGT's introduced practice based structured assessments, shift based learning with up to date portfolios. Online induction of post graduate trainees at RMC also started in 2016 Research at RMC and Allied hospital thrived expeditiously during this 3 years period with formulation of first ever Institutional Research Forum (IRF) of RMC, Research unit, appointment of research coordinator, Rawalian Students Research Society

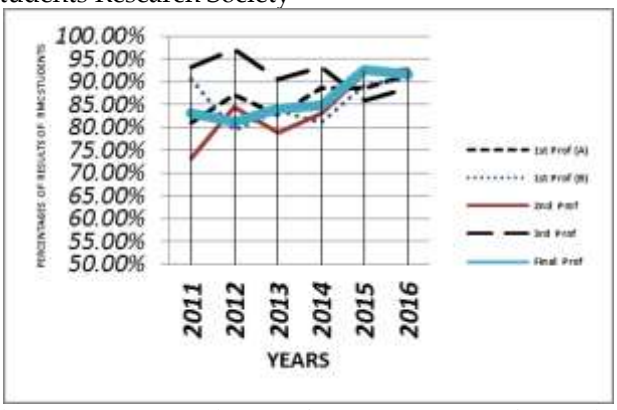

Figure 1. comparison of percentages of passing candidates of RMC in professional university examinations. (2011-16)

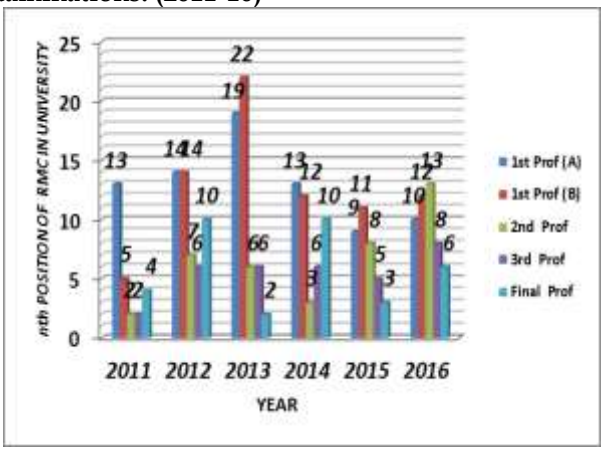

Figure 2. Year wise comparison of ranking of RMC amongst all medical colleges of UHS in each professional examination.

, PGT research forum. IRF supervised and administrated all the research activities of Rawalpindi and their quality assurance in addition to ethical approval and appraisal of all the research projects of not only undergraduates, post graduation trainees, faculty members, departments of RMC but also of all visitor researchers from other institutions..

Over 4800 free of cost Individual/group counseling sessions of undergraduates, post graduate trainees, faculty of RMC and researchers from other institutions were provided regarding every aspect of Health Systems Research at RMC. 20 Basic and advanced research methodology workshops of two days each (attended by 458 undergraduates and 40 faculty members) provided hands on experience of research proposal formulation, literature search and plagiarism checking procedure, data entry & analysis procedure and manuscript writing. Students of RMC worked on

Table 2. Qualitative findings of the study - the swot

Strengths	Weaknesses
-Marked increase in physical resources like buildings & equipment. -Increased interest of donors. -Additional human resources -Establishment of new specialties and patient care models. -Commencement of various new programs for patient care, faculty development, students and post graduate training. -National and international institutional collaboration promoted. -Improved attendance due to introduction of new computerized monitoring system. -Inculcation of research culture at RMC especially at undergraduate level. -Enhancement in quality of education due to state of Art & well planned curriculum with awareness among students regarding the learning objectives and outcomes. -Increased interest of students in extracurricular activities through various societies and proper direction through properly designed SOP's. -Improved quality of clinical practices due to physical display of SOP's in departments and their strict monitoring. -Better and organized services of Medical Education. -Eminent clinicopatholical training and exposure to international expertise promoting evidence based practice. -High quality post graduate training. -Enhancement of international internships -Conducive and comfortable environment for students -Positive Attitude of students and faculty	-Old and new teaching blocks of RMC distant apart, (7.1 kilometers) leading to administrative difficulties. -Inadequate monitoring and evaluation of teaching process through structured checklists. -Inadequate human resources to balance the amplified turnover of patients. -Departments of Gynecology and pediatrics exerting and exhausting its resources especially human resources due to exceedingly high number of patients and requires more resources. -Inadequate bed strength at hospitals especially in surgery, gynecology and pediatric departments. -Requirement of more diagnostic equipments. -Scarcity of development in terms of renovation and renewal of infrastructure at District Head Quarters Hospital as compared to other 2. -Lack of interest and regularity of students in PBL being an optional activity. -Inadequate career counseling of undergraduates -Long waiting hours for patients -Lack of skills of Health care professionals as leaders, policy makers and administrators. -Up to date computerized data recording and information system in all departments.
Opportunities	**Threats**
-Transformation of RMC to a University . -International collaborations with Royal College of Emergency Medicine, University of Leeds & Edge Hill University UK for establishing model emergency care centre. -Liaison with International Association of Medical Regulatory Authority. -Accreditations of Nephrology, DID, MS in Surgery &Diploma in Anesthesia by PMDC. -Liaison with International and national organizations for fellowships & Faculty Exchange programs. -Application to national & international donor agencies for Research funding to encourage student researchers -Distant learning programs for faculty training and also undergraduates & post graduates through webinars. -Strengthened links with Alumni and foreign faculty through mentorship programs. -Novel patient care models pertaining to contemporary communicable & non communicable disease care. -Incorporation of latest technology in teaching and clinical care -Capacity enhancement. -Continuous monitoring & unbiased evaluation. -Establishment of preventive medicine clinic & Integration with public health consultants	-Delay in Accreditations of new specialties. -Lack of political and beurocratic support -Security concerns due to threats to educational intuitions all over country. -Increased expenses of health care -Reluctance to change -Failure to sustain development. -Unexpected amplification of patient turnover due to a severe epidemic or severe disaster. -Health policies formulated without involvement of expertise of health care providers and research.

219 research projects and formulated 67 manuscriptsWith Publication of Student supplements of Journal of Rawalpindi Medical College in 2015 and 2016 along with 3rd supplement in process of publication, RMC became one of the pioneer public medical colleges with a research journal exclusively for undergraduates. In addition to publications in local and national journals of Pakistan, students of RMC also participated in Research Competitions nationally and internationally securing top positions. First ever Research Conferences of Undergraduates of RMC were held in 2015 and 2016 comprising of competitions where 32 posters and 22 research papers were presented and evaluated. The research activities for the undergraduates of RMC were also evaluated through a research project titled as "Evaluation of an Intervention Research Program for Undergraduates of Rawalpindi Medical College, Pakistan" and was

presented at Annual international conference of AMEE - An International Association for Medical Education held at Glasgow, United Kingdom in 2015.

All the information regarding RMC faculty's research publications and projects, research workshops/conferences attended or facilitated till 31st December 2013 was compiled in 720 pages and titled as first Research Directory of RMC. Second Directory comprising of information of period 2014-16 is in printing to date. During the period 2014-2016, 39 Departmental research projects of RMC and Allied Hospitals and 135 projects of Post graduate trainees while 44 research projects of visitor researchers of other national & international organizations and universities were conducted after appraisal by IRF. The Journal of RMC (JRMC) increased its publication from biannually to quarterly and was recognized by PMDC and HEC. The mean number of papers of JRMC (2011-13) was increased from 63.67 (±32.86) in 2011-13 to 102.67((±8.02) in 2014-16.

The perceptions of various stakeholders revealed the strengths, weaknesses, opportunities and threats of performance of RMC & Allied hospitals during 2014-16 are exhibited in table 2

Discussion

Medical colleges are institutions that have onerous responsibility of providing quality education and imparting excellent skills to young trainees, who will be utilizing these to provide health care to their communities thereby profoundly affecting the whole health care system. This signifies the importance and need for exceptionally good training institutes with proficient trainers well equipped to impart this knowledge and skill to young trainees who would be responsible for well being, safety and improvement in quality of lives of their patients at every step of their professional lives. The quality of such institutions should be duly evaluated, monitored and compared with highly set standards through accreditation and thus and should en route to excellence.[2-4] Even though Rawalpindi Medical College already conforms and complies to all the standards for accreditation but this study was conducted to have an overview with a different approach and perspective using SWOT analysis that has not yet been documented by any medical college of Pakistan.

The most salient strength, identified not only through observation of records but predominantly mentioned by all categories of study participants in interviews as well as FGDs was the marked supplementation in resources; physical (equipment and renovations or new constructions), human (induction of additional faculty and technical staff) and monetary (escalating donations). Delivery of extraordinary service outputs in a health system depend on a considerable number of resource inputs.[17] As verbalized by one of the faculty member "Whenever I enter the premises of my hospital the new improved outlook of the hospital enchants me and then when I reach my department and utilize the new equipment it makes me more comfortable and I feel my attitude has become more positive and ecstatic towards patients and colleagues". As regards human resources where it was mentioned as strength, it was also frequently mentioned amongst weaknesses since according to many participants, current induction though on a rise was still not ample to overcome the problem of distinctly high patient turn over in the teaching hospitals. So further induction is required in future as well, human resource management being always critical in providing quality health care.[18-19.]

Regarding the training of the faculty and continuous medical education, a large number of workshops and seminars had been conducted and even mentioned by faculty members in interviews as a beneficent and important trend during last three years but still few faculty members highlighted it in weaknesses, one of the reasons might be less courses might had been offered in their specialties. This highlights the necessity to deliver equitable courses in diverse specialties.[20] Moreover some faculty members also emphasized on requisition of training on leadership, health policies and administrative skills for them, that is equally important in present era. [21,22]

The students in their focus group discussion specifically agreed unanimously that as an effect of all the interventions and new programs for students introduced in this period, the environment in their academic institution had been converted to "more conducive and comfortable" for students. All students specified the programs targeting improvement of their academic training during FGD's and considered them as great initiatives. However the FDG's with nurses and paramedics were not very much enthusiastic and vocal about the developments and specifically highlighted the issues of burn out particularly at departments of Gynecology and Pediatrics due to exceedingly high number of inpatients. The patients, being the most important stake holders were satisfied with the improvement in infrastructure but accentuated the problems of long waiting hours and availability of less doctors and beds in these teaching hospitals.

As regards threats; the most commonly stated threat was anticipated fear of discontinued support of policy

makers, donors or beurocrats, mentioned by majority of participants that has been previously documented too in addition to changing national and local health policy and economics also considered an important threat.[11-13, 23]

Even though few outcomes like the examination results and ranking of the college in professional examination have been mentioned in our study, but there is need to evaluate more outcome variables that were not deliberately included since the period of 2014-2016 just concluded at the time of this evaluation and the most of the outcomes are either intermediate or long term. To have better evidence based evaluation, structured data must be accumulated as a continuous process even in coming years. To overcome any potential selection bias, maximum variation sampling technique was adopted for selection of study participants for qualitative aspect and to in an attempt to avoid any potential observer bias the qualitative content analysis was performed by a neutral social & behavioral expert not affiliated to RMC or its Allied hospital.

As regards the opportunities the most frequent response by majority of participants was up gradation of RMC to university with anticipated prospects of strengthening influx of further resources resulting in highest levels of performances and outcomes taking the institution to the highest echelon of quality in medical education.

Conclusion

Rawalpindi Medical College and its Allied hospitals showed progression in many areas, during period 2014-16, auxiliary to its already existent effective medical education that conforms and complies with all set standards. Enhancement of physical resources, in terms of addition of new as well as renovation of existing infrastructure, availability of new equipment, induction of additional workforce, incorporation of latest technology, commencement of new programs aimed at faculty development, undergraduate and post graduate training, clinical care and research capacity building. However it should further strive and improve for par excellence performance and unparalleled quality in medical education of public sector in the region by overcoming weaknesses, availing all potential opportunities and eluding threats.

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