INTRODUCTION

Residency program for a postgraduate medical specialty is defined as “a course with specific pre-defined competencies to be achieved in a set duration of time”. Such systems were needed to bring uniformity in the competencies acquired by the residents in their respective programs.¹

College of Physicians and Surgeons Pakistan (CPSP) introduced many new changes in its residency program in 2008. The new residency program is a hybrid of new ideas along with the time tested standards. The candidates are able to pace their training on a time scale to achieve competencies.²

The CPSP’s structured residency program is divided into two phases for all 54 disciplines. The first phase comprises of two years training with a set of defined competencies for each specialty along with the level of acquisition in the specified time duration. The candidates have to attend four mandatory workshops and have to get through a “mid-term” assessment commonly known as the Intermediate Module (IMM).

The second phase includes another two/three years training (depending on chosen specialty). The trainees are awarded a fellowship once the training is complete and the candidates get through the final assessment examination.³

Competency-based residency programs need multi-faceted assessment techniques for its success.⁴ The need for multiple work based assessments and formative / summative assessments will ensure the trainees a better understanding of their weaknesses and strengths. The candidates have the opportunity to come upto the mark by consulting their mentors and supervisors. At the same time the strengths of any candidate is seen as a motivational tool.⁵

Competency-based residency program ensures significant importance to assessment criteria and tools for the IMM examinations in all disciplines. The syllabus for this examination was tailored according to the “benchmarks” set for candidates in training using the Structured Visual Display (SVD) charts.⁶ These benchmarks are pre-determined levels of competencies to be achieved by candidates during their residencies.⁶ These milestones or benchmarks are different for different specialties.

The new assessment is made systematic and more structured. Thus, assessment tools including Multiple Choice Questions (MCQs), Extended Matching Questions (EMQs), Short Essay Questions (SEQs) and...
Task Oriented Assessment of Clinical Skills (TOACS) were selected according to the “set trajectory” for that particular specialty based on these SVD charts.6

The aim of this study was to determine the effect of changes in curriculum and structured assessment on the performance of candidates at the end of the first phase of residency program by comparing pass percentages of candidates with similar in training residents with older residency programs.

**METHODOLOGY**

This was a quantitative interventional study with purposive non-probability sampling. Result of candidates appearing in Intermediate Module (IMM) examination was tabulated according to their year of examination in various subjects. The results were divided into two groups. First group or the historical group comprised of candidates who passed the examination by appearing in the year 2007 i.e. before the implementation of new residency program. The second group comprised of data from candidates who appeared in examinations which were tailored according to the benchmarks set for end of first phase of training. Data was compared for 9 major specialties.

The study included only the candidates who had achieved a pass grade in the written component of IMM. The written component comprised of a paper with MCQ's and one paper with SEQ's. However, the curriculum of written examination was set according to the SVD charts. The historical group was evaluated with fifteen TOACS stations and short cases, separately. Short cases section of the examination was incorporated as a compulsory TOACS station in the new residency program. Hence, the examination structure and assessment tools were not changed. However, the weightage of each component was reset depending upon the tables of specification followed for the IMM examination by the local faculty.

Descriptive statistics including the average for the pass percentage, their ranges and difference were calculated. Data analysis was done using the SPSS version 14.0 and graphs were made from the Microsoft Excel 2010.

![Figure 1: Comparison of results of IMM before and after introduction of new residency program.](image)

![Table 1: Subject-wise comparison of candidates in historical versus interventional groups (clinicals examination).](table)

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<thead>
<tr>
<th></th>
<th>Group A (Historical group)</th>
<th>Group B (Interventional group)</th>
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<tr>
<td></td>
<td>Total</td>
<td>Pass</td>
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<td>Anaesthesia</td>
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<td>Surgery</td>
<td>314</td>
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</table>
RESULTS

In the historical group (group A), total of 1776 candidates appeared in IMM examinations from February 2007 to January 2008. Whereas, the interventional group (group B) comprised of 2806 candidates inducted in new residency programs appearing from March 2008 to November 2009.

The average pass percentage in the Historical group was 52.6% ± 13.87 and 59.96 ± 14.88 in the Intervention group. The pass percentage in old-residency program for the Clinical examination was 61.6% (range 48.0-78.4%) which is far less as compared with new residency system 73.9% (range 61.5-82.4%). The results markedly improved in all the specialties as shown in Figure 1, except anaesthesiology.

The results of the major specialties are given in Table I.

DISCUSSION

Residency programs all over the world are graded according to the level of description and details of the curriculum devised for the specialty. Residency programs in the developed countries have been introduced more than two decades ago. The concept of residency and curriculum development for postgraduate medical and surgical specialties is new especially in the developing countries.

The uniformity of the system in the residency program across all specialties determine the effectiveness of a Medical Education System for the postgraduate training in a country. The concept of residency program was absolutely untouched till the 1950's even in the most advanced countries. But in the later half of century, there has been a remarkable improvement in this aspect of medical education. Establishment of different societies led to the idea of a single residency review committee that showed improvement in the outcome of the residency program in the USA.1

The need for a structured training program has gained popularity due to changes in the general outlook of trainees in terms of their exposure to the international community, information technology, changing family values, concepts of financial status and family life and changes in the demographics in gender distribution.7

Residency programs have inherent property to provide scaffolding for the training of the residents. This brings motivation and self-confidence among the residents. The internal motivation and self efficacy brings life long learning attitude among the students, hence, it improves the outcome of the training.8 The improved results of IMM after implementation of CPSP's new residency program also augment this view in literature.

A good residency program contains details of all aspects of training. International residency programs are comprehensively developed and relevant information are chalked out for minor issues like the residents duty hours and days off as well. However, this particular aspect of training is not mentioned in the training program run by CPSP and is a specific issue that needs to be taken into account. Such details are derived from the effects of local working conditions and market forces.6

Innovative research is being carried out taking into account, resident specific factors including gender distribution, age of residents and working hours which would be tailored to make them more suitable for the individual who themselves desire to achieve the pre-set competencies.1,8,9

College of Physicians and Surgeons, Pakistan has introduced several modifications in its residency program in the last few years. The important features of the new residency program include regular induction of trainees twice a year to bring uniformity in the training. This provides platform to all the trainees to achieve minimum standard required in the evidence-based patient care at par with each other.

One of the tools to evaluate the outcome of the training program in any medical field is the assessment of trainees/learners in the program. Failure to show significant improvement in results puts question on the objectives of the program or implementation of its process. The improvement in the results supports the effectiveness of the residency program.

The initial results of the CPSP's new residency program have shown positive trend. There has been a major change not only in the structure and content but the competencies, sub-competencies and modes of their evaluation worldwide.

The outcomes depict significant improvement in the results of diagnostic radiology, surgery, medicine, psychiatry, paediatrics and gynaecology. Only one specialty (i.e. anesthesiology) has shown a negative relationship. It is interesting to note that significant improvement is seen in three major subjects in which more than 100 candidates appear for the intermediate module examination in each attempt. Improvement in fields, where large number of candidates poses a challenge towards trainee-trainer interaction, is a proof for uplift in the level of trainee competency. This system thus already has started showing positive trends. Implementation of the new residency program and the results of the midterm examination prove the hypothesis that a good residency program leads to good results.2,5,8,10

Introduction and inclusion of any new program or system always meet with resistance, reluctance and a negative propaganda from the proponents of the already established elements. Evaluation and quality assurance of educational programs take years to be established.
However, changes in results of assessment are an early indication towards a positive change.\textsuperscript{11} The improvement in result will help in the near future to end any apprehension among all the stake holders. This will help to implement this program in letter and spirit; hence, leading to improved outcome of the program.

This program includes almost all aspects of the six basic competencies requirement by the ACGME, including patient care, medical knowledge, professionalism, system-based practice, practice-based learning and improvement, interpersonal and communication skills.\textsuperscript{15,16}

The modern era of information technology, internet, information, education and awareness has brought with it implications for better patient care, quality assurance, process and product quality and data for program evaluations and policy making. To incorporate inbuilt evaluation in this curriculum, every trainee is required to submit regular feedback in the form of achievements and professional development plans as the residency program continues.

At the same time the feedback received by the faculty at the College determines the progress of trainees and interest shown on the part of trainers to cope with the deficiencies of the trainees. The system also allows the faculty to point out any deficiency on the part of trainer which is then rectified in accordance with the set structured residency program. This system in the long-run will help in the data collection and necessary changes needed to improve the current residency program.\textsuperscript{14,15}

**CONCLUSION**

The new structured residency program and assessment techniques implemented by the College of Physicians and Surgeons Pakistan for the intended improvement in the quality and outcome of its trained physicians and surgeons resulted in an improvement in the results of the midterm assessment among residents in different specialties. This stresses the need for curricular changes and assessment standardization at different levels of medical education.

\section*{REFERENCES}


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