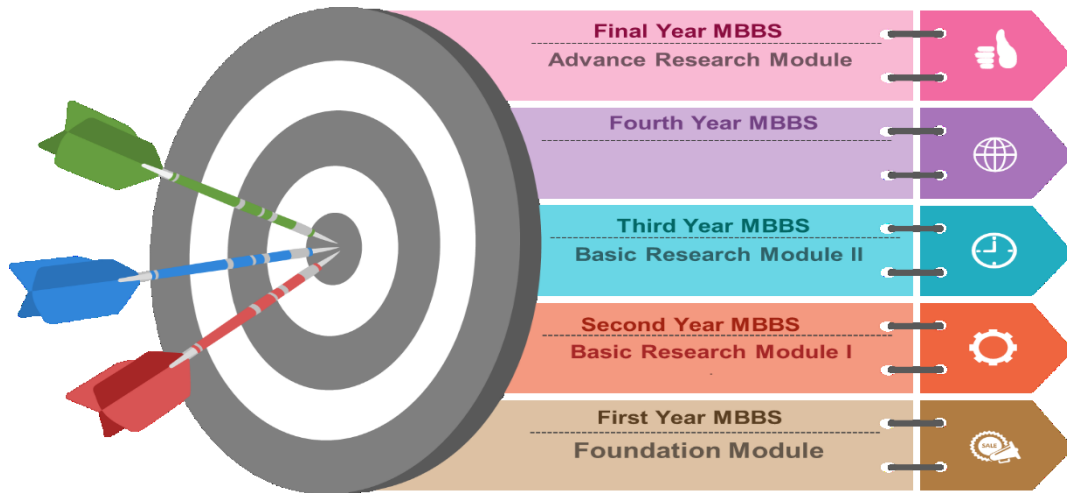


# Integrated Undergraduate Research Curriculum (IUGRC)



## What is IUGRC?

Research is a supreme human function and health research has high value to human community. It is an ongoing process, which invigorates human effort to overcome ill health, live better and longer.

Undergraduate medical education in our country is mostly therapeutic and physician oriented. Increasing importance of research in healthcare practices and competency in research methods for a future doctor is highly debated, deliberated and demanded but it has not given due space in framework of medical teachings and has never been incorporated as a longitudinal theme in five years MBBS curriculum. Research has been part of fourth year teachings in most medical teaching institutions of the country without any practicable mechanism for student's learning and assurance of acquisition of research skills.

Earlier, health research did not exist separately as a part of medical undergraduate curriculum but for last two decade it slackly appeared in medical UG program as a part of lecture based teachings of the Community Medicine. Theoretical aspects of research including study designs, biostatistics were covered under discipline of epidemiology, then some concepts of research methodology was introduced. Later on, it was made compulsory for students to undertake a research projects and conduct community health survey (House Hold Survey). Currently a total number of 15 marks are reserved for student's performance assessment in research & HHS in practical exam in community

medicine in 4<sup>th</sup> Prof. But no uniform guidelines exist for undertaking research projects and households survey.

Research oriented healthcare providers are able to practice evidence based medicine with more promising treatment outcomes and a positive impact on overall wellbeing of the people. Research is the only portal to provide “evidence” to human health development efforts. Medical profession is by default obligatory to health research. The beginners in health sciences are needed to be invited and equipped with research skills to take up this legacy. Since research plays a key role in the practice of medicine as a profession; a multi-pronged approach spanning the entire undergraduate curriculum needs to be exercised, to best address the health needs of a community

The accreditation councils, regulatory licensing bodies and medical associations all over the world have emphasized the incorporation of research in medical curriculum. The World Federation of Medical Education (WFME, 2015) has highlighted that medical students graduating till 2023 must have undergone through modern teaching-learning stratagem including research and community based education as a mandatory component.

Keeping in consideration the current trends worldwide, Pakistan Medical & Dental Council (PMDC, 2015) has made it mandatory for all medical schools to incorporate research into their undergraduate curriculum. Despite of obligatory condition by PMDC only few medical schools across the country have incorporated the research in undergraduate curriculum. Currently undergraduate medical curriculum taught at Rawalpindi Medical University is not research oriented over five years course and practical components of research are not learnt by workable study plans with exposure to the community. There is an urgent need for incorporating research component as the longitudinal theme in the undergraduate medical curriculum under the domain of Community Medicine at Rawalpindi Medical University. PMDC (2015) has prescribed outcomes and desired competencies to produce community oriented and companionate doctors who are able to respond to pressing health issues of communities, nation and region they have the mandate to serve. PMDC has highlighted research as one of the seven competencies required of a graduating medical doctor including care provider, decision-maker, communicator, community leader, manager, lifelong learner and researcher.

Rawalpindi Medical University leads the way of adopting integrated modular curriculum as teaching strategy among all public sectors medical institutions in the region. Development of integrated undergraduate research curriculum (IUGRC) is next mile stone to be achieved under visionary leadership of Vice Chancellor of Rawalpindi Medical University. In phase of some sever barriers including overwhelming MBBS schedule, overburdened faculty, high workload on students, absence of research teachings guidelines form the statutory body, lack of research funds and research prone infrastructure it was great challenge to develop this strategic change.

The undergraduate medical curriculum of RMU has undergone extensive mapping to establish what learning outcomes have to be initiated, developed and attained, then drafted to multiple &

multi hands assessment to incorporate research as longitudinal theme over all years of undergraduate teachings. Explicit and measurable research-related curricular outcomes have been formulated which were also mapped and aligns closely to desired competencies of PMDC Seven-star doctors.

It has been tried hard to synchronize the undergraduate curriculum close to international standards, and various options were considered in this regard. Various models of curricular change were studied in depth. Our effort is highly influenced by the innovative approach adopted by University of Edinburgh (UK) in form of Student Selective components (SSC's) proposed by General medical council (GMC) but modified under our need, issues and resource constraint environment. The student selective components proposed by GMC have been applied to drive the curricular changes and to incorporate research as longitudinal theme along with separate assessment window spanning across first year to final year MBBS

The integrated undergraduate research curriculum(IUGRC) of RMU occupies a definite space in schedule of each of the five years in rational and incremental way. It has horizontal harmonization as well as multidisciplinary research work potentials. In the first year teachings are more introductory & inspirational rather than instructional. The teachings explain what & why of research and what capacities are minimally required to comprehend research & undertake research. Some research dignitaries' lecture are specifically arranged for sharing their experiences and inspiring the students. Students are specifically assessed through their individual compulsory written feedback (reflection) after the scheduled teachings end.

In 2<sup>nd</sup> and 3<sup>rd</sup> years students are exposed to “basics of health research” encompassing Biostatistics and other pre-requisites of undertaking a research study. It includes all theoretical aspects of research proposal generation and execution a research project. Teachings covers hands on practices on use of computer software's for literature search & citation, SPSS for data analysis in additions to exercises on data collection tool development & data capturing techniques, sampling& sample size calculation and using statistical measures for data analysis.

Other pertinent workshops are also offered to the students through informal system and research librarians of RMU are also be involved in students training in handling scientific literature. Again all teachings are ensured through objective formative assessment and are a compulsory part of final exams in 2<sup>nd</sup> and 3<sup>rd</sup> year.

*Fourth year component of IUGRC is designed for students experiencing research in real world. As research competencies are best developed through active experience and participation in learner-centered areas of the curriculum. Development of these research competencies are integrated into curriculum, to enable students to better engage with evidence-based medicine, and the complexity, risk and uncertainty of medical practice. Learning mechanism is designed such that students at the level of subgroups (2-3 students) of all small groups are involved in every stage of research cycle. Each member of subgroup is involved with competing ideas along with his plan*

*of research and after scientific evaluation one subgroup proposal is identified. Again all subgroup's proposals are debated to select one most appropriate for group research project. Similarly all students of small group participate in all phases of research including data collection, compilation and finally drafting & presenting research report. All groups have one year time to complete project. Each group is scheduled to work under a dedicated research supervisor / senior faculty. Participation in research is monitored credited in log-books side by side. A total 30 marks are reserved in 4<sup>th</sup> Prof Exam for assessment of each student's research competency.*

In 5<sup>th</sup> year research teachings are focused to advance health research methods and issues including clinical trials, pharmaceutical research, research funding proposal writings and gray areas of health research etc.

Student's & faculty capacities and high-level motivation, institutional support and high passion for research development held by the Vice Chancellor RMU are major strengths of this program. Incomplete strength, overwhelming academic & administrative workload, long leaves and transfers of the faculty are perceived threats.

## About IURGRC

### What is IUGRC?

This is a **self sustainable educational model** for **innovative research training and evidence based patient care** in undergraduate medical students.

Research Culture

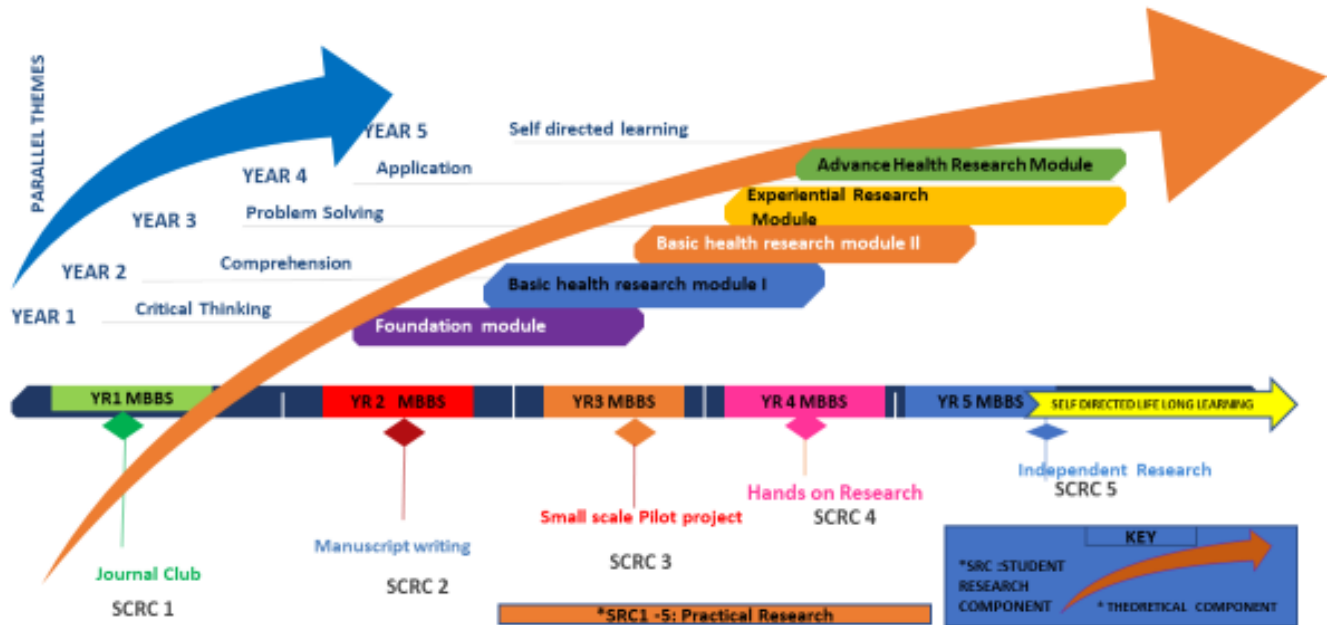
Idea to Publication

Critical thinking

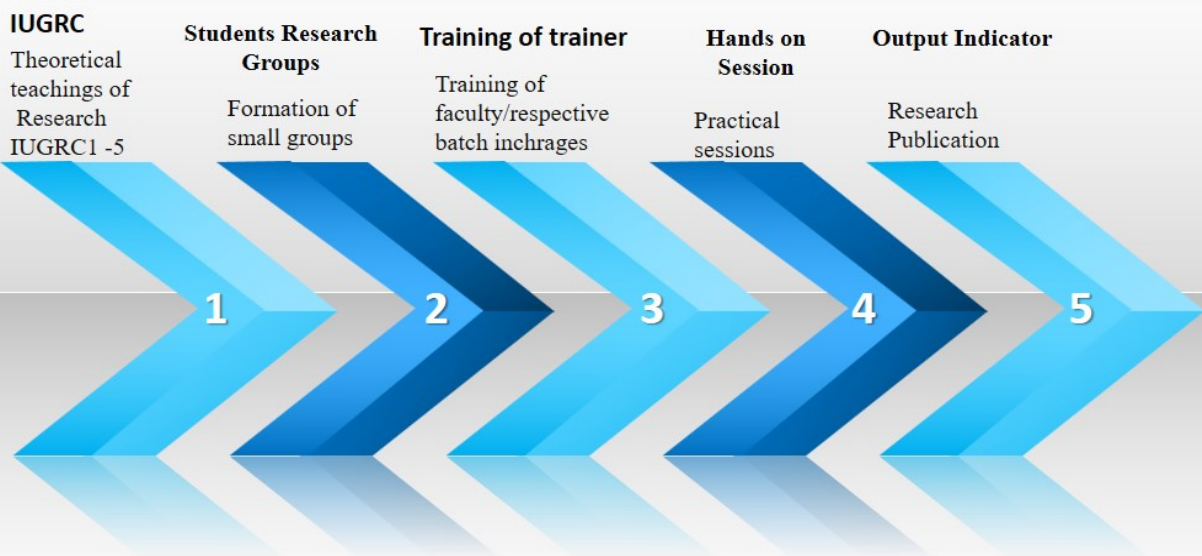
Scholarly Development

Evidence Based Practice

## IUGRC Flow Diagram



## 5-Step Approach of IUGRC Implementation Model



## Schedule Outlines of IUGRC

Year of MBBS course	Total Hrs allocated to Com-Med by PMDC	Hrs allocated to IUGRC <sup>a</sup> Visible within overall MBBS timetable	Actual Hrs invested in IUGRC teachings & class Pattern	Course title	Mode of Teaching
I	25	4hrs	4 x 4 = 16hrs (1/4th, 4 Parallel LGIS <sup>b</sup> )	Health Research Foundation Module	Formal <sup>d</sup>
II	25	6hrs	6 x 4 = 24hrs (1/4th, 4 Parallel LGIS)	Basics of Health Research Module-I	
III	50	8hr	8 x 4 = 32hrs (1/4th, 4 Parallel LGIS)	Basics of Health Research Module-II	
IV Formal Year of CM	150	20hrs 10 contact sessions <sup>c</sup> Each comprising 2hrs	<sup>c</sup> 14 x 2 x 10 = 280hrs (small group-based teachings) <b>14 (7 sessions each day for 2days) parallel contact sessions, each extending over 2hrs (one contact)</b>	Experiential Health Research Module	
V	4 (added)	4 hrs	4 x 4 = 16hrs (1/4th, 4 Parallel LGIS)	Advance Health Research Module	
	250hrs total (254)	<b>42hrs (15% of total hrs allocated to CM by PMDC are devoted to research )</b>	<b>368hrs visible time effort</b> (part of student's regular time-table) <b>in addition to informal contact sessions &amp; Web based</b>		