

Best Practices:

First Best Practice

1. Title of the practice: Nurturing Research and Consultancy in Health Sciences institutions

2. Objectives:

The objectives of the best practice in research and consultancy initiative of the university in health sciences are:

- a) To augment interdisciplinary approach for advancement of learning, teaching and research activities among and between the constituent colleges of the university
- b) To enhance communication between the institutions so as to nurture and integrate consultancy initiatives
- c) To appoint faculty from basic (life) sciences research qualifications along with various medical/health sciences professionals so as to nurture interdisciplinary approach besides to help convert clinical outcomes into research outputs resulting in better health care delivery
- d) To develop a concept to commercialization process in development of new medicines
- e) To give the benefit of advanced medical research knowledge and outcomes for patient care, particularly where no alternate approaches are available

3. The Context: The synthesis of teaching and research is fundamental in any university. The university believes that research plays an important role in innovation driven global society and that research has become the key to prosperity and social well being. Research and Consultancy in Health Sciences institutions need nurturing and support as most of the faculty of such institutions are actively engaged in providing clinical services and teaching students at undergraduate and postgraduate level without sufficient time as well as direction to pursue research and consultancy activities. The limitation of time and completely occupied in a focused manner in a highly specialized area limits interdisciplinary approach and thinking process. Both these issues have been an impediment in nurturing research and consultancy in health sciences institution all over the world.

- 4. The Practice:** The university considering that Research and Consultancy would be an important facet for its Vision and Mission in providing quality education to the students had taken several steps to strengthen its research initiatives with appropriate research policy, research infrastructure and hiring and training of human resource in an appropriate manner.

For the said purpose, the university had initiated following steps:

- i. Constituted a Research Coordination Council (RCC) to facilitate research in the university. Besides promoting research activities, the Research Coordination Council screens new research proposals of the faculty, monitor ongoing research projects and evaluate the completed research projects.
- ii. Establishment of Research Development Fund to support research scholars with fellowships and small grants so as to enroll research scholars from interdisciplinary background to pursue research at the university.
- iii. To appoint an eminent scientist as Director (Research) to provide leadership to research initiatives.

- iv. The RCC also Co-ordinates with institutional research co-ordinator and promotes collaboration between health industry and the university and its constituent colleges through a structured process,
- v. Timely publication of university research journal, "International Journal of Health and Allied Sciences" (available at www.ijhas.in), which is an indexed journal published by Medknow Publications and Media Limited, which is a part of Wolter Kluwers Health
- vi. Conduct of inter-disciplinary seminars, workshops and symposia with national and international experts and pioneers in health sciences research.
- vii. Identify established areas of research strength and strengthen available resources in those areas of research and doctoral study
- viii. Identify nationally/internationally faculty who can augment research and encourage them to join the university.
- ix. Develop the identified strengths mentioned above into potential nationally and internationally recognized centres of excellence.
- x. Achieve national/international recognition through publication of research articles in scientific journals, presentations in national and international scientific meetings and competing for national and international highly acclaimed awards.

5. **Evidence of Success:** The impact of research and consultancy advocacy within the university and outside the university is seen in terms of:

- i. Large number of Principal Investigator (PI) driven research projects supported by national funding agencies such as Department of Science & Technology, (DST) Department of Bio-Technology, (DBT) Defence Research & Development Organization (DRDO), UGC, ICMR, AICTE etc., to the tune of nearly Rs.13 crores in the last four years.
- ii. Nearly, 40% year on year on year increase in the research publications in various national and international peer reviewed journals and similarly an increase by 50% of the number of publications in high impact factor journals.
- iii. The conduct of industry driven research in the form of consultancy from the concept of commercialization; from product development to clinical trials; and from drug discovery to development and delivery has resulted in increase in the consultancy services in the last four years to the tune of nearly Rs. 4 crores.
- iv. The number of research scholars who had registered with the university for pursuing research leading to the award of Ph.D from health sciences graduates has enhanced substantially and visible through 137 scholars in various disciplines, including medicine and dentistry who have registered for the Ph.D program.
- v. Establishment of Centre of Excellence in Molecular Biology and Regenerative Medicine supported by Karnataka Vision Group of Science & Technology (VGST) and Department of Science & Technology and establishment of Centre of Excellence in Clinical Research and Trials supported by Clinical Development Services Agency of Department of Biotechnology, Government of India, New Delhi.
- vi. Highly recognised International and national research organizations and institutions willing to partner in research programmes in emerging areas.
- vii. Development of curriculum which is interdisciplinary and research focused in emerging areas

6. Problems encountered and Resources Required: Lack of enthusiasm and shortage of manpower in clinical specialties was always a major constraint. Lack of enthusiasm was

overcome by organizing training and orientation programmes with the faculty where approaches to research were simplified and assurances made to provide necessary technical and infra structural support to facilitate research. Besides, the university policy to hire at least 10% of additional faculty in each of the department beyond the statutory requirement for the purpose of nurturing research reduced the resistance among the faculty from clinical specialties and got them involved in research activities. The other constraint that affected the initiative was the financial resources and the same was overcome by writing support grants to various funding agencies and also by making the provision of the Research Development Fund at the university.

Second Best Practice:

1. Title of the practice: Innovation in Health Sciences Education through interdisciplinary approach.

2. Objectives: Innovation in education in health sciences courses is to achieve the following objectives:

- i. To simulate interdisciplinary approach in health sciences education leading to the award of new/innovative degrees and diplomas.
- ii. Integrated approach between the health sciences and the basic sciences for advancement of knowledge and research.
- iii. To address the challenges faced by the pharmaceutical industry and the health industry in having human resource that is trained to improve the emerging needs and also capable of adopting to future needs.
- iv. To enhance the employability of the health work force on a competitive global platform.

3. The Context: The health sciences education is strongly regulated by the statutory bodies such as Medical Council of India, Dental Council of India, Pharmacy Council of India, etc., which provide regulations, curricula and experiential training in a structured manner making it mandatory for the institution to comply with and providing little or no scope for innovating in education. The university education whereas emphasizes and encourages interdisciplinary approach, integrated approach and innovative approaches to education so as to enhance the employability of the graduates, their knowledge and skills to current and in emerging areas and also be able to meet the challenges in a global workforce environment. JSS University predominantly offering health focused programmes was under constraint to offer only those programmes that are recognized by the statutory bodies. The university had to adopt interdisciplinary and innovative approaches to overcome the same and emerge to provide several First in India type of educational programmes.

4. The Practice: The constituent colleges of the university consisting of JSS Medical College, JSS Dental College and Hospital, JSS College of Pharmacy in Mysore and Ootacamund had strong research capabilities, highly qualified and well trained human resource and excellent research environment. Towards this end, the university augmented its resources to meet the above challenges and come out with innovative programmes that will either replace obsolete curricula or in addition provide latest trends in training and acquire best skills in health sciences sector. This was achieved by the following activities:

- a) Holding inter-disciplinary workshops, symposia and seminars that can look at integrated approaches to education for advancement of knowledge and skills.
- b) Identify programmes that could be offered with an interdisciplinary approach.
- c) Consult with stake holders and prospective employers about the relevance of the programme and employability of the graduates.
- d) Support the training programme with necessary infrastructure training of the existing manpower and invite adjunct faculty from industry and centres of excellence to provide support and guidance.

5. Evidence of Success: The University has been successful in introducing several interdisciplinary and "First in India" type of programmes which are listed below.

Faculty of Pharmacy	PharmD PharmD (PB) M.Pharm in Pharmaceutical Regulatory Affairs M.Pharm in Pharmaceutical Quality Assurance M.Pharm in Clinical Practice & Research PG Diploma programmes in Regulatory Affairs Pharmaceutical Quality Assurance Pharmaceutical Nano-technology Clinical Research Medicine & Poison Information Herbal Products and Standardization Bio-informatics Pharmacovigilance
Faculty of Medicine	M.Sc. Basic Medical Sciences MD in Emergency Medicine MD in Hospital Administration
Faculty of Life Sciences	BSc in Environmental Science MSc in Cognitive Neurosciences MSc in Environmental Sciences MSc in Geoinformatics MSc in Nanoscience & Technology
Faculty of Management Studies	MBA Hospital Administration MBA Pharmacy Administration
Faculty of Biomedical Science	BSc in Medical Laboratory Technology BSc in Imaging Technology BSc in Anesthesia and operation theatre technology BSc in Renal Dialysis Technology BSc in Respiratory Care Technology BSc in Perfusion technology BSc in Cardiac Care Technology BSc in Physician Assistant Course BSc in Emergency Medicine Interdisciplinary Courses MSC in Forensic Odontology MSc in Clinical Embryology
Faculty of Dentistry	PG Diploma in Dentistry Oral & Maxillofacial Surgery Prosthodontics Crown & Bridge Conservative Dentistry & Endodontics Pedodontics and Preventive Dentistry Periodontology
Other Programmes	Certificate Programs in Principles of Clinical Pharmacology and Introduction to the Principle and Practice of Clinical Research

6. Problems encountered and Resources Required: The major problem in this phase was to identify appropriate and willing faculty and departments to work together in setting the modules for the study programmes. Secondly, strengthening of infrastructure was required in

interdisciplinary areas which had to be located in an interdepartmental area to avoid hierarchical restrictive practices.

The challenge was overcome by identifying willing faculty and exposing them to such emerging areas and training them so that they will be confident to pursue the experiments. The second challenge was overcome by establishing centralized research facility to be commonly used by collaborating departments.