Best Practices

1. **Title :Bridging the gap between research and practice**
2. **Objective of practice**
   a. To promote a scientific culture and research environment among students
   b. To emphasize scientific research on clinically relevant topics
   c. To bridge the gap between research and clinical practice
3. **The Context**

Several problems plague the research being conducted in institutions of higher learning: research is done mainly to fulfill the criteria of the course with less focus on the clinical relevance of the topic selected, research is primarily conducted at the post-graduate levels, there is a lack of resources to conduct research and even clinically relevant research tends to be forgotten and does not result in change or improvement in patient care.

Our institution has always made concerted efforts to address each of these problems so that research is not only promoted among the students but also the relevance of the research work being conducted is emphasized upon.

4. **The Practice**

1. Post-graduate students are encouraged to conduct research on clinically relevant topics for thesis and library dissertation. This not only helps them to develop an understanding of scientific literature but also encourages them to look for practical solutions to clinical problems in day-to-day practice.
2. Under-graduate students are encouraged to undertake research projects aided by faculty. In order to promote research among under-graduate students, the college has

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instituted a 'Young Researcher Award'. A panel of faculty members analyses the projects submitted and the selected projects are funded by the college.

3. The college has also developed a one-of-a-kind 'Advanced Research Centre' in which in-house facilities are available to conduct research in the field of life sciences (PCR thermonuclear, gel doc, Elisa, BOD incubator and laminar flow) and metallurgy (UTM, Vicker hardness, spectrophotometer, stereomicroscope and morphometric analysis).

4. The college has a very robust out-reach program to cater to the dental and medical health needs of the neighbouring rural as well as urban population. Apart from benefitting the local community, this also provides us with a huge database for collecting data and analyzing dental health issues and practices prevalent in the region. Epidemiological and cross-sectional studies have enabled the college to provide problem-based solutions such as setting up of a 'Tobacco Cessation Centre', and a specialized pain clinic to deal with patients suffering from TMD problems. Cancer/cleft surgeries are offered free or at minimal cost for the benefit of the local population.

5. The research studies also provide guides for upgradation of infra-structure and equipment required in each department.

5. **Evidence of success**

1. Our students have succeeded in obtaining a number of research grants from government agencies such as ICMR.
2. More than 200 research studies have been facilitated by our Advanced Research centre in the last 5 years.

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6. Problems encountered and Resources required

Selection of clinically relevant research topics which can be done within a specified time frame with the available sources can be challenging. Funding sources and facilities for conducting research studies are also limited. Addition of new equipment to the in-house research lab as well as maintenance of the ones available are expensive and require trained personnel.

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Title of the practice: Developing precision in treatment modalities and patient care and cohesive functioning of teaching-learning protocols

Objectives of the practice

1. To develop standard operating procedures with the integration of advances in technology to reduce operator bias and inter-operator errors in treatment procedures.
2. To integrate technology in the teaching-learning process to facilitate student training.

The Context

Integration of technology in all aspects of functioning of an institute is necessary to increase efficiency and has become the norm in institutes of higher learning. However in health education, technology should be used to enhance the student as well as patient experience. A successful treatment starts right from the diagnostic process and treatment planning and culminates with an accurate delivery of treatment procedures. Most errors/failures in patient treatment occur due to an ambiguous diagnostic process dependant on the training, experience and acumen of the treating doctor. Use of technology can help to reduce these errors and increase the success of the treatment rendered.

The Practice

Technology in teaching-learning: Technology is extensively employed to improve the practical hands-on training experience of the student before starting clinical work. The college has a state-of –the-art artificial simulation lab having 50 work-stations equipped with individual computer screens and phantom heads for live projection of the demonstrated procedures. The recordings of the demonstrations can be accessed anytime allowing the student to learn and practice at his/her own pace. This is particularly useful for the slow learners.

Biometric attendance is used to monitor attendance of students in each classroom, lab and clinic. A video conferencing system (Logitech CC300E) is used for live webinars by subject experts every month. Live surgeries and clinical demonstrations are projected for ease of understanding.

Technology in Patient management: In order to aid the diagnostic process, several advanced imaging modalities such as CBCT, Dolphin software for analysis and prediction of orthodontic

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patients and advanced diagnostic modalities such as PCR are available in the Advanced Research Centre which help in making the diagnostic and treatment decision making process more efficient by reducing human errors.

The department of Conservative & Endodontics is equipped with microscopes and loupes are mandatory even at the under-graduate level. The department of Prosthodontics has a CAD CAM lab for precise manufacturing of fixed prostheses.

Orion Software is being used extensively to manage patients including scheduling of appointments, maintaining digital case records and treatment history. The entire patient and hospital workflow is managed through this software.

Evidence of success

Digital technology has greatly facilitated the teaching-learning process by increasing visual interactive experiences, easy access to relevant literary sources and better monitoring of student progress. Patient records have been completely digitized resulting in reduced requirement of physical space, easy retrieval and sharing of records making the entire process more 'environment-friendly.'

Problems encountered and resources required

Adoption of technology in all aspects of functioning requires extensive financial resources, adoption of new technology by all stakeholders as well as regular training and updating of skills of all concerned. This has been a constant challenge which has been addressed by the institute by organizing regular training programs of students, staff and faculty.

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