

Title of the practice: Museum – An innovative teaching-learning tool

(Innovative museums – Research museum, Virtual (Digital) museum of Forensic Medicine, Cranial nerve museum, Dr. Coelho Museum of Paediatrics)

Objectives of the practice:

Museums are important educational resource considered as supplemental approach in providing medical education. Apart from the mandatory requirements of regulatory authority, the Institution has developed some special museums to attract students to greater extent and facilitate their independent learning. This will help in creating interest among students about the course and help in better comprehension and knowledge enrichment.

The Competency based Medical Curriculum adopted by the National Medical Commission and implemented by all medical colleges across India emphasizes on Self Directed Learning (SDL). All the innovative museums developed by the Institution will boost the enthusiasm of the students in the learning process in this regard.

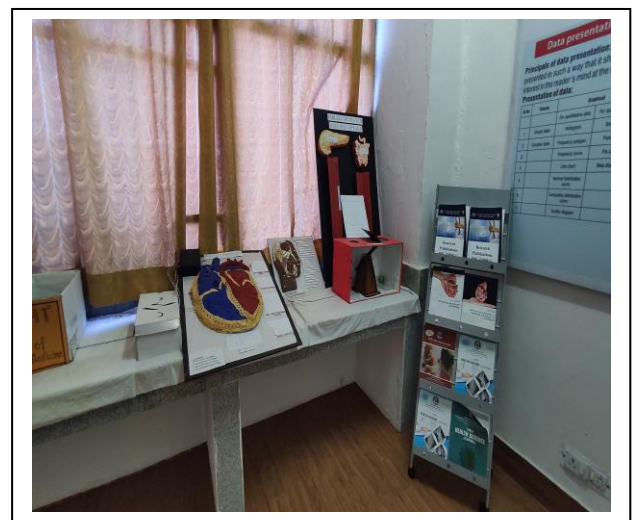
The context:

Historically, museums in a medical institution are principal resource for teaching certain courses like Anatomy and Surgery. Museums were considered as superior to most other educational tools as they allowed self-directed learning and helping students to develop better communication skills. Though, with the improvement in technology and adoption of multimedia in medical education, the role of museum as an educational tool is on the decline. Most of the institutions are keeping at par with the minimum requirement of regulatory authority. But, the value of museum as a pedagogic tool should never be underestimated. Keeping this in mind and for the purpose of experiential and evidence-based learning, we have developed certain special museums which are over and above the mandatory requirements such as Cranial Nerve Museum, Dr. Coelho Museum of Paediatrics, Research Museum and Forensic Medicine & Toxicology Digital (Virtual) Museum.

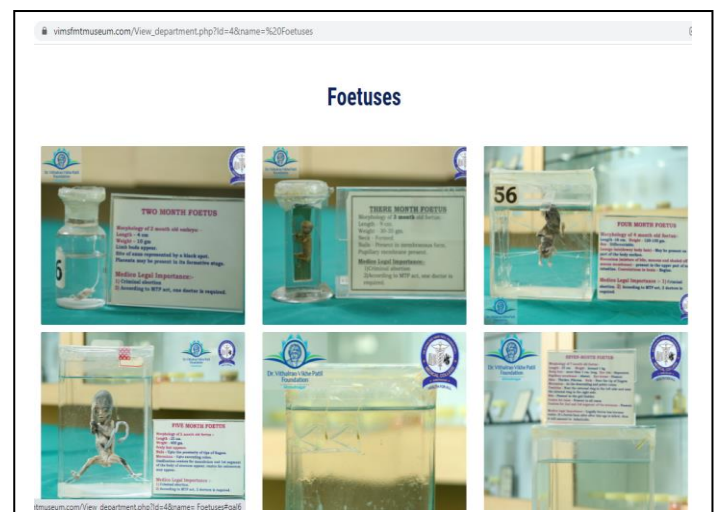
The practice:

At times, classroom teaching can be boring and monotonous. Also, there are certain aspects in medical education where visual impression creates more impact than textbooks and didactic lectures.

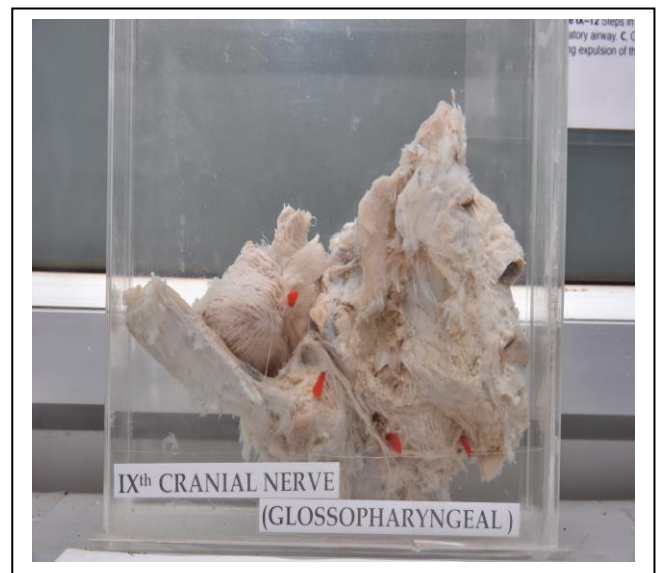
The Institution has developed Research Museum which is one of its kinds. The Research Museum has statues and information about the great researchers in the medical field along with some famous quotes. This inspires the young minds to undertake a research project which is supplemented by providing suitable environment in the campus. Some ancient instruments help students to learn about how the technology has evolved over a period of time.



The Institution has introduced India's first Digital (Virtual) Forensic Medicine Museum – to aid justice to society; available at <https://www.vimsfmtmuseum.com/>. With digitalization of the Forensic Medicine museum, the information is available at the fingertips to all the stakeholders of medical science and judiciary. It helps clearing different medicolegal concepts of Indian Medical Graduate and lawyers so that it helps in depositing proper evidence in court of law for administration of correct justice. This museum contain various charts (40), fetuses (11), osteology slides (41), soft models, jurisprudence cartoons, photographs, X-ray, wet specimens, etc.

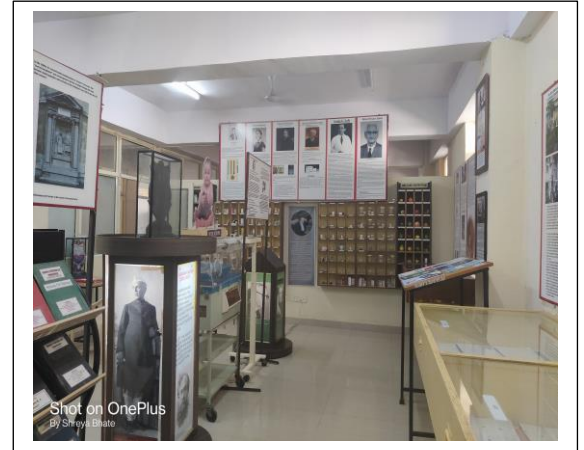


The Cranial Nerve Museum has been developed by the department of Anatomy, which consists of 21 specimens and 80 charts. The specimens are obtained from cadaveric dissection which shows the complete course of all cranial nerves starting from the nuclear level, surface attachment at the base of brain, intracranial course, exit and extracranial course. The accompanied charts show pictorial representation and entire overview of the cranial nerve. The charts also give information about related clinical aspects which students can correlate with the anatomy of the cranial nerve. First MBBS students are first exposed to the Cranial Nerve Museum before they start with the dissection of brain, which creates an interest and enthusiasm to learn more about cranial nerves. Later, when the students finish with the dissection of brain and they have learnt about physiology of cranial nerves; they are again exposed to the cranial nerve museum for better understanding of all the aspects of cranial nerves.



The departmental museum of Paediatrics has been upgraded and was named after Dr. George Coelho, who is known as Father of Indian Paediatrics. All the medical students during their first clinical posting in the department of Paediatrics are first exposed to this museum. This helps the students to get oriented about the course and the history of Paediatrics motivates them to learn more about the course. The museum contains 242 specimens, 17 charts, 65 X-rays, 8 ECG, 10 EEG, 46 vaccines and 16 textbooks and reference books of Paediatrics. This different type of clinical material is very useful for the undergraduate and postgraduate students as they get the opportunity to learn about certain rare cases. Though, bedside learning cannot be replaced, the X-rays, ECG and EEG of certain clinical conditions available to see at

given time is a boost to the knowledge. It also has specimens of foetus development at different stages. This helps the students to learn in detail about development of foetus at different gestational age and also learn about some congenital anomalies which occur during developmental stage.



These museums are open for all the students. Any undergraduate and postgraduate student of the Institution can anytime visit any of the museums with prior permission.

Evidence of success

Museums are irreplaceable resources for modern medicine. As the number of students using these museums for learning increases, the success is evident from the improved grades of the students. Students feel more confident about the topic they have learned in those museums during the assessment. The use of museum is helpful for organising group discussion. It is a means for self-directed learning, which is now an integral part of the revised medical curriculum. The museums are used for peer-based and problem-based learning and also used for the newer assessment techniques like OSCE and OSPE.

A research project done on the understanding of the cranial nerves by the students by teaching them same topic by traditional method and by the use of museum, shows the results in favour of use of museum. The Paediatric museum is patented by the Government of India. The research project done on the use of Paediatric museum also concludes that the students who attend Paediatric museum had a better understanding of the subject and can reproduce the knowledge gained by them in better way (DOI: <https://dx.doi.org/10.21088/per.2321.1644.6218.13>).

Cranial Nerve Museum: A Novel Teaching- Learning Tool for Phase I Medical Students

DR. SUREKHA JADHAV (Batch 2020-B)

Professor, Dept. of Anatomy, DVVPF's Medical College & Hospital, Ahmednagar-414111 (MS)

INTRODUCTION

- ❑ Teaching cranial nerve (CN) anatomy is a very meticulous task for teacher and more tedious for students to understand and remember. Though the students are doing dissection but it is very hard to recall the course and branches of each cranial nerve.
- ❑ According to Irby both activities of teaching and learning are equally important. Teacher should try to understand that how students learn and he must be able to create an environment in which they can learn effectively, efficiently and joyfully so that they can enjoy teaching.¹
- ❑ Actually, in medical education teaching is 'ever evolving' process and it should be updated according to development of new techniques along with traditional methods.²
- ❑ A multi-dimensional approach is essential to improve the overall excellence in medical education.³ Many medical colleges are providing satellite museums due to lack of space. Advances in technology like 3D animation have neglected the role of traditional method like anatomy museum.⁴

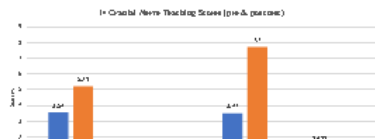
Table 1: 1st Cranial Nerve Teaching Scores (pre & post test)

	Group	Mean±/SD	P Value
1st Pretest	A (Lecture)	3.54±/1.031	0.74, NS
	B (CNM)	3.47±/1.481	
1st Post test	A (Lecture)	5.21±/1.203	<0.001, S*
	B (CNM)	7.70±/1.278	

Table 2: 2nd Cranial Nerve Teaching Scores (pre & post test) after Exchange of Groups

	Group	Mean±/SD	P Value
2nd Pretest	A (CNM)	3.50±/1.139	0.61, NS
	B (Lecture)	3.60±/1.184	
2nd Post test	A (CNM)	7.63±/1.230	<0.001, S*
	B (Lecture)	5.77±/1.079	

*Significant Difference between the two batches



The Research paper presented on 'Paediatric Museum as a teaching tool' received first prize in 5th National Conference of Paediatric Education at Pune in September 2017 and second prize at MUHS State Level Research Conference, 2018.



The Paediatric museum as well as the Digital (Virtual) museum of Forensic
Medicine have been patented by the Official Journal of The Patent Office

(12) PATENT APPLICATION PUBLICATION (19) INDIA (22) Date of filing of Application : 17/02/2017	(21) Application No. 201721005672 A (43) Publication Date : 15/09/2017
(54) Title of the invention : USE OF MUSEUM AS A NOVEL TEACHING A LEARNING TOOL IN PAEDIATRIC EDUCATION.	
(51) International classification : G09B 7/00 (31) Priority Document No : NA (32) Priority Date : NA (33) Name of priority country : NA (86) International Application No : NA Filing Date : NA (87) International Publication No : NA (61) Patent of Addition to Application Number : NA Filing Date : NA (62) Divisional to Application Number : NA Filing Date : NA	(71) Name of Applicant : 1) DR. SUNIL NATHA MHASKE Address of Applicant : DEPT OF PAEDIATRICS, DR. VITHALRAO VIKHE PATIL MEDICAL COLLEGE, AHMEDNAGAR-414 111, MAHARASHTRA, INDIA. Maharashtra India (72) Name of Inventor : 1) DR. SUNIL NATHA MHASKE 2) DR. ABHIJIT DIWATE 3) DR. SUSHIL KACHEWAR
(57) Abstract : Use of Museum As A Novel Teaching Learning Tool in Pediatric Education is a novelty in Pediatric Education technology. Various Learning methods that have been described in literature have their own drawbacks. To remove the dependence on teachers, the biases that can arise because of intrinsic individuality of the teachers and the learning capabilities of the students; we invented the Use of Museum as a Novel Teaching Learning Tool in Pediatric Education, It provide the learners as Well as teachers uniform data base of the knowledge : both the past as well as the present in Pediatrics - all under one roof- to be utilized independently as per their choice without any time constraints.	
No. of Pages : 9 No. of Claims : 3	

(19) INDIA

(22) Date of filing of Application : 09/06/2020

(43) Publication Date : 21/08/2020

(54) Title of the invention : DR VITHALRAO VIKHE PATIL FOUNDATION'S MEDICAL COLLEGE INTRODUCES FIRST DIGITAL (VIRTUAL) FORENSIC MEDICINE MUSEUM OF INDIA TO AID JUSTICE TO SOCIETY

(51) International classification : H04W 21/00 (31) Priority Document No : NA (32) Priority Date : NA (33) Name of priority country : NA (86) International Application No : NA Filing Date : NA (87) International Publication No : NA (61) Patent of Addition to Application Number : NA Filing Date : NA (62) Divisional to Application Number : NA Filing Date : NA	(71) Name of Applicant : 1) DR. SANDEEP SITARAM KADU Address of Applicant : DEPARTMENT OF FORENSIC MEDICINE, DR. VITHALRAO VIKHE PATIL FOUNDATION'S MEDICAL COLLEGE AND HOSPITAL, AHMEDNAGAR 414111, MAHARASHTRA, INDIA. Maharashtra India 2) DR. ABHIJIT DIWATE 3) DR. SUNIL NATHA MHASKE 4) DR. MRS. SWATI SANDEEP KADU 5) DR. RUCHA TIPARE (72) Name of Inventor : 1) DR. SANDEEP SITARAM KADU
--	---

(57) Abstract :
Abstract Title- Dr. Vithalrao Vikhe Patil Foundations Medical College introduces first digital (virtual) Forensic medicine museum of India- To aid justice to society. **Introduction-** Museum is an integral tool of learning and teaching. In the classroom, educationalists can present information to students in many ways via lecture, video, or readings. After theory class immediate student can visit museum and see the practical aspects, of the topic. An important role of a museum is to make its heritages become a part of our life, much like the functions of a library. Based on this aspiration, the digital curation of a museum has become an integral part of both the academic and public sectors. Forensic medicine deals with application of scientific medical knowledge in court of law for administration of justice. This subject deals with different medicolegal aspects of medical sciences like different injuries, sexual offences, poisoning cases. Proper knowledge of this subject helps the medical graduate to deposit proper evidence in court of law and thus helps in administrating correct justice to victim. Forensic medicine museum consists of information and its medicolegal aspects of different poisons, weapons, bones, photographs etc. In museum medicolegal charts, different medicolegal wet specimens, models, X-rays are displayed. We have created a website to have a look at this digital museum, and the link for same is -www.vimsfmuseum.com **Aims and Objectives -** To Create first Digital Forensic Medicine museum as educational tool for all stakeholders of medical science and judiciary including medical students, Indian medical graduates, lawyers, judges and public. **Conclusion-** With Digitalization of our Forensic Medicine museum, it is available on tip of the fingers to all stakeholders of medical science and judiciary. It helps clearing different medicolegal concepts of Indian Medical graduates, lawyers so that it is serving in depositing proper evidence in court of law for administration of correct justice.

No. of Pages : 6 No. of Claims : 3

The number of students undertaking the research projects has increased. More students are now interested in doing research and many have submitted the research project to

ICMR and are participating in various research competitions at University, state and national levels.

Problems encountered and resources required

One of the major constraints in establishing those museums was space. With increasing number of students, most of the space has been devoted to build new classrooms, lecture halls and laboratories. Another problem encountered was to get the required material for the museum. The specimens required for the cranial nerve museum were obtained after the number of cadaveric dissections done by the experienced teachers. Similarly, for the other museums, to acquire specimens, photographs and instruments was major hurdle.

High maintenance cost is one of the issues that we faced after successfully establishing the museums. It requires separate budget allocation and raising fund for its maintenance.

It is also important to constantly upgrade the museum. The objective is to build a state-of-the-art museum which will encourage more students and will be a part of integrated medical curriculum.