

January-June 2020

Volume 29

Issue 1

PRINT ISSN: 2277-1867

ONLINE ISSN: 2277-8853



# JOURNAL OF FORENSIC MEDICINE SCIENCE AND LAW

Official Publication of Medicolegal Association of Maharashtra

## **Editor-in-chief**

Dr Ravindra Deokar

## **Associate Editors**

Dr Sadanand Bhise

Dr Sachin Patil

**MULTISPECIALITY, MULTIDISCIPLINARY, NATIONAL  
PEER REVIEWED, OPEN ACCESS, MLAM (SOCIETY) JOURNAL**

### **Editorial Office Address**

Department of Forensic Medicine & Toxicology, Third Floor, Library Building, Seth G S Medical College & KEM Hospital, Parel, Mumbai-400 012. Email id: [mlameditor@gmail.com](mailto:mlameditor@gmail.com) Phone: 022-24107620 Mobile No. +91-9423016325



# JOURNAL OF FORENSIC MEDICINE SCIENCE AND LAW

(Official Publication of Medicolegal Association of Maharashtra)  
Email.id: [mlameditor@gmail.com](mailto:mlameditor@gmail.com)

PRINT ISSN:  
2277-1867

ONLINE ISSN:  
2277-8853

## *Original Research Article*

### **Introducing a Clinical Forensic Medicine Module in a Tertiary Care Medical Institution**

Deokar Ravindra Ba\*, Pathak Harish Mb

<sup>a</sup>Professor (Additional), <sup>b</sup>Professor & Head

Department of Forensic Medicine and Toxicology, Seth G.S. Medical College & KEM Hospital, Mumbai, Maharashtra, India, India. Pin-400012

#### Article Info

**Received on:** 23.10.2019

**Accepted on:** 30.12.2019

#### **Key words**

Medicolegal cases,  
Antemortem forensics,  
CBME,  
Questionnaire,  
Medical  
documentation.

#### Abstract

Clinical Forensic Medicine sometimes referred as antemortem forensics relates to medical examination, documentation, material evidence collection and assessment of medicolegal cases in living persons. Well trained registered medical practitioner may provide competent medical services to victims of assault in medicolegal cases, but, ignorant towards its appropriate medicolegal management. Overlooking of evidence or errors in documentation due to ignorance by physician may weaken the case in court of law for the innocent victim and offers easy escape for the culprits. Hence, it is need of hour that medical practitioner must have an adequate knowledge of documentation, policies and dealing of such medicolegal cases through a formal adequate training towards medicolegal management of such medicolegal cases. Solution to this essential lacuna would be imparting routine academic training of medical undergraduates by Clinical Forensic Medicine Module through active, student centric learning for clinical forensic medicine topics that requires them to have good knowledge and skills in handling medico-legal cases. In this study, a clinical forensic medicine module applied to a group of students imparting hands on training to undergraduates towards handling medicolegal cases in real settings. Undergraduates showed positive inclination towards implementing such educational module on Clinical Forensic Medicine as an effective teaching/learning method. It facilitated them to learn basics of Medico-legal issues and protocols in handling medicolegal cases in real scenario at bedside clinics in wards.

#### **1. Introduction**

Clinical Forensic Medicine (CFM) is refer to the branch of Forensic Medicine involving an interaction

among various agencies such as judiciary, police, law. It usually concerned with living people.

**How to cite this article:** Deokar RB, Pathak HM. Introducing a Clinical Forensic Medicine Module in a Tertiary Care Medical Institution. J For Med Sci Law 2020;29(1):38-45.

**\*Corresponding author:** Dr Ravindra B Deokar, Professor (Additional), Department of Forensic Medicine and Toxicology, Seth G.S. Medical College & KEM Hospital, Mumbai, Maharashtra, India, India. Pin-400012 E-mail ID: [ravideo80@gmail.com](mailto:ravideo80@gmail.com) (M): +91- 9423016325

It is application of forensic techniques to living person.<sup>1</sup> The field of CFM is continued to be flourished and progressing very rapidly. The expertise in this field is essential for providing appropriate and prompt quality care to victims and suspects. Further it facilitates the securing the material evidence towards justice to such survivor's in court of law. Hence, the role of healthcare professionals is very important and it must be courteous, professional, competent, independent, well-trained, non-judgemental and well informed.<sup>2,3</sup>

The traditional practice of teaching Forensic Medicine to students in India is not able to deliver effective clinical skills towards handling medico-legal cases. It is a matter of great concern towards creating efficient graduates for handling medicolegal cases in accordance with need of society towards justice to the victims of crime.<sup>3,4</sup> As per section 39 of Criminal Procedure Code of India, person who is aware of the commission of any offense by any person in relation to the human body, he/she is bound to report such information to the police or the magistrate.<sup>4</sup>

In absence of clear medical sub-speciality of clinical forensic medicine, the concerned work is mostly done by casualty medical officers or forensic experts. Sometimes, in accordance with their appointments they may termed as police surgeons, forensic physician, forensic medical officer, forensic medical examiner.<sup>5</sup> Due to violence, there may be loss of human life or functions. Annually, millions of people affected by this and used to receive medical care services and expects justice in addition to medical relief. Society demands in depth investigations into criminal activity associated with trauma. In consideration with the examination of such victims, basic forensic education, skills, knowledge and experience needed to handle such medicolegal cases. The forensic medicine expert expected to be work as clinical investigator providing a vital link between the investigation agencies and judiciary towards justice to survivor.<sup>6-8</sup>

In India, a medical practitioner is constantly exposed to medicolegal cases at practice and receives the information about the commission of a crime during the healthcare services to the patients who are injured due to crime committed against him/her. The concerned doctor is duty bound to convey this information to the police/magistrates at

the earliest. In addition, a doctor is also legally bound to collect all the necessary evidence material from the body of patients.<sup>9</sup> This may further help to investigating authorities in the investigation of the crime. In accordance with the training of doctor, he must be enough efficient and well trained to judge a medical case and to assess whether there is a possibility of any crime or not. With advancement of the rate of trauma cases, the recognition of these cases with its medicolegal value requires new knowledge and appropriate training.<sup>10-15</sup>

Sometimes, judiciary refers or send some cases for medical examination and expert opinion to the medical doctor. E.g. Identification of criminal, age estimation of survivor or assailant, medical termination of pregnancy cases, etc.<sup>12</sup> The registered medical practitioner is well trained and confident to provide efficient medical treatment, but feel less confident, uncomfortable, or unwilling to provide the patient with an equally competent medicolegal evaluation.<sup>13</sup> In consideration with these un-met forensic needs of survivors of violent crimes and trauma, the examination of victims of violence by a specially trained person in medicolegal matters is need of hour.<sup>13-15</sup>

Usually in traditional curriculum, the training of handling of such medico-legal and clinical forensic medicine cases to a medical student is given during the second year of their undergraduate courses.<sup>14-16</sup> Due to lack of appropriate exposure to emergency cases in second MBBS, it is argued that these phase students are lacking awareness about the importance of learning to handle medico-legal cases. Hence, a dedicated module to teach clinical forensic and medico-legal cases to these phase students along with practical hands-on training knowledge may be imparted to them with skills required to deal in such cases. In this study, the students opinion were taken on the implementation of this module, as they are the main stakeholders of this educational module. Further the usefulness and impact of this module was assessed.

## 2. Aims & Objectives:

This study was undertaken with following objectives:

- i. To assess II MBBS students' perception on this Clinical Forensic Medicine module.

- ii. To study the impact of the hands on training to undergraduate students towards handling antemortem medico legal cases.

### 3. Material & Methods:

This is an educational interventional study undertaken using 81 second MBBS students of our Medical Institution as the subjects of the study. The study protocol was submitted to Institutional Ethics Committee (IEC) & IEC Permission was taken. The second MBBS undergraduate students, who had given voluntary consent to participate in this project were included in this project. The written informed consent of participants was taken. First, third year and Exam going second MBBS students were not excluded from this study. A prevalidated questionnaire with Five point Likert scale used for assessment of students' perception and impact of this module at the end of the module. The departmental Faculty were trained specifically for this module to conduct practical demonstration-cum-training sessions on clinical forensic medicine cases.

**Training sessions:** This course introduced the systematic instruction to undergraduate students in the principles and practice of Clinical Forensic Medicine. The basic principles and practices in handling medico legal cases of age & injury imparted by way of lectures, practical demonstrations on subjects. In addition, video graphic demonstration of examination of survivor of sexual assault were conducted. Victim assessment and collection of forensic samples were demonstrated by showing sample videos. The broad goal towards teaching undergraduates in CFM is to impart the basic knowledge, skills and behavioural attributes in Clinical Forensic Medicine towards handling medicolegal cases effectively as the first contact Medico-legal experts.

In this project, 81 undergraduate students of our institute were participated with voluntary will. Besides lectures, video demonstrations, they were subjected to hands on training in small groups towards handling medicolegal cases such as age & Injury and training given towards preparation of medicolegal reports & expert opinions to investigating agencies. The students' responses towards educational project on Clinical Forensic Medicine were collected in the form of a pre-

validated questionnaire template at the end of this project. The responses were 1-strongly disagree, 2-Disagree, 3- Uncertain, 4- Agree, 5-Strongly agree. The data collected was analyzed.

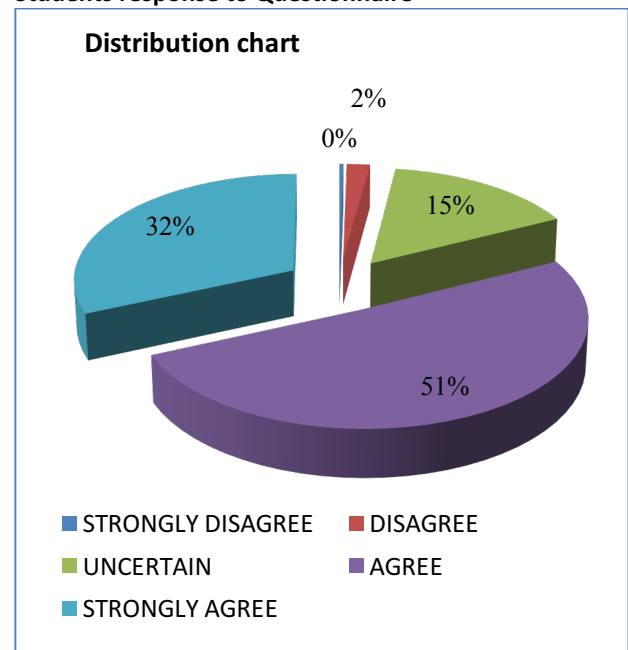
### 4. Results

About 51 % students responded as agreed and 32 % strongly agreed with the questionnaires of this module. There were 15 % students who were not able to decide whether this module is going to improve their medico-legal knowledge and its use in clinical practices (**Table 1 & Fig. No. 1**).

**Table No. 1: Overall Students response to Questionnaire**

Overall Response		Score	%
1- SD	STRONGLY DISAGREE	5	0.309
2-D	DISAGREE	30	1.852
3-U	UNCERTAIN	250	15.43
4-A	AGREE	823	50.80
5-SA	STRONGLY AGREE	512	31.60
		1620	100

**Figure No. 1: Graphical Representation of overall Students response to Questionnaire**



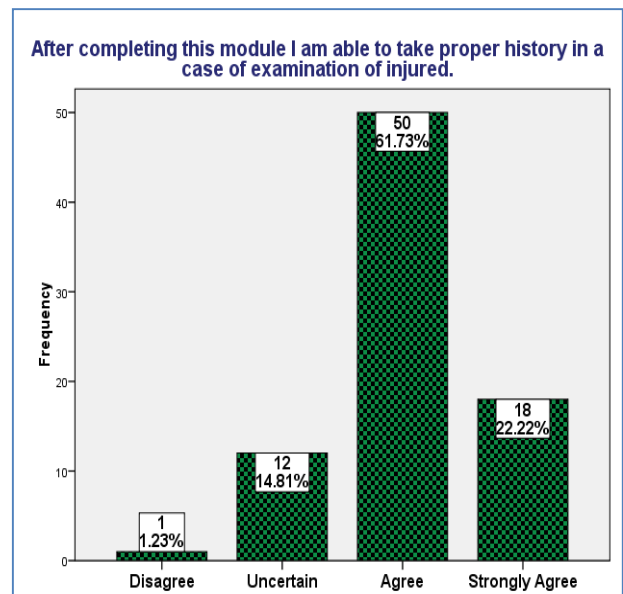
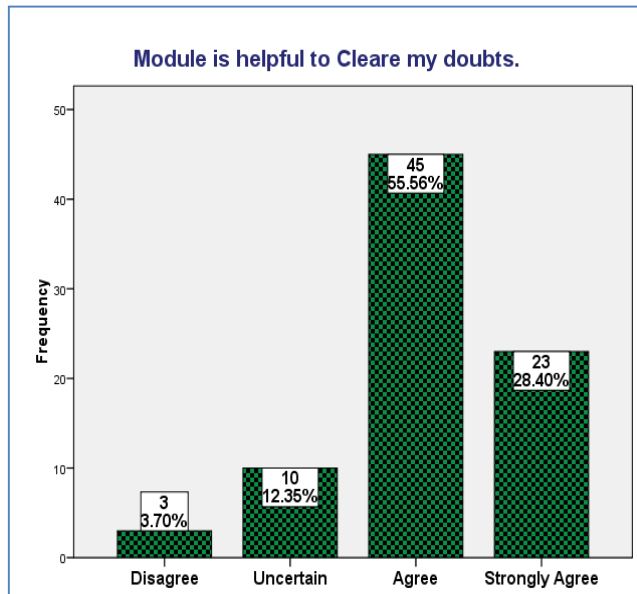
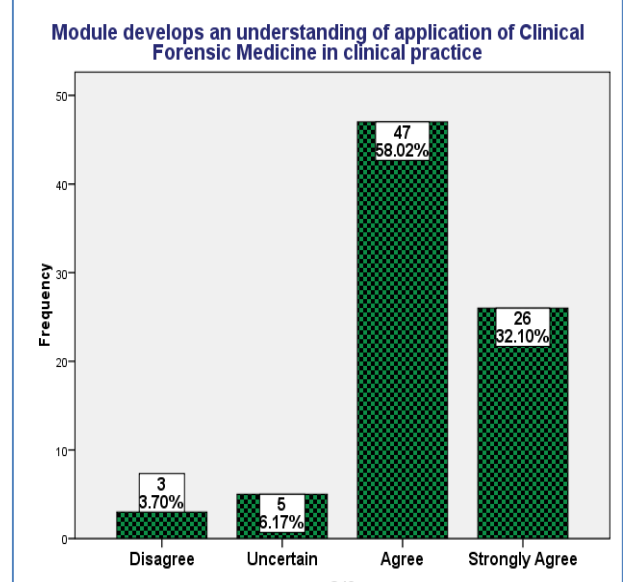
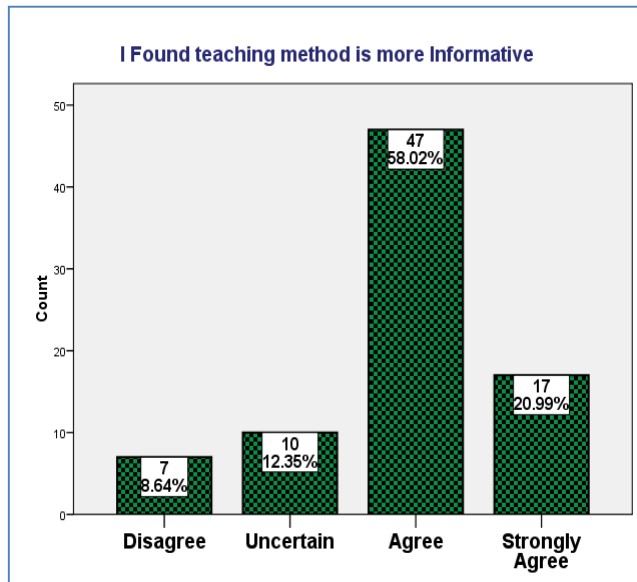
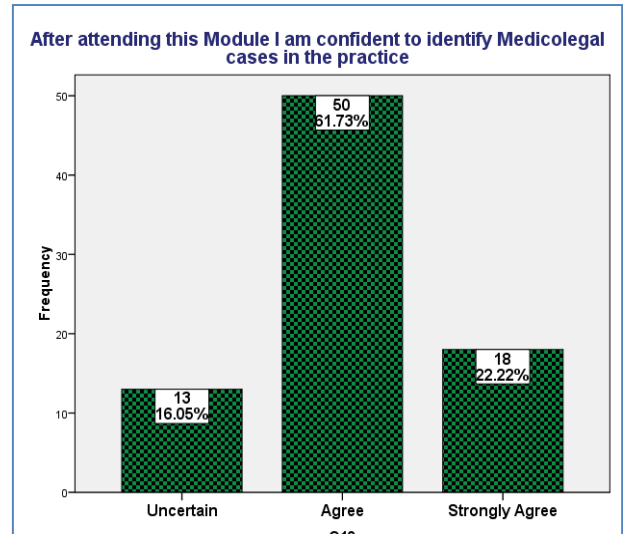
**The overall or combined response to this module (table no. 2):**

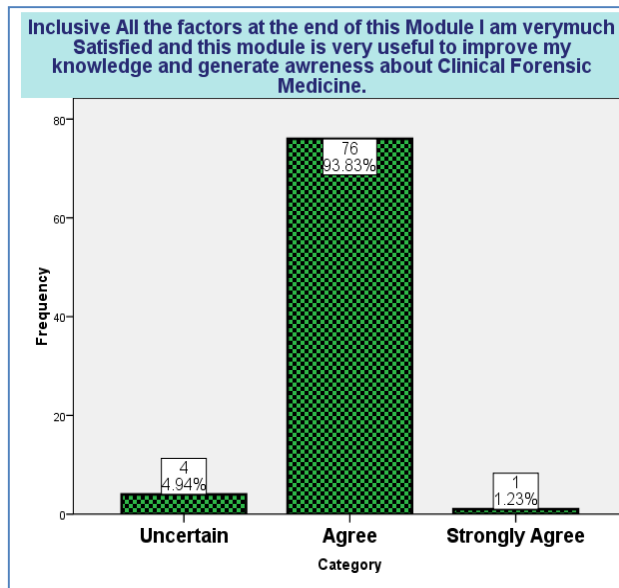
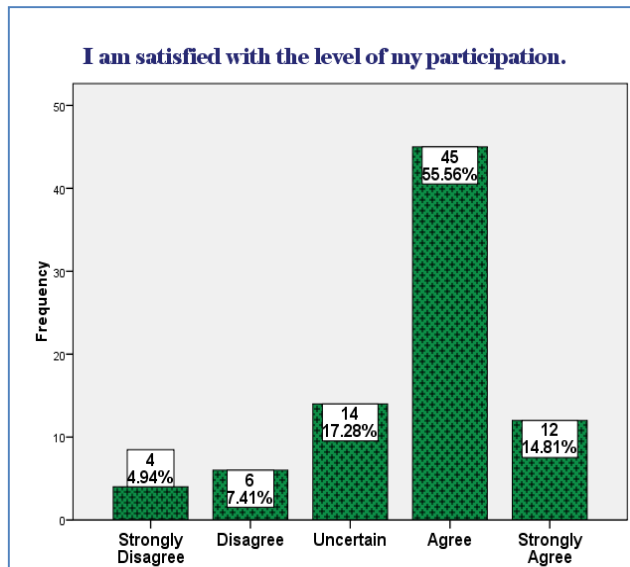
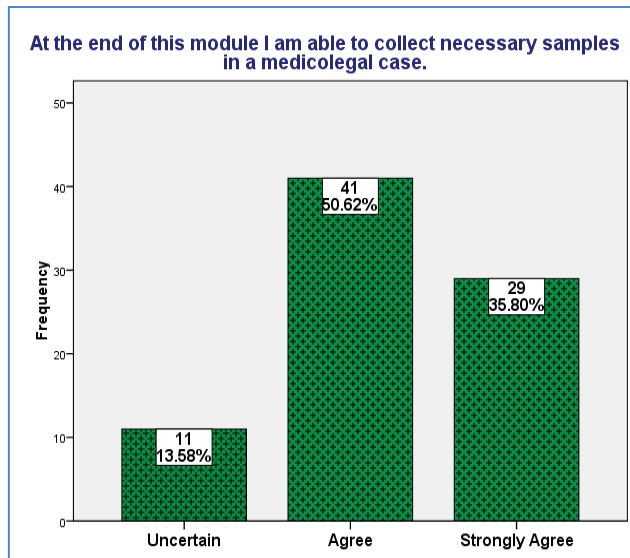
- ✓ 93.8 % students are agreed and 1.2% strongly agreed with the objectives of this module.
- ✓ 4.9 % students are not able to decide whether this module is going to improve their medico-legal knowledge and its use in clinical practices.

**Table No. 2: Cumulative frequency table of overall positive Students response to Questionnaire**

OVERALL RESPONSE		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uncertain	4	4.9	4.9	4.9
	Agree	76	93.8	93.8	98.8
	Strongly Agree	1	1.2	1.2	100.0
	Total	81	100.0	100.0	

**Figure No. 2-9: Graphical representation of relevant questionnaire perception.**





## Discussion

Recently, there is exponential growth of the field of Clinical Forensic Medicine and it is emerging as separate entity which deals with practice of physically examining and assessing a living persons such as victim of assault or culprits of the alleged crime. It collaborative efforts from various other departments such as medicine, surgery, pediatrics, pediatric surgery, obstetrics and gynecology and criminology.<sup>1-3</sup>

A new competency based medical education curriculum is being implemented by Medical Council of India in all medical colleges in India from August 2019 with an aim to train graduates by developing their essential competencies to cater the health care to public as per the need of the society.<sup>4</sup> As per Medical Council of India, the most important core competencies of an Indian Medical graduate is that the graduates should know to describe the importance of documentation in medical practice and should competent to prepare Medical Certificates and medico-legal reports. They should document the medico-legal cases appropriately by performing the medicolegal examinations.<sup>3,7</sup> In accordance with the tradition curriculum, the graduates are not able to deal medicolegal cases competently, efficiently as they were not given any sufficient training in handling medicolegal cases in practical scenario. Hence, appropriate teaching module imparting hands on training in clinical forensic medicine is need of hour.

This teaching would include making the graduates competent in taking appropriate history in medicolegal cases, carry out observations, conduct proper physical examination (Medico-legal) a living person. They should able to document findings appropriately as per prescribed and accepted format while dealing with medicolegal cases.

He should be enough competent in preserving the relevant biological samples in medicolegal cases and able to interpret its results towards giving expert advice to investigation agencies. He need to deal with Age estimation cases for age verification/certification to aid administration of justice. Currently in India, such

program on Clinical Forensic Medicine, where evaluation of a living victim is carried out by trained medico legal person with team approach has not been so evolved and also not implemented everywhere.<sup>4-7</sup>

However, till date as per the traditional curriculum, this essential information was delivered in Forensic Medicine through theoretical lectures and demonstrations only. A shift in teaching system towards competency-based medical education has been initiated world-wide including India with transition towards student-centric, an active learning format for delivering such information to the medical undergraduates.

Hence, this Clinical Forensic Modules is a way forward to enlighten students on the in depth clinical forensic medicolegal aspects by using small group discussion methods and hands on training in practical scenario including case based teaching at bed side clinics, a case scenario or video clipping or clinical rounds.

The trauma care physicians involved in assessment and treatment of victims of violence or accidents may not have appropriate training in forensic aspects of trauma and forensic material evidence collection. This may result in loss of evidence as due attention is given to medical management of wound only and the material evidence collection may be overlooked or discarded.<sup>8-12</sup> Also, the appropriate, timely medicolegal documentation of evidence which may be important in future for Pathologists, police and legal authorities in consideration with judging/interpreting findings and investigation results for forensic and judicial purposes may be neglected by such on duty physician.<sup>13-16</sup>

In traditional curriculum, it was expected from a graduates performing physical examination to learn the basic forensic skills to handle medico legal cases. Hence, this study was undertaken to apply principles of active, student-centric learning to assess student's satisfaction on their teaching-learning experience with this Clinical forensic medicine module.

In the present study (**fig no. 2-9**), most of the students (98.5%) had a good learning experience with this module with reference to enjoyable experience, stimulation to learning, and aroused curiosity about topic. The participants of this module

found that the delivery of method useful to understand the topic better. In addition, Students opined that this module ensures their active participation and helped them towards clearing of doubts. It helped to memorise the steps of examination clearly. They found that the learning was relevant to them in routine clinical medical practice. It ensures the future application of knowledge in their private professional practice. It improves their understanding of application of Clinical Forensic Medicine expertise in clinical practice.

Students felt that they may perform better in university examination after their training using this module. An acceptance to this module by students encourages implementing this Clinical module. By implementing this module students understanding would improve and will make them competent in Clinical application of Forensic Medicine in medico-legal cases. More than 80% students (either agreed or strongly agreed) that forensic practicals need to be covered by this method using bedside clinics and case based teaching in real scenario. Case based training in Clinical Forensic medicine is need of hour. May give undergraduates the confidence to handle medico legal cases in practice.

Similar comparable results were revealed by Mohite et al. Authors concluded in their study that introduction of Clinical posting in Clinical Forensic Medicine is need of hour for enabling medical graduate competent with skills of handling medico legal cases.<sup>17</sup>

Ingole et al in studied the effect of early Clinical exposure on documentation of medico-legal cases. The authors revealed that implementation of this critically designed module of early clinical exposure definitely improved knowledge and skills of students. Authors recommend undergraduates early Clinical Posting in casualty and compulsory posting of Interns under forensic Medicine, as this is currently optional in India.<sup>18</sup>

It is hoped that implementation of Clinical Forensic Medicine module may avail an opportunity to the forensic expert faculty to teach students all clinical medico-legal aspect in an efficient way at wards or in clinical settings. This will definitely towards improving the medico-legal examination

and medico-legal report writing which will further aids in administration of justice.

**Limitations:**

Long term effects such as students' actual performance in their professional examinations were not assessed. The actual improvement in knowledge & skills not assessed as it is not included in the study protocol due to time constraint.

**Conclusion**

The approach and tool used in this Module for teaching principles and practice of Clinical Forensic Medicine, including medico legal cases of age & injury were well accepted by students as one of the good teaching-learning method. The study was demonstrated the students' active learning involvement at study sessions showing their acceptance towards this method for better understanding of medico-legal issues. The introduction of this module shows increased confidence amongst the undergraduates towards handling the medicolegal cases with systemic standard protocol. Also, it improves their confidence towards their Professional examination assessment.

Undergraduates showed positive inclination towards implementing such educational module on Clinical Forensic Medicine as an effective teaching/learning method. It facilitated them to learn basics of Medico-legal issues and protocols in handling medicolegal cases in real scenario at bedside clinics in wards. It showed increase in their confidence towards handling medicolegal cases as first contact person efficiently in their clinical practice. Implementation of this module will help to produce medical graduates with a sound and broad applied knowledge of medico-legal principles in Clinical Forensic Medicine.

**Recommendations:**

Authors of this study recommends the bedside clinical forensic medicine teaching in real settings at ward for undergraduates with the new competency-based medical education curriculum.

**Acknowledgement:** Dr Avinash N supe, The former Dean, KEM Hospital and The former Director, Medical Education & Major Hospitals, Municipal Corporation of Greater Mumbai for his constant guidance, support, help and mentorship in implementing this module.

**Source of Support:** Self funding.

**Conflict of Interests:** None

**Ethical Clearance:** Yes.

**Contributor-ship of Authors:** Conception, analysis and interpretation of cases were done by first author, drafting and revising the manuscript as well as approval of final version done by both the authors.

**References**

1. Payne-James JJ. History and development of Forensic Medicine and Pathology. In: Payne-James JJ, Busuttil A, Smock W (eds.) *Forensic Medicine: Clinical and Pathological Aspects*. London: Greenwich Medical Media, 2003.
2. Payne-James J. (2005) History and Development of Clinical Forensic Medicine. In: Stark M.M. (eds) *Clinical Forensic Medicine*. Forensic Science and Medicine. Humana Press. <https://doi.org/10.1385/1-59259-913-3-001>
3. Khandekar I, Tirpude B, Murkey P, Pawar V. "Development of Clinical Forensic Medicine in India A need of time." *J Indian Acad Forensic Med*, 2011; 32: 85-90.
4. Deokar R B, Patil S S. Competency based Medical Education: a brief overview. *J For Med Sci Law* 2018;27(1):32-33.
5. Legal advice online in India [homepage on the Internet]. CrPC 39: Section 39 of the Criminal Procedure Code. Copyright © 2013-2015 Kaanoon Corporation; accessed 30 June 2019. Available from: <https://www.kaanoon.com/indian-law/crpc-39/>
6. Payne-James J.J., Payne-James J.J., Stark M.M. (2011) *Clinical Forensic Medicine: History and Development*. In: Stark M. (eds) *Clinical Forensic Medicine*. Humana Press. [https://doi.org/10.1007/978-1-61779-258-8\\_1](https://doi.org/10.1007/978-1-61779-258-8_1)
7. Deokar R B, Patil S S. Competency based Medical Education curriculum for Undergraduates- Forensic Medicine Perspectives. *J For Med Sci Law* 2019;28(2):1-2.
8. Goldsmith MF. US forensic pathologists on a new case: examination of living persons. *JAMA* 1986;18:15-7.
9. Smock, W. S., Nichols, G. R., Fuller, P. M. "Development and Implementation of the First Clinical Forensic Medicine Training Program," *Journal of Forensic Sciences, JFSCA*, Vol. 38, No. 4, July 1993, pp. 835- 839.
10. Wells David. "Clinical Forensic Medicine in Australia. *BMJ* 1995; 311: 1587.
11. Mittleman RE, Goldberg HS, Waksman DM. Preserving evidence in the emergency department.



- Am J Nurs 1983;83:1652-6.
12. Goldsmith MF. US forensic pathologists on a new case: examination of living persons. JAMA 1986;256:1685–91.
  13. Sarkar U, Stark MM (2010) The role of the independent forensic physician. Faculty of Forensic & Legal Medicine, London. <http://www.fflm.ac.uk>
  14. Stark MM, Wall I (2010) Quality standards in forensic medicine. Faculty of Forensic & Legal Medicine, London. <http://www.fflm.ac.uk>
  15. Webb V, Stark MM, Cutts A, Tait S, Randle J, Green G (2010) One model of health care provision – lessons learnt through clinical governance. J Forensic Leg Med 17:368–373 [PubMedCrossRefGoogle Scholar](#)
  16. Stark MM (2011) Advice on obtaining qualifications in clinical forensic medicine. FFLM [Google Scholar](#)
  17. Mohite PM, Anjankar AJ, Srivastava T. Clinical Teaching in Forensic Medicine: Need of the Hour. J Indian Acad Forensic Med 2015; 37: 275-277.
  18. Ingole A, Patond S, Srivastava T, Ninave S, Mohite P. Early clinical exposure of medicolegal cases to 2nd MBBS students in forensic medicine. Int J Forensic Med Toxicol Sci 2019;4:19-21.