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National Convention on Medicine and Law 2018 - Report

The '**National Convention on Medicine and Law 2018**' (NCML) was conducted by the **Institute of Medicine & Law (IML)** together with the **Maharashtra National Law University (MNLU)** and the **Seth G S Medical College** on Saturday, 15th December 2018 at the MNLU campus to identify, discuss, and deliberate upon legal issues relating to medicine and to find practical and legally appropriate solutions so that it ultimately benefits the doctors as well as the patients

The two topics chosen for discussions were:

- **Virtual Autopsy – Need and Legality**
- **The Mental Health Act 2017 – Implementation, Challenges, and Solutions**

Doctors, Legal professionals, and Lawmakers came together to analyse, discuss, and bring a fresh perspective to the current legal system, and thereby help address the potential gaps that could interfere with the effective working, implementation, and acceptance of the above-mentioned issues. As medicine is a very sensitive and dynamic subject, certain laws and / or changes in law are required for the proper functioning of the medical system and it is the responsibility of the policymakers and others to create and manifest opinions and formulate policies that cater to the needs and interests of all stakeholders

The crux of the first part of the meeting, which focused on Virtual Autopsy, was to explore the following:

1. Merits and de-merits of introducing such an advanced technology in the country
2. Whether Virtual Autopsies were permissible and valid under the current legal regime and whether it holds any evidentiary value?
3. What changes should be brought in the current laws and systems to further facilitate, strengthen, and encourage the use of Virtual Autopsies?

Dr. Pramod G. Bagali, made a presentation and explained the new innovative method for 'Virtual Autopsy' using the latest and sophisticated forensic software systems and protocols while comparing it to the traditional method of conducting autopsy and explained the differences in both methods step-by-step



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The following issues were then deliberated upon:

1. Merits and De-merits of introducing Virtual Autopsy:

1.1. Merits:

1.1.1. Speed:

A physical autopsy can take hours to be conducted and is very labour-intensive whereas with Virtual Autopsy, the physical procedure is just limited to scanning of the body in either the CT or MRI scanner, after which a huge amount of whole-body data is generated and computed within a secure, forensic specific software environment to produce a digital 3D body image of the deceased to conduct the diagnosis. Whereas a physical autopsy can take up to 4-5 hours, the scanning procedure can be concluded in under 10 minutes and with the help of the forensic software technology, the forensic experts are able to generate comprehensive autopsy reports in as less as 30-45 minutes

1.1.2. Non-Invasiveness:

One of the major drawbacks of physical autopsies is that the forensic expert conducting the autopsy has to cut open the body and physically move and sometimes remove the organs, all of which leads to defacing / disfiguring the body. By conducting Virtual Autopsies this can be avoided as the physical body is only scanned and all the procedures are conducted on the 3D digital body / images

1.1.3. Accuracy:

When it comes to physical autopsies, sometimes it gets very tricky to detect the cause of death and doctors may not be able to arrive at a conclusive diagnosis; but with Virtual Autopsies, the AI powered forensic specific software technology provides the doctors with tools that are much superior to the physical tools available. In a study conducted in the United Kingdom where this technology is already used widely, it was found through retrospective studies, that physical autopsies are 63% accurate while the Virtual Autopsies are 94% accurate. Given the fact that this still a fledgling technology and is being improved upon every day, it is anticipated that these will soon be of the highest possible accuracy as compared to the physical autopsies, a fact recognized by The Royal College of Pathologists, United Kingdom, leading to Virtual Autopsy being now endorsed as



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the future of post-mortem examination

1.1.4. Manipulation:

One of the major concerns raised by the august gathering was regarding the ease or the level of difficulty in manipulating the reports generated through autopsies. The experts among the group informed the gathering that the reports of not only these autopsies but nearly all digital data are saved as 'hashes' (encoded) and carry a digital date and time stamp by unalterable metadata. Hence, altering a hash without the correct access is impossible and even if an alteration is made, the date and time stamp on the document will be altered (creating an audit trail) which itself would be an indication of manipulation, in which case that report would not be relied upon and / or junked. Moreover, the complete forensic system, i.e. the machine, software, and protocols, are integrated with the main network and are isolated from unauthorized access. Only doctors with special and permitted access can generate reports and they have to affix their personal digital signatures on each report they generate which again is protected by asymmetric encryptions methods. As compared to the reports generated through physical autopsies, these are much safer and less prone to manipulation. In fact, in physical autopsy, chances of manipulation are much higher at various levels

Other than these major advantages, other factors such as use of this technology for the purpose of determining whether physical autopsies would still be required; and in what cases could this technology be used (or not used) was also discussed. It was reported that in up to 85% of the cases that require an autopsy, Virtual Autopsies alone could do the job and for the remaining 15% cases, they could still be used to make the physical autopsies as non-invasive as possible

Another important issue that was also discussed at this juncture was whether our doctors and forensic experts in India are technically equipped to handle this kind of technology and utilize it to its full extent. It was concluded that the forensic experts and doctors currently involved in the process of conducting post mortems would certainly have to receive training in order to completely understand and utilize this technology and it was pointed out that introducing this technology right now, especially in medical colleges could help us ready the next generation of forensic experts and doctors to use this technology, not just for conducting post mortems but doing research in the forensics field over all



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De-merits:

With regards to the **disadvantages**, cost was considered to be the most important factor. At the time of its introduction about three years ago in the UK, the integrated forensic software system and hardware investments made the adoption rather expensive and not available to all the hospitals. The software which powers the technology is a very expensive and the running costs could be as high as £500 per autopsy, which given the high number of legally mandated autopsies that the state has to pay for can add up to a huge recurring expense

However, the panel was given to understand that a new model of deployment in countries like India through new generation software system could bring down the cost or pricing to the user and would be much more attractive and viable due to the huge number of cases in India for post-mortem (advantage of scale). Another much cheaper option could be to lease the equipment and use it on a fully managed basis rather than direct procurement

2. The current position of law and evidentiary value:

2.1. Are Virtual Autopsies admissible in the court of law?

2.1.1. Post-mortems are of two types:

- The kind of post-mortems that are conducted to investigate an unnatural death and do not require statutory consent
- Ones in which the consent is granted by the statute and these are governed by Section 174 of the Code of Criminal Procedure, 1973

Section 174 deals with the following kinds of cases in which a post-mortem is statutorily mandated:

- Suicide*
- Murder*
- Animal Attack*
- Death by machinery*
- Death under circumstances raising reasonable suspicion that some other person has committed an offense*

It was agreed by everyone that there is nothing in law that bars conducting of Virtual Autopsies in India. Thus, the next question that logically comes to mind is regarding the 'evidentiary' value of the reports generated using Virtual Autopsy

2.2. Evidentiary value of Virtual Autopsies:

2.2.1. The question around which the debate revolved in this issue was whether Virtual Autopsy reports and the testimonies that the doctors conducting them would be giving, could be considered as primary evidence¹ under Section 62 of the Indian Evidence Act, 1872 or should it be considered as an expert opinion under Section 45?

It was submitted that the evidentiary value of expert opinions under Section 45 in India is given lower value and it would be better if this evidence and the testimonies are considered under Section 62 of the Indian Evidence Act. That way the chances of evidentiary value of these reports and testimonies being considered by the courts while deciding the case at hand would be higher

¹ Wasn't the amended Section 3 (2) of the Indian Evidence Act 1872, (amended in 2000 to include electronic records as documentary evidence), not considered in the discussions?



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3. The final question under consideration was how to further facilitate the acceptability and evidentiary value of Virtual Autopsies:

In pursuance of the same, the following points were raised:

- 3.1. An amendment should be brought to introduce the concept of 'minimalistic method' of invasion during post-mortems which would promote the use of this technology
- 3.2. To get this technology certified so that once this technology gets a certain certification, it can be assumed by the courts that the reports produced through it are of a set standard and would thus increase the evidentiary value of the same. It was then discussed whether the certification done through studies and tests conducted in other countries could be utilized for the purpose, but it was pointed out that India being a tropical sub-continent has many factors which make it unique from the countries where such technology is currently being used and hence certification done in those countries cannot be used
- 3.3. The third point discussed here was whether pilot programs would be a good idea to certify this technology? This issue was discussed by the committee which opined that though the pilot programs would be highly time and resource intensive, but, in the given situation there is no better way of getting this technology certified quickly. Hence, the pilot programs could be conducted

Other than these three main questions, the following issues were also discussed:

1. Steps on how Virtual Autopsy is done:

- The body is put in a body-bag
- The registration of the body is done
- The body is received in the mortuary
- A MSCT scan is done of the body without taking it out of the body-bag
- The 3D image is generated
- The experts i.e. the radiologist and the forensic pathologist can view the image and can see the smallest defect, cut, incision, wound, etc. in the body
- There is a clear visualization of any part of the body
- The 3D image can be rotated and viewed from different angles
- Nature of death can be detected easily whether the death is a natural death or an unnatural death

2. The situations where Virtual Autopsies cannot be used:

According to the data available in countries where Virtual Autopsies are used, they are an effective method of conclusive diagnosis in minimum 85% of the cases, which covers things such as accidental deaths and deaths due to firearms. In cases such as Carbon Monoxide poisoning or cardiovascular issues, these can be used to diagnose which organs need physical biopsies thus reducing the need for a full-fledged physical autopsy



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3. Religious Sentiment:

It is observed that in many cases, the kin of the deceased refuse to consent for physical autopsies as they believe that it would lead to disfiguration of and thus violation of the dignity of the deceased. But with technology such as Virtual Autopsies, this can be avoided as these are completely non-invasive. Further, there are certain religions such as Judaism, which do not allow for autopsies, however, with Virtual Autopsy, it can still be taken care of

4. Will this be covered under medical insurance?

Given the fact that this is a high-cost procedure, a question that naturally comes to mind is whether this investigation will be covered under Medical Insurance? We were informed that though it is not covered currently, however, certain provisions could be made in order to include it under Medical Insurance

The following concluding remarks were added by the panellists:

Professor Dr. Shailesh Mohite pointed out that the high-cost factor was a major deterrent especially for a poor country like India. He also opined that as of today, we are not ready / prepared for this technology, keeping in view that the doctors are not trained to handle either the equipment or the reports generated by these machines. He also pointed out that there is an imperative need to train not only our doctors and others in a competent manner, but also include this technology as part of the curriculum for the medical students so that they are prepared for the technology as and when they complete their studies and are ready to take-up Virtual Autopsies. Also, that when reports say that doctors are not the ones doing autopsies, it reflects poorly on the doctors. *(In reality it is still the same doctors who are doing the examination and producing the report using digital capabilities rather than physical dissections)*. He also pointed out that India being a land of diversity with many religions, customs, and traditions in place, this may also hamper the proper implementation of the technology

Dr. Harish Pathak and Prof. Chirag Balyan spoke about making some modifications and / or amendments in certain sections of the Indian Evidence Act for making this technology acceptable and implementable

Ms. Rukmini Krishnamurthy believed that the technology should be first validated by all the relevant people related to and involved in the process i.e. the machine-operators (technicians),



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doctors (from both forensic medicine and radiologists), and legal professionals. The reports would then be taken as corroborative evidence

Dr. Srinivas raised a doubt whether the technology was good enough and whether we have the expertise in this technology

Dr. Srikanth Shetty voiced the concern on if the reservation is manipulation in these cases, will a poor man understand the technical technological aspect of it, and have a check and balance

Dr. Nitin Malekar and Dr. Hemanth Kukade spoke on how the training of manpower is very important and that this technology should be included in the medical curriculum

Dr. Pranita Tipre enquired regarding the administrative work and efforts required in actually bringing the machine and technology in India, and about who would initiate the process, and about how much time would it take to get the Virtual Autopsy system in India

Dr. Sarfaraz Ahmed Khan opined that we should accept this technology as the major advantage would be the evidential value of this technology. He was also of the opinion that this technology need not replace the traditional method completely but could work hand-in-hand with the traditional method. He also felt that the word 'document' in IT Act could be seen to have a broad definition which could also include digital documents as well as far as the admissibility of data in courts is concerned

Prof. Chirag Balyan spoke about the inclusion of word 'minimalistic method', to automatically include Virtual Autopsy; and provide defined cases of deaths where Virtual Autopsy can be used, serves as an educational purpose

In his concluding remarks, Hon'ble Justice Ravi Tripathi, who chaired the convention, made the following observations:

First, that there is a pressing need for educating all the people about the Virtual Autopsy technology, especially those involved in the medico-legal cases, including doctors, lawyers, and judges

Second, this technology is highly effective as it provides the most accurate diagnosis in more than 85 percent cases. However, what needs to be taken in consideration is that this



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technology is not being suggested as an alternative to the pre-existing ways of conducting an autopsy but as a supportive instrument and recommended a stepwise approach whereby Virtual Autopsy is to be used as the first line of intervention similarly to what is practiced in UK. In any given case where either the court or any of the litigants requested for traditional autopsy to be conducted, the same could be conducted as the final step

Third, given that the use of this technology isn't expressly barred under the Indian law, we shall strive to try something new and make it included and acceptable in our judicial system





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List of Participants:

Hon'ble Justice Ravi Tripathi; Member – Law Commission of India (Chairperson)
Dr. Harish Pathak; HOD – Forensic Medicine; KEM Hospital (Convener)
Hon'ble Justice Sadashiv Deshmukh; Vice-Chancellor; MNLU
Hon'ble Justice Gavhane; Registrar; MNLU
Adv. (Mr.) Mahendra Bajpai; Advocate Supreme Court of India, Hon. Director - IML
Mr. G K Goswami; IPS; IG – Lucknow
Dr. Rakesh Sukhadeve; HOD – Forensic Medicine; Cooper Hospital
Dr. Shailesh Mohite; HOD – Forensic Medicine; Nair Hospital
Dr. Pranita Tipre; HOD – Registration of Births & Deaths; BMC
Dr. Dev Shetty; HOD – Radiology; Nair Hospital
Dr. Chetan Jani; HOD – Forensic Medicine, Ahmedabad
Dr. Hemant Kukade; Ass. Professor – FMT; LTMMC & LTMG Hospital
Dr. Shreenivas M; Prof. Forensic Medicine; Maulana Azad Medical College
Ms. Rukmini Krishnamurthy; Chairperson & CEO; Helix Foundation
Dr. Shreekant Shetty; HAWK Foundation
Prof. Chirag Balyan; Ass. Professor; MNLU
Dr. Sarfaraz Ahmad Khan; Prof. MNLU
Adv. (Mr.) Deepak Salvi; Advocate – High Court
Mr. Ravindra Mangal; Associate Director; IML
Mr. Agasti Mhatre; COO; IML