

Expert Opinion

Design and Layout of Standard Autopsy Suite

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Abstract

The autopsy suite is the most disliked, underrated rather hatred and disrespected place in almost all hospitals and medical colleges or universities of this part of the world. It is almost completely devoid of basic facilities not only for the corpses but also for public and medical /paramedical staff working there. It is an established fact that it is in the least priority to spend budgetary amount on mortuary from the overall expenditure of any medical institute/hospital rather it is being considered an evil burden. Resultantly situation in autopsy suite is not in parlance with the advanced countries standards; this scenario is augmented by lack of interest of administrative authorities towards work of forensic medical examiner. Despite these lapses, some improvements emerge from court orders. Therefore, due to reasons mentioned supra, this lay out for the standard autopsy suite is proposed for medical institute/ hospitals of Punjab with the only intentions in mind to decipher some respect and up gradation of this disliked and ignored work.

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Introduction

The autopsy suite is a place of curiosity and no one ever dreamed to visit such a place while alive. For those who have lost a near, close and loved relative due to a natural or unnatural death, this turns out to be a reality¹. Working in an autopsy suite is unpleasant and least preferable job in Pakistan that is made worse in Pakistan due to the increased number of sudden deaths from violence and poisoning and the miserable condition of autopsy suites throughout the State.

In this part of world, where relatives consider the autopsy as against the religious faith and norms, disrespect to human body, inhuman act of staff working in autopsy suite, and undue removal of organs from the corpse, this job is different and

difficult.

Keeping in view, the above scenario the working in a mortuary attached to medical institute in Pakistan is being discussed.

- (1) For primary level hospitals (Basic health units/ Rural health centers), there is no facility for medico-legal cases.
- (2) The medico-legal cases are referred to the Tehsil or District Headquarter hospitals in near vicinity for post-mortem examinations.

As per three tier structure notification No. S.O(H&D) 5-5/2002 dated 28th Oct. 2002, all medico-legal work including autopsies is carried out by Authorized Medical Officers or demonstrators of Forensic Medicine department of medical institutes (as per

Section 299C PPC) posted there, however, recently primary and secondary health department Punjab, banned this work by ADHOC MEDICAL OFFICER vide letter NO. S.O. (H&D) 1-14/2016 dated 1st August 2018.

Re- examination or 2nd examination is conducted by DISTRICT STANDING MEDICAL BOARD (DSMB) on Judicial Order on challenging of 1st Examination and DSMB conducts 1st examination in case of police torture and 3rd or final examination is conducted by PROVINCIAL STANDING MEDICAL BOARD (PSMB) (as per three tier structure). Sometimes, special medical board constructed by judicial orders or competent authority conducts autopsy of some sensitive medico legal cases. This hierarchy is prevalent throughout the Punjab though there are some ambiguities prevalent.

For an authentic autopsy report, standard autopsy suite is required. Hence, following layout is presented for establishing standard autopsy suite. The basic guidelines are same for THQs, DHQs and teaching institutions, however, facilities may be different depending upon workload and teaching and training of under and post graduates in subject of forensic medicine.

Standard Autopsy Suite Layout

The various sections in a purpose built standard autopsy suite are²

1. Administration area
2. Registration/ storage of corpses
3. Conduction of Forensic or Medico legal autopsies
4. Demonstration of autopsy for teaching purposes (for medical students only)
5. Specimen handling area
6. Mobile radiography
7. Forensic Photography
8. Body identification area for relatives/ investigating agency

General principles are same for all standard autopsy suites with mild differences depending upon the level of health care system. Generally basic layout of standard autopsy suite satisfies all levels.

General Guidelines for Autopsy Unit Designs

Each autopsy unit must possess following facilities at the least:-

- i) Separate routes for receiving corpses from hospital / outside area with segregated storage area for decomposed, putrefied and infectious bodies.
- ii) Autopsy lab for performing autopsies.
- iii) Receiving of the corpse by the relatives through police after autopsy
- iv) Autopsy observing area for the students / investigating officer (IO) and nominees as per court orders
- v) Infrastructure and other logistics as per requirement of workload.

The standard autopsy suite of a teaching institute should match with the number of students and workload. It should have plenty of water supply, availability of natural light, drainage system and sanitation facilities. It should be easily approachable and located not far from the hospital. There should be reasonably large parking area and broad walkways for easy delivery of dead bodies.

Standard Autopsy Suite Infrastructure / Facilities

Autopsy suite is guided by the principle that Forensic Medicine Examiners Office and autopsy record room should be studded together for safety and security of the record being confidential. The standard autopsy unit must consist of the following:

1. Reception / Registration Area: A 14×16 sq. ft room for reception / registration purposes, is built near the main entrance gate with vehicle parking, escorting police and public waiting area with toilet facilities. The reception / registration room must have open working windows for easy facilitation.

2. Mortuary Supervisor room: A 12×14 sq. ft room with open working windows present near cold storage room for receiving inquest papers and documentation of details in a register for maintenance of record is essential.

3. Pre Autopsy Room / Cold Storage: The size of this room depends upon the number of dead bodies received annually for storage and autopsy purposes. It

should be spacious and able to accommodate extra bodies in cases of emergency (mass disaster). The pre-autopsy temperature in cold storage is maintained at 0-4 °C. In addition to that there should be arrangements for storage of dead bodies at -20°C (post autopsy). The storing capacity depends upon number of dead bodies received annually, e.g., for 100 dead bodies received annually at least three separate components with capacity of storing two dead bodies each must be available.

4. Autopsy / Teaching Autopsy Room: The area of teaching autopsy room depends upon the intake of the students. Two mortuary tables of stainless steel are preferable. Continuous water flow and free drainage from top to bottom is necessary. It is important to have positive pressure ventilation that includes exhaust fans near floor rather than near roof to push heavy foul smell outside to avoid hazard to autopsy room workers. Arrangements of hosing of mortuary from roof to floor must be made with protective lids on the electrical outlets. The inner construction should be impervious having ice blue tiles for ease of cleaning and washing. The autopsy room must also accommodate portable x-ray machine and x-ray view box. Drainage system should be constructed cautiously to avoid blockage. Natural sunlight coming from north direction is preferable. The minimum quantity of artificial light required at table level is 90 lumens. Arrangement of sterilization of the autopsy room with UV light after washing should be ensured.

5. Store rooms: A room measuring (12×14 sq. ft) for materials such as containers, preservatives, plastic bottles, card board boxes, envelopes of different sizes, blades, gowns, aprons, rubber gloves, gum boots and towels should be in close vicinity of autopsy room. Another similar isolated store room for reserve stocks, chemical solutions and packing material should also be present.

6. Viscera preparation room: A room (12×10 sq. ft) for the said purpose in near proximity of autopsy room is necessary, where all the activities are conducted under the direct supervision of the autopsy surgeon.

7. Autopsy surgeon Changing rooms / toilets: Separate changing rooms (12×10 sq. ft) for male / female autopsy surgeons with bath and shower

facility are required. 8 x 12 sq. ft attached toilets for male/ female autopsy surgeons should be present.

8. Class IV Staff rooms: should have lockers facility.

9. Computer Room & Office: with all necessary facilities.

10. Record Rooms with file cabinets: A room for maintaining, recording and storage of case files.

11. Paramedics Rooms: with facility of lockers etc.

12. Doctor's Office: A room of reasonable size where the autopsy surgeon can prepare reports without any disturbance.

Miscellaneous Requirements

(a) Floors: Floors must be made from firm, durable and washable moisture resistant material that could be cleaned without difficulty. Cracks, trenches and unnecessary floor ducts should be avoided.

(b) Walls: With ice blue color fitted tiles up to the ceiling favors observation of the natural colors of the dead body.

(c) Doors: Fly proof and sliding type doors should be used in autopsy suite.

(d) Windows: Optimum light for working is very important. Windows sills covered with glass must be at least 1.5 meter above the floor, placed in a way to allow maximum natural sunlight from north side which is considered preferable.

(e) Corridors: Easy movement of staff and trolleys in an autopsy suite require at least 8 ft. broad corridors

(f) Hot and cold water supply: Hot and cold water supply should be abundant. The autopsy tables should have internal water hoses. Water suction pumps and floor service ducts are avoided. Elbow operated type tapes are used in autopsy suite, particularly in the working area.

(g) Air conditioning: Separate air conditioning system should be installed in the autopsy complex to avoid mixing of fresh and foul air. All necessary preventive methods should be applied to prevent recirculation of foul air from the autopsy suite.

(h) Safety: Emergency lighting, fire sprinklers and smoke/thermal detector should be fitted in all rooms. A fire alarm system with blue /red beacon light with hooter should be installed. Emergency exit routes should be made easily identifiable, earmarked, well illuminated and known to all working staff of the autopsy suite.

(i) Proper disposal of waste: Biological and non-biological wastes should be clearly identified and disposed of accordingly. Charts and instructions should be displayed at important points to warn and educate the staff. Cleanliness and sanitation of general area around the autopsy suite should be maintained properly

(j) Green belt: These are required to make the complex green and eco-friendly.

(k) Measurements of the space: Dependent upon workload and necessities determine the need of working area. Aeration and cross ventilation of the autopsy suite must be kept in mind at the time of construction.

Conclusion and Future Suggestions

The basic purpose of a standard and modern autopsy suite is not only to raise the standard of medico-legal certification but also to protect the autopsy surgeon and his team from hazards and risks of autopsy.

A standard autopsy suite without any doubt will raise not only the standard of teaching of subject of forensic medicine and authenticity of autopsy report but also will definitely help the law enforcement agencies and judiciary to reach the truth that is essential to provide justice.

A huge emphasis should be done on the security and safety of forensic facility. The public areas and security zones are clearly defined and demarcated for safety of medico-legal record and biological speci-

mens.

With the advancement of science in modern days, advanced technologies should be incorporated and applied in the system to acquire the excellent medico-legal certifications to help the law enforcement agencies and judiciary to clinch the truth. All the latest technologies like CT scan, MRI and post-mortem angiography should be used to clinch the exact cause of death and there must be facilities for the training of undergraduate and postgraduate students. Conference rooms must be equipped with telemedicine facilities and video conference capabilities for educational sessions.

Religious beliefs are a common hurdle in our set up to pursue our goals and investigate the case with only limited post-mortem examination and autopsy. These advanced innovations and emerging trends have become standard practice and provide an opportunity to avoid dissection of the bodies due to religious reasons hence these can be incorporated where deems necessary.

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