

# Profile of Autopsy in a Tertiary Hospital in Abuja, Nigeria: A Ten-Year Review

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## **Abstract**

**Background:** Hospital autopsy though acknowledged to be an important health care component is on significant decline worldwide. We present the autopsy rate of a tertiary hospital in a developing country.

**Materials and Methods:** A retrospective analytic study of the autopsy records of the department of Histopathology and the Health records department of the National Hospital Abuja.

**Results:** The crude autopsy rate in the hospital is 11% with an approximate annual rate of 86 autopsies. The commonest age group autopsied is the 31 to 40 year cohort, predominantly males in all ages. Coma, haemorrhagic and cardiac shock are the commonest immediate cause of death whilst cardiovascular lesions are the predominant underlying cause of death.

**Conclusions:** Autopsy rate is low and gradually declining in the National Hospital Abuja. A concerted effort from clinician, pathologist, policy-makers and the general public is needed to arrest the trend.

**Keywords:** Autopsy rate, cause of death, tertiary hospital, developing country

## **Introduction**

Despite its significant contribution to the accuracy of death certification, its enrichment of epidemiologic statistical data, better elucidation of disease pathogenesis and immense enhancement of medical education, hospital autopsy is acknowledged to be on a

precipitous decline globally.<sup>1,2</sup> This trend is even more pronounced in developing countries like Nigeria where ab initio the rates are relatively low.<sup>3</sup>

We hereby present the profile and rate of autopsies for a decade in a tertiary hospital in Nigeria.

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**Setting**

National Hospital Abuja (NHA) is a 400-bed tertiary public hospital established in 1999 located in the central part of the cosmopolitan city of Abuja the capital of Nigeria. It clientele is derived from the entire country but predominantly from the culturally and ethnically heterogeneous population of Abuja metropolitan city and nearby states.

**Materials and Methods**

This is a retrospective analytic study of all the autopsies carried out in the Department of histopathology of the NHA from 1<sup>st</sup> January 2004 to 31<sup>st</sup> December 2013. Routine mortuary registers; autopsy register, death certificate, and autopsy reports emanating from the department were consulted. Additional information was obtained from ward folders, and medical records archive. Data collected was analyzed using simple statistical methods with Microsoft excel 2011 edition. The International Classification of Disease (ICD-10) was used where appropriate for categorization of diagnoses.

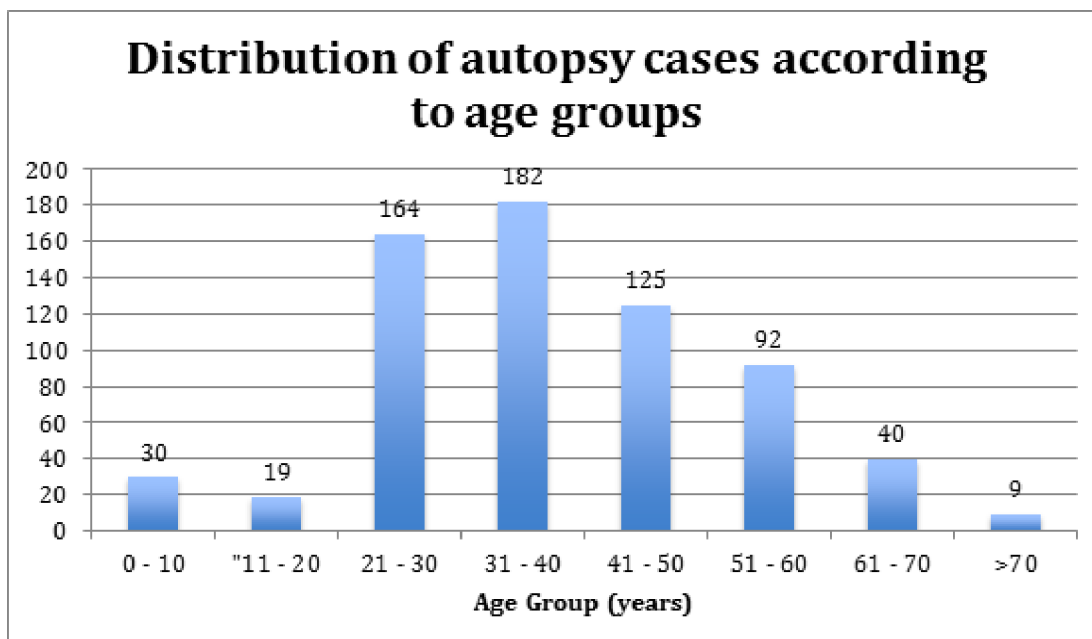
**Results**

A total of eight thousand and sixty-one (N=8061) patients died in the hospital in the period

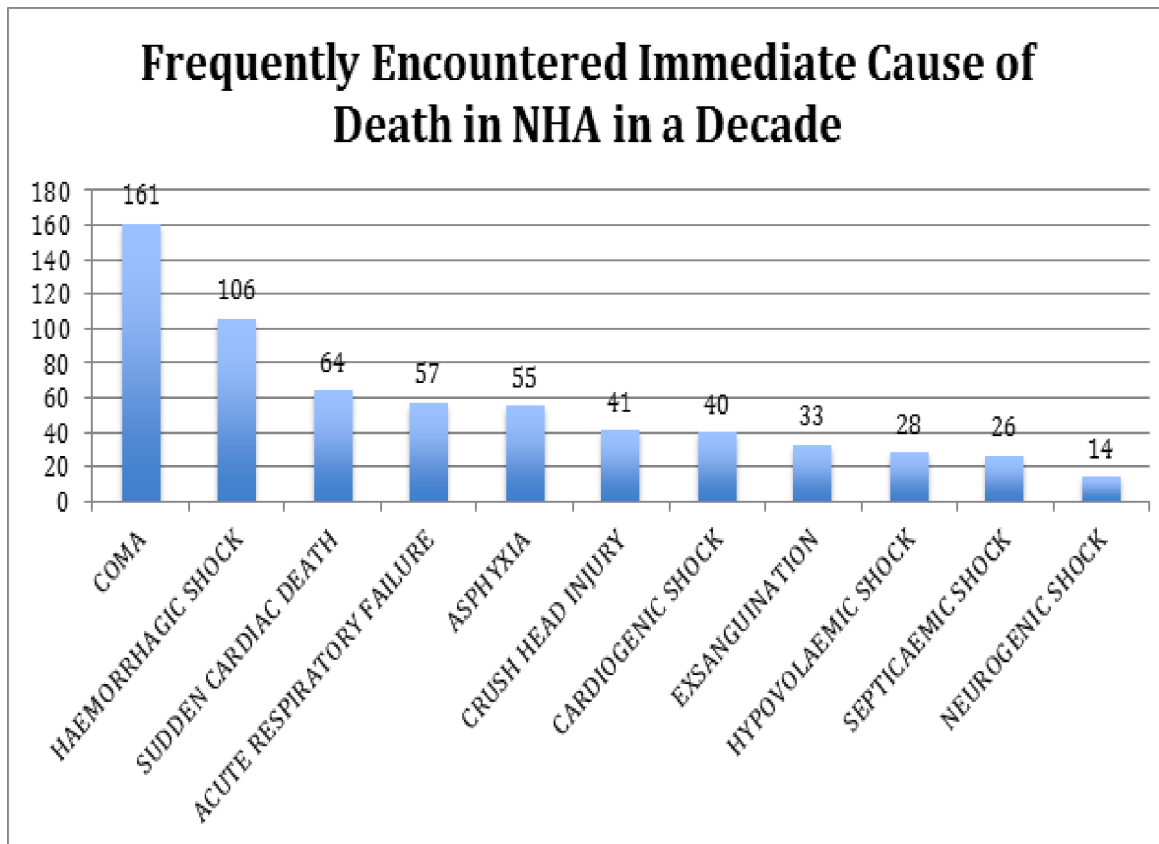
**Table 1:** Table showing mortality and autopsy rate in National Hospital Abuja in a decade

Year	Mortality	Autopsy	Autopsy Raate (%)
2004	691	49	7
2005	931	122	13.1
2006	859	57	6.4
2007	945	122	12.9
2008	524	104	19.9
2009	884	88	9.6
2010	636	73	11.5
2011	808	80	9.9
2012	931	97	10.4
2013	852	67	7.9
	<b>8061</b>	<b>859</b>	<b>108.6</b>

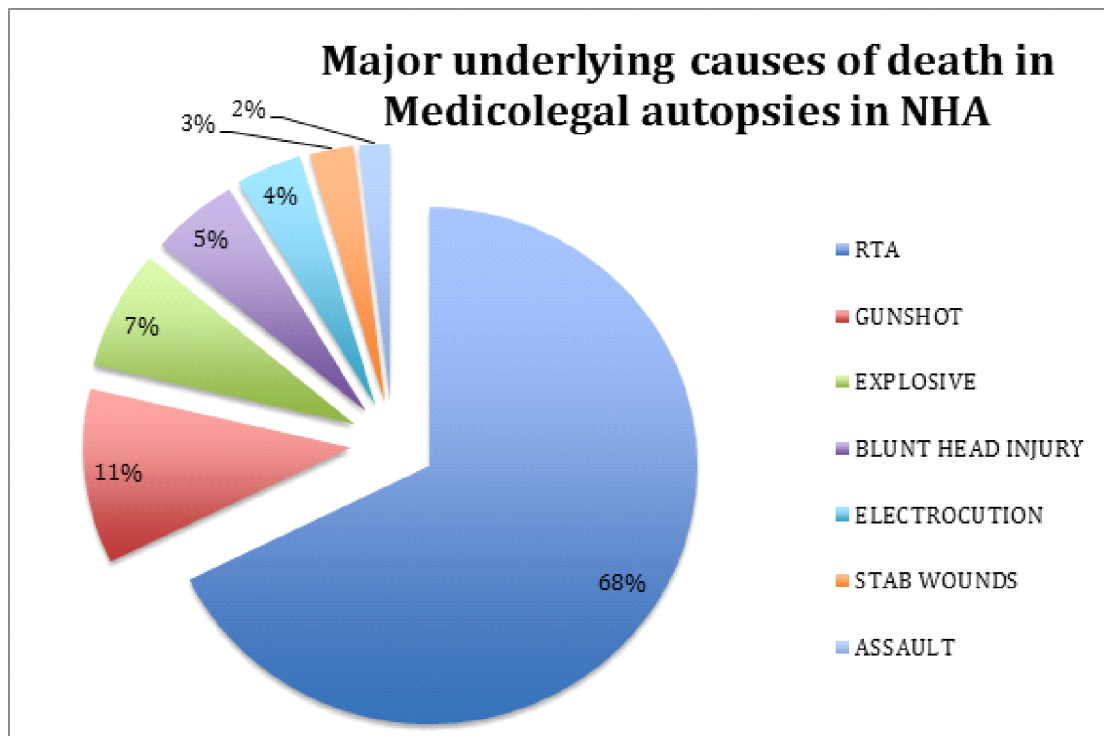
under study (2004 to 2013) given an annual average mortality of 806. Of these eight hundred and fifty nine (859) were autopsied given a crude autopsy rate of 11% and an average annual autopsy rate of 86. The largest number of autopsies was carried out in 2005 and 2007 (122 each) while the lowest was in 2004 (n=49). The ratio of medico-legal autopsies (N=594) to hospital autopsy (N=270) is approximately 2:1. This is shown in table 1.



**Fig. 1:** Chart showing the distribution of age groups of deceased autopsied in a decade



**Fig. 2:** Chart showing the distribution of the commonly encountered immediate causes of death in NHA in a decade



**Fig. 3:** Table showing the common underlying cause of deaths in most of the medico-legal autopsies in NHA in a decade.

The age range of the deceased is from 0 (newborn) to 84 years with a mean of 38 and standard deviation of 15.4. The commonest affected age group is the 31 to 40 cohort followed by the 21 to 30 group as depicted in Figure 1. The least autopsied are those at 70 and above. There were almost three times as many autopsies involving males (n=629) as females (n=213).

Coma (n=161) from various causes was the commonest encountered immediate cause of death followed by hemorrhagic shock (n=106) sudden cardiac death (n=64), acute respiratory failure (n=57) and asphyxia (n=55) as shown in figure 2.

A significant proportion 4% of the autopsies (n=35) had indeterminable cause of death within the scope of the autopsy carried out. The underlying cause of death in an overwhelming majority of the medico-legal autopsies was road traffic accident (68%) followed by gunshot wounds (11%) explosions (7%) and electrocutions (4%). Other underlying causes of death in the coroner cases include stabbing, fall from height, collapsed buildings, hanging and poisoning. These are depicted in Figure 3.

The underlying causes of death from the hospital autopsy predominantly consisted of cardiovascular lesions (n=40) followed by gastrointestinal (n=10), respiratory (n=10), infective (n=10) neoplastic (n=9). The cardiovascular lesions included myocardial infarction, pulmonary embolisms, complications of hypertension, ruptured aneurysms, hypertrophic cardiomyopathy among others. Bleeding esophageal varices, ruptured peptic ulcers, complications of intestinal obstructions are the common gastrointestinal tract diseases diagnosed at autopsy. Respiratory system abnormalities included severe lobar pneumonia, pulmonary tuberculosis and status asthmaticus among others.

## Discussion

Autopsy is the examination of corpses to ascertain among other things the cause, mode, and mechanism of death. Its major use and benefit is primarily in the diagnostic fields as it can confirm or disprove certain diagnosis<sup>1,1,2</sup>, unravel some hitherto unknown diagnosis (like toxic shock syndrome, dementia) or reveal some unsuspected medical condition in a corpse.<sup>3</sup> Cases abound where autopsy was the only means of arriving at a diagnosis as in Alzheimer disease.<sup>4</sup> Autopsy helped in elucidating the morphologic features of certain diseases like HIV/AIDS, Ebola virus infection and Lyme disease.<sup>5</sup> In the Public health realms, autopsy facilitates the correlation of tissue changes with epidemiologic and clinical data and further improves accuracy of disease statistics. Moreover it validates new clinical diagnostic technology as well as monitors the effectiveness of drug therapy. Furthermore it may provide reassurance to families of the deceased and thereby reduce instances of medical litigation.<sup>8</sup>

The autopsy rate in National Hospital averages 11% and compares poorly with some centers in the country like Lagos, Ibadan, Benin<sup>6</sup> and others. It however is better than what obtains in other centers like Kano. The autopsy rate in NHA displayed a significant decline from about 20% in 2008 to 8% in 2013. Workers from other centers in Nigeria reported a similar trend.<sup>7</sup> A study in France<sup>8</sup> reports a similar decline in autopsy from 15.4% to 3.7% from 1988 to 1997. An overwhelming majority of the autopsies (69%) carried out in our study are for medico-legal investigations, a fact that correlates with similar study from Ibadan<sup>9</sup> (62.5%) and Jos<sup>10</sup> (89%) and other centers in Nigeria. Furthermore a significant proportion of the autopsies are inconclusive (4%) attributable to various factors like advanced decomposition of corpses, failure to obtain consent for autopsy on time, limited scope of technical investigation among others.

The capacity of autopsy to detect medical errors is acknowledged globally. A systematic review of autopsy literature by Shojanian et al looking at ante-mortem and post-mortem diagnostic discrepancies involving 53 autopsy series reported major errors detected by 42 series and class 1 errors in 21 of them. Major errors are those diagnostic mishaps that eventually end in major events like death, permanent disability or life-threatening conditions in the patient. Class 1 errors on the other hand refer to ante-mortem diagnostic errors that if detected could have altered the outcome and progression of the disease. Indeed an 8-year study<sup>11</sup> by the Royal College of Pathologists in Australia revealed 23.5% missed diagnoses involving the major or underlying cause of death in an autopsy series, up to 9% of these were class 1 errors. Another study<sup>12</sup> comparing ante-mortem and post-mortem diagnoses found that myocardial infarction was completely missed in 25 clinical death certificates out of 52 autopsy cases. Furthermore Diegbe *et al*<sup>9</sup> in Nigeria reported concordance rate between ante-mortem and post-mortem diagnosis to be around an abysmal 54% in one study.

Various factors contribute to the global decline in autopsy. A study in the US postulates that autopsy in HIV/AIDS patients is on the decrease because it does not add value to clinical knowledge and exposes the pathologist to unnecessary risks.<sup>16</sup> Other workers<sup>17</sup> however found no justification for such conclusion arguing that no recorded case has been reported of infection of hospital pathologist from autopsy of a HIV corpse.

### Conclusion

The rate of autopsy is remarkably low and shows considerable continuing decline. A concerted effort by clinicians, policy-makers including hospital administration, pathologist and the general public might help in arresting this trend.

### References

1. Crowley PF and McKelvie PA. The decline in hospital autopsy rates. *The Medical journal of Australia*. 1996; 164(3):188-189.
2. Royal College of Pathologists of Australasia Autopsy Working P. The decline of the hospital autopsy: a safety and quality issue for healthcare in Australia. *The Medical journal of Australia*. 2004;180(6):281-285.
3. Oluwasola AO, Fawole OI, Otegbayo JA, Ayede IA, Ogun GO, Ukah CO, *et al*. Trends in clinical autopsy rate in a Nigerian tertiary hospital. *African journal of medicine and medical sciences*. 2007; 36(3): 267-272.
4. Thurnheer R, Hoess C, Doenecke C, Moll C, Muntwyler J and Krause M. Diagnostic performance in a primary referral hospital assessed by autopsy: evolution over a ten-year period. *European journal of internal medicine*. 2009; 20(8): 784-787.
5. Tavora F, Crowder C, Kutys R and Burke A. Discrepancies in initial death certificate diagnoses in sudden unexpected out-of-hospital deaths: the role of cardiovascular autopsy. *Cardiovascular pathology : the official journal of the Society for Cardiovascular Pathology*. 2008; 17(3): 178-182.
6. Anderson RE, Hill RB and Gorstein F. A model for the autopsy-based quality assessment of medical diagnostics. *Hum Pathol* 1990; 21: 174-181.
7. King EO, Smith A and Jobst KA. Autopsy: consent, completion, and communication in Alzheimer's disease research. *Age Ageing* 1993; 22: 209-214.
8. McPhee SJ. Maximizing the benefits of autopsy for clinicians and families: what needs to be done. *Arch Pathol Lab Med* 1996; 120: 743-748.
9. Diegbe IT, Idaewor PE and Igbokwe UO. Autopsy audit in a teaching hospital in Nigeria—the Benin

- experience. *West Afr J Med*. 1998 Jul-Sep; 17(3): 213-216.
10. Oluwasola AO, Fawole OI, Otegbayo JA, Ayede IA, Ogun GO, Ukah CO and Bamigboye AE. Trends in clinical autopsy rate in a Nigerian tertiary hospital. *Afr J Med Med Sci*. 2007 Sep; 36(3): 267-272.
  11. Chariot P, Witt, K, Pautot V, Porcher R *et al*. Declining autopsy rate in a French hospital: Physicians' attitudes to the autopsy and use of autopsy material in research publications. *Archives of Pathology & Laboratory Medicine* 124.5 (May 2000): 739-745.
  12. Amakiri CN, Akang EE, Aghadiuno PU and Odesanmi WO. A prospective study of coroner's autopsies in University College Hospital, Ibadan, Nigeria. *Med Sci Law*. 1997 Jan; 37(1): 69-75.
  13. Mandong BM, Manasseh AN and Ugwu BT. Medicolegal autopsies in North Central Nigeria. *East African Medical Journal*. 2006 Nov; 83(11): 626-630.
  14. Royal College of Pathologists of Australasia Autopsy Working Party. The decline of the hospital autopsy: a safety and quality issue for healthcare in Australia. *Med J Aust*. 2004 Mar 15; 180(6): 281-285.
  15. Ravakhah K. Death certificates are not reliable: revivification of the autopsy. *South Med J*. 2006 Jul;99(7): 728-733.
  16. Wilkes MS, Fortin A and Jacobs TA. Physicians' attitudes toward the autopsy of patients with AIDS. *Y State J Med*. 1991 Sep; 91(9): 386-389.
  17. Geller SA. The autopsy in acquired immunodeficiency syndrome. How and why. *Arch Pathol Lab Med*. 1990 Mar; 114(3): 324-329.