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Autopsy Findings in Custodial Deaths: A Four-Year Experience from a Medical College in West Bengal

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Abstract

Introduction: The death of an individual in custody garners attention from lawmakers and the administration, and if such a death is sudden, it is often associated with media attention.

Methodology: This original study conducted at the Medical College of West Bengal from 2020 to 2023 scrutinizes the causes of death in the custody of correctional homes during this period, obtains the frequency of sudden deaths, which is natural, and recommends ways to reduce it in the future. All custodial deaths coming to autopsy during this study period were considered. After thorough scrutiny of all received documents, a complete autopsy was conducted; including toxicological analysis and histopathology examination, and the cause of death was opined.

Results: During the study period, 118 cases of custodial deaths were autopsied in our centre, of which 49 subjects were inmates of the correctional home. There were 28 sudden deaths, of which the manner was natural in 14 cases. In these cases, primary pulmonary causes were seen in five cases; primary cardiac causes were seen in four cases; combined pulmonary and cardiac causes were seen in two cases; and others, including malignancy and gastro-intestinal causes, were seen in three cases. Among the 21 deaths that received hospital care, combined cardiac and pulmonary causes were the most common, followed by primary pulmonary causes. The frequency of sudden deaths among inmates is around 28.5%, which is about 10% in the general population.

Conclusion: Poor medical facilities in correctional homes lead not only to the failure of disease diagnosis in the early stages but also to the failure of documentation. As a result, the patient reaches the hospital in critical condition, and death gets labelled as sudden due to the inability to make a diagnosis in a short period of time. A mere commitment to the adoption of Nelson Mandela rules cannot make a change; rather, a specialty medicine subject like custody medicine should be considered to have a positive impact on the health of inmates.

Keywords: Sudden death; Autopsy trends; Custodial care; Nelson Mandela rules.

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Introduction

Death of every individual including a convict in a correctional home is associated with profound grief for the near ones. In India, the total number of prisoners at the end of the years 2020, 2021 and 2022 were 488511, 554034 and 573220 respectively with occupancy rates of 118%, 130.2% and 131.4% respectively.[1-3] It is very evident that inmates are increasing in custody and this trend is seen worldwide.[4] Custody maybe defined as any point in time when a person's freedom of movement has been denied by law enforcement agencies, such as during transport prior to registering a case, or during arrest, prosecution, sentencing, and correctional confinement.[5] In common parlance and in eyes of the citizens of a country, custody means someone who is in care of the government of the country. So, death of a person in custody entrusts the government officials with responsibility to find out the cause of death and satisfy the family members of the deceased who were in expectation of "care" from the government.

Definition of sudden death varies from region to region and even from country to country and there is no universally accepted definition. WHO (World Health Organization) defines sudden death as "death occurring within 24 hours of onset".[6] In common medico-legal parlance sudden death means sudden and unexpected natural death. If sudden and unexpected death occurs in custody, this is bound to create suspicion in the public domain and the responsibility of autopsy surgeon increases manifold.

In this autopsy-based study on custodial deaths we have considered only the deaths that have occurred in the Jail custody and not other government custodies like vagrant's homes or old age homes. This autopsy-based study discusses the causes of deaths in custody including its macroscopic and microscopic findings, obtains frequency of sudden natural deaths and strategizes for decreasing the number of deaths in the future. The novelty of the study lies in the fact that this study is the first of its kind in this part of India.

Methodology

This study is an observational cross-sectional study spanned over a period of four years. In all the cases, autopsy was done in accordance to the standard guidelines as laid by National Human Rights Commission.[7] A complete autopsy was performed, viscera were sent for toxicological analysis and also for histopathological examination. A data collection sheet was used for collection of demographic details, previous health related details and case related details from the obtained documents like inquest papers, hospital emergency tickets and hospital records. A separate datasheet was used to obtain the macroscopic findings of all organs during autopsy, toxicological analysis reports and histopathology findings and final opinion regarding cause of death was concluded. At the very outset, we separated the custodial deaths into judicial custody and other custodies and considered the deaths in judicial custody only. Then we separated the manner of death into natural, unnatural and undetermined. For the purpose of the study, we considered only the deaths where manner was natural. Then we divided natural deaths into sudden and non-sudden based on the standard WHO definition provided. Finally, we obtained the frequency of sudden natural deaths in custody and every individual case was analysed.

Results

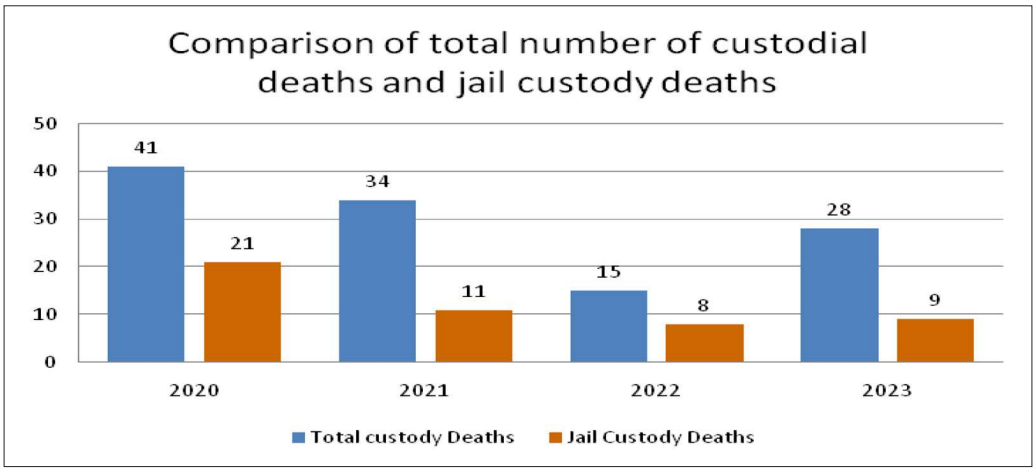


Fig. 1: Year-wise total custodial deaths and judicial custody deaths autopsied in this centre

During the study period, a total number of 118 autopsies were conducted in custodial deaths, out of which 49 (41.5%) were conducted on inmates of judicial custody.

The manner of death was natural in 35 cases and in 14 cases the manner was undetermined among the autopsies conducted during the period. Among the natural deaths, 14 deaths were determined to be sudden death based on the WHO criteria.

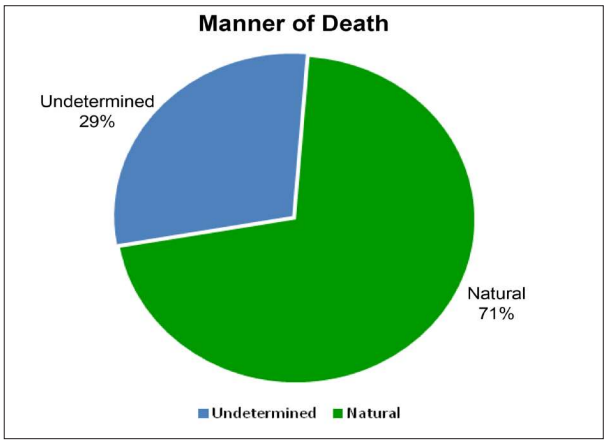


Fig. 2: Number of deaths where manner of death was natural

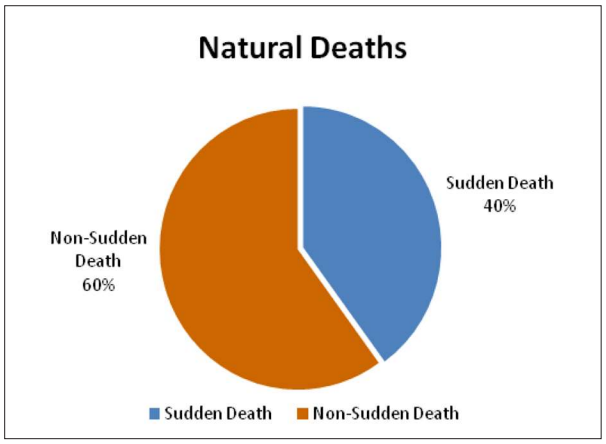


Fig. 3: Distribution of sudden deaths among natural deaths

Table 1: Table showing details of the sudden deaths autopsied during the study period

Sl. No.	Sex	Age (years)	Salient macroscopic findings	Salient microscopic findings	System involvement in final opinion
1.	M	58	Narrowed coronary arteries, atheromatous plaques in aorta	Foci of hemorrhagic atherosclerotic plaque in coronary arteries, collection of lymphocytes with neutrophilic infiltration in myocardium.	Cardiac
2.	M	50	Consolidations, Pus on the lung parenchyma	Thickening of interstitial spaces with the Lung parenchyma oedematous appearances, acute inflammatory cells in alveoli.	Pulmonary
3.	M	48	Left ventricular hypertrophy	Irregular and branching cardiac muscles.	Cardiac
4.	M	76	Narrowed coronary arteries, atheromatous plaques in aorta, Lungs heavy, blood-tinged froth on sectioning	Diffuse haemorrhagic area, myocardial oedema, haemorrhage and congestion in interstitial region and interalveolar oedema, passive venous congestion in hepatic tissues.	Pulmonary, Cardiac
5.	M	65	Pleural adhesion, Multiple cavitations	Caseating granuloma of epithelioid cells, multinuclear Langhan's giant cells and lymphocytes.	Pulmonary
6.	M	48	Hepato-splenomegaly, multiple enlarged lymph nodes	Effacement of lymph node architecture, small lymphoid cells in whole lymph node with infiltration of perinodal soft tissues, florid reactive hyperemia suggestive of lymphoproliferative disorder.	Malignancy
7.	M	70	Consolidations, red congested areas, Pulmonary blood-tinged froth on sectioning	Thickening of interstitial spaces with oedematous appearances, acute inflammatory cells in alveoli.	Pulmonary
8.	M	60	Narrowed coronary arteries, atheromatous plaques in aorta, recent area of infarction	Foci of hemorrhagic atherosclerotic plaque in coronary arteries, collection of lymphocytes with neutrophilic infiltration in myocardium.	Cardiac

Table Cont...

9.	M	62	Narrowed coronary arteries, biventricular hypertrophy, Lungs heavy, blood-tinged froth on sectioning	Diffuse haemorrhagic area, myocardial oedema, haemorrhage and congestion in interstitial region and interalveolar oedema, passive venous congestion in hepatic tissues.	Pulmonary, Cardiac
10.	M	47	Consolidations, Pus on sectioning	Thickening of interstitial spaces with oedematous appearances, acute inflammatory cells in alveoli.	Pulmonary
11.	M	53	Pus and flakes in peritoneum, pus filled cyst in liver	Periportal inflammation, congestion.	Gastro-intestinal
12.	M	43	Subarachnoid haemorrhage, Oedematous brain	Oedematous brain parenchyma with occasional foci of reactive gliosis, presence of blood clots with peripheral cuffing of mixed inflammatory cells near ventricular region.	Cerebral
13.	M	23	Consolidations, red congested areas, Pulmonary blood-tinged froth on sectioning	Thickening of interstitial spaces with oedematous appearances, acute inflammatory cells in alveoli.	Pulmonary
14.	M	32	Narrowed coronary arteries, atheromatous plaques in aorta	Foci of hemorrhagic atherosclerotic plaque in coronary arteries, collection of lymphocytes with neutrophilic infiltration in myocardium.	Cardiac

Table 2: Table showing details of system involvement in non-sudden deaths autopsied during the study period

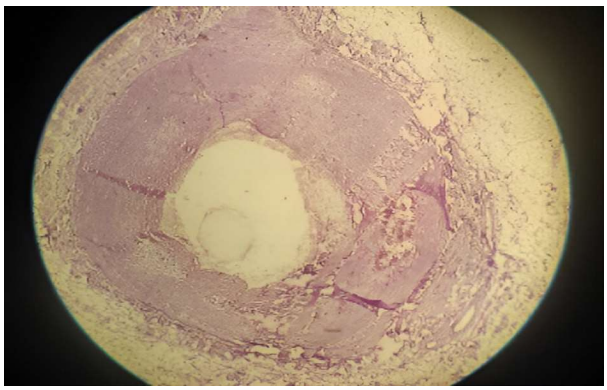
Sex	Age (years)	System involvement in final opinion
M	41	Cardiac
M	52	Pulmonary, Cardiac
M	60	Pulmonary
M	42	Pulmonary, Cardiac
M	28	Pulmonary
M	58	Pulmonary, Cardiac
M	35	Pulmonary
M	38	Pulmonary
M	53	Cardiac
M	30	Hepatic
M	47	Pulmonary
M	56	Pulmonary
M	57	Pulmonary, Cardiac
M	50	Pulmonary, Cardiac
M	31	Cardiac
M	38	Cardiac
M	51	Pulmonary, Cardiac
M	53	Pulmonary, Cardiac
M	62	Pulmonary, Cardiac
M	55	Multi-system
M	45	Malignancy

Among the 21 natural deaths which received hospital care for more than 24 hours and was not considered as sudden death, the cause of death was pulmonary and cardiac involvement in 08 cases, primary pulmonary involvement in 06 cases, primary cardiac involvement in 04 cases and other causes in 03 cases.

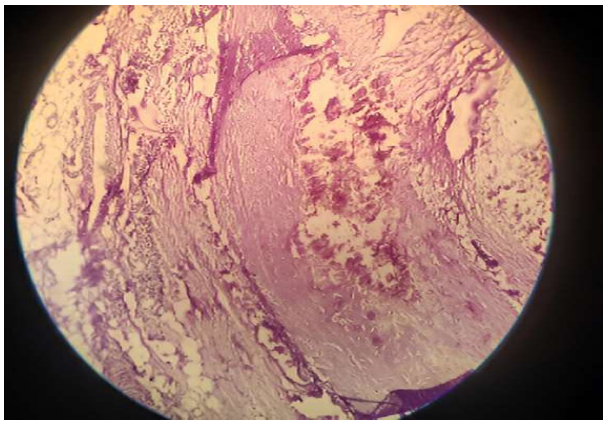
The mean age of the deceased who suffered sudden natural death was 52.5 years. The mean age of the deceased who survived for a period of more than 24 hours was 46.8 years.

Table 3: Comparison of mean age of deceased of sudden and non-sudden natural deaths

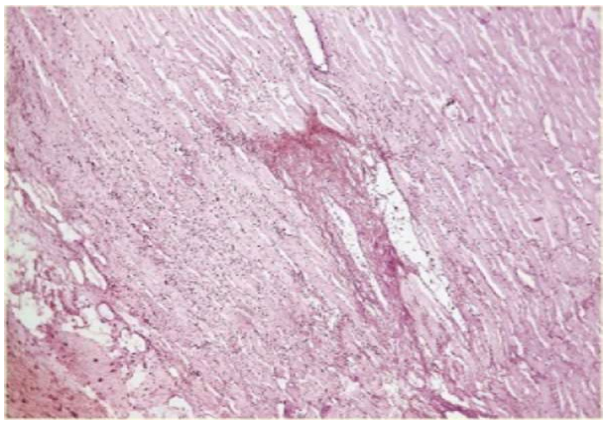
Group	(N =)	Mean	SD	T-value	P-value
Sudden deaths	14	52.5	14.3	1.3	0.1775 (> 0.05) Not significant
Non-sudden deaths	21	46.8	10.4		



Foci of hemorrhagic atherosclerotic plaque in Right Coronary artery with diffuse narrowing.

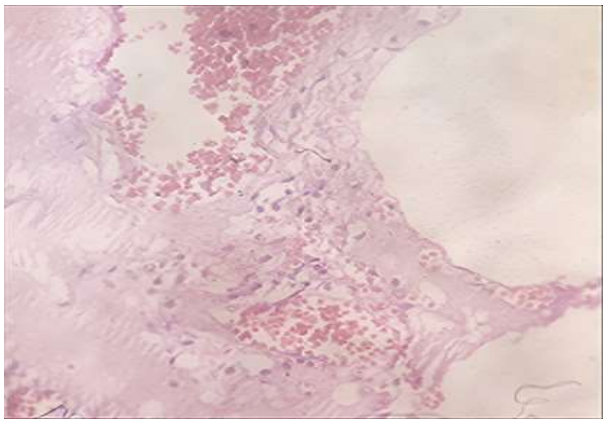


Diffuse hemorrhagic area, myocardial edema, and focal disarray of myocardial fibers.

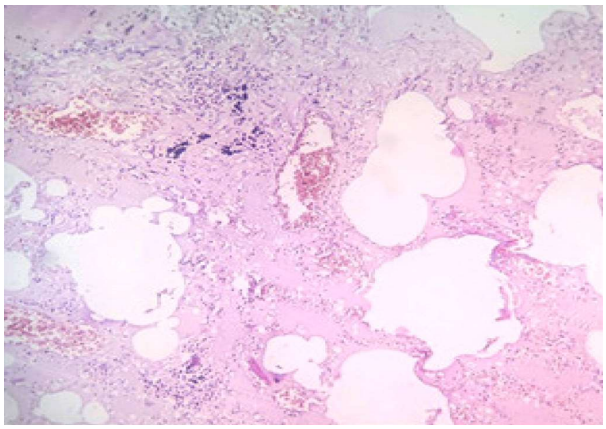


Collection of lymphocytes with neutrophilic infiltration.

Fig. 4: Microscopic findings in cardiac causes of death

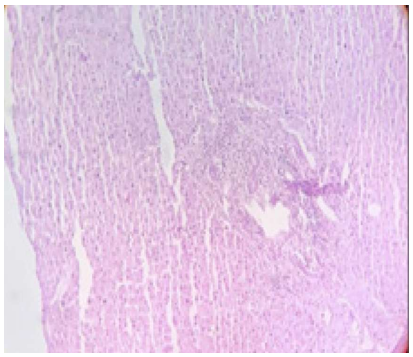


Alveolar spaces are dilated by the collection of proteinaceous fluid and the presence of anthracotic pigments with haemorrhage and congestion in the interstitial region and interalveolar oedema.

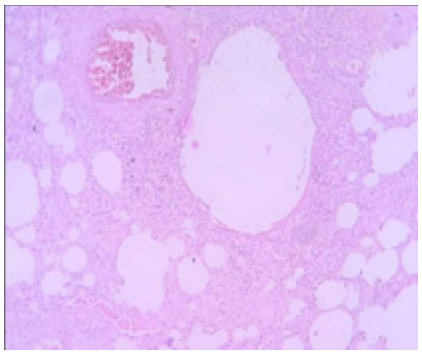


Interstitial Oedema.
Emphysematous changes.
Presence of chronic inflammatory cells.

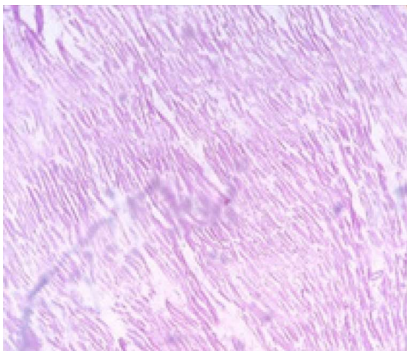
Fig. 5: Microscopic findings in pulmonary causes of death



Liver tissues with findings consistent with chronic passive venous congestion.



Irregular and branching cardiac muscles in a longitudinal direction suggestive of ventricular hypertrophy.



Interstitial oedema, presence of chronic inflammatory cells and anthracotic pigments.

Fig. 6: Microscopic findings in combined pulmonary & cardiac cause of death

The frequency of sudden death among inmates was found to be 28.6%.

Discussion

Death of an inmate in custody entrusts the legal authorities to investigate the cause of death. Adequate follow-ups are also necessary considering the information obtained from these investigations. Article 21 of The Constitution of India defines the protection of life and personal liberty and ensures that fundamental rights including that of healthcare are available to all citizens alike, including the prisoners.[8]

In this present study, autopsy was conducted on a total number of 49 inmates of judicial custody. All the autopsies were conducted on male inmates, the primary explanation of which lies on the fact that the correctional homes which avail the services of our autopsy are male only correctional homes. The manner of death was determined to be natural in 71% cases. This result is in complete agreement with studies conducted in other parts of India like Maharashtra and Chandigarh where manner of death was found to be natural in around 77% and 89% of cases.[9,10]

Findings of the study also suggest that 40% of the natural deaths were sudden. Comparison could not be done with previous data due to unavailability. However, in one study conducted in Rajasthan it was found that most of the deaths occurred within 48 hours of admission to hospital.[11] Analysis of causes and patterns of death occurring in custodies provide a unique cohort which makes us to understand not only the prevailing conditions in the custody but also the secular trends of the diseases. This also acts as a surrogate marker of the prevailing healthcare facilities within the custody. In a 65-year (1939-2004) retrospective exploratory investigation from Maryland, cardiovascular disease was found to be the leading cause of mortality from the 1930 to 1970 with the exception of the 1940s, when syphilis and tuberculosis became more common. In the 1980s, suicide hangings from asphyxia were the leading cause of death. Sudden unexplained deaths were increased in 1980s involving violent behaviour, multiple restrains and intoxication which was later correlated with increased abuse of cocaine.[12]

In the current study, primary pulmonary cause was the leading cause of sudden death and also the second leading cause of deaths among custodial inmates who received hospital care for more than twenty-four hours. This is explainable considering the period of study i.e. 2020 to 2023 when the world faced the waves of the Covid-19 pandemic. Respiratory deaths including tuberculosis have been implicated as a major cause of death in many studies involving the inmates of custody.[13-17] Studies conducted in England and Wales also show 16% of natural deaths in custody due to respiratory causes and standardised mortality rates from pneumonia are higher than general population.[18] Cardiovascular causes were the second leading cause of sudden death whereas in sudden death in general population, the immediate cause is almost always to be found in the cardiovascular system.[19] This study also found that a combined cardiac and pulmonary cause of death was more common in non-sudden deaths. This can be attributed to two ways patients getting treated for any ailments including cardiac are at a higher risk of getting nosocomial respiratory infections or the patients were primarily suffering from both ischemic heart disease and chronic obstructive pulmonary disease before admission to hospital. There was no significant difference in the mean age of the sudden death and non-sudden death. The frequency of sudden death among inmates of custody was 28.6% among all deaths whereas it is roughly 10% among general population.[20]

Considering the findings of the sudden death, there is no doubt that early detection and prompt response could have altered outcome in some cases but in other cases the prisoners were brought to the hospital in terminal critical condition. There is clear scope for upgrading the existing healthcare services in the prison. A study conducted in Chandigarh has rightly observed that in many cases records pertaining to past medical history, treatment received, history of addictions is completely missing.[10] Improperly maintained medical records are double edged evils – it increases suspicion among next of kin leading to question of credibility of the authorities and also increases the time for hospitals to render correct treatment in case of the survivors and increased time for reaching to a conclusive cause of death in case of the deceased.

The United Nations Standard Minimum Rules for the Treatment of Prisoners was adopted by the United Nations General Assembly on 17th December 2015.[21] The rules, also known as Nelson Mandela Rules, are based on an obligation to treat all prisoners with respect to their inherent dignity and value as human beings. The rules related to healthcare services are mentioned from Rule 24 to Rule 35. Rule 26 of the Nelson Mandela Rules necessitates proper maintenance of up to date, accurate and confidential medical files of all prisoners. Those files should be transferred to the receiving hospital where the prisoner will undergo treatment.[22] Rule 30 also emphasizes the examination of health of the prisoner as soon as his or her admission to the prison.[23] A strict adherence of the rules will not only improve the current healthcare situation of the prisoners, it will also improve the mortality statistics which will in turn bring more confidence of the public towards

the judicial administration and its transparency. The possible greatest stumbling block to the administration regarding the implementation of these rules is lack of doctors in the country. The situation is rapidly changing and obtaining services from qualified doctors will not be difficult in future. The Nelson Mandela rules also keeps provision for other healthcare personnels apart from the doctor and this opens up the avenue for newer specialities like Custody Medicine. A specialist doctor, possibly a specialist in Forensic Medicine, could act as a nodal person under whom training may be obtained by nursing personnel and other paramedical staffs who will act in the ground level to maintain health of the inmates. Speciality subject curriculum maybe developed separately tailored for doctors, nurses and other paramedical staffs. A special healthcare service for the prisoners – The Prisoner Healthcare Services in lines with Pradhan Mantri Ayushman Bharat Health Infrastructure Mission could be the future.[24]

Conclusion

This study has limitations in itself. The study is an autopsy-based study conducted in a single institution and only in a particular part of the country. The sample size is also small. This study shows the frequency of sudden death in custody to be 28.6 % among all deaths which is higher than the population. This study provides a comprehensive view of macroscopic and microscopic findings found during autopsy of prisoners who suffered sudden natural deaths. It also provides an extrapolated and kaleidoscopic view of the prevailing healthcare scenario in the custodies. Frequency of sudden death in a particular custody perhaps can be used as a surrogate marker for assessment of healthcare services in a particular custody. Future studies are required in this direction. This study also paves the future pathway for development of the healthcare services in the prison. Finally, the authors dream of a Viksit Bharat by 2047 where the inmates of custody are healthy, happy and contributing positively to the development of the nation.

Conflicts of Interest: None

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