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Bridging the Divide: A Comparative Reflection on Forensic Medicine Practice in India and Singapore

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Abstract

Background: Although India and Singapore share a common medico-legal ancestry rooted in British colonial law, their forensic medicine systems have diverged significantly over time. India continues to follow a police-driven medico-legal framework under the Criminal Procedure Code (now BNSS), while Singapore has adopted a specialist-driven, coroner-based system supported by modern legislation, digital integration and strict accountability. This contrast provides important insights for strengthening forensic practice in India.

Methods: This narrative comparative analysis examines the historical evolution, legal frameworks, clinical forensic practices, autopsy systems, digital mortuary operations, professional autonomy and interagency collaboration in India and Singapore. Key legislative instruments, operational workflows and professional governance structures were reviewed and systematically compared.

Results: India retains a police-led inquest system where autopsies may be conducted by any authorized registered medical practitioner, leading to wide variability in quality, infrastructure and accountability. Clinical forensic examinations function largely under statutory authority with inconsistent implementation. Digital mortuary integration remains limited and fragmented.

Singapore operates under the Coroner's Act 2010 with mandatory reporting of defined deaths, specialist-only autopsies, routine whole-body postmortem CT, and fully digitized mortuary operations using RFID-based tracking and integrated judicial databases. Strong interagency collaboration, specialist leadership, and performance-linked accountability ensure high scientific and judicial reliability.

Conclusion: The divergence between India and Singapore reflects deeper differences in governance, professional autonomy and institutional accountability within forensic medicine. While India possesses substantial academic strength and clinical exposure, the absence of national standardization, exclusive specialist authority and digital integration limits system efficiency and credibility.

Adoption of key elements from the Singapore model—particularly a coroner-led framework, specialist-restricted autopsy practice, and national digital mortuary infrastructure—could significantly enhance the accuracy, transparency and judicial value of medico-legal evidence in India.

Keywords: Forensic Practice, Singapore, India, Crime Scene

Introduction: Although India and Singapore share a common medico-legal ancestry rooted in British colonial law, their forensic medicine systems have evolved into two distinct models. India continues to rely on a police-driven, CrPC/BNSS-based medico-legal framework, while Singapore has developed a highly structured, specialist-driven coroner system supported by advanced technology, robust interagency coordination and clearly defined accountability mechanisms. As global standards in forensic science continue to rise, the divergence between the two jurisdictions offers vital lessons for strengthening medico-legal practice in India.

Historical Foundations and Diverging Pathways: Both countries inherited the Indian Penal Code, Evidence Act and early Criminal Procedure Codes. India's medico-legal system remains predominantly police-led, with postmortems conducted under Sections 174–176 of the CrPC (now BNSS). The magistrate plays a limited supervisory role, and autopsies may be performed by any registered medical practitioner authorized by the state government, regardless of specialist training.

Singapore, by contrast, transformed its medico-legal landscape through the **Coroner's Act 2010**, which replaced earlier CPC-based inquest procedures. This legislation centralized death investigation under an independent coroner, mandated reporting of specific types of deaths, and restricted postmortems to specialist forensic pathologists formally accredited and gazetted by the Health Sciences Authority (HSA). This system ensures independence, consistency and a high degree of judicial and scientific scrutiny.

Clinical Forensic Medicine: Statutory vs Consent-Based Models

India's Sections 53 and 54 CrPC allow compelled clinical examination of accused individuals and statutory examinations on request

respectively. While effective in many circumstances, implementation varies widely across states and often depends on personnel unfamiliar with forensic protocols.

In Singapore, clinical examinations prioritise voluntary consent, with statutory powers limited to non-intimate samples under the Criminal Law (Temporary Provisions) Act. Sexual assault examinations follow rigorously standardised protocols supported by trained physicians, ensuring high evidentiary value and safeguarding patient rights.

Autopsy Practice: The Importance of Specialist Leadership

Perhaps the most significant difference lies in autopsy practice. India's generalist-led autopsy model has resulted in wide variability in quality, reporting structure and interpretive consistency. Access to PMCT, forensic anthropology, toxicology and histopathology remains inconsistent, and mortuary infrastructure is often constrained by administrative and resource limitations.

Singapore mandates specialist-led autopsies, supported by whole-body PMCT for all coroner's cases, multidisciplinary case review, and stringent quality assurance. The forensic pathologist is an integral part of the investigative team, often attending crime scenes and providing real-time guidance to police and prosecutors. Such integration ensures higher accuracy, reduced investigative delays and a more reliable evidentiary chain.

Digital Mortuary Operations and Workflow Integration

India's mortuary systems remain largely manual, relying on handwritten registers, manual labels, paper-based chain-of-custody and variable biosafety practices. Although some premier institutions have adopted digital autopsy formats or limited PMCT, nationwide uniformity is lacking.

Singapore, however, operates one of the world's most advanced medico-legal mortuaries. Case details are digitally auto-populated from the judiciary's case management system – ICMS's - Coroner's Court module into HSA's FIONA case management system. Bodies and specimens are tagged with RFID chips that enable real-time tracking and eliminate misidentification. Specimens are batch-scanned digitally, and laboratory results are auto-integrated into

case files. NOK release processes are digitised through QR-coded appointments. Such automation has dramatically reduced errors and enhanced efficiency, transparency and accountability.

Professional Autonomy and Interagency Collaboration

A strong relationship exists in Singapore among forensic pathologists, police investigators, the coroner and the prosecutorial service. Their collaboration enhances investigative quality and courtroom reliability, while performance-based evaluations across government sectors reinforce accountability.

In contrast, forensic medicine practitioners in India often struggle for recognition, with their expertise undervalued in investigative and judicial settings. Requests for ancillary tests may be denied by police, administrative pressures may influence reporting, and accountability mechanisms remain weak or absent. These systemic issues hinder the pursuit of scientific objectivity and impair the medico-legal contribution to justice.

A Call for Reform: Towards Standardization and Accountability

India's forensic medicine system is supported by talented specialists, high-volume experience and strong academic foundations. Yet the lack of national standardisation, digital integration, specialist-exclusive autopsy authority and institutional accountability hampers progress.

The Singapore model demonstrates how legal reform, digital innovation, specialist leadership and robust interagency collaboration can elevate medico-legal practice to international standards. Adopting similar structural reforms—particularly establishing a coroner-led system, restricting autopsies to qualified forensic pathologists, and implementing national digital mortuary infrastructure—would significantly strengthen India's forensic capabilities and improve the quality and credibility of medico-legal evidence in courts.

Please refer to Table 1 Here

Conclusion

The contrast between India and Singapore illustrates that forensic medicine is not merely a technical discipline but a reflection of governance, administrative culture and societal commitment to justice.

Strengthening India's medico-legal ecosystem requires structured reforms, modernisation of practice standards, and recognition of forensic medicine as a specialised, high-accountability discipline. As forensic science advances globally, aligning with robust, specialist-driven models will ensure greater accuracy, transparency and judicial reliability—ultimately serving the core purpose of forensic medicine: the pursuit of truth.

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Table 1: India–Singapore Comparison (Simplified Overview)

Domain	India	Singapore
Legal Basis	CrPC / BNSS (modified colonial code)	Dedicated Coroner's Act (modernised in 2010)
Autopsy System	Police-led inquest; autopsies by any authorised RMP	Coroner-led; autopsies only by or supervised by specialist forensic pathologists
Crime Scene Involvement of FP	Rare, except in select centres	Mandatory in suspicious deaths; FP guides investigators
Use of PMCT	Limited, inconsistent, often clinical CT	Routine whole-body PMCT for all coroner's cases
Digital Mortuary Systems	Mostly paper-based; manual tracking; variable biosafety	Fully digital: ICMS → FIONA; RFID body tracking; digital chain-of-custody
Specimen Management	Manual labelling, prone to errors	RFID + barcode hybrid system; automated batch scanning
Turnaround Time (TAT)	Variable, no national standard	Clear TAT targets; nearly all releases within 24 hours, except homicides
Professional Accountability	Weak; bureaucratic interference possible	Strong; performance-linked reviews across govt departments
Recognition of Qualifications	Indian FM postgraduates not recognized internationally	Strict specialist accreditation: Indian qualifications not recognized
Collaboration with Police & Judiciary	Often limited; FM opinions undervalued	Highly integrated; FP opinions shape investigative strategy