Knowledge of Medical and Paramedical Staff in the Intensive Care Unit Regarding Medical Confidentiality

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Abstract

Background: Medical confidentiality is a fundamental ethical and legal obligation that protects patients' privacy and preserves trust in healthcare. In intensive care units (ICUs), maintaining confidentiality is particularly challenging because of the severity of patients' conditions, multidisciplinary care, and frequent interactions with family members. This study aimed to assess the knowledge of medical and paramedical staff regarding medical confidentiality in an ICU setting.
Methods: A cross-sectional observational study was conducted from July 19 to 31, 2025, among healthcare professionals working in the Intensive Care Unit of Habib Bourguiba University Hospital, Sfax, Tunisia. An anonymous questionnaire consisting of sociodemographic data and 30 multiple-choice questions on medical confidentiality was distributed electronically. The questionnaire was developed from the literature, reviewed by experts, and pilot-tested before dissemination.
Results: Of the 65 eligible healthcare professionals invited, 46 completed the survey (response rate: 70.8%). Most participants were women (65.2%), and graduated physicians represented the largest professional group (37%). Knowledge of the fundamental principles of medical confidentiality was generally high. Most participants recognized its legal basis (95.7%), its applicability to all healthcare professionals (100%), its lifelong nature (97.8%), and the legal consequences of breaches (100%). High proportions also identified shared confidentiality among healthcare professionals involved in patient care (97.8%) and the persistence of confidentiality after death (84.8%). However, important gaps were observed regarding disclosure of information to family members without patient consent (32.6%), violence against a consenting adult (65.2%), educational use of medical data without anonymization (71.7%), and students' access to medical records (71.7%).
Conclusion: ICU healthcare professionals demonstrated satisfactory overall knowledge of medical confidentiality. Nevertheless, deficiencies regarding specific legal exceptions highlight the need for continued education in medical ethics, health law, and confidentiality practices.
Keywords: medical confidentiality; intensive care; ethics; legislation; deontology

Introduction

Medical confidentiality is a fundamental pillar of the trust between patients and healthcare professionals [1]. Protected by medical and paramedical ethics as well as by national and international laws, it safeguards patients' privacy, dignity, and fundamental rights [1]. Any breach of this principle may lead to serious legal, ethical, and social consequences, undermining both the credibility of the healthcare system and the quality of patient care [1]. In intensive care, confidentiality holds particular importance. Critically ill patients are often unconscious and dependent on a multidisciplinary team, while their families frequently seek information. The complexity of care and emergencies increases the risk of voluntary or involuntary disclosure of confidential data. This study, conducted among the medical and paramedical staff of the Intensive Care Department at Habib Bourguiba University Hospital in Sfax, aimed to assess their knowledge of medical confidentiality, identify strengths and weaknesses, and promote adherence to ethical and deontological standards.

Methods

This was a cross-sectional observational study conducted among the medical and paramedical staff of the Intensive Care Department at Habib Bourguiba University Hospital in Sfax. The survey took place from July 19 to July 31, 2025. All medical and paramedical professionals working in the Intensive Care Unit during the study period were eligible for inclusion. Non-inclusion criteria were healthcare professionals absent from the department during the survey period and staff members who did not receive the survey invitation. Exclusion criteria were refusal to participate, questionnaires with substantial missing data, and duplicate responses when identified. An anonymous French questionnaire was created using Google Forms and distributed by email. It consisted of two sections: The first collected sociodemographic data. The second contained 30 multiple-choice questions on medical confidentiality (Survey).

Data analysis was based on Google Forms statistics. The investigators developed the questionnaire after a literature review of the concerns regarding medical confidentiality, medical ethics, and professional regulations. The initial version included items covering the legal basis, scope, exceptions, and practical application of medical confidentiality. To assess content validity and clarity, the questionnaire was reviewed by two experts in medical ethics and forensic medicine, and one senior intensivist. Minor modifications were made according to their recommendations. The questionnaire was developed as a descriptive survey tool based on the literature regarding medical confidentiality. A pilot test was subsequently conducted among a small sample of healthcare professionals (n = 10) who were not included in the final analysis. The pilot study evaluated the comprehensibility, relevance, and acceptability of the questions. Following this pre-test, wording adjustments were performed before final dissemination. Internal consistency was not assessed using Cronbach's alpha coefficient. Although Google Forms allows the attribution of a score to each item, no overall knowledge score was calculated in the present study. The objective was to analyze each question individually to identify specific strengths and weaknesses in participants' knowledge regarding medical confidentiality.

Results

Among the 65 eligible healthcare professionals invited to participate, 46 completed the questionnaire (response rate: 70.8%). Nineteen eligible professionals did not respond. No questionnaire was excluded from the analysis.

Most respondents were young: 10.9% were 28 years old, 8.7% were 30 years old, and 8.7% were 36 years old. The median age was 37 years (range: 25–65), with a mean of 39.85 years. Most participants were women (65.2%, n=30). Most were graduated physicians (37%) (Figure 1).

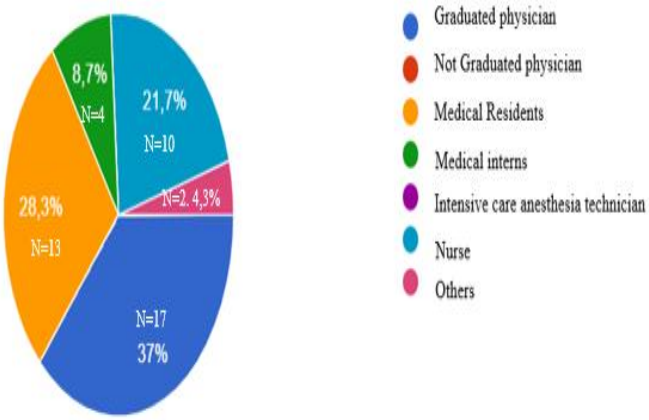

Figure 1: Distribution of participants by professional category

Participants' responses were as follows: 58.7% considered medical confidentiality primarily a legal obligation. 95.7% stated that its legal basis lies in the Penal Code and the Medical Code of Ethics. 100% knew that any violation may result in fines and/or imprisonment. 84.8% recognized that confidentiality persists after the patient's death. 97.8% believed that the obligation of confidentiality never ceases and lasts for life. 100% acknowledged that it applies to all healthcare staff. 97.8% identified each healthcare professional as personally responsible for maintaining confidentiality. 97.8% knew that shared confidentiality applies among caregivers involved in patient management. 91.3% agreed that information can be shared with another professional involved in care. 91.3% believed that nurses may share information with other involved professionals. 95.7% recognized that administrative hospital staff are also bound by confidentiality. 100% agreed that healthcare professionals cannot discuss a patient's case with

Table 1. Correct answers to the questionnaire items (n = 46)

Questions	Correct answer n (%)
Q1. Medical confidentiality is primarily a legal obligation	27 (58)
Q2. Confidentiality applies to all healthcare staff	46 (100)
Q3. Legal basis found in the Penal Code and Medical Ethics Code	44 (95.7)
Q4. Violation may result in legal sanctions	46 (100)
Q5. Confidentiality may be lifted only in cases provided by law	44 (44)
Q6. Disclosure to family requires patient consent	15 (32.6)
Q7. Confidentiality persists after death	39 (84.8)
Q8. Disclosure allowed in cases of child abuse	37 (80.4)
Q9. Shared confidentiality among involved caregivers	45 (97.8)
Q10. Disclosure may be requested by a judge	44 (95.7)
Q11. Nurses may share information with involved professionals	42 (91.3)
Q12. The confidentiality obligation never ceases	45 (97.8)
Q13. Mandatory reporting of notifiable diseases	44 (95.7)
Q14. Anonymous clinical cases may be discussed publicly	41 (89.1)
Q15. Administrative staff are also bound by confidentiality	44 (95.7)
Q16. Confidentiality is a lifelong obligation	45 (97.8)
Q17. Patients may waive confidentiality through written consent	33 (71.7)
Q18. Students cannot freely access all medical records	33 (71.7)
Q19. Identifiable cases should not be discussed in public places	43 (93.5)
Q20. Information cannot be shared with a spouse	46 (100)
Q21. Confidentiality may be lifted in cases of violence against a consenting adult	30 (65.2)
Q22. Confidentiality protects privacy	45 (97.8)
Q23. Reporting of infectious disease transmission	38 (82.6)
Q24. Confidentiality also applies during internships	45 (97.8)
Q25. Educational use requires anonymization	33 (71.7)
Q26. Information may be shared with involved healthcare professionals	42 (91.3)
Q27. Each healthcare professional is individually responsible	45 (97.8)
Q28. Diagnosis is protected by confidentiality	44 (95.7)
Q29. Anonymous clinical information may be used for scientific discussion	42 (91.3)
Q30. Confidentiality covers all health-related information	45 (97.8)

their spouse. 93.5% stated that physicians should not discuss identifiable cases in public areas (e.g., cafeterias). Only 32.6% knew that medical information could be shared with the patient's family only with the patient's consent. 80.4% acknowledged that physicians may break confidentiality in cases of child abuse. 95.7% knew that confidentiality may be lifted in cases provided by law. 95.7% agreed that a judge may request disclosure of confidential information. 95.7% understood that disclosure is mandatory for notifiable diseases. 82.6% knew that infectious disease transmission must be reported. 65.2% believed that confidentiality may be lifted in cases of violence against a consenting adult. 89.1% stated that a clinical case may be discussed publicly if completely anonymous. 71.7% recognized that medical data cannot be used for teaching purposes without anonymization. 71.7% knew that patients can lift confidentiality by written consent. 97.8% acknowledged that confidentiality also applies during internships. 71.7% knew that medical students cannot freely access all patient records. 91.3% recognized that anonymous clinical information may be shared for scientific discussion. 97.8% agreed that confidentiality is also a form of respect for privacy. 95.7% recognized that diagnosis is protected by medical secrecy. 97.8% believed that confidentiality covers all health-related information. Table 1 details the different questions with the value and percentage of correct answers.

Discussion

This study assessed the knowledge of medical and paramedical staff working in an intensive care unit regarding medical confidentiality. The findings revealed an overall satisfactory level of knowledge concerning the fundamental principles of medical confidentiality. However, important deficiencies persisted regarding specific legal exceptions, disclosure of information to family members, educational use of patient data, and situations involving violence or transmissible diseases. Most participants correctly identified the legal basis of medical confidentiality (95.7%), recognized that breaches may result in legal sanctions (100%), and acknowledged that confidentiality applies to all healthcare professionals (100%). Furthermore, almost all respondents understood that confidentiality is a lifelong obligation (97.8%) and that each healthcare professional is individually responsible for maintaining it (97.8%). These findings suggest that the fundamental legal and ethical principles of confidentiality are well integrated into clinical practice within our institution. Our results are consistent with those reported by Tounsi et al. (1), who found that internal medicine residents generally recognized medical confidentiality as a legal obligation and were aware of its legally defined exceptions. However, our participants demonstrated a better understanding of certain aspects of confidentiality. For example, 84.8% of respondents in our study knew that confidentiality persists after the patient's death, whereas only 20.9% of residents in the study by Tounsi et al. (1) correctly identified this principle. Similarly, almost all participants in our survey recognized that confidentiality applies to all healthcare workers, including administrative staff, highlighting a broader understanding of shared professional responsibility. The overall level of knowledge observed in our study also appears higher than that reported in several international studies. In Ethiopia, Tegegn et al. found that only 59.8% of healthcare professionals demonstrated good knowledge regarding patient confidentiality despite working in healthcare institutions (2). Likewise, only 44.6% of participants recognized that non-medical information is also confidential, and only 50.5% knew that confidentiality remains applicable after a patient's death (2).In comparison, our participants showed substantially higher awareness regarding these principles. The authors reported that training in medical ethics and frequent exposure to ethical dilemmas were significantly associated with better knowledge levels (2). This observation may partly explain our findings because intensive care professionals are routinely exposed to complex ethical situations involving critically ill patients and end-of-life

decisions. The high level of knowledge observed despite the heterogeneity of the study population may be explained by several factors. First, the study was conducted in a university hospital environment where healthcare professionals regularly participate in teaching activities, multidisciplinary meetings, and continuing medical education programs. Second, confidentiality issues are particularly prominent in intensive care units because patients are frequently unable to communicate, while relatives require regular information regarding prognosis and treatment decisions. Third, medical ethics and professional deontology have become increasingly integrated into undergraduate and postgraduate healthcare curricula. Similar observations were reported by Alahmad et al., who found that physicians frequently acquire knowledge regarding confidentiality through undergraduate ethics education and clinical experience(3). Our findings also demonstrated a strong understanding of shared confidentiality. Nearly all respondents (97.8%) recognized that confidential information may be shared among healthcare professionals involved in patient management, and 91.3% acknowledged that nurses may communicate relevant information to other professionals participating in care. This result reflects the collaborative nature of intensive care medicine, where multidisciplinary decision-making is essential. Modern healthcare increasingly relies on shared responsibility among healthcare providers while maintaining strict confidentiality standards (4). Nevertheless, important knowledge gaps were identified. Only 32.6% of participants correctly answered the question concerning disclosure of medical information to family members. This finding is particularly relevant in intensive care settings, where relatives often seek information because patients may be unconscious or unable to communicate. The recommendations of the French Society of Intensive Care Medicine emphasize that information delivered to relatives should always respect patient autonomy and confidentiality whenever possible (5). Similar difficulties have been described by Satgé (6), who reported that physicians frequently adapt confidentiality practices according to contextual and familial factors rather than strictly applying legal principles. Knowledge concerning legal exceptions to confidentiality also appeared incomplete. Although most respondents correctly recognized mandatory reporting obligations for notifiable diseases (95.7%), only 65.2% correctly identified situations involving violence against a consenting adult. Similarly, 82.6% recognized the obligation to report transmissible infectious diseases. These findings suggest that while healthcare professionals are generally familiar with common legal obligations, uncertainty persists regarding more complex medico-legal situations. Comparable observations have been reported in studies evaluating physicians' legal knowledge concerning confidentiality and informed consent, where substantial gaps persisted despite adequate general knowledge (7). Another important finding concerns the educational and scientific use of patient information. Nearly one-third of respondents did not know that medical information must be anonymized before educational use, and a similar proportion believed that medical students could freely access all patient records. Similar concerns have been reported in hospital-based surveys assessing confidentiality practices among healthcare professionals, where theoretical knowledge did not always translate into appropriate practical behavior (8). With the increasing use of electronic medical records, digital learning platforms, and artificial intelligence tools in healthcare, awareness regarding anonymization and data protection has become even more important (9). The high proportion of participants recognizing that confidentiality protects patient privacy (97.8%) and applies to all health-related information (97.8%) reflects a strong ethical awareness.

Confidentiality remains one of the foundations of trust between patients and healthcare professionals and represents a core component of respect for autonomy, dignity, and human rights (10,11). In intensive care medicine, where patients are particularly vulnerable, maintaining confidentiality is essential to preserving both trust and quality of care.

Overall, our findings suggest that healthcare professionals working in intensive care possess a solid understanding of the general principles of medical confidentiality. However, significant deficiencies remain regarding specific legal exceptions and practical situations commonly encountered in clinical practice. Continuous education programs focusing on medical ethics, health law, confidentiality, and communication with relatives should therefore be strengthened to improve the application of confidentiality principles in daily clinical practice.

Limitations

This study has several limitations. First, the use of a self-administered questionnaire may have introduced reporting bias. Second, the study was conducted in a single university hospital with a relatively small sample size, limiting the generalizability of the findings. Third, although the questionnaire was reviewed by experts and pilot-tested, its psychometric properties, including Cronbach's alpha, were not formally assessed. Finally, the study evaluated theoretical knowledge rather than actual clinical practices regarding medical confidentiality.

Conclusion

In light of these results, it is essential to integrate continuous medical ethics education throughout the theoretical and practical training of medical students. Such an approach would progressively strengthen their ethical competencies and better prepare them to face the increasingly complex ethical dilemmas of future clinical practice.

Supplementary documents:

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