



# Leveraging Health Informatics to Enhance the Efficiency and Accuracy of Medical

## **Secretaries in Healthcare Administration**

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#### Abstract

**Background:** Medical secretaries are essential in healthcare administration, contributing to the efficiency and precision of medical records. Nevertheless, their importance is frequently disregarded in the literature, with minimal research concentrating on their particular roles within the framework of electronic health records (EHRs). This study seeks to fill this gap by exploring the evolving roles of medical secretaries before and after the introduction of EHRs, highlighting their significance in healthcare workflows.

**Methods:** A thorough examination of the current literature regarding medical secretaries, healthcare informatics, and collaborative work dynamics was performed. This study examines how EHR systems affect medical secretaries and highlights their vital role in patient care by focusing on efficient information management and record-keeping practices. The study also examines the overlooked contributions of medical secretaries in healthcare IT.

**Results:** The results highlight how important medical secretaries are to enabling smooth communication between administrative systems and clinical staff. Although they play a crucial role, medical secretaries frequently go unnoticed in both practice and research, which can result in inefficiencies and morale challenges during the implementation of electronic health records. It is crucial to acknowledge and support the roles of medical secretaries to enhance the effectiveness of EHR systems and foster collaborative healthcare initiatives.

**Conclusion:** This study highlights the importance of involving medical secretaries in discussions and implementations related to healthcare IT. Recognizing and addressing the often-overlooked roles of medical secretaries allows healthcare organizations to boost efficiency, enhance patient care outcomes, and cultivate a more collaborative work environment.

Keywords: healthcare informatics, electronic health records, medical secretaries, efficiency, and collaborative work dynamics.

### 1. Introduction

Medical secretaries hold an essential position in hospitals and larger medical practices, overseeing appointment schedules, transcribing physician notes, and guaranteeing the completeness and accuracy of medical records. Their significance was especially highlighted during an examination of the deployment of a comprehensive electronic health record (EHR) system at a regional hospital. The introduction of EHRs had a considerable effect on the workflow of

particularly secretaries, hindering their these delay documentation process. The impacted physicians and nursing staff significantly, as they depend on prompt documentation to carry out their clinical activities. The initial implementation plans for the EHR underwent significant revisions, with the first set of system upgrades concentrating mainly on addressing the specific challenges encountered by medical secretaries (1). Investments and expectations concerning EHRs and health information systems

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have been observed in the United States, Canada, Australia, and several European countries including the UK, Austria, and Norway (2). Thorough examinations of healthcare IT demonstrate the increasing impact of community health work structures on patient outcomes (3).

Additionally, Computer-Supported Cooperative Work (CSCW) has played a crucial role in the development of healthcare IT systems, exploring different clinical settings including emergency rooms, surgical wards, and laboratories (4). Research has explored the dynamics of cooperative work, and the difficulties associated with implementing EHRs. However, the majority of studies have focused on the roles of physicians and nurses, leaving non-clinical staff, such as medical secretaries, with relatively limited consideration.

This paper presents an argument for the essential function of medical secretaries within hospital workflows and emphasizes the need for their inclusion in the design and implementation of electronic health records. They play a crucial role not only in guaranteeing the effectiveness of health IT systems but also in the shift from isolated software solutions to holistic, integrated health infrastructures. This study has two main objectives: to examine the changing roles of medical secretaries before and after the implementation of electronic health records (EHR), and to frame their continuous task of managing the EHR as a boundary object, coining the term "boundary-object trimming" to more accurately describe this function. Finally, we consider the factors contributing to the relative invisibility of medical secretaries in CSCW and medical informatics, highlighting the importance for researchers to acknowledge how their viewpoints influence their research.

# 1. The Function of Medical Secretaries in Healthcare IT

The focus on physicians and nurses in EHR development is justifiable, considering their crucial contributions to patient care. Notable contributions in CSCW, including those by Webster (5) and Liberati et al. (6), have primarily concentrated on these two professions. The Institute of Medicine has emphasized the importance of advanced IT solutions to address challenges in healthcare quality and efficiency (7).

The lack of attention given to medical secretaries in the literature highlights their marginalization. A search on Google Scholar shows only 41 publications that include "medical secretaries" in their titles, compared to 54,600 for "nurses" and 35,900 for "physicians." Furthermore, our review of the ACM digital library and selected medical informatics journals uncovered only three studies that focus on the role of medical secretaries: Alqahtani et al. (8) emphasized their role in information-seeking activities in emergency departments; Møller and Dourish (9) addressed their responsibilities in scheduling and

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coordinating among departments; and Møller and Bjørn (10) explored how medical secretaries participate in collaborative sorting tasks with clinical staff. While they were referenced in wider examinations of EHR effects, there is still a deficiency in the thorough investigation of their particular functions (11).

Researchers such as Karlsson (12) have observed that the general oversight of secretaries and administrative staff within organizational studies frequently remains unacknowledged. Erickson et al. (2008) pointed out a comparable gap in the literature on HCI and CSCW, noting that there are limited studies that focus specifically on the work of administrative assistants. This invisibility might arise from a propensity to view their roles as ordinary or non-knowledge-based tasks, similar to other technical positions (13). Nevertheless, research has shown that tasks considered 'routine' still demand considerable expertise, as seen in the work of telephone operators and photocopier technicians, who are essential to the functioning of organizations (14).

## 2. The Neglected Roles of Medical Secretaries

The impact of EHR systems resonates throughout the entire healthcare organization, highlighting the growing importance of medical secretaries. Their duties go beyond mere administrative tasks; they serve as essential connections between clinical personnel and administrative frameworks, enabling important communication and record-keeping activities. Through the effective management of information and the maintenance of accurate, current medical records, medical secretaries allow physicians and nurses to concentrate on providing direct patient care, free from the hindrances of administrative delays (15).

The contributions of medical secretaries, while essential, frequently go unnoticed in both practice and research. Overlooking the needs during EHR implementations can result in diminished efficiency and morale, highlighting the importance of thorough training and support systems that recognize their contributions. The effectiveness of EHR usability relies not just on the technology itself but also on the collaboration of all personnel engaged in patient care. The contributions of medical secretaries are essential for ensuring seamless transitions and upholding accurate records (16-18).

# 3. The Function of Medical Secretaries in Collaborative Healthcare Efforts

Medical secretaries hold a crucial role within the structure of hospitals, acting as a link between clinical and administrative operations. Their roles and responsibilities arise from continuous interactions among different participants and the technologies that support collaboration and stability within intricate organizational frameworks. This dynamic corresponds with the principles established by Strauss (19), highlighting the importance of interaction in influencing cooperative work in healthcare environments.

Grasping the action-oriented approach suggested by Strauss is essential for recognizing the role of medical secretaries in creating and sustaining an efficient organizational structure. As collaborative efforts progress through the synchronization of actions among professionals, clear communication of tasks, and coordinated paths, medical secretaries are essential in overseeing these processes.

### 4. Collaborative Work Dynamics

Collaboration in healthcare environments is marked by its intricate nature and the interconnections among different participants, such as doctors, nurses, administrative staff, and support teams. This collaboration stems from diverse interactions and common objectives. For successful teamwork, healthcare professionals need to synchronize their actions and communicate their responsibilities clearly, promoting collaboration that enables them to traverse the complex landscape of healthcare delivery (20).

Regular interactions and the creation of standard operating procedures (SOPs) play a crucial role in reducing the cognitive burden linked to task coordination. By transforming intricate actions into more consistent patterns, organizations can improve efficiency and dependability. SOPs offer clear instructions for actions and interactions, helping to ease the ongoing need to negotiate roles and responsibilities (21).

Additionally, this cooperative framework is enhanced by standard operating configurations (SOCs), which outline spatial arrangements that promote collaboration by guaranteeing that necessary resources, personnel, and information are easily accessible. Bardram and Houben (22) emphasize how SOCs reduce "mobility work," which pertains to the effort healthcare professionals must exert to find vital resources necessary for executing their duties efficiently.

The coordination mechanisms, such as SOPs, SOCs, and other organizational arrangements, can be formalized and documented using various media, including physical documents, digital systems, or architectural layouts. They act as facilitators for collaborative efforts and offer current insights into the progress of work processes. When integrated effectively, these arrangements create what Ciolfi et al. (23) describe as "ordering systems," enabling coordinated interaction that goes beyond the constraints of individual roles and disciplines.

#### 5. The Significance of Boundary Objects

In varied professional settings like hospitals, the importance of clear communication and teamwork is crucial. Boundary objects are essential in promoting comprehension among various social spheres within healthcare institutions. Griesemer (24) describes boundary objects as artifacts or concepts that must have the ability to adapt to local needs while preserving a consistent identity across different contexts.

For example, clinical pathways can serve as boundary objects, facilitating collaboration among different professions and departments by offering a shared framework for comprehending processes and responsibilities (25). Every collaborating group brings distinct viewpoints shaped by their professional experiences, and boundary objects serve to connect these variations, enhancing communication and cooperation that might otherwise be difficult.

It is important to acknowledge that the importance of boundary objects may differ among various professional fields. For example, the perception of an unborn child during fetal surgery can vary significantly between surgeons, who see the fetus as the main concern, and nurses, who emphasize the mother's wellbeing. The varying viewpoints highlight the intricacies of collaborative efforts and the necessity for robust communication strategies to guarantee that all participants share common goals and comprehension (26).

The ever-changing landscape of healthcare organizations is supported by temporary agreements among different actors and technologies that define roles and responsibilities. Within this framework, professions like medicine, nursing, and various support roles, including medical secretaries, coordinate their tasks through established SOPs and SOCs. These procedural and organizational guidelines facilitate seamless collaboration among healthcare professionals and improve the effectiveness of patient care processes (22, 23).

Even though these roles are crucial, the way organizations are structured can unintentionally reinforce hierarchies related to gender, ethnicity, and professional dynamics. In many healthcare environments, various genders often dominate specific roles, with men frequently holding higher management or supervisory positions compared to their female counterparts, as noted by Tafvelin and Keisu (27) and Mayo (28). These discrepancies illustrate the wider societal trends that shape power dynamics within organizations.

The distribution of roles in healthcare is profoundly influenced by societal expectations related to gender and historical patterns. In fields like nursing and midwifery, women make up the majority of the workforce, while men frequently hold the majority in surgical positions. It is important to note that the representation of female physicians has risen in countries; however, gender disparities continue to exist within certain specialties. General surgery remains largely male-dominated, while pediatrics tends to draw a higher number of female practitioners (30). Additionally, in some nations, a significant number of medical secretaries are women, highlighting the importance of exploring the effects of these distributions on workplace dynamics.

# 6. Role Allocation in a Changing Landscape

Maintaining collaborative work arrangements requires continuous involvement and adjustment as healthcare settings keep changing. Technological advancements continually shape the nature of work roles and responsibilities, affecting how tasks are allocated and carried out. Bardram and Houben (22) highlight that incorporating new technologies may require changes in coordination mechanisms, which can result in possible reconfigurations of professional roles.

Although modifications improve specific elements of efficiency, they can also present difficulties, especially for roles like medical secretaries. The rise of technologies like voice recognition software and electronic health records has sparked worries regarding job security among these professionals. As physicians increasingly depend on automated transcription and record-keeping systems, the traditional responsibilities of medical secretaries may become unnecessary, presenting a challenge to their positions within healthcare organizations (30).

This tension illustrates a wider story evident in numerous professions. Some individuals' welcome technological advancements as chances to improve their skills and obtain more fulfilling, rewarding jobs, while others may face deskilling or the complete displacement of their roles. Crawford (31) and Truss et al. (2012) present examples that illustrate this dichotomy, indicating that the effects of technological change are not consistently advantageous.

# 7. Conclusion

The responsibilities of medical secretaries in healthcare environments highlight the intricacies of collaborative processes and the critical importance of efficient coordination systems. Medical secretaries play a crucial role in ensuring the stability and effectiveness of healthcare organizations by offering essential administrative support and enhancing communication between clinical staff and different departments. Nonetheless, their contributions frequently go unrecognized in both practical applications and academic discourse, continuing to foster narratives that diminish the importance of their roles.

As healthcare environments evolve with technological advancements, organizations need to acknowledge the shifting dynamics of work roles and responsibilities. Maintaining collaborative arrangements requires continuous discussion regarding the effects of technology on workforce structures and the importance of supporting all employees, especially those in roles that may become obsolete. Through this advocacy, healthcare organizations can ensure that every member of their teams, including medical secretaries, is recognized as a valuable contributor to high-quality patient care. Examining their work through the perspective of cooperative dynamics and interactional processes

underscores the significance of visibility, acknowledgment, and support for all healthcare professionals in various roles.

## References

- Sherer, S. A., Meyerhoefer, C. D., & Peng, L. (2016). Applying institutional theory to the adoption of electronic health records in the US. Information & Management, 53(5), 570-580.
- Bossen, C., Jensen, L. G., & Udsen, F. W. (2014). Boundary-object trimming: On the invisibility of medical secretaries' care of records in healthcare infrastructures. *Computer Supported Cooperative Work (CSCW)*, 23, 75-110.
- Fitzpatrick, G. and G. Ellingsen (2012): A Review of 25 Years of CSCW Research in Healthcare: Contributions, Challenges and Future Agendas. Journal of Computer Supported Cooperative Work (CSCW), pp. 1–57.
- Bjørn, P., Wulff, M., Petræus, M. S., & Møller, N. H. (2021). Immersive cooperative work environments (cwe): Designing humanbuilding interaction in virtual reality. Computer Supported Cooperative Work (CSCW), 30(3), 351-391.
- 5. Webster, F. (2020). The social organization of best practice: An institutional ethnography of physicians' work. Springer Nature.
- Liberati, E. G., Ruggiero, F., Galuppo, L., Gorli, M., González-Lorenzo, M., Maraldi, M., ... & Moja, L. (2017). What hinders the uptake of computerized decision support systems in hospitals? A qualitative study and framework for implementation. Implementation science, 12, 1-13.
- Johnson, M. (2016). Developing Policies and Guidelines to Prevent Medication Errors and ADEs in Nursing Homes (Doctoral dissertation, Walden University).
- Alqahtani, A. K., Nasseri, M. A. A., Al Tamimi, M. I., Alaskar, K. M., Altamimi, B. S. A., Aljihni, A. S., ... & Altamimi, K. A. (2022). The Role Of Medical Secretary In Medical Records And Reports: A Comprehensive Review. Chelonian Research Foundation, 17(2), 1951-1962.
- Møller, N.H. and P. Dourish (2010): Coordination by Avoidance: Bringing Things Together and Keeping them Apart Across Hospital Departments. Proceedings of the 16th ACM International Conference on Supporting Group Work. Sanibel Island, Florida, USA: ACM. pp. 65–74.
- Møller, N.H. and P. Bjørn (2011): Layers in Sorting Practices: Sorting out Patients with Potential Cancer. Journal of Computer

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Supported Cooperative Work, vol. 20, no. 3, pp. 123–153.

- Musee, C. M., Sisimwo, P. K., Mweu, J. M., Maina, P., Mutua, R., & Omulogoli, G. (2023). Nursing staff practices towards computerization and computer use in a teaching and Referral hospital, Nairobi Kenya. *East African Journal of Health and Science*, 6(1), 263-270.
- Karlsson, A. (2011): Occupational Identity in Administrative Service Work: The Aspect of Carefulness. Gender, Work & Organization, vol. 18, pp. e132–e156.
- Barley, S. R., Greenwood, R., Oliver, C., Sahlin, K., & Suddaby, R. (2017). Coalface institutionalism. The Sage handbook of organizational institutionalism, 338-364.
- Kauppinen, S., Luojus, S., & Risu, E. (2019). Work-Oriented Project Learning Model in Higher Education. In ICERI2019 Proceedings (pp. 3888-3897). IATED.
- 15. Banaski, J. (2018). Essentials of public health preparedness and emergency management. Jones & Bartlett Learning.
- 16. Gall, W., Aly, A. F., Sojer, R., Spahni, S., & Ammenwerth, E. (2016). The national emedication approaches in Germany, Switzerland and Austria: A structured comparison. International journal of medical informatics, 93, 14-25.
- 17. Oderkirk, J. (2017). Readiness of electronic health record systems to contribute to national health information and research.
- Lee, J., Park, Y. T., Park, Y. R., & Lee, J. H. (2021). Review of national-level personal health records in advanced countries. Healthcare Informatics Research, 27(2), 102-109.
- 19. Strauss, A. (1993): The Continual Permutations of Action. New York: Aldine de Gruyter.
- Bryant, A. (2021). Continual permutations of misunderstanding: The curious incidents of the grounded theory method. Qualitative Inquiry, 27(3-4), 397-411.
- Austin, E. E., Blakely, B., Salmon, P., Braithwaite, J., & Clay-Williams, R. (2022). Technology in the emergency department: Using cognitive work analysis to model and design sustainable systems. Safety Science, 147, 105613.
- 22. Bardram, J. E., & Houben, S. (2018). Collaborative affordances of medical records. Computer Supported Cooperative Work (CSCW), 27, 1-36.
- Ciolfi, L., Lewkowicz, M., & Schmidt, K. (2023). Computer-supported cooperative work. In Handbook of Human Computer Interaction (pp. 1-26). Cham: Springer International Publishing.

- 24. Griesemer, J. R. Boundary Objects, Boundary Media.
- 25. Gatos, D., Günay, A., Kırlangıç, G., Kuscu, K., & Yantac, A. E. (2021, June). How HCI bridges health and design in online health communities: a systematic review. In Proceedings of the 2021 ACM Designing Interactive Systems Conference (pp. 970-983).
- 26. Helosvuori, E., & Homanen, R. (2022). When craft kicks back: Embryo culture as knowledge production in the context of the transnational fertility industry. Social Studies of Science, 52(3), 425-446.
- 27. Tafvelin, S., & Keisu, B. I. (2024). Development and validation of the InEquality in organisations Scale (InE-S): a measure based on Acker's inequality regimes. Gender in Management: An International Journal, 39(4), 480-496.
- 28. Mayo, A. R. P. (2017). The Gender Concept and the Organizational Metaphors as Intelligibility Nuclei for the Analysis of Gender Problems in University Organizations.
- 29. Kuhlmann, E. and E. Annandale (2010): The Palgrave Handbook of Gender and Healthcare. New York: Palgrave.
- Knudsen, C., & Bertelsen, P. S. (2022, August). Maintaining Data Quality at the hospital department level: The data work of medical secretaries. In Proceedings of the 18th Scandinavian Conference on Health Informatics (pp. 159-165).
- Crawford, J. (2016). Women's Secretaries. In Queer Renaissance Historiography (pp. 111-134). Routledge.
- 32. Truss, C., K. Alfes, A. Shantz and A. Rosewarne (2012): Still in the Ghetto? Experiences of Secretarial Work in the 21st Century. Gender, Work & Organization, vol. 20, no. 4, pp. s 349–363.

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