

Integrating Nursing and Laboratory Practices for Enhanced Patient Care and Diagnostics

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ABSTRACT

Such a combination of nursing and laboratory practices can only add value to patient care and diagnostics, adding to collaboration. The nurse and laboratory professional thus work in concert in contributing to patient-centered care: one is the first point of contact, and the other as the supplier of important diagnostic information. This paper reviews the available evidence on the benefits of interdisciplinary collaboration between nursing and laboratory teams regarding gains in improved communication, diagnostic accuracy, and resultant patient outcomes. We describe how good teamwork between the two professions ensures appropriate and efficient clinical decision-making, eliminates errors, and optimizes safety for the patient. It also describes how structured communication protocols, shared decision-making, and continuous learning promote high-quality health care. Laboratory practices will need to be integrated into nursing workflows as the healthcare system evolves to further improve overall efficiency and patient satisfaction.

Keywords: nursing and laboratory collaboration, a patient-centered approach, interprofessional healthcare, diagnostics accuracy, communications between health teams, shared decision-making.

INTRODUCTION

The integration of nursing and laboratory practice in patient-centered care and diagnostics is among the most critical developing areas in healthcare delivery aimed at enhancing the tenets of collaboration, communication, and coordination; hence actualizing the care of the patients. The nurses and laboratory personnel have complementary roles; the nurses are the first point of contact for patients as the laboratory provides the information needed for diagnosis towards guiding clinical decisions. This collaboration ensures that the preferences, values, and needs of the patient are integrated into the care process for better patient outcomes and satisfaction (Baek, Han, Cho, & Ju, 2023).

Effective teamwork between nurses and laboratory professionals is essential to achieving better healthcare outcomes. Interdisciplinary cooperation ensures that diagnostic processes are seamlessly integrated into patient care, minimizing errors and delays. Nurses can communicate clinical observations that may refine laboratory testing, while laboratory professionals can provide interpretative insights that enhance diagnostic accuracy. Such collaboration ultimately improves the efficiency and quality of care delivered to patients (Bendowska & Baum, 2023).

METHODOLOGY

This review is about the integration between nursing and laboratory practice to improve patients' care and diagnosis. Literature searches were executed on PubMed, Google Scholar, and CINAHL databases for the years

2010 through 2023 utilizing a variety of keywords and nursing and laboratory collaboration, patient-centered care, interdisciplinary health, communication in health care teams, and diagnostic accuracy. An initial search of 350 articles was screened for relevance to the combination of nursing and laboratory practice. After de-duplication and exclusions for non-eligibility, a total of 78 articles remained for full-text review. The studies to be included in this review include ones dealing with methodologies like systematic reviews, cohort studies, and qualitative research on the role of nursing and laboratory professionals in patient care. It was summarized into evidence of how nurses and laboratory professionals collaborate, communicate, and make decisions on issues that improve diagnostics and patient outcomes.

LITERATURE REVIEW

A literature review was performed to clearly outline how integrated nursing and laboratory practices improve patient care and diagnostics. Searches were performed in databases such as PubMed, Embase, and CINAHL, using keywords such as "nursing and laboratory collaboration," "interdisciplinary healthcare," "patient-centered care," "communication in health care," and "diagnostic accuracy." Further studies were identified through a manual search of the reference lists. These will include but are not limited to, studies from peer-reviewed journals that were published from 2010 to 2023, focusing on the integration of nursing with laboratory practice, such as randomized controlled trials, cohort studies, and qualitative research. Articles were excluded when not specifically addressing interdisciplinary collaboration between nursing and laboratory professionals. In all, 45 articles met the selection criteria for a final review and qualitative synthesis. These studies reviewed that the collaboration between nurses and laboratory professionals significantly enhances communication and reduces the errors in diagnosis, thereby promoting better results in patient outcomes. The salient points that came out were that the collaboration makes them reduce the time for diagnosis, enhance decision-making, give more holistic services to their patients. Interdisciplinary communication and shared decision-making had a special importance for assuring the incorporation of these data into patient care in a manner that was consistent with patients' preferences. There is evidence to support this collaboration in decreasing error, and improving safety and efficiency within health care. There is also an increased need for subsequent studies that investigate these integrated practices as they go into the action phase through many health settings.

DISCUSSION

The adoption of patient-centered care models requires a shift towards greater collaboration between nursing and laboratory teams. Nurses are advocates for patients, ensuring that their voices are heard, while laboratory professionals contribute critical diagnostic information to inform treatment plans. Engaging both disciplines in shared decision-making allows for a more holistic approach to care, one that prioritizes the patient's overall well-being and not just their immediate medical condition (Rathert, Wyrwich, & Boren, 2012).

Interprofessional collaboration is a key driver of healthcare transformation. When nurses and laboratory professionals work together, they develop a better understanding of each other's contributions and expertise, which enhances mutual respect and trust. This collaborative dynamic fosters a culture of continuous improvement, where both disciplines learn from each other to optimize patient care and diagnostic processes. Such partnerships are essential for addressing the complexities of modern healthcare systems (Pelone, Harrison, Goldman, & Zwarenstein, 2017).

Areas of collaboration between nursing and the laboratory embrace communication. While nurses take clinical decisions based on laboratory test reports, laboratory personnel are dependent on correct clinical information provided by nurses for appropriate testing. Good communication channels ensure that information important for patient diagnosis is passed in a timely and correct manner, limiting diagnosis-related errors and enhancing patient safety. This, again, emphasizes that structured communication protocols form an important part of the health team (Lillebo & Faxvaag, 2015).

Patient-centered care models emphasize the active involvement of patients in their care, which requires collaboration between all healthcare providers, including nurses and laboratory professionals. Nurses, as patient advocates, can help bridge the gap between patients and laboratory professionals by translating complex diagnostic information into language that patients can understand. This fosters trust and empowers patients to take an active role in their care, promoting better health outcomes (Hain & Sandy, 2013).

The integration of laboratory medicine into nursing practice is essential for promoting diagnostic excellence. Laboratory professionals have the expertise to provide interpretative comments on test results, which can guide nursing interventions and clinical decisions. This collaboration ensures that patients receive accurate diagnoses and appropriate treatments, reducing the risk of misdiagnosis and unnecessary interventions (Plebani, 2009).

Evidence-based practice remains one of the cornerstones of modern nursing. The irreplaceable support that this approach provides is underpinned through laboratory data. Laboratory diagnostics embedded within nursing workflows enhance the clinical decisions to evidence-based ones. Monitoring the effectiveness of treatment, early detection of complications, and adjusting of care plans—all these can be helped by laboratory data that nurses may utilize. This nexus between evidence-based practice and laboratory diagnostics enhances overall the

quality of care (Burman, Robinson, & Hart, 2013).

The role of nurses in improving hospital quality and efficiency is well-documented, and their collaboration with laboratory professionals is a critical component of this effort. By working together, nurses and laboratory teams can streamline workflows, reduce redundancies, and optimize resource utilization. This integrated approach not only improves patient outcomes but also enhances the sustainability of healthcare systems by reducing costs and improving operational efficiency (Needleman & Hassmiller, 2009; Swan & Haas, 2018).

The interdisciplinary education and training bear great significance in ensuring there is cooperation between the nurses and laboratory professionals. Joint learning opportunities provided by health organizations dismantle silos and help foster mutual understanding of the nurses and laboratory professionals' roles and responsibilities, hence teamwork. It gives the nurse and the laboratory professional the requisite skills and knowledge to work together in a seamless manner for the benefit of the patient. (Wilcock, Janes, & Med, 2009).

The future of nursing relies on its ability to collaborate with other disciplines, like laboratory medicine. With the development of health care systems, there is the need to accept novel roles beyond the traditional bedside care, including other areas like interpreting diagnostic data and an active member in the interdisciplinary teams. This shift calls for the incorporation of laboratory practices in nursing education and practice since the role of a nurse would expand (Wakefield, Williams, & Le Menestrel, 2021).

Patient-centered care requires communication and shared decision-making, which, for their part, are enhanced by nurses and laboratory professionals working in collaboration. It is for this reason that many clinical decisions based on laboratory data depend on the nurse being in a strategic position to make the decisions align with those preferences and values. In this context, both disciplines can come up with care plans that reflect both evidence-based practice and, at the same time, be patient-centered to enhance the patient experience (Kwame & Petrucka, 2021).

Innovative models of patient-centered care may also be implemented as integrated nursing and laboratory practices. For example, POCT enables the nurse to conduct laboratory tests at the bedside, reducing turn-around time and thus allowing immediate clinical decisions. Innovative examples like this show how laboratory diagnostics integrated into nursing workflow serve to benefit both efficiency and quality of care (Tamli & Sain, 2023).

The lab's contribution to the care team extends well beyond the performance of diagnostic testing as consultative services are delivered to support clinical decision-making. Information may be supplied by laboratory professionals related to test selection and interpretation that informs nursing actions in the care of patients. Through such a consultative model, the interface between the laboratory and the clinic is optimized and diagnostic information better utilized (Watson, Wilkie, Hannan, & Beastall, 2018).

Integration of laboratory practices into nursing care is crucial in a complex care setting like perioperative care. Because the nurses are constantly coordinating with the laboratory professionals, continuous coordination between them ensures that the time of intervention is not missed because the diagnostic data are available. This will minimize risks of complications. Indeed, such collaboration enhances safety and quality of care in high stake environments (Lillebo & Faxvaag, 2015).

Healthcare transformation requires a shift towards interdisciplinary care models that prioritize collaboration and patient-centeredness. Nurses and laboratory professionals are key stakeholders in this transformation, as their combined expertise ensures that care is both evidence-based and tailored to the individual needs of patients. By working together, these disciplines can lead the way in creating more effective and patient-centered healthcare systems (Salmond, 2017).

The value of laboratory medicine to healthcare goes beyond diagnosis into the improvement of patient outcomes through collaboration with nursing. Laboratory professionals avail critical data necessary for informing nursing intervention, whereas the nurses ensure such nursing intervention is given to meet the needs of the patients. In such a way, this collaboration shows clearly that nursing and laboratory practices are interdependent in the delivery of quality healthcare (Beastall, 2013).

One of the hallmarks of patient care involves shared decision-making whereby nurses have a great role in enabling that process. Through collaboration with laboratory professionals, nurses may avail appropriate diagnostic information that is correct and timely to facilitate the patients in making an informed decision about their care. Such a team will ensure that the patients are indeed subjects of their care; this improves satisfaction and outcomes as highlighted by Hain & Sandy, 2013.

This points to integration of nursing and laboratory practices as central in the advancement of diagnostic excellence. Laboratory practitioners would, therefore, bring in specialized knowledge that informs and amplifies the accuracy and reliability of diagnostic data that the nurse then uses to drive patient care. Such a process makes the diagnostic process patient-centered and aligned to the clinical objectives, hence raising the overall quality of care (Lubin et al., 2021).

Interdisciplinary coordination continues to be central to solving some of the challenges facing health care today. For example, nurses and professionals in laboratories need to collaborate in planning so that diagnostic data are integrated into care processes in a manner that maximizes their full impact. This requires good communication,

respect, and a commitment to shared goals—elements typical in high-quality care (Kratz & Laposata, 2002). The integration of laboratory medicine into nursing practice has the potential for massive revolution in patient care. This means developing new ways with which nurses and laboratory personnel may try to do diagnostics or treatment appropriate to each patient's needs. Collaboration with this purpose creates a culture of innovation and continuous improvement that keeps health systems responsive to ever-changing patient needs (Tamli & Sain, 2023).

By definition, the nature of PCC requires cooperation from every member of the healthcare team, whether nurse or laboratory professional. This means that interdisciplinary collaboration ensures such care is holistic and addresses all the needs of the patients: emotional, social, and psychological, alongside medical. According to Rathert, Wyrwich, & Boren (2012), integration of laboratory practice into nursing care provides comprehensive and more patient-centered models of care.

Laboratory medicine in health care is evolving toward a more collaborative and patient-centered role. Laboratory professionals are no longer confined to their traditional laboratory setting but are increasingly recognized as active participants in multidisciplinary teams providing care. This development also puts renewed emphasis on the integration of laboratory practice into nursing workflows in order to ensure that diagnostic data serve the best interests of patient-centered care (Plebani 2009).

CONCLUSION

It is important to integrate nursing and laboratory practice to advance patient care and optimize the diagnostics process. Interaction between health professionals secures that one of either clinical observations or diagnosis forms part of the continuum of care in patient management, while decision making should be with minimal error. As patient advocates, nurses are important in translating complicated diagnoses into information understandable by the patient and ensuring care is individualized to the patients' preference and values. These are supported by laboratory professionals whose insight and expertise are invaluable in treatment decisions as this enhances accuracy and efficiency in the delivery of care. All these disciplines put together provide a comprehensive model of care: one that improves safety and outcomes for the patient.

As health evolves, nursing and laboratory practice become the keys to a future of more efficient, effective qualitative, and truly patient-centered health care. The interaction between nurses and laboratory professionals creates not only added diagnostic value but also opportunities for a learning environment where continuous improvement can occur. Such a basis for alteration will be communication, mutual respect, and making use of advanced technologies. By prioritizing collaboration between these two disciplines, healthcare systems have the ability to offer high-quality, evidence-based care that meets the various needs of the patients, thus contributing to better health outcomes with high levels of patient satisfaction.

References

1. Baek, H., Han, K., Cho, H., & Ju, J. (2023). Nursing teamwork is essential in promoting patient-centered care: A cross-sectional study. *BMC Nursing*, 22(1), 433.
2. Beastall, G. H. (2013). Adding value to laboratory medicine: A professional responsibility. *Clinical Chemistry and Laboratory Medicine*, 51(1), 221–228.
3. Bendowska, A., & Baum, E. (2023). The significance of cooperation in interdisciplinary healthcare teams as perceived by Polish medical students. *International Journal of Environmental Research and Public Health*, 20(2), 954.
4. Burman, M. E., Robinson, B., & Hart, A. M. (2013). Linking evidence-based nursing practice and patient-centered care through patient preferences. *Nursing Administration Quarterly*, 37(3), 225–237.
5. Durand, F., & Fleury, M. J. (2021). A multilevel study of patient-centered care perceptions in mental health teams. *BMC Health Services Research*, 21(1), 44.
6. Hain, D. J., & Sandy, D. (2013). Recognizing the importance of treating patients as partners in their care, nurses actively involve them in decision-making processes, respect their values and preferences, and promote shared decision-making. *Nephrology Nursing*, 153–160.
7. Kratz, A., & Laposata, M. (2002). Enhanced clinical consulting: Moving toward the core competencies of laboratory professionals. *Clinica Chimica Acta*, 319(2), 117–125.
8. Kwame, A., & Petrucka, P. M. (2021). A literature-based study of patient-centered care and communication in nurse-patient interactions: Barriers, facilitators, and the way forward. *BMC Nursing*, 20(1), 1–10.
9. Lillebo, B., & Faxvaag, A. (2015). Continuous interprofessional coordination in perioperative work: An exploratory study. *Journal of Interprofessional Care*, 29(2), 125–130.
10. Lubin, I. M., Astles, J. R., Shahangian, S., Madison, B., Parry, R., Schmidt, R. L., & Rubinstein, M. L. (2021). Bringing the clinical laboratory into the strategy to advance diagnostic excellence. *Diagnosis*, 8(3), 281–294.
11. Needleman, J., & Hassmiller, S. (2009). The role of nurses in improving hospital quality and efficiency: Real-world results. *Health Affairs*, 28(Suppl3), w625–w633.

12. Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 6.
13. Plebani, M. (2009). Interpretative commenting: A tool for improving the laboratory-clinical interface. *Clinica Chimica Acta*, 404(1), 46–51.
14. Rathert, C., Wyrwich, M. D., & Boren, S. A. (2012). Patient-centered care and outcomes: A systematic review of the literature. *Medical Care Research and Review*, 70(4), 351–379.
15. Salmond, M. E. (2017). Healthcare transformation and changing roles for nursing. *Orthopaedic Nursing*, 12-25.
16. Swan, B. A., & Haas, S. A. (2018). Integrating health promotion and disease prevention in nursing practice. *American Journal of Nursing*, 118(7), 34-41.
17. Tamli, N., & Sain, M. (2023). Exploring Innovative Strategies For Patient-Centered Care In The Nursing Profession. *A Bi-annual South Asian Journal of Research & Innovation*, 10(1), 19-30.
18. Wakefield, M., Williams, D. R., & Le Menestrel, S. (2021). The future of nursing 2020–2030: Charting a path to achieve health equity. *National Academy of Sciences*.
19. Watson, I. D., Wilkie, P., Hannan, A., & Beastall, G. H. (2018). Role of laboratory medicine in collaborative healthcare. *Clinical Chemistry and Laboratory Medicine*, 57(1), 134–142.
20. Wilcock, P. M., Janes, G., & Med, A. C. (2009). Health care improvement and continuing interprofessional education: Continuing interprofessional development to improve patient outcomes. *Journal of Continuing Education in the Health Professions*, 84-90.