

Streamlining Internal Medicine: How Nursing, Health Administration, And Laboratories Contribute To Improved Outcomes

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Abstract

Background: - In the complex landscape of internal medicine, the collaboration and coordination among various healthcare disciplines play a crucial role in achieving optimal patient outcomes. Nursing, health administration, and laboratory services are integral components of healthcare delivery systems, each contributing unique expertise to the continuum of patient care. **Purpose:** Understanding how these disciplines interact and complement each other is essential for streamlining internal medicine practices and enhancing patient outcomes. **Methodology:** - A systematic review conducted in the past ten years from 2011-2021 through various databases and official websites; WHO, AHA. **Finding:** - presence of eight articles incorporated in the study from 2011-2021 **Conclusion:** - studies found a significant improvement of patient outcome related to collaboration of health, Laboratory, health administration and nursing care are positively associated with patient outcome enhancement. the study's future research directions are provided.

Keywords: - "Medical Coordination", "Health Professional", "Crucial Role", "Patient Outcomes", "Laboratories", "Health Administrators", "Nurses Specialists"

Introduction

Nursing professionals are at the forefront of patient care, providing direct support and advocacy for individuals across the healthcare continuum. Their roles encompass a wide range of responsibilities, including patient assessment, medication administration, and patient education. (Smith et al., 2018). In addition, the holistic approach of nurses to patient assessment and management encompasses physical, psychosocial, and spiritual dimensions, ensuring comprehensive and compassionate care delivery. By collaborating with interdisciplinary teams and leveraging evidence-based practice, nurses contribute to improved patient outcomes and enhanced healthcare experiences (Adams et al., 2018).

The Health administration serves as the backbone of healthcare organizations, overseeing strategic planning, resource allocation, and quality improvement initiatives. Through effective

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leadership and management practices, health administrators ensure the efficient operation of healthcare facilities and the delivery of high-quality care to patients. Their contributions extend beyond administrative duties to encompass fostering a culture of safety, innovation, and continuous improvement within healthcare organizations **(Jones & Scott, 2019)**.

Laboratory services are indispensable in the diagnosis, monitoring, and management of various medical conditions. Clinical laboratories perform a wide array of tests, ranging from routine blood work to advanced molecular diagnostics, to support healthcare providers in making informed clinical decisions. With advancements in technology and testing methodologies, laboratories play an increasingly prominent role in personalized medicine and precision healthcare delivery **(Johnson et al, 2020)**.

Effective collaboration among nursing, health administration, and laboratory services is essential for optimizing patient care outcomes in internal medicine. By leveraging the expertise of interdisciplinary teams, healthcare organizations can address the complex needs of patients with chronic conditions, acute illnesses, and complex medical comorbidities. Through coordinated care delivery models and interdisciplinary care conferences, healthcare professionals can ensure seamless transitions of care and continuity of services across different healthcare settings **(Brown et al., 2017)**.

The landscape of internal medicine is constantly evolving, driven by advancements in medical science, technology, and evidence-based practice. As such, healthcare professionals must stay abreast of emerging trends, guidelines, and best practices to deliver high-quality, patient-centered care. Continuous professional development and lifelong learning are integral to maintaining competency and adaptability in today's dynamic healthcare environment **(Thomas & White, 2020)**.

Patient engagement and empowerment are increasingly recognized as key determinants of healthcare outcomes and satisfaction. Involving patients in shared decision-making, treatment planning, and self-management strategies can lead to improved adherence, health behaviors, and treatment outcomes. Nurses, health administrators, and laboratory professionals play pivotal roles in promoting patient engagement through education, communication, and collaborative care approaches **(Miller et al., 2019)**.

Despite the recognized importance of interdisciplinary collaboration, healthcare systems may face barriers and challenges in achieving seamless integration and coordination of services. Structural, organizational, and cultural factors within healthcare settings can impede effective communication, teamwork, and resource allocation. Addressing these barriers requires a multifaceted approach, encompassing leadership support, workflow redesign, staff training, and technology-enabled solutions **(Parker & Smith, 2018)**. Also, requires a concerted effort to foster a culture of collaboration, teamwork, and mutual respect across healthcare settings **(Jones and Brown., 2020)**

Streamlining internal medicine requires a comprehensive understanding of the multifaceted interactions among various healthcare disciplines. Nursing, health administration, and laboratory services are integral components of the healthcare ecosystem, each contributing unique perspectives and expertise to patient care. By examining the synergies and intersections of these disciplines, healthcare organizations can identify opportunities for optimization and innovation in internal medicine practice **(Johnson et al., 2020; Smith et al.,2020)**.

It's important to elucidate how these health disciplines collaboration contribute to improved outcomes in internal medicine. Through a comprehensive analysis of existing literature and empirical evidence, this review seeks to identify the consequences of best practices of

collaboration and coordination among healthcare professionals in contribution patient outcome improvement and satisfaction. Ultimately, the findings of this review will inform strategies to streamline internal medicine practices and promote better patient outcomes.

Literature Review

1-Objective

The objective of this systematic review is to evaluate the role of nurse specialists, laboratories and health administration collaboration and care coordination for contribution to patient care and in enhancing patient outcome through streamlining approaches in internal medicine. the review is conducted through reviewing a previous study that focus on the same topic.

2- Methods

Finding pertinent research:

A number of terms, including "care coordination; patient care; health staff; nurse; nurses; laboratories; health administration; patient outcome," to describe care contribution interventions of health care team to enhance patient outcome. Studies were evaluated based on established criteria before being included. We used these terms to conduct a literature search. These terms were combined with "role" and "healthcare" intervention "coordination" the search strategy was created after using electronic research of disciplinary databases EMBASE, MEDLINE, Scopus, PubMed, and google scholar and websites of WHO, National Academies of Nurses, and Medicine, for articles published in the last 10 years (from 2011 to 2021)., The publications were preferred to be in English languages. To find more research, a manual review of the reference lists of the pertinent papers was done.

3-Inclusion and Exclusion Criteria:

Authors Analyze original research papers, RCTs, systematic reviews and meta-analysis that assess the role of nurse specialists, laboratories and health administration collaboration and care coordination for contribution to patient care and in enhancing patient outcome through streamlining approaches in internal medicine., The study inclusion standards are human subjects, healthcare professionals specially nurses, health administrators and laboratories related articles. studies that was published in English between 2011 and 2021 and accessible as full text, with no consideration of regional limitations. Studies conducted before 2011 as well as publications that did not adequately describe the collaboration of the multidisciplinary team of health care in patient outcome were also excluded. Articles lacking peer review, webcasts, case study, surveys, secondary data analysis, non-original reports, letters, publication include pediatric and pregnancy population were also declined.

4- Data Extraction process

We used a double screening technique, which entailed screening both titles/abstracts and full texts, to guarantee the precision and caliber of our review process. Two of the authors independently looked through all of the article titles and abstracts that turned up during the process, in addition to reading the full texts of the pertinent papers that were located. They worked in blind pairs to carry out the screening process, and a senior member assessed the work as a whole and helped the reviewers discuss any differences. The following criteria were used by the reviewers to evaluate the published full-text papers for inclusion; those that did not meet all of the requirements were excluded. Conflicts that surfaced during the full-text assessment, full-text review, abstract, and title screening were resolved by a third party. The

information gathered from the eight publications that met the inclusion criteria was independently evaluated and collated by the review's writers. Following a thorough analysis, the constant comparison method was used to examine the data. After each of the included studies was examined, relevant data was extracted using the following criteria: The author extracted and documented the study's design, author, population, year of publication objectives, setting, type of disease, demographics, results, and conclusion. The process comprised evaluating and selecting the data from the literature search in addition to going over earlier research.

Preliminary findings were presented and individually discussed with senior and junior researchers in the integrated care field during an in-person scientific meeting.

Quality Assessment

To evaluate the quality of the integrated research, a standardized instrument suitable for the different study designs was employed. The narrative synthesis of the included studies' research findings was completed.

Synthesized Finding

There were 332 items located from 2011 to September 2021 of them, 280 did not meet the inclusion criteria, consequently 52 full-text publications were examined. After further revision, 8 articles were finally included in the systematic review. The quality assessment of the included studies revealed that the majority of studies had good quality and satisfactory results with a low risk of bias.

Features of the included studies

There are eight articles were finally included in the systematic review that were published between 2011 and 2021, enlisting (2888) patients. According to the geographical distribution:
 - studies conducted in Canada, Netherland, china, USA

Outcome result: -

Table 1: Findings of the included study.

Author	Specialist country/design	Internal disease / number of participants	Management	Outcome
Kimble et al.,2014	Nurse specialist and practitioner /laboratory/ USA /observational study	Diabetes Mellitus/ (22)	Evidence-based treatment into practice: CDDM Evaluation of lab measures	Notable advancements in patient outcomes. 1- decreased rates of hypoglycemia and sliding-scale insulin orders 2- A rise in resident-centered care 3- Enhancement chronic kidney disease screening
Harbman.,2014	Nurse practitioner / laboratory	heart	Health education, medication	When compared to usual care, there was a substantial improvement in the following

	Canada /prospective cohort study	renal disease / (65)	modifications, case management, and advice and counseling	target objectives, including 1- stopping smoking (no=5) 2- Blood pressure (no=15), 3-Attendance at cardiac rehabilitation(no=7) 4-physical activity five days a week (no=34) 4-Attaining a glycated hemoglobin <7% in individuals with diabetes (no=10), 5-triglyceride levels, using statins at follow-up and the number of weeks until cardiac rehabilitation (p=0.02-0.05) Respectively.
Chen et al.,2016	Nurse practitioner / /systematic review	Kidney disease / (1520)	Nurse-led disease management program	1-The quality of life was enhanced by nurse-led disease management in terms of symptoms, sleep, staff support, pain, general health perception, energy/fatigue, general health, and mental component.
Latour et al.,2019	General practitioner, cardiologist, cardiac nurse specialist/ Netherland/ RCT	Hypertension-diabetes-arterial heart disease / (72)	Life style changes	1- weight loss in older patient more than 5% While in young 1.57% 1-younger patients were more likely to show non-improved individual
Jepma et al.,2021	Nurse Practitioner/ Netherland/ RCT	Older patient with cardiac disease , (16)	support in checking patient health status by measurement of vital signs. All participants received home visits of the community nurse post-discharge.	1- physical improvements 2- the home visits by the community nurse were appreciated, although some participants did not recognize the added value

Chen et al.,2014	en et al. [14] (2021) Randomized controlled trial Adults with type 2 diabetes Empowerment-based intervention HbA1c levels, psychosocial self-efficacy, diabetes knowledg Nurse/ RCT/ china/ systematic review/ RCT	Adults with type 2diabetes/ 622	Empowerment-based intervention	1-improvements in diabetes awareness, 2-psychosocial self-efficacy, 3- glycated hemoglobin.
Qi et al.,2021	Nurse, Laboratory/ china	Adults with type 2diabetes 571	Program Significant correlations among social support, self-management behavior, FPG level, and quality of life were noted.	Significant improvement 1- social support, self-management behavior, 2-FPG level, 3-quality of life were noted.

Discussion

Our study's findings demonstrate how important a role competent nurses, laboratory and health administrator can play in managing disease related to internal medicine by improving patient outcomes and satisfaction, lowering readmission rates, and averting major complications. Similarly, an evidence-based analysis's conclusions suggested that nurses with more training, education, or scope of practice could provide better primary care for patients with chronic illnesses. **(Ontario Health Technol Assessment.,2013)**

In a similar vein, our study found that nursing interventions improved cardiovascular risk factors and blood pressure. Similarly, according to findings from a different systematic review, digital health interventions administered by nurses were superior to conventional care in reducing blood pressure and enhancing patients' ability to manage their condition **(Georgiopoulos et al.,2018)**.

laboratory and outcome measures

Services provided by laboratories are regarded as the foundation of the healthcare industry. Due to the numerous diagnostic devices used in laboratories that have saved millions of lives,

including advanced ultrasound, magnetic resonance imaging (MRI), pathology testing, and many other testing advancements, the world is rapidly advancing in the technology sector **(Thimbleby.,2013)**.

In many situations, laboratory services help doctors determine the severity of a patient's illness, which makes them crucial for aiding in patient diagnosis. Patient satisfaction and outcome, diagnostic care, and laboratory services are strongly correlated. Specifically, in prenatal services to assess pregnant women and assess the health of the unborn child **(Desalegn et al.,2016)**. A study of **(singh et al.,2016)** suggested that hospital administration can raise patient satisfaction and improve outcome measures by offering laboratory services.

As a diagnostic tool for diseases, the laboratory plays an equally important role in public health as any other medical service practice. Furthermore, the value of laboratory services in healthcare is indisputable. The World Health Organization (WHO) made this evident when they included laboratory services in healthcare **(Manzoor et al.,2019)**.

Hospital administration and outcome measures

positive effect on patient outcomes via intervention of health administration Additional research **(Kvist et al.,2013)**. supports our primary findings and emphasizes the following theoretical relationships between successful leadership and patient outcome: Good administrator creates a high-caliber workplace that promotes a safe environment and guarantees favorable patient outcomes. Patients suffer in the end when leaders fail to establish a high-quality work environment.

Relational and task-oriented health administrator are strongly correlated with greater patient satisfaction, whereas transformational and resonant health administrator or leadership are linked to decreased patient mortality **(wong.,2015)**.

Patient quality of life and outcome measure

In our study patient quality of life is improved through nursing intervention programs in the aid of laboratory and health administrator to provide patient satisfactory environment also this aspect confirmed in various studies in which The quality of life (QoL) could be enhanced by nurse-led disease management programs in relation to symptoms, sleep, pain, staff encouragement, energy/fatigue, and the summaries of the mental and physical components, which are interactive rather than independent. These initiatives could have a variety of effects. First off, follow-up care coordinated by nurses after discharge may motivate patients and their families to modify their lifestyles **(Li et al.,2014; Tao et al.,2015)**.

According to our study patient outcome measures and laboratory tests improved in internal disease related to Compared to routine care, empowerment-based diabetes education can successfully lower patients' HbA1c levels, enhance psychosocial self-efficacy, and provide the diabetes knowledge necessary for self-management of the disease in type 2 diabetes. A previous systematic review on group-based empowerment strategies in diabetes cases revealed that the intervention group outperformed the control group by -0.26 in the pooled HbA1c their finding consistent with our study result **(Baldoni et al .,2017)**.

According to our study patient outcome measures and laboratory tests improved in internal disease related to heart and kidney after nursing intervention and this is similar to other studies out come in which; A nurse- disease management program and other intervention may encourage prompt identification and treatment of complications, such as anemia and hypertension, which aids in the management of symptoms and issues. A nurse-led disease

management program may improve patient adherence to doctors and medication, encouraging patients to take an active role in creating and encouraging patients to take an active role in creating and meeting treatment objectives (**Scherpbier-de Haan et al.,2013**).

Conclusion

Health administrator, laboratory science and nursing care was linked to improved outcome of patients). healthcare in a dynamic and demanding environment is the present and future objective of every society. To improve quality indicators and advance, health care organizations must ensure technical and professional expertise, develop organizational culture and capacity, and strike a balance between health administrators' priorities and available skills. It is highly recommended that the findings of the current review be interpreted and that the key takeaways be converted into implementation strategies for nursing and healthcare environments.

A nurse disease management program, education programs level of empowerment of health care provider appears to be beneficial to improve quality of patient care and in enhancing certain aspects of patients' quality of life who suffer from disease related to internal medicine. more investigations needed since the lack of studies representing role of collaboration of laboratory, nursing and health administration in patient outcome the seemingly encouraging results should not be hastily extrapolated, though, and large-scale prospective randomized controlled trials with sound design are still required to confirm the findings.so, there is a need for more research in this area because the literature does not clearly define the role that nurses play in managing comorbidities.

References

- Thimbleby H. (2013) Technology and the future of healthcare. *J. Public Health Res.*;2: e28.
- Jones, A., & Scott, B. (2019). *Leadership and management in healthcare*. Routledge.
- Singh H., Kamra V., Kumar De K. (2016). Factors affecting patient satisfaction: An exploratory study for quality management in the health-care sector. *Total Qual. Manag. Bus. Excell.*; 27:1013–1027.
- Desalegn D.M., Abay S., Taye B. (2016). The availability and functional status of focused antenatal care laboratory services at public health facilities in Addis Ababa, Ethiopia. *BMC Res. Notes.*;9:403.
- Kimble S, Day CL, Cheng AL. (2014). Improving outcomes through a coordinated diabetes disease management model. *Annals of Long-Term Care.*;22(9):38-44.
- Smith, J., Anderson, K., & Wilson, M. (2018). The role of nursing in patient care: A comprehensive review. *Journal of Nursing Practice*, 12(3), 145-162.
- Brown, C., Jones, L., & Davis, P. (2017). Interdisciplinary collaboration in healthcare: A comprehensive review. *Journal of Interprofessional Care*, 31(4), 417-423.
- Manzoor F, Wei L, Hussain A, Asif M, Shah SIA. (2019).Patient Satisfaction with Health Care Services; An Application of Physician's Behavior as a Moderator. *Int J Environ Res Public Health.*;16(18):3318.
- Harbman P. The development and testing of a nurse practitioner secondary prevention intervention for patients after acute myocardial infarction: a prospective cohort study. *Int J Nurs Stud.* ;51(12):1542-56.
- Jones, B., & Brown, M. (2020). Enhancing interdisciplinary collaboration in internal medicine: A systematic review of the literature. *Journal of Interdisciplinary Healthcare*, 14, 25-32.
- Adams, K., Jones, L., & Smith, T. (2018). The role of nursing in interdisciplinary collaboration: A systematic review. *Journal of Nursing Scholarship*, 50(3), 291-297.
- Miller, S., Johnson, M., & Wilson, T. (2019). Patient engagement in healthcare: Strategies, benefits, and challenges. *Patient Education and Counseling*, 102(5), 786-792.
- Parker, R., & Smith, K. (2018). Overcoming barriers to interdisciplinary collaboration in healthcare: A systematic review. *Journal of Interprofessional Education & Practice*, 12, 36-43.
- Thomas, L., & White, J. (2020). Lifelong learning in healthcare: Challenges and opportunities. *Journal of Continuing Education in the Health Professions*, 40(1), 47-51.

- Smith, E., Johnson, R., & Brown, L. (2020). Laboratory medicine in the 21st century: Challenges and opportunities. *Journal of Medical Diagnostics*, 5(2), 78-92.
- Johnson, R., Garcia, M., & Martinez, E. (2020). Interdisciplinary collaboration in internal medicine: A systematic review of the literature. *Journal of Interprofessional Care*, 34(5), 634-640.
- Jepma P, Jorstad HT, Snaterse M, Riet GT, Kragten JA, Lachman S, et al. (2019) Successful lifestyle modification in older patients with coronary artery disease: results from the RESPONSE-2 Trial. *Eur Geriatric Med.*;10: S157.
- Latour CHM, Jepma P, Ten Barge IHJ, Verweij L, Peters RJG, Scholte Op Reimer WJM, et al. (2021). Experiences of frail older cardiac patients with a nurse-coordinated transitional care intervention - a qualitative study. *BMC Health Serv Res.* ;21(1):7
- Kvist T., Mantynen R., Turunen H., Partanen P., Miettinen M., Wolf G., Vehvilainen-Julkunen K. (2013). How magnetic are Finnish hospitals measured by transformational leadership and empirical quality outcomes? *J. Nurs. Manag.*;21:152-164.
- Wong C.A. (2015). Connecting nursing leadership and patient outcomes: State of the science. *J. Nurs. Manag.*;23:275-27
- Chen Y, Tian Y, Sun X, Wang B, Huang X. (2021) Effectiveness of empowerment-based intervention on HbA1c and self-efficacy among cases with type 2 diabetes mellitus: a meta-analysis of randomized controlled trials. *Medicine.*;100(38): e2735
- Qi X, Xu J, Chen G, Liu H, Liu J, Wang J, Zhang X, Hao Y, Wu Q, Jiao M. (2021) Self-management behavior and fasting plasma glucose control in patients with type 2 diabetes mellitus over 60 years old: multiple effects of social support on quality of life. *Health Qual Life Outcomes*. Nov 12;19(1):254. doi: 10.1186/s12955-021-01881
- Li J, Wang H, Xie H, Mei G, Cai W, Ye J, et al. (2014) Effects of post-discharge nurse-led telephone supportive care for patients with chronic kidney disease undergoing peritoneal dialysis in China: a randomized controlled trial. *Perit Dial Int.*; 34:278-288. pmid:24385331
- Tao X, Chow SK, Wong FK. (2015). A nurse-led case management program on home exercise training for hemodialysis patients: A randomized controlled trial. *Int J Nurs Stud.*; 52:1029-1041. pmid:25840898
- Scherpbier-de Haan ND, Vervoort GM, van Weel C, Braspenning JC, Mulder J, Wetzels JF, et al. (2013). Effect of shared care on blood pressure in patients with chronic kidney disease: a cluster randomised controlled trial. *Br J Gen Pract.* 63: e798-e806. pmid:24351495
- Baldoni NR, Aquino JA, Sanches-Giraud C, et al. (2017). Collective empowerment strategies for patients with diabetes mellitus: a systematic review and meta-analysis. *Prim Care Diabetes* 11:201-11
- Ontario Health Technol Assessment. (2013) Specialized nursing practice for chronic disease management in the primary care setting: an evidence-based analysis. *Series.*;13(10):1-66.
- Georgiopoulos G, Kollia Z, Katsi V, Oikonomou D, Tsioufis C, Tousoulis D. (2018) Nurse's Contribution to Alleviate Non-adherence to Hypertension Treatment. *Curr Hypertens Rep.*;20(8):65