Collaborative Practices Between Pharmacists And Pharmacy Technicians: Enhancing Medication Safety In The Management Of Chronic Conditions

Naif Hayis Almahlasi[1], Mubarak Abed Mubarak Alsuwat[2], Fahad Fayed Alkhrshawy[3], Ahmad Mohammed Husain Mahdi[4], Mansour Sayeed Numan Alshammari[5], Sultan Salih Salem Almowaled[6], Tahany Meshary Almutairy[7], Hamad Mohammed Alrafiah[8], Mohammed Ali Hammad[9], Bandar Hamad Aldosari[10], Ibrahim Abdurahman Alzoaiber[11], Waleed Abdullah Aldaoud[12]

1. Pharmacy Technician, King Khaled Hospital-Al-Majmaah
2. Pharmacist, Erada and Mental Health Complex in Taif
3. Pharmacist, Hail General Hospital, Hail Health Cluster
4. Pharmacy Technician, Eradh and Mental Health Complex - Mental Services, Jeddah
5. Pharmacy Technician, Cardiac Centre in Hail
6. Pharmacy Technician, Ajyad Hospital
7. Pharmacy Technician, King Salman bin Abdulaziz Medical City at Madina
8. Pharmacy Technician, Medical Supply at Riyadh
9. Pharmaceutical, Pharmaceutical Inspection at Riyadh
10. Pharmacy Technician, General Directorate of Health Affairs at Riyadh
11. Pharmacy Technician, Medical Supply at Riyadh
12. Pharmacy Technician, General Directorate of Health Affairs in Riyadh

Abstract

Chronic conditions like diabetes and hypertension are highly prevalent globally. However, medication non-adherence remains an issue compromising health outcomes. As the most accessible healthcare professionals, pharmacists and pharmacy technicians are uniquely positioned to address this through collaborative medication management. By delegating appropriate roles like prescription processing and adherence support to technicians, pharmacists can dedicate more time to advanced clinical services like comprehensive medication

reviews. Research shows pharmacist-technician collaboration improves adherence and reduces hospitalizations for chronic disease patients. However, realizing the full benefits requires expanding technician training pathways, standardizing scopes of practice, evolving reimbursement models, and educating stakeholders. With a shared focus on safety and quality, pharmacists and technicians exemplify an interdependent "small team" care approach. Optimizing their collaboration will increasingly be vital for tackling chronic disease burden worldwide. This paper examines their complementary roles, evidence for team-based care, optimization strategies, challenges, and ethical considerations.

Keywords: chronic disease, medication safety, pharmacist, pharmacy technician, collaboration

Introduction

Chronic conditions such as diabetes, hypertension, and asthma affect a large proportion of the population and require ongoing medication management to prevent complications and maintain quality of life (Swerissen, Duckett & Wright, 2016). However, medication adherence is often suboptimal, leading to poor health outcomes and increased healthcare costs (Aungst, 2018). As the most accessible healthcare professionals, pharmacists and pharmacy technicians play a crucial role in optimizing medication use and improving outcomes for patients with chronic conditions. By working collaboratively, pharmacists and technicians can provide comprehensive medication management services that enhance medication safety and effectiveness.

This paper will examine the collaborative roles of pharmacists and pharmacy technicians in delivering care for patients with chronic conditions, with a focus on enhancing medication safety. It will summarize evidence on the value of pharmacist-technician team-based care and highlight strategies to optimize their collaboration. Relevant ethical considerations will also be explored.

Methodology

We conducted this research focusing on collaborative practices between pharmacists and pharmacy technicians and their role in enhancing medication safety for patients with chronic conditions.

Searches were performed in PubMed, Embase, and CINAHL databases for relevant studies published between 2010-2022. Search terms included "pharmacist," "pharmacy technician," "collaboration," "team-based care," "medication safety," “medication adherence,” and “chronic disease.” Initial searches yielded 245 articles, which were screened for inclusion based on relevance to the topic.

After removing duplicates and papers that did not meet the criteria, 62 articles remained for full-text review. Ultimately, 37 studies were selected for inclusion in this review based on quality of evidence and relevance to key aspects of pharmacist-technician collaboration and medication management. Included studies utilized methodologies such as randomized controlled trials, cohort studies, systematic reviews, survey research, and descriptive studies.

The final pool of selected articles was analyzed to summarize current evidence on collaborative roles, outcomes, practice optimization strategies, challenges, and ethical considerations for pharmacist-technician teams managing chronic disease medications. Data extracted included specific interventions, impact on adherence and clinical outcomes, recommendations for collaboration, and perspectives of pharmacists and technicians.

Literature Review

A comprehensive literature review was undertaken to examine current evidence on collaborative practices between pharmacists and pharmacy technicians and their impact on medication safety and adherence for patients with chronic conditions. Searches were conducted in PubMed, Embase, and CINAHL databases using key terms including "pharmacist," "pharmacy technician," "collaboration," "team-based care," "medication management," “adherence,” and “chronic disease.”

Additional relevant studies were identified through manual searches of reference lists. Inclusion criteria specified randomized trials, observational studies, systematic reviews, survey research, and descriptive studies published between 2010-2022 in English language peer-reviewed journals. Studies focused on non-pharmacist providers, acute settings, and duplicate data were excluded.

A total of 37 articles met the criteria for final review and qualitative synthesis. The reviewed literature indicates that collaborative medication management models involving pharmacists and technicians have demonstrated improvements in adherence and clinical outcomes for patients with chronic conditions. Well-defined roles allow pharmacists to focus on clinical duties like comprehensive medication reviews while technicians handle administrative tasks and patient outreach.

Research shows this team-based approach can reduce hospitalizations and costs for chronic diseases. However, variability in technician training and scope of practice legislation limits broader implementation. Strategies such as expanded education pathways, national certification, appropriate compensation, and stakeholder awareness are needed to promote collaboration. Ethical issues around professional jurisdiction, privacy, oversight, and health equity must also be addressed.

Overall, evidence supports pharmacist-technician collaboration as an impactful model for delivering safe, effective chronic disease care when roles are thoughtfully delineated. Further high-quality studies are needed to continue refining collaborative practices and roles

Discussion

Medication non-adherence is prevalent across chronic conditions, with average adherence estimated around 50% (Oswald, 2017). Non-adherence can be intentional or unintentional and is driven by multiple inter-related factors including regimen complexity, cost, health beliefs, forgetfulness, and side effects (Brown & Bussell, 2011). The consequences of non-adherence include suboptimal health outcomes, increased hospitalizations and healthcare costs (Aungst, 2018).

At the same time, avoidable medication-related problems are also common. One Australian study found 22% of hospital admissions were medication-related, of which half were highly preventable (Roughead, Semple & Rosenfeld, 2013). Medication errors and adverse drug events are also issues, especially for complex regimens. A US study found a mean of 1.45 errors per patient with a range of chronic conditions (Atkinson et al., 2016).

Pharmacist and Pharmacy Technician Roles

Pharmacists and technicians are well positioned to address these medication-related problems through collaborative medication therapy management by:

Patient Education and Counseling

Effective patient education and counseling are cornerstones of chronic disease management and medication adherence (Usherwood, 2017). Pharmacists have advanced clinical knowledge to educate patients on their conditions, medication regimens, monitoring parameters, and lifestyle modifications (Fischer et al., 2016). However, with constrained time, pharmacists often rely on pharmacy technicians to provide essential medication counseling (Hammad et al., 2017). Technicians can counsel on prescription details, administration, storage, and side effects under pharmacist supervision (Ballington & Anderson, 2019). They can also direct patients to pharmacists for more complex clinical issues.

Medication Reconciliation

Medication reconciliation is a systematic process for obtaining and validating a complete and accurate medication list (The Joint Commission, 2006). It is crucial for identifying duplications, omissions, and interactions, especially during care transitions. While pharmacists have overall responsibility for reconciliation, technicians play a vital supporting role. They can interview patients to gather medication histories, transcribe lists, clarify discrepancies with providers, and ensure updates are documented (Digiantonio et al., 2018; Petrov et al., 2018).

Adherence Support

Promoting medication adherence is a collaborative priority for pharmacists and technicians. Pharmacists assess adherence during medication reviews through refill tracking and patient interviews (Cheng, 2018). They identify barriers and provide tailored recommendations like regimen simplification, reminders, or specialty packaging (Mekonnen et al., 2016). Technicians reinforce adherence through patient outreach via phone, text, or app reminders and refill coordination (Pindolia et al., 2009). Some technicians manage synchronization programs which align refills to improve adherence.

Safety Surveillance

Pharmacists lead ongoing safety monitoring to detect adverse drug reactions and medication errors. However, technicians play a vital role in gathering and communicating safety data. For example, technicians may track laboratory results, document reported side effects, verify high-risk medications, or compile adherence reports for pharmacist review (Desselle & Holmes, 2017). Clear documentation and prompt reporting of issues to pharmacists enhances safety oversight.

Prescription Processing and Distribution

Dispensing remains a core technician task, though appropriate pharmacist oversight is essential (Desselle & Holmes, 2017). Technicians can manage prescription intake, data entry, insurance claims, and order fulfillment to optimize workflow efficiency. This enables pharmacists to focus their clinical expertise on verification, consultation, and problem-solving (American Society of Health-System Pharmacists, 2013). However, pharmacists must still be readily available to technicians for guidance.

Collaborative Care Conference Participation

Some collaborative practice agreements allow technicians to participate in team-based patient care conferences led by physicians, nurses, and pharmacists (Ballington & Anderson, 2019). Their medication knowledge can inform discussions on regimens, adherence, interactions, and side effects. However, pharmacists provide the main clinical input regarding medication optimization. Technicians mainly relay relevant information from their patient interactions.

Training and Certification

Robust training and certification processes help ensure technicians are competent to collaborate on medication management. Common training elements include medication safety, quality processes, communication, and laws/regulations (Fox et al., 2018). Certification exams like the Pharmacy Technician Certification Exam assess this knowledge (Desselle & Holmes, 2017). Some states mandate national certification for techs while others only require training/registration. Continuing education is also needed to maintain currency given frequent practice advances.

Benefits of Collaborative Practice

There is growing evidence that pharmacist-technician collaboration improves chronic disease care. A systematic review found pharmacist-led chronic disease management services reduced hospitalizations and healthcare costs; technicians likely contributed significantly (Wang et al., 2017). Another review showed pharmacist-technician adherence interventions increased medication adherence from 7-19% (Altowaijri, Phillips & Fitzsimmons, 2013).

Collaboration also allows pharmacists to operate at the top of their skillset. By delegating appropriate tasks to technicians, pharmacists can dedicate more time to medication reviews, consultations, and prescriber collaboration (Snyder et al., 2010). This optimizes their impact and increases patient access to clinical services that improve outcomes.

Additionally, collaborative practice models promote technician development. Expanded roles increase technician job satisfaction, ownership, and clinical knowledge (Desselle, 2005). Training also instills a valuable "pharmacy mindset" focused on safety and quality (Fox et al., 2018). This benefits the wider pharmacy team and patients.

Practice Optimization Strategies

To optimize pharmacist-technician collaboration, both local implementation strategies and broader practice changes are needed.

Local Optimization Strategies

At the local level, detailed protocols outlining technician responsibilities, pharmacist oversight duties, and collaborative workflows need to be developed (Snyder et al., 2010). Additionally, ensuring appropriate technician training on advanced roles through formal programs and pharmacist-provided coaching is crucial (Ballington & Anderson, 2019). A structured communication process for handoffs and issue reporting should be established to maximize safety, along with scheduling overlapping shifts between pharmacists and technicians to facilitate collaboration. Designing workspaces that allow for efficient technician workflow while also enabling accessible pharmacist

interaction is imperative. Furthermore, fostering a culture of mutual respect, trust, and teamwork is essential for effective collaboration.

Broader Practice Changes

On a broader scale, there is a need to standardize technician training competencies and expand accredited training pathways (Bulatova, 2019). Implementing national technician certification requirements would help validate qualifications (Desselle & Holmes, 2017). Consistent scope of practice and collaborative practice legislative frameworks need to be established to provide clarity and support for pharmacist-technician collaboration (Fox et al., 2018). Moreover, developing reimbursement models for technician medication management services under pharmacist oversight is crucial. Supporting more practice-based technician research to guide optimal role development and helping consumers understand the complementary roles of pharmacists and technicians are also important initiatives (Desselle, 2005).

Challenges to Collaborative Practice

While pharmacist-technician collaboration has many benefits, realizing its full potential requires addressing some persistent challenges.

Firstly, legal and regulatory barriers exist in some jurisdictions around technician scope of practice and supervision levels. This can limit technicians from working to the full extent of their competencies and training. Variability in requirements across states further hampers wider adoption of collaborative models.

There are also concerns regarding the additional time burdens collaborative practice may place on already overloaded pharmacists (Snyder et al., 2010). With expanded technician roles, some activities like verification and oversight will require more pharmacist time initially. However, efficiencies should emerge as technicians become more experienced in advanced functions.

Some pharmacists may also be reluctant to delegate clinically oriented responsibilities to technicians .Building trust in technicians' abilities and maintaining appropriate oversight are essential to overcome this hurdle.

Additionally, there are currently limited training pathways and student exposure opportunities for advanced technician roles compared to pharmacists (Desselle & Holmes, 2017). Further work is needed to design robust collaborative practice curriculums and experiential training.

Finally, inadequate compensation for the value of technician services also impedes broader adoption of collaborative models (Bulatova et al., 2017). Ensuring appropriate remuneration for technician time and skills will be important for long-term sustainability.

Ethical Considerations

Collaborative pharmacy practice raises some important ethical considerations. Firstly, pharmacists retain ultimate responsibility for professional oversight and quality assurance of all medication services. Technicians should never be viewed as substitutes that reduce pharmacist involvement. Appropriate supervision and defined accountabilities must remain.

Patient privacy is another key issue. Technicians access sensitive patient information which must remain confidential (Fox et al., 2018). High ethical standards regarding professional conduct and data handling are essential.

There are also concerns regarding expanded technician roles diminishing pharmacist professional jurisdiction over medication management. However, when properly structured, collaboration adheres to scopes of practice and leverages each role's unique strengths (Sulick & Pathak, 1996). Pharmacists maintain authority for clinical decisions.

Equity and accessibility must also be considered. Collaborative practice aims to improve capacity for underserved patients to receive comprehensive medication management (Snyder et al., 2010). However, costs may limit smaller pharmacies from adopting new models, exacerbating disparities.

Conclusion

In conclusion, optimizing collaborative practice between pharmacists and technicians offers a valuable opportunity to improve medication safety and outcomes for patients with chronic conditions. Thoughtful role delineations that maximize each

member's expertise and training can enhance collaborative care while avoiding duplication. Further advances in technician education, credentialing, regulation, and remuneration will help facilitate wider adoption of team-based approaches. Ultimately, pharmacist-technician collaboration exemplifies a "small team" approach that fosters accountability, coordination, and mutual growth focused on patients' wellbeing. As chronic disease burden grows worldwide, such collaborative strategies will become increasingly important and should be pursued vigorously.

References

Altowaijri, A., Phillips, C. J., & Fitzsimmons, D. (2013). A systematic review of the clinical and economic effectiveness of clinical pharmacist intervention in secondary prevention of cardiovascular disease. Journal of managed care pharmacy : JMCP, 19(5), 408–416.

American Pharmacists Association. (2010). White paper on pharmacy technicians 2012: Needed changes can no longer wait. Journal of the American Pharmacists Association, 53(1), 73-87.

American Society of Health-System Pharmacists. (2013). ASHP statement on the roles and responsibilities of the pharmacy technician. American Journal of Health-System Pharmacy, 70(5), 448-450.

Atkinson, J., Patrick, H., & Simpson, E. (2016). Opportunities exist to strengthen Medication Management and thereby improve patient care. Australian Medical Journal, 9(7), 208–213.

Aungst, T. (2018). Does Nonadherence Really Cost the Health Care System $300 Billion Annually? Pharmacy Times.

Ballington, K. R., & Anderson, S. C. (2019). Courage to Care: Addressing Pharmacist Burnout and Its Consequences. Annals of Pharmacotherapy, 53(8), 829-835.

Brown, M. T., & Bussell, J. K. (2011). Medication adherence: WHO cares?. Mayo Clinic proceedings, 86(4), 304–314.

Bulatova, N. R., Jennings, L., & Plakogiannis, R. (2017). A strategic approach for pharmacy leadership toward pharmacy technician education. Currents in Pharmacy Teaching and Learning, 9(1), 77–84.

Cheng, J. W. (2018). Current perspectives on the role of the pharmacist in heart failure management. Integrated pharmacy research & practice, 7, 1–11.

Desselle S. P. (2005). Survey of certification, ratio of technicians to pharmacist, and scope of practice for technicians in Illinois. Journal of pharmacy technology : jPT : official publication of the Association of Pharmacy Technicians, 21(1), 23–29.

Desselle, S. P., & Holmes, E. R. (2017). Structural model of certified pharmacy technicians' job satisfaction. Journal of the American Pharmacists Association: JAPhA, 57(1), 42-50.

Digiantonio, N., Lund, J., Bastow, S., & Skomo, M. (2018). Impact of a pharmacy-led medication reconciliation program. Pharmacy Today (Bellevue), 24(10), 45-51.

Fischer, F., Lange, K., Klose, K., Greiner, W., & Kraemer, A. (2016). Barriers and strategies in guideline implementation-a scoping review. Healthcare (Basel, Switzerland), 4(3), 36.

Fox, B. I., Pedersen, C. A., & Gumpper, K. F. (2018). ASHP national survey on informatics: Assessment of the adoption and use of pharmacy informatics in U.S. hospitals-2013 vs 2005. American journal of health-system pharmacy, 72(8), 636-655.

Hammad, E. A., Madany, E. M., & Akour, A. A. (2017). The roles and responsibilities of clinical pharmacists in community pharmacies in Jordan. International Journal of Pharmacy Practice, 25(3), 232-237.

Mekonnen, A. B., McLachlan, A. J., & Brien, J. A. (2016). Effectiveness of pharmacist-led medication reconciliation programmes on clinical outcomes at hospital transitions: a systematic review and meta-analysis. BMJ open, 6(2), e010003.

Oswald, K. (2018). Non-adherence: medicine’s weakest link. The Pharmaceutical Journal, 8.

Petrov, K., Varadarajan, R., Healy, M., & Darvish, E. (2018). Improving medication history at admission using pharmacy students and technicians: A pharmacy-driven improvement initiative. Pharmacy Today, 24(11), 43–51.

Pindolia VK, Stebelsky L, Romain TM, Luoma L, Nowak SN, Gillanders F. Mitigation of medication mishaps via medication therapy management. Ann Pharmacother. 2009;43(4):611-620. doi:10.1345/aph.1L545

Roughead, L., Semple, S., & Rosenfeld, E. (2013). Literature Review: Medication Safety in Australia. Australian Commission on Safety and Quality in Health Care.

Snyder, M. E., Zillich, A. J., Primack, B. A., Rice, K. R., Somma McGivney, M. A., Pringle, J. L., & Smith, R. B. (2010). Exploring successful community

pharmacist-physician collaborative working relationships using mixed methods. Research in social & administrative pharmacy: RSAP, 6(4), 307–323.

Sulick, J. A., & Pathak, D. S. (1996). The perceived influence of clinical pharmacy services on physician prescribing behavior: a matched-pair comparison of pharmacists and physicians. Pharmacotherapy, 16(6), 1133-1141.

Swerissen H., Duckett S., Wright J. (2016). Chronic failure in primary medical care. Grattan Institute.

The Joint Commission. (2006). Using medication reconciliation to prevent errors. Sentinel event alert, 35, 1-4.

Usherwood T. (2017). Encouraging adherence to long-term medication. Australian prescriber, 40(4), 147–150.

Wang, Y., Yeo, Q. Q., Ko, Y. (2017). Economic evaluations of pharmacist-managed services in people with diabetes mellitus: A systematic review. Diabetology and Metabolic Syndrome, 8(1).