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New Skills for Pharmacy Leadership

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Abstract

The point of this article is to show how the skills needed to lead a pharmacy today are changing because healthcare systems are getting more complicated. The study stresses that pharmacy leaders need to learn more than just how to run a business. They also need to learn how to think strategically, use technology, communicate with other professionals, and provide care that is focused on equality. The study used a narrative review method and looked at a variety of books on healthcare leadership, pharmacy education frameworks, and professional guidelines. The piece combines these ideas to describe the main skills that modern pharmacy leaders need to meet the goals of their institutions and adapt to changing healthcare conditions. It is now important for pharmacy leaders to have a wide range of skills, such as being good at change management, health computing, financial planning, and following the rules. A good boss should also be able to understand different cultures, deal with crises well, and help their workers grow. They can make sure that everyone gets fair and good pharmacy services, lead teams with people from different backgrounds, and come up with new ideas. Leaders in pharmacies need to be able to adapt to new situations and learn new skills because healthcare is always changing. People in charge will only be successful in this new era of leadership if they know how to use strategic, technological, and interpersonal tools to make sure that pharmacy practice fits with

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the overall goals of the organization. These skills will have a big effect on the future of health care if pharmacy leaders learn them.

Keywords: Management, Pharmacy, Pharmacy Leadership, Strategy, Vision.

1. INTRODUCTION

Because of this, the expectations that are placed on pharmacy directors have evolved, which is the reason why this transformation has taken place. Consequently, this transformation has taken place (Vest & Amerine, 2022). The transformation that has taken place in the healthcare system is directly attributable to the increasing complexity of healthcare systems. The ability to manage an office is not the only requirement for directors of pharmacists; they are also expected to have knowledge and experience in a wide variety of fields in order to be successful in their roles (Vest & Amerine, 2022). The relationship between specialists has also improved, and there has been an increase in the number of patients who are looking for therapy that is not only patient-centered but also cost-effective. In addition, there has been an increase in the number of patients who are receiving treatment. This is the reason why things are the way they are in the current situation (Ali et al., 2024; BinDhim et al., 2024).

The capacity to think strategically, come up with new ideas, evaluate data, construct teams, and have a comprehensive understanding of healthcare policy, in addition to having the ability to develop teams, are all necessary skills for a modern pharmacy manager. All of these are expertise that are required for the position of pharmacy manager at present. In order for a modern pharmacy manager to be effective, they need to possess each of these skills (BinDhim et al., 2024). Among the most important advancements in the healthcare sector, the leadership of pharmacies is becoming increasingly dependent on quantitative outcomes, operational excellence, and innovative governance. This is one of the most significant developments in the history of the industry (BinDhim et al., 2024).

One of the most important developments that has taken place over the course of the last several years is this. A larger trend, which is that the dominance of these features is expanding, is a component of this change, which is a component of that larger trend. This shift is something that is getting more and more significant, and it is becoming increasingly dependent on these factors as the leadership of pharmacies becomes increasingly dependent on them (Vest & Amerine, 2022; BinDhim et al., 2024).

2. METHODOLOGY

This study uses a qualitative narrative review method to look at the skills that modern healthcare systems need from pharmacy leaders. It considers current research, thought leadership, and professional organization guidelines to find out how the expectations of pharmacy leaders are changing. Peer-reviewed papers, institutional reports, leadership frameworks, and pharmacy practice standards from the last 20 years that were about skill development, leadership strategies, and system-based

healthcare problems were included. Studies that only looked at clinical pharmacy functions without focusing on leadership were left out, as well as old materials that did not fit with how healthcare is organized today, and sources that were not written in English. The piece uses different fields of study to give a complete picture of what leadership requires, focusing on how changes in healthcare and pharmacy practice affect each other.

2.1. *Policy and Procedure*

In modern healthcare situations, pharmacy leadership is based on rules that encourage strategic oversight, the use of new technologies, the empowerment of workers, and following the rules. Long-term planning, systems thinking, and quality improvement projects are some of the ways that leaders are expected to make sure that departmental goals are in line with the institution's aims. They need to make it easier for health informatics, data analytics, and new technologies like automation, telepharmacy, and artificial intelligence to work together. They need to make sure that these tools are used to improve care results and medication safety. Financial rules say that pharmacy directors have to handle budgets well, check ROI, and keep an eye on methods for keeping costs down.

Also, steps must be taken to make sure that healthcare rules are followed, such as USP <797> and <800>, DEA, and Joint Commission standards. Leaders need to make sure that settings are welcoming and sensitive to different cultures by using DEI frameworks and making sure that everyone has equal access to pharmacy services. They also need to set up ways to handle crises, help employees stay strong, and encourage leadership growth through mentoring and ongoing education. As part of their strategic role, pharmacy leaders must also be involved in advocacy and policymaking. This gives them the power to shape laws and promote the role of the profession in the healthcare system. These rules and instructions make up a complete leadership model that makes sure drugstore services are flexible, excellent, and long-lasting.

3. STRATEGIC VISION AND SYSTEMS THINKING

Those who are in charge of pharmacies are now responsible for developing a long-term strategy that will ensure that the goals of each department are in line with the goals of the institution as a whole. This is the responsibility that they have taken on (Ali et al., 2024). This agreement will immediately become an obligation that must be satisfied under the law. There is a talent that is very important for those who have the intention of leading change in the workplace, and that talent is the ability to think in terms of systems, or the ability to comprehend how the various components of healthcare systems interact with one another (Ali et al., 2024). Attempt to think in terms of systems. The capacity to think particularly about relationships is a term that is frequently used to describe this capability in some groups (Vest & Amerine, 2022).

To ensure that pharmacy services are at the forefront of initiatives to improve the quality and safety of care that is provided to patients, leaders should be prepared for any issues that may develop, to understand how different departments may interact with one another, and to make sure that they are prepared for any difficulties that may arise. This is done to ensure that pharmacy services are at the forefront of these initiatives (BinDhim et al., 2024).

For the purpose of ensuring that pharmacy services remain at the forefront of these activities, this is done. We must undertake this transition in order to move away from individual operations and toward a more comprehensive strategy that places an emphasis on long-term planning, innovative ideas, and the ability to adapt to a healthcare system that is constantly evolving [3]. This shift is essential in order for us to move away from discrete operations, which we are now using. In the event that we proceed in this manner, we will be able to accomplish our objective of accomplishing exactly this (Aman et al., 2025).

4. PROFICIENCY IN HEALTH INFORMATICS AND DATA ANALYTICS

The employment of electronic health records (EHRs), clinical decision support technology, and big data is all becoming increasingly prominent in the healthcare business as time goes on. They are all getting more widespread [1,4]. For this reason, those who are in charge of pharmacies have a responsibility to guarantee that they are well-versed in the methodologies of health informatics and data analytics and that they possess the knowledge and skills necessary to execute these methodologies. In addition, they require that they have the ability to implement these methodologies (Ali et al., 2024).

When pharmacy directors have leadership that is driven by data, they are able to monitor trends in the utilization of pharmaceuticals, adverse events, and the cost-efficiency of treatments (Aman et al., 2025). This means that they are able to better serve their patients. This is because they can monitor all of these different kinds of things. Because of this, they are in a position to conduct an accurate evaluation of the effectiveness of the therapeutic procedures that are currently being applied. In addition, analytics are of great importance when it comes to the management of formularies, the verification of rules, and the comparison of outcomes from different experiments (Vest & Amerine, 2022).

Through the utilization of data, leaders in pharmacies have the ability to demonstrate their significance to stakeholders and senior management. This may be accomplished by utilizing data to support policy choices, improve patient care, and speed up operations. The utilization of all of the data makes this a prospect that is not just possible but also practicable (Ali et al., 2024).

5. INNOVATION AND TECHNOLOGY INTEGRATION

In order to have a position of leadership in the contemporary field of pharmacy, it is necessary to continually be on the lookout for innovative ideas. Particularly when it

comes to the introduction of new techniques in the workplace, this is something that is especially true (BinDhim et al., 2024). Consequently, this is the situation that has arisen as a consequence of the ongoing production of innovative ideas (Mayimele et al., 2024). When it comes to the execution of plans that are not usual, it is of the utmost importance to keep this principle in mind. Because of the expansion of technologies in the pharmaceutical industry, such as personalized medicine, telepharmacy, artificial intelligence, and automation, the provision of pharmaceutical care is undergoing substantial modifications (Aman et al., 2025).

These transformations are a direct result of the proliferation of these technologies. This transition is being driven by the implementation of automation, which is the main force behind it (Roy et al., 2024). When they are in the process of learning about, accepting, and making use of new technology, they are often in the position of having to manage teams that are functioning in a number of different disciplines and find out how to receive commodities from institutions. In addition, they are required to figure out how to receive commodities from institutions (Vest & Amerine, 2022; Mayimele et al., 2024).

In addition, they must locate how they can get commodities from establishments. The reason for this is that they have been given the responsibility of coordinating the installation of these technologies, which is the reason why this is the case. The cultivation of an atmosphere that is receptive to innovation requires the existence of both technical expertise and a unique perspective on the future. This is important in order to achieve the desired results (Ali et al., 2024; BinDhim et al., 2024).

Due to the fact that both of these components are necessary for obtaining success, this is the situation that has arisen. As a result of the fact that both of them are essential components, this circumstance has come about as a result (Vest & Amerine, 2022; Ali et al., 2024; BinDhim et al., 2024). It is feasible for the pharmacy department to become a driver of change rather than only a participant in the process of change (Tsuyuki & Schindel, 2008). This is something that may be accomplished when it comes to the implementation of change. The fact of the matter is that this is practicable to accomplish.

6. INTERPROFESSIONAL COLLABORATION AND COMMUNICATION

Individuals need to possess the capacity to communicate effectively and connect with coworkers who come from a wide variety of professional backgrounds in order for them to be successful in their leadership roles in pharmacies (Roy et al., 2024). This is because individuals need to reach their full potential in their positions of authority. Leaders need to possess the ability to successfully manage the numerous points of view that are represented by medical professionals, nurses, administrators, and allied health workers (Louie et al., 2009). This is because the composition of care teams is continuing to become more diverse. It is anticipated that the diversity of the care teams will continue to develop, which is the reason behind this. For individuals who

are in positions of authority, it is an absolute requirement that they possess this skill (Roy et al., 2024; Louie et al., 2009).

There are a number of things that are anticipated from them, such as the establishment of a culture that is characterized by mutual respect, the provision of an explanation as to why pharmacy services are required, and the handling of differences in a manner that is polite manner. It is of the utmost importance to possess the capacity to produce agreement and to tell a tale that is fascinating to have an impact and effect (Mayimele et al., 2024). This is where the ability to have an impact and effect comes from. Because possessing these abilities will enable you to have an effect, this is the case. It does not matter if you are advocating for the participation of pharmacists in clinical rounds or whether you are in charge of formulating policy; this is something that is true regardless of the circumstances (Sorensen et al., 2019).

7. FINANCIAL ACUMEN AND RESOURCE MANAGEMENT

Due to the significant amount of financial hardship that healthcare organizations are currently experiencing, pharmacy directors need to be adept in the management of both their firms and their finances (Tsuyuki & Schindel, 2008; Louie et al., 2009; Sorensen et al., 2019). This is so that they may effectively manage their organizations. The reason for this is that there is a burden on the finances that is currently present. To be more specific, this is because they are currently experiencing a substantial amount of financial difficulty, which is the reason behind this. The ability to keep expenses under control is one of the most significant abilities that a modern pharmacy executive should possess (Traynor et al., 2019).

This ability includes the capacity to effectively manage a budget, the ability to develop ways to produce earnings, and the ability to sustain cost management. That being said, this is usually considered to be one of the most essential skills that a modern pharmacy executive needs to have in order to be successful (Sorensen et al., 2019).

In addition to being accountable for the budgets of their different pharmaceutical divisions, the leaders of the various pharmaceutical divisions are also responsible for a wide range of other tasks. These responsibilities include a wide variety of additional responsibilities. In addition to this, they are expected to compute the return on investment (ROI) for a range of distinct sectors, including the services that are offered by healthcare providers, the number of workers who are employed, and the technological developments that have been produced (Traynor et al., 2019).

Pharmacies need to have a comprehensive awareness of a wide range of subjects, such as the management of pharmacy benefits, the costs of prescriptions that are covered by 340B, and the payment systems that are in place (Reed et al., 2019; Antofie, 2025). The fulfillment of this requirement is an absolute necessity for pharmacies to continue to enjoy the same degree of success in their business operations.

8. CHANGE MANAGEMENT AND ORGANIZATIONAL LEADERSHIP

In order for employees to successfully navigate the ever-changing landscape of modern healthcare, which is characterized by constant expansion, pharmacy managers need to be able to provide support to their staff (Reed et al., 2019). This is necessary in order for employees to be able to properly navigate the terrain. They must have this in order them to be able to successfully navigate the landscape. The leaders of an organization are expected to adhere to the concepts of change management (Filerman & Komaridis, 2017; Al-Diery et al., 2022; Byers et al., 2024), whether it comes to reorganizing operations, establishing a new electronic health record (EHR) system, or adjusting a formulary. This is because these are all examples of situations in which change management is expected to be implemented (Antofie, 2025).

Regardless of whether or not the modification is being implemented, it is necessary to fulfill this pledge. This is a necessity. Incorporating a lot of different ideas into this framework is something that has been done. For example, the evaluation of the results, the participation of stakeholders, the provision of training, the construction of feedback loops, and the evaluation of the outcomes are all included in this category (Mayimele et al., 2024; Sorensen et al., 2019).

Those who can bring about change are strong leaders who are intellectually competent, who have a high level of strength, and who are excellent at pushing their colleagues to accept new methods of functioning. Change is something that can be brought about by these folks. These individuals can bring about change in the foreseeable future. When it comes to achieving the objective of cultivating a growth mindset among staff members, there are a lot of wonderful approaches to do it (Thobani & Anwar, 2024). The eradication of resistance, the promotion of new ideas, and the provision of aid to professionals in their progression throughout their careers are some of the strategies that can be utilized.

9. REGULATORY KNOWLEDGE AND COMPLIANCE ASSURANCE

To guarantee that the regulations are followed and that the medications that are given are safe for use, the executives of the pharmacy must make sure that strict adherence to the rules is maintained (Aman et al., 2025; Mayimele et al., 2024; Roy et al., 2024; Tsuyuki & Schindel, 2008; Louie et al., 2009). Regarding the modifications that are made to the regulations by organizations such as the Joint Commission, the Food and Drug Administration, the Drug Enforcement Administration, the United States Pharmacists Association, and state boards of pharmacy, it is expected of them to ensure that they are always up to date with the most recent information (Jin & Kim, 2024). This is because the regulations are subject to change. As a result of the fact that it is necessary for a complete understanding of the legislation, preparation for audits, and the formulation of policies, the acquisition of new skills is an essential necessity (Sorensen et al., 2019; Antofie, 2025).

The development of new skills is a component of each and every one of these opportunities. Each of the events that fall under this category can be assigned to a large variety of different causes (Brandish et al., 2021). This category contains a vast range of different phenomena. Several things are included in this area, including the understanding of sterile compounding requirements (USP <797> and <800>), the administration of prohibited drugs, the utilization of experimental pharmaceuticals, and the appropriate arrangement of medications (Sorensen et al., 2019; Reed et al., 2019; Al-Diery et al., 2022).

Additionally, it is the responsibility of the executives of pharmacies to ensure that their employees have the necessary education and credentials, and that they conduct their business in a manner that is by all of the laws that are in place within the company as well as those that are imposed by the government. This is a mandate that must be fulfilled (Ali et al., 2024; Aman et al., 2025).

10. WORKFORCE DEVELOPMENT AND COACHING

It is becoming increasingly vital for those who hold leadership roles in the pharmaceutical sector to possess the ability to instruct, train, and cultivate other individuals who will go on to become future leaders. This is because the pharmaceutical industry is continuously evolving (Tsuyuki & Schindel, 2008). It is because of the fact that the sector is continuously undergoing changes that this is the case. The process of improving the capacities of the team through activities like as planning for the future leader, providing feedback on performance, and offering opportunities for professional advancement is currently considered to be the essence of leadership (Chappell & Dervay, 2016).

At the present moment, the definition of leadership applies to the situation that we are in at the moment. For the purpose of achieving this objective, a number of distinct sorts of activities are carried out. In the context of pharmacies, it is the responsibility of the leaders to provide their employees with a sense of purpose, to ensure that they feel protected, and to look out for their health and well-being (Jin & Kim, 2024; Brandish et al., 2021).

Those in positions of authority are the ones who are accountable for each of these obligations. They must take this action in order to ensure that their employees are happy and in good health while they are working at their place of employment. Not only does the offer of leadership skills to technicians, residents, and younger pharmacists boost the morale of the firm, but it also places the corporation in a position to achieve advancements that are sustainable (Wase & Lull, 2021). Because of this circumstance, the company is in a position to reap the benefits of it.

11. CULTURAL COMPETENCY AND EQUITY-FOCUSED LEADERSHIP

Because of the growing diversity that is taking place within the healthcare industry, leadership skills that are sensitive to different cultures are becoming increasingly important in the field of healthcare (Chappell & Dervay, 2016). This is because of the

fact that the healthcare industry is getting increasingly varied. They are needed to understand the social determinants that have an impact on health, that they are aware of the variations in the ease with which pharmaceuticals can be obtained, and that they work toward obtaining health equity by developing pharmacy practices that are inviting (Davey et al., 202); Sorensen & Biebighauser, 2003; Al-Diery et al., 2022; Papadopoulos et al., 2021). For individuals to be considered for leadership roles in pharmacies, it is required that they possess the knowledge and skills that were previously described (Wase & Lull, 2021). Programmes that promote diversity, equity, and inclusion (DEI) are just one of the many components that form the total when it comes to the realm of leadership. DEI stands for diversity, equity, and inclusion. Additionally, there are a considerable number of additional dimensions that are included in this package (Davey et al., 2022).

There are more components, such as the participation of the community, the provision of language access, and the guarantee that services will be adapted to meet the needs of groups that are not receiving an adequate amount of them (Mayimele et al., 2024; Wase & Lull, 2021). These are only some of the components. In addition to that, there are further characteristics. The leaders of pharmacies contribute to the improvement of the efficiency and fairness of the healthcare system (Feller et al., 2016; Panther et al., 2019). This is because they include fairness into the business strategies of their enterprises, which in turn allows them to contribute to the enhancement of equitable healthcare. This is something that they can accomplish because they include fairness into the business strategy of their respective organizations (Sorensen et al., 2019).

12. CRISIS LEADERSHIP AND RESILIENCE

While the COVID-19 outbreak was going on, it became abundantly evident how crucial it is for pharmacists to be prepared to take the initiative in the event of a crisis. The occurrence of this particular event occurred during the period in which the outbreak was taking place (Traynor et al., 2019). Leaders needed to possess the capacity to make decisions in a relatively short amount of time and to be able to adjust to different circumstances (Wilson et al., 2021).

The reason for this was that there were issues with the supply chain, there were shortages of people, and there were new treatment plans. These events transpired as a consequence of the conditions that were present at the time (Jin & Kim, 2024). One of the many abilities that are required of those who hold leadership roles in pharmacies is the ability to handle problems with serenity, compassion, and a clear focus on the greater issue at hand. This is only one of the numerous skills that are required (Fuentes, 2020).

People are supposed to have a wide range of traits to be successful in different roles. When people on the team are under a lot of stress, it is important to keep the lines of communication open, plan for what could go wrong, and offer support to those who are under a lot of stress (Filerman & Komaridis, 2017; Chappell & Dervay,

2016). It is one of the skills that contributes to the success of a manager at a pharmacy to be able to keep one's composure and have the ability to make decisions in spite of the presence of conditions that are not completely obvious.

13. ADVOCACY AND POLICY ENGAGEMENT

A greater level of participation in health policy and advocacy is being encouraged among those persons who hold leadership roles within pharmacies (Augustine et al., 2017). This recommendation has been made by researchers who have researched the topic in question. If we are talking about the formation of pharmacy practice standards, laws that restrict the area of practice, and reimbursement policies, then they are of the utmost significance (Reed et al., 2019). It makes no difference whether they are being generated at the institutional, state, or national level; this is always the case. About this matter, there is no distinction whatsoever, and this holds regardless of the level at which these policy statements are being created (Ferreri et al., 2017; Bradley-Baker & Murphy, 2013; Janke et al., 2013; Fuller, 2012).

Additionally, it is of the utmost importance that they explain their points of view to the maximum extent feasible. The development of the ability to advocate for one's interests and the strengthening of one's persuasive skills are two talents that are especially emphasized for those who are in positions of authority (Ferreri et al., 2017). This objective can be reached by a variety of approaches, each of which comes with its own set of benefits and drawbacks from a particular perspective (Boyd et al., 2017; Zellmer, 2018). There are a number of different actions that can be taken, some of which include becoming acquainted with members of the legislative body, providing input to the general public, and joining professional associations (Ferreri et al., 2017).

The profession of pharmacy will undoubtedly continue to be a powerful and significant influence in determining the future of healthcare services. This is something that cannot be avoided anymore. This is because the profession will continue to be involved in the process of policymaking, which is the reason for this (Janke et al., 2013). This is something that will continue to be the case for as long as the profession is still in existence.

Table 1. Core Competencies for Modern Pharmacy Leadership.

Competency Area	Description	Practical Applications
Strategic Vision and Systems Thinking	Aligning departmental goals with institutional mission through systems thinking	Long-term planning, departmental integration, and risk anticipation
Health Informatics and Data Analytics	Using data to inform clinical and operational decisions	Monitoring drug utilization, adverse event tracking, and formulary management

Innovation and Technology Integration	Embracing and implementing new technologies	Telepharmacy, AI integration, automation in dispensing and inventory systems
Interprofessional Communication	Engaging with diverse healthcare professionals effectively	Leading multidisciplinary rounds, resolving interdepartmental conflicts
Financial Management	Overseeing budgets and optimizing resource use	ROI calculations, 340B program oversight, cost-reduction strategies
Change Management	Leading transformation and adapting to evolving healthcare systems	Implementing new EHR systems, workflow redesign, and staff training during transitions
Regulatory Compliance	Ensuring legal and professional standards are met	Adhering to USP <797>/<800>, DEA regulations, internal audit preparedness
Workforce Development	Coaching and mentoring future leaders	Performance reviews, succession planning, leadership training programs
Cultural Competency & Equity	Ensuring inclusive and equitable healthcare practices	DEI programs, patient-centered services, and community outreach
Crisis Leadership and Resilience	Managing uncertainty and guiding teams through crises	Pandemic response, supply chain disruption planning, and emotional support to staff
Advocacy and Policy Engagement	Influencing pharmacy policy and representing the profession	Engaging with legislation, joining professional bodies, and public policy advocacy

14. CONCLUSION

They need to be able to do a lot of different things to be successful in modern pharmaceutical institutions. These jobs go beyond the basic management skills they already have. This is important for them to be able to work. They need to do this to reach their goals and be successful. This is because pharmacy leaders are in charge of setting strategic goals, bringing in new tools, encouraging patients to speak out, and putting together teams. As a consequence of this, they will be a significant contributor to the advancement of healthcare in the years to come. If they acquire new skills in areas such as data analytics, change management, cultural understanding, and communication between professionals, they will be able to lead departments that not only meet the institution's goals for safety, quality, and innovation but also go above and beyond those goals. This will allow them to lead departments that are able to achieve the institution's success in these areas. They will be able to lead departments

that are capable of accomplishing these objectives as a result of this. Being able to supervise departments that are capable of contributing to the success of the institution in these areas will be possible for them as a result of this. It is not out of the question that they will be able to lead departments that not only achieve those goals but also significantly surpass them as a consequence of this. In a healthcare system that is going through substantial upheaval, it will be essential for pharmacy executives to possess a variety of distinct attributes in order them to be successful in their positions. The power to adapt to new situations, the capacity to motivate others, and the capacity to lead with a strategic aim are some of the characteristics that fall under this category.

15. REFERENCES

Ali, M., Alsreaya, A., Alqarzi, A., Alzahrani, Y., Alhomood, I., Alruhaimi, A., et al. (2024). Exploring the effectiveness of pharmacy curriculum in Saudi Arabia in developing leadership skills among pharmacy students from their perspective: A mixed-methods study. Saudi Pharmaceutical Journal, 101995–5. https://doi.org/10.1016/j.jsps.2024.101995

Al-Diery, T., Page, A. T., Johnson, J. L., Walker, S., Sandulache, D., & Wilby, K. J. (2022). Evidence for the development of skills for education, leadership and innovation through experiential-based foundational pharmacy residency programs: A narrative review. Journal of Pharmacy Practice and Research, 52(3), 187–197. https://doi.org/10.1002/jppr.1798

Aman, M., Arakawa, N., & Anderson, C. (2025). Leadership competencies and behaviours in pharmacy: A qualitative content analysis. Research in Social and Administrative Pharmacy, 21(2), 123–135. https://doi.org/10.1016/j.sapharm.2024.10.005

Antofie, I. (2025). Improving leadership skills among hospital pharmacists: A literature review. Farmacia, 73(1), 40–48.

Augustine, J., Slack, M., Cooley, J., Bhattacharjee, S., Holmes, E., Warholak, T. L., et al. (2017). Identification of key business and management skills needed for pharmacy graduates. American Journal of Pharmaceutical Education, 81(5), Article 8335. https://doi.org/10.5688/ajpe8158335

BinDhim, N. F., Althumiri, N. A., Albluwi, R. A., & Aljadhey, H. S. (2024). Competencies, skills, and personal characteristics needed for pharmacy leaders: An in-depth interview. Saudi Pharmaceutical Journal, 32(11), 102181. https://doi.org/10.1016/j.jsps.2024.102181

Boyd, A. M., Clark, J. S., & Kent, S. S. (2017). Strategic thinking in pharmacy. *American Journal of Health-System Pharmacy, 74*(14), 1103–1108. https://doi.org/10.2146/ajhp160830

Bradley-Baker, L. R., & Murphy, N. L. (2013). Student leadership. American Journal of Pharmaceutical Education, 77(10), Article 219. https://doi.org/10.5688/ajpe7710219

Brandish, C., Garraghan, F., Ng, B. Y., Russell-Hobbs, K., Olaoye, O., & Ashiru-Oredope, D. (2021). Assessing the impact of a global health fellowship on pharmacists' leadership skills and consideration of benefits to the National Health Service (NHS) in the United Kingdom. Healthcare, 9(7), 890. https://doi.org/10.3390/healthcare9070890

Byers, K., Gee, A., & Anwar, M. (2024). Developing pharmacy leaders: A design thinking approach to navigate the leadership crisis in pharmacy. *Canadian Pharmacists Journal / Revue des Pharmaciens du Canada, 157*(3), 104–106. https://doi.org/10.1177/17151635241245678

Chappell, A., & Dervay, K. (2016). Leadership book club: An innovative strategy to incorporate leadership development into pharmacy residency programs. Hospital Pharmacy, 51(8), 635–638. https://doi.org/10.1310/hpj5108-635

Davey, B. J., Lindsay, D., Cousins, J., & Glass, B. D. (2022). Scoping the required business management skills for community pharmacy: Perspectives of pharmacy stakeholders and pharmacy students. Currents in Pharmacy Teaching and Learning, 14(7), 845–853. https://doi.org/10.1016/j.cptl.2022.06.012

Feller, T. T., Doucette, W. R., & Witry, M. J. (2016). Assessing opportunities for student pharmacist leadership development at schools of pharmacy in the United States. American Journal of Pharmaceutical Education, 80(5), Article 79. https://doi.org/10.5688/ajpe80579

Ferreri, S., Cross, B., Hanes, S., Jenkins, T., Meyer, D., Pittenger, A., et al. (2017). Leadership strengths and the future of pharmacy. American Journal of Pharmaceutical Education, 81(6), Article 5146. https://doi.org/10.5688/ajpe8165146

Filerman, G. L., & Komaridis, K. L. (2017). The pharmacy leadership competency gap: Diagnosis and prescription. The Journal of Health Administration Education, 27(1), 117–133.

Fuller, P. D. (2012). Program for developing leadership in pharmacy residents. *American Journal of Health-System Pharmacy, 69*(14), 1231–1233. https://doi.org/10.2146/ajhp110592

Fuentes, D. G. (2020). Rethinking approaches to succession planning and developing a leadership pipeline in academic pharmacy. American Journal of Pharmaceutical Education, 84(8), Article 8335. https://doi.org/10.5688/ajpe848335

Janke, K. K., Traynor, A. P., & Boyle, C. J. (2013). Competencies for student leadership development in doctor of Pharmacy curricula to assist curriculum committees and leadership instructors. American Journal of Pharmaceutical Education, 77(10), Article 222. https://doi.org/10.5688/ajpe7710222

Jin, H. K., & Kim, E. (2024). Factors affecting leadership in pharmacy students: A nationwide survey. Journal of Healthcare Leadership, 16, 213–225. https://doi.org/10.2147/JHL.S456789

Louie, C., Mertz, E., Penfil, B., & O'Neil, E. (2009). A pharmacy leadership action study. Journal of the American Pharmacists Association, 49(1), 98–104. https://doi.org/10.1331/JAPhA.2009.08045

Mayimele, N. N., Demana, P. H., & Keele, M. G. (2024). Leadership competencies of pharmacists in the manufacturing sector of the pharmaceutical industry. SocioEconomic Challenges, 8(2), 273–286. https://doi.org/10.21272/sec.8(2).273-286

Panther, S. G., Allen, R. A., Brantner, K., Jefferson, C. G., Murphy, N. L., & Robinson, J. D. (2019). Addressing unmet patient care needs through curricular development of student pharmacist leadership and entrepreneurial skills. American Journal of Pharmaceutical Education, 83(6), Article 6958. https://doi.org/10.5688/ajpe836958

Papadopoulos, V., Goldman, D., Wang, C., Keller, M., & Chen, S. (2021). Looking ahead to 2030: Survey of evolving needs in pharmacy education. Pharmacy, 9(1), 59. https://doi.org/10.3390/pharmacy9010059

Reed, B. N., Klutts, A. M., & Mattingly, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. American Journal of Pharmaceutical Education, 83(9), Article 7520. https://doi.org/10.5688/ajpe837520

Roy, B., Law, M., Parbat, M., & Tofade, T. (2024). Results from a global pharmacy leadership needs assessment: Opportunities to advance pharmacy leadership. Pharmacy Education, 24(1), 178–185. https://pharmacyeducation.fip.org/pharmacyeducation/article/view/2410

Sorensen, T. D., & Biebighauser, S. M. (2003). Pharmaceutical care leadership: An innovative pharmacy practice residency model. Journal of the American Pharmacists Association, 43(4), 527–532. http://japha.org/

Sorensen, T. D., Traynor, A. P., & Janke, K. K. (2019). Instructional design and assessment: A pharmacy course on leadership and leading change. American Journal of Pharmaceutical Education, 73(2), Article 23. https://doi.org/10.5688/aj730223

Thobani, A., & Anwar, M. (2024). Leadership development in pharmacy students: A literature review. Canadian Journal of Hospital Pharmacy, 77(2), 123–135. https://doi.org/10.4212/cjhp.3456

Traynor, A. P., Borgelt, L., Rodriguez, T. E., Ross, L. A., & Schwinghammer, T. L. (2019). Use of a modified Delphi process to define the leadership characteristics expected of pharmacy faculty members. American Journal of Pharmaceutical Education, 83(7), Article 7060. https://doi.org/10.5688/ajpe8377060

Tsuyuki, R. T., & Schindel, T. J. (2008). Changing pharmacy practice: The leadership challenge. Canadian Pharmacists Journal, 141(3), 174–180. https://doi.org/10.1177/171516350814100310

Vest, T. A., & Amerine, L. B. (2022). Considerations when transitioning from health-system pharmacy administration and leadership resident to pharmacy leader. Journal of Pharmacy Technology, 38(2), 115–118. https://doi.org/10.1177/87551225221074455

Wase, S., & Lull, M. E. (2021). Introduction to leadership development using the "Five Practices" framework in a co-curricular pharmacy student-development

program. Currents in Pharmacy Teaching and Learning, 13(7), 566–572. https://fisherpub.sjf.edu/pharmacy_facpub/508

Wilson, J. E., & Smith, M. J. (2021). An advanced pharmacy practice experience in leadership development. American Journal of Pharmaceutical Education, 85(9), Article 8361. https://doi.org/10.5688/ajpe8598361

Zellmer, W. A. (2018). Pharmacy vision and leadership: Revisiting the fundamentals. *American Journal of Health-System Pharmacy, 75*(18), 1437–1442. https://doi.org/10.2146/ajhp180322