



Review

Competencies in hospital management: A systematic review of skills for modern healthcare leadership

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Abstract: Hospital management has become increasingly complex in the 21st century, requiring leaders to balance clinical quality, financial sustainability, technological innovation, and patient-centered care. The rapid evolution of healthcare systems—driven by globalization, digital transformation, demographic shifts, and public health crises—has underscored the importance of well-defined managerial competencies. This systematic review synthesizes existing literature on hospital management skills, identifying the core domains essential for modern healthcare leadership. Through an analysis of peer-reviewed studies, policy frameworks, and international guidelines published between 2000 and 2025, seven competency clusters emerged: strategic leadership and vision, clinical governance and quality assurance, financial and resource management, human resource and team development, technological and digital literacy, ethical and cultural competence, and crisis/change management. These competencies highlight the multidimensional role of hospital managers as both administrators and leaders, capable of navigating complex organizational environments while ensuring patient safety and service excellence. The findings emphasize the need for competency-based training frameworks, continuous professional development, and adaptive leadership models to prepare hospital managers for the evolving demands of global healthcare systems.

Keywords: Hospital management; healthcare leadership; managerial competencies; clinical governance; digital health; crisis management; systematic review; patient-centered care

1. Introduction

Hospitals represent the backbone of modern healthcare systems, functioning as complex organizations that integrate clinical care, education, research, and public health services. Effective hospital management is therefore a critical determinant of healthcare quality, patient safety, organizational performance, and system sustainability. Traditionally, hospital management was perceived as a primarily administrative or operational role, focused on logistics, financial accounting, and regulatory compliance. However, over the past few decades, hospital management has evolved into a multidisciplinary leadership function requiring a sophisticated integration of clinical knowledge, managerial skills, health policy understanding, and ethical governance [1,2].

The growing complexity of healthcare delivery has significantly transformed the role of hospital managers. Advances in medical technology, digital health innovations, and precision medicine have expanded the scope of hospital services and increased the demand for strategic decision-making and technological competence among healthcare leaders (Figure 1). The implementation of electronic health records, telemedicine platforms, clinical decision support systems, and artificial intelligence-based diagnostics has introduced new operational challenges and opportunities, requiring hospital managers to possess digital literacy and change management skills [3,4]. Furthermore, globalization and demographic transitions, including aging populations and the rising burden of chronic diseases, have intensified the demand for efficient and patient-centered hospital services [5].

In addition to technological advancements, contemporary hospital management must address workforce-related challenges. Healthcare professionals face increasing workloads, burnout, and staffing shortages, which negatively impact patient care quality and organizational performance. Effective human resource management, leadership, team-building, and staff well-being initiatives are therefore essential competencies for hospital managers. Leadership styles that promote collaboration, motivation, and professional development have been associated with improved clinical outcomes and organizational culture [6,7]. Global health emergencies have further underscored the critical importance of hospital management competencies. The COVID-19 pandemic revealed vulnerabilities in hospital preparedness, supply chain management, crisis communication, and adaptive leadership. Hospitals were required to rapidly reconfigure services, manage surges in patient volume, ensure staff safety, and coordinate with public health authorities. These experiences highlighted the need for robust crisis management, resilience planning, and evidence-based decision-making in hospital leadership [8,9].

Beyond technical and operational responsibilities, hospital management involves complex ethical, cultural, and governance dimensions. Managers must navigate ethical dilemmas related to resource allocation, patient confidentiality, end-of-life care, and equity in healthcare access. Cultural competence is increasingly important in diverse patient populations, requiring leaders to foster inclusive

policies and culturally responsive care practices. Clinical governance frameworks, quality assurance systems, and patient safety initiatives further require managers to integrate ethical principles into organizational policies and daily operations [10,11]. Despite the recognized importance of hospital management competencies, there is no universally standardized framework defining the essential skills and knowledge required for effective hospital leadership. Competency frameworks vary across countries, institutions, and professional organizations, reflecting differences in healthcare systems, regulatory environments, and cultural contexts. This lack of consensus poses challenges for training programs, leadership development initiatives, and policy implementation (Figure 1). Systematic synthesis of existing evidence is therefore necessary to identify core competency domains and guide the development of standardized competency-based education and assessment frameworks [12,13].

This systematic review aims to consolidate existing literature on hospital management competencies, identify key competency domains, and propose an integrated framework for modern hospital leadership. By synthesizing findings from peer-reviewed studies, policy reports, and international guidelines, this review seeks to inform healthcare administrators, educators, and policymakers. The ultimate goal is to strengthen hospital leadership capacity, improve healthcare quality, and enhance the resilience and sustainability of healthcare systems worldwide.

Competencies in Hospital Management



Figure 1. Conceptual framework of core and emerging competencies in hospital management. This schematic diagram illustrates the multidimensional competency domains required for effective hospital management in modern healthcare systems. The central circle represents overall hospital management competencies, integrating six core domains: leadership and strategic management, clinical governance and quality management, financial and resource management, human resource and team leadership, digital health and technology competence, and ethical and cultural competence. These domains are interconnected, highlighting the integrated and interdependent nature of managerial skills in healthcare organizations. Additionally, the figure highlights emerging competencies, including data-driven decision-making, healthcare innovation, and patient-centered care, which are increasingly recognized as critical for contemporary healthcare leadership. The framework emphasizes that effective hospital management requires a balance of traditional administrative competencies and modern leadership, technological, and patient-focused skills to ensure high-quality, efficient, and resilient healthcare delivery.

2. Methods: A detailed systematic review approach

This systematic review was meticulously designed and executed with the primary objective of comprehensively identifying, critically evaluating, and synthesizing the global body of evidence concerning the competencies essential for effective hospital management and healthcare leadership. To ensure methodological rigor and reproducibility, the review adhered to established systematic review principles. The process began with a structured and exhaustive literature search across major scientific databases, including PubMed, Scopus, Web of Science, and Google Scholar. This multi-database strategy was employed to capture a wide spectrum of publication types, such as peer-reviewed empirical research articles, existing systematic reviews, theoretical or conceptual frameworks, and policy analyses relevant to the domain of hospital management competencies [1,2]. Recognizing that valuable insights often exist outside traditional academic journals, the search scope was intentionally broadened to include grey literature and key international policy documents from authoritative organizations like the World Health Organization (WHO), the International Hospital Federation (IHF), and the American College of Healthcare Executives (ACHE). This inclusion was vital for incorporating practical guidelines, global benchmarks, and field-driven perspectives, thereby ensuring the review's findings were both academically sound and globally applicable [3,4].

A precise and iterative search strategy was developed, utilizing a combination of targeted keywords and Boolean operators (e.g., AND, OR) to optimize sensitivity and specificity. Core search terms included "hospital management competencies," "healthcare leadership skills," "hospital administration," "health system leadership," and "clinical governance." To focus on contemporary practices and evolving demands, the review considered articles published in English over the preceding two decades, a period marked by rapid transformation in healthcare systems worldwide [5]. The screening process was conducted in two distinct phases: initially, titles and abstracts were reviewed for broad relevance to the research question; subsequently, the full texts of shortlisted articles were rigorously evaluated against pre-defined eligibility criteria to determine final inclusion. Data from the selected studies were then extracted and subjected to a qualitative thematic synthesis. This analytical process involved identifying, analyzing, and reporting recurrent patterns (themes) across the literature, allowing for the distillation of core competency domains, the identification of emerging skill requirements, and the pinpointing of significant gaps in the current evidence base [6]. Ultimately, this meticulous methodological approach provided a robust foundation for the development of an integrated and comprehensive competency framework that accurately reflects the multifaceted demands of modern healthcare leadership.

3. Core competency domains in hospital management

3.1. Leadership and strategic management

Leadership and strategic management are universally acknowledged as the cornerstone of effective hospital administration, transcending daily operations to shape the institution's long-term trajectory. Hospital leaders are tasked with the critical responsibility of articulating a compelling organizational vision, ensuring that institutional goals are in harmony with broader national health policies and population health needs (Figure 1). This requires a sophisticated set of strategic management competencies, including continuous environmental scanning to anticipate healthcare trends, rigorous strategic planning, systematic performance monitoring, and proactive engagement with a diverse array of stakeholders—from government bodies and community groups to clinical staff and patients [7]. Contemporary evidence strongly indicates that leadership styles which are transformational (inspiring and motivating staff towards a shared vision) and adaptive (responsive to complex challenges) are positively correlated with enhanced staff morale, increased patient satisfaction, and the cultivation of a positive, resilient organizational culture [8]. Beyond setting direction, effective leaders are catalysts for innovation, champions of interdisciplinary collaboration, and custodians of accountability, ensuring seamless alignment between clinical excellence and administrative efficiency to drive holistic organizational success [9].

3.2. Clinical governance and quality management

Clinical governance constitutes a systematic and integrated framework designed to uphold and elevate the standards of clinical care through continuous quality improvement. For hospital managers, this domain requires moving beyond administrative oversight to actively engage in the clinical mission (Figure 1). Essential competencies include the design and implementation of robust quality assurance mechanisms, the facilitation of regular clinical audits, the development of comprehensive risk management strategies, and the promotion of evidence-based clinical protocols. These activities are fundamental to enhancing patient safety, reducing medical errors, and improving overall healthcare outcomes [10]. Managers must be well-versed in national and international accreditation standards, infection prevention and control protocols, and regulatory compliance requirements; such knowledge is indispensable for maintaining the hospital's credibility, securing funding, and, most importantly, sustaining patient trust [11]. Success in this area is inherently collaborative, relying on a strong, synergistic partnership between hospital managers and clinical teams to monitor key performance indicators, transparently manage adverse events, and foster an ingrained culture of safety, learning, and relentless improvement [12].

3.3. Financial and resource management

In an era characterized by escalating healthcare costs and constrained budgets, proficiency in financial and resource management is a non-negotiable competency for hospital leaders. This domain demands demonstrated expertise in complex budgeting processes, long-term financial planning, stringent cost-control measures, efficient procurement systems, and the principles of health economics to ensure the institution's financial sustainability [13]. Effective managers must master the art of optimal resource allocation, strategically deploying financial capital, medical equipment, pharmaceuticals, and, crucially, human resources to maximize patient care delivery while minimizing waste and operational inefficiencies [14]. Financial literacy empowers leaders to make informed strategic investment decisions in new technologies or services, manage the revenue cycle effectively, and develop long-term sustainability plans. This financial acumen is paramount for maintaining operational resilience, enabling hospitals to navigate the complexities of competitive healthcare markets, respond to economic shocks, and continue providing essential services [15].

3.4. Human resource management and team leadership

Given that healthcare is an intensely human enterprise, effective Human Resource (HR) management is central to hospital performance and quality of care. Hospital managers are responsible for the entire employee lifecycle within a multidisciplinary environment: recruiting skilled professionals, providing ongoing training and development, motivating staff, and implementing retention strategies to address pervasive challenges like workforce shortages and professional burnout [16]. This requires deep competencies in organizational behavior, conflict resolution, clear and compassionate communication, and team-building. The ability to foster a positive, supportive, and inclusive work environment is directly linked to enhanced team cohesion, professional satisfaction, and ultimately, superior clinical performance [17]. Modern leadership recognizes that investing in leadership development programs, employee engagement initiatives, and comprehensive staff well-being strategies is not merely an HR

function but a strategic imperative. These elements are key determinants of healthcare quality, patient outcomes, and overall organizational productivity and innovation [18].

3.5. Digital health and technological competence

The rapid digital transformation of healthcare has irrevocably altered the hospital landscape, making technological competence a critical leadership domain. Hospital managers must now possess a sound understanding of digital health technologies, including electronic health records (EHRs), telemedicine platforms, artificial intelligence (AI) applications, and integrated health information systems. Key competencies extend to data governance—ensuring data integrity, interoperability, and privacy—as well as cybersecurity protocols to protect sensitive patient information, and the seamless integration of digital tools into clinical and administrative workflows [19]. Technological literacy enables managers to leverage these tools to significantly improve operational efficiency, enhance patient engagement and experience, and support a culture of data-driven decision-making at all levels of the organization [20]. As digital innovation continues to accelerate, the ability to critically assess, adopt, and lead technological change is increasingly regarded not as a specialized skill but as a core component of effective healthcare leadership in the 21st century [21].

3.6. Ethical, legal, and cultural competence

Hospital managers routinely navigate a complex web of ethical dilemmas and legal requirements, confronting issues such as patient confidentiality, informed consent, equitable resource allocation, and end-of-life care decisions. Ethical competence, therefore, involves a firm grasp of bioethical principles, a thorough understanding of healthcare laws and regulations, and the ability to apply institutional policies governing both clinical practice and administrative conduct [22]. Parallel to this is the necessity of cultural competence, which is critical in serving diverse patient populations. This involves awareness, sensitivity, and skills to ensure equitable, respectful, and patient-centered care, and to facilitate effective communication across cultural, linguistic, and social barriers [23]. Hospital leaders play a pivotal role in modeling and promoting an ethical organizational culture, upholding the highest professional standards, and ensuring strict compliance with legal and regulatory frameworks. This stewardship is essential for maintaining public trust, safeguarding the institution's reputation, and preserving its core integrity [24].

3.7. Crisis and change management

Healthcare organizations exist in a state of perpetual vulnerability to acute crises—such as pandemics, natural disasters, or cyber-attacks—and chronic pressure from systemic changes. Competency in crisis management is therefore essential, encompassing emergency preparedness planning, disaster response coordination, and the building of organizational resilience to ensure the continuity of care under the most challenging circumstances [25]. Equally important are change management skills, which are vital for successfully implementing large-scale healthcare reforms, integrating transformative new technologies, and adapting to shifts in policy, funding models, and organizational structures [26]. Effective leadership during crises demands the ability to make rapid, evidence-informed decisions under pressure, communicate with transparency and clarity, coordinate actions across multiple agencies and departments, and mobilize resources efficiently to mitigate risks. These capabilities are fundamental to protecting both staff and patients, maintaining critical healthcare services, and guiding the organization through periods of instability and transformation [27].

4. Emerging competencies for modern healthcare leadership

4.1. Data-driven decision-making and health analytics

The modern healthcare landscape is increasingly characterized by the generation of vast amounts of data, making the ability to harness this information a critical leadership competency. The proliferation of electronic health records (EHRs), patient-generated health data, and sophisticated performance metrics has created unprecedented opportunities for evidence-based management. Hospital leaders must now be adept at interpreting complex clinical data sets, operational key performance indicators (KPIs), and outputs from big data analytics to inform strategic planning, optimize resource allocation, and improve patient outcomes [28]. This requires moving beyond basic data literacy to develop competencies in health informatics—understanding how data is structured, stored, and utilized. Furthermore, expertise in data governance is essential to ensure data quality, integrity, security, and ethical use. Perhaps most forward-looking is the need for skills in predictive analytics, enabling leaders to move from reactive problem-solving to proactive anticipation of trends, such as patient admission surges, disease outbreaks, or equipment failure. As healthcare organizations globally transition toward value-based and precision care models, the integration of robust, data-driven decision-making into the managerial ethos is no longer optional but a fundamental driver of efficiency, quality, and innovation [29].

4.2. Innovation and entrepreneurship in healthcare

In an environment of rapid technological advancement and shifting patient expectations, innovation has become a cornerstone of sustainable and competitive healthcare delivery. Hospital managers are now expected to be architects of an innovation culture, actively fostering environments where new ideas for care models, operational processes, and patient services are encouraged and systematically tested. This involves competencies in implementing novel approaches such as integrated care pathways, hospital-at-home programs, and AI-assisted diagnostics. Crucially, effective leaders must also excel at building strategic collaborations beyond hospital walls, partnering with technology companies, academic research institutions, and startup incubators to co-develop and pilot digital health solutions and service innovations [30]. Entrepreneurial competencies are particularly vital, equipping leaders

to think like entrepreneurs within the healthcare system. This mindset supports service diversification to meet community needs, the design and implementation of value-based care initiatives that tie payment to outcomes, and even the incubation of internal healthcare startups. Such entrepreneurial leadership enables hospitals to adapt agilely to evolving market dynamics, secure new revenue streams, and ultimately enhance their resilience and capacity to meet future challenges [31].

4.3. Patient-centered care and experience management

The paradigm of healthcare has decisively shifted toward patient-centered care, which positions the patient as an active partner in their health journey rather than a passive recipient of services. This principle emphasizes shared decision-making, holistic patient engagement, and the delivery of personalized, compassionate care. For hospital managers, this translates into the operational mandate to embed patient-centricity into every facet of the organization. Competencies in this domain include designing and implementing robust, real-time mechanisms for collecting and acting upon patient feedback, such as through experience surveys and patient and family advisory councils. Leaders must also be skilled in service design—applying human-centered design principles to improve care pathways, physical environments, and administrative processes from the patient's perspective. Mastery in patient experience management involves analyzing patient journey maps, identifying points of friction or distress, and leading cross-functional teams to make systemic improvements. These competencies are critical not only for improving healthcare quality and patient satisfaction but also for building a strong institutional reputation and fostering patient loyalty in an increasingly consumer-oriented healthcare market [32,33].

5. Competency frameworks and training programs

To provide structure and direction to leadership development, several prominent international organizations have developed comprehensive competency frameworks. The World Health Organization (WHO), the American College of Healthcare Executives (ACHE), and the International Hospital Federation (IHF), among others, have published models that typically categorize essential competencies into domains such as strategic leadership, business and financial acumen, communication and relationship management, professionalism and ethics, and systems thinking for understanding complex health ecosystems [34]. While these frameworks provide invaluable guidance, a significant challenge is the variability between them in terminology, emphasis, and scope. This lack of a universally standardized model can create confusion for educators, employers, and aspiring leaders, particularly in a globalized healthcare workforce. It highlights a pressing need for greater harmonization to develop globally recognized, yet locally adaptable, competency standards [35]. In response, a variety of training modalities have emerged. Formal academic programs, such as Masters in Health Administration (MHA) and Masters in Business Administration (MBA) with healthcare concentrations, provide foundational knowledge. These are complemented by leadership development initiatives—often offered by professional associations—that focus on experiential learning, coaching, and mentorship. Furthermore, continuing professional education (CPE) through workshops, seminars, and online courses is essential to ensure that practicing managers can update their skills in response to evolving challenges, thereby embracing the principle of lifelong learning that is crucial in a dynamic field like healthcare leadership [36].

6. Implications for policy and practice

The systematic identification of core and emerging competencies carries profound implications for multiple stakeholders within the healthcare ecosystem. For policymakers, there is a clear imperative to integrate validated competency frameworks into formal regulatory and incentive structures. This can include embedding specific leadership standards into hospital accreditation criteria, tying executive licensure or certification to demonstrated competencies, and designing national health workforce policies that prioritize and fund leadership development as a critical component of health system strengthening [37]. At the organizational level, healthcare institutions must move beyond ad-hoc training to implement structured leadership pipelines. This involves creating in-house leadership academies, establishing formal mentorship and succession planning systems, and utilizing competency assessment tools for hiring, promotion, and professional development. Such investments create a sustainable internal capacity for effective governance [38]. Academic institutions bear the responsibility of preparing the next generation of leaders. This requires curricula that are inherently interdisciplinary, blending core management science with essential clinical knowledge, digital health literacy, deep ethical reasoning, and health policy analysis. By fostering this integrated skill set, academia can produce graduates capable of navigating the complexities of modern healthcare systems [39]. Ultimately, coordinated investment in cultivating these competencies across all levels is not merely an administrative concern but a strategic one, with a demonstrable return on investment in the form of improved healthcare quality, enhanced patient safety, and greater overall system resilience [40].

7. Challenges and future directions

Despite widespread agreement on the importance of strong healthcare leadership, significant barriers impede the global development of management competencies. Key challenges include inequitable access to high-quality leadership training, especially for managers in low-resource settings or middle-management positions; a dearth of validated, standardized tools to reliably assess managerial competencies; and the profound variability in healthcare systems across different economic contexts (high-income vs. low- and middle-income countries), which complicates the creation of a one-size-fits-all approach [41]. To address these gaps, future efforts must focus on several priorities. Research should aim to develop and psychometrically validate universal competency frameworks, and rigorously evaluate the long-term impact of leadership development programs on both organizational performance and population health outcomes. Educational innovation is required to seamlessly integrate emerging competencies in digital fluency, data analytics, and innovation management into traditional health administration curricula [42]. Progress is contingent upon global collaboration. Partnerships among academic institutions, international healthcare organizations (like WHO and IHF), professional bodies, and national ministries of health are essential to share best practices, develop open-access training resources, and advocate for policies that establish universal standards while allowing for necessary local adaptation. This collective effort is fundamental to building a robust global pipeline of competent healthcare leaders [43].

8. Conclusion

In conclusion, the competencies possessed by hospital managers are a critical determinant of health system performance, directly influencing the quality, efficiency, and resilience of care delivery. This systematic review has synthesized existing evidence to delineate a comprehensive set of capabilities required for effective leadership. The core domains—encompassing leadership and strategy, clinical governance, financial and resource stewardship, human resource and team leadership, digital and technological literacy, ethical and legal judgment, and crisis management—form the essential foundation. These are now augmented by emerging competencies in data-driven decision-making, innovation and entrepreneurship, and patient-centered experience management, which define the contours of modern healthcare leadership. To translate this knowledge into tangible improvement, a concerted, multi-stakeholder approach is necessary. The development and adoption of standardized competency frameworks, the design and delivery of targeted, accessible training programs, and the implementation of supportive policies at organizational and governmental levels are indispensable strategies. By prioritizing and investing in the cultivation of these competencies, the global health community can significantly strengthen hospital leadership capacity, thereby driving sustained improvements in healthcare outcomes and system sustainability for the future [44,45].

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