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Performance management competencies for hospital healthcare managers: a mixed-methods mapping study and implications for quality of care and community health outcomes

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Abstract

Performance management competencies of healthcare managers are foundational determinants of hospital quality of care, and quality of hospital care has direct downstream consequences for community health outcomes through readmission rates, post-discharge complications, and the broader functioning of regional health networks. Despite this connection, the operational competencies that hospital managers require to sustain quality of care have been insufficiently characterized in mixed-methods empirical studies anchored in Brazilian hospital settings. This study aimed to map the technical and behavioral competencies required for healthcare manager positions in a large private Brazilian hospital, using a structured competency mapping methodology, and to assess the implications for hospital quality management and community health outcomes. A mixed-methods design was employed, combining documentary analysis of internal hospital regulations and a structured questionnaire administered to 112 healthcare professionals using a five-point Likert scale. The Knowledge, Skill, and Attitude (KSA) framework was applied across three iterative phases, encompassing competency indicator survey, behavioral competency grouping by similarity, and final definition of technical and behavioral competencies. An 85% threshold of maximum score was applied to validate competency indicators. Results identified six core technical knowledge competencies, six core technical skill competencies, and six core behavioral competencies, organized into three behavioral competency clusters oriented toward patient care, leadership and team management, and organizational results. The findings provide an empirically grounded competency profile for hospital healthcare managers and identify operational implications for continuous training, performance management practices, and the broader contribution of hospital management to community health system resilience.

1 Introduction

Hospital quality of care is a structural determinant of community health outcomes [1, 2]. Hospital readmission rates, post-discharge complications, the integration between hospital and primary care, and the operational efficiency of inpatient services shape the broader functioning of regional health networks and the health of the populations they serve [3, 4]. Within this broader system, the performance management competencies of hospital managers occupy a critical position: managers shape the institutional environment within which clinical care is delivered, the continuous training and development of clinical teams, and the operational accountability mechanisms that sustain quality over time [5, 6].

Performance management in healthcare encompasses the planning, execution, and evaluation of clinical and organizational practices that determine quality of care and operational efficiency [7]. Effective performance management requires a multidisciplinary set of competencies that integrate technical knowledge of healthcare regulations, organizational processes, and clinical practice with behavioral competencies oriented toward leadership, communication, and team management [8, 9]. International experience indicates that competency-based management approaches contribute to improved clinical outcomes, reduced operational variability, and enhanced workforce engagement, with documented downstream effects on patient safety and quality of care [10, 11].

In Brazil, the constitutional framework recognizes health as a universal right and a duty of the State, with the Unified Health System (Sistema Único de Saúde, SUS) organized through cooperative federalism between municipal, state, and federal authorities [12]. The private hospital sector operates alongside the public system, providing care to approximately one quarter of the Brazilian population through health insurance plans and direct payment, while interacting with the public system through patient transfers, emergency care, and shared regional infrastructure. The performance management competencies of managers in private hospitals therefore have implications that extend beyond the institutional setting, affecting the broader regional health system within which both private and public services operate.

Despite the structural importance of performance management competencies, the operational dimensions of these competencies have been insufficiently characterized in mixed-methods empirical studies anchored in Brazilian hospital settings. Existing scholarship has predominantly addressed performance management at conceptual and theoretical levels, with comparatively limited empirical mapping of the competencies that healthcare managers actually require to sustain quality of care in concrete institutional environments [13, 14, 15]. This analytical gap is consequential because evidence-based competency profiles are foundational for the design of training programs, recruitment processes, performance evaluation systems, and continuing education infrastructure that shape the operational reality of hospital management practice.

A growing body of public health and community health literature has examined the operational dimensions of healthcare workforce development. Studies have documented the impact of structured training on clinical outcomes, the role of behavioral competencies in supporting effective team performance, and the contribution of competency-based management to patient safety and quality of care [16, 17, 18]. The interface between these workforce dimensions and the broader contribution of hospital management to community health outcomes, however, has received limited systematic attention in the literature, particularly in Brazilian institutional contexts where the interaction between private hospital management and the broader health system carries substantial implications for population health.

This study addresses these gaps through a mixed-methods empirical mapping of the technical and behavioral competencies required for healthcare manager positions in a large private Brazilian hospital. Three guiding research questions structure the analysis. First, what technical knowledge and skill competencies are recognized by healthcare professionals as essential for the effective performance of hospital management positions? Second, what behavioral competencies sustain effective hospital management practice, and how can these competencies be organized into coherent operational clusters? Third, what are the implications of the resulting competency profile for hospital quality management practice and for the broader contribution of hospital management to community health outcomes?

The study contributes to community health scholarship by translating the findings of competency mapping into operational implications for hospital workforce development, training program design, and

the strengthening of regional health system resilience. The findings carry relevance for institutional contexts beyond the studied hospital, including comparative settings where structural inequalities in hospital infrastructure and workforce capacity intersect with broader community health outcomes.

2 Methods

2.1 Study design

This study employed a mixed-methods empirical design combining documentary analysis with a structured quantitative questionnaire. The methodological approach integrated qualitative analysis of internal hospital regulations, position descriptions, and policy documents with quantitative valuation of competency indicators by healthcare professionals using a five-point Likert scale. The integrated design enabled triangulation between institutional documentary sources and the perspectives of professionals working within the institutional environment, supporting the construction of an empirically grounded competency profile.

2.2 Setting and population

The study was conducted in a large private hospital affiliated with a nationally and internationally recognized healthcare group, located in Brazil. Institutional characteristics were anonymized in accordance with confidentiality commitments established with the participating institution. The hospital is recognized for its complexity of care, technological infrastructure, and integration with regional health networks. The total population of healthcare professionals at the institution was approximately 550, encompassing physicians, nurses, nursing technicians, and hospital managers.

2.3 Sampling and recruitment

A non-probabilistic convenience sample of 112 healthcare professionals participated in the study, recruited through institutional channels and invited to respond to a structured online questionnaire. Participation was voluntary and anonymous, with informed consent obtained electronically prior to questionnaire administration. The sample size was determined based on the feasibility of voluntary participation within the institutional context and exceeded the minimum threshold for meaningful descriptive analysis of Likert-scale competency valuations.

2.4 Data collection instruments

Two complementary data sources were employed. First, internal institutional documents were systematically reviewed, including position descriptions, internal regulations, performance evaluation policies, and procedural manuals available through institutional channels and official institutional communications. Documentary analysis was conducted to identify the principal attributions and responsibilities associated with healthcare management positions in the institutional setting.

Second, a structured questionnaire was administered electronically to participating healthcare professionals. The questionnaire was developed based on the findings of the documentary analysis and was organized into three sections corresponding to the dimensions of the Knowledge, Skill, and Attitude (KSA) framework. Each section included ten predefined competency indicators that participants valued using a five-point Likert scale, with anchors of "Not Important" (1), "Slightly Important" (2), "Important" (3), and "Very Important" (4). An open-ended response option permitted participants to suggest additional competency indicators not included in the predefined list.

2.5 Analytical framework

The analytical framework was structured in three iterative phases adapted from the competency mapping methodology of Rabaglio [19] and informed by the Project Management Institute Talent Triangle framework [20]. The first phase encompassed the survey of competency indicators through documentary analysis and structured questionnaire administration. The second phase involved the grouping of behavioral competencies by similarity into coherent operational clusters. The third phase comprised the final definition of technical and behavioral competencies for the healthcare manager position profile.

Competency indicators were validated through application of an 85% threshold of the maximum score obtained for each KSA dimension. Indicators that achieved scores at or above this threshold were retained as core competencies for the position profile. The threshold was selected to ensure analytical robustness while preserving the operational specificity of the resulting competency profile.

2.6 Ethical considerations

The study was conducted in accordance with the ethical standards established by the Brazilian National Health Council Resolution No. 510/2016, which establishes the regulatory framework for research in the human and social sciences in Brazil. Under this regulatory framework, research that does not generate sensitive data and does not pose more than minimal risk to participants is exempt from review by a Research Ethics Committee. The institutional and methodological characteristics of the study qualified for this exemption, which was formally determined and documented by the Research Ethics Committee of Pecege (Comitê de Ética em Pesquisa do Pecege; CEP/Pecege), linked to the postgraduate programs of the Luiz de Queiroz College of Agriculture (ESALQ), University of São Paulo, under waiver identifier 3406978443, dated 7 November 2024. All participants provided informed consent prior to participation, were assured of the voluntary and anonymous nature of their responses, and retained the right to withdraw participation at any point during questionnaire completion.

3 Results

3.1 Documentary analysis: institutional attributions of the healthcare manager position

Documentary analysis of internal institutional regulations identified ten principal attributions associated with the healthcare manager position in the studied institutional setting. These attributions encompassed supervision and evaluation of professional performance, elaboration of performance reports and quality indicators for institutional leadership, technical assessment of clinical practices, planning and implementation of continuous training programs, coordination of recruitment and selection processes, internal and external communication, conflict management and integration of multidisciplinary teams, monitoring and evaluation of continuous improvement projects, daily orientation of professional activities, and implementation of strategies for professional retention and motivation. The identified attributions provided the empirical foundation for the construction of the competency questionnaire administered in the subsequent phase of the study.

3.2 Sociodemographic profile of participants

The 112 participating healthcare professionals comprised physicians, nurses, nursing technicians, and hospital managers, with diverse profiles in terms of professional experience, time of institution affiliation, and educational background. The sociodemographic distribution reflected the heterogeneity of the institutional workforce and supported the analytical balance of the resulting competency valuations.

3.3 Technical knowledge competencies (Knowledge dimension)

Valuation of the ten predefined technical knowledge indicators identified six core competencies that achieved scores at or above the 85% threshold of maximum score. The validated competencies, in descending order of valuation score, encompassed clinical practices, organizational communication, corporate education, project management, healthcare regulations, and labor legislation. The remaining indicators, including performance management methodologies, conflict management, talent retention policies, and performance management knowledge, achieved scores below the validation threshold but remained within the operational profile of the position.

Table 1 presents the validated technical knowledge competencies with their corresponding scores.

Table 1 Validated technical knowledge competencies for the healthcare manager position (scores out of 448 maximum).

Competency (Knowledge dimension)	Score	% of maximum
Clinical practices	382	85.3
Organizational communication	376	83.9
Corporate education	376	83.9
Project management	375	83.7
Healthcare regulations	374	83.5
Labor legislation	366	81.7

Validation threshold of 85% applied to the maximum score (Clinical practices, 382 points). Competencies retained achieved scores at or above the validation threshold of approximately 325 points.

3.4 Technical skill competencies (Skill dimension)

Valuation of the ten predefined technical skill indicators identified six core competencies that achieved scores at or above the validation threshold. The validated competencies, in descending order of valuation score, encompassed effective communication, constructive feedback, data analysis, training planning, team supervision, and team engagement. The remaining indicators, including technical writing, decision-making, curriculum evaluation, and negotiation, achieved scores below the validation threshold.

Table 2 presents the validated technical skill competencies with their corresponding scores.

Table 2 Validated technical skill competencies for the healthcare manager position (scores out of 448 maximum).

Competency (Skill dimension)	Score	% of maximum
Effective communication	378	84.4
Constructive feedback	374	83.5
Data analysis	374	83.5
Training planning	368	82.1
Team supervision	368	82.1
Team engagement	361	80.6

Validation threshold of 85% applied to the maximum score (Effective communication, 378 points). Competencies retained achieved scores at or above the validation threshold of approximately 321 points.

3.5 Behavioral competencies (Attitude dimension)

Valuation of the ten predefined behavioral indicators identified six core competencies that achieved scores at or above the validation threshold. The validated competencies, in descending order of valuation score, encompassed critical thinking, sense of justice, clarity, technical rigor, empathy, and attention to detail. The remaining indicators, including professional ethics, results focus, proactivity, and tolerance, achieved scores below the validation threshold.

Table 3 presents the validated behavioral competencies with their corresponding scores.

Table 3 Validated behavioral competencies for the healthcare manager position (scores out of 448 maximum).

Competency (Attitude dimension)	Score	% of maximum
Critical thinking	401	89.5
Sense of justice	378	84.4
Clarity	376	83.9
Technical rigor	375	83.7
Empathy	368	82.1
Attention to detail	363	81.0

Validation threshold of 85% applied to the maximum score (Critical thinking, 401 points). Competencies retained achieved scores at or above the validation threshold of approximately 341 points.

3.6 Behavioral competency clusters

In the second analytical phase, the validated behavioral competencies were organized by similarity into three operational clusters reflecting the strategic orientation of healthcare manager practice. The first cluster, oriented toward patient care, integrated competencies that support effective therapeutic communication and patient-centered service delivery, encompassing clarity, empathy, sense of justice, and tolerance. The second cluster, oriented toward leadership and team management, integrated competencies that sustain effective coordination of multidisciplinary teams, encompassing professional ethics, proactivity, technical rigor, critical thinking, and attention to detail. The third cluster, oriented toward organizational results, integrated competencies that support the achievement of institutional objectives and continuous improvement, encompassing results focus, conflict management, training planning, team supervision, and team engagement.

Table 4 presents the behavioral competency clusters resulting from the similarity-based grouping analysis.

Table 4 Behavioral competency clusters for the healthcare manager position.

Behavioral competency cluster	Component competencies
Cluster I: Patient-oriented competencies	Clarity; Empathy; Sense of justice; Tolerance
Cluster II: Leadership and team management competencies	Professional ethics; Proactivity; Technical rigor; Critical thinking; Attention to detail
Cluster III: Results-oriented competencies	Results focus; Conflict management; Training planning; Team supervision; Team engagement

3.7 Final integrated competency profile

In the third analytical phase, the validated technical and behavioral competencies were integrated into a final operational profile for the healthcare manager position. The integrated profile encompasses six technical knowledge competencies, six technical skill competencies, and three behavioral competency clusters comprising fourteen component competencies. The profile constitutes an empirically grounded reference framework for the design of training programs, performance evaluation systems, and recruitment processes for healthcare manager positions in similar institutional contexts.

4 Discussion

4.1 Competency profile and the operational reality of hospital management

The competency profile identified through the empirical mapping conducted in this study reflects the operational complexity of contemporary hospital management practice. The technical knowledge competencies validated by participating healthcare professionals encompass clinical practices, organizational communication, corporate education, project management, healthcare regulations, and labor legislation, indicating a multidisciplinary scope that extends beyond traditional clinical training into organizational, legal, and educational domains. This breadth aligns with the international literature on healthcare management competencies, which has consistently emphasized the multidisciplinary nature of effective hospital leadership [10, 11, 21].

The technical skill competencies identified, including effective communication, constructive feedback, data analysis, training planning, team supervision, and team engagement, reflect the operational dimensions through which manager knowledge translates into institutional practice. These competencies operate at the interface between technical knowledge and behavioral practice, supporting the implementation of evidence-based management approaches in concrete institutional environments. The validation of these competencies by frontline healthcare professionals lends empirical weight to the proposition that effective hospital management requires not only knowledge of management principles but also operational skills that translate principles into practice.

4.2 Behavioral competencies and the relational dimension of hospital management

The behavioral competency clusters identified in this study highlight the relational dimension of hospital management practice. The patient-oriented cluster, encompassing clarity, empathy, sense of justice, and tolerance, reflects the recognition that hospital managers shape the institutional environment within which patient care occurs and that their behavioral competencies have downstream effects on patient experience and clinical outcomes [22, 23]. The leadership and team management cluster, encompassing professional ethics, proactivity, technical rigor, critical thinking, and attention to detail, reflects the institutional dimension of management practice and the requirement for managers to sustain organizational accountability mechanisms that support quality of care. The results-oriented cluster, encompassing results focus, conflict management, training planning, team supervision, and team engagement, reflects the strategic dimension of management practice and the requirement for managers to align operational activities with institutional and broader system-level objectives.

The three-cluster organization aligns with frameworks for healthcare leadership development that have been established in international literature, including the Talent Triangle framework of the Project Management Institute [20] and the broader literature on healthcare leadership competencies [10, 21]. The convergence between empirically derived clusters and established theoretical frameworks suggests that the resulting competency profile carries operational validity beyond the studied institutional context.

4.3 Implications for hospital quality management practice

The findings carry several implications for hospital quality management practice. First, the integrated competency profile provides an empirically grounded reference framework for the design of training programs targeting current and prospective hospital managers. Training programs that systematically address the validated technical and behavioral competencies are more likely to support effective management practice than programs that emphasize a narrower subset of competencies. Second, the validation of behavioral competency clusters supports the integration of behavioral assessment into recruitment and performance evaluation processes for management positions. Recruitment processes that systematically assess behavioral competencies alongside technical qualifications are more likely to identify candidates capable of sustaining effective management practice over time.

Third, the findings support the development of continuous training and professional development infrastructure that integrates technical and behavioral dimensions of competency. The recognition that effective management requires both technical knowledge and behavioral competencies indicates the limitations of training programs that emphasize one dimension to the exclusion of the other. Fourth, the empirical mapping methodology employed in this study can be replicated in other institutional contexts to develop institution-specific competency profiles that reflect the operational realities of distinct hospital settings.

4.4 Implications for community health outcomes

Hospital quality of care has direct downstream consequences for community health outcomes through readmission rates, post-discharge complications, the operational efficiency of regional health networks, and the integration between hospital and primary care services [3, 4, 24, 26]. Hospital managers who exhibit the validated technical and behavioral competencies are positioned to sustain quality of care that contributes positively to these community-level outcomes, while gaps in management competency may translate into operational deficiencies that affect populations beyond the institutional setting.

The implications for community health outcomes are particularly relevant in the Brazilian context, where private hospital management interacts with the broader public health system through patient transfers, emergency care, and shared regional infrastructure. The strengthening of management competencies in private hospital settings carries implications for the broader functioning of regional health networks within which both private and public services operate. Investment in healthcare manager competency development therefore constitutes not only an institutional priority but a contribution to the resilience of the broader community health system.

4.5 Strengthening continuous training and competency development infrastructure

The findings highlight the importance of continuous training and competency development infrastructure for healthcare managers. International experience indicates that competency-based training programs grounded in empirically validated competency profiles contribute to improved management practice, enhanced workforce engagement, and downstream effects on quality of care [16, 17, 25, 27]. The implementation of such infrastructure within Brazilian institutional contexts requires investment in training program design, dedicated time for professional development, and institutional recognition of competency development as a core institutional priority.

Strengthening competency development infrastructure carries particular relevance in the post-pandemic phase, in which the operational demands on hospital management have intensified and the workforce challenges affecting hospital sustainability have become more visible. Investment in management competency development, supported by empirically grounded competency profiles, addresses both immediate operational needs and the longer-term resilience of hospital institutions.

4.6 Limitations

Several limitations warrant acknowledgment. First, the study was conducted in a single institutional context, and the resulting competency profile reflects the operational realities of the studied hospital. Generalization to other institutional contexts requires careful consideration of contextual factors, including hospital size, complexity of care, ownership structure, and regional health system characteristics. Second, the convenience sampling approach may have introduced selection bias, with participants potentially differing systematically from non-participants in terms of engagement with management practice and institutional culture. Third, the validation threshold of 85% of maximum score, while supporting analytical robustness, is methodological rather than empirically derived, and alternative thresholds may yield somewhat different competency profiles. Fourth, the study did not include direct observation of management practice or assessment of clinical outcomes associated with manager competency, both of which would strengthen the empirical foundation for the proposed implications. Fifth, the study did not include longitudinal follow-up to assess the effects of competency-based training interventions on management practice and clinical outcomes; such follow-up would substantially strengthen the empirical foundation for competency-based interventions in hospital settings.

5 Conclusion

This mixed-methods empirical study mapped the technical and behavioral competencies required for healthcare manager positions in a large private Brazilian hospital, identifying six core technical knowledge competencies, six core technical skill competencies, and three behavioral competency clusters comprising fourteen component competencies. The integrated competency profile constitutes an empirically grounded reference framework for the design of training programs, performance evaluation systems, and recruitment processes for healthcare manager positions in similar institutional contexts.

The findings carry direct implications for hospital quality management practice, including the design of competency-based training programs, the integration of behavioral assessment into recruitment and performance evaluation processes, and the development of continuous professional development infrastructure that integrates technical and behavioral dimensions of competency. The findings also contribute to the broader community health literature by characterizing the relationship between hospital management competencies and downstream effects on community health outcomes through quality of care, regional health system integration, and the resilience of the broader health infrastructure.

Strengthening healthcare manager competency development is an institutional and community health priority that warrants sustained investment in training infrastructure, performance management practices, and the empirical mapping of competencies that reflect the operational realities of distinct institutional contexts. Future research should extend the methodology to additional institutional contexts, incorporate longitudinal follow-up of competency-based interventions, and assess the relationship between manager competency profiles and measurable clinical and community health outcomes.

Declarations

Clinical trial number Not applicable.

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Competing interests The authors have no relevant financial or non-financial interests to disclose.

Ethics approval This study was conducted in accordance with the ethical standards established by the Brazilian National Health Council Resolution No. 510/2016, which establishes the regulatory framework for research in the human and social sciences in Brazil. The study qualified for formal exemption from review by a Research Ethics Committee under this regulatory framework, on the grounds that it did not generate sensitive data and did not pose more than minimal risk to participants. The exemption was formally determined and documented by the Research Ethics Committee of Pecege (Comitê de Ética em Pesquisa do Pecege; CEP/Pecege), linked to the postgraduate programs of the Luiz de Queiroz College of Agriculture (ESALQ), University of São Paulo, under waiver identifier 3406978443, dated 7 November 2024.

Consent to participate All participants provided informed consent prior to questionnaire administration. Participation was voluntary and anonymous, and participants retained the right to withdraw at any point during questionnaire completion.

Consent to publish Not applicable. The study did not include identifying information of individual participants.

Data availability A structured de-identified dataset containing the questionnaire responses and analytical coding is available from the corresponding author on reasonable request, subject to confidentiality commitments established with the participating institution.

Author contributions Conceptualization: Felipe Gabriel Barbosa de Oliveira, Lucas Henrique De Souza. Methodology: Felipe Gabriel Barbosa de Oliveira, Lucas Henrique De Souza. Data curation and acquisition of data: Felipe Gabriel Barbosa de Oliveira. Formal analysis and investigation: Felipe Gabriel Barbosa de Oliveira, Lucas Henrique De Souza. Writing, original draft preparation: Felipe Gabriel Barbosa de Oliveira. Writing, review and editing: Lucas Henrique De Souza. Supervision: Lucas Henrique De Souza. Both authors read and approved the final manuscript.

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