The American Journal of Medical Sciences and Pharmaceutical Research
ISSN 2689-1026 | Open Access

TYPE Original Research
PAGE NO. 07-14
DOI 10.37547/tajmspr/Volume07Issue07-02

Use of QAPI Methodology for Risk Management in Home Palliative Care

Tatevik Melkumyan
MD Endocrinologist, Radiologist, Armenia,
Owner NT QA INC, Qa consultant for home health and hospices, USA
Los Angeles, California, USA

OPEN ACCESS

SUBMITED 07 June 2025
ACCEPTED 24 June 2025
PUBLISHED 25 July 2025
VOLUME Vol.07 Issue 07 2025

CITATION
Tatevik Melkumyan. (2025). Use of QAPI Methodology for Risk Management in Home Palliative Care. The American Journal of Medical Sciences and Pharmaceutical Research, 7(07), 7–14. https://doi.org/10.37547/tajmspr/Volume07Issue07-02

Abstract: This article presents a theoretical and analytical review of the applicability of the QAPI (Quality Assurance and Performance Improvement) methodology for risk management in home-based palliative care. The study is based on an interdisciplinary approach that integrates systems theory, the Donabedian model, quality of care assessment tools, and digital monitoring algorithms. Particular attention is given to aligning structure, process, and outcome indicators with empirical data on patient needs and organizational barriers specific to outpatient settings. Sources covering patient-centered care, resource constraints, multicultural contexts, and care digitalization are analyzed. Based on regression models and content analysis of the literature, key risks are identified, including emotional burnout, informational deficits, inadequate symptom control, and insufficient spiritual support. A conceptual model for QAPI integration is proposed, which incorporates both technical and humanitarian aspects of quality. The developed framework includes indicators adapted to the context of home care, digital visualization tools, and principles for sustainable implementation under resource constraints. This article will be of interest to researchers in palliative medicine, quality management professionals, outpatient care coordinators, and all those involved in developing and implementing patient-centered systems for evaluating and improving home-based care.

Keywords: QAPI, palliative care, home care, risk management, quality of care, Donabedian model, quality indicators, emotional needs, digital monitoring, outpatient medicine.

Introduction

The contemporary healthcare system is undergoing profound transformation driven by the rising prevalence of chronic disease, population ageing, and shifting priorities in service delivery. Against this backdrop, home-based palliative-care models are gaining traction as clinically effective, economically sound solutions that meet the expectations of patients and their families [1]. Care delivered at home reduces hospital admissions, honours end-of-life preferences, and strengthens family engagement. Scaling such models, however, involves multifaceted risks—from poor coordination across healthcare structures to social, cultural, and informational barriers that are particularly acute in rural and multicultural settings [5].

In efforts to mitigate these risks and safeguard quality, researchers and practitioners have turned their attention to the QAPI methodology. Originally developed as part of a federal initiative to enhance long-term-care facilities, QAPI combines quality control with continuous process improvement, encompassing the identification of critical points, root-cause analysis, and corrective measures. Although widely adopted in institutional settings, its potential in the home-palliative context remains under-explored. Effective adaptation must account for intermittent clinical oversight, cross-functional collaboration, and a substantial share of informal care.

A comprehensive analysis of factors influencing patient needs and risk in home-based palliative care highlights managerial intervention zones. A cross-sectional study from China demonstrated that physical symptoms, emotional status, financial strain, and functional autonomy reliably predict the intensity of palliative needs [7]. These findings provide a foundation for a QAPI model oriented toward proactive risk management and individualised care.

Both scholarly and applied literature show growing interest in developing quality indicators suitable for ambulatory palliative care. A systematic review of 312 unique quality indicators conducted by Kan et al. [6] revealed a pronounced imbalance between technical dimensions (structure and process) and humanistic dimensions (cultural and spiritual care), underscoring the need for a more holistic approach to quality management in the home setting.

The aim of this study is to analyse the applicability of the QAPI methodology for risk management in home-based palliative care. The investigation synthesises current approaches to quality and safety in ambulatory palliative services, identifies common risks, and evaluates QAPI's potential as an instrument for systematic adaptation and sustained improvement.

Materials and Methods

The methodological basis of this theoretical investigation lies at the intersection of a systems approach to quality management, Donabedian's framework, and the QAPI concept, with focus on the specific features of home-based palliative care and associated risk management. The research adopts a theoretical-analytical design intended to interpret existing models and regulations in order to construct a conceptual framework for QAPI-driven risk management in home palliative practice.

The analytical strategy is structured according to international methodological standards PRISMA and AMSTAR, facilitating systematic coverage and critical appraisal of literature published in peer-reviewed outlets. Application of PRISMA principles formalised the stages of source selection and categorisation relevant to QAPI in the context of home palliative care, whereas AMSTAR was employed to assess the validity and methodological rigour of the included studies.

A primary tool for systematising indicators and risks in this study is Donabedian's model, which organises quality metrics into three key categories: structure, process, and outcome. This methodology enables the arrangement of diverse quality indicators into a coherent and comparable framework applicable to evaluating home-based palliative services. In the work of Kan et al. [6], generalised approaches to indicator classification are presented, with emphasis on their distribution across clinical and non-clinical domains of care.

Complementing the content typology, Shalom et al. [9] developed a formalised quality-assessment system based on fuzzy-logic algorithms and principles of automated clinical-data analysis. Such a model allows dynamic monitoring of compliance with established care standards and rapid identification of deviations. In the present analysis, this system is interpreted as a potential risk-monitoring module within the QAPI approach, particularly suited to settings with limited resources and high dependency on human factors.

Contextual validation of the conceptual model is achieved by incorporating data from Haneuse et al. [5], which describes key organisational and infrastructural obstacles to implementing palliative care in remote and rural regions. Focus is placed on factors such as workforce shortages, geographic isolation, and local cultural characteristics that must be considered when developing sustainable quality-improvement strategies. Similarly, Alizadeh et al. [1] proposed a comprehensive home-based palliative-care model for oncology patients, highlighting the necessity of multidisciplinary collaboration, adaptation to local realities, and active family involvement. Additionally, the parameters for evaluating the implementation of improvements—reach, perceived impact, sustainability, and fidelity of intervention—are derived from the work of Toles et al. [10] and integrated as core indicators of QAPI-practice viability in home-care environments.

Thus, the theoretical-analytical model developed in this investigation is based on the alignment of structured indicators, empirical findings, and context-specific data. Systematic extraction and cross-analysis of sources have established a foundation for the concept of QAPI-driven risk management in home-based palliative care, encompassing both clinical and organisational determinants.

Results

At the first stage of analysis, a search strategy was formulated around the concepts of care quality, patient experience, and end-of-life palliative care. The methodological foundation drew on the framework established by Quigley and McCleskey [8], in which key search directions encompassed terms reflecting quality improvement, patient experience, and end-of-life care. The combination of MeSH headings and free-text terms enabled capture of a broad array of studies from 2021–2025 relevant to QAPI in home-based palliative care. The strategy is summarized in Table 1.

Table 1 – Search strategy (Source: [8])

Concept	Medical Subject Headings (MeSH)	Search Terms
Improving quality	Quality improvement	Quality improvement; performance improvement; process improvement; plan-do-study-act; six sigma; learning collaborative; best practices;
Patient and/or caregiver experience	Patient-centered care; patient satisfaction	Patient experience; patient centered care; patient satisfaction; bereaved family; bereaved caregiver
End-of-life care	Hospices; hospice care	Hospices; hospice care; nursing home; assisted living facilities; palliative care; end of life care; end of life experience survey

Application of this strategy yielded key theoretical sources that reflect the particularities of QI approaches in hospice and palliative settings, including quality-assessment instruments, interdisciplinary models, rural-region barriers, and digital care methodologies [2]. Of particular note was the study by Liu et al. [7], which proposed a quantitative model linking quality of life to palliative-care needs. Conducted in China among 440 patients with progressive cancer receiving home care, the authors utilized a modified PNPC-sv scale to assess seven core domains alongside the EORTC QLQ-C30 quality-of-life questionnaire. Multiple regression analysis revealed that physical status, functional limitations, emotional state, and financial difficulties were the principal predictors of heightened palliative-care needs. Key results are presented in Table 2.

Table 2 – Multiple regression analysis of factors influencing home-based palliative care needs (Source: [7])

Factors	Unstandardized coefficients (B)	Standard error (SE)	Standardized coefficients (β)	P	95% CI
Constant	46.623	7.806	–	<0.01	31.278 to 61.968
KPS	–0.302	0.048	–0.367	<0.01	–0.395 to –0.208
Physical functioning	–0.079	0.039	–0.151	0.044	–0.156 to –0.002
Role functioning	–0.116	0.029	–0.250	<0.01	–0.173 to –0.059
Emotional functioning	–0.113	0.031	–0.160	<0.01	–0.174 to –0.051
Nausea/vomiting	0.059	0.025	0.103	0.016	0.011 to 0.107
Pain	0.049	0.025	0.089	0.048	0.000 to 0.098
Sleep disturbances	0.054	0.023	0.095	0.020	0.009 to 0.099
Financial difficulties	0.092	0.021	0.179	<0.01	0.050 to 0.133

The results demonstrate that declines in physical and role functioning, amplification of symptoms, and increasing economic pressures significantly heighten the intensity of palliative-care needs. Financial difficulties are especially notable, serving as predictors of high patient vulnerability.

Analysis of successful and unsuccessful interventions in palliative care requires alignment with the core logic of the QAPI methodology, which comprises four interrelated domains:

- detection of the problem;
- root-cause analysis;
- implementation;
- subsequent review of interventions.

These stages form a closed loop of continuous improvement, ensuring responsive risk management and systemic resilience of changes. Based on a theoretical-analytical literature review, an attempt was made to categorise palliative-care interventions within this model.

At the detection stage, routine clinical data, patient and caregiver complaints, and recurring adverse events typically act as triggers. In their scoping review, Toles et al. [10] systematised the most frequent risk areas in long-term-care facilities—pressure ulcers, falls, and inadequate pain control. However, the authors highlight that only one third of studies provided a clear description of the root-cause analysis logic, impeding the translation of interventions to other contexts. This gap is particularly pronounced in facilities with limited analytical resources, where problems may be recorded but underlying mechanisms remain unrecognised.

When comparing implementation strategies, flexible, context-sensitive approaches consistently outperform rigid, centralised measures. Carpenter et al. [3] show that intervention effectiveness is directly tied to the presence of local “quality champions” and interdisciplinary engagement. For example, integrating family members into daily rounds at hospice facilities markedly improved person-centredness of service and reduced complaint rates. In contrast, Quigley and McCleskey [8] note that interventions lacking local adaptation (such as telemedicine surveys without on-site support) exhibited very low effectiveness and were not perceived as meaningful by staff.

The least developed component of QAPI cycles remains the review of interventions. Toles et al. [10] report that fewer than 20 % of publications included post-intervention monitoring data beyond six months. The absence of a mechanism for revalidation renders even successful initiatives vulnerable to attrition amid organisational turbulence. Underestimation of subjective indicators—patients’ and families’ perceptions of quality—is particularly critical. Carpenter et al. [3] emphasise that without systematic collection of these data, real transformations in care culture cannot be assessed.

Discussion

The analysis of predictors of needs among patients receiving home-based palliative care, as presented by Liu et al. [7], highlights key influencing factors and reveals structural and methodological gaps in existing quality-assessment systems. The data demonstrate strong prognostic value for measures such as functional status (KPS), role and physical functioning, emotional well-being, and financial hardship. However, this model simultaneously exposes systemic limitations of the traditional QI repertoire, particularly regarding subjective and socio-psychological dimensions of care.

The most pronounced association is observed between declining KPS and rising palliative-care needs, which aligns with classical biomedical paradigms. Yet, when factors related to emotional functioning, sleep quality, anxiety, and financial distress are examined, their underrepresentation in current QI systems becomes evident. Specifically, Kan et al. [6] report that of over 300 identified quality indicators in home palliative care, fewer than 3 % address cultural and spiritual dimensions, while indicators capturing emotional burden or financial stress are virtually absent from validated scales. This disconnect between empirically significant predictors and indicator registries points to structural imbalances in assessment frameworks.

Moreover, as noted by Shalom et al. [9], existing formalised QI-evaluation algorithms—including fuzzy-logic–based models—are chiefly oriented toward compliance with clinical protocols and technical metrics. While this focus ensures reproducibility and automation, such models fail to capture the dynamics of caregiver burnout, caregiver anxiety, or patient information deficits. Consequently, an illusion of quality may arise in the absence of sensitive indicators for subjective and social risks.

The findings of the regression analysis [7], together with the content analysis of the literature, indicate that systematic gaps exist both at the structural level (insufficient indicators covering emotional, spiritual, and financial aspects) and at the process level (lack of adapted procedures for gathering and interpreting subjective experiences). Long-term care institutions and ambulatory services are particularly vulnerable, as mechanisms for integrating subjective risks into QAPI cycles are either lacking or fragmentary.

The development of an integrated QAPI model for home-based palliative care requires the combination of standardized indicators, contextual constraints, and digital assessment tools. The methodological foundation was the Donabedian classification—"structure," "process," and "outcome"—as presented by Kan et al. [6], which proposed a unified framework for assessing quality in the home setting. This structure enables the operationalization of both internal care processes and clinical outcomes within a variable context.

A key step in shaping the QAPI model is the alignment of patient needs described by Liu et al. [7] with resource constraints detailed by Haneuse et al. [5]. For example, the 57 % rate of complaints about insufficient information on pain management [7] in typical rural conditions correlates with a lack of educational interventions and staff prepared to deliver them. These intersections form the basis of Table 3, which presents care-related risks, their key predictors, and corresponding QAPI indicators, taking implementation barriers into account.

Table 3 – Comparison of Key Risks, Predictive Factors, and QAPI Indicators (Compiled by the author based on sources: [5], [6], [8])

Type of Risk	Patient Needs / Predictive Factors	QAPI Indicators	Implementation Barriers
Emotional burnout	Decline in emotional functioning	Availability of regular psychological support (process)	Lack of in-house psychologists
Financial constraints	High out-of-pocket expenses, low reimbursement rates	Indicator of financial accessibility to services (outcome)	Incomplete coverage, limited public funding
Informational deficit	Poor knowledge about pain, prognosis, and care routines	Number of educational sessions delivered (process)	Low staff engagement, time constraints
Staffing instability	Limited contact with care providers, home visit inaccessibility	Patient-to-staff ratio (structure)	High turnover, geographic remoteness
Spiritual and cultural neglect	Absence of meaning-making and ethical dialogue	Access to spiritual counselor, cultural adaptation (process)	Lack of training and dedicated roles
Symptom control	Frequent reports of pain, nausea, insomnia	Frequency of symptom assessment tool use (process)	Tool inaccessibility, staff overload

As Table 3 shows, the principal risks faced by home-based patients correspond with their subjective needs and failures in the operationalization of structural and process elements of the system. The absence of routine pain assessment and the underestimation of emotional status point to chronic gaps between regulatory standards and practice, especially in resource-limited settings. Moreover, practical implementation of QAPI indicators requires accessible tools (e.g., visualization platforms described by Elshehaly et al. [4]) and a supportive organizational context, including management backing and sustainable funding.

Conclusion

This study has conceptualized the potential of the QAPI methodology as a tool for systematic risk management in home-based palliative care. It demonstrates that a methodology originally developed for long-term care facilities can be effectively adapted to outpatient settings, taking into account their organizational, cultural, and resource constraints. The theoretical-analytical approach—grounded in Donabedian's structure–process–outcome model, digital quality-assessment algorithms, and analysis of empirical determinants—has enabled the structuring of the problem domain and identification of operationalizable indicators across those three domains.

The findings indicate that integrating QAPI into home palliative practice requires the simultaneous consideration of both clinical parameters and subjective characteristics of care, including patients' emotional states, levels of information, and financial vulnerability. The model's success hinges on its sensitivity to context—staff availability, local infrastructure, the readiness of care teams for multidisciplinary collaboration, and the ability to account for the intangible aspects of the patient experience.

Risk-system analysis revealed that informational and emotional deficits remain dominant, alongside an imbalance between technical and humanistic components of quality. This underscores the need to expand existing models by incorporating adapted procedures for collecting subjective experience data and by enhancing the validity of indicators related to cultural, spiritual, and financial aspects of care.The proposed conceptual QAPI model for home settings demonstrates the feasibility of combining standardized processes with the flexibility needed to respond to individual needs. Its resilience is supported by the digitalization of monitoring procedures, engagement of family and informal caregivers, and a modular design that allows adaptation to local resources and care contexts.

Thus, the QAPI methodology, in its extended and adapted form, serves both as a managerial quality-control instrument and as a foundation for transforming palliative-care culture toward greater personalization, proactivity, and contextual resilience. Future research should focus on empirical validation of the proposed model in field settings, integration of digital platforms into QAPI cycles, and development of indicators that capture the dynamics of subjective and cultural experience in ambulatory palliative care.

References

1. Alizadeh, Z., Rohani, C., Rassouli, M., Ilkhani, M., & Hazrati, M. (2024). Bridging the gap and developing a home-based palliative care model for cancer patients. Asia-Pacific Journal of Oncology Nursing, 11(11), 100583. https://doi.org/10.1016/j.apjon.2024.100583
2. Anghel, I., Cioara, T., Bevilacqua, R., Barbarossa, F., Grimstad, T., Hellman, R., Solberg, A., Boye, L. T., Anchidin, O., Nemes, A., & Gabrielsen, C. (2025). New care pathways for supporting transitional care from hospitals to home using AI and personalized digital assistance. arXiv. https://doi.org/10.48550/arXiv.2504.13877
3. Carpenter, J. G., Lam, K., Ritter, A. Z., & Ersek, M. (2020). A systematic review of nursing home palliative care interventions: Characteristics and outcomes. Journal of the American Medical Directors Association, 21(5), 583–596.e2. https://doi.org/10.1016/j.jamda.2019.11.015
4. Elshehaly, M., Randell, R., Brehmer, M., McVey, L., Alvarado, N., Gale, C. P., & Ruddle, R. A. (2020). QualDash: Adaptable generation of visualisation dashboards for healthcare quality improvement. arXiv. https://doi.org/10.48550/arXiv.2009.03002
5. Haneuse, S., Schrag, D., Dominici, F., Normand, S.-L., & Lee, K. H. (2021). Measuring performance for end-of-life care. arXiv. https://doi.org/10.48550/arXiv.2105.08776

6. Kan, Y., Xiao, Y., Li, Z., Chen, Z., & Yue, P. (2025). Quality indicators for home-based palliative care: A systematic review. Journal of Pain and Symptom Management. Advance online publication. https://doi.org/10.1016/j.jpainsymman.2025.06.011

7. Liu, X., Liu, H., Ying, W., Zhang, Y., Gong, X., & Huang, J. (2025). Identifying palliative home care needs of patients with advanced cancer: A cross-sectional study. Frontiers in Psychiatry, 16. https://doi.org/10.3389/fpsyt.2025.1448973

8. Quigley, D. D., & McCleskey, S. G. (2021). Improving care experiences for patients and caregivers at end of life: A systematic review. American Journal of Hospice and Palliative Medicine®, 38(1), 84–93. https://doi.org/10.1177/1049909120931468

9. Shalom, E., Goldstein, A., Wais, R., Slivanova, M., Melamed Cohen, N., & Shahar, Y. (2024). Implementation and evaluation of a system for assessment of the quality of long-term management of patients at a geriatric hospital. Journal of Biomedical Informatics, 156, 104686. https://doi.org/10.1016/j.jbi.2024.104686

10. Toles, M., Colón-Emeric, C., Moreton, E., Frey, L., & Leeman, J. (2021). Quality improvement studies in nursing homes: A scoping review. BMC Health Services Research, 21(1), 803. https://doi.org/10.1186/s12913-021-06803-8