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Expanding the Role of Oncology Nursing in Low- and Middle-Income Countries: An Urgent Imperative

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Abstract

Cancer disproportionately affects low- and middle-income countries (LMICs), where shortages of oncology specialists and limited system capacity constrain the delivery of comprehensive cancer care. This Perspective argues that expanding oncology nursing roles offers a pragmatic and cost-effective strategy to strengthen cancer care in resource-constrained settings. Oncology nurses contribute across advanced clinical practice, care coordination, psychosocial support, health behavior change, and leadership in research and quality improvement. Evidence increasingly supports nurse-led models as effective in improving continuity of care, symptom management, and patient-centered outcomes, particularly in community-based settings. However, the integration of advanced oncology nursing in many LMICs remains fragmented and under-recognized. We call for systematic incorporation of oncology nursing into national cancer control strategies through standardized competency frameworks, structured education pathways, and regulatory support that enable advanced practice oncology nurses. The coordinated implementation of these measures can create a self-reinforcing system in which regulation, education, universal health coverage integration, and research collectively enable equitable, efficient, and continuously improving oncology care—supporting progress toward SDG3 and ensuring that high-quality cancer care becomes a standard rather than a privilege in LMICs.

Keywords

oncology nursing, LMICs, nurse-led models, cancer control, healthcare workforce, advanced practice nursing

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Introduction

Cancer is a leading cause of death worldwide, second only to cardiovascular diseases. In 2023, an estimated 18.5 million new cancer cases and 10.4 million deaths occurred globally[1]; nearly two-thirds of these deaths were concentrated in low- and middle-income countries (LMICs).[2] Despite bearing the majority of the global cancer burden, LMICs face profound inequities in prevention, diagnosis, and treatment. Up to 60% of cases in these regions are detected at advanced stages,[3] and only 12% of those requiring palliative care actually receive it.[4]

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To advance Sustainable Development Goal 3 (SDG3), the World Health Organization (WHO) identifies workforce optimization as a critical pillar of global cancer control.[5] However, the scarcity of oncology medical specialists in LMICs remains acute; reporting ratios are as lopsided as one oncologist for every 10,000 patients, and several nations lack a single trained clinical oncologist.[6] While the global oncology nursing community advocates for maximizing nursing potential to bridge this gap, nurses in LMICs remain chronically undertrained, overburdened, and underutilized.[7,8] Without structural reform to transition toward multiprofessional task-sharing, the cancer burden and existing health inequities in these resource-constrained settings will inevitably intensify.

In this perspective, we argue that expanding oncology nursing roles offers a pragmatic and scalable strategy to strengthen cancer care delivery, where medical specialist shortages are most severe, particularly in LMICs. To illustrate this potential, we examine the pivotal contributions of oncology nurses across five domains: (1) clinical leadership, driving frontline decision-making and specialized care; (2) care coordination, managing the complex patient journey through fragmented systems; (3) psychosocial support, addressing the emotional and mental health needs of patients and families; (4) mobiling health behavior change and early detection, extending cancer control and prevention from the clinic to community settings; and (5) research and quality improvement, using data to optimize clinical outcomes and safety. While advanced oncology nursing practices exist both in LMICs and high-income countries (HICs), our goal is not merely to catalogue these roles. Instead, we use diverse health system contexts to highlight existing successes in LMICs and identify models that may inform future development of oncology nursing globally. Finally, we call on governments and international bodies to institutionalize standardized competency frameworks, structured education pathways, and enabling regulatory mechanisms within national cancer control strategies to ensure the sustainable expansion of advanced practice oncology nursing.

Clinical Leadership: From Supportive to Autonomous Roles

The role of oncology nurses has evolved substantially from traditional supportive functions toward increasingly autonomous clinical practice. Across many health systems, oncology nurses now contribute to key clinical activities throughout the cancer care continuum, including screening, treatment monitoring, symptom management, and survivorship care.[7] In several LMICs, particularly in settings with limited physician availability, task-sharing models have already enabled nurses to deliver essential cancer prevention services such as cervical cancer screening using visual inspection with acetic acid (VIA) and same-day cryotherapy.[9] In contrast, HICs have further expanded these roles through nurse-led clinics, toxicity management services, and survivorship care programs.[10] Taken together, these experiences illustrate the growing clinical leadership of oncology nurses and suggest that expanding advanced practice roles represents a feasible strategy to strengthen cancer care health systems. Evidence also demonstrates that advanced practice oncology nurses such as Clinical Nurse Specialists (CNSs) and nurse practitioners can improve both patient health outcomes and health system efficiency. For example, Jordan's Clinical Nurse Coordinator (CNC) model improved treatment adherence and reduced mortality, demonstrating how specialized oncology nursing roles can strengthen cancer care delivery in resource-limited settings.[10] These examples underscore that expanding oncology nursing practice is not merely a workforce solution, but a strategy component of strengthening cancer control systems, particularly in LMICs where specialist shortages are most severe.

Comprehensive Care Coordination for Health Systems Impact

Trained oncology nurses enhance clinical care coordination across the cancer continuum—from diagnosis through survivorship and palliative care.[7] As nurse navigators and clinical coordinators, they bridge communication gaps among disciplines, optimize treatment adherence, and proactively manage symptoms and psychosocial concerns.[7,11] These models are proven to reduce waiting times, improve follow-up rates, and significantly alleviate physician workload.[12]

In oncology, the multidisciplinary team (MDT) model is the gold standard, driving higher guideline concordance, staging accuracy, and survival gains.[13] Leading organizations—including ESMO, ASCO, NCCN, and NHS England—now mandate MDT management. Advanced practice oncology nurses strengthen MDTs by leading care coordination and ensuring evidence-based protocols are followed. For example, they can streamline imaging, referrals, and authorizations, reducing time-to-diagnosis and time-to-treatment. Beyond clinical logistics, they facilitate shared decision-making and deliver psycho-education, directly improving treatment adherence and patient satisfaction.

Additionally, nurse-led outreach and telehealth services are indispensable for extending access to screening and education, especially in resource-constrained settings.[8] Programs such as cervical cancer screening utilizing VIA in India demonstrate that nursing autonomy ensures the delivery of timely, life-saving services in underserved areas.[7] Furthermore, where health systems are fragmented, oncology nurses advance health equity by addressing social determinants of health—including transportation barriers, health literacy, and financial barriers. Through culturally responsive navigation and initiatives like the nurse-led Building Relationships to Impact Disparities and Generate Equity (B.R.I.D.G.E.) program[14] in

Detroit, U.S.A., implements targeted clinic and community interventions - such as colorectal cancer screening improvement, transportation support, and opioid overdose prevention training—to dismantle structural barriers and reduce disparities in marginalized populations. Although developed in a high-income country, such models highlight approaches that could inform future community-based oncology care strategies in LMICs.

Psychosocial and Supportive Care: Addressing the Hidden Burden

Psychosocial and supportive care are foundational to oncology nursing, addressing the often-overlooked emotional and social dimensions of the cancer experience. While biomedical treatments focus on the physiological alleviation of the disease, the human cost of cancer remains immense. A significant proportion of patients suffer from profound psychological distress, including anxiety, depression, and fear of recurrence—issues that, if left unaddressed, can lead to poor treatment adherence and diminished clinical outcomes.[15] In LMICs, this burden is compounded by financial toxicity—the devastating economic impact of out-of-pocket costs for treatment, transportation, and lost wages. Furthermore, this burden extends to caregivers, who act as the "invisible workforce" of cancer care. In the absence of home-care systems in many LMICs, caregivers face substantial emotional and physical strain, often managing complex medical tasks with little to no training.[16]

Oncology nurses mitigate this "hidden" burden through person-centered care, transitioning the focus from pathology to the lived experience of the individual. Nurse-led psychosocial interventions—including telephone-based counseling,[7] structured programs based on cognitive behavioral therapy (CBT),[15] and survivorship care plans[17]—have proven effective in reducing distress, improving resilience, and enhance quality of life for patients and caregivers. Furthermore, when integrated with palliative care expertise, oncology nurses can promote more compassionate and holistic care, ensuring that emotional, spiritual, and physical suffering are managed as clinical priorities rather than elective services, bridging existing systemic gaps in cancer supportive care in LMICs.[18]

From Clinic to Community: Mobilizing Health Behavior Change and Early Detection

Oncology nurses are strategically positioned to drive health behavior change, addressing modifiable risk factors that account for a significant proportion of the global cancer burden. Utilizing motivational interviewing, individualized goal setting, and continuous clinical support, nurse-led interventions foster robust self-management in physical activity, nutrition, and smoking cessation. For example, intensive nurse-led smoking cessation interventions[19] achieved long-term abstinence rates exceeding 35%, while tailored programs like Tai Chi for breast cancer survivors improved emotional balance and physical function.[20]

Oncology nurses also play an important role in promoting participation in cancer screening programs, particularly among individuals at elevated risk. Through patient and family education, nurses can encourage first-degree relatives of patients with hereditary or familial cancers such as breast or colorectal cancer to seek appropriate risk assessment and participate in recommended screening programs. Evidence from systematic reviews indicates that nurse-led interventions significantly improve early cancer detection and screening uptake in diverse healthcare settings.[9]

Beyond individual coaching, nurses are instrumental in dismantling the structural and social barriers that impede behavior change. Through nurse-led community peer-support models, such as those successfully implemented for cervical cancer screening and HPV education, nurses translate clinical guidelines into culturally resonant health actions.[7,14] These initiatives empower nurses to lead "train-the-trainer" programs that mobilize local health workers, creating a sustainable architecture for secondary prevention. By bridging the gap between specialized clinical knowledge and community-level resources, oncology nurses ensure that behavioral health is a sustained and equitable component of the cancer care continuum.

Research and Quality Improvement: Generating Evidence for Learning Health Systems

As oncology care grows complex and multidisciplinary, nurses have emerged as essential drivers of evidence-based innovation and improved patient outcomes. While this evolution is globally divergent—with LMICs only establishing oncology as a specialty in recent decades—contemporary scholarship marks a critical shift: nurses are moving beyond roles as data collectors and research assistants to become principal investigators who secure funding, lead multidisciplinary teams, and publish in high-impact journals.[21,22] In the clinical trial environment, oncology nurses provide the crucial link between research protocols and patient safety; they serve as study coordinators who manage complex therapies, assess adverse events, and monitor toxicities within their specialized scope of practice.[23] In resource-limited settings, this dual expertise is vital.

Despite systemic barriers—including lack of training, mentorship, and funding— nurse-researchers in LMICs demonstrate remarkable resourcefulness and resilience by focusing on pragmatic, high-impact questions that directly address local challenges.[24] Most nurse-led research initiatives are highly cost-effective, often requiring investments of less than

$200,000 USD.[25] By supporting this workforce, health systems can transition from service delivery into learning health systems, where local innovation ensures that cancer care in LMICs consistently meets international standards of excellence.

Conclusion and Recommendations

The evidence is definitive: expanding the role of oncology nursing is a strategic necessity for advancing global cancer control and prevention, and achieving SDG3. In the face of a rising global cancer burden, oncology nurses have proven to be the most pragmatic and scalable resource for transforming cancer care delivery in LMICs. By integrating clinical leadership, care coordination, psychosocial support, health behavior change, and research-driven quality improvement, the nursing workforce serves as the primary engine for health equity and system resilience. Health systems must move beyond ad hoc projects for oncology nurses, and work toward institutionalizing nurse-led models as integral components of national cancer strategies.

National and regional nursing societies have established rigorous competency frameworks that define the specialized knowledge, clinical skills, and professional attributes required for advanced oncology practice. These frameworks—such as those by the European Oncology Nursing Society (EONS) and the Canadian Association of Nurses in Oncology—provide the structural foundation for standardized education, scope-of-practice delineation, and workforce development.[26]

Within a global context, the International Council of Nurses (ICN) provides a unifying framework positions oncology nurses as key decision-makers, emphasizing advanced clinical reasoning, coordination of interdisciplinary care, and leadership in complex environments.[27] Japan provides a pragmatic example of operationalizing these principles: through its Basic Plan to Promote Cancer Control Programs, certified nurse specialists (CNSs) practice within nationally defined scopes; the CNSs' independent practice and organizational support are directly associated with increased role effectiveness and job satisfaction.[28]

To close the global equity gap, LMICs must align with ICN and EONS recommendations by investing in specialist education and establishing regulatory pathways for advanced practice, with adequate supportive education systems and career structures to promote oncology nurses to innovate.

We suggest a systematic approach centered on four pillars: regulatory frameworks, education and workforce development, integration within universal health coverage, and oncology nursing research. Together, these elements position oncology nursing as a cornerstone of equitable, efficient, and sustainable cancer care.

First, strengthening regulatory frameworks is essential to enable oncology nurses to practice to the full extent of their competencies. Ministries of Health should formally recognize oncology nursing as a specialized discipline and establish clear national scope-of-practice standards.[29] This includes removing regulatory barriers to independent and collaborative practice and implementing task-sharing policies[22] to optimize workforce capacity, such as authorizing trained nurses to provide precancerous screening and selected cliniccal procedures.

Second, Ministries of Health and Education should invest in oncology nursing education as the foundation of sustainable nurse-led models. Core oncology content[30] should be embedded in pre-service training, complemented by postgraduate programs. Building in-country faculty through train-the-trainer approaches and leveraging international twinning programs can strengthen capacity. Furthermore, the establishment of clinical career ladders is critical to provide pathways for professional advancement, linking advanced education to increased clinical responsibility and ensuring long-term retention of specialized talent.

Third, integrating nurse-led models into Universal Health Coverage (UHC) strategies is essential to advance equity and access. Oncology nurses must be recognized as a core workforce within national cancer and noncommunicable diseases (NCDs) strategies, supported by sustained financing for education, fair remuneration, and safe nurse-to-patient ratios in order to promote care quality and occupational safety.

Finally, strengthening oncology nursing research is essential to demonstrate the clinical and economic value of nurse-led models. Research should focus on clinical outcomes, cost-effectiveness, and quality of life.[22] to scale care sustainably. Supporting nurses' engagement in epidemiological studies, clinical trials, implementation science, and translational research —alongside building research capacity from study design to publication and evidence-based practice—is critical for sustaining and scaling nurse-led oncology care.

The coordinated implementation of these recommendations creates a self-reinforcing system: regulatory frameworks provide the foundation, education supplies the core capacity, integration within UHC ensures equitable and efficient operation, and research offers mechanisms for continuous monitoring and improvement. By strengthening and institutionalizing these expanded oncology nursing roles, health systems can move beyond mere survival rates toward the SDG3 targets, ensuring that high-quality oncology care is a standard rather than a privilege in LMICs.

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