

Nurse-Led Community-Based Prevention and Management of Non-Communicable Diseases: A Medical-Surgical Nursing Perspective

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Abstract

Background: Non-communicable diseases (NCDs), chiefly cardiovascular disease, diabetes, cancers and chronic respiratory disease, are the leading cause of death and disability worldwide, and their burden is rising fastest in low- and middle-income countries. Health systems that are organised around episodic, hospital-centred care are poorly suited to conditions that require lifelong prevention, monitoring and self-management. Nurses are the largest component of the health workforce and are well placed to lead community-based NCD care, yet their contribution is often described in general terms and is rarely examined from a medical-surgical nursing perspective.

Objective: To synthesise evidence on nurse-led and nurse-supported community-based interventions for the prevention and management of major NCDs, and to interpret that evidence through the lens of medical-surgical nursing, which connects acute hospital care with the community.

Methods: A structured narrative review was undertaken. Landmark trials, systematic reviews, global burden estimates, and policy documents addressing nurse-led, task-shared or community-based NCD care were identified, appraised for relevance and credibility, and synthesised thematically.

Results: Evidence indicates that nurses can deliver effective community-based care across the NCD continuum. Nurse-led and task-shared models achieve blood pressure control comparable to, and in some trials better than, physician-only care. Structured lifestyle programmes substantially reduce progression from prediabetes to type 2 diabetes, and self-management education improves glycaemic control. Nursing cessation support modestly increases tobacco abstinence. Transitional care models led by nurses reduce readmission among patients discharged after acute illness or surgery. Persistent barriers include workforce shortages, fragmented referral pathways, limited health literacy among patients, weak information systems, and restricted scope of practice.

Conclusions: A medical-surgical nursing perspective strengthens the case for an integrated hospital-to-community continuum in which nurses identify risk during acute episodes, provide structured transitions, and sustain prevention and chronic disease management in the community. Investment in nurse education, supportive regulation, digital tools, and team-based protocols is essential to realise this potential.

Keywords: non-communicable diseases; community health nursing; medical-surgical nursing; nurse-led care; prevention; chronic disease management; transitional care; task sharing

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Introduction

Non-communicable diseases have become the dominant health challenge of the twenty-first century. The World Health Organization estimates that NCDs are responsible for more than 41 million deaths each year, equivalent to roughly three of every four deaths globally, and that about 17 million of these deaths occur before the age of 70 years, the

great majority in low- and middle-income countries (World Health Organization, 2023a). Four disease groups account for most of this mortality: cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. The Global Burden of Disease Study 2019 documented that, over three decades, the leading causes of disease burden shifted decisively

from infectious, maternal and neonatal conditions to chronic conditions, with ischaemic heart disease, stroke, chronic obstructive pulmonary disease, and diabetes occupying prominent positions among causes of death and disability (Vos et al., 2020).

The scale of individual disease burdens is considerable. Global estimates indicate that the number of people living with cardiovascular disease nearly doubled between 1990 and 2019, and that cardiovascular conditions caused approximately 18.6 million deaths in 2019 (Roth et al., 2020). Cancer added an estimated 19.3 million new cases and almost 10 million deaths in 2020 (Sung et al., 2021). Chronic obstructive pulmonary disease affects hundreds of millions of people, with a pooled global prevalence estimate of about 11.7% among adults aged 30 years and older in 2010 (Adeloye et al., 2015). The International Diabetes Federation estimated that 536.6 million adults were living with diabetes in 2021 and projected that the figure would reach 783.2 million by 2045, with the largest increases expected in low- and middle-income settings (Sun et al., 2022). Hypertension, the principal modifiable risk factor for cardiovascular disease, was estimated to affect nearly one-third of adults worldwide, with a higher burden in low- and middle-income countries where awareness, treatment and control are weakest (Mills et al., 2016).

India illustrates the challenge clearly. Cardiovascular disease is now the leading cause of death in the country, and its burden occurs at younger ages and in more socially diverse populations than in many high-income countries (Prabhakaran et al., 2016). The ICMR-INDIAB study, which surveyed 15 states, reported an overall diabetes prevalence of 7.3% and prediabetes prevalence of 10.3%, with wide variation between and within states and evidence of rapid transition in less developed regions (Anjana et al., 2017). These patterns reflect urbanisation, dietary change, physical inactivity, tobacco and alcohol use, air pollution, and ageing populations, combined with health systems that were designed primarily for acute and infectious illness. In a state such as Rajasthan, where large rural and semi-urban populations live at a distance from tertiary hospitals, this mismatch is especially visible: many people with hypertension or diabetes are first diagnosed during a complication, and long-term follow-up is irregular.

Because NCDs are chronic, largely preventable, and strongly influenced by behaviour and social conditions, effective control depends on action far beyond the hospital. Prevention requires population-wide measures and individual-level risk reduction, while management requires early detection, continuity, patient education, and regular monitoring. Beaglehole and colleagues argued that a small set of cost-effective interventions, delivered

through primary health care, could prevent a very large number of premature deaths if implemented at scale (Beaglehole et al., 2011). The WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases set a target of a 25% relative reduction in premature mortality from the four major NCDs, and called for strengthening primary care, health workforce capacity, and community engagement (World Health Organization, 2013).

Nurses are central to this agenda. The *State of the World's Nursing 2020* report estimated that nurses number approximately 27.9 million globally and constitute nearly 60% of all health professionals, but also identified a worldwide shortage of almost six million nurses, concentrated in low- and middle-income countries (World Health Organization, 2020a). Nurses work in homes, schools, workplaces, primary health centres, outpatient clinics, and hospital wards. They therefore meet people at every point along the continuum from health to illness and recovery. Despite this reach, the role of the nurse in NCD control is frequently described narrowly, as an assistant to physician-led care rather than as a leader of prevention and chronic disease management.

Medical-surgical nursing offers a distinctive vantage point. Medical-surgical nurses care for adults with acute exacerbations of chronic conditions, with complications of poorly controlled disease, and with surgical needs that arise from NCDs, such as coronary revascularisation, amputation, cancer resection, and vascular surgery. They observe at close quarters what happens when prevention and community management fail: the patient admitted with a hypertensive emergency who stopped medication months ago, the person with diabetes who presents with an infected foot ulcer, or the patient with lung cancer whose smoking history was never addressed. At the same time, they hold a unique opportunity to turn admission into a teachable moment, to initiate secondary prevention, and to prepare patients and families for safe return to the community.

This article therefore examines the contribution of nurse-led community-based prevention and management of NCDs from a medical-surgical nursing perspective. It aims to (1) describe the conceptual basis for nurse-led NCD care; (2) synthesise evidence for nurse-led and nurse-supported interventions in hypertension, diabetes, chronic respiratory disease, cancer, and multimorbidity; (3) analyse the role of medical-surgical nurses in linking hospital and community care; and (4) identify implications for practice, education, policy, and research.

Conceptual and Theoretical Background

Levels of prevention and the nursing role

Public health practice distinguishes primary prevention (preventing disease onset), secondary prevention (early detection and prompt treatment),

and tertiary prevention (limiting disability and recurrence in established disease). Nursing contributes at each level. In primary prevention, community nurses promote healthy diets, physical activity, tobacco avoidance, and reduced alcohol use, and deliver immunisation and screening invitations. In secondary prevention, they measure blood pressure, capillary glucose, body mass index, and peak flow, apply risk charts, and arrange referral. In tertiary prevention, they support medication adherence, monitor complications, provide wound and foot care, coordinate rehabilitation, and provide palliative support. Medical-surgical nursing is concentrated at the secondary and tertiary levels, but its practitioners also participate in primary prevention whenever they counsel families, address risk behaviours in hospital, or contribute to community health education.

The chronic care model and self-management

Traditional acute care is reactive, brief, and clinician-directed. Chronic illness requires a different design. Wagner's chronic care model emphasised an informed and activated patient interacting with a prepared, proactive practice team, supported by decision support, clinical information systems, delivery system redesign, self-management support, and community resources (Wagner, 1998). Patient self-management is a cornerstone of this model. Bodenheimer and colleagues described self-management as more than didactic education: it requires collaborative goal-setting, problem-solving skills, confidence building, and regular follow-up, and evidence suggests that programmes with these features improve outcomes in conditions such as diabetes, asthma, and hypertension (Bodenheimer et al., 2002). Nurses are well suited to deliver this form of support because their training emphasises communication, holistic assessment, and continuity of relationship.

Nurse-led care and task sharing

Nurse-led care refers to models in which a nurse has primary responsibility for assessment, planning, delivery, and evaluation of care for a defined population, working within agreed protocols and with access to medical consultation. Task sharing, sometimes called task shifting, redistributes specific clinical functions from physicians to nurses or community health workers to expand access and use scarce expertise efficiently. A Cochrane review of 18 studies concluded that, in primary care, appropriately trained nurses can provide care with outcomes that are at least comparable to those of doctors for several indicators, including patient satisfaction and certain clinical outcomes, although evidence on resource use and consultation length was less certain (Laurant et al., 2018). A meta-analysis of physician-nurse substitution studies reported that nurse-led care was associated with similar or better results for some clinical parameters in chronic disease, including blood pressure and

glycaemic control, depending on the context and intervention intensity (Martínez-González et al., 2014). These findings support the proposition that nurse-led care is not a second-best substitute but a legitimate and often effective model.

Essential NCD packages for primary care

The WHO Package of Essential Noncommunicable Disease Interventions (PEN) was developed to enable primary health care teams in resource-limited settings to assess and manage cardiovascular risk, diabetes, chronic respiratory disease, and cancer risk using simple protocols, basic equipment, and generic medicines (World Health Organization, 2020b). The package is explicitly designed for delivery by trained non-physician health workers, including nurses, with referral for complicated cases. Its emphasis on risk-based, integrated management, rather than disease-by-disease silos, aligns closely with how nurses actually encounter patients, most of whom have more than one risk factor or condition.

The medical-surgical nursing perspective

Medical-surgical nursing is defined by the care of adult patients with a broad range of acute and chronic medical and surgical conditions. Core competencies include systematic assessment, early recognition of deterioration, medication safety, pain management, wound and drain care, fluid and electrolyte management, nutrition, mobility, patient teaching, and discharge planning. Seen through this lens, an episode of hospital care is neither an isolated event nor the endpoint of an NCD journey; it is a punctuation mark in a long trajectory that begins with unrecognised risk and continues after discharge. A medical-surgical perspective therefore stresses three ideas that shape the remainder of this review: first, that hospital admission is an opportunity to identify and address risk; second, that the quality of transition from ward to community is a determinant of long-term outcomes; and third, that community nursing and hospital nursing must function as parts of a single continuum rather than as separate professions.

Methods

Review design

A structured narrative review was selected because the topic spans several disease groups, multiple care settings, and diverse intervention types, which makes quantitative pooling inappropriate. Narrative synthesis allows integration of epidemiological data, trial evidence, systematic reviews, and policy frameworks, and is suited to developing a conceptual argument about the role of medical-surgical nursing within community NCD care.

Scope and sources

The review focused on literature addressing four questions: (a) the burden and risk profile of major NCDs; (b) the effectiveness of nurse-led, nurse-supported, or task-shared community interventions; (c) the role of nursing in the transition from acute

care to home; and (d) the organisational barriers and enablers of nurse-led NCD care. Priority was given to high-quality syntheses and to studies conducted in low- and middle-income settings, including South Asia, because these contexts are most relevant to the authors' setting.

Selection and appraisal

Publications were considered if they addressed adults with, or at risk of, hypertension, cardiovascular disease, diabetes, chronic respiratory disease, or cancer; evaluated or described a nurse-led, nurse-supported, or community-based intervention, or provided essential epidemiological or policy context; and were published in English. Study design, setting, population, intervention components, comparator, outcomes, and risk of bias were considered when judging the weight to be given to each source. Randomised trials and systematic reviews were privileged over observational or descriptive reports when making statements about effectiveness. Because trials often involved community health workers or mixed teams rather than nurses alone, the review distinguishes between nurse-led interventions and broader task-sharing approaches, and treats evidence from the latter as indirectly relevant to nursing.

Synthesis

Findings were organised thematically by disease area and by function (prevention, detection, management, transition). Convergent findings across studies were highlighted, and conflicting or context-dependent evidence was noted. The medical-surgical perspective was applied as an interpretive framework: for each domain, the review asked what medical-surgical nurses observe in hospital, which opportunities they have to intervene, and how their work connects to community care.

Ethical considerations

This review used published literature and did not involve human participants or primary data collection; formal ethical approval was therefore not required.

Findings

The scope of nurse-led community NCD care

Across the literature, nurse-led community NCD care takes several recognisable forms. The first is **screening and risk assessment**, in which nurses measure blood pressure, glucose, anthropometry, and tobacco and alcohol use in households, camps, workplaces, and health centres, and estimate cardiovascular risk. The second is **protocol-based clinical management**, in which nurses initiate or adjust treatment within standing orders, supported by remote or on-site physician oversight. The third is **education and behavioural support**, including individual counselling, group sessions, and telephone or digital follow-up. The fourth is **care coordination**, which includes referral, tracking of defaulters, medicine supply, and linking social support to clinical care. The fifth is **transitional and**

post-acute care, including home visits after hospital discharge. Table 1 summarises representative evidence discussed in the sections that follow.

Table 1. Representative evidence on nurse-led, task-shared, and community-based NCD interventions

Domain	Evidence source	Setting	Nursing or health-worker role	Principal finding
Primary care substitution	Laurant et al., 2018	Mainly high-income primary care	Nurses as first-contact or follow-up providers	Comparable outcomes and satisfaction for several indicators
Hypertension task sharing	Anand et al., 2019	Low- and middle-income countries	Non-physician health workers	Greater blood pressure reduction than usual care
Hypertension, lifestyle	Neupane et al., 2018	Rural Nepal	Female community health volunteers	Modest but significant systolic blood pressure reduction
Hypertension, community	Jafar et al., 2020	Bangladesh, Pakistan, Sri Lanka	Home health education, trained providers	Greater blood pressure reduction than usual care
Cardiovascular risk	Schwalbe et al., 2019	Colombia, Malaysia	Community health workers with protocolised treatment	Greater reductions in blood pressure and cardiovascular risk

Domain	Evidence source	Setting	Nursing or health-worker role	Principal finding
Diabetes prevention	Knowler et al., 2002	United States	Trained lifestyle coaches	58% relative reduction in incidence
Diabetes prevention	Ramachandran et al., 2006	India	Lifestyle counselling and follow-up	About 28% relative risk reduction
Diabetes self-management	Norris et al., 2002	Meta-analysis	Educators including nurses	Improved glycaemic control in the short term
Tobacco cessation	Rice et al., 2017	Multiple	Nurse-delivered advice and support	Modestly increased quit rates
Transitional care	Coleman et al., 2006	United States	Transition coach	Reduced rehospitalisation
Discharge planning	Naylor et al., 1999	United States	Advanced practice nurses	Fewer readmissions in older adults

Hypertension and cardiovascular risk

Hypertension is the clearest example of a condition in which community nursing can make a measurable difference. Global data show that treatment and control remain poor. A pooled analysis of population-representative studies estimated that the number of adults aged 30 to 79 years with hypertension doubled between 1990 and 2019, reaching more than 1.2 billion people, and that only about one in five had their blood pressure controlled by 2019 (NCD Risk Factor Collaboration, 2021). The WHO Global Report on Hypertension similarly estimated that nearly half of those with hypertension were unaware of their condition, fewer than half received treatment, and roughly one in five achieved

control (World Health Organization, 2023b). Gaps of this magnitude cannot be closed by physician-led care alone, since the number of physicians in many settings is far below what is needed to follow every patient at regular intervals.

Task-sharing studies address this problem directly. A systematic review and meta-analysis of interventions in low- and middle-income countries found that models in which non-physician health workers, including nurses, took responsibility for blood pressure management produced greater reductions in blood pressure than usual care (Anand et al., 2019). The effect was most evident where health workers followed treatment protocols, could initiate or titrate medication under supervision, and received structured training.

Individual trials add detail. In rural Nepal, the COBIN cluster-randomised trial tested a lifestyle intervention delivered by female community health volunteers, comprising home visits, health education, and encouragement to seek treatment, and reported a modest but significant reduction in systolic blood pressure at 24 months compared with usual care (Neupane et al., 2018). Although the effect size was small at the individual level, it is meaningful at population level, and the intervention was low-cost and scalable. In rural Bangladesh, Pakistan, and Sri Lanka, a multicomponent community intervention combining home health education by trained health workers, training of local physicians, and provision of a clinical decision support tool produced a significantly greater fall in systolic blood pressure than usual care (Jafar et al., 2020). The HOPE 4 trial, conducted in Colombia and Malaysia, evaluated a comprehensive programme in which community health workers measured risk factors, promoted healthy behaviours, and supported adherence, while protocol-driven treatment was supervised by physicians or nurses; it demonstrated larger reductions in blood pressure and cardiovascular risk scores than usual care (Schwalm et al., 2019).

Taken together, these studies indicate that community-based hypertension control works best when it combines four elements: structured outreach, simple treatment protocols, reliable medicine supply, and regular follow-up with feedback. Nurses are well suited to coordinate these components. Current guidelines also supply the clinical anchor for such protocols; the 2017 American College of Cardiology and American Heart Association guideline emphasised accurate measurement, out-of-office monitoring, lifestyle modification as the foundation for all patients, and team-based care involving nurses and pharmacists as a means of improving control (Whelton et al., 2018). From a medical-surgical perspective, the relevance is immediate. Patients who are admitted with stroke, heart failure, hypertensive emergency, acute coronary syndrome, or kidney injury frequently

have a prior history of undiagnosed or inadequately treated hypertension. A nurse on a general medical ward is often the first professional to take repeated blood pressure readings in a calm setting, to explore reasons for non-adherence such as cost, side effects, beliefs about medicines, or lack of symptoms, and to offer teaching before discharge. If this knowledge is communicated to the community nurse, a seamless pathway to follow-up becomes possible; if it is not, the patient returns to the same cycle of lapses that produced the admission.

Diabetes and prediabetes

Diabetes care is among the most nurse-intensive areas of chronic disease management. Prevention evidence is especially strong. In the Diabetes Prevention Program, an intensive lifestyle intervention aimed at at least 7% weight loss and 150 minutes of physical activity per week among adults with impaired glucose tolerance reduced the incidence of type 2 diabetes by 58% over about three years, compared with 31% for metformin (Knowler et al., 2002). The Indian Diabetes Prevention Programme extended this logic to a South Asian population and found relative risk reductions of approximately 28.5% with lifestyle modification, 26.4% with metformin, and 28.2% with the combination, in participants who were leaner and younger than those in Western trials (Ramachandran et al., 2006). These findings are important because they demonstrate that a structured, repeated-contact programme can alter the course of diabetes development even in lower-resource environments and in populations with different phenotypic risk.

For people with established diabetes, self-management education is the core nursing intervention. A meta-analysis of randomised and non-randomised studies found that self-management education improved glycaemic control compared with usual care, though the benefit declined within one to three months after the intervention ended, which implies that continuing contact is needed to sustain effects (Norris et al., 2002). Lorig and Holman likewise argued that self-management education works through mechanisms such as improved self-efficacy, problem-solving, and decision-making, rather than knowledge transfer alone (Lorig and Holman, 2003). In practice, the community nurse's role includes teaching glucose monitoring and insulin administration, reviewing diet and activity plans with attention to local foods and cultural practices, screening for retinopathy, nephropathy, and neuropathy, examining feet, and recognising early signs of hypoglycaemia and hyperglycaemic emergencies.

The medical-surgical dimension is visible in the diabetic foot. Foot ulceration, infection, and amputation are among the most feared complications, and they often result from simple failures of prevention: loss of protective sensation that is never tested, footwear that is unsuitable, or

minor injuries that are not noticed. Medical-surgical nurses who manage infected ulcers, debridement, and post-amputation care understand the human and economic consequences at first hand. They are in a strong position to teach foot inspection, to demonstrate appropriate footwear and nail care, to communicate with community nurses about wound management, and to ensure that high-risk patients are placed on a regular foot-check schedule after discharge. The same logic applies to insulin technique, hypoglycaemia recognition, and sick-day rules, which are commonly taught poorly during short admissions.

Chronic respiratory disease and tobacco control

Chronic obstructive pulmonary disease and asthma impose a large burden that is amplified by tobacco smoking, household biomass fuel use, occupational dust exposure, and ambient air pollution (Adeloye et al., 2015). In India, where cooking with solid fuels remains common in many rural households, women and children are disproportionately exposed. Community nurses can identify symptomatic individuals through simple questionnaires and peak flow measurement, support inhaler technique, encourage vaccination, promote cleaner cooking, and teach recognition of exacerbations.

Tobacco cessation illustrates the particular value of nursing contact. A Cochrane review of nursing interventions for smoking cessation found that advice and counselling from nurses modestly increased the likelihood that smokers would quit, with effects seen in both hospital and community settings (Rice et al., 2017). Although the absolute effect per contact is small, nurses see very large numbers of tobacco users; therefore, systematic brief advice delivered at every encounter has substantial aggregate impact. For medical-surgical nurses, the admission is a powerful moment: many patients are unable to smoke during their stay, they may be experiencing a health scare, and they are receptive to counselling. Nicotine replacement, referral to quitlines or community cessation support, and follow-up contact after discharge extend the benefit.

Patients with advanced chronic respiratory disease also require palliative and rehabilitative care. Pulmonary rehabilitation, oxygen therapy management, breathlessness strategies, nutritional support, and carer education are largely nursing-led activities. The medical-surgical nurse who cares for the patient repeatedly admitted with exacerbations can recognise patterns, such as poor inhaler technique, inadequate home support, or unrecognised depression, that a single episode would not reveal.

Cancer prevention, detection and survivorship

Cancer is a diverse group of diseases, but nursing contributions share common themes. In primary prevention, nurses promote tobacco control, vaccination against hepatitis B and human

papillomavirus, healthy diet and activity, and reduced alcohol and tobacco use. In secondary prevention, they raise awareness of warning signs, perform or facilitate screening for cervical, breast, and oral cancers, and navigate people through diagnostic pathways. The global cancer burden documented in 2020, with breast, lung, colorectal, prostate, and stomach cancers among the most common, underscores the scale of the need (Sung et al., 2021). In many low-resource settings, most cancers are diagnosed at advanced stages, in part because screening is limited and symptoms are not recognised, or because patients delay attendance owing to cost, fear, or stigma.

Medical-surgical nurses care for patients undergoing resection, chemotherapy, and radiotherapy, and manage complications such as neutropenia, mucositis, lymphoedema, pain, malnutrition, and stoma-related issues. Their role in survivorship begins before discharge: teaching wound and stoma care, symptom monitoring, nutritional adaptation, and when to seek urgent help. Community nurses extend this role through home visits, symptom control, psychosocial support, and, where needed, palliative care. Because cancer survivors are at elevated risk of cardiovascular disease and diabetes, survivorship care also overlaps with other NCD domains, reinforcing the need for integrated care rather than disease-specific silos.

Health literacy, communication and the social context

Whatever the disease, nursing effectiveness depends on whether patients can understand and act on information. A systematic review of health literacy and outcomes found that low health literacy was associated with more hospitalisations, greater use of emergency care, lower uptake of preventive services, poorer ability to take medications correctly, and worse overall health status, and in older adults, higher mortality (Berkman et al., 2011). In communities with limited formal education, linguistic diversity, and strong traditional health beliefs, the implications are considerable. A patient who does not understand why a blood pressure tablet must be taken when there are no symptoms, or who believes that insulin is a last resort that causes harm, is unlikely to adhere regardless of how good the prescription is.

Nurses address this through communication methods that are practical rather than theoretical. These include teach-back, in which the patient explains the instructions in their own words; use of pictorial aids and local-language materials; involvement of family members, who often prepare food and manage medicines; and reinforcement across repeated visits. Community-based nurses are also positioned to recognise social determinants: food insecurity, cost of medicines, distance to facilities, gender norms that limit women's mobility, and unsafe working conditions. These factors often

explain why technically sound plans fail. A nurse who understands that a daily-wage labourer cannot attend a weekday clinic may negotiate evening or weekend contact, home delivery of medicines, or longer prescriptions, thereby converting a theoretical regimen into a feasible one.

Multimorbidity and person-centred care

Most adults with one NCD have others. Large population data from Scotland showed that multimorbidity was the norm rather than the exception among adults in later life, that it occurred 10 to 15 years earlier in the most deprived groups than in the least deprived, and that physical and mental health conditions were frequently combined (Barnett et al., 2012). Single-disease guidelines and clinic pathways are poorly suited to such patients, who can be faced with multiple appointments, conflicting advice, and polypharmacy.

A Cochrane review of interventions for people with multimorbidity in primary care and community settings found that organisational interventions, such as care coordination and case management, and patient-oriented interventions, such as self-management support, had inconsistent effects on clinical outcomes; there were some improvements in outcomes such as medication adherence and mental health when interventions were targeted at specific risk factors or functional difficulties, but the overall certainty of evidence was low (Smith et al., 2021). The implication for nursing is that generic add-on programmes are insufficient. Effective approaches appear to require a clear definition of patient priorities, a single point of coordination, review of medicines, and attention to mental health and function, which are the strengths of nursing assessment. Medical-surgical nurses are familiar with complex patients with heart failure, diabetes, chronic kidney disease, and depression, and they understand how interacting conditions complicate care. This experience can inform community protocols that are person-centred and not disease-centred.

The medical-surgical interface: from ward to community

Admission as a window for prevention

The hospital admission is often described as a failure of community care, but it is equally a window of opportunity. Patients are monitored closely, laboratory and imaging data are available, and many are motivated by recent illness. Medical-surgical nurses can use this window to complete risk assessments (blood pressure, glucose, tobacco and alcohol use, nutrition, mobility, mood), reconcile medicines, identify gaps in understanding, and initiate education. Opportunistic secondary prevention, such as ensuring that a patient with myocardial infarction leaves with appropriate medicines, cardiac rehabilitation advice, and smoking cessation support, is a core nursing contribution to NCD control.

Perioperative care and chronic disease

Surgical patients with NCDs bring additional risk. Hypertension, diabetes, chronic lung disease, obesity, and cardiovascular disease each increase perioperative complications, and many people discover these conditions only when preoperative screening is performed. Contemporary perioperative care emphasises multimodal strategies to reduce the physiological stress response, including optimised analgesia, early mobilisation, early feeding, and minimising unnecessary fasting and drains, with the goal of faster recovery and fewer complications (Kehlet and Wilmore, 2002). Nurses implement most of these elements at the bedside. They also carry out preoperative optimisation, for example by improving glycaemic control, supporting smoking cessation before elective surgery, teaching breathing exercises and early mobilisation, and clarifying expectations about recovery. After surgery, the nurse's attention to glucose monitoring, blood pressure, respiratory function, wound healing, and nutrition directly affects outcomes in patients with underlying NCDs. Discharge from surgery is the point at which many of these needs shift from ward-based to community-based care, and where gaps in handover are most harmful.

Transitional care and readmission

Evidence on transitional care is among the strongest for nursing. In a randomised trial of the Care Transitions Intervention, patients with chronic conditions who worked with a transition coach, a nurse or similarly trained professional, to manage medicines, maintain a personal health record, arrange follow-up, and recognise warning signs had lower rehospitalisation rates at 30 and 90 days than those receiving usual care (Coleman et al., 2006). Similarly, a trial in which advanced practice nurses provided comprehensive discharge planning and home follow-up for hospitalised older adults reduced readmissions and lengthened the interval to first readmission (Naylor et al., 1999). These interventions share features: a named nurse, contact started before discharge and continued after it, patient activation, medication review, and communication with community clinicians.

The relevance for NCDs is evident. The conditions most associated with preventable readmission, such as heart failure, chronic obstructive pulmonary disease, diabetes complications, and post-surgical wound infection, are precisely those that depend on self-management and prompt recognition of deterioration. Medical-surgical nurses who prepare patients for discharge, and community nurses who follow up within days, form a coherent team when roles are explicit and communication is reliable. Where hospital and community services are separate administrative systems, as is common in many countries, the quality of this handover often depends on individual initiative rather than structure. A simple nursing discharge summary, a telephone call

within 48 to 72 hours, and a home visit for high-risk patients are low-cost mechanisms that can be built into routine practice.

Rehabilitation, palliation and caregiving

Recovery after stroke, amputation, cardiac surgery, or cancer treatment frequently requires months of rehabilitation. Family caregivers, usually women, carry much of this work with little preparation. Nurses who teach positioning, transfers, wound care, feeding, medication management, and recognition of complications also protect caregiver health. For patients with advanced disease, early integration of palliative principles, including symptom control, advance care planning, and psychosocial support, improves quality of life and should be offered in the community as well as in the hospital. Nurses are often the professionals who sustain these relationships through the trajectory of illness.

Discussion

Principal findings

This review set out to examine what is known about nurse-led community-based NCD prevention and management and to interpret it from a medical-surgical nursing perspective. Three conclusions emerge. First, the evidence that nurses and other non-physician workers can deliver effective, protocol-based NCD care in the community is substantial, especially for hypertension, diabetes prevention, diabetes self-management, tobacco cessation, and transitional care (Anand et al., 2019; Knowler et al., 2002; Norris et al., 2002; Rice et al., 2017; Coleman et al., 2006). Second, effect sizes in individual trials are often modest, and they depend on supporting conditions such as training, supervision, medicine supply, and follow-up; nurse-led care is therefore not a shortcut but a system design choice that requires investment. Third, a persistent weakness lies in the interface between hospital and community, where responsibility is poorly defined and information is lost. It is at this interface that medical-surgical nursing offers an underused contribution.

A hospital-to-community continuum model

The synthesis supports a conceptual model of a hospital-to-community continuum with four linked functions. The first is **detection**: hospital and community nurses identify unrecognised hypertension, hyperglycaemia, tobacco use, and other risks, using the same simple tools and thresholds. The second is **stabilisation and education**: medical-surgical nurses stabilise acute problems, reconcile medicines, and begin structured teaching that is documented and transferable. The third is **transition**: a named nurse coordinates discharge planning, communicates with the community nurse or primary health centre, and makes early post-discharge contact. The fourth is **sustained management**: community nurses deliver protocol-based follow-up, self-management

support, family education, and referral, with feedback loops to the hospital when deterioration occurs. The model does not demand new categories of staff; it requires that existing nurses be trained, authorised, and connected to work as one team.

Why nurses are effective

The evidence suggests several reasons for nurses' effectiveness in NCD care. Chronic disease management is relationship-dependent, and nurses typically spend more time with patients than physicians do, allowing detailed assessment of context and barriers. Nursing training places emphasis on teaching, prevention, and holistic assessment. Nurses live within and are often drawn from the communities they serve, which supports trust and cultural fit. Finally, nursing models are intrinsically team-based; nurses coordinate with physicians, pharmacists, nutritionists, physiotherapists, community health workers, and families. These features help explain why interventions that combined outreach, simple protocols, and continuity produced improvements in blood pressure and diabetes risk even in low-resource environments (Neupane et al., 2018; Jafar et al., 2020; Ramachandran et al., 2006).

Barriers and enablers

Several barriers appear repeatedly. **Workforce shortages** remain the most obvious: with a global nursing deficit concentrated in low- and middle-income countries, expanding nurses' responsibilities without expanding numbers risks overload and burnout (World Health Organization, 2020a). **Scope-of-practice restrictions** in law or institutional policy often prevent nurses from initiating or adjusting medicines, ordering tests, or making referrals, even when they are competent to do so under protocols. **Fragmented systems** separate hospital and community services, with different records, lines of authority, and incentives. **Medicine and supply gaps**, such as stock-outs of antihypertensives, insulin, or test strips, negate even the best-designed nursing programme. **Information systems** are often paper-based, making it difficult to track defaulters, share results, and audit outcomes. **Education** is another constraint: many nursing curricula are weighted toward acute hospital care and give limited attention to community practice, motivational counselling, or chronic care coordination. Finally, **professional recognition and remuneration** are inadequate in many settings, which weakens motivation and retention.

Enablers are the mirror images of these barriers. Clear standard operating procedures and standing orders, as promoted by the WHO PEN package (World Health Organization, 2020b), enable nurses to act within a framework that physicians trust. Supportive supervision and mentorship build competence and confidence. Mobile health tools, including decision-support applications, SMS reminders, and tele-consultation, can extend reach

and strengthen the link between a nurse in a village and a physician at the district hospital, though they require connectivity, training, and attention to privacy. Community engagement, including partnerships with local leaders, self-help groups, and women's collectives, increases acceptance and participation.

Equity and the Indian context

Equity considerations deserve emphasis. The benefits of nurse-led NCD care are likely to be greatest for groups who face the greatest barriers to physician access: rural residents, women, older adults, informal-sector workers, and people living in poverty. Evidence from Scotland that multimorbidity affects deprived groups earlier and more heavily is likely to be mirrored elsewhere (Barnett et al., 2012). In India, large-scale initiatives, including the strengthening of sub-centres and primary health centres into health and wellness centres staffed by mid-level providers and nurses, reflect recognition that population-based NCD screening and continuing care must be delivered close to home. The experience of South Asian trials suggests that such platforms can be effective if protocols, medicines, and supervision are in place (Jafar et al., 2020; Ramachandran et al., 2006). A medical-surgical perspective adds that tertiary and district hospitals should be designed to feed patients back into these platforms rather than discharge them without a plan.

Digital and team-based innovation

Digital technology offers promising but still uneven support. Electronic registers can identify patients overdue for review; mobile phones can deliver reminders and brief coaching; tele-consultation can connect nurses with specialists. These tools should be seen as extensions of nursing practice rather than substitutes for it, and they should be evaluated for effects on outcomes and equity, since people with the greatest need may have the least access to devices. Team-based approaches that include community health workers, pharmacists, nutritionists, and peer supporters also hold promise, with nurses acting as clinical leaders and coordinators. Evidence from task-sharing trials supports such configurations, provided roles are clearly defined (Anand et al., 2019; Schwalm et al., 2019).

Implications

For nursing practice

Nurses in hospital and community settings should adopt shared screening and risk assessment tools, apply teach-back and goal-setting in every encounter, and use admission and discharge as structured opportunities for prevention. Medical-surgical units can implement a minimal NCD bundle for every adult patient, comprising blood pressure and glucose review, tobacco and alcohol screening, medicine reconciliation, and a written, language-appropriate self-care plan. Named transition nurses

and early post-discharge contact should be prioritised for patients with the highest readmission risk.

For nursing education

Curricula should integrate community health, chronic care, health communication, motivational interviewing, and care coordination alongside acute care skills. Students should receive supervised clinical experience across hospital and community settings, and in-service training should upskill practising nurses in protocol-based NCD management, basic cardiovascular risk assessment, and diabetic foot examination. Interprofessional education with physicians, pharmacists, and community health workers would prepare nurses for team-based practice.

For policy and health systems

Policy-makers should clarify and, where appropriate, expand nurses' scope of practice through standing orders and prescribing authority aligned with competence and supervision. Integrated referral pathways and shared records should link district hospitals and primary care facilities. Essential NCD medicines and diagnostics must be reliably available at the first point of care. Workforce planning should recognise the additional time required for counselling and follow-up, and provide career structures and incentives for community and chronic care nursing. Global and national plans have long recognised the centrality of primary care and workforce capacity in NCD control (World Health Organization, 2013); implementation depends on translating this recognition into financing and regulation.

For research

Further research is needed on nurse-led models in settings where evidence is thin, particularly rural South Asia and sub-Saharan Africa. Trials should report not only blood pressure or HbA1c but also hospitalisation, patient experience, cost, nurse workload, and equity outcomes. Implementation research should examine how to sustain programmes beyond the trial period and how to scale them within routine systems. Studies specifically evaluating medical-surgical nurses' contributions to secondary prevention, discharge planning, and linkage to community care in NCD populations are scarce and should be a priority.

Limitations

This review has limitations. As a narrative review, it was not designed to provide a pooled quantitative estimate, and the selection of sources, although guided by explicit criteria and a preference for high-quality evidence, may be affected by selection bias. Many included trials involved community health workers or multidisciplinary teams, which complicates attribution of effects to nursing specifically. Much of the strongest transitional care evidence comes from high-income countries and may not translate directly to settings with different

staffing, financing, and patient populations. Publication in English only may have excluded relevant regional evidence. Finally, the medical-surgical framework is interpretive: the argument draws on the logic of practice and on indirect evidence, and it requires direct empirical testing.

Conclusion

Non-communicable diseases demand a response that begins long before hospital admission and continues long after discharge. Evidence from trials and systematic reviews shows that nurses, working within protocols and supportive teams, can contribute effectively to blood pressure control, diabetes prevention and self-management, tobacco cessation, and the reduction of avoidable readmissions. A medical-surgical nursing perspective strengthens this case by highlighting hospital admission as an opportunity for detection and teaching, perioperative and acute care as a context in which NCDs shape outcomes, and the transition from ward to home as a critical point at which care succeeds or fails.

Realising the potential of nurse-led community-based NCD care will require deliberate investment: in education that spans hospital and community practice, in regulation that enables nurses to practise to the full extent of their competence, in health information systems that connect providers, and in reliable supplies of medicines and diagnostics. If these conditions are met, the nursing workforce can serve as the connective tissue of an integrated system that prevents disease where possible, manages it effectively where it occurs, and supports people to live well with chronic illness in their own communities.

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