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Review Article

Chronic Disease Multimorbidity Management in Primary Care: Moving Beyond Single-Disease Guidelines

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Abstract

Background: Primary care physicians manage increasing numbers of patients with multimorbidity. Single-disease clinical guidelines fail to address conflicts arising when managing multiple concurrent conditions, creating substantial care delivery challenges.

Aim: This narrative review examines critical gaps in multimorbidity management, focusing on guideline conflicts, polypharmacy management, treatment burden assessment, and patient-physician priority alignment in primary care practice.

Methods: We synthesized current evidence on multimorbidity management challenges from systematic reviews, clinical guidelines, and original research published through 2024, including guideline applicability limitations, polypharmacy prevalence and drug interactions, deprescribing frameworks, treatment burden assessment tools, and patient-physician priority misalignment.

Results: Primary care physicians require 26.7 hours daily to implement all guideline recommendations for a standard 2,500-patient panel. Most patients with chronic conditions would be excluded from the trials that generated treatment guidelines for their conditions. Polypharmacy affects 33.9% of older adults in primary care, with 47% of multimorbid patients experiencing potential drug-drug interactions. Treatment burden overwhelms 40% of patients taking five or more medications daily. Significant misalignment exists between patient priorities (functional status, current symptom control) and physician priorities (mortality reduction, disease-specific targets). Multimorbidity develops 10-15 years earlier in socioeconomically disadvantaged populations yet these groups remain understudied.

Conclusion: Family physicians require practical frameworks for managing conflicting guidelines, identifying overburdened patients, and aligning treatment decisions with patient priorities. Evidence-based implementation strategies must address polypharmacy reduction, systematic treatment burden assessment, and shared decision-making within time-constrained primary care practice.

Keywords: chronic disease management, deprescribing, drug interactions, multimorbidity, patient priorities, polypharmacy, primary care, shared decision-making, treatment burden

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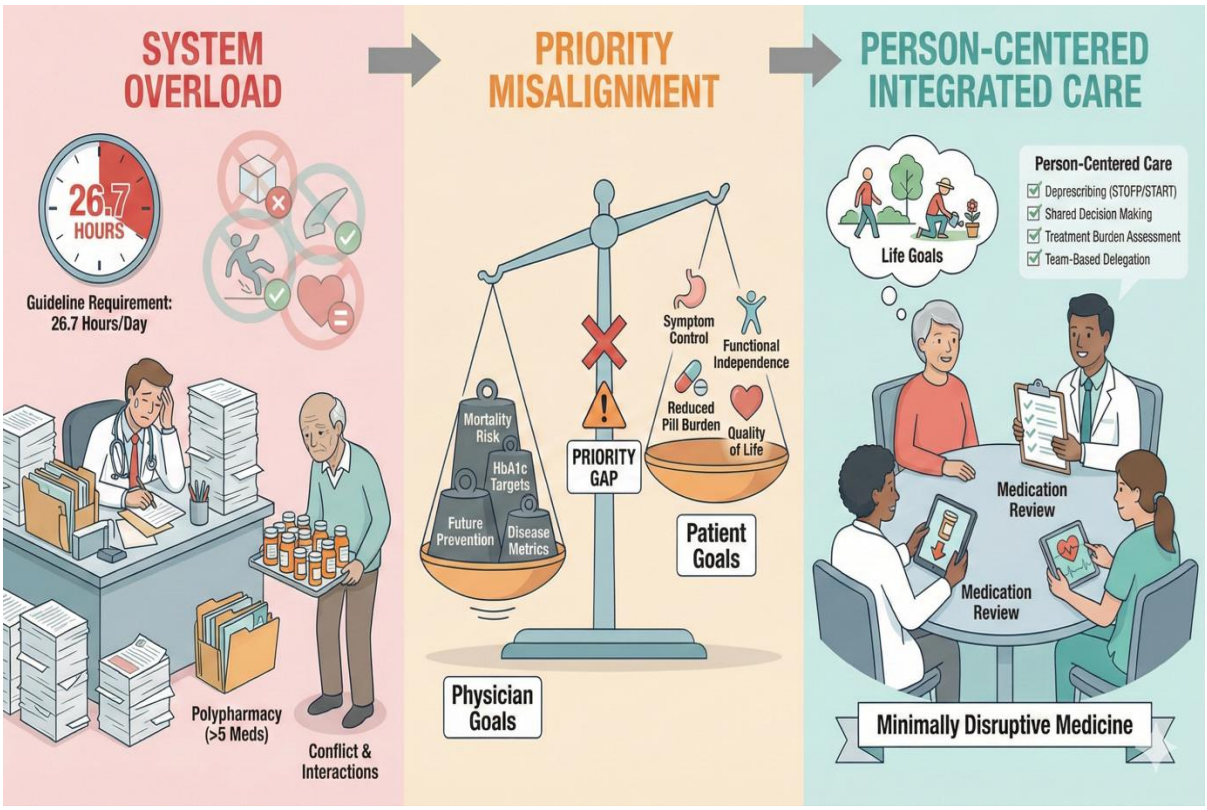

Figure 1. From Guideline Overload to Person-Centered Care: A Conceptual Framework for Managing Multimorbidity.

Note: A conceptual illustration of the transition from the current state of system overload due to single-disease guideline mandates, toward a sustainable person-centered integrated care model emphasizing minimally disruptive medicine and shared decision-making. HbA1c: Glycated hemoglobin; STOPP/START: Screening Tool of Older Persons' Prescriptions / Screening Tool to Alert to Right Treatment.

1. INTRODUCTION

Multimorbidity, defined as coexistence of two or more chronic conditions in the same individual, affects the majority of primary care patients and represents the dominant clinical reality rather than the exception **[1]**. Prevalence has doubled over the past two decades, with the proportion of patients experiencing four or more chronic diseases increasing approximately 300% **[1]**. These patients demonstrate higher healthcare utilization, elevated mortality rates, and poorer quality of life compared to patients with single diseases **[2,3]**.

Most primary care consultations now involve patients with multiple chronic conditions, fundamentally challenging the single-disease paradigm underlying clinical practice guidelines **[4]**. This shift requires family physicians to navigate conflicting treatment recommendations, manage polypharmacy risks, and balance competing therapeutic goals while respecting patient priorities and self-management capacity **[5]**. Healthcare delivery structures and clinical practice guidelines remain predominantly organized around single-disease approaches that prove inadequate for multimorbidity **[1,6]**.

Most clinical guidelines address single conditions independently while family physicians routinely manage patients with three to five chronic diseases simultaneously **[7]**. This creates substantial challenges when guidelines for different conditions recommend contradictory interventions or when strict adherence to multiple single-disease guidelines becomes physiologically impossible or clinically harmful **[8]**. A simulation study demonstrated that primary care physicians would require 26.7 hours per day to provide guideline-recommended preventive care, chronic disease care, and acute care to a standard panel of 2,500 patients **[9]**. This impossible time requirement results from ever-increasing guidelines without proportional increases in consultation time or healthcare resources **[9]**.

The fundamental disconnect between guideline expectations and clinical reality forces physicians to make difficult prioritization decisions without evidence-based frameworks to guide these choices **[10]**. The evidence base supporting clinical guidelines systematically excludes the very patients for whom guidelines are intended **[8]**. Most people with any chronic condition would be excluded from research trials examining treatment effectiveness for their condition based on age, comorbidity, or co-prescribing criteria **[8]**. Single-disease guideline development rarely considers implications of comorbidity and co-prescribing for treatment recommendations, rendering guidelines condition-specific and context-blind **[11]**.

This creates particularly acute problems when guidelines conflict. Tight glycemic control recommended by diabetes guidelines may increase fall risk in elderly patients, contradicting geriatric care principles. Aggressive blood pressure reduction may worsen renal function in patients with

chronic kidney disease. Nonsteroidal anti-inflammatory drugs effective for arthritis pain management pose cardiovascular risks for patients with heart disease. Family physicians lack systematic frameworks for resolving these conflicts while accounting for patient-specific factors including life expectancy, treatment burden, and personal priorities **[6,12]**.

Based on these identified gaps, this narrative review examines the current state of multimorbidity management in primary care. We synthesize evidence on guideline applicability limitations, polypharmacy challenges including drug interactions and deprescribing strategies, treatment burden assessment and impact on patient outcomes, and patient-physician priority misalignment. We focus on translating research findings into practical frameworks that family physicians can implement within time-constrained clinical encounters.

2. THE GUIDELINE EVIDENCE GAP

2.1. Trial Populations Versus Real-World Patients

Clinical practice guidelines derive recommendations from randomized controlled trials and systematic reviews that systematically exclude multimorbid patients **[8]**. Research examining guideline evidence bases demonstrates that most people with any chronic condition would be excluded from trials examining treatment effectiveness for their condition **[8]**. Main exclusion criteria include older age, presence of other conditions, and use of interacting medications **[8]**. This means patients who most need guidance receive recommendations based on evidence from younger, healthier individuals with single diseases.

The consequences extend beyond simple generalizability concerns. Treatment recommendations developed for single-disease populations may produce different benefit-to-harm ratios when applied to multimorbid patients **[13]**. Medications tested in relatively healthy trial participants may cause increased adverse effects in older adults with multiple conditions and altered pharmacokinetics **[14]**. Interventions demonstrating mortality benefits over 5-10 year periods in trials may offer limited benefit to patients with reduced life expectancy from competing conditions **[15]**. Risk reduction strategies appropriate for otherwise healthy individuals become questionable when applied to frail older adults for whom treatment burden may outweigh potential benefits **[16]**.

Guidelines are further limited by being condition-specific and context-blind, failing to account for how multiple diseases and treatments interact within individual patients **[11]**. A patient with diabetes, chronic kidney disease, heart failure, and depression requires simultaneous consideration of how treatments for each condition affect the others. Current guidelines provide no framework for this integration **[6]**. The 2024 KDIGO guidelines for chronic kidney disease, while comprehensive for renal management, cannot fully address patients also requiring management of cardiovascular disease, diabetes, and anemia **[17]**. Family physicians must synthesize multiple guidelines without explicit guidance on prioritization or trade-offs **[12]**.

2.2. The Impossible Time Requirement

Evidence quantifying time required to implement guideline recommendations reveals the practical impossibility of comprehensive guideline adherence. A 2022 simulation study calculated that primary care physicians would need 26.7 hours per day to provide guideline-recommended care to an average panel of 2,500 patients **[9]**. This breaks down to 14.1 hours daily for preventive care, 7.2 hours for chronic disease care, 2.2 hours for acute care, and 3.2 hours for documentation and inbox management **[9]**. Even with team-based care models incorporating nurses, physician assistants, and other healthcare professionals, time requirements only decrease to 9.3 hours per day—still exceeding available time **[9]**.

These calculations assume each patient receives only indicated services for their specific conditions. Reality proves even more challenging because patients with multimorbidity require coordination across multiple disease management protocols, medication reviews addressing polypharmacy, and extended discussions about treatment priorities and goals **[18]**. Time pressure creates several problematic consequences. Primary care providers deliver approximately 50% of guideline-recommended care to their patients **[9]**. Short consultation lengths drive polypharmacy, overuse of antibiotics, and poor communication with patients **[2]**. Time constraints represent a key factor in physician burnout and drive medical students away from primary care specialties **[9]**.

The mismatch between guidelines and available time forces implicit prioritization decisions that occur without explicit frameworks or patient input **[10]**. Preventive services get deferred. Chronic disease targets remain unmet. Patient concerns about treatment burden go unaddressed. This systematic under-delivery of recommended care contributes to health inequities, as vulnerable populations typically receive care at the most overburdened clinics with the least time per patient **[9]**. Family physicians require not only evidence about what should be done but practical guidance about what must be done given realistic time and resource constraints **[19]**.

3. POLYPHARMACY AND DRUG INTERACTIONS

3.1. Prevalence and Patterns

Polypharmacy, commonly defined as concurrent use of five or more medications, affects varying proportions of populations depending on setting and definition **[14,20]**. Among older adults specifically, prevalence reaches 33.9% in some primary care populations **[21]**. Prevalence increases substantially with age and number of chronic conditions **[20,22]**. Patients with multimorbidity frequently require multiple medications to manage symptoms and prevent complications, yet this necessary polypharmacy creates substantial risks **[14]**.

Drug-drug interactions represent a major concern, with studies identifying potential interactions in 47% of patients with multimorbidity **[21]**. Risk of potentially serious drug-drug interactions doubled over a 15-year period in one large Scottish cohort as polypharmacy became more common **[23]**. Cardiovascular medications are most commonly involved in drug-drug interactions **[14]**, though interactions between cardiovascular drugs and psychotropic medications, nonsteroidal anti-inflammatory drugs, and diabetic medications also occur frequently **[21]**. These interactions can reduce treatment effectiveness, increase adverse effects, or create new medical problems requiring additional medications **[14]**.

The prescribing cascade represents a particularly problematic pattern where adverse drug effects are misinterpreted as new medical conditions, leading to prescription of additional medications to treat drug-induced symptoms **[14,24]**. Classic examples include cholinesterase inhibitors for dementia causing urinary incontinence, leading to anticholinergic medications that worsen cognitive function. Metoclopramide prescribed for gastroparesis causes parkinsonian symptoms, prompting dopamine agonist therapy. Calcium channel blockers for hypertension cause peripheral edema, leading to diuretic prescription **[24]**. Recognition and prevention of prescribing cascades requires systematic review of temporal relationships between new symptoms and medication initiation **[25]**.

3.2. Mental Health Polypharmacy

Mental health polypharmacy represents an understudied area within primary care where patients receive multiple psychotropic medications for the same condition **[26]**. This includes same-class polypharmacy (multiple antidepressants or multiple antipsychotics), adjunctive polypharmacy (adding medications from different classes), and augmentation strategies (adding non-psychiatric medications to enhance effect) **[26]**. A 2024 study in London primary care identified mental health polypharmacy in patients often not formally coded with mental health diagnoses, highlighting detection challenges **[26]**.

Managing mental health polypharmacy in primary care increases in complexity when patients also have multiple physical health conditions and receive psychiatric care from specialists while maintaining primary care relationships **[26]**. Communication gaps between providers, lack of regular medication reviews, and patient reluctance to report adverse effects due to improved mental health status contribute to continuation of potentially inappropriate polypharmacy **[26]**. Over time, patients may experience adverse drug reactions or drug-drug interactions that remain under-reported and unrecognized **[26]**. Deprescribing mental health medications proves particularly challenging given potential withdrawal effects, risk of symptom recurrence, and patient anxiety about medication reduction **[26]**. Yet evidence suggests many patients on long-term psychotropic polypharmacy could benefit from careful, gradual deprescribing with appropriate monitoring **[26]**. Family physicians require specific protocols for identifying candidates for mental health medication reduction and implementing safe deprescribing strategies while maintaining therapeutic relationships and monitoring for symptom changes.

3.3. Deprescribing Frameworks and Limitations

Several validated tools exist to identify potentially inappropriate medications in older adults. The STOPP/START criteria (Screening Tool of Older People's Prescriptions / Screening Tool to Alert to Right Treatment) version 3, published in 2023, outlines 133 potentially inappropriate medications and 57 potential prescribing omissions **[27]**. The Beers Criteria, regularly updated by the American Geriatrics Society, provides similar guidance **[28]**. An Australian potentially inappropriate medications list was published in 2024 to address region-specific medication availability **[28]**.

These tools demonstrate effectiveness in medication review processes. Application of STOPP/START criteria in randomized controlled trials reduced unnecessary polypharmacy, incorrect dosing, and drug-drug interactions **[28]**. Single-center trials suggest these criteria reduce polypharmacy, inappropriate prescribing, adverse drug reactions, medication costs, and falls **[29]**. Deprescribing interventions implementing systematic medication reviews show modest but statistically significant reductions in hospital readmissions of 8% **[30]**. A 2024 meta-analysis found that deprescribing can improve survival, particularly when patient-specific interventions are applied early **[31]**.

However, current deprescribing tools have important limitations. They identify potentially inappropriate medications but provide limited guidance on prioritization when patients have multiple potentially inappropriate medications **[32]**. They do not systematically incorporate patient priorities, life expectancy, or treatment burden into decision-making **[33]**. The evidence base for deprescribing remains limited for many medication classes, with uncertainty about long-term outcomes after discontinuation **[34]**. Large multicenter trials (SENATOR, OPERAM) did not demonstrate significant reduction in adverse drug reactions, all-cause mortality, or drug-related hospital readmissions, suggesting deprescribing alone without comprehensive geriatric assessment may be insufficient **[29]**. Family physicians require frameworks that extend beyond identifying potentially inappropriate medications to guide which medications to deprescribe first, how to sequence deprescribing when multiple changes are needed, how to monitor for withdrawal effects or condition recurrence, and how to integrate patient priorities and goals into deprescribing decisions [11, 118].

4. TREATMENT BURDEN AND PATIENT CAPACITY

4.1. Components of Treatment Burden

Treatment burden encompasses the effort required of patients to look after their health and the impact this has on their functioning and wellbeing **[35]**. For people living with multimorbidity, treatment burden includes four major categories of healthcare tasks: self-care activities (medication taking, symptom monitoring, lifestyle modifications), knowledge acquisition (learning about conditions, understanding treatments, navigating health information), paperwork (insurance forms, prescription refills, care coordination), and ongoing prioritization (constantly deciding which treatments to follow when capacity is limited) **[35]**. Each category imposes multiple specific demands. Self-care activities include taking medications at specified times, sometimes with complex timing requirements relative to meals or other medications, monitoring multiple symptoms or physiological parameters, adhering to dietary restrictions that may differ across conditions, and maintaining activity and exercise regimens **[36]**.

Knowledge acquisition requires understanding multiple disease processes, learning how conditions interact, staying informed about treatment options, and comprehending complex medical information often delivered in time-pressured consultations **[35]**. Paperwork burdens include managing appointments with multiple specialists, coordinating medication refills from different prescribers, completing insurance authorization forms, and maintaining medical records across healthcare systems **[36]**. The ongoing prioritization task represents a particularly invisible and unappreciated burden **[35]**. Patients with multimorbidity must constantly make decisions about which healthcare tasks to complete when time, energy, or financial resources are insufficient for all recommended activities **[35]**. This prioritization is not static but must be continually re-evaluated as disease status changes, life circumstances evolve, and capacity fluctuates **[37]**. Studies show patients often choose to follow some treatment recommendations while silently deprioritizing others, frequently without informing healthcare providers about these decisions **[38]**.

4.2. Impact on Patients and Outcomes

The magnitude of treatment burden significantly affects patient outcomes and quality of life. Studies document that 40% of people taking five or more medicines per day report feeling significantly burdened by their medication regimen **[11]**. This burden is associated with poor medication adherence, disease progression, poor health status and quality of life, and increased caregiver burden **[35,39]**. The relationship between treatment burden and outcomes appears cyclical—treatment burden leads to non-adherence, which leads to worse health outcomes, which leads to more treatments and increased burden **[39]**.

Three instruments have been developed to measure treatment burden in multimorbidity: the Multimorbidity Treatment Burden Questionnaire (MTBQ), the Treatment Burden Questionnaire (TBQ), and the Patient Experience with Treatment and Self-Management (PETS) tool **[35]**. These instruments assess various aspects of healthcare tasks and their impacts **[35]**. However, none of the existing measures include items addressing the ongoing process of setting priorities among healthcare tasks, a critical component of the multimorbidity experience **[35]**. This gap highlights the need for improved measurement tools that comprehensively capture both tasks and impacts **[40]**.

Treatment burden varies by patient capacity and context **[36]**. Available resources (financial, social support, health literacy, transportation access) affect ability to manage treatment demands **[38]**. Lower socioeconomic status, rural residence, and poor self-rated health exacerbate the relationship between multimorbidity and treatment burden **[41]**. Financial burdens prove particularly significant in US and Australian healthcare systems, while time burdens (missing work for appointments, transportation to multiple specialists) affect working-age adults across healthcare systems **[38]**. Family caregivers also experience substantial burden from assisting with complex treatment regimens **[39]**.

4.3. Minimally Disruptive Medicine

The concept of minimally disruptive medicine emerged to address treatment burden by prioritizing patients' capacity to enact treatments and their life goals alongside disease control **[40]**. This framework emphasizes assessing both the workload of treatment demands and the capacity patients have to handle this workload **[39]**. When workload exceeds capacity, treatment adjustments should reduce burden rather than simply adding more interventions **[40]**. Identifying patients at risk of being overburdened requires practical screening approaches suitable for time-constrained primary care **[40]**. Current validated instruments prove too long for routine clinical use **[40]**. Research efforts are developing brief single-item screening tools that could flag high-burden patients for more detailed assessment **[40]**. These screening approaches would enable systematic identification of overwhelmed patients rather than relying on patients to self-report burden, which often goes unspoken **[38]**.

At the individual patient-clinician level, assessing treatment burden allows discussion about optimizing treatments and care, balancing management priorities across different conditions, and exploring whether total healthcare workload is compatible with daily life demands **[40]**. This assessment should examine not only the number of treatments but also their complexity, the resources required to enact them, and the extent to which treatments interfere with valued activities and goals **[39]**. Interventions that reduce treatment burden while maintaining health outcomes represent ideal solutions but remain under-researched **[19]**.

5. PATIENT AND PHYSICIAN PRIORITY MISALIGNMENT

5.1. What Patients Prioritize

Studies examining patient priorities in multimorbidity reveal that patients consistently prioritize functional status, symptom control, and current quality of life over future risk reduction **[42]**. Patients' prioritization appears driven by weighing the empirical impact of diseases (how conditions affect them today through symptoms and functional limitations) against the hypothetical impact (future disease prevention benefits) **[42]**. The empirical impact dominates patient decision-making because symptomatic burden and functional limitation create immediate, tangible effects on daily life **[42]**. The symptomatic burden of conditions significantly influences patient priorities **[42]**. Symptoms that are unpredictable cause particular concern and disruption **[42]**. Patients experiencing symptomatic conditions prioritize managing those symptoms over asymptomatic conditions, even when the asymptomatic condition carries greater long-term risk **[42]**. For example, patients with both hypertension (often asymptomatic) and arthritis (highly symptomatic) may prioritize arthritis management because the pain directly affects function and quality of life, while hypertension's lack of symptoms makes its future risks feel abstract **[42]**.

Functional limitation represents another primary driver of patient priorities **[42]**. Patients prioritize interventions that preserve or restore their ability to perform valued activities, maintain independence, fulfill family and social roles, and engage in meaningful pursuits **[42]**. Treatments that threaten functional status through side effects or time requirements may be deprioritized regardless of their theoretical mortality benefits **[42]**. Patients consistently express that maintaining function and independence matters more than life prolongation if prolongation comes with severe functional limitations **[42]**.

5.2. What Physicians Prioritize

Physicians' prioritization in multimorbidity management tends to focus on mortality reduction, disease-specific treatment targets, and future risk prevention **[42]**. Reducing the risk of mortality emerged as a recurrent priority for clinicians across multiple studies **[42]**. Physicians prioritize mortality more heavily for younger patients with multimorbidity than for older patients, feeling they can be more aggressive in treating those with longer life expectancy ahead **[42]**. This focus on mortality reduction reflects medical training, guideline recommendations emphasizing evidence-based preventive treatments, and quality metrics that reward achievement of disease-specific targets **[6]**. Physicians also prioritize disease-specific targets established by clinical guidelines **[7]**. Blood pressure targets for hypertension, hemoglobin A1c goals for diabetes, LDL cholesterol levels for cardiovascular disease prevention, and other guideline-specified endpoints drive clinical decision-making **[7]**. Quality improvement programs, pay-for-performance incentives, and electronic health record reminders reinforce attention to these measurable targets **[7]**. Achieving targets across multiple conditions simultaneously becomes a primary goal even when this creates substantial treatment burden or conflicting recommendations **[6]**.

The prioritization of future risk reduction over current symptom control reflects the preventive medicine paradigm that dominates chronic disease management guidelines **[7]**. Statins for cardiovascular prevention, bisphosphonates for osteoporosis, and tight glycemic control for diabetes all aim to reduce future complications rather than address current symptoms **[7]**. This future-oriented focus makes sense from a population health perspective but can conflict with individual patient priorities, particularly for those with limited life expectancy or high treatment burden **[15,42]**.

5.3. Bridging the Gap

The misalignment between patient and physician priorities creates multiple problems. Patients may not adhere to treatments they do not value, rendering physician efforts ineffective **[36]**. Patients may feel their concerns are dismissed when physicians focus on laboratory targets while ignoring symptomatic burden **[42]**. Physicians may feel frustrated when patients deprioritize evidence-based preventive treatments. The relationship may suffer when priorities remain unspoken and misaligned **[38]**. Shared decision-making frameworks exist to address priority misalignment by making treatment decisions collaboratively based on best evidence and patient values and preferences **[7]**.

However, shared decision-making for multimorbidity remains poorly implemented in practice **[6]**. Most shared decision-making tools focus on single-treatment decisions rather than the complex priority-setting required when managing multiple conditions **[6]**. The time required for thorough shared decision-making conversations exceeds what is available in typical primary care visits **[9]**. Physicians receive limited training in eliciting patient priorities and facilitating shared decisions about trade-offs **[10]**. Effective shared decision-making in multimorbidity requires explicitly discussing patient priorities including life goals, valued activities, and relative importance of different potential outcomes **[7]**. It requires transparent communication about trade-offs between different treatment goals and the impossibility of achieving all guideline targets simultaneously **[6]**. It requires agreement on which conditions or symptoms to prioritize for treatment intensification and which to accept as adequately controlled even if not at guideline targets **[7]**. It requires discussion of treatment burden and realistic assessment of patient capacity to enact complex regimens **[40]**. Most importantly, it requires recognition that patient priorities are legitimate even when they differ from what guidelines recommend or physicians prefer **[42]**.

6. SPECIAL POPULATIONS

6.1. Younger Adults with Multimorbidity

Most multimorbidity research focuses on older adults, yet multimorbidity increasingly affects younger populations, particularly those from socioeconomically disadvantaged backgrounds **[43]**. Evidence demonstrates that individuals from the most deprived areas develop multimorbidity 10-15 years earlier than those from affluent areas **[44]**. A study of Brazilian

adults aged 20-50 found 18% already had multimorbidity, with higher prevalence among women, individuals with lower education levels, and those with health insurance access **[45]**. Multimorbidity patterns differ in younger adults compared to older adults **[46]**. Younger people with multimorbidity often present with combinations of physical and mental health conditions rather than the cardiovascular and metabolic clusters common in elderly populations **[46]**. This physical-mental health multimorbidity creates unique challenges for primary care management because mental health conditions affect capacity for self-management of physical conditions while physical conditions can exacerbate mental health problems **[47]**. The bidirectional relationship requires integrated treatment approaches rather than parallel management of separate conditions **[3]**.

Younger adults with multimorbidity face distinct challenges compared to older patients **[43]**. They must balance chronic disease management with work responsibilities, childcare, and active family roles **[48]**. Time burden from multiple medical appointments conflicts with employment demands, potentially affecting career advancement and financial stability **[38]**. Treatment side effects that older patients might tolerate (fatigue, sexual dysfunction, weight gain) may be less acceptable to younger adults with different life priorities **[45]**. Existing multimorbidity research, guidelines, and healthcare delivery models designed primarily for older adults may not address the specific needs and circumstances of working-age adults with chronic conditions **[48]**. The relative neglect of younger adults in multimorbidity research creates important knowledge gaps **[43]**. Optimal treatment strategies may differ for younger patients with longer life expectancy ahead and different physiological responses to medications. Prevention strategies to delay or prevent multimorbidity development in high-risk younger populations remain under-investigated **[47]**. Healthcare delivery models need adaptation to accommodate working-age adults who cannot easily attend daytime appointments or manage complex treatment regimens while maintaining employment **[48]**.

6.2. Socioeconomic Disparities

Socioeconomic status profoundly affects multimorbidity prevalence, patterns, and outcomes **[44,49]**. Lower socioeconomic status consistently associates with higher multimorbidity prevalence, earlier age of onset, and worse health outcomes **[44,50]**. A 2025 study from Iran found higher concentration of multimorbidity among individuals with low socioeconomic status, with age, body mass index, gender, physical activity, and socioeconomic status recognized as primary factors contributing to inequality **[44]**. Global studies confirm that multimorbidity prevalence declines as wealth and educational attainment increase **[50]**. Socioeconomic factors affect multimorbidity through multiple pathways **[49]**. Lower income and education associate with higher prevalence of behavioral risk factors including smoking, physical inactivity, and poor diet **[47]**. Limited access to healthcare services prevents early detection and management of chronic conditions, allowing disease progression and development of additional conditions **[3]**. Chronic stress from financial instability, housing insecurity, and occupational hazards contributes to physiological dysregulation across multiple systems **[51]**. Environmental exposures including air pollution and neighborhood violence concentrate in low-income areas **[49]**. These accumulated disadvantages create earlier and more severe multimorbidity **[44]**.

Treatment burden affects socioeconomically disadvantaged patients more severely than affluent patients **[38]**. Financial barriers to medications, transportation to appointments, and time off work for healthcare visits disproportionately burden those with limited resources **[36]**. Complex medication regimens requiring multiple pharmacy trips, refrigeration for storage, or precise timing relative to meals prove more difficult to manage without stable housing and adequate resources **[38]**. Language barriers and lower health literacy complicate understanding of multiple disease management requirements **[48]**. Social isolation reduces availability of support for medication management and appointment attendance **[39]**. Research specifically examining multimorbidity management strategies for socioeconomically disadvantaged populations remains limited despite this group experiencing the greatest burden **[43]**. The CarePlus study in Scotland targeted socioeconomically disadvantaged adults with multimorbidity using a multi-level intervention supporting practitioners and patients, demonstrating cost-effectiveness within recommended UK funding thresholds **[43]**. However, this finding requires replication in other settings and healthcare systems **[43]**. Development of culturally appropriate, resource-sensitive interventions that acknowledge and address barriers faced by disadvantaged populations represents a critical research need **[47]**.

7. PRACTICAL IMPLEMENTATION CHALLENGES

7.1. Time-Constrained Primary Care

The fundamental challenge of implementing comprehensive multimorbidity management lies in the severe time constraints of primary care practice **[9]**. The 26.7-hour daily requirement to implement all guideline recommendations cannot be addressed solely through improved efficiency or better training **[9]**. Structural changes to healthcare delivery models, payment systems, and care team composition are required to make evidence-based multimorbidity care feasible **[18,19]**. Team-based care models represent the most promising approach to managing the time requirements of multimorbidity care **[9]**. When nurses, physician assistants, pharmacists, and other healthcare professionals share care responsibilities, the physician time required decreases from 26.7 to 9.3 hours daily—still exceeding available time but more manageable **[9]**. Effective team-based care requires appropriate payment models that reimburse non-physician team members for patient care activities including medication counseling, dietary guidance,

depression screening, and care coordination **[18]**. Current fee-for-service payment often requires physician presence for reimbursement, limiting team-based care implementation **[19]**.

Task delegation within team-based care must be thoughtful and evidence-based **[18]**. Pharmacists prove particularly valuable for comprehensive medication reviews, deprescribing consultations, and polypharmacy management **[25,32]**. Nurses can conduct chronic disease monitoring, provide self-management support, and coordinate care across multiple providers **[18]**. Health coaches or peer support specialists can assist with goal setting and behavioral change **[40]**. Social workers address housing, food security, and transportation barriers that affect treatment adherence **[38]**. Dietitians provide detailed nutritional counseling for patients with diabetes, kidney disease, heart failure, and other conditions requiring dietary modification **[17]**. Behavioral health specialists integrated into primary care can address the mental health conditions commonly comorbid with physical diseases **[47]**.

7.2. Electronic Health Record Support and Decision Tools

Electronic health records could facilitate multimorbidity management through clinical decision support, automated identification of high-risk patients, and care coordination tools **[52]**. However, current EHR implementations often worsen rather than improve the situation by creating additional documentation burden without commensurate benefits **[9]**. The 3.2 hours daily required for documentation and inbox management reflects EHR-related administrative work that removes time from direct patient care **[9]**. Useful EHR-based decision support for multimorbidity would identify patients taking five or more medications for enhanced medication review, flag potential drug-drug interactions before prescriptions are written, alert clinicians to missing indicated preventive services while allowing override when burden exceeds benefit, summarize relevant information from multiple specialists to support care integration, and track patient-reported outcome measures including treatment burden and symptom control **[7]**. Current systems provide limited support for these multimorbidity-specific needs **[52]**. Artificial intelligence and machine learning applications may enhance EHR functionality for multimorbidity management by predicting which patients are at highest risk for adverse outcomes, identifying patterns suggesting treatment burden or non-adherence, and suggesting personalized treatment prioritization based on patient characteristics **[53]**. However, these applications require careful validation, transparency about their limitations, and integration into workflows without adding additional burden **[53]**. Concerns about AI errors demand rigorous oversight when AI tools influence clinical decision-making **[54]**.

7.3. Systematic Medication Review Protocols

Structured medication review represents an evidence-based intervention for addressing polypharmacy in multimorbid patients **[23]**. NHS England recommends systematic medication reviews for patients on complex polypharmacy, though implementation at scale remains limited **[23]**. Effective medication review protocols require comprehensive assessment of all medications including prescription drugs, over-the-counter medications, and supplements **[25]**. They should identify potentially inappropriate medications using validated tools like STOPP/START or Beers Criteria while also assessing medication burden, adherence challenges, and patient understanding of treatment rationale **[27,28]**. Medication review must extend beyond simple appropriateness checking to consider patient priorities and capacity **[33]**. Discussions should address which medications matter most to patients, which cause the most burdensome side effects, which prove most difficult to take as prescribed, and what trade-offs patients are willing to accept to reduce medication burden **[42]**. This patient-centered approach requires more time than checklist-based reviews but produces better patient engagement and more sustainable deprescribing **[33]**. Documentation of medication review outcomes should specify which medications were continued with rationale, which were discontinued or dose-reduced with monitoring plan, which required additional patient education, and what follow-up timeframe is needed to assess effects of changes **[25]**. Clear communication with all prescribers prevents inadvertent re-prescription of discontinued medications **[25]**. Patient-facing medication lists should explain the purpose of each medication in plain language to support informed decision-making and adherence **[10]**.

8. DISCUSSION

The evidence reviewed demonstrates multiple converging problems in multimorbidity management that family physicians face daily. Guidelines based on evidence from single-disease populations provide limited guidance for patients with multiple conditions **[8]**. Time required to implement all guideline recommendations exceeds available time by a factor of three even with team-based care **[9]**. Polypharmacy affects one-third of older adults with nearly half experiencing drug-drug interactions **[21,23]**. Treatment burden overwhelms 40% of patients on polypharmacy **[11]**. Patient priorities for symptom control and function conflict with physician priorities for risk reduction **[42]**. Younger adults and socioeconomically disadvantaged populations develop multimorbidity earlier but receive less research attention **[43,44]**. These problems are not independent but interconnected, creating a cycle where guideline adherence drives polypharmacy, polypharmacy increases treatment burden, treatment burden reduces adherence, non-adherence leads to worse outcomes, and worse outcomes prompt treatment intensification **[35,39]**. Breaking this cycle requires fundamental reconceptualization of chronic disease management for multimorbid patients, moving from disease-specific target achievement to person-centered care that

respects patient capacity and priorities while optimizing outcomes **[6,40]**.

The 2016 NICE guideline on multimorbidity called for reorientation of care to address multimorbidity and highlighted the importance of recognizing and addressing treatment burden **[7]**. Multiple national and international organizations have published guidelines on multimorbidity or polypharmacy including Scottish polypharmacy guidelines updated through 2019, the 2024 WHO guidance on medication safety in polypharmacy, and the 2024 Guidelines International Network multimorbidity working group consensus **[2,13]**. However, these guidelines largely articulate pragmatic common sense about patient-centered care rather than providing specific, actionable protocols for resolving guideline conflicts or prioritizing treatments **[7]**. The gap between recommending individualized care and actually delivering it in time-pressured primary care remains substantial **[9,10]**. Family physicians require practical decision-making frameworks that acknowledge the impossibility of achieving all guideline targets while providing structured approaches to prioritization, emphasizing several key principles that proposed frameworks consistently highlight **[6,7,10,15]**. First, patient goals and values should guide prioritization rather than default adherence to disease-specific targets. Second, life expectancy should inform decisions about preventive treatments with long time horizons for benefit. Third, treatment burden must be explicitly assessed and factored into treatment decisions. Fourth, functional status and quality of life should be prioritized over surrogate endpoints. Fifth, regular medication review should aim to reduce polypharmacy while maintaining necessary treatments **[33,40,42]**.

Operationalizing these principles requires specific strategies applicable in daily practice **[7]**. For patients with limited life expectancy (less than 5 years), preventive medications like bisphosphonates, statins for primary prevention, and tight glycemic control offer limited benefit and should be candidates for discontinuation **[15]**. For patients reporting high treatment burden, prioritize treatments for symptomatic conditions over asymptomatic conditions and consider whether achieving all disease-specific targets justifies the burden imposed **[40]**. For patients with functional limitations, prioritize treatments that preserve or improve function even if they do not address disease-specific markers **[42]**. For all patients, conduct regular comprehensive medication reviews that consider appropriateness, necessity, and effectiveness from the patient perspective **[25,33]**. The concept of therapeutic inertia traditionally describes failure to intensify treatment when targets are not met, but for multimorbid patients, therapeutic inertia might sometimes represent appropriate clinical judgment rather than suboptimal care **[6,55]**. When adding another medication would create intolerable burden, accepting above-target blood pressure or glucose may be the right decision, and reframing therapeutic inertia as thoughtful restraint rather than always as failure could support more appropriate care for complex patients **[10,40]**.

Translating deprescribing evidence into practice requires addressing multiple barriers identified in research **[34]**. Physicians report reluctance to deprescribe medications initiated by specialists without consultation, concern about causing harm through medication discontinuation, limited time for careful deprescribing, and lack of confidence in deprescribing unfamiliar medication classes **[25,34]**. Patients may resist deprescribing due to fear of symptom recurrence, attribution of benefit to medications that may be unnecessary, and difficulty distinguishing which medications are essential versus optional **[31]**. Successful deprescribing requires patient engagement through shared decision-making about which medications to prioritize, with deprescribing framed as optimization rather than simply stopping medications, emphasizing goals of reducing side effects, simplifying regimens, and focusing treatments on what matters most to patients **[32,33]**. Gradual dose reduction with monitoring rather than abrupt cessation reduces risk of withdrawal effects or condition recurrence **[31]**. Clear documentation and communication with all prescribers prevents inadvertent re-prescription **[25]**. Prioritization of which medications to deprescribe first should consider medications causing bothersome side effects or contributing to falls risk, medications with weak evidence for benefit in the specific patient, medications prescribed for potential adverse effects of other medications (prescribing cascade), preventive medications with long time to benefit in patients with limited life expectancy, and patient preferences about which medications they would most like to stop **[15,24,28,42]**.

Routine assessment of treatment burden should become standard practice in primary care for patients with multimorbidity **[40]**. Brief screening questions could identify patients experiencing high burden who would benefit from more detailed assessment and intervention, with simple questions like "Does managing your health conditions and medications feel overwhelming?" or "Do your treatments interfere with doing things that matter to you?" flagging high-burden patients **[40]**. For those screening positive, more detailed assessment using validated instruments like the Multimorbidity Treatment Burden Questionnaire would characterize specific sources of burden **[35,40]**. Interventions to reduce treatment burden include medication simplification through reducing pill burden, using combination medications, or reducing dosing frequency; appointment consolidation to reduce healthcare visit burden; addressing financial barriers through generic substitution, patient assistance programs, or alternative therapies; enhancing social support through caregiver involvement, peer support, or community health workers; and improving health literacy through teach-back methods, written instructions in plain language, and visual aids **[36,38,40]**. These interventions should be tailored to the specific sources of burden identified for individual patients **[39]**. The concept of minimally disruptive medicine provides a useful framework for thinking about treatment burden, shifting the question from "What is the medically optimal treatment?" to "What is the medically optimal treatment that this patient can

actually enact given their resources and priorities?" **[40]**. This shift acknowledges that theoretically optimal treatments produce no benefit if patients cannot or will not follow them, prioritizes feasibility and sustainability over rigid adherence to disease-specific targets, and recognizes that a simpler regimen patients can follow often achieves better outcomes than a complex optimal regimen they cannot manage **[7,36,39]**.

Addressing the misalignment between patient and physician priorities requires explicit discussion of goals and preferences rather than implicit assumptions about shared priorities **[42]**. Tools to facilitate these discussions exist but are underutilized in practice **[6]**. Asking patients "What matters most to you?" or "What are you hoping treatment will help you do?" can reveal priorities that differ from what physicians assume **[42]**. Presenting treatment options with information about both benefits and burdens allows patients to make informed choices reflecting their values **[7]**. For older adults with multimorbidity, discussing goals in terms of maintaining independence, staying in their own home, or continuing valued activities may be more meaningful than discussing risk reduction percentages **[15,42]**. For working-age adults, acknowledging the challenges of managing treatments while working and raising families validates their experience and invites discussion of realistic treatment plans **[48]**. For socioeconomically disadvantaged patients, addressing practical barriers like transportation, medication costs, and work schedule conflicts before addressing clinical targets respects their reality **[38,49]**. Physicians may need to accept that patient priorities sometimes diverge from what evidence-based medicine recommends as optimal, recognizing that a patient who prioritizes current quality of life over aggressive risk reduction has made a value judgment that deserves respect even if it results in above-target disease markers **[7,42]**. These choices reflect different balancing of current quality versus future quantity of life, and supporting patients in making informed choices consistent with their values represents good medical care even when those choices differ from guideline targets **[15]**.

This narrative review has several limitations that warrant consideration. As a narrative rather than systematic review, the evidence selection and synthesis reflect author perspective and may not comprehensively capture all relevant literature. The evidence base itself remains limited for many aspects of multimorbidity management, with most studies focusing on older adults in high-income countries with strong primary care systems **[43]**. Applicability to younger adults, socioeconomically disadvantaged populations, and low- and middle-income countries with different healthcare structures remains uncertain **[47,56]**. The evidence for specific multimorbidity interventions shows mixed results, and while medication review and deprescribing demonstrate benefits in some studies, large multicenter trials have not consistently shown improvements in hard outcomes like mortality or hospitalization **[6,29]**. The optimal approach to shared decision-making in multimorbidity remains uncertain with limited evidence to guide implementation in time-constrained primary care **[10]**. Treatment burden measurement tools exist but lack evidence demonstrating that measuring burden leads to improved outcomes **[40]**. These evidence gaps limit the specificity of recommendations we can provide **[19]**. The focus on family medicine and primary care may not fully address multimorbidity management across the care continuum, as specialists, hospitalists, emergency physicians, and post-acute care providers also manage multimorbid patients and face similar challenges with guideline conflicts and polypharmacy **[3,13]**. The principles discussed apply broadly but implementation strategies would differ across settings **[18]**. Future research should focus on comparative effectiveness of different multimorbidity management strategies in real-world primary care settings through pragmatic trials embedded in practice that test approaches to systematic medication review, treatment burden assessment and reduction interventions, and structured shared decision-making for priority-setting in multimorbidity **[6,19,40]**. Research should specifically address understudied populations including younger adults, racial and ethnic minorities, and socioeconomically disadvantaged groups **[43,47]**. Development and validation of brief, practical tools for assessing treatment burden and patient priorities that fit within time constraints of primary care appointments would support implementation of patient-centered multimorbidity care **[40]**.

9. CONCLUSION

Family physicians managing patients with multimorbidity face fundamental challenges created by the misalignment between single-disease guidelines and the complex reality of patients with multiple chronic conditions. The evidence demonstrates that implementing all guideline recommendations would require 26.7 hours daily, creating impossible expectations and forcing implicit prioritization decisions without adequate guidance. Most clinical trials exclude multimorbid patients, rendering guidelines based on evidence from populations that do not resemble those for whom the guidelines are intended. Polypharmacy affects one-third of older adults with nearly half experiencing drug-drug interactions. Treatment burden overwhelms 40% of patients taking five or more medications, leading to non-adherence and poor outcomes. Significant misalignment exists between patient priorities for symptom control and function versus physician priorities for risk reduction and guideline target achievement. These challenges disproportionately affect younger adults and socioeconomically disadvantaged populations who develop multimorbidity earlier yet remain understudied.

Family physicians require practical frameworks for navigating guideline conflicts that acknowledge the impossibility of achieving all targets simultaneously while providing structured approaches to prioritization based on patient goals, life expectancy, treatment burden, and functional priorities. Implementation of systematic medication review protocols using validated tools like STOPP/START combined with patient-centered discussions about which medications to prioritize represents an evidence-based strategy for addressing

polypharmacy. Routine assessment of treatment burden using brief screening questions followed by detailed evaluation for high-burden patients would identify those most likely to benefit from treatment simplification and burden reduction interventions. Structured approaches to shared decision-making that explicitly elicit patient priorities and preferences should guide treatment decisions rather than default guideline adherence.

These evidence-based approaches to multimorbidity management remain challenging to implement within current healthcare delivery and payment structures. Time constraints, inadequate reimbursement for non-physician team members, and electronic health record systems that increase administrative burden rather than supporting clinical decision-making create implementation barriers. Addressing these barriers requires system-level changes including expanded team-based care with appropriate payment, EHR redesign to support rather than hinder multimorbidity care, and quality metrics that reward patient-centered outcomes rather than achievement of disease-specific targets regardless of patient priorities or treatment burden. The path forward requires reconceptualizing chronic disease management for multimorbid patients from a disease-specific paradigm to a person-centered approach that prioritizes what matters to patients while optimizing outcomes within their capacity for self-management. This shift represents a fundamental change in how we think about quality care, moving from rigid target achievement to thoughtful, individualized management that respects patient autonomy and acknowledges the limitations of guidelines developed for single-disease populations. Family physicians are well-positioned to lead this transformation given their longitudinal relationships with patients, comprehensive scope of practice, and central role in care coordination. The evidence base supporting patient-centered multimorbidity management continues to develop, and sufficient evidence exists to begin systematic implementation of assessment and intervention strategies that improve care for this growing population.

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Authors' Contributions

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Declaration

In preparing this manuscript, the author used ChatGPT 5 to improve the clarity and grammatical correctness of selected passages and to check for organizational flow. The tool was employed to refine text for academic tone and enhance English language quality. The author did not use AI for literature searches, data interpretation, or generation of scientific conclusions. After using this tool, the author thoroughly reviewed and edited all content and takes full responsibility for the accuracy, integrity, and scientific validity of the work [53,54].

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