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Viewpoint

The FIT–FRAIL–DISABLE Framework: A Multidimensional CGA-Based Model for Proportional Treatment of Older Adults Across Speciality Care

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Highlights

Public health relevance—How does this work relate to a public health issue?

- Older adults now constitute the majority of patients referred for cancer therapy, cardiac procedures, fragility-fracture repair, and advanced neurological interventions, yet treatment allocation still relies largely on chronological age and disease-specific parameters that poorly capture biological reserve, producing both systematic overtreatment of frail patients and systematic undertreatment of biologically robust ones.
- Comprehensive Geriatric Assessment is the most accurate predictor of treatment tolerance and adverse outcomes in older patients, but it remains structurally absent from most speciality pathways—a translational gap with direct public-health consequences for a rapidly ageing population.

Public health significance—Why is this work of significance to public health?

- This Viewpoint proposes FIT–FRAIL–DISABLE, a multidimensional stratification model that translates Comprehensive Geriatric Assessment findings into proportional, speciality-specific treatment recommendations, offering a shared language between geriatricians and specialists across oncology, cardiology, neurogeriatrics, and orthogeriatrics.
- By integrating the deficit-based logic of frailty assessment with the capacity-oriented perspective of the WHO Intrinsic Capacity (ICOPE) framework, the model connects community-level geriatric evaluation to speciality-level therapeutic decisions within a single, reproducible structure.

Public health implications—What are the key implications or messages for practitioners, policy makers and/or researchers in public health?

- Health systems should embed multidimensional geriatric stratification within speciality pathways as a routine standard of care for older adults facing high-stakes treatment decisions, repositioning the geriatrician as an integral rather than occasional participant in the multidisciplinary team.

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- Researchers and policy-makers should prioritise prospective and retrospective validation of proportional-treatment frameworks and the digital infrastructure needed to monitor frailty trajectories over time, so that provisional stratification rules can be empirically calibrated against clinical outcomes.

Abstract

Frailty, cognitive impairment, depression, functional dependency, low physical performance, and undernutrition are highly prevalent in older adults referred for cancer treatment, cardiovascular interventions, neurological therapies, and orthopaedic surgery, and each independently predicts treatment toxicity, post-procedural complications, and mortality. Comprehensive Geriatric Assessment (CGA) is the most accurate predictor of treatment outcomes in older patients, yet it remains structurally absent from most speciality pathways, contributing to overtreatment of biologically frail patients and undertreatment of biologically robust ones. In this Viewpoint, we propose and operationalise the FIT–FRAIL–DISABLE multidimensional geriatric stratification model as a conceptual framework for translating CGA findings into proportional, speciality-specific treatment recommendations across oncology, cardiology, neurogeriatrics, and orthogeriatrics. The model integrates six validated CGA instruments—the Mini-Mental State Examination (MMSE), the 15-item Geriatric Depression Scale (GDS-15), basic and instrumental Activities of Daily Living (ADL, IADL), the Short Physical Performance Battery (SPPB), and the Mini Nutritional Assessment Short Form (MNA-SF)—into three actionable categories (FIT, FRAIL, DISABLE) aligned with full-intensity, risk-adapted, and symptom-focused care, and is explicitly positioned in relation to the deficit-based frailty paradigm and the WHO Intrinsic Capacity (ICOPE) framework, which it complements rather than replaces. We specify a provisional, a priori decision rule for combining domain scores and describe how each stratification category should inform—but not dictate—goal-concordant treatment intensity within a shared decision-making process. FIT–FRAIL–DISABLE is presented as a proposed, hypothesis-generating framework: its composite thresholds and domain weighting have not yet been empirically derived, and the model has not undergone prospective validation. Retrospective calibration on existing CGA cohorts and prospective multicentre validation are being designed within the GERIA-NET research consortium. If validated, the framework has the potential to reduce both overtreatment-related harm and undertreatment-related therapeutic deprivation in older adults undergoing active treatment.

Keywords: frailty; comprehensive geriatric assessment; intrinsic capacity; ICOPE; oncogeriatrics; cardiogeriatrics; orthogeriat-rics; neurogeriatrics; treatment stratification; multidisciplinary care

1. Introduction

The global population is ageing at an unprecedented pace. By 2050, individuals aged 65 years or older will exceed 1.5 billion, representing nearly 16% of the world population [1]. Older adults now constitute the majority of patients referred for systemic anticancer therapy, cardiac surgery, transcatheter aortic valve implantation (TAVI), fragility-fracture repair, and advanced neurological interventions. Yet the clinical frameworks governing these decisions were largely developed in younger, fitter populations and remain anchored in disease-specific parameters—tumour stage, ejection fraction, bone density—that fail to capture the multidimensional vulnerability defining biological ageing.

Frailty, recently revisited in a comprehensive review in the New England Journal of Medicine by Walston and colleagues, is now widely conceptualised as a state of decreased physiological reserve and increased vulnerability to stressors, characterised by underlying inflammation, metabolic dysregulation, and impaired homeostatic resilience [2]. It affects between 15% and 50% of older adults presenting for major medical or surgical procedures, depending on the clinical context [2]. Beyond frailty itself, cognitive impairment, depression, functional dependency, low physical performance, and undernutrition each independently predict treatment toxicity, postoperative complications, prolonged hospitalisation, and 1-year mortality across oncological, cardiovascular, neurological, and orthopaedic domains [3–5]. These dimensions, collectively captured by Comprehensive Geriatric Assessment (CGA), represent the biological substrate that disease-centric frameworks systematically miss.

In parallel, the World Health Organisation, through its Integrated Care for Older People (ICOPE) programme, has advanced an alternative paradigm—Intrinsic Capacity (IC)—defined as the composite of all physical and mental capacities an individual can draw upon, encompassing five domains: locomotion, cognition, vitality, sensory function, and psychological well-being [6]. The IC framework reconceptualises healthy ageing as the preservation of functional ability rather than the absence of disease, and has been operationalised through the ICOPE Step 1 and Step 2 community-level pathway [7]. Recent evidence demonstrates that intrinsic capacity trajectories independently predict cardiovascular events, hospitalisation, and mortality in older adults, with declining trajectories conferring substantially elevated risk [8,9]. The frailty and intrinsic capacity paradigms are not competing but complementary: frailty quantifies what has been lost; intrinsic capacity quantifies what remains. Both perspectives inform the framework we propose.

CGA has been validated as the most accurate predictor of treatment tolerance and adverse outcomes in older patients undergoing active treatment. Meta-analyses of randomised controlled trials demonstrate that CGA-guided interventions increase the likelihood of older patients living at home, reduce institutionalisation, and improve functional outcomes compared with standard care [10–12]. In oncology, CGA changes treatment decisions in 30% to 50% of cases [13]. In cardiogeriatrics, pre-interventional frailty assessment is now formally recommended by the European Association for Cardio-Thoracic Surgery and the European Society of Cardiology as a mandatory component of the TAVI and cardiac surgery decision pathway [14]. In orthogeriatrics, co-management models incorporating multidimensional assessment consistently reduce postoperative mortality and accelerate functional recovery [15–17]. Yet CGA remains structurally absent from most speciality pathways, relegated to a research tool rather than a clinical decision instrument.

We focus deliberately on oncology, cardiology, neurogeriatrics, and orthogeriatrics because these four domains share three defining features that make them the natural proving ground for a proportional-treatment framework. First, they concentrate the highest-stakes, highest-volume treatment-intensity decisions in older adults—systemic anticancer therapy, valve interventions and cardiac surgery, disease-modifying neurological therapy, and fragility-fracture repair—where the choice is rarely binary and the reserve-benefit trade-off is steep. Second, in each of them, chronological age and a single disease-specific parameter still dominate allocation, despite evidence that multidimensional reserve is the stronger determinant of outcome. Third, each already has an emerging but siloed evidence base for geriatric co-assessment—oncogeriatric CGA, pre-interventional cardiac frailty assessment, delirium and cognitive prediction in neurogeriatrics, and orthogeriatric co-management—that has not yet been unified under a common stratification language. FIT–FRAIL–DISABLE is intended to provide that language.

The consequences of the current gap are bidirectional and equally damaging. Biologically frail older adults are systematically overtreated—exposed to full-dose chemotherapy, major open surgery, or aggressive cardiac interventions—resulting in disproportionate toxicity, functional collapse, and iatrogenic harm. Conversely, biologically robust older adults are systematically undertreated—denied curative-intent therapy on the basis of chronological age alone—deprived of treatments they could have tolerated and benefited from. Chronological age, the dominant surrogate currently used for treatment allocation, is a poor proxy for biological reserve and a poor predictor of treatment tolerance [2].

What is needed is a structured, reproducible framework that translates CGA findings into actionable, speciality-specific treatment recommendations—a common language between geriatrician and specialist that bridges the deficit-based and capacity-based paradigms. We propose the FIT–FRAIL–DISABLE multidimensional stratification model, developed within the multidisciplinary geriatric assessment unit of Ravenna, to address this gap.

2. Methods

This is a conceptual framework-development Viewpoint. It does not report original patient data and did not involve a formal systematic literature review; the model is presented as a proposal for clinical implementation and as a foundation for empirical validation, not as a synthesis of completed randomised-trial evidence. The development process, evidence base, assessment domains, decision rule, and relationship to existing frameworks are described below to allow reproduction and critical appraisal.

2.1. Conceptual Foundations

The FIT–FRAIL–DISABLE framework is grounded in three converging traditions of contemporary geriatric medicine:

(i) The frailty phenotype tradition, as systematised by Fried [18] and re-examined by Walston and colleagues [2], which captures the cumulative deficit and decreased physiological reserve underlying treatment vulnerability;
(ii) The Comprehensive Geriatric Assessment tradition, validated by Stuck [10] and Ellis [11] and operationalised through the InCHIANTI cohort [19], which provides the multidimensional measurement infrastructure on which actionable decisions can be built;
(iii) The WHO Intrinsic Capacity/ICOPE framework, which complements deficit accumulation with a forward-looking, capacity-oriented perspective relevant for community prevention and longitudinal monitoring of healthy-ageing trajectories [6,7].

FIT–FRAIL–DISABLE is the bridge between these perspectives and speciality clinical practice. It does not replace frailty assessment or intrinsic-capacity evaluation—it operationalises their findings into a treatment-relevant categorical output that the oncologist, cardiologist, neurologist, or orthopaedic surgeon can directly act upon.

2.2. Model Development Process

The framework was developed by the author group, whose combined clinical expertise spans geriatric medicine and internal medicine for frailty and ageing (C.T., F.P., M.M., F.L.), neurogeriatrics and cognitive disorders (G.D.F.), and internal medicine with a focus on multimorbidity (M.D.). Development followed four explicit steps. First, for each candidate domain, we identified the most widely validated instrument and adopted its established clinical cutoffs directly from its primary validation literature, rather than defining new thresholds (Section 2.3). Second, we performed a structured narrative review of contemporary domain-specific evidence and international consensus statements in each of

the four specialities—oncogeriatrics, cardiogeriatrics, neurogeriatrics, and orthogeriatrics—to define the treatment-intensity recommendations attached to each category (Section 3). Third, we defined, a priori, by consensus among the authors, the categorical decision rule that maps six domain scores onto three categories (Section 2.4). Fourth, the resulting framework was drafted, cross-checked against the source literature by at least two authors, and iteratively refined.

Use of artificial intelligence. Generative artificial intelligence tools were used during manuscript preparation for language editing and for organising and cross-referencing the cited literature. They were not used to generate the conceptual framework, the choice of domains or cutoffs, the decision rule, or the clinical recommendations, all of which represent the independent intellectual work of the authors. Every reference and every clinical statement generated with AI assistance was independently verified by the authors against primary sources. The model has not yet undergone external expert-panel review or a formal consensus (e.g., Delphi) process; independent multidisciplinary appraisal and formal consensus are planned as part of the validation programme described in Section 4.5 and represent an acknowledged current limitation (Section 4.4).

2.3. Assessment Domains

The framework integrates six validated geriatric assessment domains administered as part of a structured CGA protocol.

Cognitive function is assessed using the Mini-Mental State Examination (MMSE), with established cutoffs for normal cognition ($\geq$24), mild-to-moderate impairment (18–23), and severe impairment (<18) [20]. MMSE predicts chemotherapy toxicity, surgical delirium risk, and post-procedural functional decline across all four speciality domains, and overlaps directly with the cognitive domain of the WHO Intrinsic Capacity framework.

Mood is assessed using the 15-item Geriatric Depression Scale (GDS-15), with scores $\leq$4 indicating no significant depression, 5–9 mild-to-moderate depression, and $\geq$10 severe depression [21]. Depressive symptomatology independently predicts treatment non-adherence, functional decline, and increased mortality, and corresponds to the psychological domain of intrinsic capacity.

Functional status is assessed across two complementary dimensions: basic Activities of Daily Living (ADL, Katz scale, 0–6) capturing self-care capacity [22], and Instrumental Activities of Daily Living (IADL, Lawton–Brody scale, 0–8) capturing higher-order functional independence [23]. Baseline functional dependency is among the strongest predictors of postoperative complications and of failure to return to pre-illness functional status.

Physical performance is assessed using the Short Physical Performance Battery (SPPB), a composite test of balance, gait speed, and chair-rise ability scored 0–12 [24]. SPPB scores $\geq$10 indicate preserved lower-extremity function; 6–9, moderate impairment; and $\leq$5, severe impairment. Low SPPB is a robust predictor of 1-year mortality, institutionalisation, and treatment complications, and aligns with the locomotion domain of intrinsic capacity. Within the InCHIANTI cohort, SPPB and gait speed have emerged as among the most reliable predictors of functional decline across the eighth and ninth decades [19].

Nutritional status is assessed using the Mini Nutritional Assessment Short Form (MNA-SF, 0–14), with scores $\geq$12 indicating normal nutritional status, 8–11 risk of malnutrition, and $\leq$7 malnutrition [25]. Nutritional status modulates treatment tolerance across oncological, cardiac, and orthopaedic contexts and corresponds to the vitality domain of intrinsic capacity.

2.4. Stratification Categories and Decision Rule

Integration of the six domain scores generates three stratification categories, defined per domain in Table 1. All six domains—including MNA-SF—contribute to classification and are displayed consistently across Table 1 and the accompanying figures.

Table 1. FIT–FRAIL–DISABLE per-domain stratification criteria based on CGA domain scores. ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living; MMSE = Mini-Mental State Examination; GDS-15 = 15-item Geriatric Depression Scale; SPPB = Short Physical Performance Battery; MNA-SF = Mini Nutritional Assessment Short Form.

Category	MMSE	GDS-15	ADL	IADL	SPPB	MNA-SF	Therapeutic Goal
FIT	≥24	≤4	6	Preserved	≥10	≥12	Full-dose/ curative intent
FRAIL	18–23	5–9	4–5	Partially impaired	6–9	8–11	Risk-adapted therapy
DISABLE	<18	≥10	≤3	Severely impaired	≤5	≤7	Goal-concordant, symptom-focused

Decision Rule

Because the six domains will not always fall into the same category, an explicit rule is required to convert the domain profile into a single classification. We adopt a hybrid critical-domain rule, defined a priori by author consensus:

- Critical-domain override. Severe impairment in either cognition (MMSE < 18) or basic self-care function (ADL ≤ 3)—the two domains most directly tied to autonomy, capacity to consent, and dependency—assigns the patient to at least the FRAIL category, and to DISABLE when both are in the severe range or when either coexists with severe impairment in a second domain.
- Integrative classification for the remaining profile. Outside the critical-domain override, the overall category is assigned by the predominant (modal) level across the six domains, with ties resolved towards the more conservative (lower-intensity) category.

Status of the thresholds and weights. We wish to be explicit that the per-domain cutoffs are empirical (drawn from each instrument's validation literature), whereas the composite decision rule and the implicit weighting it encodes are expert-derived and provisional. They have not been calibrated against clinical outcomes. We deliberately state them a priori because a stratification rule cannot be validated unless it is first specified: the rule presented here is the testable hypothesis, not an established result. Its domain weights and composite cut-points are precisely the parameters to be derived and recalibrated empirically—first retrospectively, then prospectively—in the validation programme described in Section 4.5. This design choice directly addresses the risk that a single deficit might over-classify an otherwise-preserved patient: the critical-domain override is restricted to the two domains with the clearest bearing on autonomy and consent, and the rule is offered for empirical falsification rather than as a fixed clinical mandate.

2.5. Relationship to Existing Frameworks

FIT–FRAIL–DISABLE is conceptually distinct from—and complementary to—the deficit-based frailty paradigm and the WHO Intrinsic Capacity framework. Table 2 summarises the principal differences.

The three frameworks operate at different levels of the care continuum and answer different questions. Frailty assessment answers "who is vulnerable?". Intrinsic Capacity answers "what residual function can be preserved or built upon?". FIT–FRAIL–DISABLE answers "how should treatment intensity be calibrated for this individual patient, in this

speciality context, at this point in time?". A geriatric service operating across all three perspectives provides comprehensive coverage from community prevention to speciality-level decision-making—the operational vision underlying the model.

Table 2. Conceptual positioning of FIT–FRAIL–DISABLE in relation to the frailty deficit-accumulation paradigm and the WHO Intrinsic Capacity (ICOPE) framework.

Dimension	Frailty (Deficit Accumulation)	Intrinsic Capacity (WHO ICOPE)	FIT–FRAIL–DISABLE (Proposed)
Conceptual orientation	What the patient has lost (deficits)	What the patient retains (capacities)	How to dimension treatment based on integrated reserve
Domains assessed	Physical (Fried) or multidimensional (Rockwood FI, CFS)	Locomotion, cognition, vitality, sensory, psychological (5 IC domains)	Cognition, mood, basic and instrumental function, physical performance, nutrition (6 CGA domains)
Primary clinical use	Risk stratification, prognosis	Community prevention, health promotion	Treatment-intensity calibration across specialties
Care setting	Hospital, specialist	Primary care, community	Multidisciplinary speciality hub
Output	Frail/non-frail classification or score	IC composite score, intervention plan	FIT/FRAIL/DISABLE category with speciality-specific recommendation

3. The FIT–FRAIL–DISABLE Framework

The FIT category identifies patients with preserved biological reserve across domains, candidates for full-intensity, curative-intent treatment. The FRAIL category identifies patients with intermediate compromise, requiring risk-adapted modification and geriatric optimisation. The DISABLE category identifies patients with severe multidimensional compromise, for whom lower-intensity, goal-concordant approaches are the appropriate default—while recognising, as detailed below, that category never dictates a specific treatment in isolation from patient goals and clinical context.

3.1. From CGA to Stratification

Figures 1 and 2 showed schematic representation of the FIT–FRAIL–DISABLE stratification model and domain-specific cutoff scores for the FIT, FRAIL, and DISABLE categories.

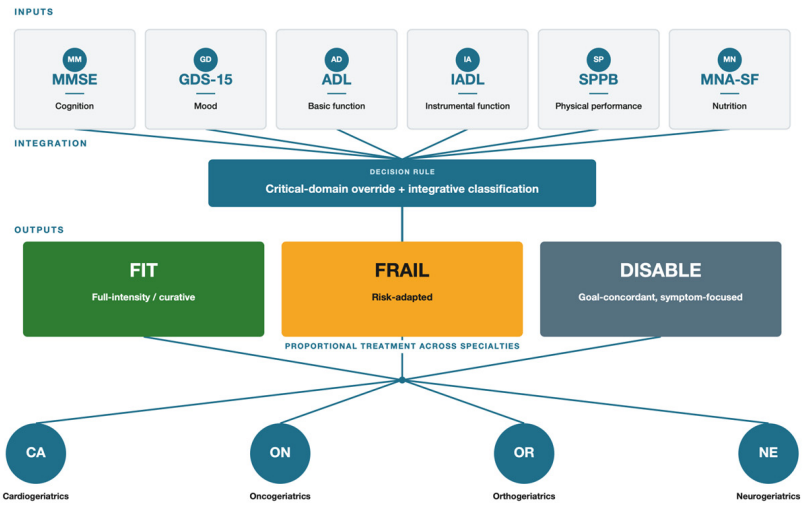

Figure 1. Schematic representation of the FIT–FRAIL–DISABLE stratification model. The six Comprehensive Geriatric Assessment domains (MMSE, GDS-15, ADL, IADL, SPPB, MNA-SF) are

integrated through the decision rule of Section 2.4 to generate three stratification categories (FIT, FRAIL, DISABLE), each directing proportional treatment across four speciality domains: cardiogeriatrics, oncogeriatrics, orthogeriatrics, and neurogeriatrics.



Figure 2. Domain-specific cutoff scores for the FIT, FRAIL, and DISABLE categories. All six CGA domains (MMSE, GDS-15, ADL, IADL, SPPB, MNA-SF) are uniformly applied across the four speciality contexts, supporting a common language between geriatricians and specialists.

3.2. Proportional Treatment Pathways

The model generates proportional treatment recommendations within each speciality domain, summarised in Table 3. These recommendations describe the default direction of travel associated with each category; they are intended to structure, not replace, individualised clinical judgement (Section 3.4).

Table 3. Proportional treatment pathways by FIT–FRAIL–DISABLE category across four speciality domains. Recommendations describe the default treatment direction associated with each category and are grounded in domain-specific evidence and international consensus; they are subject to individualisation based on patient goals, reversibility of impairment, prognosis, treatment burden, and expected quality-of-life benefit.

Category	Oncogeriatrics	Cardiogeriatrics	Neurogeriatrics	Orthogeriatrics
FIT	Full-dose systemic therapy; standard radiotherapy; curative-intent surgery	Standard cardiac surgery/TAVI; full guideline-based medical therapy	Guideline-concordant therapy; surgical evaluation when indicated; structured cognitive support	Standard surgical fixation; standard anaesthesia; early mobilisation
FRAIL	Dose-adjusted therapy; hypofractionated radiotherapy; geriatric prehabilitation	TAVI preferred over open surgery where appropriate; modulated medical therapy; structured co-management	Simplified regimen; caregiver support; cognitive rehabilitation; fall prevention; delirium-monitoring protocol	Orthogeriatric co-management; modified anaesthesia; fracture liaison service
DISABLE	Lower-toxicity, goal-concordant therapy; symptom-directed radiotherapy; surgery only when benefit outweighs burden	Comfort-focused medical management; invasive procedures only for symptom control/ goal-concordant benefit	Behavioural management; palliative neurogeriatric care; caregiver-centred planning	Individualised care including surgery for pain control, mobilisation, and nursing when goal-concordant; otherwise supportive management and pain control

3.3. Speciality-Specific Application

In this section we reported "treatment decision matrix integrating FIT–FRAIL–DISABLE stratification with speciality-specific therapeutic pathways" (Figure 3), the Geriatric Risk Profile and Therapies model (Figure 4) and finally a site at the "S. Maria delle Croci" Hospital, AUSL Romagna, Ravenna, where this approach is organized (Figure 5).

	ONCOGERIATRICS	CARDIOGERIATRICS	NEUROGERIATRICS	ORTHOGERIATRICS
FIT	• full-dose systemic therapy • standard radiotherapy • curative surgery	• standard cardiac surgery / TAVI • full guideline-based medical therapy	• guideline-concordant therapy • surgical evaluation when indicated • cognitive support	• standard surgical fixation • standard anaesthesia • early mobilization
FRAIL	• dose-adjusted therapy • hypofractionated radiotherapy • prehabilitation	• TAVI preferred over open surgery • modulated therapy • structured co-management	• simplified regimen • caregiver support • cognitive rehabilitation • fall prevention • delirium monitoring	• orthogeriatric co-management • modified anaesthesia • fracture liaison service
DISABLE	• lower-toxicity, goal-concordant therapy • symptom-directed radiotherapy • surgery when benefit outweighs burden	• comfort-focused medical management • invasive procedures for symptom control / goal-concordant benefit	• behavioural management • palliative neurogeriatric care • caregiver-centred planning	• surgery for pain control, mobilization and nursing when goal-concordant • otherwise supportive management and pain control

Figure 3. Treatment decision matrix integrating FIT–FRAIL–DISABLE stratification with speciality-specific therapeutic pathways, from full guideline-concordant therapy (FIT) to goal-concordant, comfort-focused care (DISABLE).

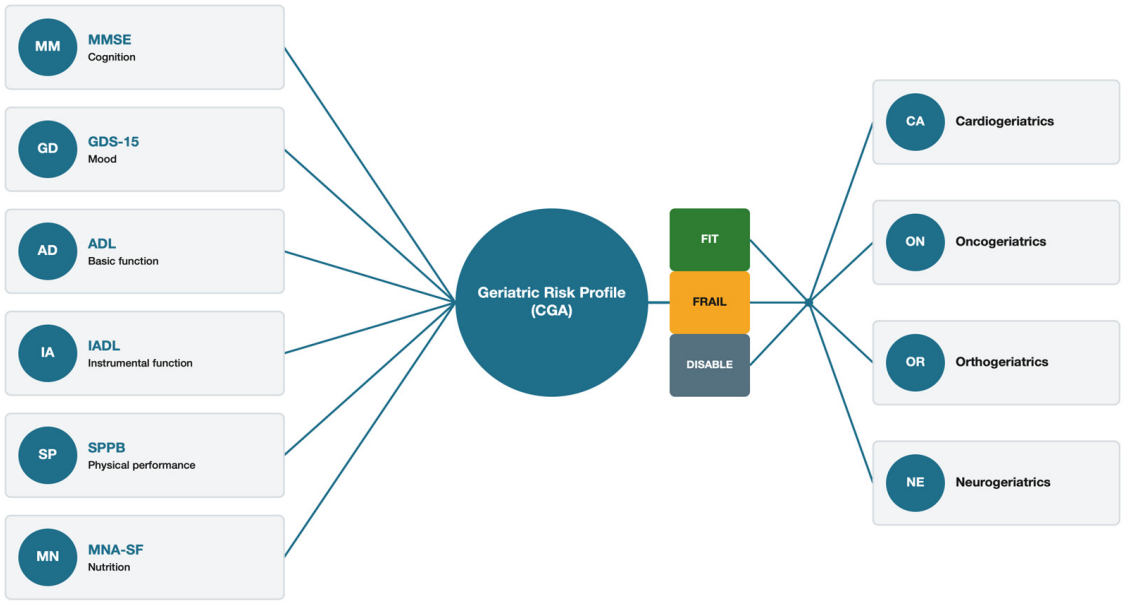

Figure 4. The Geriatric Risk Profile and Therapies model. The six CGA domains (MMSE, GDS-15, ADL, IADL, SPPB, MNA-SF) converge into a unified risk profile that generates speciality-specific therapeutic directions across cardiogeriatrics, oncogeriatrics, orthogeriatrics, and neurogeriatrics.

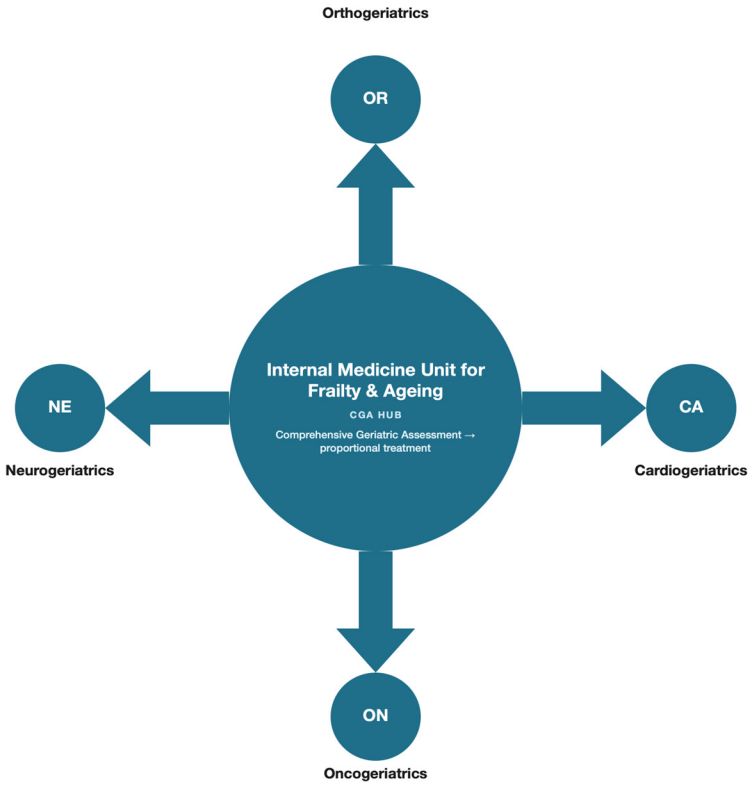

Figure 5. Operational model of a dedicated Internal Medicine Unit for Frailty and Ageing as the central hub of multidisciplinary geriatric assessment, performing Comprehensive Geriatric Assessment and distributing proportional treatment recommendations across the four speciality domains.

3.3.1. Oncogeriatrics

In the oncological setting, CGA-based stratification has demonstrated direct clinical impact. The GERABEL study established that validated geriatric determinants—functional status, cognitive performance, and nutritional parameters—independently predict curative radiotherapy scheme selection in older patients with cancer [26]. Commentary by Hernández-Favela and colleagues reinforced that CGA findings, rather than age alone, should drive treatment allocation [27]. The Gerontosurgery multicentre evaluation confirmed that multidimensional scales outperform conventional risk scores in predicting postoperative outcomes in older patients undergoing major abdominal surgery [28]. The Latin American oncogeriatric consensus provides a structured framework for integrating CGA into oncological decision-making across tumour types and treatment modalities [29]. Within FIT–FRAIL–DISABLE, FIT patients are candidates for full-dose systemic therapy, standard radiotherapy, and curative surgery; FRAIL patients for dose adjustment, hypofractionated schemes, and prehabilitation; and DISABLE patients for lower-toxicity, goal-concordant therapy, with surgery reserved for situations in which expected benefit outweighs burden.

3.3.2. Cardiogeriatrics

In the cardiovascular domain, the joint consensus statement of the European Association for Cardio-Thoracic Surgery (EACTS), the European Association of Preventive Cardiology (EAPC), and the European Society of Cardiology (ESC) formally mandates pre-interventional frailty assessment before cardiac surgery or TAVI [14]. Multidimensional pre-procedural assessment predicts 1-year functional outcomes, rehospitalisation, and mortality after transcatheter aortic valve implantation, and the FRAILTY-AVR study confirmed the prognostic value of multidimensional frailty assessment in this population [30].

Population-based evidence further shows that intrinsic-capacity trajectories independently predict incident cardiovascular events and cardiovascular mortality after adjustment for traditional risk factors [8]. The model aligns with these recommendations: FIT patients towards standard interventions with full guideline-based therapy; FRAIL patients towards minimally invasive options with structured co-management; and DISABLE patients towards comfort-focused management, with invasive procedures reserved for symptom control or clearly goal-concordant benefit.

3.3.3. Neurogeriatrics

In the neurogeriatric setting, cognitive impairment and depression—captured via MMSE and GDS-15—are primary determinants of treatment eligibility and adherence. Beyond cognition itself, perioperative delirium is a cross-speciality outcome of paramount importance: it is among the most common postoperative complications across cardiac, orthopaedic, oncologic, and major-surgical settings, and is independently associated with prolonged hospitalisation, persistent cognitive decline, and elevated mortality. Identifying patients at elevated delirium risk through pre-procedural CGA—including cognitive baseline, sensory function, and biomarkers of neuroinflammation—represents one of the highest-yield applications of the framework. Within the GERIA-NET research programme, biomarkers of microglial activation and grey-matter integrity, building on prior work by Femminella and colleagues [31,32], are being explored as predictors of delirium incidence and post-procedural cognitive trajectory. FIT patients are candidates for guideline-concordant therapy and, where applicable, neurosurgical evaluation; FRAIL patients benefit from simplified regimens, caregiver support, cognitive rehabilitation, and fall prevention; DISABLE patients require individualised palliative planning centred on behavioural management, caregiver communication, and symptom control.

3.3.4. Orthogeriatrics

Orthogeriatric co-management is the most mature model of structured geriatric integration into a speciality domain. Sabharwal and Wilson demonstrated that co-management significantly reduces 1-year mortality and accelerates functional recovery after fragility fractures [15]. Pankratz and colleagues confirmed superior 1-year functional outcomes in co-managed hip-fracture patients compared with standard orthopaedic care [16], and the Italian orthogeriatric co-management consensus provides a national implementation framework [17]. Within the framework, FIT older adults with fragility fractures are candidates for standard surgical fixation and early mobilisation, and FRAIL patients for orthogeriatric co-management, modified anaesthesia, and fracture-liaison coordination. For DISABLE patients, we emphasise a point that distinguishes fracture care from most other speciality contexts: surgery is frequently the most effective palliative and nursing intervention available. In hip and other fragility fractures, operative fixation in severely frail or disabled patients is often indicated specifically to achieve pain control, to permit mobilisation, sitting, and transfers, to enable basic nursing care, and to avoid the substantial morbidity of prolonged immobility—even when survival benefit is limited, and the goal is comfort. In this population, the DISABLE category should therefore prompt an explicit surgical-versus-conservative palliative discussion rather than default exclusion from surgery; non-operative supportive management with structured analgesia is appropriate only when surgery is judged unlikely to serve the patient's goals.

3.4. Category Informs, It Does Not Dictate: Goal-Concordant Use of the Model

A stratification category is a structured starting point for a treatment conversation, not an automatic prescription. Disability or severe frailty must not, in itself, preclude disease-directed treatment. Three principles govern the application of the model and are

intended to guard against therapeutic nihilism. First, reversibility: impairments driven by acute illness, delirium, deconditioning, pain, or undernutrition may be modifiable, and a DISABLE classification during acute presentation may not reflect the patient's attainable baseline; reassessment after optimisation is required before any irreversible treatment limitation. Second, goal-concordance and shared decision-making: the selected intensity must reflect the patient's own priorities, prognosis, treatment burden, and expected quality-of-life benefit, established through an explicit shared decision-making process with the patient and, where appropriate, family and caregivers. Third, proportionality in both directions: just as the model protects frail patients from harmful overtreatment, it protects biologically robust patients from age-based undertreatment. Category labels calibrate the conversation; they never substitute for it.

3.5. Dynamic Reassessment

The categories are explicitly not static. Frailty and intrinsic capacity are dynamic, and a patient's classification can change—improving after prehabilitation, nutritional repletion, depression treatment, or resolution of acute illness, or worsening after a major stressor. The model is therefore intended for repeated application: an initial classification to inform the index decision, and reassessment at clinically meaningful intervals—for example after prehabilitation, before each new treatment cycle, or after an acute event—to detect reclassification (e.g., FRAIL to FIT after optimisation, or FIT to FRAIL after complication) and to update treatment intensity accordingly. Formalising the timing and thresholds for reassessment, and capturing frailty trajectories rather than single time-points, is a specific objective of the longitudinal arm of the GERIA-NET programme (Section 4.5).

4. Discussion

The FIT–FRAIL–DISABLE model addresses a structural gap in contemporary medicine: the absence of a reproducible, multidimensional geriatric framework capable of translating Comprehensive Geriatric Assessment findings into actionable, speciality-specific treatment decisions across multiple clinical contexts. We organise the discussion around four arguments.

4.1. The Geriatrician as an Integral Member of the Treatment Team

The central claim of this paper is not that CGA should be performed before treatment decisions in older adults—this is already established by Cochrane-level evidence [10–12]. The claim is that the geriatrician should occupy a structural, not a purely consultative, role in multidisciplinary care: an integral member of the team who helps calibrate proportional treatment intensity to biological reserve, rather than a peripheral expert summoned only when the specialist is uncertain. It is in this sense that we have described the geriatrician as a "clinical architect" of proportional care—a metaphor we use deliberately once and do not wish to overstate: the intent is a genuinely shared, multidisciplinary decision in which geriatric, oncological, cardiological, neurological, and surgical expertise carry equal standing, not a hierarchy with the geriatrician at its head. The Ravenna model operationalises this vision: a dedicated Internal Medicine Unit for Frailty and Ageing that performs structured CGA for patients referred from oncology, cardiology, neurology, and orthopaedics, generating stratified recommendations that inform—not replace—speciality decision-making. This is consistent with longitudinal evidence that physical-performance decline accelerates when multidimensional vulnerability is not systematically identified [5], and with the recent NEJM frailty review's call for systematic implementation of multidimensional frailty assessment in clinical pathways [2].

4.2. Differentiation from Existing Tools

Several frailty screening instruments are available, including the Fried phenotype [18], the Rockwood Frailty Index [2], the Clinical Frailty Scale, the G8 questionnaire, the Vulnerable Elders Survey (VES-13), and the SHARE-FI. Each captures a relevant dimension of vulnerability, but none integrates cognitive, mood, functional, physical-performance, and nutritional domains into a single actionable framework directly applicable across multiple speciality contexts. The Fried phenotype, while well validated as a research tool, operationalises physical frailty alone. The WHO Intrinsic Capacity/ICOPE framework [6,7]—validated against incident disability, dementia, falls, and mortality across international cohorts [8,9]—was designed for community-level prevention and primary-care implementation rather than treatment-intensity calibration in speciality hospital settings; its instruments are deliberately brief and screening-oriented, whereas the speciality environment requires the depth of formal CGA and the actionability of categorical recommendations. FIT–FRAIL–DISABLE is distinguished by comprehensiveness (six validated domains), cross-speciality translatability (the same framework generates different recommendations in each speciality), and direct actionability (each category corresponds to a treatment-intensity tier). It sits at the speciality-implementation level of the care continuum, downstream of community ICOPE screening and upstream of disease-specific pathways—the bridge that allows geriatric assessment built in the community to inform the speciality decision in the hospital.

Recent digital-health evidence supports the indispensability of multidimensional integration. Legrand and colleagues found that sensor-based platforms combining gait, balance, and grip strength had limited ability to reproduce Fried-defined frailty when used in isolation, while multimodal models integrating clinical and patient-reported variables improved frailty discrimination [3]. Objective digital markers, deficit-based scores, and intrinsic-capacity domains are most useful when embedded within an integrative multidimensional framework—precisely the approach formalised here.

4.3. The Bidirectional Failure of Age-Based Allocation

Current practice, in which chronological age and disease severity dominate allocation, produces two symmetric and equally harmful failures. Overtreatment exposes biologically frail older adults to full-dose chemotherapy, open cardiac surgery, and aggressive interventions for which their reserve is insufficient, causing disproportionate toxicity, functional collapse, and avoidable harm. Undertreatment withholds curative-intent therapy from biologically robust older adults on the basis of age alone. The framework is designed to correct both: it identifies biologically fit older adults who merit full-intensity treatment regardless of age, and biologically compromised patients for whom proportionally adjusted or palliative approaches are appropriate regardless of tumour stage or cardiac anatomy—a reserve-based, rather than age-based, logic of allocation [2].

4.4. Limitations

Several limitations must be acknowledged. First, FIT–FRAIL–DISABLE is a conceptual framework that has not been validated in prospective cohorts; the sample sizes such validation would require are addressed in Section 4.5. Second, while the per-domain cutoffs are drawn from each instrument's validation literature, the composite decision rule and the domain weighting it encodes are expert-derived and have not been empirically calibrated against clinical outcomes; the appropriate relative weight of the six domains—and whether functional status and physical performance should be prioritised, as InCHIANTI gait-speed evidence suggests [19]—remains an open methodological question. Third, the model has not undergone external expert-panel review or a formal consensus (e.g., Delphi) process;

independent multidisciplinary appraisal is a planned next step. Fourth, no formal systematic literature review was performed—inherent to the framework-development design—so the supporting evidence, while drawn from contemporary consensus documents and key studies, was assembled by structured narrative rather than systematic synthesis. Fifth, integration with the WHO Intrinsic Capacity framework is conceptual and operates at the level of domain alignment; it does not yet encompass the full ICOPE Step 1/Step 2 workflow. These limitations define the validation agenda rather than undermining the proposal: the model is offered as a testable hypothesis.

4.5. Future Directions and Validation

We propose a staged validation. As a first step—and in direct response to the need to calibrate the composite rule before clinical deployment—retrospective validation on existing CGA cohorts with recorded outcomes should be used to empirically derive domain weights and composite cut-points, to test the critical-domain override, and to characterise the model's prognostic performance. Prospective multicentre validation should then follow, enrolling older adults across all four speciality domains and following them to 12- and 24-month functional, clinical, and survival outcomes, with dynamic reassessment built into the design. Both steps are central aims of the GERIA-NET research consortium—a multicentre Italian consortium (Universities of Parma, Bologna, Federico II Naples, and Chieti-Pescara, with territorial recruitment through ASL Napoli 2 Nord) with international collaboration with the Aging Research Center, Karolinska Institutet—submitted for the Italian Ministry of University and Research PRIN 2026 call and currently under evaluation. Within this agenda, formal operationalisation of the interface between FIT–FRAIL–DISABLE and the complete ICOPE pathway is a specific planned objective. Mapping the framework onto ICOPE Step 1 community screening, Step 2 in-depth assessment, and Step 3 personalised care planning would move the current domain-level alignment acknowledged in Section 4.4 towards a fully specified referral and care-planning workflow, in which community-level intrinsic-capacity screening triggers structured multidimensional stratification before speciality treatment decisions are made [6,7]. Beyond validation, incorporation of AI-enabled longitudinal monitoring capable of tracking frailty trajectories in real time and generating dynamic stratification updates would extend the model from a point-in-time tool towards a continuous management system, explicitly linked to the global ICOPE implementation initiative.

A further question concerns the sample size required to move the framework from proposal to validated instrument. Because FIT–FRAIL–DISABLE assigns patients to three ordered categories on the basis of six domains, the sample size needed to calibrate it is governed by outcome events relative to estimated parameters, not by a conventional power calculation for a between-group comparison. Coding the six domains at three levels yields at least 12 predictor parameters before any speciality-specific term is considered, which under established criteria implies a development cohort of several hundred patients accruing several tens of outcome events for retrospective calibration of the composite rule [33]. External validation carries a distinct requirement—at least 100 events and 100 non-events for calibration and discrimination to be estimated with acceptable precision—so validation cohorts must be sized on event count rather than on enrolment [34]. Two practical consequences follow. A single-centre series of a few dozen patients cannot calibrate this model and should not be presented as validating it. And because the four speciality domains differ in case mix and event rates, adequate precision for the pooled model does not guarantee adequate precision within each speciality, so stratum-specific weights will remain provisional unless the corresponding strata are deliberately oversampled. The multicentre validation programme outlined above was designed against these constraints.

5. Conclusions

We have proposed FIT–FRAIL–DISABLE, a multidimensional geriatric stratification model intended to translate Comprehensive Geriatric Assessment findings into proportional, speciality-specific treatment decisions across oncology, cardiology, neurogeriatrics, and orthogeriatrics, and positioned explicitly in relation to the deficit-based frailty paradigm and the WHO Intrinsic Capacity framework. The model addresses a consequential structural gap—the systematic failure to account for multidimensional vulnerability in older adults undergoing active treatment—and it is offered as a proposed, hypothesis-generating framework rather than a validated instrument. Its composite thresholds and domain weighting have not been empirically derived, and it has not undergone prospective validation; accordingly, implementation should proceed only within validation studies or carefully monitored clinical pathways, and category labels should always be applied through goal-concordant, shared decision-making rather than as automatic treatment mandates. Retrospective calibration and prospective multicentre validation are being designed within the GERIA-NET consortium. If validated, the framework has the potential to reduce overtreatment-related harm and undertreatment-related therapeutic deprivation, and to align treatment decisions with the biological reality of ageing.

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