Life-Coherent Internal Medicine

A Maturana-Informed Framework for Clinical Reasoning, Physiology, and Capacity Restoration

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Author's Note, AI-Use Disclosure, and Disclaimer

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Abstract

Internal medicine is one of the great achievements of modern scientific medicine. It has developed extraordinary power to diagnose disease, interpret physiological disturbance, manage emergencies, apply pharmacology, and prolong life. Yet the teaching and practice of internal medicine often remain fragmented across organ systems, disease categories, laboratory values, guidelines, medications, subspecialties, and institutional workflows. Students are asked to memorize large bodies of knowledge before they are given a coherent way to perceive the patient as a living unity whose capacities for adaptation, repair, regulation, energy transformation, participation, and meaningful action have become impaired.

This white paper proposes **Life-Coherent Internal Medicine** as a Maturana-informed framework for reorganizing internal medicine around the living logic of the human being. Drawing on the biological distinctions of living unity, autopoiesis, structural coupling, observer-dependent distinction-making, and domains of explanation, the framework reframes clinical reasoning as the disciplined art of making life-serving distinctions. Disease is not reduced to organ malfunction alone, nor is health reduced to the normalization of laboratory values. Illness is understood as a disturbance in life-capacity arising across organism, tissue, cell, mitochondria, immune system, nervous system, social relation, ecological condition, and lived meaning.

The paper introduces seven primitives of Life-Coherent Internal Medicine: **living unity, clinical distinction, structural coupling, life-capacity, energy transformation, boundary/exchange, and repair trajectory**. These primitives are translated into a practical bedside method called the **Life-Coherent Clinical Loop**: stabilize danger, distinguish the syndrome, locate the failed capacity, map the organism-medium coupling, perturb wisely, and observe the repair trajectory. This loop preserves the urgency and rigor of conventional internal medicine while expanding its interpretive field beyond disease labels toward capacity restoration and minimum harm.

Particular attention is given to mitochondria as mediators of energy transformation, stress signaling, inflammatory regulation, repair, and physiological reserve. In this framework, mitochondria are not treated as the cause of all disease, but as critical sites where oxygen, nutrients, circulation, inflammation, sleep, movement, autonomic tone, medication effects, and social stress are translated into usable or unusable biological capacity. The paper concludes by proposing a new educational model for internal medicine: teaching students through a small number of generative distinctions rather than overwhelming them with disconnected facts.

Keywords: internal medicine; clinical reasoning; Maturana; autopoiesis; structural coupling; life-coherence; mitochondria; physiology; capacity restoration; whole-person health; salutogenesis; salugenesis; chronic disease; multimorbidity; medical education; public health; civil commons; healing.

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1. Introduction: The Problem of Fragmentation in Internal Medicine

Internal medicine stands at a paradoxical height. Never before has it possessed such diagnostic precision, therapeutic power, pharmacological sophistication, technological reach, and procedural capacity. The modern internist can interpret complex imaging, identify molecular pathways, manage multi-organ failure, treat infections once considered fatal, reduce cardiovascular risk, replace deficient hormones, modulate immune pathways, slow renal decline, and support life through crises that would previously have been terminal. Yet within this very success, a profound pedagogical and clinical problem remains: the living coherence of the patient can disappear among organ systems, disease codes, laboratory targets, algorithms, medications, and institutional workflows.

This problem is not that internal medicine is scientifically false. The problem is that it is often taught and practiced in a way that fragments the patient before the student has learned how to see the whole. Students encounter cardiology, nephrology, pulmonology, endocrinology, gastroenterology, hematology, infectious disease, neurology, rheumatology, psychiatry, geriatrics, and public health as separated territories. They learn diseases, mechanisms, investigations, and treatments. They learn differential diagnoses and emergency protocols. They learn to recognize abnormal numbers and assign diagnostic labels. These skills are indispensable. But they do not automatically produce a coherent physician.

A student may learn that dyspnea can arise from pneumonia, asthma, heart failure, pulmonary embolism, anemia, metabolic acidosis, panic, sepsis, pneumothorax, chronic obstructive pulmonary disease, or myocardial infarction. Yet without a deeper grammar, these diagnoses remain a list. The student may not see dyspnea as a disturbance in oxygenation, ventilation, circulation, acid-base regulation, energy transformation, threat physiology, or their interdependence. Similarly, fatigue may be taught as a broad checklist: anemia, hypothyroidism, depression, malignancy, renal disease, infection, sleep apnea, medication effect, inflammatory disease, pregnancy, endocrine disorder, and deconditioning. But the deeper question often remains unasked: what living capacity has

collapsed, and why can this person no longer transform available conditions into usable vitality?

The fragmentation is intensified in chronic disease. A patient with diabetes, hypertension, chronic kidney disease, obesity, osteoarthritis, insomnia, depression, and fatigue may be seen through multiple disease-specific lenses. Each diagnosis generates its own targets, medications, lifestyle advice, and follow-up intervals. Yet the person's actual illness may be a conserved pattern of metabolic overload, vascular injury, sleep disruption, pain-limited movement, inflammatory signaling, medication burden, food insecurity, social stress, and narrowing participation in life. The disease labels are real, but they do not exhaust the reality of the patient.

This white paper therefore begins from a simple claim: internal medicine does not need to become less scientific in order to become more humane, and it does not need to become less rigorous in order to become more whole. It needs a deeper clinical grammar. It needs a way to preserve the diagnostic and therapeutic power of biomedicine while restoring the living unity of the patient to the center of clinical reasoning.

Life-Coherent Internal Medicine is proposed as that grammar.

2. Scholarly Positioning

Life-Coherent Internal Medicine emerges from a recognized tension in modern medicine. Biomedicine has produced extraordinary diagnostic and therapeutic power, yet its dominant forms of teaching and practice can fragment the patient into organs, disease categories, molecular pathways, laboratory targets, and clinical workflows. This fragmentation has long been recognized. Engel's biopsychosocial model challenged the sufficiency of a purely biomedical model by arguing that social, psychological, and behavioral dimensions of illness must be included in medical science and practice (Engel, 1977). Life-Coherent Internal Medicine accepts this challenge, but attempts to deepen it by grounding the integration of biological, psychological, social, and ecological domains in the biology of living systems.

The Maturanan foundation provides this deeper grammar. Maturana and Varela's theory of autopoiesis defines living systems as autonomous, self-producing unities that conserve their organization through ongoing structural change (Maturana & Varela, 1980). This is highly relevant to clinical medicine because the patient is not an inert object whose behavior can be externally commanded. The patient is a living unity responding to perturbations according to structure, history, reserve, and present conditions. In clinical terms, a medication, diagnosis, operation, nutritional intervention, rehabilitation plan, or therapeutic conversation does not simply instruct the body. It perturbs a living system, whose response depends on the organism's own organization and structural coupling (Maturana, 2002).

This also clarifies the role of the clinician. The physician does not encounter disease without mediation. The physician observes through distinctions. History-taking, examination, imaging, laboratory testing, diagnostic categories, guidelines, and clinical language all participate in bringing forth a domain of action. This does not make medicine subjective in

an arbitrary sense. It makes clinical reasoning responsible. The clinician must continually ask: what am I distinguishing, and what am I failing to distinguish?

Life-Coherent Internal Medicine also aligns with, but is not identical to, whole-person health. Whole-person approaches emphasize that health cannot be adequately understood by examining separate organs or body systems alone and call attention to interactions among biological, behavioral, social, and environmental factors (National Center for Complementary and Integrative Health [NCCIH], 2021). Life-Coherent Internal Medicine translates this insight into a bedside reasoning method. It asks the clinician to identify the life-capacity that has narrowed, map the organism-medium conditions conserving that narrowing, and choose interventions that restore viable participation with minimum harm.

The framework also resonates with salutogenesis. Antonovsky shifted attention from the origins of disease toward the origins of health, asking how people remain well under stress and how coherence supports resilience (Antonovsky, 1979, 1987). Life-Coherent Internal Medicine extends this orientation into internal medicine by asking not only what pathology is present, but what conditions generate, conserve, or restore life-capacity. In this paper, the related term **salugenesis** refers to the active generation and completion of repair: the movement from defense and compensation toward restored regulation, tissue integrity, energy transformation, and participation.

Mitochondrial medicine provides an essential physiological bridge. Contemporary mitochondrial biology increasingly recognizes mitochondria as participants in metabolism, redox regulation, calcium handling, immune signaling, inflammatory regulation, apoptosis, adaptation, aging, and disease progression (Marques et al., 2024; Xu et al., 2024; Zong et al., 2024). Life-Coherent Internal Medicine does not claim that mitochondria are the cause of all disease. Rather, it treats mitochondria as critical mediators of energy transformation: sites where oxygen, nutrients, circulation, inflammation, sleep, movement, autonomic tone, medication effects, infection, and stress are translated into usable or unusable biological capacity.

The framework also connects with competency-based medical education. Existing medical education frameworks rightly emphasize observable tasks and roles expected of physicians: gathering a history, performing a physical examination, prioritizing differential diagnoses, recommending investigations, recognizing urgent conditions, communicating with patients, collaborating with teams, and acting professionally (Association of American Medical Colleges [AAMC], 2014; Frank et al., 2015). Life-Coherent Internal Medicine does not replace these competencies. It supplies a generative reasoning layer beneath them.

Finally, the framework connects internal medicine to public health and the civil commons. If illness is conserved through organism-medium coupling, then food systems, housing, work, pollution, water, sanitation, social trust, income, education, institutions, and ecological stability are not external to medicine. They are part of the medium through which bodies become sick or well. WHO's framing of social determinants of health as the conditions in which people are born, grow, live, work, and age supports this broader clinical view (World Health Organization [WHO], 2025).

Table 1. Scholarly Positioning of Life-Coherent Internal Medicine

Existing tradition	Core contribution	Life-coherent extension
Biomedicine	Disease mechanisms, diagnosis, pharmacology, emergency care	Preserves biomedical rigor while asking what life-capacity has failed
Biopsychosocial medicine	Integrates biological, psychological, and social dimensions	Grounds integration in living systems, structural coupling, and clinical distinction
Whole-person health	Views health across biological, behavioral, social, and environmental domains	Converts whole-person insight into a bedside clinical loop
Salutogenesis	Studies the origins and maintenance of health	Extends toward salugenesis: completion of repair and renewed participation
Mitochondrial medicine	Studies mitochondria as energetic and signaling organelles	Interprets mitochondria as mediators of energy transformation and reserve
Competency-based education	Defines observable tasks and physician roles	Supplies a generative reasoning grammar beneath those competencies
Public health	Names social determinants and population patterns	Links civil commons failure to embodied organism-medium coupling

3. Statement of Original Contribution

The originality of Life-Coherent Internal Medicine lies in five linked contributions.

First, it reframes internal medicine around **life-capacity** rather than disease control alone. Disease diagnosis remains necessary, but the deeper clinical question becomes: what capacity has been lost, and what would restore viable living?

Second, it introduces a Maturana-informed clinical grammar based on **living unity, clinical distinction, structural coupling, perturbation, and repair**. These concepts allow medicine to move beyond both mechanical reductionism and vague holism.

Third, it reorganizes physiology into **capacity systems**: oxygenation, circulation, energy transformation, clearance, defense and tolerance, repair and remodeling, regulation and coordination, and participation and agency. This allows students to understand

multimorbidity as distributed capacity failure rather than as an unrelated list of diagnoses. This is especially important because multimorbidity is now a major clinical and global challenge, with substantial consequences for patients, carers, clinicians, and health systems (Skou et al., 2022).

Fourth, it clinically extends the distinction between **energy deficit** and **energy gap**[1] introduced in Liu et al.'s mitoception framework (Liu et al., 2026). In that account, an energy gap arises when energy demand exceeds mitochondrial energy transformation capacity and is distinct from an energy deficit, which concerns the relation between supply and demand. Life-Coherent Internal Medicine translates this distinction into bedside reasoning: energy deficit refers to inadequate availability of necessary inputs such as oxygen, glucose, calories, iron, thyroid hormone, blood volume, or sleep, whereas energy gap refers to impaired transformation of available inputs into usable capacity, often involving mitochondrial dysfunction, inflammation, autonomic dysregulation, sleep disruption, medication burden, endocrine disturbance, infection, deconditioning, trauma physiology, or chronic social overload.

Fifth, it translates the framework into a practical bedside method: the **Life-Coherent Clinical Loop**.

Danger → Syndrome → Capacity Failure → Coupling Conditions → Wise Perturbation → Repair Trajectory

This loop allows the framework to remain clinically usable, educationally teachable, and compatible with conventional internal medicine.

4. The Maturanan Foundation: Living Unity, Distinction, and Structural Coupling

The framework proposed here draws deeply from the biology of cognition associated with Humberto Maturana and Francisco Varela. Their work on autopoiesis reframed living systems as autonomous, self-producing, self-maintaining unities (Maturana & Varela, 1980). A living system is not defined primarily by the material parts it contains, but by the organization through which it continuously produces and conserves itself as a unity. This distinction is foundational for medicine because a patient is not a passive machine assembled from parts. A patient is a living unity continuously conserving identity, adapting structurally, and responding to perturbations according to history and organization.

This has immediate clinical significance. The physician does not act on an inert object. The physician participates in the life of an autonomous organism-person whose responses

[1] The term "energy gap" is credited to Liu et al. (2026), who define it within a mitoception framework as the mismatch between energy demand and mitochondrial energy transformation capacity. Life-Coherent Internal Medicine uses the distinction clinically to differentiate supply failure from transformation-capacity failure at the bedside.

cannot be mechanically commanded from outside. A drug, operation, diet, conversation, diagnosis, or social intervention does not simply instruct the body. It perturbs the living system. The body responds according to its structure, history, reserves, vulnerabilities, and present state. This is why the same intervention may heal one patient, harm another, fail in a third, or create dependency in a fourth.

Maturana's work also clarifies the role of the observer. Clinical reality is not brought forth by arbitrary opinion, but neither is it encountered without interpretation. The physician observes through distinctions. A murmur, rash, tremor, JVP, infiltrate, creatinine rise, HbA1c, CRP, mood change, social stressor, or fatigue pattern becomes clinically meaningful only within a domain of distinction. What the clinician is trained to distinguish determines what can be seen, named, investigated, and acted upon. Diagnosis is therefore not merely label attachment. It is disciplined distinction-making in the service of effective action.

The concept of structural coupling is equally central. A living system changes through recurrent interactions with its medium. Organism and medium co-determine a history of structural change (Maturana, 2002). In medicine, this means that illness is rarely located solely inside the organism or solely outside it. Disease often emerges through conserved patterns of organism-medium relation. The hypertensive patient lives in relation to salt, stress, vascular stiffness, sleep, kidney function, work demands, family history, medication access, and institutional care. The diabetic patient lives in relation to food systems, muscle activity, insulin signaling, sleep, adipose tissue, inflammation, finance, culture, grief, and medication systems. The asthmatic patient lives in relation to airways, allergens, viral exposures, housing, air quality, immune tone, emotioning, and access to inhalers.

Structural coupling allows medicine to move beyond the sterile opposition between biological and social. The social becomes biological through recurrent perturbation. The biological becomes social through altered action, participation, dependency, stigma, and capability. The patient's world is not an optional context added after the real medical work is done. It is part of the conserved pattern in which illness and healing occur.

A Maturana-informed Internal Medicine therefore begins with four foundational claims:

1. The patient is a living unity, not a defective machine.
2. The physician acts through distinctions, not direct access to total reality.
3. Illness is conserved through organism-medium coupling.
4. Treatment is a perturbation whose value depends on whether it restores viable living with minimum harm.

These claims do not replace anatomy, physiology, pathology, pharmacology, epidemiology, or evidence-based medicine. They reorganize them around the living patient.

5. The Life-Coherence Criterion: Health as Capacity for Viable Living

Life-Coherent Internal Medicine requires a clear criterion for health. Without such a criterion, medicine can easily mistake disease suppression, numerical control, institutional efficiency, or technological intervention for healing.

The proposed criterion is this:

Health is the capacity of a living person to sustain, adapt, repair, regulate, relate, and participate meaningfully in life.

This definition does not romanticize health as perfect wellness. Nor does it deny disease, disability, aging, suffering, or mortality. Rather, it understands health as life-capacity: the embodied ability to remain viable, responsive, and participatory within the conditions of one's world. A person with chronic illness may still possess significant health if they retain adaptation, relationship, agency, repair, meaning, and participation. Conversely, a person with normal laboratory values may be profoundly unwell if their capacity to live, move, sleep, think, recover, and participate has collapsed.

This distinction is especially important in chronic disease. Chronic illness is often not a single event but a narrowing of life-capacity over time. The patient loses metabolic flexibility, vascular reserve, renal reserve, immune tolerance, sleep restoration, mitochondrial energy transformation, muscle strength, cognitive clarity, emotional safety, social role, and future possibility. These losses may be gradual and distributed across domains.

Life-coherent medicine therefore asks not only "What disease is present?" but also "What capacity has been lost?" This shift gives clinical meaning to healing. Healing is not simply the disappearance of symptoms or the normalization of tests. Healing is the restoration of capacity where possible, the protection of remaining capacity where restoration is limited, and the prevention of avoidable harm where cure is not possible.

This criterion also disciplines treatment. Every intervention should be judged by whether it restores life-capacity with minimum harm. Some interventions are urgently necessary even if they are forceful: antibiotics in sepsis, insulin in diabetic ketoacidosis, diuresis in pulmonary edema, anticoagulation in pulmonary embolism, bronchodilators and steroids in acute asthma, reperfusion in myocardial infarction, oxygen in hypoxemia, dialysis in life-threatening renal failure, or surgery in selected emergencies. Life-coherent medicine does not weaken acute care. It strengthens it by clarifying what must be protected now.

In chronic care, however, the same criterion exposes the danger of endless compensatory management. A medication that improves one number while worsening sleep, energy, cognition, sexual function, mobility, mood, or immune resilience may be necessary, but its harms must be seen. A treatment plan that is scientifically sound but impossible within the patient's real life may fail because it does not fit the organism-medium coupling. A guideline that ignores poverty, caregiving burden, food access, health literacy, transport, trauma, or institutional mistrust may become technically correct but practically incoherent.

Life-coherence therefore requires a double fidelity: fidelity to biomedical truth and fidelity to the living conditions under which that truth must become care.

6. The Seven Primitives of Life-Coherent Internal Medicine

To make this framework teachable, it must be reduced to a small number of generative distinctions. Students do not need fewer facts; they need better distinctions. The following seven primitives are proposed as the minimal grammar through which the complexity of internal medicine can be organized.

Table 2. The Seven Primitives of Life-Coherent Internal Medicine

Primitive	Clinical meaning	Bedside question
Living unity	The patient is an organism-person-world unity, not a collection of parts.	What is the whole living pattern?
Clinical distinction	Diagnosis depends on what the clinician can see, name, and test.	What am I seeing, and what am I missing?
Structural coupling	Illness is conserved through organism-medium relations.	What conditions are maintaining this illness?
Life-capacity	Health is capacity for viable living, not merely normal numbers.	What capacity has been lost?
Energy transformation	Mitochondria, metabolism, oxygen, sleep, inflammation, stress, and movement determine usable capacity.	Can this person transform available resources into usable vitality and repair?
Boundary/exchange	Life depends on regulated boundaries, flows, and exchange surfaces.	What boundary, flow, or exchange process has failed?
Repair trajectory	Treatment is judged by restoration, not only suppression or control.	Is the patient moving toward durable repair and renewed participation?

Together, these seven primitives form the basic grammar of Life-Coherent Internal Medicine. They do not replace the standard knowledge of internal medicine. They organize it.

7. The Life-Coherent Clinical Loop

The seven primitives become practical through a repeated bedside method:

Danger → Syndrome → Capacity Failure → Coupling Conditions → Wise Perturbation → Repair Trajectory

This may be called the **Life-Coherent Clinical Loop**.

The first responsibility is to identify immediate threats to life, function, or irreversible harm. A life-coherent physician must be able to recognize sepsis, shock, myocardial infarction, pulmonary embolism, stroke, respiratory failure, diabetic ketoacidosis, hyperosmolar crisis, severe hypoglycemia, major bleeding, meningitis, acute abdomen, life-threatening electrolyte disturbance, and other urgent conditions. The question is: **What can kill or permanently harm this patient now?**

The second task is to recognize the clinical pattern emerging from history, examination, and investigations. This is the familiar work of clinical reasoning: chest pain, dyspnea, fever, fatigue, edema, syncope, confusion, abdominal pain, anemia, jaundice, acute kidney injury, hyperglycemia, weakness, and weight loss. The question is: **What pattern is being brought forth?**

The third task is to identify the life-capacity that has narrowed. Is this primarily a failure of oxygenation, circulation, energy transformation, immune defense, renal clearance, hepatic transformation, boundary integrity, neuro-autonomic regulation, repair, cognition, mobility, sleep restoration, or participation? The question is: **What capacity can the person no longer sustain?**

The fourth task is to identify the organism-medium conditions conserving the illness. These may include diet, sleep, work, trauma, stress, infection exposure, allergens, toxins, medications, social isolation, poverty, climate, housing, caregiving burden, institutional neglect, or lack of access to care. The question is: **What pattern of living keeps reproducing this illness?**

The fifth task is to intervene. The intervention may be pharmacological, procedural, behavioral, nutritional, social, relational, educational, environmental, or institutional. But every intervention is understood as a perturbation of a living system. The question is: **What intervention can reopen viability with the least harm?**

The final task is to follow the patient's response. Did breathing improve? Did walking distance return? Did sleep recover? Did inflammation resolve? Did renal function stabilize? Did medication burden decrease? Did the person regain confidence, participation, agency, and meaning? Or did the intervention merely shift the burden elsewhere? The question is: **Is the patient actually recovering life-capacity?**

The Life-Coherent Clinical Loop is not a replacement for standard assessment and management. It is a deeper clinical orientation that helps the physician use standard medicine more coherently.

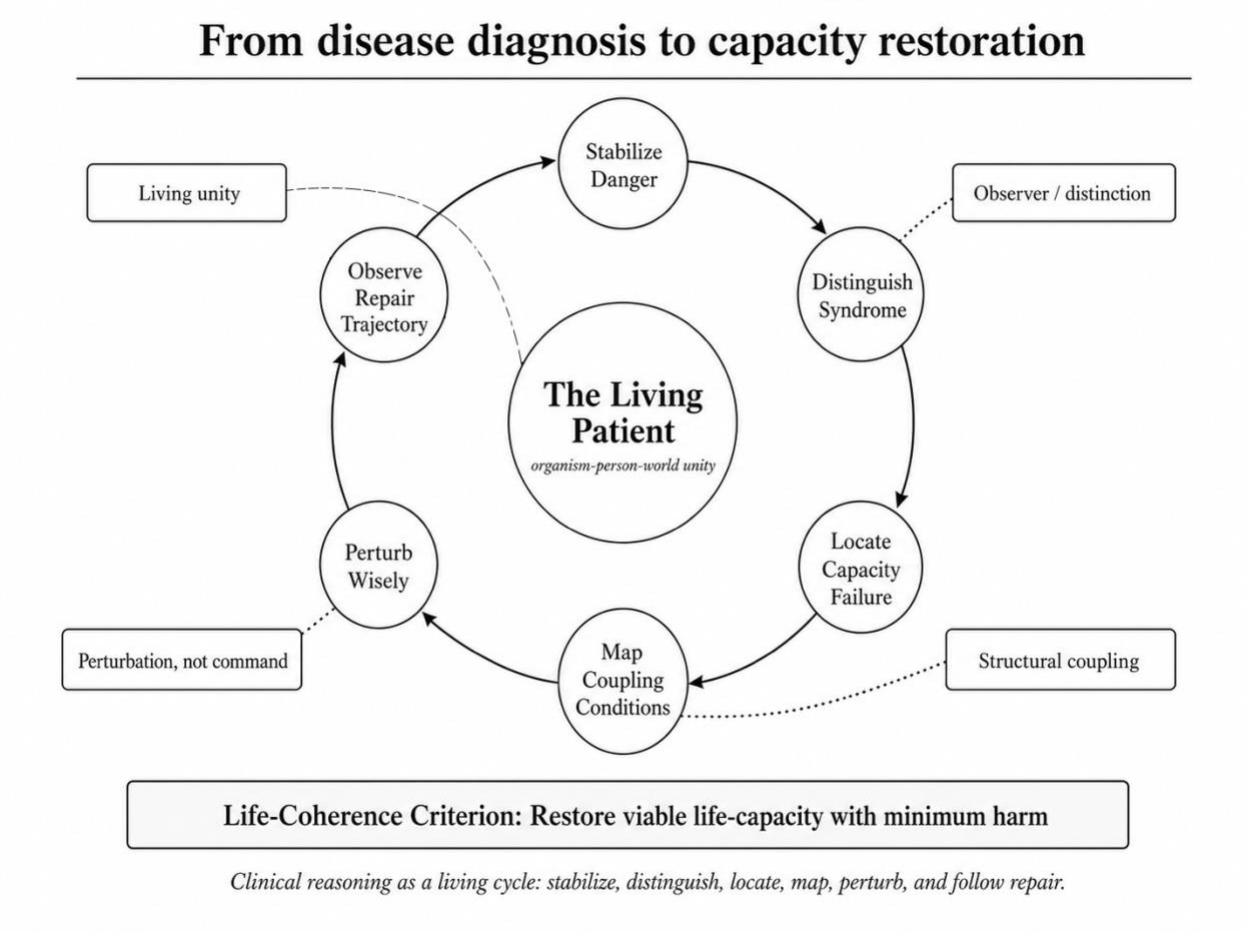

Figure 1. The Life-Coherent Clinical Loop.

Clinical reasoning begins with danger recognition, proceeds through syndrome distinction and capacity analysis, maps the organism-medium conditions conserving illness, introduces wise perturbations, and follows the repair trajectory. The loop is grounded in the patient as a living unity and guided by the life-coherence criterion: restore viable life-capacity with minimum harm.

8. Capacity Systems Physiology

If Life-Coherent Internal Medicine is to remain clinically useful, it must not stop at philosophical reframing. It must reorganize physiology itself. The proposal here is that internal medicine should be taught not only through organ systems, but through **capacity systems**: the recurrent life-functions that organs, cells, tissues, mitochondria, immune networks, nervous systems, and social conditions sustain together.

Organ-system teaching remains necessary. Students must learn the heart, lungs, kidneys, liver, blood, endocrine system, nervous system, immune system, gastrointestinal tract, and musculoskeletal system. However, the living patient does not experience these as separated compartments. A person presents with breathlessness, fatigue, swelling, pain, fever,

confusion, weakness, weight loss, reduced mobility, poor sleep, fear, or loss of function. These presentations arise because one or more capacity systems have narrowed.

Table 3. Capacity Systems Physiology

Capacity system	Conventional domains	Life-coherent interpretation	Common clinical presentations
Oxygenation	Lungs, blood, circulation, acid-base	Capacity to bring oxygen into usable relation with tissues	Dyspnea, hypoxemia, fatigue, confusion, cyanosis
Circulation	Heart, vessels, volume, pressure, kidney	Capacity to distribute flow without collapse, overload, or pressure injury	Shock, edema, syncope, chest pain, renal injury
Energy transformation	Mitochondria, metabolism, endocrine, nutrition	Capacity to convert resources into work, repair, heat, and participation	Fatigue, weakness, frailty, exertional intolerance
Clearance and transformation	Kidney, liver, lungs, lymphatics, gut	Capacity to filter, excrete, detoxify, buffer, and regulate internal burden	Uremia, jaundice, acidosis, edema, drug toxicity
Defense and tolerance	Immune system, barriers, microbiome	Capacity to defend against threat while preserving tolerance and resolution	Fever, sepsis, allergy, autoimmunity, recurrent infection
Repair and remodeling	Inflammation resolution, tissue healing, sleep, nutrition	Capacity to restore structure and function after disturbance	Chronic wounds, fibrosis, persistent pain, delayed recovery
Regulation and coordination	Nervous, endocrine, autonomic, circadian	Capacity to time, modulate, integrate, and recover responses	Syncope, palpitations, sleep disruption, dysautonomia, delirium
Participation and agency	Mobility, cognition, affect, relation, meaning	Capacity to live meaningfully in the world	Disability, isolation, dependency, demoralization, loss of role

This approach gives students a way to understand multimorbidity. A patient with diabetes, chronic kidney disease, heart failure, anemia, depression, insomnia, osteoarthritis, and

fatigue is not simply a collection of diagnoses. The patient is experiencing a distributed narrowing of capacity systems: impaired energy transformation, vascular-circulatory strain, reduced renal clearance, inflammatory activation, sleep-repair failure, pain-limited participation, and loss of adaptive reserve. The diagnosis list remains valid, but the capacity map reveals the living pattern.

This capacity-systems approach also aligns with the clinical reality of frailty. Fried and colleagues (2001) operationalized frailty through a phenotype involving weight loss, exhaustion, weakness, slow walking speed, and low physical activity. Life-Coherent Internal Medicine interprets such criteria as clinical signs of narrowed adaptive reserve rather than merely as geriatric labels. Frailty, in this reading, is a distributed capacity failure involving energy transformation, circulation, muscle, regulation, repair, and participation.

9. Mitochondria and Energy Transformation: From Fuel Supply to Usable Capacity

The mitochondrion is often introduced to students as the "powerhouse of the cell." This metaphor is useful but incomplete. It encourages the impression that mitochondria merely manufacture ATP from fuel and oxygen. A life-coherent physiology requires a deeper account. Mitochondria are not only energy generators. They are energy transformers, stress sensors, redox regulators, immune-metabolic signaling platforms, calcium handlers, apoptosis regulators, and participants in adaptation, inflammation, aging, and repair (Bishop et al., 2025; Marques et al., 2024; Xu et al., 2024; Zong et al., 2024).

This does not mean that mitochondria are the cause of all disease. Such a claim would be reductionist. Rather, mitochondria occupy a strategic position in the living organism because they help determine whether available resources become usable capacity. Oxygen, glucose, fatty acids, amino acids, micronutrients, hormones, sleep, movement, temperature, toxins, medications, inflammation, infection, autonomic tone, and social stress converge on mitochondrial function. Through this convergence, conditions of life are translated into capacity or exhaustion, adaptation or injury, resilience or fragility.

A central distinction in Life-Coherent Internal Medicine is the difference between an **energy deficit** and an **energy gap**, drawing directly on Liu et al.'s mitoception framework, in which energy gaps arise when energy demand exceeds mitochondrial energy transformation capacity and are distinguished from energy deficits involving supply-demand mismatch (Liu et al., 2026).

An energy deficit occurs when required inputs are lacking. Examples include hypoxemia, anemia, hypoglycemia, starvation, dehydration, iron deficiency, adrenal insufficiency, hypothyroidism, or severe sleep deprivation. In these cases, the organism lacks something necessary for energy production or physiological function.

An energy gap occurs when energy demand exceeds the organism's energy transformation capacity (Liu et al., 2026). In the original mitoception formulation, this refers especially to the relationship between cellular energy demand and mitochondrial oxidative

phosphorylation capacity. Clinically, this means that inputs may be present, yet the organism may be unable to transform them effectively into usable capacity. The patient may have oxygen saturation within normal limits, adequate glucose, available calories, and normal basic blood tests, yet still experience disabling fatigue, post-exertional collapse, cognitive fog, or poor recovery. The problem is not simply availability. It is transformation, coordination, and recovery.

Energy gaps may arise through mitochondrial dysfunction, chronic inflammatory signaling, oxidative stress, autonomic dysregulation, endocrine disruption, medication effects, infection, sleep/circadian disruption, deconditioning, chronic pain, trauma physiology, environmental toxicity, or social overload. The same patient may have both deficit and gap. For example, iron deficiency may reduce oxygen transport while chronic inflammation impairs mitochondrial efficiency and sleep disruption prevents repair.

This distinction protects patients from moral injury. When clinicians assume that normal basic tests mean normal capacity, patients with energy gaps may be dismissed as anxious, unmotivated, or exaggerating. A life-coherent approach recognizes that the absence of obvious fuel deficit does not prove the presence of usable energy.

The mitochondrial lens also changes treatment, but it must do so carefully. It does not justify indiscriminate supplementation or speculative protocols. Instead, it teaches the clinician to protect the conditions under which mitochondrial and cellular repair can occur: adequate oxygenation and perfusion, appropriate nutrition, sleep and circadian regularity, movement matched to tolerance, reduction of inflammatory triggers where possible, treatment of infection and endocrine disease, medication review, and restoration of psychological and relational safety.

The key principle is proportionality. Exercise may improve mitochondrial adaptation in many patients, but in others, especially those with severe post-exertional malaise, poorly controlled heart failure, acute infection, profound anemia, or unstable disease, excessive exertion may worsen collapse. Bishop et al. (2025) emphasize that exercise can be understood as mitochondrial medicine only when dose, frequency, duration, type, and progression are prescribed intelligently. A life-coherent mitochondrial medicine therefore asks:

What dose of perturbation produces adaptation rather than injury?

10. Clinical Method: From Disease Diagnosis to Capacity Restoration

Life-Coherent Internal Medicine does not reject conventional diagnosis. Diagnosis remains indispensable. The clinician must recognize pneumonia, myocardial infarction, pulmonary embolism, sepsis, diabetic ketoacidosis, stroke, acute kidney injury, heart failure, malignancy, autoimmune disease, endocrine disorder, and countless other conditions. But diagnosis is not the endpoint of clinical reasoning. It is one disciplined distinction within a broader act of care.

The deeper clinical movement is from **disease diagnosis** to **capacity restoration**.

10.1 Fatigue Made Easy

A patient presents with profound fatigue. Basic blood work is normal. Oxygen saturation is normal. Glucose is normal. Thyroid function is normal. The patient says, "I have no energy."

A conventional approach begins appropriately with differential diagnosis. The clinician must consider anemia, hypothyroidism, renal disease, liver disease, malignancy, infection, inflammatory disease, heart failure, sleep apnea, depression, medication effects, pregnancy, endocrine disease, and substance use. This is necessary.

A life-coherent approach adds a deeper set of questions:

Danger: Is there any urgent cause of fatigue: sepsis, severe anemia, adrenal crisis, heart failure, malignancy, major depression with suicidality, severe electrolyte disorder, uncontrolled diabetes, or acute inflammatory disease?

Syndrome: Is the fatigue acute, chronic, exertional, post-infectious, inflammatory, sleep-related, depressive, neuromuscular, cardiopulmonary, endocrine, medication-related, or systemic?

Capacity failure: Is this a failure of oxygen delivery, fuel supply, energy transformation, sleep-repair, immune regulation, autonomic coordination, muscle capacity, cognition, or participation?

Coupling conditions: What is conserving the fatigue? Poor sleep, shift work, caregiving burden, chronic stress, grief, infection, pain, medications, inactivity, overexertion, food insecurity, isolation, inflammation, trauma, or loss of meaning?

Wise perturbation: What intervention has the best chance of restoring capacity with the least harm? Treat anemia if present. Adjust medications if burdensome. Address sleep apnea. Treat inflammatory disease. Restore iron, B12, thyroid, or adrenal function if deficient. Support pacing if post-exertional collapse is present. Introduce graded activity only when tolerated. Address depression without reducing the patient to depression. Rebuild nutrition, sleep, sunlight, movement, social support, and agency.

Repair trajectory: What would recovery look like? Improved walking tolerance, fewer crashes, better sleep, clearer cognition, reduced inflammatory symptoms, restored work or caregiving capacity, less medication burden, and renewed participation.

This approach makes fatigue medically serious without making it diagnostically vague. It allows students to see fatigue as a final common pathway of narrowed life-capacity.

10.2 Dyspnea Made Easy

A patient presents with shortness of breath.

A conventional approach asks whether the cause is respiratory, cardiac, hematologic, metabolic, infectious, neuromuscular, or psychological. This is correct.

A life-coherent approach organizes dyspnea around oxygenation, circulation, ventilation, acid-base regulation, energy transformation, and threat physiology.

Danger: Is the patient hypoxemic, exhausted, cyanotic, hypotensive, septic, having myocardial infarction, pulmonary embolism, pneumothorax, acute severe asthma, pulmonary edema, arrhythmia, or metabolic acidosis?

Syndrome: Is dyspnea acute or chronic? At rest or exertional? With wheeze, crackles, chest pain, fever, edema, orthopnea, hemoptysis, syncope, anxiety, or anemia?

Capacity failure: Is the failure primarily airflow, gas exchange, perfusion, oxygen carriage, cardiac output, acid-base compensation, mitochondrial utilization, neuromuscular mechanics, or threat regulation?

Coupling conditions: What is maintaining it? Smoking, allergens, viral exposure, air pollution, medication nonadherence, salt load, renal decline, occupational exposure, anxiety cycle, poverty, lack of inhalers, recurrent infection, sedentary deconditioning, or delayed access to care?

Wise perturbation: Give oxygen if hypoxemic. Use bronchodilators for bronchospasm. Treat pneumonia. Diurese pulmonary edema. Anticoagulate pulmonary embolism when indicated. Reperfuse myocardial infarction. Correct acidosis where possible. Address panic only after danger is excluded. Reduce exposures. Restore inhaler access. Adjust heart failure therapy. Rehabilitate carefully.

Repair trajectory: What would recovery look like? Lower respiratory rate, improved oxygenation, reduced work of breathing, restored walking distance, fewer exacerbations, better sleep, less fear, improved inhaler technique, and reduced readmission risk.

Dyspnea then becomes not a memorized list, but a coherent disturbance in life's relation to air, blood, flow, metabolism, and safety.

10.3 Diabetes and Chronic Kidney Disease Made Easy

A patient has type 2 diabetes and chronic kidney disease. Conventional care focuses on HbA1c, blood pressure, albuminuria, eGFR, cardiovascular risk, medication choice, diet, and monitoring. These remain essential.

A life-coherent approach asks what capacities are narrowing:

- metabolic flexibility
- vascular resilience
- renal filtration and regulation
- endothelial function
- mitochondrial energy transformation
- wound repair
- immune defense
- vision

- nerve function
- mobility
- food autonomy
- future participation

The life-coherent approach does not make diabetes less biomedical. It makes it more fully biomedical by integrating metabolism, kidney, vessels, mitochondria, behavior, stress, food systems, finance, and participation.

10.4 Frailty Made Easy

Frailty is one of the clearest clinical examples of life-capacity narrowing. It is not simply old age, weakness, or the accumulation of diagnoses. Frailty represents reduced adaptive reserve across multiple systems: muscle, mitochondria, circulation, immunity, endocrine regulation, cognition, nutrition, sleep, repair, and social participation.

Frailty is classically defined by a clinical phenotype that includes weight loss, exhaustion, weakness, slow walking speed, and low physical activity (Fried et al., 2001), and has more recently been theorized as a transition from homeostatic symphony to multisystem cacophony, marked by depleted reserves and increased vulnerability to stressors (Fried et al., 2021).

A frail patient may appear clinically stable at rest but decompensate rapidly after infection, medication change, dehydration, hospitalization, fall, bereavement, or surgery because the margin between ordinary demand and sustainable capacity has become narrow.

A conventional approach to frailty focuses appropriately on falls, sarcopenia, weight loss, exhaustion, polypharmacy, cognitive impairment, mobility limitation, and comorbidity burden. These remain essential. A life-coherent approach adds a deeper question: **what reserve has been lost, and what perturbations now exceed the patient's capacity to adapt?**

In the language of energy transformation, frailty can be understood partly as a chronic narrowing of the organism's capacity to meet fluctuating energy demands. The mitoception framework of Liu et al. identifies aging and frailty as states in which excessive energy demand and reduced oxidative phosphorylation capacity may act together, widening the gap between what is demanded and what can be sustainably transformed (Liu et al., 2026). Life-Coherent Internal Medicine extends this insight clinically by treating frailty as a systemic warning that ordinary interventions may become excessive perturbations unless matched to the patient's remaining reserve.

Danger: Is there an acute precipitant: infection, sepsis, dehydration, delirium, fall, fracture, hypoglycemia, anemia, heart failure, renal injury, medication toxicity, stroke, or occult malignancy?

Syndrome: Is this physical frailty, cognitive frailty, nutritional frailty, inflammatory frailty, post-hospital frailty, medication-induced frailty, social frailty, or mixed multimorbidity-related frailty?

Capacity failure: Which capacities are narrowing: muscle strength, balance, energy transformation, circulation, renal clearance, immune defense, sleep-repair, cognition, appetite, mobility, or participation?

Coupling conditions: What is conserving or worsening frailty? Poor nutrition, loneliness, unsafe housing, pain-limited movement, polypharmacy, recurrent hospitalization, sleep disruption, depression, poverty, caregiver strain, inaccessible transport, fear of falling, or lack of rehabilitation?

Wise perturbation: What intervention restores capacity without overwhelming reserve? Review and reduce medication burden where possible. Treat reversible causes. Restore hydration, nutrition, sleep, vision, hearing, and mobility supports. Use strength and balance training carefully. Prevent falls. Address pain without excessive sedation. Avoid unnecessary hospitalization where safe. Support caregivers. Set functional goals that matter to the patient.

Repair trajectory: What would improvement look like? Fewer falls, improved gait speed, better appetite, increased strength, clearer cognition, fewer medications, safer home function, restored confidence, reduced hospitalizations, and renewed participation in family or community life.

Frailty therefore becomes a life-coherent warning signal. It tells the clinician that the patient's adaptive reserve is no longer sufficient to absorb ordinary physiological, pharmacological, social, or institutional shocks. The goal is not merely to label frailty, but to protect and rebuild reserve wherever possible.

Table 4. Case Translation Across Clinical Layers

Presentation	Conventional question	Life-coherent capacity question	Repair marker
Fatigue	What diagnosis explains low energy?	Why can the person not transform available conditions into usable capacity?	Walking tolerance, fewer crashes, restored sleep and participation
Dyspnea	Is this cardiac, pulmonary, hematologic, metabolic, or psychogenic?	Where is oxygenation, flow, ventilation, acid-base regulation, or threat physiology failing?	Reduced work of breathing, improved exertion, fewer exacerbations
Diabetes with CKD	Are HbA1c, BP, albuminuria, and eGFR controlled?	What metabolic, vascular, renal, energetic, and participation capacities are narrowing?	Stable renal trajectory, fewer hypoglycemic episodes, preserved mobility and agency
Frailty	Which frailty criteria are present?	What adaptive reserves have narrowed across muscle, energy, repair, and regulation?	Gait speed, strength, nutrition, fewer falls, restored confidence

11. Educational Framework: Teaching Internal Medicine Through Generative Distinctions

Life-Coherent Internal Medicine is not only a clinical framework. It is also a pedagogical response to a common problem in medical education: students are often overwhelmed by the volume of internal medicine before they are given a coherent way to organize it.

The usual response to complexity is to simplify by compression. Students memorize lists, algorithms, acronyms, disease scripts, investigation panels, and treatment protocols. These are useful, but they can also produce brittle knowledge. A student may know that chest pain can be caused by myocardial infarction, pulmonary embolism, aortic dissection, pericarditis, pneumothorax, pneumonia, gastroesophageal reflux, panic, or musculoskeletal strain, but still lack a deeper understanding of what chest pain means as a disturbance in circulation, oxygenation, inflammation, tissue injury, mechanical strain, threat perception, or boundary failure.

Life-Coherent Internal Medicine proposes a different educational strategy: do not reduce the facts; reveal the grammar that organizes them.

Students do not need less medicine. They need better distinctions.

The central educational claim is:

Internal medicine becomes easier when students learn the few generative distinctions that organize the many diagnoses.

The future textbook, *Internal Medicine Made Easy: A Life-Coherent Guide to Clinical Reasoning, Physiology, and Healing*, should be built in two layers.

The first layer is student-facing. It must be clear, practical, bedside-useful, and exam-relevant. It should teach students how to recognize danger, form differentials, select initial investigations, initiate safe first treatment, present cases clearly, and know when to ask for help. The AAIM Core Medicine Clerkship Curriculum Guide already organizes the clerkship around core diseases, conditions, presentations, and competencies; Life-Coherent Internal Medicine can function as a reasoning grammar that links those educational elements (Alliance for Academic Internal Medicine [AAIM], 2021).

The second layer is the deeper life-coherent physiology. It should quietly transform how students understand disease by introducing living unity, structural coupling, mitochondria, capacity systems, salugenesis, chronic disease, public health, and civil commons. This deeper layer should not burden the beginner with abstraction. It should illuminate the practical clinical task.

The student-facing layer asks:

What do I do with this patient today?

The deeper layer asks:

What pattern of life has become incoherent, and what would restore viable capacity?

The first student-facing volume should not try to cover all internal medicine. It should cover the core presentations that generate most bedside reasoning.

Internal Medicine Made Easy: 25 Core Presentations Through the Life-Coherent Clinical Loop

Suggested chapters include: the sick patient, chest pain, dyspnea, fever, fatigue, edema, syncope, confusion, headache, abdominal pain, vomiting and diarrhea, weight loss, anemia, jaundice, acute kidney injury, polyuria and polydipsia, hyperglycemia, hypoglycemia, hypertension, palpitations, weakness, joint pain, rash with systemic symptoms, painful swollen limb, and the patient with multiple chronic diseases.

12. Assessment: A Life-Coherent Case Presentation Rubric

A framework becomes educationally serious only when it can be assessed. If Life-Coherent Internal Medicine is to be taught, students must be evaluated not merely on recall, but on the quality of their distinctions, reasoning, proportionality, and ability to link treatment to repair.

Table 5. Life-Coherent Case Presentation Rubric

Domain	What the student must demonstrate	Guiding question
Danger recognition	Identifies urgent threats to life, function, or irreversible harm.	What can kill or permanently harm this patient now?
Syndrome distinction	Organizes findings into a coherent clinical pattern.	What syndrome is being brought forth?
Differential reasoning	Prioritizes likely and dangerous diagnoses.	What diagnoses best explain the pattern, and what must not be missed?
Capacity analysis	Identifies the life-capacity that has failed or narrowed.	What can the patient no longer sustain?
Organism-medium coupling	Identifies conditions conserving or worsening illness.	What biological, social, environmental, or institutional conditions are maintaining this?
Wise perturbation	Proposes appropriate, proportionate, safe interventions.	What will restore viability with least harm?
Repair trajectory	Defines markers of stabilization, recovery, and renewed participation.	How will we know the person is truly improving?
Conversation and agency	Communicates in a way that preserves dignity, trust, and participation.	Does the plan restore agency rather than shame or dependency?
Reflective distinction	Recognizes uncertainty, assumptions, and limits of seeing.	What might I be missing?

This rubric can be used in ward rounds, bedside teaching, oral examinations, OSCE stations, written cases, reflective exercises, and clerkship assessment. It complements rather than replaces competency frameworks such as the AAMC Core EPAs and CanMEDS, both of which emphasize observable clinical tasks, professional roles, and readiness for supervised practice (AAMC, 2014; Frank et al., 2015).

13. Research Agenda

Life-Coherent Internal Medicine should not remain only a philosophical or pedagogical proposal. It should generate testable questions in medical education, clinical practice, chronic disease care, health systems, and public health.

In medical education, research could ask whether teaching the Life-Coherent Clinical Loop improves case presentations, recognition of danger, diagnostic reasoning, understanding of multimorbidity, empathy without loss of rigor, and student confidence during clerkship.

In clinical practice, research could ask whether capacity-based care plans improve outcomes in chronic disease, whether life-capacity measures predict admission or readmission better than diagnosis lists alone, and whether repair-trajectory tracking reduces polypharmacy or iatrogenic burden. This is especially relevant in multimorbidity, where disease-specific guidelines may create treatment burden, medication complexity, and competing priorities (Muth et al., 2019; Skou et al., 2022).

In multimorbidity, research could ask whether capacity restoration provides a better hierarchy for complex care than disease-by-disease guideline application. Multimorbidity requires a shift from "treat every disease maximally" to "restore the person's viable life as wisely as possible."

In mitochondrial and systems physiology, research could ask how inflammation, sleep disruption, autonomic dysregulation, endocrine disturbance, medications, infection, and social stress converge on energy transformation. The central question is not whether mitochondria cause everything, but how mitochondrial function participates in the organism's broader capacity for adaptation and repair.

In health-system research, the framework could ask whether life-coherent care reduces readmissions, improves transitions of care, reduces fragmented referrals, supports integrated people-centred care, and reduces clinician burnout by giving care a more coherent purpose. WHO's integrated people-centred health services framework calls for health systems that are organized around people rather than around diseases and institutions alone (WHO, 2016).

14. Implications for Practice, Public Health, and the Civil Commons

Life-Coherent Internal Medicine has implications beyond the individual consultation.

If illness is understood as a disturbance in life-capacity conserved through organism-medium coupling, then clinical medicine cannot be fully separated from public health, ecology, economics, housing, food systems, education, work, water, sanitation, community, and institutional design. These are not external non-medical matters. They are part of the medium through which bodies become sick or well.

At the level of the consultation, practice changes in several ways.

First, the history expands. The clinician still asks about symptoms, duration, severity, past history, medications, allergies, family history, and systems review. But the clinician also asks:

- What could you do before that you cannot do now?
- What drains you most?
- What restores you?
- What happens after exertion?
- How is sleep?
- What conditions make your illness worse?
- What does this illness prevent you from doing?
- What would meaningful recovery look like?

Second, the examination expands from abnormal signs to adaptive reserve. The clinician still examines vital signs, heart, lungs, abdomen, neurology, joints, skin, and edema. But the clinician also notices frailty, sarcopenia, gait speed, orthostatic intolerance, breathing pattern, exhaustion after minimal effort, sleep deprivation, medication effects, nutritional depletion, and inflammatory clues.

Third, the assessment expands from diagnosis list to capacity map. The clinician still documents diagnoses. But the synthesis includes the capacities that are failing and the conditions conserving the illness.

Fourth, the plan expands from treatment targets to repair trajectory. The clinician still prescribes medications and orders investigations. But the plan also protects sleep, nutrition, movement, medication safety, social support, access, follow-up, and participation.

The civil commons refers to the shared life-support systems without which human beings cannot flourish: clean water, nourishing food, breathable air, safe housing, public health, education, social trust, ecological stability, meaningful work, accessible care, and institutions oriented toward life rather than extraction.

A life-coherent internal medicine recognizes that the physician's work is downstream of these life-support systems. When the civil commons is damaged, bodies absorb the consequences. Chronic disease becomes the biological ledger of social incoherence.

The life-coherent internist therefore has three roles:

1. **Clinician:** stabilize danger and treat disease.
2. **Healer:** restore capacity and support repair.
3. **Witness:** identify recurring patterns of life-harm that exceed the individual patient.

This is not politicization of medicine. It is fidelity to the living conditions of health.

15. Methodological Status, Limitations, and Safeguards

Life-Coherent Internal Medicine is proposed as a conceptual and pedagogical framework, not as a validated clinical guideline. It should therefore be understood as a way of organizing clinical reasoning, not as a substitute for evidence-based protocols, specialist judgment, emergency pathways, pharmacological standards, or diagnostic criteria.

Several limitations must be acknowledged.

First, the framework risks becoming too broad if not disciplined by clinical specificity. To avoid this, every life-coherent concept must eventually answer a bedside question: what danger must be stabilized, what syndrome is present, what diagnosis must not be missed, what investigation is needed, what treatment is indicated, and what follow-up is required?

Second, the mitochondrial dimension must not become mitochondrial reductionism. Mitochondria are central mediators of energy transformation and stress signaling, but they are not the single cause of chronic disease. A life-coherent approach must integrate mitochondria with oxygenation, circulation, immune regulation, sleep, endocrine function, medications, movement, nutrition, social conditions, and meaning.

Third, the organism-medium lens must not become patient-blaming. Structural coupling means that illness is conserved through recurrent relations between organism and medium. It does not mean that patients are responsible for the harmful conditions in which they live. Poverty, unsafe housing, food insecurity, violence, pollution, lack of access, social exclusion, and institutional neglect are not lifestyle choices. They are life-conditions that become biology.

Fourth, the focus on healing and repair must not delay urgent conventional care. Life-Coherent Internal Medicine begins with danger. Sepsis, myocardial infarction, pulmonary embolism, stroke, diabetic ketoacidosis, severe asthma, major bleeding, meningitis, shock, respiratory failure, and other emergencies require immediate evidence-based action.

Fifth, the framework should not be mistaken for a finished textbook. It is the academic foundation for a future student-facing work, *Internal Medicine Made Easy: A Life-Coherent Guide to Clinical Reasoning, Physiology, and Healing*. That textbook must remain practical, concise, exam-useful, and clinically safe.

16. From White Paper to Textbook: Internal Medicine Made Easy

This white paper is the academic foundation. The student-facing expression should be:

Internal Medicine Made Easy
A Life-Coherent Guide to Clinical Reasoning, Physiology, and Healing

The textbook should not attempt to compete with comprehensive reference texts. Its niche should be different: to teach the student how to think like an internist by using a small set of generative distinctions. The text should remain practical, bedside-useful, exam-relevant, and clinically safe, while quietly transforming how students understand physiology, chronic disease, healing, and the living person.

The first prototype chapters should be:

1. **Fatigue Made Easy: From Energy Deficit to Energy Gap**
2. **Dyspnea Made Easy: Oxygenation, Circulation, Ventilation, and Threat Physiology**

Fatigue demonstrates the deeper life-coherent and mitochondrial transformation of the framework. Dyspnea demonstrates acute clinical rigor. Together, they prove that the approach is both profound and practical.

17. Conclusion: Internal Medicine Reorganized Around the Living Logic of the Human Being

Internal medicine made easy should not mean oversimplified. It should mean reorganized around the living logic of the human being.

The purpose of Life-Coherent Internal Medicine is not to replace standard internal medicine, but to give it a deeper grammar. Diagnosis remains necessary. Evidence remains necessary. Physiology remains necessary. Pharmacology remains necessary. Emergency care remains necessary. Guidelines remain useful. But none of these should obscure the living unity of the patient or the deeper aim of care: restoring the person's capacity for viable participation in life.

A Maturana-informed medicine begins by recognizing the patient as a living unity structurally coupled to a world. It recognizes the physician as an observer whose distinctions shape what can be seen and done. It recognizes treatment as perturbation, not mechanical command. It recognizes illness as a narrowing of life-capacity conserved through biological, relational, social, and ecological conditions. It recognizes mitochondria not as an isolated cause of disease, but as central mediators of energy transformation, stress signaling, repair, inflammation, and reserve. It recognizes healing as a repair trajectory, not merely a corrected number.

The proposed seven primitives - living unity, clinical distinction, structural coupling, life-capacity, energy transformation, boundary/exchange, and repair trajectory - offer a minimal grammar for organizing the complexity of internal medicine. The Life-Coherent Clinical Loop - danger, syndrome, capacity failure, coupling conditions, wise perturbation, repair trajectory - translates that grammar into bedside practice.

The result is a medicine that is scientifically rigorous, clinically practical, educationally teachable, physiologically integrated, and ethically oriented toward life.

Life-Coherent Internal Medicine therefore offers a path from disease diagnosis to capacity restoration.

Its central question is simple:

What must be restored so that this person can live again?

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