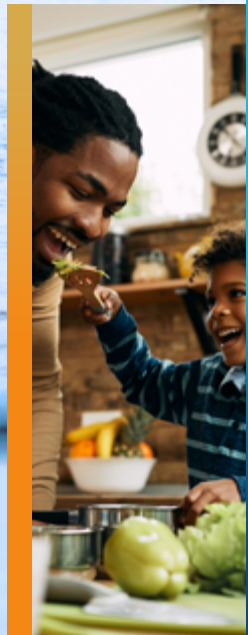
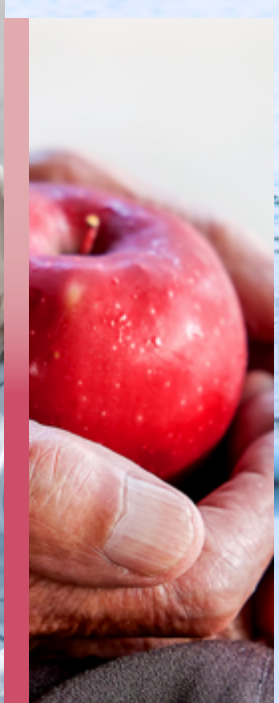
Global Coalition on Aging

A PROACTIVE APPROACH TO HEALTHY AGING:

The Role of Inflammation Control & Integrated Care





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INTRODUCTION

Controlling Chronic Inflammation to Promote Healthy Aging & Preserve Functional Ability

As the global community considers the path forward for the 2020s, leaders must focus on one of the most fundamental trends in today's world: population aging. There are roughly 1 billion people over the age of 60 today, and this number is projected to double by 2050.[1] In the past century, medical, public health, and scientific advances have added decades of life, as the average human lifespan doubled from 1920 to 2020.[2] Birth rates have also declined dramatically in the past 60 years[3]—leading us towards a world of more old than young for the first time in human history.

However, the miracle of longevity has also introduced new age-related health challenges. Noncommunicable diseases (NCDs)—including cardiovascular disease, cancer, chronic respiratory diseases, dementia, osteoporosis, osteoarthritis, and others—now account for 71% of all deaths globally and generate an immense burden of morbidity and disability.[4] These conditions reduce the quality of life, independence, social connection, and functional ability of older people, leading to comorbidities, high health and social care costs, lost productivity, and an immense burden on families and caregivers, societies, and economies.

As the greatest cause of death and disability, these challenges must be addressed if we are to achieve the Sustainable Development Goals, the goals outlined by Women Political Leaders, and other key global milestones. Therefore, the UN and the World Health Organization have declared 2021-2030 the Decade of Healthy Ageing—a global, multi-sector collaboration to "improve the lives of older people, their families and communities." The WHO's strategy introduces the concept of "functional ability"—a person's physical and mental capacities, as augmented or mediated by their environment to define health, rather than singularly the "absence of disease."

"Rather than approaching each NCD separately, we can apply a functional ability lens to bring cohesion to global health agenda. For example, we can target chronic inflammation and the impact it has on bone disease, heart disease and frailty. It's revolutionary to think about these connections."

DR. JOHN BEARD
Former Director of Ageing and Life Course, World Health Organization

This paper explores a new approach that aligns with and accelerates the WHO's strategy on healthy aging. There is a growing expert consensus that targeting chronic inflammation can enable healthy aging by avoiding progressive damage accrual and reducing the risk of comorbidities throughout a person's life. Chronic inflammation has been linked to a range of serious NCDs and age-related health challenges, including cardiovascular disease, diabetes, metabolic syndrome, osteoporosis, and cancer.[5]

This approach represents a bold paradigm shift for health policy and health care in an aging world. Policymakers and health systems can target several opportunities for action:

- **Focus on chronic inflammation to preserve functional ability across the life course.** Targeting chronic inflammation throughout a person's life can be an important strategy to help preserve their functional ability as they age. This lens provides greater urgency for early detection and interventions to reduce or reverse damage accrual caused by chronic inflammation—thereby lowering the risk for key age-related conditions like cardiovascular disease (CVD) and osteoporosis.

- **Strengthen responses to chronic inflammatory diseases.** Chronic inflammatory diseases (CIDs) can serve as a starting point and test case for this approach. Proactive, integrated care for CIDs can show the benefits of intervening early to control chronic inflammation and reduce long-term impacts, comorbidity risk, and resulting acute care costs.

- **Recognize the fiscal and economic benefits of inflammation control for healthy aging.** Healthy aging is essential not just for good public health, but for good public finances. Older adults with multiple chronic severe diseases are more susceptible to costly acute health events, whether caused by CVD or infectious diseases like COVID-19. Therefore, investing in stronger responses to CIDs and chronic inflammation—as part of a broad healthy aging strategy—can help to reduce acute care spending and lost productivity.

- **Address the disproportionate burden on women.** Women face a disproportionate risk for certain CIDs, such as rheumatoid arthritis, as well as associated comorbidities, like osteoporosis. Women with CIDs also face barriers to effective treatment and disease control, especially during pregnancy, as well as disparities in care for cardiovascular disease. Additionally, women bear the majority of the immense burden of elder caregiving. Addressing these gender disparities must be an essential goal for health and prosperity in the 21st century.

The Global Coalition on Aging (GCOA) and its partners are eager to work with the UN, WHO, WPL, national governments, and other leaders to implement this vision. Based on the input of aging experts, we are optimistic about the shift towards proactive, integrated care, greater focus on chronic inflammation, and the resulting benefits for people, communities, and societies.

LANDSCAPE

A New Paradigm for Healthy Aging

CHALLENGE:

20th-Century Health Care Models Struggle in Our 21st-Century Aging World

In the 20th century, health care systems primarily aimed to achieve "absence of disease." While this model has been effective against infectious disease, it is poorly suited to the challenges of NCDs and aging. Care often comes too late—in response to individual diseases and acute symptoms later in life, rather than promoting overall health and prevention across the life course.

Further, the "absence of disease" model does not necessarily optimize the quality of a patient's life. While it may extend total lifespan, it does not always maximize "health span"—or the number of years lived in good health. This should be a top priority, as people of all ages place great value on independence, autonomy, productivity, and social engagement.

SOLUTION:

Promote Integrated Care to Preserve Functional Ability

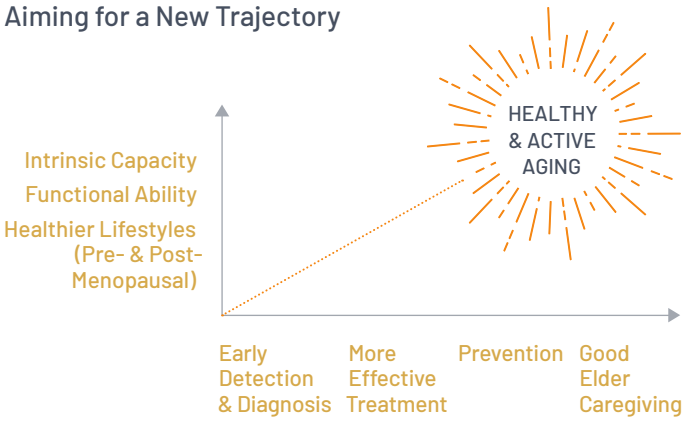
In response to these challenges, the WHO, through the Decade of Healthy Ageing, has called for a new model that aims to "prevent disease, promote health, maintain intrinsic capacity and enable functional ability." Functional ability refers to a person's intrinsic capacity—or the combination of their physical and mental capacities—as augmented or mediated by their environment.

The WHO has identified person-centered, integrated care as an essential strategy for this healthy aging model. This means care that focuses on the individual's particular needs, capabilities, and preferences, while coordinating services across health and social care systems. Together, these concepts point to a future where health systems help people reduce common risk factors throughout their life, screen and detect diseases early, and provide coordinated support to preserve functional ability.

MIKE HODIN
CEO, Global Coalition on Aging

"Addressing chronic inflammation can play a key role in achieving the goals envisioned by the WHO's Decade of Healthy Ageing and demanded by 21st-century longevity."

Aiming for a New Trajectory



SPOTLIGHT

Address Chronic Inflammatory Diseases to Jumpstart Healthy Aging

To accelerate this healthy aging model, there is growing consensus among aging experts that health systems can target chronic inflammation as a key underlying biological process. Chronic inflammation has been linked to multiple major age-related NCDs and related to different risk factors across the entire life cycle, including life events like pregnancy, lactation, and menopause.[6,7] While classical risk factors like diet and exercise are already an element of the WHO's response to NCDs, chronic inflammation offers another important target, given its connections to a range of serious conditions, including cardiovascular disease, diabetes, obesity, osteoporosis, and cancer.[8]

Focusing on chronic inflammation offers a number of advantages. First, it can enable early interventions to prevent, reduce, or even potentially reverse damage accrual across multiple organ systems. If left unaddressed, this damage can lead to life-threatening NCDs and acute health events, especially if damage goes unchecked for multiple years or decades. Second, controlling inflammation can reduce risk for multiple conditions at once—a more efficient approach than addressing each disease individually as its symptoms become acute.

Chronic inflammatory diseases (CIDs) offer a test case and starting point. By taking a more proactive and integrated approach to CIDs, health systems can identify those patients at the greatest risk for later-life multi-morbidity, intervene early to reduce or reverse damage accrual, and pave the way for healthier aging.

Diseases of Inflammation and Aging with Significant Impact on Functional Ability

Chronic Inflammatory Diseases	NCDs with Association to Chronic Inflammation and Aging
Systemic Lupus Erythematosus	Osteoporosis
Axial Spondylarthritis (AxSpa)	Cardiovascular Disease
Inflammatory Bowel Disease	Diabetes
Psoriasis and Psoriatic Arthritis	Cancer
Rheumatoid Arthritis	Vascular Dementia
Hidradentits Suppurativa	Metabolic Syndrome

However, health systems are not currently targeting this opportunity. People with CIDs face a number of barriers to proactive, integrated care, including:

- Focus on "absence of disease" rather than preserving functional ability with a multi-disciplinary approach throughout the life course,
- Lack of widespread screening and other policies to ensure early, accurate diagnosis,
- Lack of urgency for a holistic approach seeking to control inflammation as a common etiology manifested through overlapping systemic diseases,
- Burden related to certain treatments' toxicity and lack of tolerability,
- Lack of provider training on potential later-life impacts of diagnostic delay and therapeutic inertia,
- Care fragmented across different disciplines,
- Care for age-related NCDs fragmented and episodic, in response to acute events,
- Significant gender disparities in disease burden, care pathways, and access to care,
- Lack of consideration for how reproductive history impacts comorbidity risk, including uncontrolled disease activity during pregnancy and breast-feeding, as well as conditions such as pre-eclampsia and gestational diabetes.

Gender Disparities In Chronic Inflammatory Diseases & Elder Caregiving

Women must be at the center of efforts to control chronic inflammatory diseases and promote healthy aging. Action is needed to address the gender disparities in both the risk of and care for CIDs, as well as women's disproportionate burden as elder caregivers overall.

Women account for nearly eight-out-of-ten people with autoimmune diseases, and incidence of certain chronic inflammatory diseases, such as rheumatoid arthritis, is up to three to four times greater among women.[9,10] Women also face greater risk for age-related conditions linked to chronic inflammation, like osteoporosis, with four times greater risk.[11] For other age-related conditions linked to inflammation, like cardiovascular disease, women face disparities in care that can lead to delayed diagnosis, suboptimal treatment, and worse outcomes, as discussed in the following case studies.

There are also specific barriers to care for women with CIDs before, during, and after pregnancy. In a global survey of women with chronic rheumatic diseases who had been pregnant in the past 2-5 years, 69% expressed concern that their treatment might harm the baby—but 60% were also concerned that disease activity might harm the baby.[12] During pregnancy, 47% were advised to discontinue treatment by a healthcare provider, and 32% reported inadequately controlled disease activity.[13] This uncontrolled disease activity, inflammation, and resulting damage accrual could lead to greater risk for NCDs and age-related health challenges.

Women also shoulder the vast majority of the burden of elder caregiving for age-related conditions linked to chronic inflammation. In countries around the world, women account for 60% or more of family caregivers.[14,15,16] These caregivers often sacrifice their jobs and careers, finances, and even their own physical and mental health in order to provide care. This amounts to an immense, unpaid contribution to society. For example, in the U.K., it is estimated that the economic value of women's unpaid care is more than £75 billion each year.[17]

This burden isn't just inequitable—it's also extremely costly. For example, in Japan, it's estimated that every percentage point increase in female labor participation rate increases overall GDP by roughly half a percentage point.[18] If China achieved gender parity in the workforce, it would increase GDP by $4.2 trillion by 2025.[19] Globally, closing the gender workforce gap would add $28 trillion to GDP.[20] And there is also the detrimental impact on women's role as the leaders of their families and communities.

To respond, health systems can strengthen detection efforts for diseases that disproportionately affect women—for example, administering osteoporosis screening for all post-menopausal women—and address care disparities in areas like cardiovascular disease. Just as importantly, health systems and societies must strengthen support for elder caregivers, while implementing healthy aging policies that reduce the need for elder caregiving in the first place.

CASE STUDIES

Case studies of specific CIDs and related comorbidities illustrate the challenge—and how health systems and health policy leaders can begin to address it.

Psoriasis: Skin as a Window into Chronic Inflammation

Psoriasis affects more than 60 million people globally. Contrary to common perceptions, psoriasis is not just "skin deep"—it's a systemic, inflammatory disease that reflects complex changes and impacts in a patient's body. If these impacts are not promptly addressed, they can lead to damage accrual, comorbidity, and cumulative life course impairment. This increased risk and health burden is due in part to the damage caused by chronic inflammation. Further, psoriasis can impact a person's social life, emotional well-being, and professional performance, leading to stigmatization, low self-esteem, and anxiety and depression.

While psoriasis itself is a severe disease, it is also linked to a number of comorbid conditions, including cardiovascular disease, hypertension, diabetes, cancer, and metabolic syndrome.[21] For example, a 30-year-old patient with severe psoriasis faces a 3x greater risk for myocardial infarction than the general population.[22] Overall, comorbid CVD shortens the average lifespan of patients with moderate-to-severe psoriasis by 5-6 years compared to those with mild psoriasis.[23,24]

There is growing consensus among dermatologists that psoriasis is undertreated.[25] A study in the U.S. finds that 60% of patients with moderate-to-severe psoriasis had not received a therapy in the previous year, and among patients who had received a therapy, 50% lapsed treatment within a year.[26] In some cases, providers may also prescribe treatments with side effects that increase the risk for certain comorbidities.[27] In contrast, optimal care for moderate-to-severe psoriasis has been found to reduce mortality risk.[28] People with psoriasis also face greater risk for psoriatic arthritis.[29]

These challenges impact health spending and economic productivity. In the United States, psoriasis is estimated to generate as much as $63 billion in direct medical costs each year, with additional indirect costs up to $35 billion each year.[30] There can also be significant costs of lost productivity. In one study, patients with moderate psoriasis lost an average of more than $9,000 per year in lost productivity, while those with severe psoriasis lost an average of more than $16,000.[31]

A more proactive, integrated approach to psoriasis can help patients control inflammation, reduce or reverse damage, and avoid or address comorbid conditions. This approach would recognize that psoriasis is effectively a "window" into chronic inflammation, enabling interventions that reduce risk for comorbid conditions, as well as indicating the patient for additional screening and care to directly address these conditions if they arise. Finally, there are also a number of other CIDs that manifest on the skin and have similar comorbidities with psoriasis, including lupus erythematosus, hidradenitis suppurativa, alopecia areata, atopic dermatitis, and chronic urticaria.

Chronic Inflammatory Diseases: The Link to Cardiovascular Disease

People with CIDs, such as rheumatoid arthritis (RA), psoriatic arthritis, and axial spondyloarthritis (axSpA)/ankylosing spondylitis (AS), face increased risk for cardiovascular disease and other comorbid, age-related NCDs.[32,33,34] For example, one meta-analysis finds a 50% increased risk of CVD death among RA patients.[35]

Given this risk, early detection, diagnosis, and appropriate treatment is essential. However, patients with these diseases can face significant delays in diagnosis and care. A recent global meta-analysis finds that patients with axSpA experience an average delay of 6.7 years from symptom onset to diagnosis,[36] while other studies find delays as long as 15 years.[37] In cases of RA, nearly a year or more typically passes from the onset of symptoms to the initiation of treatment.[38,39,40] Additionally, long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs) and glucocorticoids can increase CVD risk for these patients.[41,42]

These gaps are even more alarming for women with CIDs, given the gender disparities in cardiovascular care. Women are more likely to experience so-called "atypical" symptoms of CVD, and less likely to be prescribed aspirin, statins, and blood pressure medications.[43] A British study finds that women are 50% more likely to receive an incorrect initial diagnosis for a heart attack and 7% less likely to receive beta blockers when leaving the hospital after a heart attack.[44]

These gaps and disparities demand action. Health systems can respond by promoting public awareness of the links between inflammation and CVD and equipping providers to provide early, accurate diagnosis and appropriate treatment for CIDs. There is also a need for more research and better guidance for women with these diseases before, during, and after pregnancy, as well as efforts to address disparities in CVD care.

Osteoporosis & Fragility Fractures: The Role of Inflammation

Osteoporosis and fragility fractures generate an immense health and economic burden, especially for women. In China alone, total prevalence of osteoporosis is projected to rise from roughly 84 million in 1997 to 212 million by 2050, with almost double the prevalence rate for women compared to men.[45,46] In the United Kingdom, fragility fractures are estimated to generate £2 billion in healthcare costs, and women over 45-years-old spend more days in the hospital due to osteoporosis than diabetes, heart attacks, or breast cancer.[47,48]

This burden is linked to chronic inflammation, as people with CIDs face a higher risk of osteoporosis and fractures.[49,50] There is also evidence that social exclusion is a risk factor, as women who are married and/or have stronger social support networks have lower rates of osteoporosis than single women with relatively weaker social support networks.[51, 52, 53, 54]

However, health systems have not prioritized osteoporosis and fragility fractures. Most countries do not have national screening programs for osteoporosis in post- menopausal women, nor do health systems provide women with sufficient information about how

to reduce risk. Finally, health systems are not prioritizing screening and rehabilitative care even after the first fragility facture, as a significant share of patients experience a subsequent fracture within 1-5 years.[55,56,57]

This inaction comes at a cost. One-in-four working-age people with osteoporosis have had to give up work, change their job, or reduce their hours.[58] In the European Union, more than 7.6 million sick days are taken as a result of fragility fractures.[59] There is also the associated high healthcare spending. In the United Kingdom, fragility fractures generated healthcare costs of £4.52 billion in 2017—projected to rise to £5.89 billion by 2030.[60] In Japan, the direct medical costs of hip fractures totaled more than $14,000 per patient.[61] Addressing osteoporosis can reduce sick days, improve worker productivity, and enable fuller contributions to the economy, as well as reduce high healthcare spending by reducing risk for fragility fractures.

By stepping up responses to osteoporosis, health systems can address the cost growth curve aligned to their aging societies while improving lives and supporting the functional ability of patients and family caregivers. These policies can focus on people with CIDs who face a greater risk for osteoporosis, as a starting point for a broader response to the condition.

SOLUTIONS

Policies for Proactive, Integrated Care & Inflammation Control Across the Life Course

Based on these case studies, we propose a new set of questions for healthy aging in the decades ahead.

While more research is needed, policymakers, health system leaders, and providers can ask these questions to drive a more proactive, integrated, and person-centered approach—with appropriate emphasis on the role of chronic inflammation in aging.

Global and national policy leaders can help to drive this shift—focusing on preserving functional ability, addressing risk factors like chronic inflammation, and integrating considerations about the person's age, needs, and priorities, especially among vulnerable populations. **There are a range of opportunities for action:**

Health System Responses

- **Implement WHO's guidelines for integrated care and functional ability.** The WHO has published guidelines and other resources on integrated care for older people that health systems can use to equip health care professionals (HCPs) to make informed decisions that prevent, slow, or reverse declines in physical and mental capacities—critical to preserving functional ability.
- **Improve screening for chronic inflammatory diseases and comorbidities.** Given the risk for damage accrual and multi-morbidity, health systems should prioritize early detection of CIDs. Once identified, patients should also receive proactive screening for later-life comorbidities, such as osteoporosis and cardiovascular disease.
- **Train HCPs on inflammation, damage accrual, and managing risk factors across the life course.** Providing the right knowledge and resources can help HCPs provide care with a life-course lens—aiming to not just control symptoms, but understand underlying processes, control inflammation, and lower lifetime risk for age-related conditions. For women, these discussions and shared decision-making should include considerations related to pregnancy and multi-disciplinary care for women of child-bearing age.

Proactive, Integrated Care: New Questions for a New Paradigm

FROM	TO
SCREENING & DIAGNOSIS	
Wait for severe symptoms or acute event that forces patient to seek help.	"How can we proactively screen at-risk populations for most common and/or serious conditions, as well as factors like chronic inflammation?"
"What disease is indicated by the patient's symptoms?"	"What do symptoms indicate about underlying biological processes and possible damage across organ systems?"
CARE	
"How can we achieve absence of disease?"	"How can we support functional ability and quality of life?"
"What is the treatment indicated by the diagnosis?"	"What is the treatment indicated by the inflammatory pathway, with a holistic, multi-disciplinary therapeutic approach?"
"Will a treatment's side effects be manageable?"	"Will a treatment's side effects increase the risk of other diseases, including later in life?"
"Will the patient adhere to treatment?"	"How can we integrate the patient into decision-making, respecting their priorities, daily activities, and social background?"
Wait for patient to seek follow-up care if symptoms worsen or other condition manifests.	"Is there high risk for comorbid conditions? How can that risk be evaluated and addressed?"
REPRODUCTIVE HEALTH	
"Should a woman refrain from getting pregnant?"	"How can we help a woman of childbearing age[62] make the best decision for her health and her family plans?"

Research & Innovation

- **Invest in research on geroscience and healthy aging.** This research can deepen understanding of the links between inflammation and unhealthy aging, as well as potential new interventions that can address them at their root.
- **Integrate a suite of biomarkers and indicators for healthy aging.** Health systems can bring together a number of biomarkers and indicators, including those related to inflammation, in order to measure a person's risk for unhealthy aging, including NCDs and age-related health challenges.
- **Support the development of innovations for inflammation and chronic inflammatory diseases.** COVID-19 has shown the potential for rapid innovation supported by global collaboration and regulatory policy. A similar approach to CIDs could help to unlock innovations that effectively address these diseases and comorbid conditions.
- **Leverage new digital technologies and integrate data.** Technologies can enable more efficient remote care and help people plan for and track the steps of healthy aging at every age—much like how digital tools support financial planning. There's also a need to better integrate the data that is already available, but fragmented across different systems and entities.

Societal Responses

- **Educate the public on chronic inflammation and other under-recognized risk factors.** Public health campaigns on less well-known risk factors, like chronic inflammation, can give people a broader understanding of healthy aging and empower them to seek help, if needed.
- **Enhance support for elder caregivers.** Policies that better equip caregivers to manage their responsibilities, by bolstering the professional caregiving workforce and improving education and training, will help detect potential issues earlier and reduce the burden of family caregiving responsibilities. In turn, this will improve

the health of caregivers and care recipients, avoid lost productivity and ensure societies are more equitable and prosperous as they age.

- **Empower women for healthy aging.** Policies that promote healthy aging will reduce the disproportionate health, caregiving, and financial burden on women—advancing gender equality and economic growth.

The health challenges of aging are too important to ignore—luckily there are immense opportunities. On behalf of GCOA, we urge global and national policy leaders to join the aging community to drive an innovative approach and a global transformation in how we age, starting with chronic inflammation and chronic inflammatory diseases.

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62. Recent discussions among policymakers have considered the potential for the term "people of childbearing age." This paper uses "women of childbearing age," as this is the term that has been most commonly used in the scientific and policy literature.

Global Coalition on Aging

About the Global Coalition on Aging

The Global Coalition on Aging aims to reshape how global leaders approach and prepare for the 21st century's profound shift in population aging. GCOA uniquely brings together global corporations across industry sectors with common strategic interests in aging populations, a comprehensive and systemic understanding of aging, and an optimistic view of its impact. Through research, public policy analysis, advocacy, and strategic communications, GCOA is advancing innovative solutions and working to ensure global aging is a path to health, productivity and economic growth.

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