WHO clinical consortium on healthy ageing 2024

Meeting report, 5–7 November 2024

World Health Organization

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This report was written by Rachel Albone and Yuka Sumi (Ageing and Health Unit), with technical direction from Matteo Cesari and Ritu Sadana (Ageing and Health Unit).

Abbreviations

ADLs	activities of daily living
AIDS	acquired immunodeficiency syndrome
CCHA	Clinical Consortium on Healthy Ageing
HIV	human immunodeficiency virus
ICOPE	WHO integrated care for older people approach
LMICs	low- and middle-income countries
RCT	randomized controlled trial
VHV	village health volunteer
WHO	World Health Organization

Executive summary

The Clinical Consortium on Healthy Ageing (CCHA) was established by the World Health Organization (WHO) in 2015 as a forum of global experts that advances research and clinical practice related to healthy ageing. The Consortium meets as a full group once a year, with its most recent meeting taking place online from 5 to 7 November 2024 with around 80 experts from all WHO regions. Forty per cent of participants at the meeting were from low- and middle-income countries (LMICs), resulting from the Ageing and Health Unit's increased engagement with experts from these countries throughout 2024. Colleagues from WHO's regional offices and technical units also joined the meeting.

The objectives of the meeting were to discuss:

- the biological mechanisms underlying the age-associated decline in intrinsic capacity and the potential contribution of diseases, including multimorbidity and HIV;
- the role of multimorbidity in the design and delivery of a personalized care plan;
- how to support the adaptation of the integrated care for older people approach (ICOPE) in low-resource settings;
- innovative research to improve care for older people; and
- how to promote integrated care in life-threatening illness (palliative care) and in the context of climate change.

The meeting was organized around six main panels, involving 17 speakers from academia, civil society and WHO.

Panel one focused on palliative care and quality of dying. This marked the first time the CCHA had a focused discussion on palliative care to promote a continuum of integrated care for people. Participants heard an overview of WHO's work on palliative care and its link with ageing, followed by a presentation on the measurement of end-of-life care and quality of dying. Among the actions discussed was a commitment to advocating the importance of quality palliative care for older people and support for their carers. See Chapter 2 for further details.

Panel two considered the biomarkers of ageing and intrinsic capacity, and discussed research into the genetics of intrinsic capacity and a model of the epigenetic clock, and the implications for public health interventions. Among the actions discussed was to do more research on the operationalization of biomarkers in different settings and contexts. See Chapter 3 for further details.

Panel three included two presentations on the complexity of diseases at older age; the first on the democratization of geroscience, which aims to identify the biological drivers of the ageing process and links with diseases, while the second focused on multimorbidity and its clinical implications for care. Among the actions discussed was to do more research to standardize findings on multimorbidity, and building the capacity of health workers on the management of diseases as a part of person-centred integrated care. See Chapter 4 for further details.

Panel four looked at how to adapt integrated care for older people in low-resource settings, a key focus for the 2024 meeting. Smaller group discussions focused on identifying existing good practices and potential actions and collaborative mechanisms to support sustainable implementation. These discussions were informed by a presentation on changes included in the upcoming second edition of the WHO ICOPE handbook, and examples shared by presenters from Kenya, Mexico and Thailand. Among the actions discussed was a number of commitments towards sharing experiences and good practices to implement ICOPE in low-resource settings, and work on the development of an economic case for integrated care. See Chapter 5 for further details.

Panel five addressed climate change and ageing. Following an overview of WHO's work on climate change and health, other presentations focused on heat stroke, the area with the most evidence in relation to ageing and older people. Among the actions discussed was to engage in education and advocacy and research into the impact of climate change on the health and social participation of older people. See Chapter 6 for further details.

Panel six examined research on care for older people, following a discussion at the 2023 meeting on research prioritization to improve care for older people, and a presentation on healthy ageing for people living with HIV. Among the actions discussed was to explore the adaptation of the ICOPE care pathways for people living with HIV, and engagement in pragmatic implementation research and randomized controlled trials for older people. See Chapter 7 for further details.

1. Introduction

The 2024 annual meeting of the WHO Clinical Consortium on Healthy Ageing (CCHA) was the 10th gathering of this international multidisciplinary group representing clinical experts, academics, community stakeholders and civil societies. It was held online over three days, from 5 to 7 November. More than 90 participants joined the meeting from over 30 countries across all of WHO's six regions.

Following discussions at the last CCHA meeting in 2023 *(1)*, the Ageing and Health Unit at WHO worked with CCHA participants and partners over the course of 2024 to identify and engage with experts from low- and middle-income countries (LMICs) to ensure a more balanced representation across different resource contexts at future meetings. Given that it is projected that 80% of the world's older people will live in LMICs by 2050 *(2)*, ensuring the engagement of experts from these countries is crucial to the healthy ageing agenda supported by the CCHA. We must facilitate the exchange of knowledge and experience between countries and contexts.

This year's sessions were structured against the following six panels. The meeting involved a series of technical presentations, plenary discussions and group work. Following the six panels, a final session reviewed the way forward.

- **Panel one:** Quality of dying and palliative care
- **Panel two:** Biomarkers and intrinsic capacity
- **Panel three:** Multimorbidity
- **Panel four:** How to adapt integrated care for older people in low-resource settings
- **Panel five:** Climate change and implications for care for older people
- **Panel six:** Research on care for older people

See Annex 1 for the full meeting agenda.

The presentations and discussions highlighted the range of work being undertaken by stakeholders across health and care sectors on ageing to progress efforts towards integrated care for older people. The 2024 meeting took place just before the launch of *Integrated care for older people (ICOPE): guidance on person-centred assessment and pathways in primary care, second edition (3)*. Updating the handbook was the main agenda item for the 2023 meeting and CCHA participants contributed to its development and finalization throughout 2024.

The 2024 agenda further built on the previous meeting by following up on presentations of the research prioritization agenda to improve care for older people, and promote healthy ageing in older people living with HIV. It was also informed by discussions with experts from LMICs who were asked about the topics of greatest concern in their contexts. Panels four and five were developed in response.

Meeting objectives

To discuss:

- the biological mechanisms underlying age-associated decline in intrinsic capacity and the potential contribution of diseases, including multimorbidity;
- the potential role of multimorbidity in the design and delivery of a personalized care plan;
- how to support the adaptation of integrated care for older people in low-resource settings;
- innovative research to improve care for older people; and
- how to promote integrated care in life-threatening illness (palliative care) and in the context of climate change.

Meeting outcomes

- The linkage of the biology of ageing and intrinsic capacity with the contribution of diseases is illustrated to better inform public health interventions.
- Further understanding of the challenges and enablers to implement and monitor the ICOPE approach in low-resource settings.
- Prioritization of research on care for older people.
- Identification of priority work for 2025.

As this is a report of the presentations and discussions made at a meeting, the statements and statistics included in it may not represent the views, policies and official statistics of WHO.

Achievements since 2023

WHO provided an overview of activities and achievements on integrated care, including those specifically involving the CCHA, since the last meeting.

With the support of CCHA participants and other partners, progress has been made in each of the seven areas of focus of the 2023 meeting:

- WHO's new initiatives on ageing and health
- musculoskeletal health
- implementation of the ICOPE
- emerging themes to strengthen integrated care
- updated ICOPE care pathways
- multidimensional approach to research on healthy ageing
- CCHA and WHO Global Network on Long-term Care joint panel: continuum of integrated care for older people.

WHO has continued to work under its initiative on bone health with the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO) *(4)*. Progress has been made on two systematic reviews, the first on tools to assess risk of facture and the second on health-related quality of life in osteoporosis. Since the launch of the *WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings (5)* during the CCHA 2023 meeting, WHO has continued work to disseminate the guideline. The executive summary is available in all six United Nations languages and a short video explainer on low back pain has been developed as part of the WHO's Science in 5 series *(6)*.

Significant work has been done throughout 2024 to support the implementation of the integrated care for older people approach (ICOPE). A small working group has been established to support work on the adaptation and implementation of ICOPE in low-resource settings, and the ICOPE handbook has been updated with the support of CCHA participants. Work on the ICOPE training materials in English (field test version) has also progressed. Nineteen modules have been launched, with accompanying presentation slides and facilitators' notes. It is hoped that a next step will be to develop an online learning platform hosted by the WHO Academy *(7)*. Working with WHO regional offices and collaborating centres, training has been provided to health workers in Iraq, and policymakers from the South-East Asia *(8)* and Americas regions were sensitized on concrete actions to implement ICOPE.

The issues of multimorbidity and HIV and ageing were included in the CCHA 2023 meeting agenda. These discussions were continued at the 2024 meeting, looking specifically at implications for person-centred care and considering multimorbidity and HIV through the lenses of intrinsic capacity and functional ability.

Progress has been made on the multidimensional approach to research on healthy ageing, particularly in relation to WHO's research prioritization agenda, an update on which was presented in panel six.

At the 2023 meeting, there was a joint session between the CCHA and the WHO Global Network on Long-term Care to discuss a continuum of care for older people. WHO has since published its *Long-term care for older people package for universal health coverage (9)*, with dissemination focused on Member States.

Relevant WHO resources

WHO clinical consortium on healthy ageing 2023: meeting report, Geneva, Switzerland, 5–7 December 2023 (https://iris.who.int/handle/10665/378710)

WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings (https://iris.who.int/handle/10665/374726)
Executive summary (in six United Nations languages): (https://iris.who.int/handle/10665/374531)

WHO's Science in 5: Low back pain (https://www.youtube.com/watch?v=C1uRJXC19Bg)

ICOPE training programme: Field testing version (https://www.who.int/tools/icope-training-programme)

WHO Long-term care for older people: package for universal health coverage (https://iris.who.int/handle/10665/376585)

2. Panel one: Quality of dying and palliative care

Panel focus

The first panel focused on palliative care and included presentations on two topics:

- **strengthening palliative care in primary care**
- **quality of dying**

This was the CCHA's first discussion on palliative care, so it was designed to set the scene. Using two online polls, 60 CCHA participants were asked about their experience with palliative care. Only 30% of participants responded that they had had specific training in palliative care and that they measured the quality of palliative care in their work.

2.1 Strengthening palliative care in primary care

The delivery of a continuum of integrated care is crucial to meet older people's diverse needs and to support their optimal functional ability. This includes the full spectrum of care, from prevention and promotion to treatment, rehabilitation and palliative care, and responds to a person's changing needs, capacity and disease progression.

WHO defines palliative care as "an approach that improves the quality of life of patients and their families, facing problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and correct assessment and treatment of pain and other problems, physical, psychosocial and spiritual" *(10)*.

The following statistics are according to the Global Atlas of Palliative Care (second edition) (*11*).

> **Almost 57 million people in 2017 needed palliative care globally, most of whom lived in low- and middle-income countries (LMICs). However, only 14% were able to access the care they needed.**

The majority of adults in need of palliative care have chronic diseases, including cardiovascular disease (38.5%), cancer (34%), chronic respiratory diseases (10.3%), HIV and AIDS (5.7%) and diabetes (4.6%). It is estimated that more than two thirds of people in need of palliative care globally are aged 50 and over (67.1%).

It is important that palliative care is integrated into primary health care. The following three key principles enable this.

1. **Provide and communicate honest and clear information about prognosis in a culturally sensitive way.**

   Communicating honest information about prognosis does not take away hope. Rather, it helps to guide decision-making for patients and their families.

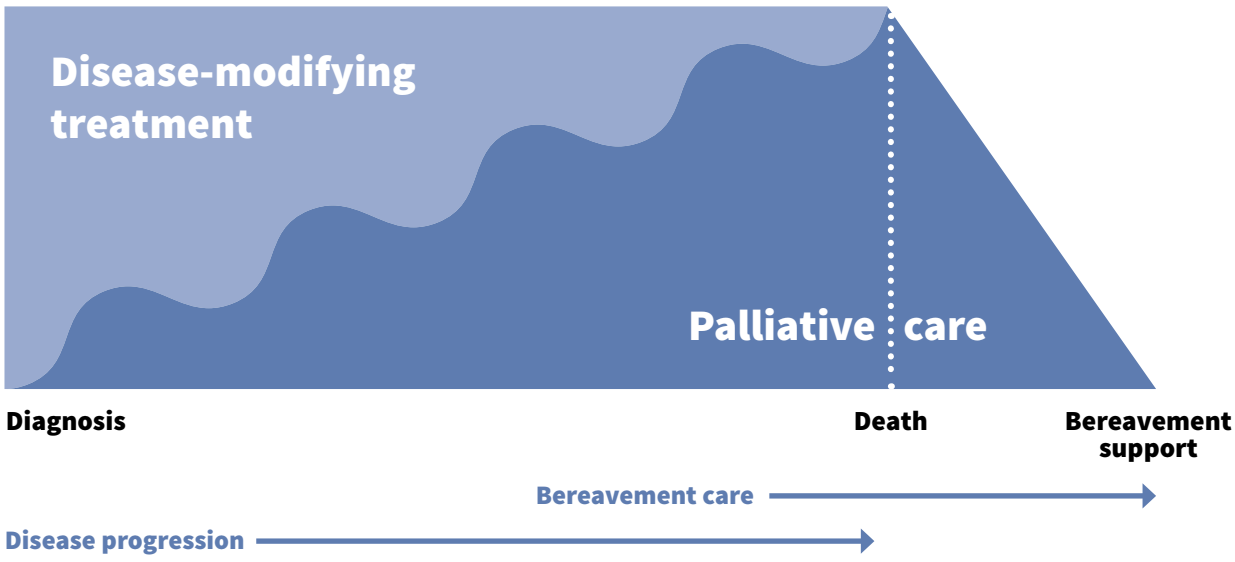
2. **Provide goal-oriented care by exploring and reflecting personal preferences and values in health care decisions; engaging with people and families early in the course of serious illness; and focusing on relieving suffering and improving quality of life.**

   A person's goals for their care will shift over time, for example to focus on cure, quality of life and comfort at different times and different stages of disease progression. Palliative care does not focus only on end-of-life care but can be combined with potentially curative treatments that may prolong life (Fig. 1).

3. **Identify and respond to serious health-related suffering (physical, emotional, social and spiritual suffering).**

   Palliative care is most effective when started early in the course of the illness. Early engagement with palliative care supports dying at home *(12)*, which is generally found to be most people's preference. It should also include bereavement support for families after the death of the patient.

Fig. 1. Integration of palliative care and disease-modifying treatment



WHO provides a palliative care development model, with six components and accompanying indicators:

1. political commitment and leadership
2. availability and access to essential medicines
3. provision of palliative care in integrated health service delivery
4. education and training of health workers (current and future)

5. research
6. empowered individuals and communities.

Basic palliative care training can be provided to all health workers in primary care. This should include communication, identifying sources of suffering, and treating pain and breathlessness.

2.2 Quality of dying

Earlier efforts to measure the quality of death and dying, driven by data availability, have generated interest in palliative care from countries around the world. A quality of death and dying index produced in 2021 focused more on outcomes and patient experiences than on inputs *(13–15)*. The index had the following three aims.

1. Identify the core domains of end-of-life care important to patients and families, within and across health systems, based on a scoping review (309 articles) *(13)*.
2. Quantify the relative importance (i.e. preference weights) for key indicators for these domains using a discrete choice experiment *(14)*.
3. Derive preference-weighted country-level rankings by fielding the indicators survey to experts in as many countries as possible *(15)*.

Key findings

Aim 1: The scoping review identified seven domains for key aspects of 'quality of death', namely: quality of communication; quality of care; stewardship and governance; resource generation; access to care; service provision and financial protection. Based on this scoping review, 13 key indicators, focusing on three domains (quality of care, quality of communication, and financial protection) were proposed with five levels on a scale (strongly disagree to strongly agree).

Aim 2: The online discrete choice experiment survey was undertaken with 1250 caregivers, as proxies for recently deceased care recipients in five countries (India, Kenya, Singapore, the United Kingdom of Great Britain and Northern Ireland and the United States of America). The relative importance of each attribute in the survey was measured. Health workers' ability to control patients' pain to a desired level was found to be the most important attribute, followed by access to clean, safe and comfortable facilities, and kind and sympathetic health workers.

Aim 3: 181 experts from 81 countries scored and ranked countries on the quality of the end-of-life care. Results highlight the large disparities in assessments of quality of end-of-life care across countries, and especially between the high-income and lower-income countries, related to the cost of care.

In summary, the complexity of measuring quality of end-of-life care is acknowledged, due to the inherent biases of patients, families and health workers. Although quality of care from the patient's perspective should be prioritized, it may not be feasible and practical. Caregivers' inputs can be used as an alternative way to assess quality of care where needed.

2.3 Key discussion points

- Training on basic palliative care for health workers in primary care is important. This includes community stakeholders as a first point of care for older people. This training may include how to identify need for palliative care using validated tools appropriate to low-resource settings, the skills of health workers, and the capacity in the community. WHO resources can support this training alongside those from other organizations *(16,17,18)*.
- Palliative care is sometimes misunderstood as an intervention only for cancer patients.

> **Yet many adults and children living with other illnesses and conditions, including dementia, organ failure (e.g. cardiac failure), respiratory conditions and neurodegenerative diseases, also benefit from palliative care.**

- One challenge is in estimating the prognosis for a non-cancer illness, leading to palliative care not always being provided at the appropriate time. Through a holistic person-centred approach, a person's suffering needs to be addressed (e.g. management of breathlessness), irrespective of disease diagnosis. Another challenge is the limited capacity (knowledge and skills) of health workers to provide palliative care.
- A case could be made for the cost-effectiveness of palliative care in health care systems. Potential savings include through supporting patients to stay at home, rather than in health facilities, and limiting unnecessary invasive interventions. However, palliative care is also of particularly high value to the people who receive it, in terms of improving quality of life. Palliative care is therefore of value regardless of financial considerations.
- There are many common approaches within palliative care and geriatric care that are underpinned by a person's values, goals and preferences. Further integration and collaboration are needed.
- There are difficulties with creating awareness and communication about palliative care. This includes how to communicate with patients to ensure they understand that palliative care is not just about end-of-life care. These challenges relate to stigma and fear around the term palliative care. There are also language limitations, with 'palliative care' not having a direct translation in some languages. Improved communication and awareness-raising is needed to highlight that palliative care is part of person-centred care. Many people have clear ideas about how they want to be cared for, determined by their cultural context, religious and spiritual beliefs, and perceptions of the experience of living and dying. A reduction in fear and anxiety around death requires conversations with a patient to understand their fears and what is behind them. Fears are often based on perceptions that are inaccurate or closely linked to spiritual beliefs and practices.
- Community engagement in line with the primary health care approach *(19)* is key to providing culturally, spiritually adapted palliative care. This includes working with local spiritual groups that can give guidance on how palliative care is understood in their community.
- Carers have a significant role in the provision of palliative care. They need to be supported and trained, especially on how to support an older person when their condition deteriorates, to prevent unnecessary hospitalizations, and on when to get advice and attention from health workers. The WHO Collaborating Centre for Community Participation in Palliative Care and Long-term Care has tools available to help with palliative care training for caregivers *(20)*.
- A fundamental principle of palliative care is that the needs of patients and their carers are given equal priority. Continuous reporting by patients and/or their carers on the quality of care is important as an illness progresses to improve palliative care quality.

2.4 Quality of dying and palliative care: actions for CCHA and WHO

Actions for CCHA:

- Become familiar with and support the integration of palliative care in primary health care.
- Build capacity to provide palliative care for health workers and carers (e.g. develop training courses in the WHO Academy).
- Do further research on:
  - the quality of palliative care for older people and their carers, using patients' (and their carers') reported outcomes; and
  - palliative care in non-cancer illnesses such as cardiovascular disease, respiratory diseases, HIV and dementia.

Actions for WHO:

- Further advocate the importance of quality palliative care for older people and support for their carers, in relation to both cancer and non-cancer conditions.
- Disseminate indicators to systematically measure the quality of palliative care based on the person's preferences.
- Adapt indicators to address the specific needs of older people.
- Support countries with the implementation of palliative care for older people (and support for carers) as part of a continuum of integrated care.
- Facilitate connections and collaborations between different partners to advance palliative care within countries.

Relevant WHO resources

Palliative care: models of service delivery and symptom management (online course) (https://www.knowledge-action-portal.com/en/content/palliative-care-models-service-delivery-and-symptom-management-online-course)

Virtual course on fundamentals of palliative care (https://campus.paho.org/en/course/fundamentals-palliative-care)

Planning and implementing palliative care services: a guide for programme managers (https://iris.who.int/handle/10665/250584)

Integrating palliative care and symptom relief into primary health care: a WHO guide for planners, implementers and managers (https://iris.who.int/handle/10665/274559)

Assessing the development of palliative care worldwide: a set of actionable indicators (https://iris.who.int/handle/10665/345532)

Quality health services and palliative care: practical approaches and resources to support policy, strategy and practice (https://iris.who.int/handle/10665/345674)

3. Panel two: Biomarkers and intrinsic capacity

Panel focus

Panel two focused on biomarkers and intrinsic capacity, with presentations on two topics:

- **role of genetics in intrinsic capacity**
- **blood-based epigenetic clock for intrinsic capacity**

The framework of healthy ageing is based on the constructs of intrinsic capacity and functional ability. To date, activities have largely been focused on capturing the phenotypic manifestations of intrinsic capacity. However, the complex dynamic biological changes underlying the ageing process should not be overlooked. In particular, there is a growing body of evidence in the field of geroscience. The use of biomarkers may allow us to better understand the expression of intrinsic capacity, and potentially anticipate its trajectory.

3.1 Role of genetics in intrinsic capacity

Researchers aim to understand why individuals of the same age show differences in intrinsic capacity. An interaction between genetic and environmental factors has been hypothesized as the basis of the phenotypic expression of intrinsic capacity in older people.

A review of existing literature (84 scientific articles) explored the biological foundations of intrinsic capacity. It demonstrated a significant association of intrinsic capacity with demographic and socioeconomic factors, as well as with primary health outcomes (e.g. morbidity and mortality) *(21)*. The review found little research on the genetics link to intrinsic capacity, with only the apolipoprotein E (APOE) gene variant identified to date.

Following this literature review, further work sought to understand how much genetics contribute to the phenotypic manifestation of intrinsic capacity, and whether any genomic region might be involved in its expression *(22)*. Researchers used the UK Biobank (500 000 participants between the ages of 40 and 69 years) and the Canadian Longitudinal Study on Aging (50 000 participants between the ages of 45 and 85 years). They made a comprehensive longitudinal assessment of phenotypic information and all genetic data for each cohort.

Intrinsic capacity scores were calculated from the data in both study databases and the construct and predictive validity of the two scores were confirmed *(23)*. The genetic analysis was in the form of a genome-wide association study. This involved testing each single nucleotide polymorphism

(genetic variation) across the genome and its association with the intrinsic capacity score. This showed between 19.6% and 25.2% of the inter-individual variability in intrinsic capacity was due to genetic factors, and the rest of the variability was due to environmental influence.

Overall, 39 independent single nucleotide polymorphisms were identified across 10 genomic loci mapped to 197 genes. The available evidence shows that the identified single nucleotide polymorphisms are associated with various age-related conditions and phenotypic expressions. In particular, the gene expression analysis revealed that the identified genes are mapped tissues relevant to intrinsic capacity decline, such as muscle, brain and adipose tissue. Similarly, the pathway analysis indicated possible biological mechanisms relevant to intrinsic capacity and ageing in genes regulating cellular processes, neurological and cognitive function, metabolism and energy, immune and inflammatory response, and homeostasis.

This work has highlighted the need for further research on the genetic foundations of intrinsic capacity. This would support a better understanding of the dynamics of ageing, potentially enabling a more personalized approach to promoting healthy ageing.

3.2 Blood-based epigenetic clock for intrinsic capacity

Ageing can be characterized by a hierarchical series of events, from molecular to systemic modifications. Changes at the molecular level determine cellular modifications that can impact tissues and organs, and result in systemic/phenotypic manifestations (e.g. of intrinsic capacity, frailty or disability).

The INSPIRE-T cohort study *(24)* is a longitudinal study on healthy ageing following 1000 individuals aged 20 to 102 years, conducted by the WHO Collaborating Centre for Frailty, Clinical and Geroscience Research, and Geriatric Training, Gérontopôle, Toulouse University Hospital, France. These participants are comprehensively assessed regularly for their sociodemographic, functional, clinical and biological characteristics using innovative technologies (such as the ICOPE Monitor app to monitor the domains of intrinsic capacity). The study cohort is currently entering the fourth year of follow-up.

The INSPIRE-T study has shown differences in the domains of intrinsic capacity by sex *(25)*. Women present earlier impairments than men across the different domains, except for cognition. The age when the impairment appears may substantially differ from one domain to another. For example, decline in the vitality domain, measured by grip strength, may occur earlier in life than declines affecting the locomotion (measured by the short physical performance battery) or cognition (assessed by the mini mental state examination) domains.

An analysis of the association between the clinical manifestation of declines in intrinsic capacity and biomarkers was undertaken using biological samples, including blood and saliva specimens. Results consistently showed that intrinsic capacity is associated with ageing and immune health. Cellular senescence and chronic inflammation represent two major contributors to intrinsic capacity. There were also positive findings in the analyses aiming to show an association between a novel ageing epigenetic clock for intrinsic capacity and longevity.

The upcoming results of an ongoing study *(26)* exploring the possibility of enhancing intrinsic capacity after plasmapheresis will potentially add to the rationale for work on the biology of ageing.

3.3 Key discussion points

It is important to shift the focus of preclinical research from disease-based models towards a comprehensive evaluation of ageing and age-related conditions.

- Intrinsic capacity trajectories are heterogeneous and individual to each person. It is therefore critical to focus research on trajectories that generate data in support of longitudinal evaluation, such as the INSPIRE-T study does.
- Better understanding of the determinants of health and contributors to trajectories, such as socioeconomical factors, including ageism, might enable the prediction of changes in a person's intrinsic capacity, and better inform their personalized care plans.
- Work on the genetics of intrinsic capacity might support public health interventions to educate people and inspire healthier lifestyles. A holistic person-centred approach to improve intrinsic capacity trajectories is important. Determinants are interlinked and should not be addressed in isolation, and interventions to address them should be tailored to the individual older person as part of a personalized care plan.
- There might be a role for artificial intelligence in consolidating a broad range of information into a robust prediction of the intrinsic capacity trajectory.
- In resource-limited contexts, research and evidence are needed to identify and prioritize interventions and target populations. Yet research remains focused in high-resource settings from which findings may not be relevant or useful in other contexts. More research is needed, with specific funding dedicated to enhancing research capacities in low- and middle-income countries to work on ageing.
- Relatively inexpensive methods are available for measuring the biomarkers of ageing from different specimens in alignment with ethical standards and procedures for research with human beings. Efforts should be made to standardize the methodologies, for measuring key constructs such as intrinsic capacity and functional ability, to facilitate international comparisons and global advancements.

3.4 Biomarkers and intrinsic capacity: actions for CCHA and WHO

Actions for CCHA:

- Do further research on:
  - the biological foundation of healthy ageing, including intrinsic capacity;
  - the operationalization of biomarkers in different settings and contexts (e.g. ethnicity);
  - how a wide range of social determinants of health affect the trajectory of intrinsic capacity across the life course (e.g. pandemics, socioeconomic status, ageism, youth migration);
  - operationalizing functional ability; and
  - determining if combining intrinsic capacity assessment and biomarker measurement could improve health outcomes.
- Build collaboration to develop longitudinal research and evidence on healthy ageing from low- and middle-income countries, with consideration for socioeconomic factors, including ethnic differences.

Actions for WHO:

- Support advancements in the operationalization of functional ability and its domains.
- Facilitate collaborative actions among CCHA participants.
- Encourage and support analyses of existing data on biomarkers in nationally representative studies in different settings.

Relevant WHO resources

Guidance for human genome data collection, access, use and sharing (https://iris.who.int/handle/10665/379554)

Preferred product characteristics of blood-based biomarker diagnostics for Alzheimer disease (https://iris.who.int/handle/10665/379286)

World report on the health of refugees and migrants (https://iris.who.int/handle/10665/360404)

4. Panel three: Multimorbidity

Panel focus

Day two of the meeting started with a panel on multimorbidity, an issue for which support is requested by Member States. There were presentations on two topics:

- **democratization of geroscience**
- **patterns of multimorbidity and implications for care**

4.1 Democratization of geroscience

Extended life expectancy may increase the time spent with disability in older age. Ageing is the strongest risk factor for all major age-related chronic diseases.

An individual may experience a shorter or longer disease-free life, but subclinical biological modifications will occur, contributing to the gradual emergence of diseases.

The accumulation of diseases (i.e. multimorbidity) may happen at different times or ages.

Health systems currently intervene to provide care only when diseases become clinically evident. The accumulation of subclinical pathology that eventually emerges as multimorbidity is almost completely ignored. Yet there is a rationale that if this process is slowed down, it will then be possible to prolong healthy life expectancy at the individual and population levels.

Epidemiological studies indicate that the biological mechanisms leading to multimorbidity and disability often begin earlier in life, well before diseases manifest *(27)*. This underscores the importance of adopting a life-course approach to enhance health trajectories through early interventions. By reinforcing homeostatic reserves during earlier life stages, it may be possible to slow the ageing process and reduce the accumulation of subclinical impairments, thereby delaying the onset of diseases and multimorbidity and promoting healthy ageing. It is important to consider that exposure to adverse events (stress) may determine an immediate adaptive response of the organism. In a younger person, the homeostatic capacity is higher and the mechanism to restore the equilibrium after the stress is more efficient. Nevertheless, the compensatory mechanisms remain limited, and their activation still consumes reserves and renders the system gradually less efficient later in life.

Some work is being done to identify pharmacological interventions that aim to reduce the pace of ageing and slow the accumulation of biological impairments. However, the evidence is even stronger that the same result could be achieved through efforts to improve the social and behavioural determinants of

health, by for example enabling the environment to promote physical activity and providing education to inform healthy lifestyles.

The accumulation of biological damage that occurs with ageing can be tolerated to a certain extent without serious impact on phenotypic integrity and function because of strong biological compensation. However, at some point the molecular damage causes phenotypic impairment, such as brain atrophy or reduced muscle mass. Similarly, phenotypic damage results in a functional consequence only after it reaches a certain threshold of severity. This lagged sequence is important because we can intervene through public health interventions on the biological accumulation of damage and prevent or delay further progression in this causal pathway *(28,29)*. For example, a healthy diet and exercise build resilience that can be used to delay the disease process, thereby expanding health expectancy.

4.2 Patterns of multimorbidity and implications for care

Multimorbidity is commonly defined as the co-occurrence of two or more conditions in the same individual. This definition, however, has major limitations from the clinical and epidemiological perspectives.

Above a certain age, a ceiling effect becomes evident as the threshold of two conditions for multimorbidity gets easily saturated.

Furthermore, the nature, severity and specific combination of diseases are overlooked when a mere cutoff on the number of diseases is applied.

The characterization of well-defined multimorbidity patterns (i.e. combinations of diseases also referred to as clusters) may improve the ability to estimate the risk profile of an individual with multimorbidity. This is based on the hypothesis that diseases do not occur randomly in the same individual but may accumulate according to specific patterns. In addition, specific patterns of multimorbidity – and their underlying mechanisms – may serve as targets of intervention.

From the Swedish National study of Aging and Care in Kungsholmen study following more than 3300 older people (60 years of age and above) over 12 years, it was possible to identify six multimorbidity patterns at the baseline assessment *(30)*. The same exercise of clustering was conducted after 6 and 12 years of follow-up, allowing for the identification and description of how participants moved across multimorbidity patterns over time, and of which clusters were most associated with mortality (e.g. the cluster characterized by cardiovascular, psychiatric and respiratory disease).

The impact of the multimorbidity clusters on functional aspects has been studied in the same Swedish cohort *(31)*. It was found that combinations of cardiovascular diseases have no meaningful impact on activities of daily living (ADLs) but are associated with a more rapid decline in gait speed. However, even a single neuropsychiatric disease had detrimental effects on both outcomes. The highest risk of slow gait speed and ADL impairment was identified when multiple cardiovascular and neuropsychiatric diseases were present. The prompt identification of people with combinations of neuropsychiatric diseases, especially in the presence of cardiovascular diseases, may help to delay rapid functional decline.

An analysis of data from the National Health and Aging Trends Study showed that multimorbidity may accelerate the worsening of frailty (up to death) and hinder improvement *(32)*. Multimorbidity patterns

may differ in their impact on life expectancy, and can support the identification of individuals at higher risk of specific conditions (e.g. dementia, depression, stroke) and targets for specific intervention. Understanding the drivers of the transition across multimorbidity patterns and towards functional outcomes may guide the implementation of personalized interventions.

4.3 Key discussion points

The primary outcomes of geroscience remain largely disease-driven, and need to focus more on maximizing physical and mental capacity, including cognition, in older age.

- The preservation of functional status may benefit from improved management of diseases, including multimorbidity. However, to avoid postponing interventions until later in life when resilience may be depleted, strategies for earlier intervention (health promotion and prevention) should be strengthened, recognizing that actions in earlier stages can provide accumulative benefits for older people.
- Further studies are needed that explore the cost-effectiveness of interventions aiming to strengthen resilience and reduce the pace of ageing and prevent adverse outcomes, recognizing that changes in health do not occur linearly, but alternate between acceleration and deceleration phases.
- A focus on the quantitative dimension of multimorbidity, without adequately considering the broad spectrum of severity and complexity of any single disease, can present difficulties. This issue becomes more challenging as the number of diseases increases. Strategies are needed to tackle the fragmentation of care among specialties and manage inappropriate polypharmacy. Focusing on multimorbidity patterns can be a valid way to gain precision and design personalized assessment and care.
- Research around multimorbidity and the biology of ageing should consider and support a more holistic approach. Every time a specific organ or system experiences negative stress, the compensatory mechanism will involve other organs and systems to preserve homeostasis. Accordingly, the onset of disease is related to the failure of an organ, such that it is unable to support the compensatory mechanism.
- The identification of multimorbidity patterns may support the allocation of resources and promotion of specific and integrated interventions, enabling the prioritization of strategies for groups at higher risk of adverse outcomes or negative trajectories. The standardization of methodology for defining multimorbidity would enable consistent findings to be obtained across different populations and settings (e.g. community). The consideration of lower-income settings is needed in this work.
- The emergence of diseases can be driven by multiple aspects: genetic background, the pace of biological ageing, and intrinsic and extrinsic factors. These drivers and subclinical burdens of multimorbidity differ from person to person, and a single disease may present differently in someone aged 30 versus someone aged 80. These differences need a personalized approach to disease management.

4.4 Multimorbidity: actions for CCHA and WHO

Actions for CCHA:

- Do further research on:
  - multimorbidity, to develop a standardized methodology, verify feasibility, and validate the consistency of findings across populations and settings (e.g. low- and middle-income countries, community settings); and
  - positioning multimorbidity in the framework of healthy ageing, in relation to intrinsic capacity and functional ability.
- Continue research activities on how health education and behavioural interventions at earlier life stages (including middle age) may influence the trajectories of biological ageing and the development and progression of multimorbidity.

Actions for WHO:

- Continue advocacy with policymakers to include outcomes specific to older people in the evaluation of health strategies and programmes.
- Consider opportunities to integrate the assessment and management of intrinsic capacity within other programmes (i.e. non-communicable diseases).
- Support the capacity building of health workers in the management of diseases as a part of an integrated care approach.
- Consider developing guidance on how to improve the health and quality of life of people with multimorbidity.
- Develop an investment case for a life course approach, based on older people's human rights.

Relevant WHO resources

Multimorbidity (https://iris.who.int/handle/10665/252275)

5. Panel four: How to adapt integrated care for older people in low-resource settings

Panel focus

Panel four on adapting integrated care for older people in low-resource settings was a major focus of the 2024 meeting. It built on discussions at the 2023 meeting and was informed by work throughout the year to update the ICOPE handbook *(3)*. It consisted of presentations followed by breakout group discussions. The topics of the presentations were:

- **ICOPE handbook, second edition**
- **challenges to implementing integrated care and good practices in Kenya, Mexico and Thailand**

The specific objectives of this panel were to:

1. discuss implementation and monitoring challenges related to integrated care for older people in low-resource settings;
2. share and highlight good practices and successful strategies, led by a variety of stakeholders;
3. identify the actions for future implementation and monitoring in such settings, and collaboration mechanisms towards better care for older people.

5.1 ICOPE handbook, second edition

The second edition of the ICOPE handbook was informed by learning from implementation around the world and discussion with WHO technical units. These discussions have ensured coherence and collaboration with different technical areas, and supported the inclusion of new WHO evidence and guidance. CCHA participants contributed through inputs at the 2023 meeting, peer review of the draft handbook in 2024, and the work of a small working group on urinary incontinence.

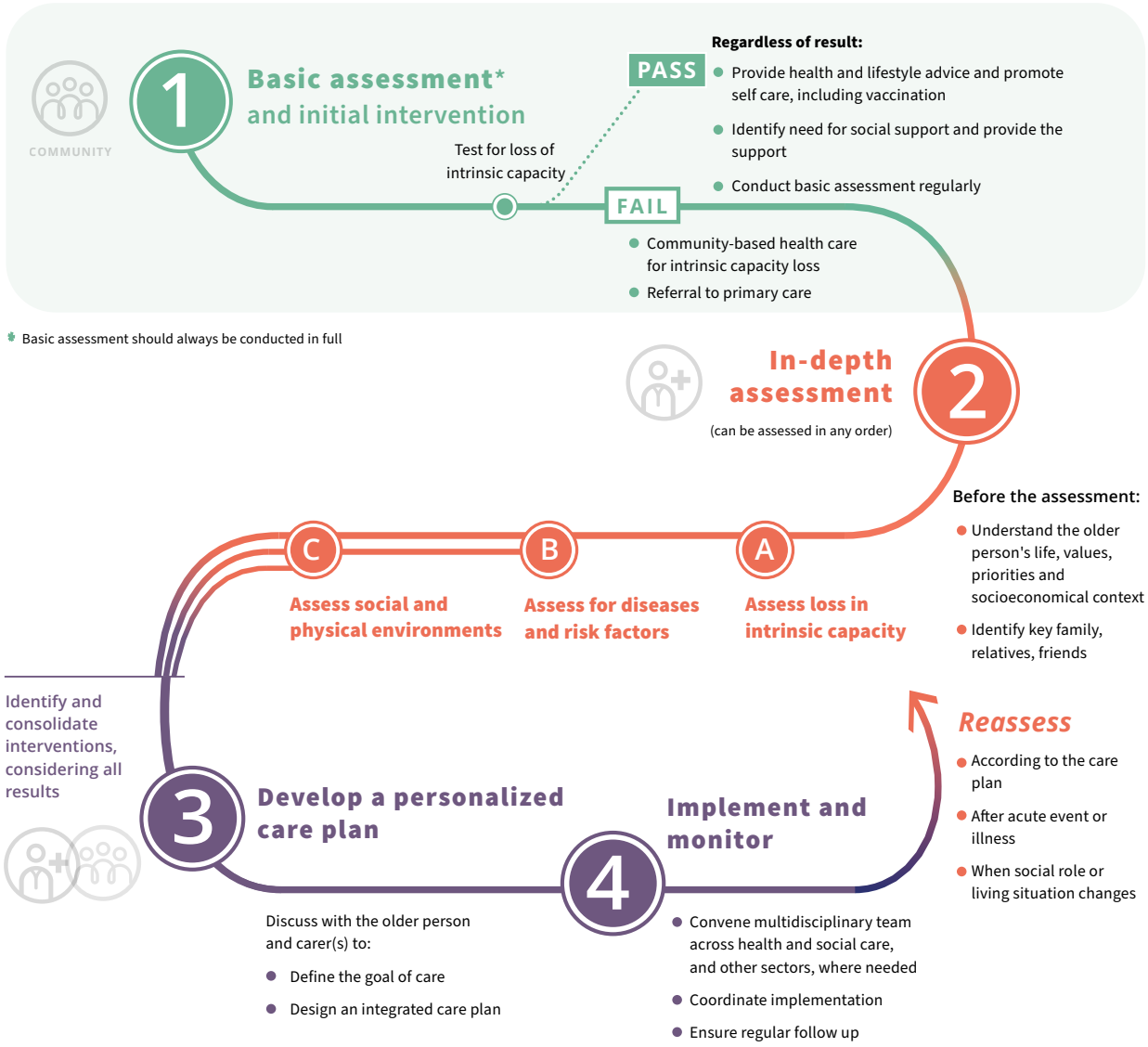
The main changes in the second edition of the handbook (Fig. 2) are as follows.

1. **Four-step care pathway:** Move to four rather than five steps. Community engagement and supporting carers are included as key elements across all four steps.
2. **Expanded step 1:** Basic assessment and initial intervention at the first contact with the older person. Step 1 is not only a basic assessment (and eventual referral to in-depth assessment) but becomes an opportunity for the immediate provision of information, advice, care and support in the community, which is particularly important in low-resource settings.

3. **Community engagement:** Community stakeholders are the expanded target audience of this handbook, and examples of what community stakeholders can do are provided at each step.
4. **Carers' support needs:** Recognizing the role of carers, the handbook gives greater attention to their support needs. Information and training, and support for carers' health and well-being should be provided.
5. **Key factors in older people's health:** Earlier identification of social support needs, carers' needs and an assessment of urinary incontinence are included in the first step.

A new ICOPE care pathway in primary care reflects these changes (Fig. 2).

Fig. 2. The ICOPE care pathway in primary care



The expansion and modification of the first step of the care pathway presents a number of opportunities, including:

- enabling community engagement and ageing in place, and the provision of services in contexts where steps 2 to 4 may not be immediately available;

- addressing the challenge of an overemphasis on 'screening' (now basic assessment) in some pilots; capitalizing on community-based knowledge and relationships;
- taking advantage of the first point of contact with health care for many older people, including to address non-communicable disease risk factors; and
- empowering communities and community health workers.

The second edition also strengthens the narrative around the continuum of care, including through focusing on the spectrum of care from health promotion and prevention, to treatment and rehabilitation, to palliative care, and improving the link with long-term care.

The new edition gives increased and earlier emphasis on social support and carers' need for support, including for information and training and for their own wellbeing.

5.2 Challenges and good practice to implement integrated care

5.2.1 Kenya

Kenya has a young population, with just 4.7% of the total population aged 60 and over *(33)*, but the country is projected to age rapidly over the coming years. There are several social and cultural factors that impact care for older people. Communities have tended to maintain a traditional family-focused structure in which older people are respected and seen as custodians of cultural heritage and a resource in community decision making. Care is primarily seen as a family responsibility based on a system of filial piety.

Challenges of implementing integrated care: over 85% *(34)* of older people live in rural and sometimes remote areas, which challenges access to health care services (due to distance and transport). In addition, living in remote rural areas leads to high levels of loneliness and mental ill health. A lack of understanding of mental health in the wider community leads to stigma and discrimination, and abuse of older people *(35)*. Societal norms have begun to change, with a shift away from multigenerational family cohabitation and the gradual degradation of extended family support structures. Rural-to-urban migration of younger people is increasing. Those involved in the provision of care are largely untrained and unsupported, and the health system approach to care is highly medicalized.

Good practices and enablers: a shift towards combining health and social services in the health care system. Doctors and other health care workers should receive some training in both geriatrics and gerontology. In addition, relevant cultural structures can be included to support the shift towards integrated care. This can contribute to the development of contextualized approaches to community-based care.

The next steps should focus on increasing knowledge and understanding of ageing and age-related conditions in communities. This process should include older people, their carers, the community and health care providers. In addition, information should be readily available and accessible to support healthy lifestyles (through diet, exercise and the adaptation of physical environments) among older people and their carers. In addition, assessments (by self or carers) should be encouraged and used to manage the health of older people.

5.2.2 Mexico

The local government for the municipality of Iztacalco in Mexico City has implemented ICOPE with support from the Instituto Nacional de Geriatria and the WHO-PAHO Collaborating Centre in integrated care for healthy ageing in Mexico. In 2020, older people over 65 years (around 71 000 people) made up 17.5% of the population of Iztacalco, with 58% female and 42% male *(36)*. Half of people over 60 were found to have multiple chronic conditions while maintaining functional autonomy, and a further 22% had multiple conditions and either partial or total care dependence *(37)*.

Challenges of implementing integrated care: fragmented health systems; lack of human resource capacity (in primary or specialized care); poor communication between different levels of the health system; inadequate health information systems; challenges related to the social determinants of health, including ageism, high crime rates and weak social support networks.

Good practices and enablers: establishment of the multidisciplinary care programme by the public health system in Mexico City has brought together different health workers, including doctors, nurses, physiotherapists, psychologists, nutritionists, dentists and social workers. It has also enabled a focus on the domains of intrinsic capacity, alongside social support, and support for carers. The Instituto Nacional de Geriatria developed a training manual for primary care for older people *(38)*. Work has been conducted to validate and adapt screening to the local context. These enablers supported the development of a standardized model for the implementation of ICOPE in Mexico City and the design of a clinical care pathway, both adapted to the local context. ICOPE has been adopted within the National 2024–2030 Older Persons Integrated Health Care Strategy *(39)*.

Under the new President of Mexico, a national health screening programme has been launched with assessments undertaken through home visits *(40)*. The questionnaire being used includes ICOPE screening and will be applied yearly. The next step for the work is the development of an automated resource to support the development of personalized care plans.

The assessment of mobility at home, as a part of the Salud en tu Casa (Health in Your Home) programme in Mexico. Photo credit. © I. Iniguez. Alcaldia Iztacalco Public Health services

5.2.3 Thailand

The ICOPE pilot experience in two subdistricts (Chum-Pak-Praew and Nong-Hua-Pho) in Saraburi province was shared. Mahidol University has begun work to implement ICOPE and has now signed a memorandum of understanding with the Department of Health Ministry of Public Health. In collaboration with the Provincial Health Authority, Saraburi Province, around 100km from Bangkok, was selected for the implementation. In 2024, older people (over 60 years) made up 17.2% of the population of Chum-Pak-Praew and 28.7% in Nong-Hua-Pho *(41)*. The first step in the process to support ICOPE implementation in these two subdistricts has been to build the capacity of health workers with a focus on their ability to deliver the steps of the ICOPE care pathway. All village health volunteers (VHVs) were trained to conduct step 1 and provide health advice for self-care. Health workers in health promotion centres were trained to do step 2 (in-depth assessment). Health workers in each community hospital were trained to develop a person-centred care plan (steps 3 and 4). All training was provided by geriatricians from the Faculty of Medicine Siriraj Hospital.

Challenges of implementing integrated care: the majority of older people live in rural and remote areas, making access to health services challenging. Services therefore need to be provided closer to where older people live, or transport needs to be provided. Mobile health has proved challenging due to lack of accessibility and affordability of the internet and smartphones among older people. Many people continue to work in their older age, particularly in agriculture, which can mean older people are not available for ICOPE assessments or other health-related appointments during the rice harvest season.

Good practices and enablers: the 1 million VHVs across the country, a cadre established in 1977, present an opportunity for the delivery of integrated care, with a focus on step 1 of the care pathway. VHVs must be aged 18 or over, have a minimum level of education, be willing to volunteer, and must have lived in the village they will work in for at least six months. They are key community personnel who help with essential health care, including health education *(42)*. Step 1 has been conducted by VHVs with the support of local administrative officials and with and through older people's clubs.

The in-depth assessment (step 2) should be delivered at local community 'hospitals'. These are part of the primary care system and are clinics focused mainly on health promotion. They offer only outpatient services and do not have doctors in their staff. The local joint committee in Saraburi has supported the assessment of social and physical environments, including through providing access to a common database.

In order to include a doctor in the development of a personalized care plan, this step 3 of the pathway would need to be undertaken at a district hospital – the lowest level of facility with doctors available. Doctors at the district hospitals were empowered through the implementation programme to lead the development of personalized care plans. Efforts have also been made to ensure the commitment of four key stakeholders in step 3 – VHVs, health workers at local community hospitals/clinics and district hospitals, and local administrative officials.

5.3 Key discussion points from breakout sessions

Following the presentations from Kenya, Mexico and Thailand, the participants were split into four groups for a facilitated discussion focused on two questions:

1. What are the good practices to mitigate the challenges to providing integrated care for older people in low-resource settings?
2. What are the potential actions and collaborative mechanisms to support sustainable implementation (and monitoring) in such settings?

5.3.1 Good practices to mitigate challenges

Workforce

- Empower community health workers and stakeholders by providing career progression opportunities, certificates and proper remuneration, and by training and supporting older people as health volunteers (e.g. through older people's associations and intergenerational groups).
- Support a mechanism for task sharing among different cadres.
- Provide continuous education and training for current and future (both undergraduate and postgraduate students) health care workers, including community health workers and carers, to enhance their skills and competencies in care for older people and integrated service delivery.
- Establish and sustain the cross-organizational multidisciplinary team, including social workers, and establish integrated care managers.

Continuum of integrated care

- Shift the narrative to prevention and person-centred care, not only in assessment but also interventions, including support for carers.
- Facilitate one-stop services in the community (e.g. outreach medical camps).

Local design of care pathway

- Map and use the available resources efficiently (e.g. community-based insurance).
- Involve community stakeholders in planning and decision-making processes to ensure that care services are culturally appropriate and meet the actual needs of older people.
- Identify entry points in existing health and social programmes and opportunities in communities (e.g. use social gatherings to conduct the ICOPE basic assessment, step 1).
- Pilot the model of care in the local context to build one that integrates health and social care services, ensuring a holistic approach to the needs of older people.

Health and care literacy

- Build health and care literacy among older people to empower themselves and improve self-care and health-seeking behaviour.
- Raise awareness on the health of older people, and empower carers.

Digital literacy

- Support building the digital literacy of older people, including in the use of digital technology to address the loss of intrinsic capacity and social isolation.

5.3.2 Actions and collaborative mechanisms for sustainable implementation

Build collaboration and partnerships with the following.

- Local public-private partnerships, including in the non-health sectors.
- National and international academic institutions, medical schools, and other public health schools.
- Local community stakeholders, non-governmental organizations and civil society organizations, including older people's associations.
- Pool of local care providers and researchers who raises awareness on ICOPE, and serve as champions and leaders.
- Health and care workers from primary care to specialized care (e.g. geriatrics).
- Stakeholders in high- and middle-income countries and lower-income countries, to build capacity, draw interest and find innovative solutions to optimize the impact of ICOPE.

Advocate to policymakers (national and local) to support integrate care and allocate resources specifically for the care of older people.

- Build an investment case (e.g. cost-effectiveness, reduction of hospitalization, satisfaction of older people) on integrated care.
- Share resources with other sectors (within the ministry of health and other ministries).
- Support the assessment of both outputs and outcomes

Combat ageism in health care and society:

- Address intersectoral stigma, working with communities.

Monitor and evaluate the programme:

- Adopt tools and indicators, including health outcome indicators, on intrinsic capacity and functional ability.
- Provide training for the collection and analysis of data.

Use technology:

- Digitize the information system to share data among health and social sectors.
- Adopt telemedicine to support remote consultations to reach older people.

Implement low-cost technological solutions, such as mobile health (mHealth) to facilitate communication, care management, including self-care, and monitoring.

Consider the emerging social determinants of health such as climate change and humanitarian crisis, and their specific impacts on older people.

5.4 How to adapt integrated care for older people in low-resource settings: actions for CCHA and WHO

Actions for CCHA:

- Establish communities of practice to share learning from experience in ICOPE implementation.
- Map and utilize the opportunities to enable community engagement, including of carers and younger people.
- Advocate national recognition and support for community health workers, including training.
- Assess the impact of ICOPE implementation (e.g. reduction of hospitalization, shorter hospital stays) to influence policy adoption and commitment.

Actions for WHO:

- Further support the capacity building of health workers, including community health workers and carers.
- Stay responsive to countries' requests for technical support, with coordination across the three levels of WHO.
- Provide a regular space/forum to share experience.
- Identify partners and community stakeholders who are willing to contribute to ICOPE implementation in low-resource settings.
- Provide guidance on:
  - how to develop and document case examples, including the relevant information to include (e.g. implementation process); and
  - how to measure the integration of services for older people.
- Consider how to develop the economic case for integrated care, using existing examples of low-cost care.
- Develop educational resources to improve health and care literacy among older people and carers.

Relevant WHO resources

Integrated care for older people (ICOPE): guidance on person-centred assessment and pathways in primary care (second edition) (https://iris.who.int/handle/10665/380175)

6. Panel five: Climate change and implications for care for older people

Panel focus

Day three started with panel five focused on climate change and its implications for older people, a new topic of discussion for the CCHA. Climate change is a growing threat to human health, amplifying extreme weather events, increasing the disease burden and the chance of future outbreaks, disrupting vital systems, and undermining the health determinants that are already disproportionately impacting vulnerable populations, including older people. The risk of climate change implications can be determined by several factors, including the ways people are exposed to the climate (e.g. through working conditions), biological factors, gender, and social protection *(43)*. Panel five included three presentations:

- **WHO's work on climate change and health**
- **climate change and the health of older people**
- **care for older people with heat stroke**

6.1 WHO's work on climate change and health

The impact of climate change is greatest on those who have the least access to the world's resources, yet have contributed least to its cause.

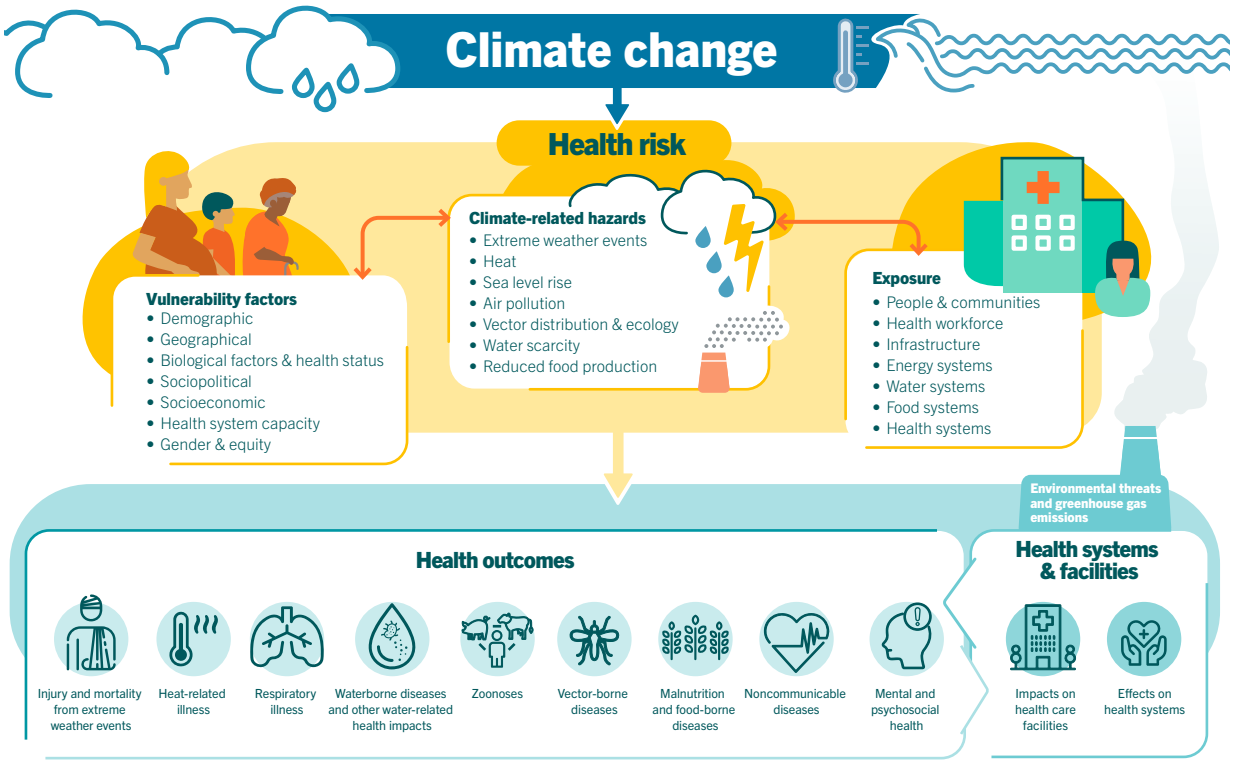
This is exacerbating inequities between higher- and lower-income countries and within countries through negative effects on the social determinants of health. Adverse health outcomes are likely to be greatest in low-income countries and for poorer people living in urban areas, as well as older people, children, traditional societies, subsistence farmers, and coastal populations. Fig. 3 shows vulnerabilities to climate change and climate-sensitive health risks.

The risks of climate change and the vulnerabilities to its impact need to be addressed through work to build climate resilience into the core of health systems, and the other systems that determine health.

There are three key thematic areas of WHO's work to advance climate-resilient health, including air pollution:

1. addressing the wide range of health impacts of climate change;
2. strengthening the climate resilience and environmental sustainability of health systems and facilities; and
3. promoting the health co-benefits of climate change mitigation in other sectors such as industry, energy and transport.

Fig. 3. Climate change risks to health, and to health systems and outcomes



Source: WHO Operational framework for building climate resilient and low carbon health systems *(44)*

Health systems are responsible for around 5% of greenhouse gas emissions *(45)*. WHO's operational framework for climate-resilient and low-carbon health systems *(44)* provides 10 components to increase the climate resilience of health systems. These would protect and improve the health of communities in an unstable and changing climate while optimizing the use of resources and implementing strategies to reduce greenhouse gas emissions. As national health systems achieve high performance and climate resilience, they should aim to achieve net-zero emissions; many countries are targeting this before 2050.

Strengthening capacity in information, technology and research within low- and middle-income countries is crucial to building resilience in local, regional and national infrastructures.

There is growing attention on climate change and health globally such as at the Conference of the Parties and through the formation of the WHO-hosted Alliance for Transformative Action on Climate and Health. Momentum has been building for WHO to lead a comprehensive response by the global health community to the climate crisis. The 77th World Health Assembly in 2024 adopted the Fourteenth General Programme of Work, which includes climate change and health as one of its six key strategic objectives.

6.2 Climate change and health of older people

A recent literature review (to 2021) *(46)* related to ageing and climate change, focusing on mortality and health, has identified major hazards and some key exposure pathways. These include extreme temperatures, wildfire, drought, flooding, storm and sea level rise, air quality, climate-sensitive infectious diseases, food and water insecurities, health and social care system displacement, migration, and relocation.

There is a strong relationship between temperature (both hot and cold), mortality and demands on health systems. For example, in Europe, there were 70 000 excess deaths attributed to extreme heat during the summer of 2023 *(47)*, with 56% more heat-related deaths in women than men, 14% higher rates in men aged 65–79 years, and 27% higher in women aged 80 years and over.

Some studies *(48,49)* showed that both hotter and colder temperatures lead to higher numbers of hospitalizations, especially for older people with multiple long-term conditions such as asthma, chronic obstructive pulmonary disease, chronic cardiovascular disease and diabetes. In turn, increased health care utilization, including hospitalization, leads to increased greenhouse gas emissions from health systems *(50)*. Climate change can negatively affect the cardiovascular, respiratory and immune systems, and people's mental health. Several studies have reported that older people are vulnerable to the mental health impacts of climate, as demonstrated by increased suicidality, post-traumatic stress disorder, anxiety and depressive symptoms, and sleep disturbances *(51)*.

Work is needed to address the impacts of climate change on older people, such as further research on health outcomes, including on intrinsic capacity and functional ability. Longitudinal studies to analyse cumulative impacts and support a better understanding of vulnerabilities and resilience through a lens of intersectionality (e.g. people with disabilities or non-communicable diseases) are also important.

Older people's perceptions of climate change should be integrated into climate activism to inform climate action plans. Increasing awareness of climate change among older people and their carers and enabling them to promote intergenerational dialogue will drive the development and implementation of equitable solutions. Health workers should also be trained in how to mitigate effects and provide care for older people in the context of climate change.

6.3 Care for older people with heat stroke

There are significant differences between heat exhaustion and heat stroke (which is the more serious condition), in terms of symptoms and responses. Heat stroke can damage multi-organ systems and needs urgent care. It can be difficult to diagnose heat exhaustion or heat stroke in older people, due to atypical symptoms and signs. For example, symptoms may progress more slowly and can be mistaken for other health issues (e.g. confusion, fatigue). Symptoms of heat stroke, including disorientation or altered mental status, can be challenging to diagnose in older people with cognitive decline, due to the overlap of these symptoms with delirium and dementia.

Other factors that increase the risks for older people if they are affected by heat exhaustion or heat stroke include:

- having drier skin and being less able to sweat effectively, leading to reduced temperature control;
- being less sensitive to high temperature, less likely to feel thirst; and
- being more likely to have declines in intrinsic capacity, poor socioeconomic status, and challenging living conditions (e.g. living alone).

The clinical course of heat stroke can be negatively affected by underlying conditions common in older age, such as cardiovascular disease, diabetes and renal dysfunction, and medications that affect hydration or thermoregulation (e.g. diuretics, psychotropic medicines). Recovery often takes longer for older people, especially for those with losses in intrinsic capacity.

During periods of hot weather, strategies are needed that balance the importance of older people continuing physical activity, social engagement and good nutrition with the need to be in a safe environment (e.g. staying at home with air conditioning).

Learning from the COVID-19 pandemic showed staying at home had negative as well as positive consequences, such as social isolation, loss of mobility and cognitive decline.

In 2024, Japan experienced its hottest summer on record, and heat alerts started in April *(52)*. During periods like this, the Ministry of the Environment sends early heat alerts by text message and email to individuals with advice on how to mitigate risks, and provides a list of facilities designated as cool shelters in municipalities (n=787). Heat alerts are triggers for cities to take preventive action, such as opening cool shelters where older people can gather for relief from the heat and enjoy physical activities and social engagement. Other community initiatives include the use of 2400 air-conditioned shopping malls to hold events (e.g. walking, music) for older people during the summer *(53)*. Providing access to public drinking fountains, swimming pools and spray mist also helps older people to keep cool during extreme heat. Urban forests, including street trees and green areas, can mitigate urban heat islands.

Advice to increase salt intake (e.g. through plum pickles in Japan and unripe mangos, commonly known as raw or green mango, in India) can be considered as this can help to replace salts lost through sweat, but this advice should be given to older people with caution, particularly to those with underlying diseases such as hypertension.

6.4 Key discussion points

- The unpredictability of climate change requires more holistic comprehensive preparedness to reduce the impact of natural disasters in different communities.
- Climate change can affect older people's exposure to and experience of infectious diseases. It can increase vector-borne diseases and infectious diseases common in older people, such as urinary tract infection. Urinary incontinence can get worse, as hygiene becomes much more difficult when the temperature and humidity are high. The relationship between dehydration and urinary incontinence has been pointed out as, in general, older people do not take sufficient fluid.
- There is evidence of ageism in climate activism *(54)*, with older people not being included and activities for and by older people not being adopted. This may in part be due to intergenerational conflicts or divisions that emerge when younger generations blame older people for climate change. This conflict can result in the denial of services for older people during major disasters.
- It is critical to include older people in climate activism to improve community engagement and intergenerational dialogue. Older people make a positive contribution *(55)*.
- Advocacy on climate change should focus on the poorest communities with the least power who are impacted most by climate change, irrespective of people's ages. Inequality should be considered; using air conditioning, for example, is one the most effective ways of mitigating the impact of heat, but this will be accessible and affordable only to some people.
- Climate change affects food production, which also has a greater impact on poorer people and communities. This has been seen in Africa and in Brazil due to recent floods and heavy rain *(56)*.

- Community stakeholders and intergenerational groups provide a mechanism to support work on climate-resilient health systems. There are opportunities to build alliances across movements to support the development of climate-resilient health systems and address climate change, such as older people's organizations and platforms partnering with those working on non-communicable diseases and disability.
- Developing climate-resilient and age-friendly environments can mitigate the impact of climate change. Building design can consider the use of grasses on walls and natural ventilation to improve resilience during high temperatures and reduce humidity. Installing water sprays on the streets can also be an effective strategy. The Rajasthan government has introduced *(57)* evaporative cooling sites and, at health facilities, tubs with ice are installed for patients to use on arrival during very hot weather.
- Further research is needed on climate change and its impact on older people, including both hot and cold weather. In some areas, the hospitalization of older people due to the cold remains higher than due to hot temperatures *(49)*, although this will likely change.
- Research is needed into how differences in temperature between the outside and inside affect older people's body temperatures. This should be considered in relation to long-term care residential facilities, with the findings informing their design.
- Education and awareness raising are key to preventing and mitigating the risks of climate change for older people. This should target older people themselves, their carers and health workers, including care workers.

6.5 Climate change and implications for care for older people: actions for CCHA and WHO

Actions for CCHA:

- Do further research on:
  - the impact of climate change on the health (e.g. intrinsic capacity) and social participation of older people to inform priorities and actions, with a focus on heat, cold and other climate hazards, and on higher-risk groups, including older people living alone, those in long-term care facilities, and older people with disabilities; and
  - intergenerational relationships, including concerning intergenerational conflict associated with climate change, and the effect of intergenerational activities on mitigating the impact of climate change.
- Provide education for older people and carers on climate change and health, including on the risk of dehydration and possible mitigation strategies (e.g. housing, public spaces, salt intake in hot weather).
- Recognize and advocate older people's role in climate action.

Actions for WHO:

- Raise awareness (with educational resources) of older people and carers on how to mitigate the impact of extreme temperatures while managing underlying comorbidities.
- Develop:

  - training for health workers on the health effects of climate change on older people and adaptation measures;
  - guidance on mitigating the impact of climate change, with a focus on older people living alone, with non-communicable diseases, on informal carers and on older refugees;
  - a brief communication on climate change and ageing in alignment with the WHO Global Action Plan on Climate Change and Health.
- Strengthen country support on climate change and health to integrate older people's needs.

Relevant WHO resources

WHO country support on climate change and health – visual guide (https://www.who.int/publications/m/item/who-country-support-on-climate-change-and-health--visual-guide)

Communicating on climate change and health: toolkit for health professionals (https://iris.who.int/handle/10665/376283)

Operational framework for building climate resilient and low carbon health systems (https://iris.who.int/handle/10665/373837)

Mental health and climate change: policy brief (https://iris.who.int/handle/10665/354104)

Strengthening health systems to improve the health of displaced and migrant populations in the context of climate change: evidence brief (https://doi.org/10.2471/B09157)

Global health strategy and fourteenth general programme of work 2025–2028 (https://www.who.int/about/general-programme-of-work/fourteenth)

7. Panel six: Research on care for older people

Panel focus

The final thematic panel of the 2024 CCHA meeting focused on research on care for older people. It included presentations on these two topics:

- ➔ **research to improve care for healthy ageing**
- ➔ **healthy ageing for people living with HIV**

7.1 Research to improve care for healthy ageing

WHO is undertaking a project to develop a research prioritization agenda with the aim of identifying and prioritizing the research gaps hampering the delivery of a continuum of integrated care for older people. The project was introduced at the 2023 CCHA meeting. It is based on an adapted, two-round Delphi methodology.

Since the last meeting, the background material to feed the Delphi survey has been developed, resulting in two scientific articles. The first one *(58)* reports the results of an online survey asking international experts the following question:

> **"Think about how care is usually provided to older people. Which are the topics, themes, or areas requiring prioritization and development of scientific research to improve it?"**

Almost 400 research gaps were identified by 91 experts, and clustered into nine primary thematic areas:

a. care
b. clinical conditions
c. concepts
d. health economics
e. low-resource settings
f. research methods
g. technologies to improve care
h. training of care workforce
i. understanding the older person.

A scoping review of the literature has also been conducted *(59)* with the support of the London School of Economics and the Italian National Institute of Health. The research question was:

> **"What research gaps identified in the literature should be prioritized to improve care for healthy ageing?"**

More than 1500 articles were retrieved from PubMed, Scopus and MEDLINE and then analysed. After title and abstract screening and subsequent full-text evaluation, 311 were considered of interest.

A total of 1297 research gaps were identified and clustering of these gaps led to a classification of primary thematic areas. This was largely consistent with those previously reported from the survey. However, the scoping review produced a higher number of clusters (*13*) and a broader perspective. In particular, the need for more research was identified on policies (especially those targeting inequalities and promoting multisectoral partnerships), specific populations (e.g. people with developmental disabilities, isolated groups, islanders, LGBTQ+ people, migrants), and HIV and social determinants of health (in particular, cultural diversity).

The project is continuing with another ongoing scoping review aiming to identify the critical aspects to consider during the conceptualization, design, conduct, reporting and dissemination of randomized controlled trials (RCTs) involving older participants.

A total of 4739 articles have been evaluated, with 78 given specific focus. More than 100 primary recommendations have been retrieved from these, describing specific strategies to apply across the different stages of an RCT. Key strategies stress the importance of specific training of research staff, the evaluation of possible alternative study designs (e.g. pragmatic trials), the opportunity to consider stratified recruitment, and the simplification of methodology and materials to reduce attrition. The list of primary recommendations will be provided to a group of experts from low- and middle-income countries to incorporate their input and generate a set so support RCTs to be undertaken with older people in low-resource settings.

7.2 Healthy ageing for people living with HIV

A study in the United States from 2014 to 2016 showed that, despite significant improvements in combination antiretroviral therapy, people with HIV still had a lower life expectancy at 21 years of age (about nine years lower) compared with the general population, and lived fewer years without diseases (about 15 years) *(60)*. In a study conducted with people aged 50 and over living with HIV, the prevalence of geriatric syndromes appeared extremely high *(61)*. This is linked to the complexities of ageing and HIV. Therefore, HIV offers a unique opportunity for studying the immunological and pathophysiological process of ageing.

A recent paper describes *(62)* the relevance of the UN Decade of Healthy Ageing, 2021–2030 – particularly the action areas focused on health services and long-term care – to HIV and ageing, and older people living with HIV. It is also particularly important to improve access to long-term care for people with HIV, with a focus on reducing social and cultural barriers. Under the potential banner of 'HIV and the Decade of Healthy Ageing', capacity needs to be built to support a reorientation of care, away from a standalone disease model, towards person-centred care. The WHO ICOPE offers a practical framework by which to achieve this goal.

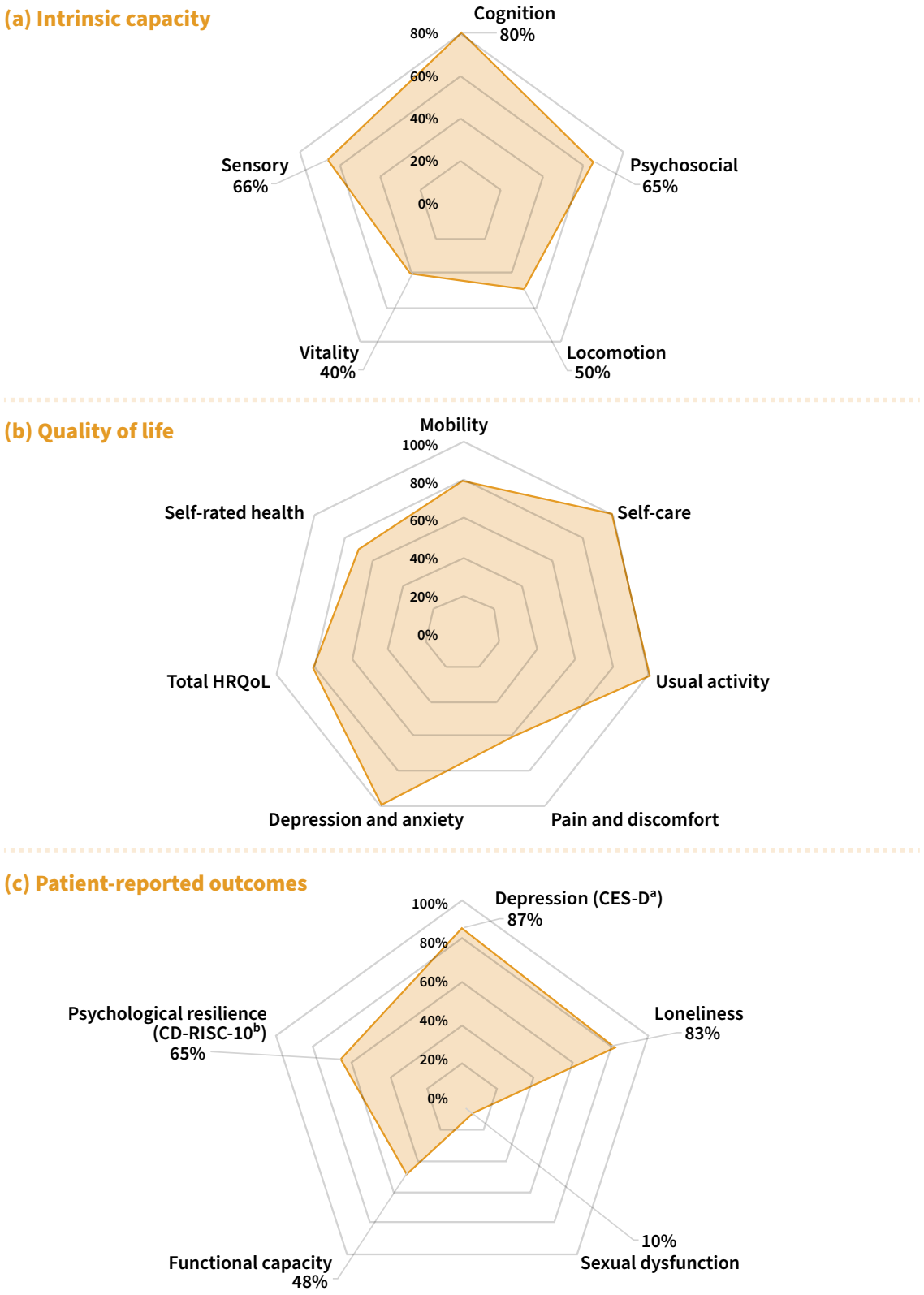
Older people living with HIV should be meaningfully engaged and their voices heard, particularly in relation to stigma, which many have experienced for years.

Older people living with HIV may provide examples of stakeholder engagement mechanisms that can support improvements in care. For example, the Glasgow Manifesto, a programmatic action plan designed by more than 100 patient organizations, addresses ageing in people living with HIV *(63)*.

The CCHA heard the experience and data from the Modena HIV Metabolic Clinic that implements the WHO framework of healthy ageing as part of its routine care, with focuses on intrinsic capacity and functional ability.

The median age of people attending the Modena clinic, between 2021 and 2024, was 59 years (range 15 to 83 years), much younger than the norm in geriatric clinics. The median time since HIV diagnosis was 28.1 years. Patients were asked to complete a simple questionnaire with self-reported outcomes at home. Then a multidisciplinary team conducted a multidimensional evaluation of physical and mental capacities, repeated over time. This enabled the identification of more clinically meaningful trajectories of health. The results of this intrinsic capacity evaluation are used to generate a radar graph – the larger the area, the higher the intrinsic capacity. The graph is shared with the patient. Simultaneously, the patient-reported outcomes (e.g. health-related quality of life) facilitate the identification of possible prioritized personalized interventions for each domain, considering the levels of residual reserves. The analysis is discussed with the patient and used to develop a person-centred care plan. The effectiveness of interventions is monitored over time (Fig. 4).

Fig. 4. Radar graphs from multidimensional evaluations of a patient with HIV
(a) Levels of intrinsic capacity for the five domains of intrinsic capacity
(b) Health-related quality of life (HRQoL) across seven dimensions
(c) Other patient-reported outcomes for loneliness, depression, psychological resilience, sexual dysfunction and overall functional capacity



a. Center for Epidemiologic Studies Depression Scale (CES-D)
b. Connor Davidson Resilience Scale (CD-RISC-10)

The correlation of intrinsic capacity with functional and patient-reported outcomes has been found to be moderate, suggesting the possibility of capturing complementary information for addressing unmet care needs.

7.3 Key discussion points

- Further research is needed on the effectiveness and impact of policies, especially those on ageism, to demonstrate the evidence.
- The capacity of the health and care workforce is limited, while demand for care increases. Investment is needed in implementation studies, which include health economic evaluations, to inform how limited resources can be optimized and best utilized to achieve the greatest reach and impact, in promoting person-centred assessment and personalized care plans in both higher- and lower-resource settings.
- A multidisciplinary approach, focused on the integration of information, and the delivery of person-centred interventions in both the research and clinical environments, will reduce the gap between evidence and service implementation.

Further research is needed to understand how best to support the behavioural changes of older people and their caregivers, beyond providing improved health education.

- A broad spectrum of conditions should be considered in research to promote healthy ageing. Several conditions include: common conditions and issues among older people – for example, dementia, frailty, abuse of older people, polypharmacy, and multimorbidity; HIV; and non-communicable diseases, in particular mental health conditions.
- Research approaches need to be adapted to low-resource settings without altering the integrity of the methodology. This is particularly critical for RCTs, which assume a rigid methodological framework, often affecting the inclusion of older people. Alternative designs for pragmatic trials might be needed to generate evidence relevant for older people.
- RCTs testing pharmacological interventions should be made more easily accessible to older people. Pharmaceutical industries may not invest in RCTs in low- and middle-income countries if medicines access and affordability are limited.
- More research is needed on how to support carers in the provision of care to older people, particularly when carers also need and receive care and support (e.g. older carers).
- Older people are often cared for by family members. However, many older men who have sex with men living with HIV may not have the same family structures and support, increasing demand for home-based care. Peer-support structures may exist in the absence of or alongside family. Care may be needed by older people living with HIV. Older people with HIV may be providing care to others, including grandchildren orphaned by AIDS. Research is needed to understand context-specific approaches to optimize care support.
- Growing access to innovative IT solutions across Africa offers an opportunity for the development of scalable, inexpensive electronic interventions, which may yield large amounts of health and social care data. The challenge is how data should be accessed, interpreted and used to inform care delivery within a context with limited resources.

- In well-resourced settings, care for patients with HIV has typically been managed by HIV specialists. The increasing number of older people living with HIV requires a more holistic and multidisciplinary approach. The inclusion of intrinsic capacity assessments may facilitate a shift towards a more person-centred approach.
- Integrated care is important in the management of geriatric syndromes, alongside non-communicable diseases, in holistic HIV care. The systematic coordinated implementation of care, focusing on the optimization of intrinsic capacity in low-resource settings, should not be particularly burdensome, yet may well substantially improve care.
- A recent study conducted in Zambia *(64)* explored whether the integration of non-communicable disease care in HIV clinics could influence the control of HIV viral load. The results showed that an integrated care approach was able to improve viral suppression, as well as blood pressure control, while reducing the fragmentation of care.
- Stigma towards older people living with HIV, including from health workers, prevents an open approach to care and limits access to HIV clinics. Combining services for the management of multiple diseases in one place may help reduce to HIV stigma. However, ageism may compound HIV stigma. It is therefore necessary to combat institutional, interpersonal and self-ageism, which is particularly evident in people living with HIV, and research is needed to understand, in different contexts, how best to deliver services to avoid HIV stigma and ageism.

7.4 Research on care for older people: actions for CCHA and WHO

Actions for CCHA:

- Do further research on:
  - the added value of intrinsic capacity in the management of care for people living with HIV;
  - the engagement of and support for carers;
  - the effectiveness of policies on ageism;
  - the effectiveness of behavioural interventions for older people; and
  - the intersectionality of ageism and stigma in relation to the delivery of and access to services and care.
- Explore the adaptation of the ICOPE care pathways for people living with HIV.
- Engage in both pragmatic implementation research and RCTs, especially in low- and middle-income countries, utilizing methodologies suited to non-clinical interventions.

Actions for WHO:

- Develop guidance for research prioritization.
- Conduct an analysis of research priorities for older people, considering the life-course approach.
- Explore non-biomarker-based methods to assess intrinsic capacity in low-resource settings.

Relevant WHO resources

Integrating the prevention and control of noncommunicable diseases in HIV/AIDS, tuberculosis, and sexual and reproductive health programmes: implementation guidance (https://iris.who.int/handle/10665/366691)

8. The way forward

The final panel of the 2024 CCHA meeting focused on the way forward, looking at work planned by WHO and with the CCHA in the year ahead. A brief summary of the breakout session in panel four and action points for both CCHA participants and WHO from each panel were presented (shown at the end of each panel in this report).

Areas for concerted actions and resource mobilization include, but are not limited to, the implementation of a continuum of integrated care for older people, especially in low-resource settings, from prevention to palliative care; community engagement and empowerment; improvement of health literacy of older people and their carers; making the investment case for integrated care; and longitudinal research on intrinsic capacity, functional ability, and social determinants of health, specific to older people and their families.

With no further questions to raise or contributions to add – to what was a stimulating and productive three days of CCHA effort to steer, support and inform the participants' shared goal of integrated care towards healthy ageing – the meeting ended with final remarks from the Ageing and Health Unit. These reflected on the different topics covered with a wide range of stakeholders and reaffirmed that, facilitated by the partnerships and collaboration, we all aim to accelerate actions and show progress during the rest of UN Decade of Healthy Ageing. Finally, notes of thanks were shared between all who enjoyed contributing to the 2024 virtual meeting.

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Annex 1. WHO Clinical Consortium on Healthy Ageing 2024 meeting agenda

Tuesday, 5 November 2024 (Day 1)		
12:45 – 13:00	*Welcome*	
13:00 – 13:25	**Introduction and objectives of the meeting**	
13:00 – 13:05	Welcoming remarks	Anshu Banerjee
13:05 – 13:25	Update since 2023 and objectives of the meeting	Yuka Sumi
13:25 – 14:35	**Panel one: Quality of dying and palliative care**	**Chair: Stephen Connor**
13:25 – 13:40	Strengthening palliative care in primary care	Megan Doherty
13:40 – 13:55	Quality of dying	Eric Finkelstein
13:55 – 14:35	Plenary discussion	
14:35 – 14:45	*Virtual Healthy Break*	
14:45 – 15:55	**Panel two: Biomarkers and intrinsic capacity**	**Chair: John Beard**
14:45 – 15:00	Role of genetics in intrinsic capacity	Azmeraw Amare
15:00 – 15:15	Blood-based epigenetic clock for intrinsic capacity	David Furman
15:15 – 15:55	Plenary discussion	
15:55 – 16:00	Wrap up Day 1	Matteo Cesari

Wednesday, 6 November 2024 (Day 2)		
12:45 – 13:00	*Welcome*	
13:00 – 14:00	**Panel three: Multimorbidity**	**Chair: Bruno Vellas**
13:00 – 13:15	Democratization of geroscience	Luigi Ferrucci
13:15 – 13:30	Patterns of multimorbidity and implications for care	Davide L Vetrano
13:30 – 14:00	Plenary discussion	
14:00 – 14:10	*Virtual Healthy Break*	
14:10 – 15:55	**Panel four: How to adapt integrated care for older people in low-resource settings**	**Chair: Sebastiana Kalula**
14:10 – 14:25	ICOPE handbook second edition	Yuka Sumi
	Q&A	

14:25 – 14:45	Challenges and good practice to implement integrated care (6 min each)	
	Mexico	Oscar Alfonso Rojas
	Kenya	Sospeter Gatobu
	Thailand	Prasert Assantachai
14:45 – 15:15	Breakout rooms (facilitator)	
	Instruction for breakout room activities	
	Group 1 (Saniya Sabzwari)	
	Group 2 (Javier Manrique)	
	Group 3 (Arthur Namara Araali)	
	Group 4 (Prakash Tyagi)	
15:15 – 15:55	Plenary discussion (report back 5 min each group)	
15:55 – 16:00	Wrap up Day 2	Yuka Sumi

Thursday, 7 November 2024 (Day 3)		
12:45 – 13:00	*Welcome*	
13:00 – 14:20	**Panel five: Climate change and implications for care for older people**	**Chair: Karla Giacomin**
13:00 – 13:10	WHO's work on climate change and health	Elena Villalobos Prats
13:10 – 13:25	Climate change and health of older people	Matthew Prina
13:25 – 13:40	Care for older people with heat stroke	Hidenori Arai
13:40 – 14:20	Plenary discussion	
14:20 – 14:30	*Virtual Healthy Break*	
14:30 – 15:30	**Panel six: Research on care for older people**	**Chair: Celia Gregson**
14:30 – 14:45	Research to improve care for healthy ageing	Matteo Cesari
14:45 – 15:00	Healthy ageing for people living with HIV	Giovanni Guaraldi
15:00 – 15:30	Plenary discussion	
15:30 – 15:55	**The way forward**	**Chair: Yuka Sumi**
	Plenary discussion on the CCHA way forward: priorities for 2025	
15:55 – 16:00	Closure of the meeting	Ritu Sadana

Annex 2. Meeting participants

Experts

Miguel Angel ACANFORA
Full Professor, Gerontology and Geriatrics and Physical Medicine and Rehabilitation,
Director, Maestría Gerontología Clínica, Instituto Ciencias de la Salud, Fundación Barceló, Buenos Aires, Argentina
Vice President/Secretary General, International Association of Gerontology and Geriatrics (IAGG)

Wasim AKRAM
Associate Consultant, Geriatrics
Clinical Lead ICOPE, Hamad Medical Corporation
Department of Geriatrics and Long-term care
WHO-Collaborating Centre for Healthy Ageing and Dementia, Doha, State of Qatar

Marlon ALIBERTI
Assistant Professor, Department of Internal Medicine, Division of Geriatrics, University of Sao Paulo Medical School, Sao Paulo, Brazil

Azmeraw AMARE
Associate Professor, NHMRC Emerging Leadership Fellow
Clinical and Genetic Epidemiologist, Adelaide Medical School, Adelaide, Australia

Namura Arthur ARAALI
Gerontologist/Research Scientist,
Health Nest Uganda (HENU),
Entebbe, Uganda

Hidenori ARAI
President, National Center for Geriatrics and Gerontology (NCGG), Obu, Japan

Prasert ASSANTACHAI
President, Thai Society of Gerontology and Geriatric Medicine
Immediate Past President, Asia-Oceania International Association of Gerontology and Geriatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Liat AYALON
Professor, School of Social Work,
Bar Ilan University, Ramat Gan, Israel

Jane BARRATT
Global Advisor, International Federation on Ageing (IFA), Toronto, Ontario, Canada

Ivan BAUTMANS
Professor, Vrije Universiteit Brussel
Head of Gerontology and Frailty in Ageing research departments, Vrije Universiteit Brussel, Brussels, Belgium

John BEARD
Director, International Longevity Center,
Columbia University, New York, United States

Urza BHATTARAI
Co-founder, National Institute of Ageing and Health, Kathmandu, Nepal
Medical coordinator, Kidney, Hypertension, Diabetes and Cardiovascular Disease Prevention Programme (KHDC), Dharan, Nepal

Heike BISCHOFF-FERRARI
Chair, Department of Geriatrics and Aging Research, University of Zurich, Zurich, Switzerland

Sergi BLANCAFORT ALIAS
Department of Social Sciences and Community Health, Faculty of Health Sciences and Wellbeing, University of Vic-Central of Catalonia, Barcelona, Spain

Marco CANEVELLI
Department of Human Neuroscience, Sapienza University of Rome, Rome, Italy

Piu CHAN
Professor and Director, Clinical and Research Center on Parkinson's Disease, National Clinical Research Center for Geriatric Disorders University, Beijing, China

Jagadish CHHETRI
National Clinical Research Center for Geriatric Disorders, XuanWu Hospital of Capital Medical University, Beijing, China
President, Nepalese Society of Gerontology and Geriatrics (NSGG)

Stephen CONNOR
Executive Director, The Worldwide Hospice Palliative Care Alliance, London, United Kingdom

Rosaly CORREA-DE-ARAUJO
Aging Research Biobank, Division of Geriatrics and Clinical Gerontology, National Institute on Aging (NIA), National Institutes of Health (NIH), US Department of Health and Human Services (HHS), Bethesda, United States

Alfonso CRUZ JENTOFT
Head of the Geriatric Department, University Hospital Ramón y Cajal (IRYCIS), Madrid, Spain

Philipe DE SOUTO BARRETO
Coordinator, Institute on Aging, Toulouse University Hospital (CHU), WHO Collaborating Center for Frailty, Clinical and Geroscience Research and Geriatric Training, Toulouse, France

Bonaventure EGBUJIE
University of Waterloo, Faculty of Sciences Toronto Grace Health Center, Toronto, Canada

Eduardo FERRIOLLI
Professor, Division of Internal Medicine and Geriatrics, Department of Medicine, Ribeirao Preto Medical School, University of Sao Paulo, Sao Paulo, Brazil

Luigi FERRUCCI
Scientific Director, National Institute on Aging (NIA), Office of the Scientific Director, Baltimore, United States

Eric FINKELSTEIN
Professor and Executive Director, Lien Center for Palliative Care, Duke-NUS Medical School, Singapore

David FURMAN
Associate Professor and Core Director, The Buck Institute for Research on Aging, Novato, United States

Andrea GASPARIK
Professor, Department of Public Health and Health Management, University of Medicine and Pharmacy of Tirgu-Mures, Romania

Sospeter GATOBU
Associate Fellow/Consultant, InterRAI, University of Waterloo, Waterloo, Canada

Leon GEFFEN
Director, Samson Institute for Ageing Research (SIFAR), Cape Town, South Africa

Karla GIACOMIN
International Longevity Centre (ILC), Brazil

Celia GREGSON
Professor of Clinical Epidemiology, NIHR Global Health Professor of Healthy Ageing, Bristol Medical School, University of Bristol, United Kingdom, and The Health Research Unit of Zimbabwe, Harare, Zimbabwe

Giovanni GUARALDI
Department of Surgical, Medical, Dental and Morphological Sciences, University of Modena and Reggio Emilia, Modena, Italy

Luis Miguel Francisco GUTIERREZ ROBLEDO
Researcher, Instituto Nacional de Geriatría, Cuidad de Mexico, Mexico
Director, WHO-PAHO Collaborating Center on Integrated Care for Older Adults, Mexico

Adrian HAYTER
National Clinical Director for Older People and Integrated Person Centred Care, NHS England and NHS Improvement Buckinghamshire, United Kingdom

Eva HERAS MUXELLA
Chief, Ageing and Health Department, Andorran Healthcare System, Andorra

Hans HOBBELEN
Professor in Ageing and Allied Healthcare, Research group on Healthy Ageing, Allied Health Care and Nursing, Centre of Expertise Healthy Ageing, Hanze University of Applied Sciences, Groningen, the Kingdom of the Netherlands

Sebastiana KALULA
Emeritus Associate Professor and Director, The Albertina & Walter Sisulu Institute of Ageing in Africa (IAA), Cape Town, South Africa

Ramesh KANDEL
Dean (Academics), Rapti Academy of Health Sciences (RAHS), and Associate Professor, Dept. of Medicine & Geriatrics, RAHS, Dang, Nepal

Naoki KONDO
Professor, Department of Social Epidemiology, Graduate School of Medicine and School of Public Health, Kyoto University, Kyoto, Japan

Angela LEUNG
Professor and Associate Head (Research), School of Nursing, The Hong Kong Polytechnic University
Director, WHO Collaborating Centre for Community Health Services, China, Hong Kong SAR

Peter LLOYD-SHERLOCK
Professor, Northumbria University, Newcastle, United Kingdom

Carol Hok Ka MA
Associate Professor, Head of Gerontology Programmes , S R Nathan School of Human Development
Senior Fellow, Centre for Experiential learning Singapore University of Social Sciences, Singapore

Javier MANRIQUE
Healthy Ageing Program Advisor for Convite AC, National NGO, Caracas, Venezuela (Bolivarian Republic of)

Finbarr MARTIN
Emeritus Consultant Geriatrician and Professor of Medical Gerontology, Division of Health and Social Care Research, King's College London, London, United Kingdom

Arvind MATHUR
Editor, Journal of the Indian Academy of Geriatrics
Director, Asian Centre for Medical Education, Research and Innovation
Chairperson, Caregivers Asha Society, Jodhpur, India

Mina MATSUMARU
Senior Staff Member, Global Strategy Group, Inochi and Future Strategy Headquarters Office, Policy Bureau, Kanagawa Prefectural Government, Yokohama, Japan

Reshma MERCHANT
Associate Professor and Head, Division of Geriatric Medicine, National University Health System, Singapore

Richard OUDE VOSHAAR
Professor, Department of Psychiatry, University Medical Center of Groningen, Groningen, the Kingdom of the Netherlands

Roses PARKER
Commissioning Editor, Evidence Production and Methods Directorate, Cochrane Central Executive Team, London, United Kingdom

Monica PERRACINI
Professor, Universidade Cidade de Sao Paulo, Faculty Medical Sciences, Sao Paulo, Brazil

Matthew PRINA
Professor of Ageing and Epidemiology, Population Health Sciences Institute, Faculty of Medical Sciences, Newcastle University, Newcastle upon Tyne, United Kingdom

Ritu RANA
Mission Head Health, HelpAge India, Delhi, India

Jean-Yves REGINSTER
Protein Research Chair, Biochemistry Department, College of Science, King Saud University, Riyadh, Kingdom of Saudi Arabia

René RIZZOLI
Professor, Department of Internal Medicine Specialties, Faculty of Medicine
Head, Bone Diseases Service, Geneva University Hospital, Geneva, Switzerland

Leocadio ROGRIGUEZ MANAS
Head, Geriatric Department, University Hospital of Getafe, Getafe (Madrid), Spain

Oscar Alfonso ROJAS
Vice Director Epidemiology and Preventive Medicine Iztacalco
Head, salud en tu Casa Program Iztacalco, Iztacalco Health Jurisdiction of the Public Health Services, Mexico City, Mexico

John ROWE
Professor of Health Policy and Aging, Department of Health Policy and Aging, Mailman School of Public Health, Columbia University, New York, United States

Saniya SABZWARI
Associate Professor, Aga Khan University, Karachi, Pakistan

Siriphan SASAT
Associated Professor and Director of Centre for Health and Well-being Promotion for Older People, Faculty of Nursing, Chulalongkorn University
Chair of Long-term Care Nurses Society, Bangkok, Thailand

Sachiko TAKEHARA
Associate Professor, Faculty of Dentistry, Niigata University, Niigata
Vice-Director, WHO Collaborating Center for Translation of Oral Health Science, Niigata, Japan

Tran Bich THUY
Country Director, HelpAge International Vietnam, Hanoi, Viet Nam

Olena TOMAREVSKA
D. F. Chebotarev Institute of Gerontology of National Academy of Medical Sciences of Ukraine, Kyiv, Ukraine

Vira TUM
Executive Director, HelpAge Cambodia, Battambang, Cambodia

Prakash TYAGI
Executive Director, Gramin Vikas Vigyan Samiti (GRAVIS), Jodhpur, India

Bruno VELLAS
President Founder, IHU HealthAge Project Chair, Gérontopôle, Toulouse University Hospital (CHU)
Director, WHO Collaborating Center for Frailty, Clinical Research and Geriatric Training, Toulouse, France

Davide Liborio VETRANO
Associate professor, Aging Research Center, Karolinska Institutet, Stockholm, Sweden

Renuka VISVANATHAN
Professor, University of Adelaide and Central Adelaide Local Health Network, The Queen Elizabeth Hospital, Adelaide, Australia

Ninie WANG
General Manager, Integrated Care Division, Wuxi Medical & Health Group, Wuxi, China

Sijiu WANG
Assistant professor, Tsinghua University School: Vanke School of Public Health, Beijing, China

Camilla WILLIAMSON
Global Healthy Ageing Adviser, HelpAge International, London, United Kingdom

Jean WOO
Emeritus Professor of Medicine and Henry G Leong Research Professor of Gerontology and Geriatrics, Faculty of Medicine, The Chinese University of Hong Kong, China, Hong Kong SAR

Gordon WOOD
Associate Professor of Medicine and Medical Education, Northwestern University Feinberg School of Medicine, Chicago, United States

Other invitees

Constance DE SEYNES
Executive Assistant, IHU HealthAge – Institute on Aging, Toulouse University Hospital, France WHO Collaborating Center for Frailty, Clinical and Geroscience Research, and Geriatric Training, Toulouse, France

WHO

Rachel ALBONE
Consultant, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Jotheeswaran AMUTHAVALLI THIYAGATAJAN
Technical Officer, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Anshu BANERJEE
Director, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Matteo CESARI
Scientist, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Megan DOHERTY
Consultant, Clinical Services and Systems Department of Integrated Health Services, WHO, Geneva, Switzerland

Antony DUTTINE
Technical Lead (Rehabilitation), Sensory Functions, Disability and Rehabilitation, Department of Non-Communicable Diseases, WHO, Geneva, Switzerland

Samar ELFEKY
Regional Adviser, Health Promotion, WHO Regional Office for the Eastern Mediterranean, Cairo, Egypt

Mai ELTIGANY
Technical Officer, Integrated Support, Department of Non-Communicable Diseases, WHO, Geneva, Switzerland

Marcia GARCIA CASAL
Scientist, Food and Nutrition Action in Health Systems, Department of Nutrition and Food Security, WHO, Geneva, Switzerland

Hyobum JANG
Medical Officer, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Mikiko KANDA
Technical Lead, Healthy Ageing, Division of Healthy Environments and Populations, WHO Regional Office for Western Pacific, Manila, Philippines

Amrita KANSAL
Technical Officer (Healthy Ageing), Healthier Populations and Noncommunicable Diseases, WHO Regional Office for South-East Asia, Delhi, India

Hitomi KIMURA
Consultant, Division of Healthy Environments and Populations, WHO Regional Office for the Western Pacific, Manila, Philippines

April Siwon LEE
Technical officer (Healthy Ageing), Division of Healthy Environments and Populations, WHO Regional Office for the Western Pacific, Manila, Philippines

Yejin LEE
Technical Officer, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Silvio MARIOTTI
Senior Medical Officer, Ophthalmologist, Eye and Vision Care**,** Sensory Functions, Disability and Rehabilitation, Department of Non-Communicable Diseases, WHO, Geneva, Switzerland

Patricia MORSH
Advisor, Healthy Aging, WHO Pan American Health Organization (PAHO), Washington, United States

Triphonie NKURUNZIZA
Regional Adviser, Healthy Ageing, WHO Regional Office for Africa, Brazzaville, Republic of Congo

Primrose NYAMAYARO
Consultant, Brain Health Unit, Department of Mental Health and Substance Use, WHO, Geneva, Switzerland

Alana OFFICER
Unit Head, Demographic Change and Healthy Ageing, Department of Social Determinants of Health, WHO, Geneva, Switzerland

Pascale POMOSHCHNICK
Assistant to Unit Head, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Alexandra RAUCH
Consultant, Rehabilitation, Sensory Functions, Disability and Rehabilitation, Department of Non-Communicable Diseases, WHO, Geneva, Switzerland

Ritu SADANA
Unit Head, Ageing and Health Unit, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Yuka SUMI
Medical Officer, Ageing and Health, Department of Maternal, Newborn, Child and Adolescent Health and Ageing, WHO, Geneva, Switzerland

Elena VILLALOBOS PRATS
Technical Officer, Climate Change and Health, Department of Environment, Climate Change and Health, WHO, Geneva, Switzerland

Marco VITORIA
Medical Officer, Treatment, Care and Service Delivery, Global HIV, Hepatitis and Sexually Transmitted Infections Programmes, WHO, Geneva, Switzerland

WHO Clinical Consortium on Healthy Ageing
https://www.who.int/groups/clinical-consortium-on-healthy-ageing

Ageing and Health Unit
Department of Maternal, Newborn, Child and Adolescent Health and Ageing
World Health Organization
20 Avenue Appia
1211 Geneva 27
Switzerland