## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>v</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>vi</td>
</tr>
<tr>
<td>Executive summary</td>
<td>vii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>CCHA activities over the past year</td>
<td>2</td>
</tr>
<tr>
<td>Meeting objectives</td>
<td>3</td>
</tr>
<tr>
<td>United Nations Decade of Healthy Ageing</td>
<td>4</td>
</tr>
<tr>
<td>The Decade’s knowledge exchange Platform</td>
<td>4</td>
</tr>
<tr>
<td>Global report on ageism</td>
<td>5</td>
</tr>
<tr>
<td>Monitoring and evaluation of the Decade</td>
<td>6</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>8</td>
</tr>
<tr>
<td>Action points</td>
<td>9</td>
</tr>
<tr>
<td>Validation of intrinsic capacity</td>
<td>10</td>
</tr>
<tr>
<td>Longitudinal studies</td>
<td>10</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>14</td>
</tr>
<tr>
<td>Action points</td>
<td>16</td>
</tr>
<tr>
<td>Biomarkers of intrinsic capacity</td>
<td>17</td>
</tr>
<tr>
<td>INSPIRE Translational cohort</td>
<td>17</td>
</tr>
<tr>
<td>Genetic basis of intrinsic capacity</td>
<td>18</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>19</td>
</tr>
<tr>
<td>Action points</td>
<td>20</td>
</tr>
<tr>
<td>Oral health</td>
<td>21</td>
</tr>
<tr>
<td>WHO work on oral health</td>
<td>22</td>
</tr>
<tr>
<td>Oral health and older people</td>
<td>23</td>
</tr>
<tr>
<td>Scoping review and next steps</td>
<td>24</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>24</td>
</tr>
<tr>
<td>Action points</td>
<td>25</td>
</tr>
<tr>
<td>ICOPE implementation pilots</td>
<td>26</td>
</tr>
<tr>
<td>Systems and services readiness for ICOPE implementation</td>
<td>26</td>
</tr>
<tr>
<td>Updates from pilot sites on the real-world use of ICOPE</td>
<td>29</td>
</tr>
<tr>
<td>Capacity-building of health and care workers</td>
<td>31</td>
</tr>
<tr>
<td>Methodology for the set phase of ICOPE</td>
<td>33</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>34</td>
</tr>
<tr>
<td>Action points</td>
<td>36</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Implementing care for healthy ageing</td>
<td>37</td>
</tr>
<tr>
<td>Continuum of care for healthy ageing</td>
<td>37</td>
</tr>
<tr>
<td>Operationalization of functional ability</td>
<td>38</td>
</tr>
<tr>
<td>Long-term care framework</td>
<td>39</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>41</td>
</tr>
<tr>
<td>Action points</td>
<td>42</td>
</tr>
<tr>
<td>The way forward</td>
<td>43</td>
</tr>
<tr>
<td>Ongoing technical products</td>
<td>43</td>
</tr>
<tr>
<td>Priorities for the clinical consortium in 2022</td>
<td>43</td>
</tr>
<tr>
<td>Discussion summary</td>
<td>44</td>
</tr>
<tr>
<td>References</td>
<td>45</td>
</tr>
<tr>
<td>Annex 1. Meeting programme</td>
<td>49</td>
</tr>
<tr>
<td>Annex 2. Meeting participants</td>
<td>51</td>
</tr>
</tbody>
</table>
Acknowledgements

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This report was drafted by Markus MacGill with technical direction and guidance from Yuka Sumi, WHO Ageing and Health.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADLs</td>
<td>activities of daily living</td>
</tr>
<tr>
<td>CCHA</td>
<td>Clinical Consortium on Healthy Ageing</td>
</tr>
<tr>
<td>CHARLS</td>
<td>China Health And Retirement Longitudinal Study</td>
</tr>
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<td>CHW</td>
<td>community health worker</td>
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<td>COVID-19</td>
<td>coronavirus disease 2019</td>
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<td>GRADE</td>
<td>grading of recommendations assessment, development and evaluation</td>
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<td>IADLs</td>
<td>instrumental activities of daily living</td>
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<td>IC</td>
<td>intrinsic capacity</td>
</tr>
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<td>ICOPE</td>
<td>integrated care for older people</td>
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<td>M&amp;E</td>
<td>monitoring and evaluation</td>
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<td>NCD</td>
<td>noncommunicable disease</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>UHC</td>
<td>universal health coverage</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
Executive summary

The 2021 annual meeting of the World Health Organization (WHO) Clinical Consortium on Healthy Ageing (CCHA) was the seventh gathering, held virtually this year. Six panels of presentation and discussion took place across two days (3 and 4 November): (i) United Nations Decade of Healthy Ageing (2021–2030), (ii) validation of the intrinsic capacity, (iii) biomarkers of intrinsic capacity, (iv) oral health, (v) integrated care for older people (ICOPE) pilot programme and implementation scale-up and (vi) the way forward.

United Nations Decade of Healthy Ageing (2021–2030)

The Decade of Healthy Ageing aims to change how we think, feel and act towards age and ageing; to ensure that communities foster the abilities of older people; to deliver person-centred integrated care and primary health services that are responsive to older people; and to provide access to long-term care for older people who need it.

The Decade Platform was launched in September 2021. This is a vehicle developed by WHO in collaboration with stakeholders for exchanging knowledge, to support all stakeholders to find, share and produce the knowledge they need to foster healthy ageing during the Decade. It enables access to insights from a diverse array of sources, such as the personal experiences of care workers in long-term care.

The CCHA meeting was presented with a summary of the Global report on ageism, which outlines strategies to combat ageism: (i) policy and law, (ii) educational activities in both formal and non-formal settings and (iii) intergenerational interventions that bring together younger and older people to work on a common project.

Finally, in this first of the six panels of the meeting, participants heard details of how the Decade would be monitored. With the Technical Advisory Group (TAG) for its measurement, monitoring and evaluation, the indicators in the monitoring and evaluation framework of the Decade will be developed.

Validation of intrinsic capacity

The results of an analysis of two longitudinal studies from China and Brazil were shared in the meeting. In both studies, factor analysis was used to try to define this emergent property of intrinsic capacity (IC), and both found that IC was a powerful predictor of subsequent outcomes, in terms of developing care dependence, with only minor variation between two studies. This was after accounting for personal characteristics such as age, sex, wealth, education and multimorbidity. The factor analysis also showed similarity in both studies about how IC was constructed, producing very similar subdomains.

Biomarkers and genetic basis of intrinsic capacity

The meeting was given an overview of the INSPIRE translational research cohort, which provides a platform of bioresources for accelerating translational research on IC and healthy ageing using a geroscience approach. The geroscience approach hypothesizes that intervening on biological ageing can prevent or delay the onset of chronic conditions and reduce their severity. The cohort will help to identify biomarkers, and target populations who are more prone to benefit from geroprotective interventions. It will also contribute data to see if changes in the hallmarks of ageing determine declines in IC.
A second presentation presented results in novel genetic studies to identify genes associated with the variability of IC. Reviewing human genome-wide association studies, it found a total of 260 genetic studies reporting a total of 9,419 genes. Such research promises to uncover the genetic basis of IC and so lead to a personalized approach, or precision medicine model, to enabling healthy ageing.

**Oral health**

Good oral health is critical across the life course and, with links to nutritional status and cognition, vital to healthy ageing. The first presentation of this panel set out the work of WHO on oral health, with the resolution on oral health, adopted by the World Health Assembly in 2021, reinforcing WHO's mandate, with commitments for action by Member States. In addition to the global strategy now being finalized, a global oral health action plan will be published in 2023, including a framework for clear, measurable targets to be achieved by 2030. There will also be technical guidance on environmentally friendly and less invasive dentistry and on ensuring safe and uninterrupted dental services, plus “best buys” – cost-effective oral health interventions. To inform the WHO process of developing guidelines on oral health for ageing populations, a scoping review has been initiated, and some details of this review were outlined for the CCHA meeting.

**ICOPE pilot programme and implementation scale-up**

The ICOPE implementation pilot programme has been scheduled over three phases: ready, set and go. The first of these took place over the past year, and the year ahead will be occupied with the set phase. The meeting discussed the results from the ready phase and outlined the methodology for the prospective study in the set phase.

The results against the ICOPE scorecard survey to rate the ICOPE implementation readiness showed an “extreme variance, even within income groups”, suggesting “that implementation is going to be a local challenge”. There was universal agreement on the importance of engaging older people, families, carers and civil society in service delivery and policy. Carer support and training and the finance mechanisms were agreed to be a challenge. In the lower-income countries, these patterns are magnified. For service delivery, there was universal agreement across the health and care workers surveyed to show “a very high readiness and willingness” to change towards the ICOPE approach, with an 81% positive response on this question. There was also agreement that the proactive role of older people would be the main enabler of ICOPE implementation, while a lack of time and trained staff would be the main barrier.

Two pilot studies, from Occitania region, France and Beijing, China, shared the real-world use and feasibility of the ICOPE handbook in the ready phase of implementation. In a survey of more than 1,100 older people in the Occitania region, up to 80% of them felt “that ICOPE helped them to better understand their intrinsic capacity”. There was a similarly high level of satisfaction with using the ICOPE approach. In the case of the Beijing pilot, the results helped the team to show the potential of the ICOPE approach to the Government of China, which funded the pilot. In conversations with the Medical Security Bureau about future financial models, it “saw, even during a short period of time, it was already possible to help older people reduce unnecessary hospital visits and help them better control their health care spending”. The overall satisfaction of older people was also high in Beijing.

As raised in previous annual meetings of the CCHA and in the ICOPE implementation pilot programme ready phase introduced above, the capacity of health and care workers has been considered one of the greatest challenges or enablers, thus making it an important component of implementation. The experience of capacity-building through the delivery of training for health and social workers was shared by panellists from Cabo Verde, Chile, China and France. The meeting also heard about the plans for the
ICOPE set-phase pilot programme, a prospective comparative study of the ICOPE approach on older people’s health and well-being outcomes.

The meeting learned how ICOPE reflects a continuum of care that will help to reorient health and social services towards a more person-centred and coordinated model of care that supports optimizing functional ability for older people. There was also a presentation on the operationalization of functional ability. This set out what was meant exactly by the measure, with a road map for the development of standard indicators of functional ability. The final presentation of the meeting, on implementing care for healthy ageing, introduced the first WHO long-term care framework for countries to achieve an integrated continuum of long-term care.

The meeting then closed with a summary of ongoing work and the year ahead for the CCHA, agreeing action points for both the Consortium and WHO. These are given at the end of the relevant sections following in this report.
Introduction

The 2021 annual meeting1 of the World Health Organization (WHO) Clinical Consortium on Healthy Ageing (CCHA) was the seventh gathering, held virtually this year, of an international multidisciplinary group of clinical experts, academics, policy makers and civil societies drawn from the full breadth of the field of ageing, to progress the work agreed by Member States under the 2016 WHO *Global strategy and action plan on ageing and health* (1). Six panels of presentation and discussion took place across two days (3 and 4 November):

- United Nations Decade of Healthy Ageing (2021–2030)
- validation of the intrinsic capacity concept
- biomarkers of intrinsic capacity
- oral health
- ICOPE pilot programme and implementation scale-up
- the way forward.

The United Nations Decade of Healthy Ageing (2021–2030),2 aligned with the last 10 years of the Sustainable Development Goals, was adopted by the 73rd World Health Assembly and the United Nations General Assembly in 2020. Two of the decade's four areas of action are closely linked to health and social care and to universal health coverage for older people:

- deliver person-centred integrated care and primary health services responsive to older people
- provide access to long-term care for older people who need it.

In line with the definition of healthy ageing, government action to promote the well-being of older people should be built on a seamless continuum of care that is person-centred and coordinated, regardless of their level of intrinsic capacity and functional ability.

The 2021 CCHA annual meeting was an opportunity to advance the pilot studies on the implementation of integrated care for older people (ICOPE) and to support the continuum of care through the implementation of the two action areas of the Decade of Healthy Ageing.

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1 See https://www.who.int/news/item/02-11-2021-who-clinical-consortium-on-healthy-ageing-meeting-2021

2 See https://www.who.int/initiatives/decade-of-healthy-ageing
CCHA activities over the past year

Before setting out the objectives of the meeting, a brief overview of the activities involving the CCHA in 2021 was given.

Ageing Data Portal

WHO launched the Ageing Data Portal on 1 October 2020 during the International Day of Older People, to:

1. bring together data on global indicators to monitor the health and well-being of older people
2. offer interactive visualization of data through maps, charts and tables
3. inform action to improve health and well-being against global, regional and national commitments
4. strengthen the visibility of older people.

The portal, focused on people aged 60 years and over, allows users to select a summary of key data for any individual country. These concise and policy-relevant country profiles spotlight the ageing and health situations of all 194 WHO Member States, to give snapshots of their characteristics and challenges as the Decade of Healthy Ageing (2021–2030) progresses. These three-page visual summaries may be viewed online and exported to document and picture formats for ease of further sharing.

Guidelines on chronic low back pain

The report of last year’s meeting includes an introduction to the WHO work on a set of evidence-based guidelines for chronic low back pain. Pain management is included in the mobility domain of the ICOPE care pathways, but without an evidence base yet being available to inform recommendations, so this new guideline will fill that gap. WHO has now established a guideline development group, external review group and steering group for these guidelines, and the research questions and outcomes have been developed. This includes the definition of a study subpopulation to enable recommendations specifically for older adults (aged 60 years or older) who have chronic low back pain, with or without leg pain. The CCHA hopes to discuss these guidelines at the annual meeting in 2022, with a view to including interventions for low back pain in the ICOPE care pathways.

ICOPE implementation pilot programme

In this introductory overview of the work completed in 2021, the Consortium heard about the progress in the first, ready phase of ICOPE implementation piloting, which now has two studies in motion. These were covered in detail in the panel-five presentations and discussions of the meeting.

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1. See the portal at https://www.who.int/data/maternal-newborn-child-adolescent-ageing/ageing-data
2. See the country profiles at https://www.who.int/data/maternal-newborn-child-adolescent-ageing/static-visualizations/ageing-country-profile
3. See the 2020 CCHA meeting report at https://apps.who.int/iris/handle/10665/350961
4. The key question of the evidence-based guidelines is: “What are the benefits and harms of non-surgical interventions and combination of these in the clinical management of community-dwelling adults, including older adults aged 60 years and over, with chronic primary low back pain (with or without leg pain) in primary or community care settings compared with placebo, no intervention, or usual care?”
Continuum of care for healthy ageing

WHO is promoting a continuum of care for healthy ageing that persists along the trajectories of intrinsic capacity (IC) and functional ability and is delivered regardless of the individual levels of these in an older person. The CCHA has been focusing on how to prevent declines in IC and promote its maintenance. Yet, for individuals who have a significant loss of IC, long-term care services become more relevant, and a greater focus on maintaining functional ability becomes more important. Last year’s annual meeting of the CCHA was presented with a WHO plan to develop technical products to support countries to implement an integrated continuum of long-term care. The first of these, the framework for countries to achieve such a continuum, has now been launched by WHO (4). This will guide countries to assess and implement their long-term care systems and services. A second product, the universal health coverage service package for long-term care, is being developed with the aim of publication in mid-2022. Panel six of this year’s annual meeting discussed the long-term care framework in detail.

Meeting objectives

THE 2021 MEETING HAD FIVE OBJECTIVES, TO:

- inform the CCHA participants about the activities of the Decade of Healthy Ageing
- discuss findings from different countries on the validation of the concept of IC
- report results of the ready phase of the ICOPE implementation piloting and discuss the set-phase methodology
- introduce work on oral health
- discuss the continuum of care for healthy ageing.

SIX OUTCOMES WERE EXPECTED FOR THIS YEAR’S MEETING:

- opportunities identified to engage in the activities of the Decade of Healthy Ageing
- ICOPE implementation pilot study progressed to the set phase
- capacity-building on ICOPE progressed for health and care workers
- continuum of care for healthy ageing operationalized
- work on oral health advanced
- priority work for 2022 identified.
United Nations Decade of Healthy Ageing

The United Nations Decade of Healthy Ageing (2021–2030),1 aligned with the last 10 years of the Sustainable Development Goals, was adopted by the United Nations General Assembly in December 2020, with WHO asked to lead.

The Decade of Healthy Ageing brings together governments, civil society, the private sector, media and United Nations agencies to improve the lives of older people, their families and communities around four interlinked action areas:

1. changing how we think, feel and act towards age and ageing;
2. ensuring that communities foster the abilities of older people;
3. delivering person-centred integrated care and primary health services that are responsive to older people;
4. providing access to long-term care for older people who need it.

These actions are supported by four enablers:

1. listening to diverse voices and enabling the meaningful engagement of older people, family members, caregivers, young people and communities;
2. nurturing leadership and building capacity to take appropriate action integrated across sectors;
3. connecting various stakeholders around the world to share and learn from the experience of others; and
4. strengthening data, research and innovation to accelerate implementation.

The United Nations Decade of Healthy Ageing knowledge exchange Platform (‘Decade Platform’) was launched in September 2021 (5). This Decade Platform, accessed at decadeofhealthyageing.org and available in English, French and Spanish, is a vehicle developed by WHO in collaboration with stakeholders for exchanging knowledge, to support all stakeholders to find, share and produce the knowledge they need to foster healthy ageing during the Decade.

The Decade Platform enables access to insights from a diverse array of sources, such as the personal experiences of care workers in long-term care. It supports the sharing of a wide range of knowledge, including but not limited to publications such as guides and reports, databases and repositories, practical toolkits, directories of people and organizations, the stories and personal experiences of stakeholders around the world (including older people themselves), and teaching and research materials. All submissions to the Platform – which are open for anyone to make – are reviewed by a group of expert volunteers.

The Decade Platform also facilitates opportunities for informal and in-person learning or to share successful initiatives and good practices. Successes

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1 See https://www.who.int/initiatives/decade-of-healthy-ageing
to date include a leaders’ training course⁴ that has already had over 800 participants online, including government officials and ministry focal points on ageing, United Nations staff in country offices and participants from relevant civil society organizations.

During the presentation about the Decade Platform at this Consortium meeting, participants were invited to consider how multidisciplinary health and care workers could work together and with other stakeholders to create a world in which all people can live long, healthy lives. Collaboration through knowledge exchange is at the core of what the Decade Platform hopes to achieve, the meeting heard, and participants were prompted with these questions:

- What kind of knowledge do you draw on for your work?
- Who uses or would benefit from your knowledge?

In summary, the Decade Platform is an online, multilingual space that brings people and their diverse forms of knowledge and expertise together to foster the collaborations and synergies that we need for transformative change.

### Global report on ageism

Ageism is how we think (stereotypes), feel (prejudice) and act (discrimination) towards others or ourselves based on age. A summary of the *Global report on ageism* was presented (6).

- Ageism affects all of us and it starts early in life, with children as young as four already aware of the age-based stereotypes in their culture.
- Ageism is everywhere – it is in our institutions, in our relationships and in ourselves. Examples include mandatory retirement ages in employment, patronizing older and younger people on the basis of their age, or not allowing them to make decisions for themselves when they have the capacity to do so. Older people may internalize ageist stereotypes – and this may create a barrier to them engaging in new hobbies or a new career. The presentation highlighted that one in two people are ageist against older people, with rates much higher in low-income and lower-middle-income countries.

- Ageism has far-reaching impacts on all aspects of people’s health and social well-being.
- Ageism takes a heavy economic toll on individuals and society.
- Ageism intersects with and exacerbates other forms of disadvantage, including those related to sex, race and disability.

The three strategies detailed in the *Global report* to combat ageism are (i) policy and law, (ii) educational activities in both formal and non-formal settings and (iii) intergenerational interventions that bring together younger and older people to work on a common project, such as gardening, listening to music, sharing stories, or even co-housing. The three recommendations for action in the report are to:

- invest in these three evidence-based strategies to address ageism;
- improve data and research to gain a better understanding of ageism and how to reduce it;
- build a movement to change the negative narrative around age and ageing.

⁴ See https://openwho.org/courses/HealthyAgeing4Impact-Registration
Monitoring and evaluation of the Decade

WHO Member States have asked the WHO’s director-general to report back on the progress of the Decade of Healthy Ageing’s implementation every three years. The first report will be in 2023 and Consortium participants were invited to engage in its development.

WHO has recruited 20 experts, representing all regions of WHO, onto the Technical Advisory Group (TAG) for the measurement, monitoring and evaluation (M&E) of the United Nations Decade of Healthy Ageing (7). The rationale for the M&E framework is threefold:

- to strengthen countries’ capacities to track progress and impact, nationally and subnationally, enabling them to strengthen health information systems for older people and to identify gaps in policies, programmes and services;
- to support global and regional monitoring with a core set of indicators to inform the progress reports every three years;
- to align indicators with other frameworks such as the Sustainable Development Goals (SDGs) and universal health coverage, thus minimizing the reporting burden.

The WHO ageing teams have looked at monitoring the Decade’s progress at the three levels of strategy on healthy ageing – global, regional and national – to ensure that the framework will be relevant and sensitive to specific contexts. Different regions, for example, have different levels of chronic disease burden depending on factors such as the demographic transition. In addition to the strategies, the team drew on the SDG framework, the integrated care for older people (ICOPE) implementation framework, the framework for the continuum of long-term care, and the guide on measuring the age-friendliness of cities. The 85 indicators identified fall into the 15 domains listed in Box 1.

These indicators were then carefully classified as input, process, output, outcome or impact indicators, with the first three being important to monitoring and the last two important to evaluation. Many had already been agreed for collection by, for example, the SDG monitoring framework or the mandate for the Decade, but there were gaps for the collection of data on other indicators that were being newly proposed. Some

Box 1. The 15 domains of indicators in the monitoring and evaluation framework of the Decade of Healthy Ageing

- Leadership and commitment
- Policy and law
- Voice and engagement
- Data, research and innovation
- Infrastructure
- Finance
- Health workforce
- Health information systems
- Enabling environment
- Healthy ageing (functional ability and intrinsic capacity)
- Health outcomes
- Long and healthy lives
- Cause of mortality
- Need for care
- Well-being
of these may call for policy surveys towards high-
level data while others may need health facility
surveys to assess, for example, registration and
health information systems.

The indicators have been classified into three
tiers based on conceptual clarity, the existence
of internationally established methodology and
standards, and whether countries are already
collecting data on them. The indicators related to
healthy ageing fall into the middle of these, into
tier three, because no internationally established
methodology or standards are yet available for
indicators such as intrinsic capacity. This is where
the TAG on M&E will help to conceptualize and
operationalize such indicators.

The process to develop the framework will follow
these steps:

1. review by the United Nations Steering Committee,
   which is made up of representatives of United
   Nations and other international agencies;
2. review by the WHO TAG on M&E;
3. review of the final list of indicators by WHO
   regional and country offices;
4. public consultation;
5. indicator framework pilot tested in countries;
6. finalization of the indicators with the TAG.
Discussion summary

On the development of the M&E framework, Consortium participants raised concern that the age cut-off for defining “premature death” from noncommunicable diseases (NCDs), as used for SDG indicator 3.4.1 (8) and in the WHO Global Health Observatory (9), was ageist, because the threshold meant that any deaths at ages 70 years and above were not considered premature. The focus of the indicators for the Decade’s M&E framework, however, is on causes of death, and there is a preference for incidence data for an age group beyond 100 years if possible. The WHO team would also continue to liaise with the NCD Department at the organization, including about the wider use of the term “premature death” in the United Nations system and the SDGs.

Several participants said there was a particular need for interventions to be targeted at health and care workers’ attitudes: how could ageism among workers be tackled? The question of “self-directed ageism” was also raised. The participants reflected on the question: if decline is automatically perceived as inevitable, are older people going to take up recommendations on physical activity and nutrition? There can be a dynamic between health and care workers’ attitudes but also with older people’s own internalized views.

The group discussed strategies that may work in addressing such ageism. Knowledge about ageing could reduce people’s negative attitudes towards older adults, and education aimed at health and care workers, and in the medical curriculum, would thus help. More specific policies were also needed, the participants felt, in health-care facilities – policies to prevent illustrations of ageism such as clinicians not talking directly to the older person and instead assuming they needed to consult their caregivers, and policies to remove, for example, age limits on access to treatment.

Older people count – removing ageism from data

In the discussion about ageism by the Clinical Consortium on Healthy Ageing – including the calls for data disaggregated by age without an upper limit – some participants cited the following examples of action on advocacy.

- A paper published by WHO in *The Lancet Healthy Longevity* in July 2021 recommends “age groupings of 5 years for all health data” to make “older people more visible and to inform actions to improve their wellbeing” (10).

- The Titchfield Group on Ageing-related Statistics and Age-disaggregated Data, created by the United Nations Statistical Commission in 2018 and represented in the above paper, is also an advocate. One of its concerns is to assess “evidence on ageing, to identify how well ageing populations are being measured”(11) and it would like national statistical offices to adopt a life-course approach and more granular data using single years (12).
Action points

**ACTIONS FOR THE CCHA:**
- explore the Decade Platform and use it to share any relevant knowledge and make connections;
- support WHO to develop the thinking and plans against ageism in health-care settings, drawing on the review of relevant evidence in the Global report on ageism – both addressing the attitudes of health and care workers and supporting older people to challenge stereotypes about their own ageing;
- support WHO to collect and update data for the Ageing Data Portal (e.g. the numbers of geriatricians at global, regional and national levels).

**ACTIONS FOR WHO:**
- develop a process to fill the data gaps on ageism, including its prevalence concerning different age groups;
- engage other WHO departments on monitoring to make sure data are disaggregated by age and sex, and include people of all ages;
- showcase examples to combat ageism.
Validation of intrinsic capacity

The concept of intrinsic capacity (IC) frames health through the lens of biological ageing rather than chronological age. The research is needed to facilitate the use of multidimensional tools in clinical practice and to understand how measures of capacity rather than the number of years of age affect clinical decisions for older adults. IC comprises all the individual-level attributes that contribute to functional ability – a person’s ability to be and to do what they have reason to value, from self-care to leisure-time tasks.

It has been proposed that the structure of IC includes the five key domains of cognitive, psychological, sensory, locomotor and vitality – and these form the basis of the recommendations in the Guidelines on community level-interventions to manage declines in intrinsic capacity (13), which have since been further developed theoretically, statistically and empirically under the leadership and work of the CCHA’s participants over the past few years (14–18).

Longitudinal studies

Study in China

The participants heard about an analysis of large longitudinal studies in China and the UK. The healthy ageing framework – with a functional focus that defines healthy ageing as the building and the maintaining of the functional ability that enables well-being – has worked very well in terms of setting policy. But there is as yet little research on how intrinsic capacity, one of the principal components of this framework, might be structured and measured.

The team looked at the China Health And Retirement Longitudinal Study (CHARLS) (19) with 7,643 participants aged over 60 years and 9,576 aged 45 to 60 years (in two waves in 2011 and 2013), and compared it with the English Longitudinal Study on Ageing (ELSA) with 2,560 eligible participants aged over 60 years, and two waves (the first from 1998 to 2001 and the second across 2010 and 2011).

In both studies, factor analysis was used to try to define this emergent property of IC, and both found that IC was a powerful predictor of subsequent outcomes, in terms of developing care dependence, with only minor variation between the two studies. This was after accounting for personal characteristics such as age, sex, wealth, education and multimorbidity. The factor analysis also showed similarity in both studies about how IC was constructed, producing very similar subdomains. These are consistent with the ICOPE guidance and are shown in Figure 1 with the variables considered.
Fig. 1. Bifactor confirmatory factor analysis models of intrinsic capacity (IC) from data in the longitudinal studies in China (left) and England (right). These produced similar subdomains of IC, and IC was a powerful predictor of subsequent outcomes.

C vision: close vision, DHEAS: dehydroepiandrosterone, D vision: distance vision, FEV: forced expiratory volume, IGF-1: insulin-like growth factor 1, N vision: near vision

Source: Beard and others, 2021 (19) (left) and 2019 (20) (right)
Study in Brazil

The participants also heard about the longitudinal studies in Brazil to validate the IC concept in relation to activities of daily living (ADLs) – that is, how well IC scores influence ADLs. The study in Brazil, being conducted in a low- to middle-income country, is also helping to reveal how the construct stands up to tests of validity across diverse levels of resource and across older people’s demographic and socioeconomic characteristics.

The Brazilian Longitudinal Study of Aging (ELSI-Brazil) is a study of 9,412 people aged 50 years or over at baseline in 2015 and 2016. A nationally conducted study, its participants live in 70 municipalities across the five regions of Brazil.

ELSI-Brazil adopts a conceptual framework and an approach that are common to other large-scale longitudinal studies of ageing such as the Health and Retirement Study in the United States of America, the English Longitudinal Study of Ageing, the Mexican Health and Aging Study, and the China Health and Retirement Longitudinal Study, allowing cross-national comparisons of the findings. These are all part of the family of Health and Retirement Studies (HRSs) harmonized through the Gateway to Global Aging Data.

The objectives of the ELSI-Brazil study are to:
- investigate the associations of IC and its domains with a wide range of routine activities
- test whether sex, race/ethnicity and socioeconomic status modify this relationship.

The routine activities examined in the study include the basic ADLs, the instrumental ADLs (IADLs) enabling independent living in the community, and the advanced ADLs (AADLs) encompassing productive activity and leisure-time tasks (e.g., going to public places, driving, travelling, using the computer, volunteer work, and participating in social organizations). Table 1 gives the adjusted odds ratios for the associations between IC scores and these outcomes. The first finding is that although there was a correlation with chronological age, it was weak in this sample. As seen in Figure 2, women tended to have lower ICs, but for both women and men, the highest quartiles of IC were those with the best functional abilities, where preserved ADLs and IADLs were progressively more common as the IC scores increased. The team observed very strong associations between IC score and functional ability in terms of preserved abilities to do more sophisticated tasks and leisure time activities, independent of demographics, comorbidities and lifestyle measures. Again, as shown in Table 1, there were also strong associations between the five subdomains of IC and preserved functional ability. Although age, race/ethnicity and education did not modify the associations of IC with functional ability, the team found sex differences, with stronger relationships between IC and preserved ADLs or IADLs in women.

1 See the study website at https://elsi.cpqrr.fiocruz.br
2 See the Gateway – hosted by the Program on Global Aging, Health and Policy at the University of Southern California – at https://g2aging.org
Fig. 2. Prevalence of ability to perform ADLs and IADLs with or without functional impairment according to quartiles of intrinsic capacity (IC) stratified by sex

Table 1. Associations of intrinsic capacity and its five domains with performance in basic, instrumental and advanced activities of daily living in ELSI-Brazil study

<table>
<thead>
<tr>
<th></th>
<th>PRESERVED ADLs</th>
<th>PRESERVED IADLs</th>
<th>HIGH PERFORMANCE IN AADLs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted odds ratio (95% confidence interval)</td>
<td>Adjusted odds ratio (95% confidence interval)</td>
<td>Adjusted odds ratio (95% confidence interval)</td>
</tr>
<tr>
<td><strong>Intrinsic capacity</strong></td>
<td>1.72 (1.54–1.93)</td>
<td>1.95 (1.77–2.16)</td>
<td>1.79 (1.59–2.00)</td>
</tr>
<tr>
<td><strong>SPECIFIC DOMAINS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognition</td>
<td>1.17 (1.06–1.28)</td>
<td>1.31 (1.19–1.43)</td>
<td>1.73 (1.59–1.87)</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>1.96 (1.84–2.09)</td>
<td>1.89 (1.76–2.04)</td>
<td>1.17 (1.07–1.29)</td>
</tr>
<tr>
<td>Sensory</td>
<td>1.88 (1.75–2.02)</td>
<td>1.90 (1.77–2.04)</td>
<td>1.42 (1.31–1.54)</td>
</tr>
<tr>
<td>Locomotor</td>
<td>1.71 (1.52–1.93)</td>
<td>1.77 (1.56–2.01)</td>
<td>1.78 (1.59–1.99)</td>
</tr>
<tr>
<td>Vitality</td>
<td>1.81 (1.69–1.94)</td>
<td>1.80 (1.67–1.95)</td>
<td>1.10 (1.01–1.20)</td>
</tr>
</tbody>
</table>

Notes: ADLs: activities of daily living; IADLs: instrumental activities of daily living; AADLs: advanced activities of daily living. Odds ratios adjusted for age, sex, race/ethnicity, education, marital status, place of residence (urban or rural area), comorbidities (hypertension, diabetes, cancer, lung disease, heart failure, stroke and osteoarthritis), smoking status, and binge drinking.
Discussion summary

There was a comment about how the concept of IC fitted with the concept of frailty. IC can be thought of as a life course trajectory of functioning, with frailty occurring in individuals below a threshold that often occurs towards the end of life. Another question dealt with the terminology of vitality versus other terms that were also embedded in gerontology, like “reserves” or “resilience”. The participants discussed the question of whether nutritional status and other variables should be included in the vitality domain of IC or not, because, one said, “if you think about vitality as biological age at a given moment, this nutritional status is really important”. Others argued that nutrition was a determinant but not a component of IC.

The analysis of the ELSA and CHARLS studies, while they were able to rely on the power of large longitudinal cohorts for investigating the biomarkers and measures, did come with the limitation of being restricted to using available measures. The presenters gave the example of continence as one that had not been possible to include. The ELSA investigators set out to explore how IC might be constructed and had not aimed to definitively suggest how IC might be measured. The published analysis presented to the Consortium had summarized this issue by discussing how vitality was considered as an underlying domain of IC, while the other four domains – of cognitive, psychological, sensory and psychological capacities – were expressed, or were overt manifestations of IC, as suggested in Figure 3. This diagram from the study shows room for “other capacities”, the presenter said, that may also be expressed, and for further development of the underlying vitality domain.

Fig. 3. Intrinsic capacity has been validated against its five domains, but they may be operating at different levels, with four domains of “expression” plus vitality as the underlying domain. Further research may reveal how “other capacities” not yet tested in such robust studies may also be expressed, and how particular measures of vitality may feed into this concept of a summary score for intrinsic capacity.

Source: Courtesy of Beard and others, 2019 (20)
To manage malnutrition is part of the ICOPE care pathways (ICOPE handbook), in the vitality domain (2). The participant gave the example of clinical measures such as grip strength and lung function with which nutrition was closely linked, and it made sense for nutrition to be included in the ICOPE guidance. Aligned with this concept, the ELSI-Brazil study combined information on weight loss and lack of energy with handgrip strength under the vitality domain. The findings indicated strong associations between vitality and performance in a wide range of routine activities. A practical strategy to evaluate vitality might also facilitate the incorporation of IC in low- and middle-income countries and raise awareness about potentially reversible conditions affecting healthy ageing (e.g. nutritional status). The argument, though, was that nutrition did not need to be conceptually thought of as “inside the box” of vitality, and instead could be seen as a determinant or surrogate marker. Later further discussion from others also urging the importance of formally evaluating nutrition was again answered on the basis that, while the concept of IC still meant integrated care must support important factors such as malnutrition, the construct nonetheless needs to have clarity in summing up the things that are clearly intrinsic to a person. This recalls the definition of IC, as all the physical and mental capacities that an individual can draw on at any point in time to maintain their functional ability.

A paper (30) was shared to the group exploring how IC may be a determinant of physical resilience.1 This work echoed the proposals about reserve aspect of vitality and about biological ageing in the study (20), and the authors hypothesized that vitality may also be a high-level measure of the physiological reserve that underlies this ability to withstand stressors. IC could also be an “intervenable target”, the paper adds. Another participant shared their cross-sectional analysis of IC in data from the Mexican Health and Aging Study, of more than 12,000 people, finding that less schooling, more ill health (indicated by self-rated factors such as chronic diseases and visits to the doctor) and activities of daily living were associated with declines in individual domains of IC, and that these declines also correlated with age (31). A later brief discussion about interactions with socioeconomic factors in the longitudinal studies prompted citation to the finding in the analysis of ELSA that the interactions from individual characteristics exerted their influence through IC.

Adding to the earlier discussions recognizing the complexities of measuring IC as a composite score of interacting domains, the exchanges moved to the future possibilities enabled by various technologies. The group cited artificial intelligence and machine learning as holding potential in, for example, the complexity of overall IC scores not necessarily capturing the fluctuations between component domains. One domain may be more dominant than another for different people, and also for an individual across their life course. It would not be safe to assume that all people’s functional abilities varied around the same weighted combination of ICs and that a machine learning approach to the prediction of functional ability in relation to component capacities “would be very interesting and complementary”. Might big data also find thresholds for people whose overall IC score seemed good, but for whom in one particular area of importance to their life – cognitive function, say – this had declined too far?

Action points

**ACTIONS FOR THE CCHA:**

- conduct longitudinal studies in lower middle-income countries to fill the research gap;
- research the predictive value and validity of IC in a clinical population to understand changes within and between individuals over time;
- review the available cohort data to validate IC.

**ACTIONS FOR WHO:**

- engage CCHA members to participate in the working group on vitality
  - continue the efforts since 2017 of a CCHA working group to address the problem of there being no international standard on the complex indicators of vitality, which are mandated for measurement and evaluation but not fully defined;
- engage CCHA members in the systematic review of measures of functional ability and IC (evidence on measures for the clinical population will be presented separately).
Biomarkers of intrinsic capacity

INSPIRE Translational cohort

The meeting was given an overview of the INSPIRE translational research cohort, which provides a platform of bioresources for accelerating translational research on IC and healthy ageing using a geroscience approach. The geroscience approach hypothesizes that intervening on biological ageing can prevent or delay the onset of chronic conditions and reduce their severity. The research has three main pillars, including an animal cohort, a clinical care cohort and – the subject of this presentation – the human translational cohort, which will recruit 1 000 individuals (32):  
• of ages from 20 years, with no upper limit  
• with different levels of IC from robust to significant loss of IC.

With the aim of identifying biomarkers of ageing and of healthy ageing, the study will, over 10 years, take baseline and follow-up measures, including biological, clinical, imaging and digital data samples (e.g. gait speed data from home sensors). It will investigate the “evolution of intrinsic capacity over time”, and the way the IC domains interact with each other. It will investigate the predictors and causes of declines in IC and will implement the ICOPE programme, gaining data on its acceptability and on the use of digital tools to monitor IC over time.

All participants will undergo an annual visit for clinical tests and provide biospecimens. Using the ICOPE Monitor¹ mobile application, trained nursing staff will screen for declines in IC, three times during the first year and every six months thereafter. Any declines will be assessed for the need for more in-depth assessment, in line with the ICOPE care pathways.

A total of 933 participants were enrolled from October 2019 to September 2021. The biosamples to be collected are:
• blood (peripheral blood mononuclear cells)  
• urine  
• saliva  
• dental plaque  
• nasopharyngeal swabs  
• skin swabs.

Optional biosamples are:
• skin biopsies  
• faeces  
• hair bulbs.

The study had already collected more than 56 000 biospecimens. The “hallmarks of ageing” (33) that the study would look at first, among those shown in Table 2, are epigenetic alteration – DNA methylation in particular – and the “calculation of the epigenetic clock”. The researchers are also interested in altered intracellular communication with the measurement of the inflammatory age or clock, and in mitochondrial dysfunction.

¹ This app is available from Apple or Google at, respectively, https://apps.apple.com/fr/app/icope-monitor/id1495153948 and https://play.google.com/store/apps/details?id=com.universaltools.icopemonitor

Table 2. The hallmarks of ageing examined by the INSPIRE translational cohort study

| • Altered intercellular communication | • Deregulated nutrient sensing |
| • Genomic instability | • Mitochondrial dysfunction |
| • Telomere attrition | • Cellular senescence |
| • Epigenetic alterations | • Stem cell exhaustion |

Source: López-Otín and others, 2013 (33)
The presentation concluded that the findings from the cohort will inform the development of trials using a geroscience approach – for example, by identifying biomarkers, and target populations who are more prone to benefit from geroprotective interventions – and contribute data to see if changes in the hallmarks of ageing determine declines in IC. “Can we intervene on some of these markers and, if yes, what is the target population?” The associations between biomarkers and trajectories of IC would probably inform the development of the preventive interventions in the future. The use of biomarkers to monitor biological ageing has potential implications for the prevention of health-related adverse outcomes and the promotion of IC.

Genetic basis of intrinsic capacity

Aiming to answer this research gap is a systematic review using the GWAS Catalog of human genome-wide association studies. Its results are summarized in Table 3 – a total of 260 genetic studies reporting a total of 9,419 genes. Most of the studies (151) related to the vitality domain of IC, reporting 7,842 genes, followed by the psychological domain, with 85 studies reporting 2,076 genes. The studies also reported these environmental factors associated with the process of ageing:

- gender
- lifestyle
- nutrition
- social activity
- exercise
- education
- income
- stress management.

Table 3. Results of a systematic review of genetic studies related to the domains of intrinsic capacity

<table>
<thead>
<tr>
<th>INTRINSIC CAPACITY SUBDOMAIN</th>
<th>MEASURES/TRAITS</th>
<th>GENES REPORTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitality – 151 studies</td>
<td>Blood pressure, cardiorespiratory fitness, energy expenditure, fasting glucose/insulin, heart rate variability, lipids levels, obesity-related traits</td>
<td>7,842 genes</td>
</tr>
<tr>
<td>Psychological – 85 studies</td>
<td>Insomnia, life satisfaction, loneliness, mental illness, psychological distress/resilience/well-being, sleep phenotypes, stress-related phenotypes</td>
<td>2,076 genes</td>
</tr>
<tr>
<td>Cognitive – 12 studies</td>
<td>Cognitive function/impairment</td>
<td>263 genes</td>
</tr>
<tr>
<td>Locomotor capacity – 6 studies</td>
<td>Grip strength, muscle weakness, gait rhythm</td>
<td>186 genes</td>
</tr>
<tr>
<td>Sensory – 6 studies</td>
<td>Hearing function/impairment, visual function/impairment</td>
<td>72 genes</td>
</tr>
<tr>
<td>260 genetic studies</td>
<td></td>
<td>9,419 genes</td>
</tr>
</tbody>
</table>

1 Available at https://www.ebi.ac.uk/gwas
The presenter had made a biological analysis of these genes using Ingenuity Pathway Analysis\(^1\) and the Reactome biological pathways database.\(^2\) They remarked that these findings were very similar to those of previous studies (36–39). The implication of uncovering the genetic basis of IC was a personalized approach, or precision medicine model, to enabling healthy ageing, given that there were large variations in IC between individuals and both genetic and environmental factors involved in this – making a “one size fits all” approach inappropriate to promoting healthy ageing. The presenter now planned to use the UK Biobank\(^3\) to apply a genome-wide study investigating genes that may be newly identified to have a role in IC, and to identify the environmental factors of healthy ageing.

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1 See https://digitalinsights.qiagen.com/products-overview/discovery-insights-portfolio/analysis-and-visualization/qiagen-ipa
2 See https://reactome.org
3 The UK Biobank is a biomedical database involving some 500 000 participants. See https://www.ukbiobank.ac.uk

**Discussion summary**

- The chair of this discussion kicked it off by raising interest in what was being referred to as the “exposome”, in reference to environmental exposure. In addition to the interest in the genome, it was “exciting” that mass spectrometry techniques had the potential to measure the exposome, picking up molecules in individuals’ samples as a test of environmental exposure to chemicals, and potentially relating this to clinical factors and IC in the future.

- The first point in this discussion was that biomarkers should be differentiated by those that were related to declines in IC and functional ability and those that were associated with greater longevity. Further, when assessing the role of biomarkers, it was important to examine this in different settings, clinical and community, and to establish the population differences ranging from robust to those with significant loss of IC. One participant cited a “classic example” – people with type 2 diabetes treated with metformin living longer than people without diabetes (40), but still living with the complications – as illustrative of this need for differentiating what the biomarkers were measuring.

- How could the proposed specimens for these biomarkers be least invasive, and thereby also be feasible in low- to middle-income settings? The idea of the INSPIRE cohort is to build a platform of bioresources – so to create a large biobank that can be used in the future when the field is evolving and new techniques and biomarkers will appear. So the samples presently being taken into account are considered for very specific research aims.

- One participant commented that the bioethics needed careful consideration, especially “when these biomarkers will be implemented in clinical practice”. What ethical framework would be used? Another participant added that this was a concern not only in ageing but other fields of medicine, including how to ensure that sensitive genetic data were stored securely and shared confidentially (41).
Action points

**ACTIONS FOR THE CCHA:**
- further research on the exposome and the measures of the environmental effects on individuals;
- conceptualize “biomarkers of ageing” (biomarkers of longevity versus biomarkers of IC versus biomarkers of disease);
- further research on how biomarkers vary between clinical and non-clinical settings, across an individual’s differing clinical status, and between different ethnic groups.

**ACTIONS FOR WHO:**
- the Ageing and Health Unit will consult with the ethics department at WHO on an ethical framework, if one is needed, concerning the genetics of healthy ageing.
Oral health

Oral diseases and conditions are the most common of the noncommunicable diseases (NCDs), and the global burden is increasing (42). Oral diseases and conditions are estimated to affect nearly 3.5 billion people globally, a burden that has steadily risen over the past three decades (Figure 5) (43). The most common of these is untreated dental caries in permanent teeth. This prevalence, the expense of treatment and the impact of oral diseases and conditions on individuals and society all constitute a public health problem – yet it is not one that is being addressed by quality care. For example, the lack of an oral health workforce, especially in low- and middle-income countries, limits the coverage and availability of essential oral health services that are usually not part of the universal health coverage benefit package (44). Yet good oral health is critical across the life course and, with links to nutritional status and cognition, vital to healthy ageing.

Fig. 5. Global burden of oral disease. Number of cases by WHO region

Source: Global Burden of Disease Study (43)
WHO work on oral health

The first presentation of this panel set out the work of WHO on oral health, after confirming that the 75th World Health Assembly in 2021 had adopted the WHA resolution on oral health, reinforcing WHO’s mandate, with commitments for action by Member States (45). Under this resolution, there will be a global strategy on oral health by 2022. The new definition of oral health to be included in this strategy is: “Oral health is the state of the mouth, teeth and orofacial structures that enables individuals to perform essential functions, such as eating, breathing and speaking, and encompasses psychosocial dimensions, such as self-confidence, well-being and the ability to socialize and work without pain, discomfort and embarrassment.” The draft of the global strategy gives the following six strategic objectives.

1. **Oral health governance** – Improve political and resource commitment to oral health, strengthen leadership and create win-win partnerships within and outside the health sector.

2. **Oral health promotion and oral disease prevention** – Enable all people to achieve the best possible oral health and address the social and commercial determinants and risk factors of oral diseases and conditions.

3. **Health workforce** – Develop innovative workforce models and revise and expand competency-based education to respond to population oral health needs.

4. **Oral health care** – Integrate essential oral health care and ensure related financial protection and essential supplies in primary health care.

5. **Oral health information systems** – Enhance surveillance and health information systems to provide timely and relevant feedback on oral health to decision-makers for evidence-based policy-making.

6. **Oral health research agendas** – Create and continuously update context and needs-specific research that is focused on the public health aspects of oral health.

The presentation outlined that oral health varied over the life course (as shown in Figure 6), was integral to general health and supported individual participation in society. In a number of countries, oral ill health was a “marker of social inequality, disproportionately affecting the marginalized population and those of lower economic status”. Treatment for oral conditions was “expensive and usually not part of universal health coverage”. The data were presented for the prevalence of tooth loss or a complete lack of teeth (edentulism), in which most cases among people aged 20 years and above in 2019 were in the low and middle World Bank income groups.

The WHA resolution on oral health provides visibility on the global agenda and high-level commitments, and the participants learned of a timeline for implementation. In addition to the strategy now being finalized, a global oral health action plan will be published in 2023, including a framework for clear, measurable targets to be achieved by 2030. There will also be technical guidance on environmentally friendly and less-invasive dentistry and on ensuring safe and uninterrupted dental services, plus “best buys” – cost-effective oral health interventions. The presentation rounded off with a comment that one of the most important next steps would be WHO working with countries to develop policies and plans to improve oral health.
Because of the burden of poor oral health, as outlined in the earlier presentation, and with the investment that “seems to be insufficient” – only 38% of countries had an operational policy, strategy or action plan for oral health globally (47) – The integration of oral health into the ICOPE approach will facilitate the implementation of the Global Strategy on oral health. In addition to the basic functions demanding good oral health, oral conditions are closely linked with NCDs, “especially periodontal disease linked with the development and progression of diabetes mellitus”. A decrease in oral function, such as in the ability to chew and swallow, could lead to adverse health outcomes, including frailty and mortality (48).

The case study from Japan was introduced – where oral health services are provided as part of a public health approach. During frailty screening, people aged 65 years and above are asked three yes/no questions about their oral health (49):

1. *Do you have any difficulties eating tough foods compared with six months ago?*
2. *Have you choked on your tea or soup recently?*
3. *Do you often experience having a dry mouth?*

Answering yes to two or three of these will trigger access to community-based oral health services, including instruction on simple exercises to maintain the muscle around the mouth and to maintain swallowing ability. The activities vary by community but one example offers 30 minutes of weekly support, and the delivery is often not by dentists, but by dental assistants, hygienists or community health workers.

The presentation finished by stating that WHO regional offices often received requests from Member States for implementation tools on integrating evidence-based oral health guidance into support for healthy ageing. It was acknowledged that there had been brief discussions on oral health in the past CCHA meetings, but now the steps to integrate it into the ICOPE approach would start this year with a scoping review that would lead to a guideline development process.
Scoping review and next steps

To inform the WHO process of developing guidelines on oral health for ageing populations, a scoping review has been initiated, and some details of this review were outlined for the CCHA meeting.

The method and search strategy for the review will follow a modified version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) in reporting the selection process and results (50). The results will be presented against the two areas of focus in this study:

- policies/guidelines/strategies on oral health for older people
- programmes/interventions to improve oral health for older people.

The results of the scoping review will inform the development of evidenced-based guidelines for oral health care for the ageing population, will help to determine the relevance and feasibly of a subsequent full systematic review to assess the best evidence to improve the oral health of older people, and will guide further research.

Discussion summary

Many participants during the discussion mentioned the importance of oral health care for ageing populations, highlighting the impact of oral diseases on various systemic illnesses. One aspect particularly emphasised was the importance of oral health care in diabetes management, with relationships between type 2 diabetes and periodontal disease, where periodontal disease can worsen insulin resistance and affect glucose control. This diabetes link could be overlooked, however.

A question was raised about how the best-buy (cost-effective) oral health interventions could be included in packages of universal health coverage (UHC), and how policy-makers could be convinced of the benefit of oral care to older people, which – as discussed in previous Consortium meetings – was so important to them, but not always possible to access. In response to the mandate given to WHO from the WHA 74.5 Resolution on Oral Health, there is a plan to develop “best-buy” interventions on oral health as part of an updated Appendix 3 of the WHO Global Action plan on the prevention and control of NCDs, and integrate them into the WHO UHC Intervention Compendium.

There was a suggestion that the scoping review could cover all adults, not only older people. The presenter answered that the scoping review design would be flexible, and not a linear but an iterative process, and so the question of this would be answered by such an approach.

One participant said there was some research on cost-effectiveness using data from insurance claims to suggest that the timely treatment of periodontal disease would be cost-effective compared with delaying treatment and allowing complications to develop, with dental problems that would then become “very expensive”. Another said there was an example of a government subsidizing outreach dental care, in the case of services for older adults in the Hong Kong Special Administrative Region, China (51).

The current research on oral health was being driven mainly by the oral care industry for products and technologies, and this needed to be reoriented towards public health. Regarding this, anyone among the CCHA interested in oral health research concerning ageing could provide a “strong contribution”.

24 WHO clinical consortium on healthy ageing 2021: report of consortium meeting held virtually, 5-6 November 2021
Saying that oral health was strongly linked with IC, one participant wanted the scoping review to evaluate, at the country and regional levels, what resources were available and accessible for oral health, such as dental professionals – and including dentists and nurses with expertise – and what insurance was available in different countries, as the number of dentists was very limited in some places. Another had done some research looking into the role of non-dental professionals such as nurses and general practitioners in oral health promotion and suggested this could be achieved by the provision of training programmes and resources on oral health prevention and promotion.

There would be a role for community health workers (CHWs) on providing oral health interventions in low- and middle-income countries. Yet another cited success in Australia with nurses incorporating oral health care into their scope of practice in residential care settings. Members of the WHO team confirmed that, in the long-term care service package under development, the training of nurses, social workers and care workers on promoting oral health was included as one of the important interventions.

One participant asked how WHO might propose a life course approach that could be adopted to achieve optimum oral health and include oral function for older people. To ensure oral health could be integrated into different prevention programmes, the answer would lie in the NCD programmes because of the common risk factors. A work goal for the next year was the “opportunity to develop a global oral health action plan” and working together with the expertise of the CCHA was important.

One participant mentioned that a definition of oral frailty had been determined by the Japan Dental Association and Japanese Society of Gerodontology, and that decreased oral function was one of its outcomes. Oral frailty is a new concept recently introduced here, and it underlines what “we can learn from Japanese experiences” (52).

**Action points**

**ACTIONS FOR THE CCHA:**

- further research on oral health for older people in clinical and community settings (e.g. on cost-effectiveness);
- explore how oral health care can be included in ICOPE pilots;
- generate evidence on the effectiveness of primary health care workers being engaged to promote oral health among older adults.

**ACTIONS FOR WHO:**

- complete the scoping review on oral health, share the results and foster discussion (e.g. expert meeting, webinar);
- identify and map activities on oral health among CCHA members and beyond;
- develop guidance for countries on how to integrate oral health in community-based care and long-term care as part of global oral health action plan, including the feasibility of this in low- and middle-income countries (e.g. including it within the UHC package);
- strengthen capacity-building in countries on oral health care, for health and care workers in the community and in primary health care;
- develop the process and methodology of including oral health care in the ICOPE approach, working with the CCHA to frame oral health within this approach.
ICOPE implementation pilots

The ICOPE implementation pilot programme has been scheduled over three phases: ready, set and go (Figure 7). The first of these took place over the past year, and the year ahead will be occupied with the set phase. The meeting discussed the results from the ready phase and outlined the methodology for the prospective study in the set phase.

Fig. 7. ICOPE implementation pilot programme phases

**READY 2020–2021**

**Usability check**

*What is the usability of the ICOPE care pathways in clinical and community setting?*

*What is the readiness of systems and services to deliver the approach?*

- Test usability of the ICOPE handbook through country case studies
- Explore readiness through:
  - Micro survey of health and social care workers
  - Meso and macro survey using ICOPE implementation scorecard

**SET 2022–2023**

**Global field study**

*Prospective study in selected Member States across the income brackets of low, middle and high, to:*

- Test feasibility
- Identify barriers and enablers
- Refine outcome indicators
- Test clinical effectiveness

**GO 2023–2025**

**Randomized validation**

*Multinational randomized study of the ICOPE approach (clarified through the ready and set phases for readiness, feasibility and acceptability) to validate:*

- Clinical efficacy and cost-effectiveness of ICOPE approach in primary care and community settings

Adoption and implementation of ICOPE: translation, training, capacity-building, toolkit tailoring, system and service transformation

Systems and services readiness for ICOPE implementation

There were 259 responses to the readiness survey using the ICOPE implementation scorecard on system and service readiness (S3). The responses included those from countries with low, middle and high incomes and, in addition to 79 ministries of health, the 15 ministries of social affairs and the 10 ministries of public health, the survey heard from, among others, local policy-makers, health system and service managers, civil society organizations and academic associations.

The results against the scorecard used to rate the level of ICOPE implementation are shown in Figure 8. There was an “extreme variance, even within income groups”, suggesting “that implementation is going to be a local challenge more than anything
else”. The overall scores ranged from a minimum of zero to a maximum of 52, and this wide variance was seen across the three income groups. As well as the suggestion that there would be more of a local challenge to implementation than a regional or economic development challenge, there were consistently lower scores in lower middle-income countries, albeit based on a sample that was not statistically representative.

**Fig. 8. Implementation readiness by country income groupings**

Surveys of a total of 35 Member States with 259 respondents. The median scores with the first and third quartile are presented as a box with bars (minimum and maximum scores).
On a deeper analysis of the results, there was “universal agreement on the importance of engaging older people, families, carers and civil society in service delivery and policy”. Carer support and training was “agreed to be a challenge as well as the finance mechanisms”. In the lower-income countries, these “patterns are essentially magnified”, with some particular issues at the system level on the collection and reporting of data related to intrinsic capacity and functional ability, on the use of digital technologies, on the equitable management of data, and on the regular review of health system capacity.

The MICRO survey results – from a different set of respondents (n=260) across all country income levels – heard from different disciplines, including 54 geriatricians and 20 other specialist doctors, 26 primary care physicians/general practitioners, and 56 nurses, plus others, including social care and community health workers. The results, such as for the percentage agreement with statements about barriers to implementation, are available in a specific report, ICOPE implementation pilot programme: findings from the ‘ready’ phase (54).

The survey found a lot of agreement on the health-care workforce capacity, opportunity and motivation for the behavioural changes needed for ICOPE. There was universal agreement across the countries surveyed to show “a very high readiness” to change towards the ICOPE approach, with an 81% positive response on this question. There was also universal agreement that the proactive role of older people would be the main enabler of ICOPE implementation, while a lack of time and trained staff would be the main barrier.

For steps three and four of delivering ICOPE – to develop a care plan and to refer and monitor older people – the message of the survey results was that more streamlined referral and monitoring pathways would be needed. On step five, to engage the community, more financial incentives would be needed. These issues were magnified in lower-middle-income countries, in which there would be particular issues for programmes to physically reach older people, train staff, and deliver tools and knowledge that were culturally appropriate to their settings.

In recapping these main findings, the presentation concluded: “ICOPE benefits from an extraordinarily high level of support and motivation to change around the world”.

![Fig. 9. Ranges in the scorecard used to summarize the level of implementation](source: WHO (53, 54))
Updates from pilot sites on the real-world use of ICOPE

Two pilot studies, from Occitania region, France and Beijing, China, have shared the real-world use and feasibility of the ICOPE handbook (2) in this first ready phase of implementation.

Pilot in Occitania, France (since Jan 2020 – ongoing)

The presentation about the pilot in France (55) started by outlining the key challenges to be addressed in implementation: this was a new approach that represented a change in practice, it involved prevention and health promotion in a large population, the use of digital technology was key, and it had to be sustainable with an effective financial model.

Screening, in step one of the ICOPE approach (2), makes use of three digital tools that have been adapted by the study team. Two of these are available in versions for the health professional and for the older person or their caregiver for self-assessment: the ICOPE Monitor1 mobile application and the ICOPEBOT;2 which can be used on a smartphone, tablet or computer. The third tool (the frailty ICOPE dashboard) enables professionals to log follow-up data securely.3 If the information provided raises no concern, a follow-up happens six months later. If a general practitioner or nurse sees any alert on the database, they call the older person to check its relevance, and if there is a relevant problem, they call the primary care physician responsible for the person’s care.

The meeting was presented with a set of figures on the use of these ICOPE digital tools. In the 18 months to late October 2021, the database showed that:

- there were 11,516 older people participating, with a mean age of 75 years and 60% women;
- 21,287 had completed step one of the ICOPE approach using the ICOPE screening tool (2,047 of these were self-assessments), with 9,730 followed up at six months;
- 1,108 of the subjects had moved to step two, for a person-centred in-depth assessment;
- 13,492 alerts had been generated for further follow-up.

The pilot has found that between 10% and 20% of the older people screened by the ICOPE screening tool could benefit from in-depth assessment, step two, and further interventions.

In a survey of more than 1,100 older people in this pilot in the Occitania region of France, up to 80% of them felt “that ICOPE helped them to better understand their intrinsic capacity”. There was a similarly high level of satisfaction with using the ICOPE approach. The presentation ended with news that the ministry of health and solidarity in France had decided to fund steps one and two, and also the further assessment and interventions to be scaled up in the ICOPE pilots in five regions in France. This scale-up of ICOPE pilots will contribute to universal health coverage and social security system financing of ICOPE.

1 This app is available from Apple or Google (respectively, at https://apps.apple.com/fr/app/icope-monitor/id1495153948 and https://play.google.com/store/apps/details?id=com.universaltools.icopemonitor)
2 This chatbot is available at https://icopebot.botdesign.net
3 Accessible to health professionals via https://icope.chu-toulouse.fr/webLogin
This pilot began in June 2020 by localizing the package of tools and pathways, with focus group discussion, including older people, to design how they would like to be screened and assessed. In the first three months after the project kick-off meeting, from September 2020, the pilot recruited participants and integrated care managers and trained the latter online. Community health workers also received training. The pilot has involved some 2 200 older people in Beijing, with a quarter receiving the ICOPE intervention and the other three quarters forming the control group. Self-screening has been through a mobile phone application and care plans have been implemented both online and in person.

At the core of the Beijing pilot was “the idea of establishing and training integrated care managers”, since they did not have that many GPs or geriatricians, especially at the primary care level. So community health care workers and primary care teams played a key role. The pilot team looked at health and care workers with all sorts of multidisciplinary backgrounds and provided them with “a hybrid type of training to get them on the same page, understanding how the ICOPE approach, and how their role could evolve during the pilot”.

In spite of the impact of the control measures against the COVID-19 pandemic, after the first six months of the pilot, participants in both intervention and control groups went through reassessments, and preliminary data showed that the management of chronic diseases had improved, especially in the ICOPE intervention group, and some of the functional ability parameters also improved. The results helped the team to show the potential of the ICOPE approach to the Government of China, which funded the pilot. In conversations with the Medical Security Bureau about future financial models, it “saw, even during a short period of time, it was already possible to help older people reduce unnecessary hospital visits and help them better control their health care spending”, and the overall satisfaction of older people was high. Expanding the ICOPE pilot to other districts of Beijing and potentially more regions across China is being explored.
Capacity-building of health and care workers

As raised in previous annual meetings of the CCHA and in the ICOPE surveys introduced above, the capacity of health and care workers has been considered one of the greatest challenges or enablers, thus making it an important component of implementation. The experience of capacity-building through the delivery of training for health and social workers was shared by panellists from France, Chile, China and Cabo Verde.

Occitania, France experience

The capacity building in Occitania was under the leadership of the Gérontopôle, Toulouse, the WHO Collaborating Centre for Frailty, Clinical Research and Training in Geriatrics, with the support of Occitania regional health agency. Since January 2020, the Gérontopôle has aimed to reach all health-care professionals working in primary care in the region with training on the ICOPE concept and its step one on screening. Geriatricians and nurses from the Gérontopôle have delivered the training, which constitutes:

- 40-minute webinars two to three times a month (with recordings always available)
  - on the ICOPE concept, the definition of intrinsic capacity and on ICOPE screening (step one);
- twice-yearly hybrid training, with eight hours via an e-learning platform, plus one day of practical training and the treatment of clinical cases, plus one day of internship at the Gérontopôle or other hospital centre involved in the ICOPE programme
  - on the different domains of intrinsic capacity, the step-two assessments, the interpretation of results, personalized care plan development and follow-up.

The training has been offered:

- to 1 711 health professionals trained in Occitania on the ICOPE concept and step one: 1 053 nurses, 104 physicians and 245 pharmacists;
- to 410 health professionals – mostly nurses – in the region trained in step-two assessments;
- in a survey with 119 of the health professionals responding, 90% were satisfied with the training and 50% had performed step one, screening, for older people.

Since January 2021, training on healthy ageing has also been available to older people in the Occitania region – both virtual and in-person training – delivered by the Gérontopôle to empower older people to preserve their autonomy and self-manage their health. These sessions have also demonstrated the use of the ICOPE Monitor and ICOPEBOT digital tools for self-screening. Some 222 older people participated in the five sessions organized in collaboration with town halls.

The pilot has identified some success factors to improve the training for health professionals. The most important of these for health professionals was the easy access to training, whereby moving the step-one training to virtual sessions helped with participation during the pandemic lockdown period. For older people, the training on self-assessment and self-management in different town halls offered good proximity to them, and the materials such as flyers, posters and videos improved their understanding. The improvements needed were to give better access to older people to the e-learning platform and its videos and presentations.

The next step in Occitania is an e-learning platform. This is being developed to offer different modules depending on the profession (ICOPE step one, step two, alert management, motivational interviews, etc.). The platform contains presentations by experts, videos, quizzes and how to use geriatric scales. The Gérontopôle aims to train the following proportions of professionals in the ICOPE programme in the Occitania region by 2025: 25% of nurses (i.e. 3 000), 7% of physicians (450), 10% of pharmacists (500) and 18% of physiotherapists (600).
Chile experience

In Chile, there is high-level of political support for healthy ageing, for example in the national health plan for comprehensive care for older people and its action plan 2020–2030, which commits to intersectoral action for healthy ageing.

The training was organized by SENAMA (the National Service for the Elderly, Ministry of Social Development) and delivered by the National Institute of Geriatrics (Instituto Nacional de Geriatría de Mexico, WHO-Pan American Health Organization Collaborating Centre on integrated care) through professionals – geriatricians, nurses and social care workers – giving both synchronous and asynchronous online activities complemented by presentation sessions and video conference modules. Participants in the pilot had their training certified after a sufficient number of hours of attendance and after tests plus practical experience using the WHO ICOPE handbook app.

The success factors in the pilot were:
- the level of interest in the topic;
- presentation of the course with a local perspective and using a mix of people from different disciplines;
- the ability to do the course remotely.

The next steps are to adapt the course to the national context and to define the priorities for scaling up ICOPE implementation. The strategy for capacity-building would be defined in terms of the training needs to train the trainers.

Beijing, China experience

Training was carried out in 2020 with the Beijing Community Health Service Association, with financial support from the central government. The trainers included local geriatricians, nurses, rehabilitation therapists, social workers, and public health practitioners, and the participants included primary care physicians, nurses, rehabilitation therapists and social workers.

While initially the training was offline, it then became hybrid, with virtual training sessions plus offline seminars. Added to the use of the WHO package of ICOPE tools, an ICOPE learning platform was developed. The training included case studies, analysis and practice, and examples of assessment reports and care plans, and amounted to six core hours with a further 30 optional hours. The topics covered in the modules included:
- an introduction to the United Nations Decade of Healthy Ageing and ICOPE;
- ICOPE care pathways and tools;
- nursing care skills and knowledge;
- care plan development and communication.

In total, 22 705 trainees completed training on the basic concepts and over 5 300 were educated on the integrated care model, among whom 431 completed all training modules and tests to become “integrated care managers”. As part of the pilot protocols and quality standards, the perspectives and feedback from both older people and their caregivers and health professionals were surveyed. Feedback from health care professionals showed that what they had been trained on had become a natural part of their primary care practice, and geriatricians in general hospitals were actively using the ICOPE screening tools. The pilot aimed to build on its community presence to keep the network of participants actively engaged, and was working with the China Association for Gerontology and Geriatrics to offer national continuing education accreditation for ICOPE training. It was also actively seeking opportunities to scale up the ICOPE pilot and its training for capacity-building.

The next steps in China are (i) to train more partner organizations in other districts of Beijing and (ii) to offer continuous nationwide training on ICOPE and integrated care management.
Cabo Verde experience

In Cabo Verde, the training of health and care workers took place in September 2021, organized by WHO Cabo Verde Country Office and the Ministry of Health in Cabo Verde, serving participants from islands across the nation. The sessions included presentations, discussions, demonstrations and practice using the WHO ICOPE handbook app and tools. The participants included primary care physicians, nurses, pharmacists, community health workers, psychologists, dietitians, service managers and academics. There were also focal points from the country's health facilities and from the ministry of family and social inclusion, which helped to disseminate the training, reaching 47 participants. Among the topics of the training were:

- the United Nations Decade of Healthy Ageing;
- healthy ageing in the African region;
- ICOPE concepts, recommendations and tools;
- the domains of intrinsic capacity, person-centred assessments, and care plans;
- case studies, practice with older volunteers, and an exercise using the ICOPE scorecard.

A success factor in the pilot was the training being held in the local language, Portuguese. The use of participative and active learning strategies, and the practice enabled by the involvement of volunteer older people, were also success factors. Finally, a key positive factor was consideration at all times of the health-care system, culture, health behaviours and local limitations. The challenges experienced in delivering the training include the restrictions of the pandemic and some unstable internet connectivity.

The next step in Cabo Verde is the development of a national plan for the implementation of ICOPE, adapting existing protocols and programmes.

Methodology for the set phase of ICOPE

The ICOPE set-phase pilot programme is a prospective comparative study of the ICOPE approach on older people's health and well-being outcomes. The proposed protocol, to be refined and discussed with local collaborators, includes two main studies:

1. to evaluate health and well-being outcomes with the use of ICOPE approach compared with usual care in primary care settings in a cohort of older people;
2. to develop a health economic evaluation of the cost-effectiveness of the ICOPE approach in different health and social care payment schemes.

The first of those two main studies will include two sub-studies:

1a. to evaluate users' perceptions (older people and their care providers) of the ICOPE approach in practice in terms of acceptability, usability and feasibility;

1b. to gain a qualitative understanding of the enablers and barriers of the ICOPE approach's implementation across different countries, contexts and user groups.

Study 2, the economic evaluation, will:

- map each country's health-care system to understand the health and social care system and flow;
- quantify the process indicators from study 1 to provide a framework for a health economic evaluation and cost-effectiveness analysis of the ICOPE approach;
- analyse the cost-effectiveness of ICOPE approach, compared with usual care, from the change in quality-adjusted life years (QALYs).
Discussion summary

One participant, who was in the process of validating the ICOPE screening tool in a cohort of 250 people, had started an exploratory study using mixed methods to understand health professionals’ perceived barriers to implementation. Knowing that health and care workers needed time, training and the support of decision-makers, the role of policy administrators (e.g. system and programme managers) was questioned. The Occitania pilot team shared their experience of involving people working in health service management/administration to explain what ICOPE was “and why we want to do it” – and they were “very receptive”. The Beijing pilot team also confirmed they had talked to different ministries and government agencies, “to bring everybody together and talk about how to work on this common goal”.

A colleague from WHO working in hearing said the ICOPE handbook app¹ included WHO screening for hearing (hearWHO),² and welcomed the data presented on hearing loss by the pilot sites.

The level of engagement of the health and care workers taking part in the programme was impressive and the question was raised in discussion as to whether they had been paid by the government or specifically for the programme – and how the findings would translate in countries where physician groups, for example, were independent providers. Both pilot teams in Beijing and Occitania answered that there was a mix of public and private professionals, and that participation in the programme was compensated. In the case of the Beijing pilot, this compensation was tied to results quality and satisfaction feedback as well as the time commitment, so that there was a mechanism to guide alignment with the aims of the programme. Another participant said the question of feasibility and sustainability was an important one to answer, including through studies that should take feedback from health professionals as well as older people, in addition to other health economic data. Otherwise, success would be limited to research, which is able to provide monetary incentives.

The achievement of savings or return on investment was questioned by a participant wanting to know how this “vital aspect in the decision to implement” was considered. An effort was under way to assess the health economics of the Beijing pilot, and the Beijing pilot team looked forward to sharing the findings with the Consortium. Health economic analysis is an important feature of the next steps of the implementation pilot programme; however, there is a limitation in accessing good-quality health economic data for these types of studies.

In answer to a concern about the data being gathered in the set phase, the discussion heard about “mechanisms of how we can handle issues of data security, how data are shared, but also maintaining confidentiality”. In the set phase, the only data that were planned to be shared were anonymized, and the management of the data and the handling of it would remain in the pilot country itself. This would also help countries to become “self-contained leaders in this process” of data management.

Some participants said they were involved in networks of other studies, across numerous countries, on the feasibility of ICOPE implementation, and expressed a keenness to adopt a standard methodology that could aid their contributions to the overall programme. Connecting with investigators from different pilot sites to share their lessons could support the current piloting protocols. “Understanding the context and specific issues that may emerge” was also important.

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² The hearWHO test – see https://www.who.int/health-topics/hearing-loss/hearwho
Returning to the question of return on investment, one participant asked how this would be captured across cases where the standard of usual care in general practice varied. It is hoped that specific economic cases will be identified, informed by the countries’ health and social systems – again in recognition of individual contexts. Mapping process indicators in ICOPE care pathways would help us to see what the “important ingredients are that should feed into a health economic evaluation of cost-effectiveness analysis for that particular setting”. Following that, the question would then be how to formulate “a more standardized way of doing it” – and it may need to be more of an approach of “making the investment case” on the back of the current phase of identifying or mapping the individual contexts. Another participant suggested that the set phase was a great time to be trying different health economic frameworks – to understand what suited both the ICOPE approach and the local environment.

Another participant built on the answer regarding the need to make investment cases, stating that Member States needed to understand the investment case and policy makers wanted to know the cost-effectiveness, and how the ICOPE approach would bring benefits in three, five or 10 years. Yet ICOPE, by definition, is multisectoral and involves social as well as health care, with interventions involving multidisciplinary professions – so “it’s not one size fits all”. Nonetheless, the set phase study would learn some answers on these concerns for policy makers.

The Beijing pilot team explained how, in the design of the randomized study, there was no absolute control group that would completely exclude people from learning about ICOPE, since they were trying to promote a general understanding of integrated care. So both groups received basic training and underwent the baseline assessment, but the control group was offered a care plan. It was “usual care but with a better understanding of what other resources they may seek”. The intervention group by contrast was “very regularly monitored by integrated care managers and we provided the coordination of the different resources, not available in the usual care”.

One participant asked whether in any of the field experiments a theory of change had been used to try and make the ICOPE approach sustainable, so that, after the funding stopped, the changes made would continue. Another asked how the ICOPE in-depth assessment was supported financially and would be incentivized and sustained. In the Beijing study, the assessments of older people were already being attached to subsidies, “so people are getting used to being assessed and the cost is paid by the government from the social insurance”. These assessments were different, however, and not comprehensive. One of the outcomes aimed for the pilot study was to inform the government’s standardization of assessment, including intrinsic capacity, and to guide not only the subsidy but also the future delivery of integrated care.

This discussion closed with a remark from the WHO team that the Consortium’s “precious inputs” were welcomed to help to finalize the pilot’s set-phase protocol, and the team would be very happy to hear from members who wanted to input into this refinement or otherwise engage in the set phase.
Action points

**ACTIONS FOR THE CCHA:**

- contribute to the development of training modules on ICOPE;
- help to refine the ICOPE set-phase protocol and assist with implementation:
  - support WHO to implement the cost-effectiveness study, including on return on investment, incentives for staff, and so on – learning from the pilot studies and through collaboration with health economists in WHO and in Consortium participants’ organizations and networks;
  - support WHO by sharing learning on monitoring changes in functional ability and chronic conditions, and monitoring perceptions, levels of satisfaction, and so on;
- share learning from the ready phase on the digital approach in the use of mobile screening apps and mobile training for health and care workers and older people, including the considerations of data management, confidentiality, and so on;
- share learning from direct engagements with older people to localize ICOPE tools and to train them as self-screeners who are proactive in their own health.

**ACTIONS FOR WHO:**

- identify Consortium members and countries to be involved in the set phase;
- convene a working group to develop the training modules;
- engage the health economists, including in WHO collaborating centres, in the cost-effectiveness study;
- develop a summary document to raise awareness of ICOPE with health system administrators and outline what their role would be;
- share guidance on a methodology for feasibility studies, taking into account the need to respond to local contexts;
- share the WHO data principles.¹

¹ See https://www.who.int/data/principles#:~:text=The%20principles%20are%20intended%20primarily%2C%20processed%2C%20shared%20and%20used
Implementing care for healthy ageing

The concept of integrated care for older people is to implement a person-centred, coordinated continuum of care, integrating health and social services, and including long-term care.

Continuum of care for healthy ageing

ICOPE reflects a continuum of care that will help to reorient health and social services towards a more person-centred and coordinated model of care that supports optimizing functional ability for older people. Every place where a person lives and ages is the setting for ICOPE, so this means ageing in place – whether at home, in the community, long-term care facilities or hospitals. This implies the involvement of a multidisciplinary team with specific knowledge and skills in the care of older people, from health-care workers to social-care workers, including formal and informal caregivers.

Long-term care is not about the setting (e.g. long-term care facilities). Instead, it is constituted by all the care services that ensure a person who has, or is at risk of, a significant loss of intrinsic capacity “can maintain a level of functional ability that is consistent with their basic rights, fundamental freedoms and human dignity”. There is an element of palliative care, including end-of-life care, but we need to consider that the phrase ‘long-term’ is not related only to the end of life. It can be episodic and not always at the end of the trajectory of intrinsic capacity, but determined by the needs and priorities of the individual, in any setting, wherever they live. In fact, long-term care services can also be temporarily initiated, as illustrated in the example trajectory shown in Figure 10.

This figure shows individual-level trajectories of intrinsic capacity and functional ability, whereby the latter remains relatively stable because of care provision related to the actual diseases and conditions that may happen over time. At the individual level, the integrated care approach remains the overarching framework that can be applicable to every individual and setting. Long-term care is part of this approach, and the WHO ICOPE programme is designed to integrate and coordinate a very broad spectrum of services spanning from preventive to palliative care. The transition to long-term care is gradual and under the umbrella of integrated care.

At the population level, integrated care will provide a better allocation of resources. The integration of care services will promote a system that is more responsive and proactive to the needs of the population. To promote the transition towards a more integrated system of care, it is important to achieve a vision of the care services – health and social care services – as synergistically operating at the same level; this will facilitate exchanges and communication for the benefit of the older person.
The operational definition of the indicators and measures of functional ability will be developed through the WHO technical advisory group (TAG) for measurement, monitoring and evaluation of the United Nations Decade of Healthy Ageing. This presentation set out what was meant exactly by the operationalization of functional ability, defining its indicators and how these would be developed. The meeting was presented with a road map for the development of standard WHO indicators of functional ability, and participants were reminded of the definition of functional ability: “The health-related attributes that enable people to be and to do what they have reason to value”. The need to operationalize functional ability was to avoid the concept becoming a vague aspiration, instead making it something that could be measured and monitored, based on observable and measurable information. Because WHO recommends functional ability as an outcome indicator for healthy ageing and it is included in the monitoring and evaluation framework for Decade of Healthy Ageing, we should also be able to have a consistent approach to

Fig. 10. An example case illustrating the multidisciplinary care needed to respond to an intrinsic capacity trajectory that can fluctuate over a life course

Source: Cesari and others, 2021 (56)
measure this indicator over time between countries and also within countries for comparisons. WHO technical products (a national toolkit and accompanying guidance document) will provide recommendations on measures and standard procedures for data collection and reporting older people’s functional ability.

An assessment of the feasibility of measuring functional ability is critical. If it were not feasible to collect data for an indicator, or the data that could be collected were not meaningful, the indicator would have little or no utility.

The meeting learned how the indicators developed by WHO would follow the process shown in Figure 11. This process – and the decisions needed at each step before moving forward – would be informed by close working with the TAG.

The presentation wrapped up by stating that the current approach towards the operationalization of functional ability was to monitor the population, and that monitoring the change within and between individuals would need a different measurement strategy. There were currently very few longitudinal clinical data to test measurement strategies for functional ability, and more clinical longitudinal cohort studies were needed to test the validity of the WHO operational definition of functional ability and its indicators and measures in the clinical population. The CCHA had discussed intrinsic capacity in detail but functional ability less so, and future work with the Consortium could help to ensure these WHO operational definitions of functional ability would be relevant to the clinical use as well as population data.

**Fig. 11. The WHO process to develop indicators of functional ability enabling the concept’s operationalization**

### Long-term care framework

The final presentation in panel six on implementing care for healthy ageing introduced the first WHO long-term care framework for countries to achieve an integrated continuum of long-term care (4).

Figure 12 summarizes the framework, which had been developed to provide technical support for national situation analyses that assess the key long-term care elements in existing systems and services. It would also help countries to “implement the integrated continuum of long-term care within their health and social care systems”. Developing systems and investing in long-term care has six elements adapting the health system building block approach:
- governance
- sustainable financing
- information, monitoring and evaluation
- workforce
- service delivery
- innovation and research.

In terms of the implications of the framework for health and care workers at clinical and service level, it could respond to the following sorts of questions.
How can older people receive appropriate and affordable long-term care services that reduce hospital admission due to unmanaged conditions and that help to maintain functional ability in communities?

How can long-term care workers be coordinated outside hospital and clinic settings for the effective provision of integrated care to an older person?

How can the capacities of different cadres of workers and carers be built in long-term care?

What would be the clinically useful and practical indicators or measures for assessing and monitoring the IC and functional ability of older people in long-term care?

In addition to the development of a WHO universal health coverage service package on long-term care, to be ready in 2022, the framework will be followed by these practical tools for implementation and capacity-building:

- an online training tool for caregivers on the provision of long-term care services;
- a safety and quality-assurance assessment tool for long-term care facilities.

WHO would also do work towards understanding the sustainable financing of long-term care and the models of long-term care. Concluding the presentation, these efforts would support regional and country offices to adapt the framework and its tools for country-level implementation.

**Fig. 12.** Integrated continuum of long-term care framework (4)
Discussion summary

One participant challenged the statement that “long-term care requires public financing”. There were concerns about administratively dividing long-term care and social care from other health services, especially if the budgets remain separated – “you will not have an integrated provision at the administrative level, and therefore not at the level of actually trying to provide a continuum of care”. Another participant reported the example of Italy where long-term care has “completely different funding compared to health care under different ministries and that this may surely challenge the possibility of integrated care”. This may partly be caused by the way in which clinicians are trained and work; that is, a system that is disease-oriented and not sufficiently multidimensional, multidisciplinary and integrated. “We have to move away from the siloed approach for long-term care,” urged one participant. Long-term care is both social care and health care. Governments must not neglect to fund long-term care by thinking that it is only social care.

Others commented that long-term care and social care showed overlap – the border between the two depended on the country. There were also comments that long-term care and integrated care should not be confused, and that long-term care was under the umbrella of integrated care. A participant cited a model of long-term care delivery through older people’s associations, which provided initial care and support for people to stay longer in their home, supported by a network of residential facilities.

One participant said measuring functional ability was “one thing to do at the population level” but “quite another” to attempt at the individual level. A small working group of the CCHA could look into this question of how functional ability could be measured in a clinical setting.

One participant asked whether functional ability could be measured as the sum of ADL and IADL limitations, and this would comply with “the simplicity principle” highlighted in the meeting’s earlier presentation. Another participant answered that the distinction needed to be made as clearly as possible between functional ability and intrinsic capacity – “because functional ability is the interactions between intrinsic capacity and the environment”. So abilities to meet basic needs and abilities to contribute can “inadvertently” take in the intrinsic capacity component. We should be clear about whether the measure was evaluating the abilities to meet basic needs, or evaluating the basic needs themselves. There was an option to measure, not for example people’s abilities to move in their space, but simply whether they did move in their space. The working group on locomotor capacity had had this discussion, saying that measuring the fact of movement from the bed to a living area would reflect both the older person’s intrinsic locomotor capacity but also measure their functional ability, as an outcome of this capacity and the environment affecting it. There needed to be an operational definition of functional ability to clarify the concept, from which point the question of the ideal measures could be answered. The technical advisory group could examine, for example, whether components of ADL and IADL, if not the overall measures of these, might provide a proxy measure of functional ability.

One participant said that long-term care was based on a continuum of care, and one that could be provided at different settings – household, community and facility. The main idea was to describe how care for older people was a continuum that started with prevention and assessment and services to “accompany” them throughout their trajectory, without a fragmentation of integrated care versus long-term care, but a package including both.
Some comments pointed out the need to include the role of personal goal setting and aspirations in long-term care planning and asked how these should be included along with the more objective parts of the assessment of care needs. The starting point to an integrated approach to long-term care was person-centredness – “understanding a person’s preferences, what an older person values, and what they want to do” – with a recognition that even two people with identical intrinsic capacity and functional ability could have very different needs for a care plan based on their personal goals. Another participant added to this discussion by highlighting the importance of co-production, with the involvement of families and communities in care. It was stated that the implications of this were important to take into account in financing and in monitoring the performance of care.

This point was furthered by a comment informed by the experience of the ICOPE pilot in Beijing, where involving older people and their families had “been really the core, and we should be careful how we design our financing model”. The incentive for caregivers was complex and designing a way to compensate them needed great consideration. How this were done would affect the direction of care – whether it was just providing the “passive type of care resulting in more care dependency”, or the ICOPE approach.

Action points

**ACTIONS FOR THE CCHA:**

- further clinical longitudinal cohort studies on functional ability;
- engage in the working group on operationalizing functional ability in clinical settings;
- support the training of health and care workers and caregivers on the principles of care for older people and on the integration of services.

**ACTIONS FOR WHO:**

- provide guidance on the whole continuum of care for older people, integrating ICOPE and long-term care;
- provide guidance on different financing models for long-term care that promote integrated care rather than keep funding for health and social care services separate;
- develop operational guidance on integrating and implementing long-term care within health systems;
- build the capacity of health and care workers to integrate health and social care, including long-term care, at the individual and population levels;
- establish a working group to develop and measure functional ability to bring the concept into clinical settings;
- provide guidance on how whole-system outcomes can be used to reflect the quality of long-term care.
The way forward

The final panel of the 2021 annual meeting of the Clinical Consortium on Healthy Ageing (CCHA) looked to ongoing work and the year ahead.

Ongoing technical products

WHO informed the CCHA about the technical products that were planned to be developed over the coming two years (2022–2023), and invited members to make contributions to:

- guidelines on chronic primary low back pain, and their implementation guide;
- the set phase of the ICOPE implementation pilot study, with the development of framework and indicators for monitoring and evaluation of ICOPE programme;
- guidelines for the intrinsic capacity diagnostic test;
- ICOPE handbook version two and online training modules;
- implementation tools for long-term care systems and services;
- handbook, long-term care facility assessment tools, caregiver online training tools, service package financing and cost-benefit analysis;

Priorities for the clinical consortium in 2022

This year’s annual meeting ended with an outline of the action points that had been identified across the two days, identifying those that would be led by WHO and those that would be led by the CCHA, but stressing that this would be a collaborative effort from both. These action points have been presented in this report at the end of each relevant section.
Discussion summary

One participant called for the development of a report about healthy ageing and COVID-19 – to be “more direct in our engagement” against ageism, and cited examples of vaccination being denied to older populations in some countries. A member of the WHO team responded that they had been “heavily engaged with the pandemic response”. They said it would be good to do an analysis of data by age group, to look at the proportions of people vaccinated (57), and to discuss this with the WHO Strategic Advisory Group of Experts on Immunization. The participant added that WHO guidance was very clear: “that we should first protect the most at-risk populations before we move to less at-risk populations”.

The pandemic had been a “tragedy” for older people everywhere and an example to show how ageism was diffused in the society and also implicitly in many public health decisions. It had also been an example to show how fragmented care was and how disruptive this had been on systems that were weakened in front of older people. It was also acknowledged that the pandemic had exposed other learning and opportunities. One participant said, for example, that their organization had just completed a survey of 1,200 people aged 50 years and over, half of whom said they had changed their priorities during the pandemic, and central to these was a greater emphasis on health. “There’s this wonderful opportunity to take advantage of that simple fact, because of the shifting priorities that people have – whether it’s spending more time with family or focusing on health.”

Another participant felt an opportunity had been created by the coronavirus pandemic beyond the issues raised by vaccination, and that, in the Decade of Healthy Ageing, there was perhaps now an opportunity to engage people who might not have been possible to engage otherwise – to grab the attention of some constituencies who do not always directly engage with issues about older people’s health.

With no further questions raised, the session was concluded with a final note of thanks to all participants, hope for a productive year ahead for the CCHA, and a look forward to meeting again next year.
References


5. Ghebreyesus TA. It takes knowledge to transform the world to be a better place to grow older. Nat Aging. 2021;8 Sept:1. doi:10.1038/s43587-021-00120-9.


<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
</tr>
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<tbody>
<tr>
<td>12:45</td>
<td>Welcome</td>
<td></td>
</tr>
<tr>
<td>13:00</td>
<td>Introduction</td>
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</tr>
<tr>
<td>13:00</td>
<td>Welcoming remarks</td>
<td>Anshu Banerjee</td>
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<tr>
<td>13:10</td>
<td>Objectives of the meeting</td>
<td>Yuka Sumi</td>
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<tr>
<td>13:20</td>
<td>Decade of Healthy Ageing: The Platform</td>
<td>Kazuki Yamada</td>
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<td>13:28</td>
<td>Global report on ageism</td>
<td>Vânia de la Fuente-Núñez</td>
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<td>13:36</td>
<td>Monitoring and evaluation of the Decade of Healthy Ageing</td>
<td>Jotheeswaran Amuthavalli Thiyagarajan, Christopher Mikton</td>
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<td>13:44</td>
<td>Question-and-answer session</td>
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<tr>
<td>13:55</td>
<td>PANEL 2: Validation of the intrinsic capacity concept</td>
<td>Chairs: Cyrus Cooper, Hiromasa Okayasu</td>
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<tr>
<td>13:55</td>
<td>Longitudinal Chinese study</td>
<td>John Beard</td>
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<tr>
<td>14:03</td>
<td>Longitudinal Brazilian study</td>
<td>Marlon Aliberti</td>
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<tr>
<td>14:11</td>
<td>Plenary discussion</td>
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<tr>
<td>14:30</td>
<td>Break</td>
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<tr>
<td>14:40</td>
<td>PANEL 3: Biomarkers of intrinsic capacity</td>
<td>Chairs: John Rowe, Anshu Banerjee</td>
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<tr>
<td>14:40</td>
<td>Biomarkers and intrinsic capacity: INSPIRE translational cohort</td>
<td>Philipe de Souto Barreto</td>
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<td>14:48</td>
<td>Understanding the genetic basis of intrinsic capacity and its implications</td>
<td>Azmeraw Amare</td>
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<td>14:56</td>
<td>Plenary discussion</td>
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<tr>
<td>15:15</td>
<td>PANEL 4: Oral health</td>
<td>Chairs: Hiroshi Ogawa, Carolina Hommes</td>
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<tr>
<td>15:15</td>
<td>WHO work on oral health</td>
<td>Benoit Varenne</td>
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<tr>
<td>15:23</td>
<td>Oral health and older people</td>
<td>Yuriko Harada</td>
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<tr>
<td>15:31</td>
<td>Scoping review and next steps</td>
<td>Prakash Poudel</td>
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<td>15:39</td>
<td>Plenary discussion</td>
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<tr>
<td>15:55</td>
<td>WRAP UP, DAY 1</td>
<td>Yuka Sumi</td>
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</tbody>
</table>

**WHO Clinical Consortium on Healthy Ageing**

**ANNUAL MEETING, 5–6 NOVEMBER 2021**
## THURSDAY, 6 NOVEMBER 2021 (DAY 2)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chairs</th>
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<tbody>
<tr>
<td>12:45 – 13:00</td>
<td>Welcome</td>
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<tr>
<td>13:00 – 14:30</td>
<td>PANEL 5: Integrated care for older people (ICOPE) pilot programme and scale up implementation</td>
<td>Chairs: Luis Miguel Gutierrez Robledo, Yuka Sumi</td>
</tr>
<tr>
<td>13:00 – 13:10</td>
<td>Findings from ICOPE pilot ready phase</td>
<td>Michael Valenzuela</td>
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<tr>
<td>13:10 – 13:20</td>
<td>Update from the ICOPE pilot sites (Five minutes each)</td>
<td>Bruno Vellas</td>
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<td>France</td>
<td>Ninie Wang</td>
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<td>China</td>
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<td>13:20 – 13:30</td>
<td>Question-and-answer session</td>
<td>Jean-Yves Reginster</td>
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<tr>
<td>13:30 – 13:50</td>
<td>Capacity-building of health and care workers (Five minutes each)</td>
<td>Neda Tavassoli, Mario Cruz Peñate, Amy Song, Eduardo Ferrioli</td>
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<td>Cabo Verde</td>
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<td>13:50 – 14:00</td>
<td>Question-and-answer session</td>
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<td>14:00 – 14:08</td>
<td>Methodology for the ICOPE pilot set phase</td>
<td>Eric Ohuma</td>
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<tr>
<td>14:08 – 14:30</td>
<td>Plenary discussion</td>
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<tr>
<td>14:30 – 14:40</td>
<td>Break</td>
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<tr>
<td>14:40 – 14:48</td>
<td>Continuum of care for healthy ageing</td>
<td>Matteo Cesari</td>
</tr>
<tr>
<td>14:48 – 14:56</td>
<td>Operationalization of functional ability</td>
<td>Jotheeswaran Amuthavalli Thiyagarajan</td>
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<tr>
<td>14:56 – 15:04</td>
<td>Long-term care readiness framework</td>
<td>Hyobum Jang</td>
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<td>15:04 – 15:25</td>
<td>Plenary discussion</td>
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<td>15:25 – 15:55</td>
<td>Plenary discussion: consortium priorities for 2022</td>
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<tr>
<td>15:55 – 16:00</td>
<td>Closure of the meeting</td>
<td>Anshu Banerjee</td>
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</tbody>
</table>
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