
Promoting Adaptability across the Life course 21-22nd May 2018

Meeting supported by Worldwide Universities Network (WUN Global Challenge Steering Group Fund 2017)

Worldwide Universities network (WUN) partner institutions

Context and previous work

This workshop is jointly organised by the Public health and Resilience global challenge groups of WUN. From 2016-17 Prof Mark Hanson and team at University of Southampton, and colleagues at the World Health Organisation (WHO), Department of Ageing and Life course, worked together with the aim of developing a toolkit for the assessment of physiological processes, and biological markers of factors that influence the rate of decline in function throughout the life course. This was based on the concept of Intrinsic Capacity and Functional Ability, introduced in the *World report on Ageing* (2015). The key objectives of the WHO, post the World Report on Ageing and Health, included addressing the knowledge gaps related to healthy ageing and building platforms to create further networks. Several meetings conducted on frailty, measurement and operationalisation of intrinsic capacity and the development of a clinical consortium for healthy ageing, set the scene for the WHO-WUN meeting, which focused on the application of the intrinsic capacity concept across the life course. In the meeting on Working Group on Metrics and Research Standards on *Healthy Ageing*¹ (27-31 March 2017) the domains for intrinsic capacity were identified, namely - cognition, mobility/locomotor, psychosocial, sensory, vitality, pain, sleep, interpersonal activities and other bodily functions not captured².

A three-day technical workshop was conducted in Geneva (June 28-30, 2017) led by Prof Hanson and Prof Yoav Ben-Shlomo (University of Bristol). This was attended by colleagues from the WUN, to identify the drivers of intrinsic capacity through the life course. Speakers included key stakeholders from the WHO, and other leading academics in the field of life course epidemiology. A gap highlighted during the meeting was the lack of consideration of resilience and adaptation of intrinsic capacity through the life course and its influence on later life health.

Prof Steve Reid at University of Cape Town together with colleagues at other WUN universities are leading the research group on resilience in youth and service providers, and were part of the Pathways to Resilience IV conference in June 2017. This meeting focused on how individuals, families and communities adapt positively to adversity such as migration. It provided an overview on how this adaptation varies across cultures, how those in the 'Global South' define resilience and how professional and semi-professional service providers can meaningfully support health, wellbeing and social justice at a population level.

¹ Working Group on Metrics and Research Standards on *Healthy Ageing* - 27-31 March 2017
<http://www.who.int/ageing/data-research/metrics-standards/en/>

² Cesari M, Araujo de Carvalho I, Amuthavalli Thiyagarajan J, Cooper C, Martin FC, Reginster JY, Vellas B, Beard JR. Evidence for The Domains Supporting The Construct of Intrinsic Capacity. *The Journals of Gerontology: Series A*. 2018 <https://doi.org/10.1093/gerona/gly011>



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Workshop on Promoting Adaptability across the Life course, May 2018

To advance the agenda on using a life course approach to achieve optimal individual, family and population health, we are organising an expert meeting, with emphasis on promoting adaptability across the life course, using the *Healthy Ageing* framework as well as acknowledging the importance of early child health and development. This interdisciplinary workshop will harness ongoing research at WUN universities, encourage participation from early career researchers and create opportunities for future collaborations.

The need to revise the WHO definition of Health has been widely debated, and the introduction of the concept of intrinsic capacity and functional ability were a start to moving beyond a disease-focused approach. Functional ability comprises the intrinsic capacity (the composite of all the physical and mental capacities) of the individual, relevant environmental characteristics, and the interactions between the individual and these characteristics. The goal of *Healthy Ageing* is to build, and maintain this functional ability for as long as possible. Healthy ageing in many ways supports the call to define health as the 'ability to adapt to one's environment'³.

The terms resilience and adaptability are often used across health and social sciences, without a universally agreed definition or measure of resilience or adaptability. As a result, there are variations in the measured prevalence of resilience, and variations in the factors found to be associated with resilience. Resilience can be understood not only as an outcome but also as a dynamic process of positive adaptation in the face of adversity. Through this workshop, we aim to understand the role of resilience in long-term health, how aspects of resilience can be measured and possible interventions that can support developing and sustaining resilience through the life course.

Themes for the 2 day workshop directly preceding the WUN-AGM 2018 at the University of Western Australia include:

- Understanding current knowledge on adaptability across the life course. Clarification on terminologies used in different disciplines. Measuring adaptability vs. reserve capacity.
- Measures that can be undertaken across the life course to slow the rate of decline of intrinsic capacity by sustaining adaptability to challenges.
- Inflammatory processes are key in age related changes occurring in the locomotor domain, and has been the focus of the In-FLAME network. The induction of inflammatory responses across the life course may also contribute to the pro-inflammatory trajectory of an individual. However, immune function has not been adequately considered in the existing domains of intrinsic capacity.
- Physical activity is important at every age, and this includes in later life and for healthy aging, specific activities such as muscle strengthening, and balance and stability exercises to prevent falls and maintain independent living. There is evidence supporting the need for building

³ Books Z. What is health? The ability to adapt. [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60456-6/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60456-6/abstract)



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locomotor capacity earlier in the life course, such as in working age adults, by providing interventions to increase levels of physical activity.

- How do the concepts of adaptability and intrinsic capacity apply to the ‘domains’⁴ of psychosocial function as set out by WHO?

At the workshop, there will be an opportunity to review interventions to support adaptability in clinical and community settings – e.g. case studies from Auckland, Beijing (Renmin University China), and South Africa (understanding resilience in later life in lower resource settings).

Outcomes

The WUN – WHO partnership provides a basis for planning and supporting the WHO ‘Decade of Healthy Ageing 2020-2030’. Key objectives of the WHO, following the *World Report on Ageing and Health*, include addressing the knowledge gaps related to healthy ageing and building platforms to create further networks. We have been successful in establishing strong working relationships with the WHO (Department of Ageing and Life course, and the Department of Maternal, Newborn, Child and Adolescent Health), and this has helped in dissemination of our research on a wider scale.

The proposed initiative also follows the strategy of the Global Challenge agreed at the Hong Kong meeting of the Public Health group, linking our expertise in developmental origins of health and disease to that of ageing, using a life course approach.

Expected outcomes include –

Published meeting report

Paper in high impact journal

Input into WHO decade of Healthy Ageing 2020-2030

Development of a collaborative proposal/grant application, and opportunities for early career researchers.

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⁴ Cesari M, Araujo de Carvalho I, Amuthavalli Thiyagarajan J, Cooper C, Martin FC, Reginster JY, Vellas B, Beard JR. Evidence for The Domains Supporting The Construct of Intrinsic Capacity. *The Journals of Gerontology: Series A*. 2018 <https://doi.org/10.1093/gerona/gly011>

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(Venue –the University Club of Western Australia)

Objectives:

- 1. Understand current knowledge on adaptability across the life course, clarification on terminologies used in different faculties and review best available measures for reserve capacity and adaptability.**
- 2. Review measures that can be undertaken across the life course to slow the rate of decline of intrinsic capacity by sustaining adaptability to the challenges.**
- 3. Develop ideas to promote and test the measures across diverse settings**
- 4. Develop a collaborative programme within the network to support opportunities for early career researchers and review funding opportunities.**

AGENDA

Day 1: Monday, 21 May 2018

8.30 – 9.00	Arrival and registration	
9.00 – 9.20	Welcoming remarks, Introduction of participants, expectations and review meeting objectives	Prof Mark Hanson
9:20-10.20	Session 1: Setting the scene and defining terminology	
	Healthy ageing, clarifying concepts (intrinsic capacity and functional ability)	Prof Mark Hanson
	Update from WHO meeting on trajectories of intrinsic capacity across the life course	Dr Chandni Maria Jacob
	Connecting intrinsic capacity across the life course to resilience and adaptability	Prof Steve Reid
10.20-10.40	Open discussion	Chair Prof Ngaire Kerse
	10.40 – 11.00 Break	
11.00-12.00	Session 2: Challenges of population Ageing - Highlighting current situation and priority areas in ageing research in respective contexts	
	Perspective from country with ageing population – China	Prof Jean Woo
	Perspective from African nations with younger demographics – Ghana	Prof C. Charles Mate-Kole
	Perspective from high income settings – (USA)	Ms Lauren Oberlin
12.00-12.30	Open discussion	Chair – Prof Leon Flicker
	12.30-13.30 Lunch	
13.30 – 14.30	Session 3: Promoting Adaptability across the life course (20 min talks)	
		Chair – Prof David Preen
	The first 1000 days and DOHaD perspective	Prof Valerie Verhasselt and Dr Donna Geddes
	Early childhood interventions	Prof Cate Taylor
	Factors in early life influencing adaptation (chronic stress in pregnancy)	Dr Demi Letsa
14.30-15.00	Case study 1 Domain of psychosocial function and cognition	
	Measures through the life course with focus on ageing in relation to the domain of cognition	Prof Anthony Hannan



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Open discussion

To discuss best available measures for reserve function in the domain of cognition and psychosocial function

15.00-15.40	Case study 2: the domain of locomotor function (musculo-skeletal system) (20 min talks)	
	Measures through the life course with focus on ageing in relation to the musculoskeletal system	Dr Nicholas Fuggle
	Inflammatory pathways and immune processes in ageing	Dr Erica Vieira
15.40 – 16.00 Break		
16.00-16.20	Socioeconomic determinants of intrinsic capacity across the life course	Prof Diana Kuh (by Skype)
16.20-16.40	Social pathways and health behaviours across the life course and effects on healthy ageing	Dr Kate O'Loughlin
16.40-17.00	Elderly care and Healthy Ageing	Prof Sue Yeandle
18.30 – Reception and working dinner (Venue TBC)		

Day 2: Tuesday, 22 May 2017

9:00-9.20	Open discussion based on topics covered in Day 1 <ul style="list-style-type: none"> To discuss best available measures for reserve function in the domains of locomotor function and immune function. What are the determinants of decline in intrinsic capacity for these systems? Measures? 	Chair Prof Steve Reid
<u>Factors influencing adaptability</u>		
9.20 – 10.30	Session 4: Promoting Adaptability: Physical activity based interventions to improve physical function across the life course (20 min talks)	
	Mid to Older aged adults	Prof Gavin Turrell
	Importance of physical activity across the life course: birth to adults	Dr Hayley Christian
	Complex interventions to prevent frailty	Dr Ruth Teh
10 min	Open discussion	Chair Prof Jean Woo
10.30-11.00 Break		
11.00 – 12.00	Session 4 cont.	
	The role of physical activity in promoting healthy ageing	Ms Lauren Oberlin
	Impact of mental health on physical activity and prevention of falls	Dr Sophia-Lorraine Allie
	Healthy ageing: Interactions between personal and environmental factors	Dr Ruby Yu, CUHK


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12.00 –	Maximising Health for older people	Prof Ngaire Kerse
12.30		
12.30 –	Open discussion	
13.00		
13.00 – 14.00 Lunch		
14.00 –	Open discussion and conclusions, next steps	Chair – Prof Nanne De Vries
16.00	Summary of workshop	
	Review of opportunities for funding, developing further collaborative projects, opportunities for early career researchers	
	16.00-17.00 – Closed meeting organising committee	

Time: 18.30-21.30 **Welcome to Western Australia special event**

Venue: Frasers Kings Park

Buses depart Pan Pacific at 18.15

The interdisciplinary workshop will be attended by academics, policy makers with expertise across multiple stages of the life course. While some experts will be presenting, others will chair sessions and lead group discussions.

We intend to limit the group size to 25 to 30 participants to encourage productive discussions. We anticipate that attendees from WUN partner institutions will fund their own travel. We have funds for a limited number of invitees from non-WUN universities, and to support a small number of early career researchers.

Participants are encouraged to circulate relevant material for pre-reading before the workshop.



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