Care Campus Training Module:

The Dynamics of Population Change – You are not alone

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Introduction

In this module, you will learn about the development of population structure and the main factors which influence it (fertility and mortality). You will also learn how this development will impact on the provision and financing of health and social care and on the roles of families in providing care and support for older family members.

Learning outcomes

The overall learning outcome is an acquirement of knowledge about the development of population structure and the demographic factors driving this development along with the impact of this development on the provision and financing of health and social care and on the roles of families in providing care and support for older family members.

However, your personal learning outcomes will to a great extent be determined by your own personal and professional circumstances and approach to the content of the module.

For example, you may simply be working through this module from a pure interest point of view – in other words "I have heard and read so much about this demographic development and the challenges it presents, that I want to know more about it".

Or you may be a (potential) family carer of an older member of your family and you therefore have a very personal interest in understanding these demographics and their implications.

Or you may be a professional carer and although you have a sound knowledge of caring for older people, the challenges of the future arising from this demographic development are unknown to you.

Content

This module comprises four distinct sections:

- An introduction to population change. This section considers world population change in terms of numbers and geographical distribution along with the dramatic increase in the number of people living in urban settings. It also considers the so-called ageing of our populations (increasing numbers and proportions of older people in our populations) and encourages you to think about the advantages/disadvantages of an old population.
- What is happening to our levels of fertility (childbearing)? This section looks at how the world has moved to low levels of childbearing (around or below 2 children per woman on average) and encourages you to think about the challenges of this and whether we should be having more children.
- Will we continue to live longer and longer? This section looks at the development in life expectancies around the world in the 20th century and the expected development in the 21st century. It encourages you to think about why this has happened and what may drive continued increases but also the broader implications of our long lives in areas such as work and retirement.
- The final section considers the implications of population change as described in the first three sections for the financing and provision of health and social care and the role of families in providing care and support for older family members, encouraging you to think about your own role and your own future in an ageing population.

Each section begins with a so-called **whiteboard or video link** which will take you through the key elements of each section. This is followed by a **reflective activity** which invites you to think about your own situation and views in relation to the specific topic. This leads to **context and data** where you can explore the data for your own country or other countries around the world. Each section has a number of **study activities**, which allow you to test your knowledge but also to reflect on what you have discovered in each section.

But we begin with an evaluation.

So, before embarking on your journey with us, just consider for a moment how you would rate your current knowledge about population change.

Would you say that your current knowledge about population change is:

a. Very good
b. Good
c. Average
d. Poor
e. Very poor

And now, let your journey begin. This is not a race, so take your time and enjoy.

AN INTRODUCTION TO POPULATION CHANGE

Activity: To introduce you to the dynamics of global population change and its implications, please click on the link below and watch the video. Once you have completed this, please proceed with the reflective activity.

Video Link: https://youtu.be/TrvloX_rkvI

Reflective activity: this is something you can just think about or you could write down your thoughts.

Think about the country you live in - what do you think it will be like growing old in your country?

The context: As we have seen from the video, the world is ageing – both at an individual and population level – and this ageing produces challenges and opportunities for governments and citizens across the globe.

But the world is also becoming increasingly urbanised with more and more people living in urban settings. In 1950, 70 per cent of people globally lived in rural settlements and just 30 per cent in urban settlements. Currently, around half of the world's population live in urban settings and by 2050, 66 per cent of the world's almost 10 billion inhabitants will be urban dwellers. This has implications for the way we deliver care and how we will continue to do so as societies age, particularly in rural areas.

You can check the data on urbanization by using the interactive maps provided in the link below.

Percentage of Population Residing in Urban Areas, 1950-2050 interactive map: https://public.tableau.com/views/UrbanPopulationEurope1950-2050/Dashboard1?:embed=y&:display_count=yes

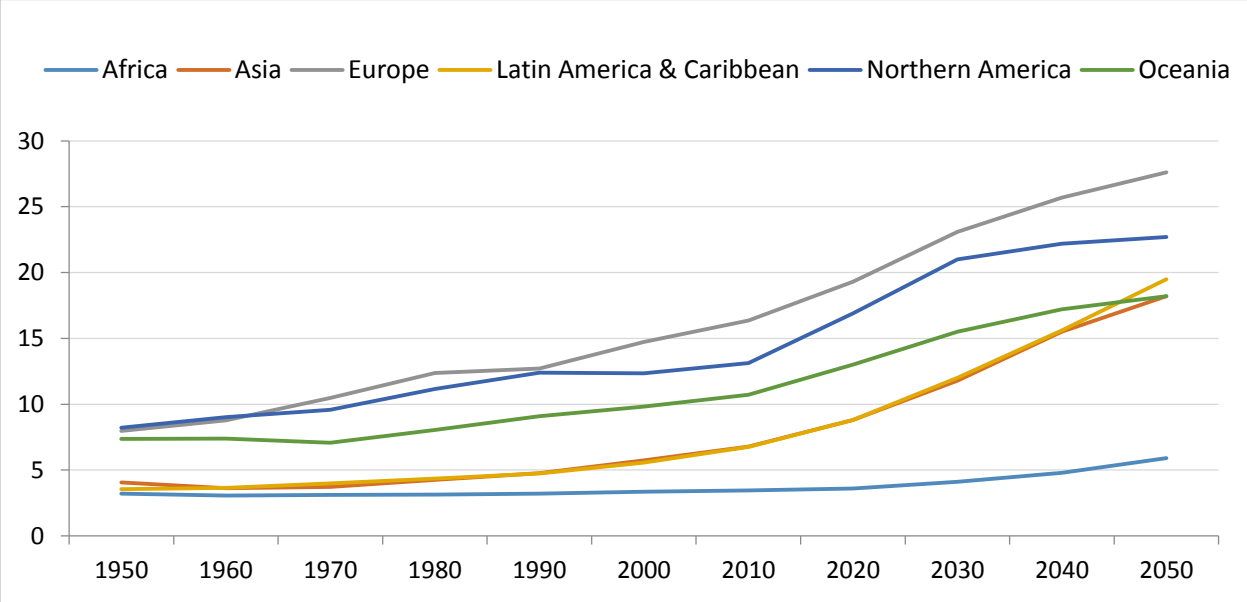
For the first half of the 20th century, the regions of the world had youthful populations, with the proportion of population aged 65 years and over ranging from 3.2 per cent in Africa to 8.2 per cent in North America. Not until 1970 did we see any region attain more than 10 per cent of its population aged 65 years and over (Europe at 10.5 per cent). In fact, North America (12.3 per cent) and Europe (14.7 per cent) were the only regions at the end of the 20th century to have more than 10 per cent of their populations aged 65 years and over. By 2015, Oceania (11.9per cent) has joined the aged regions of the world, but elsewhere proportions aged 65 years and over remain below 10 per cent, with Africa having increased only modestly over 65 years to 3.5 per cent of its population aged 65 years and over.

By 2025, the global populations outside Africa will all be aged, and the next 35 years are predicted to witness dramatic increases in the number and proportion of older people in all regions of the world outside Africa. By 2050, almost 28 per cent of Europe's population is expected to be aged 65 years and over, followed by North America (almost 23 per cent), Latin America (almost 20 per cent) and Asia (18 per cent). Africa will still have less than 6 per cent of its population aged over 65 years.

You can check the data on age composition by using the interactive pyramids provided in the link below.

Population pyramids- individual European countries, 1950-2050: https://public.tableau.com/views/PopulationPyramidEurope/Dashboard1?:embed=y&:display_count=yes

Figure 1: Percentage of the population aged 65 years and over, 1950-2050, by region.



To watch a summary of this module section, please click on the link below and watch the whiteboard session: https://www.youtube.com/watch?v=BX_e58OnSKM

Reflective activity: this is something you can just think about or you could write down your thoughts.

Seen from your own perspective, what are the advantages/disadvantages of a predominantly old population?

Study Activity: Using the interactive maps and pyramids in this section, find out for your own country:

a) The proportion of the population living in urban settings.
b) The proportion of the population aged over 65 years in 2015.
c) The proportion of the population aged over 65 years in 2025.

WHAT IS HAPPENING TO OUR LEVELS OF FERTILITY (CHILDBEARING)?

Activity: To introduce you to the section on fertility levels, please click on the link below and watch the whiteboard session. Once you have completed this, please proceed with the reflective activity.

Whiteboard Link: https://www.youtube.com/watch?v=vT4D39ZzkTQ

Reflective activity: this is something you can just think about or you could write down your thoughts.

What do you think is an ideal number of children for a family in your country? What do you think influences decisions on the number of children people decide to have?

The context: Low levels of fertility were experienced from around 1970 and for the remainder of the 20th century across Northern and Western Europe and Northern America, and these were – on the basis of historical experience – quite rightly regarded as unprecedented and unlikely to continue. Elsewhere in the 1980s, fertility levels remained relatively high and were not expected to decline in the immediate future. As a result, the world's population was expected to reach 12 billion by the middle of the 21st century and even over 20 billion by the end of the 21st century.

Table 1: Total Fertility Rate

Region	Total Fertility				
	1970-1975	1980-1985	1990-1995	2000-2005	2010-2015
Northern Europe	2.05	1.80	1.80	1.66	1.87
Southern Europe	2.54	1.83	1.41	1.37	1.41
Western Europe	1.96	1.62	1.49	1.59	1.66
Northern America	2.01	1.79	2.00	1.99	1.86
Asia	5.06	3.70	2.96	2.39	2.20

Thus, population forecasts significantly overestimated world population, and in some cases the regional populations. Fertility levels have remained low or increased only moderately in Northern and Western Europe and Northern America; they declined to extremely low levels around just 1 in Southern Europe; and even more unexpectedly they have declined dramatically in Asia, coming down to just above replacement level in the region as a whole and to very low levels in some countries such as Korea (around 1.2), Hong Kong (below 1.0) and Singapore (around 1.3) by the early years of the 20th century.

These global fertility declines are the result of profound social changes, including changing values and attitudes as well as behaviour to family formation and childbearing.

Reflective activity: this is something you can just think about or you could write down your thoughts.

What do you think are the advantages, if any, of low levels of childbearing?

What do you think are the disadvantages, if any, of low levels of childbearing?

Study Activity:

a) Where in the world was the lowest level of fertility in 1970-75 and where was the highest level?
b) Which region of the world has experienced the most dramatic decline in fertility since 1970-75?

WILL WE CONTINUE TO LIVE LONGER AND LONGER?

Activity: To introduce you to the section on life expectancy, please click on the link below and watch the whiteboard session. Once you have completed this, please proceed with the reflective activity.

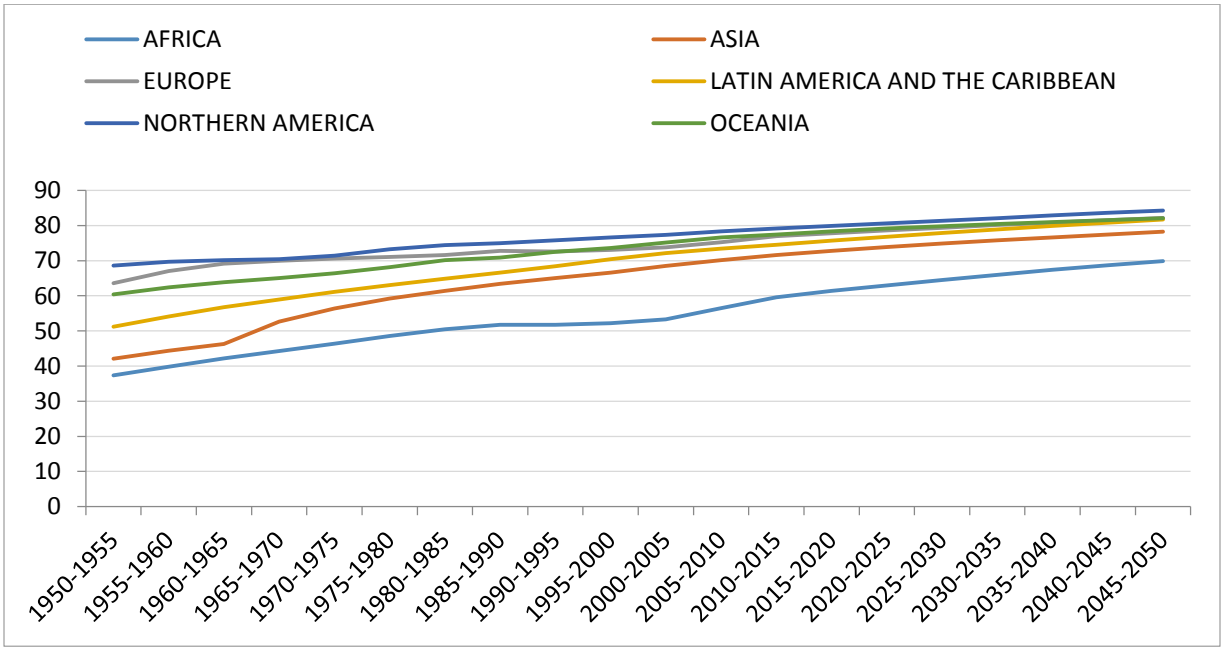
Whiteboard Link: https://www.youtube.com/watch?v=QMKYyX6n-Lg

Reflective activity: this is something you can just think about or you could write down your thoughts.

How would you plan your life if you knew you would live to over 100 years – in good health until the last few years?

The context: Life expectancies increased quite dramatically during the 20th century and are expected to continue to do so in the 21st century. Around the world, new generations can expect to live longer than previous generations, and the rate of increase is surprisingly strong and constant. At the global level, life expectancies at birth for both sexes combined have increased from around 47 years in the mid-20th century to around 70 years today, and are expected to rise to around 77 years by the mid-21st century. In Europe, life expectancies at birth have increased from 64 years in 1950 to around 76 years today, and are expected to reach around 82 years by the middle of the 21st century.

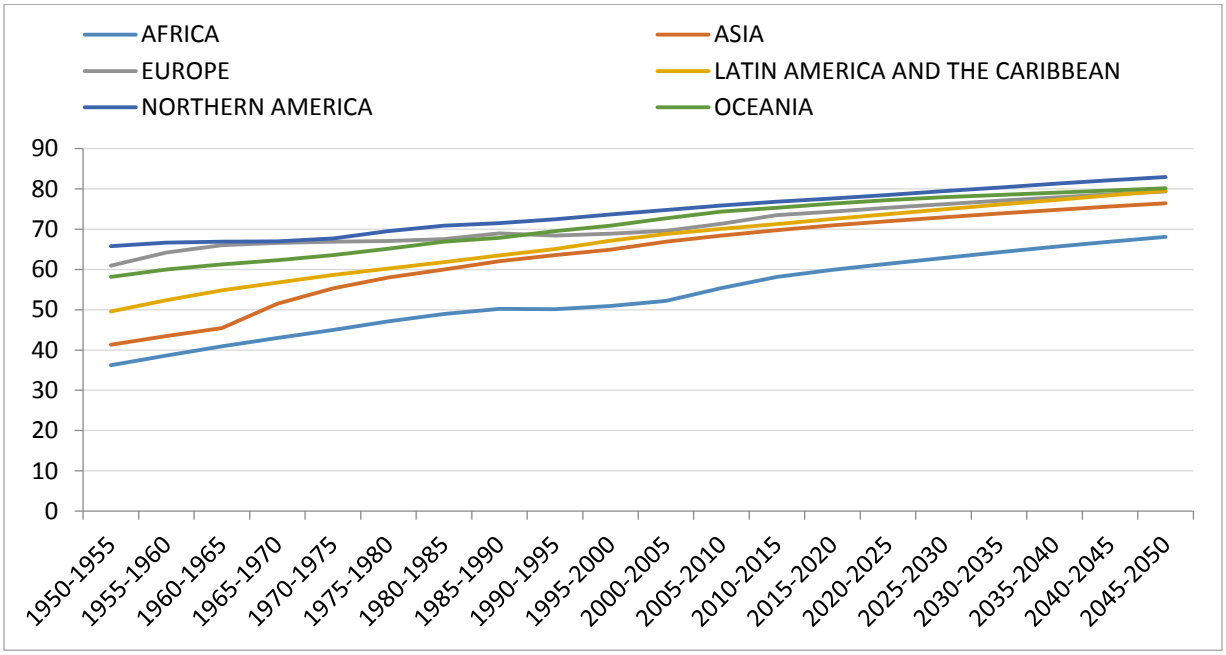
Figure 2: Life expectancy at birth, both sexes, 1950 -2050, by region



Elsewhere, most countries of the world also experienced significant mortality declines after 1950, which led to marked increases in life expectancies at birth for both males and females.

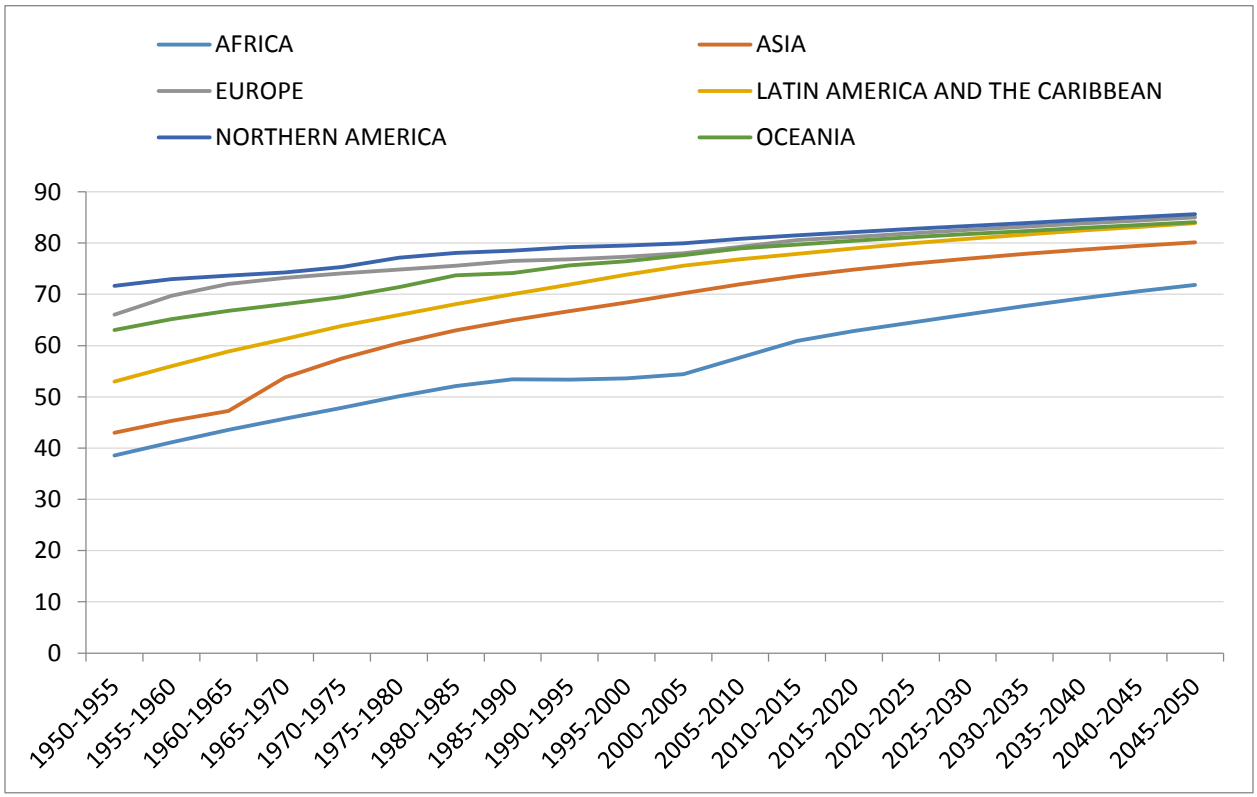
Life expectancies for males increased from between 36 years (Africa) and 66 years (Northern America) in 1950 to between 60 years (Africa) and 78 years (Northern America) in 2015. For females, increases for females have been from between 38 years (Africa) and 72 years (Northern America) in 1950 to between 62 years (Africa) and 82 years (northern America) in 2015.

Figure 3: Life expectancy at birth for males, 1950 -2050, by region



Female life expectancy continues to exceed male life expectancy in all regions at all points in time 1950-2015. In 1950, the gender gap was about twice as high (6 years) in the more developed regions of the world (Europe, Northern America and Oceania) than in the developing regions (Africa, Latin America and Asia), a reflection of high levels of mortality across the life course for both males and females in the developing regions. So, life expectancy at birth for males in Africa in the 1950s was around 37 years compared with around 40 years for females. In Europe, the corresponding life expectancies in 1950 were 62 and 68 years for males and females respectively.

Figure 4: Life expectancy at birth for females, 1950 -2050, by region



By 2015, the gender gap has increased in absolute terms in Europe and the developing regions, while it has fallen in Africa. So, life expectancies in Africa had increased to 56 years for males and 58 for females, a modest reduction in the gender gap, while in Europe, male life expectancy had increased to 73 years and female life expectancy to 80 years, a modest increase in the gender gap.

You can check the data on life expectancies by using the interactive information in the link below.

Life Expectancies in Europe 1950-2050:
https://public.tableau.com/profile/publish/LifeExpectancyinEurope/Dashboard2#!/publish-confirm

Reflective activity: this is something you can just think about or you could write down your thoughts.

Why are we living so much longer than our grandparents? Why are there differences in life expectancy in different groups within a population?

Study Activity: Using the interactive data on life expectancies in Europe in this section, find out for your own country:

a) Life expectancy at birth for males and females respectively in 1950-55.
b) The difference in life expectancy at birth for males and females respectively in 2015-20.
c) The increase in life expectancy at birth for males and females respectively from 2015-20 to 2045-50.

The context: The verified oldest person ever to have lived is Jeanne Calment, who died in France in 1997 aged 122 years 164 days. The verified oldest person still alive (as of May 16th 2016) is Emma Morano of Italy – a youngster at 116 years and 170 days at the time. The oldest verified person in the United Kingdom was Charlotte Hughes, who died in 1993 aged 115 years and 228 days. The oldest living person in the United Kingdom as of May 16th 2016 was Gladys Hooper aged 113 years and 120 days. The last surviving Briton born in the 19th century was Grace Jones who died on November 14th 2014. Living in three centuries is nothing new. Margaret Neve lived in the 18th, 19th and 20th centuries (1792-1903) and is one of the earliest verified of such cases, and large proportions of those born towards the end of the 20th century will live into the 22nd century.

What of the future? Can we expect the trends of the last 170 years or so – with increasing life expectancies at birth and at age 65, for example – to continue into the future? How will the changes in life expectancy affect the number of centenarians moving further into and through the 21st century? And what if late-life mortality improves even more than official forecasts suggest?

How could/should people begin to prepare themselves for such long lives? At the individual level the trend presents a challenge to life course planning. It is also a challenge to current concepts of old age and retirement (is retirement even at age 75 years sustainable?). Family dynamics will be challenged by the survival of these extreme aged generations delaying

intergenerational succession and inheritance and depending on smaller families for support in frail and dependent old age. The prospect of declining population size as well as this new demography of centenarians raises even more and different issues as workforces contract.

Reflective activity: this is something you can just think about or you could write down your thoughts.

In a population where life expectancy at birth is more than 100 years, how should we plan our lives in terms of education, marriage, childbearing, work and retirement?

THE IMPLICATIONS OF POPULATION CHANGE FOR THE FINANCING AND PROVISION OF HEALTH AND SOCIAL CARE

Activity: To introduce you to the section on health and social care provision, please click on the link below and watch the whiteboard session. Once you have completed this, please proceed with the reflective activity.

Whiteboard Link: https://www.youtube.com/watch?v=iCt3iPX9s0I

Reflective activity: this is something you can just think about or you could write down your thoughts.

How would you like to live and be cared for in the final years of your life as you become more dependent and less active?

The context: As populations in the industrialised world aged, the final decades of the 20th century witnessed comprehensive changes in the structure and role of the traditional family and in the division of supportive labour between the family and the welfare state.

In an ageing population, the child-parent relationship moves from one of dependency to one of adult relationship. As family structures change, an older person in need of familial support may be faced with a complex of potential providers of support, and the role of reconstituted or step families in caring for older adults is then a central issue. However, the dominant care relationship of blood-related daughter for mother seems to remain central even within reconstituted or step families. Whilst there is a growing awareness of the possibilities of looser-knit, divorce-extended families, when it comes to 'the crunch' the availability of care will usually depend on access to close 'blood ties'. In addition, the child-parent dyad becomes one not of dependency but of mutual adult relationships.

The structure of our families of the future and the roles within the family in relation to providing support and care for older family members will continue to change as we move into the 21st century. Declining levels of mortality and increasing life expectancies mean we shall live in a future of increasing numbers of older people living longer and longer, thereby presenting societies and families with the challenge of providing health and social care to more old people and for longer time.

Reflective activity: this is something you can just think about or you could write down your thoughts.

How can we maintain health among the older populations of the future for as long as possible?

How do we ensure sufficient numbers of qualified health and social care professionals to provide health and social care for our older populations of the future?

How will this population ageing impact the role of the family with regard to providing support and care in the home for older family members?

Let us end with an evaluation.

Having completed – and hopefully enjoyed – your journey with us, just consider for a moment how you would now rate your knowledge about population change.

Would you now say that your knowledge about population change is:

a. Much better than when I started
b. A bit better than when I started
c. About the same as it was when I started

And finally, are there aspects of population change that you would like to have encountered on your journey but which we failed to cover?

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Suggested readings:

Harper, S. (2014). Ageing societies, Basingstoke: Routledge.

Harper, S. (2016). How Population Change Will Transform Our World. Oxford University Press.

Leeson, G. W. (2014). Increasing Longevity and the New Demography of Death. International Journal of Population Research, 2014.

Leeson, G. (2016) The impact of mortality development on the number of centenarians in England and Wales, Journal of Population Research, Springer, 23 September 2016, pp. 1-15.

Leeson, G. W. (2014). Future prospects for longevity. Post reproductive health, 20(1), 11-15.

Suggested blog posts:

Leeson, G.W. Inequalities in death, http://www.ageing.ox.ac.uk/blog/2016-inequalities-in-death-Leeson-blog

Howse, K. Dementia as a cause of death, http://www.ageing.ox.ac.uk/blog/2016-Howse-Dementia-as-a-cause-of-death

Petersen, A.S. Co-living with robots in a care home, http://www.ageing.ox.ac.uk/blog/2016-Petersen-Paro-Blog

Harper, S. The UK's Ageing Population: translating academic evidence into policy, http://www.ageing.ox.ac.uk/blog/2016-Harper-Blog-The%20UK's%20Ageing%20population

Hoffman, J. Eighty two years of age and another sixty three to go – imagine it....(!?), http://www.ageing.ox.ac.uk/blog/2016-Blog-Hoffman-82%20years%20of%20age%20and%20another%2063%20to%20go

Hamblin, K. Keeping in touch with technology? Using telecare and assistive technology to support older people with dual sensory impairment, http://www.ageing.ox.ac.uk/blog/2016-Keeping-in-touch-with-Technology-BLOG

Leeson, G.W. Is low fertility a problem? http://www.ageing.ox.ac.uk/blog/2015-leeson-blog

Leeson, G.W. Does it matter where we live? From ¾ to 6.4 billion! http://www.ageing.ox.ac.uk/blog/Does-it-matter-where-we-live

Leeson, G.W. Does it matter where we live, again again? http://www.ageing.ox.ac.uk/blog/2015-Does-it-matter-where-we-live-again-again-Blog

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