ACT Government
Health

ACT Population Health Bulletin

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Contents

Upcoming Events

- 17 March 2017 - National Ride to School Day
- 17-24 March 2017 - Canberra Walk and Ride Week
- 19 May 2017 - National Walk Safely to School Day

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Introduction

A message from the ACT Chief Health Officer

This issue of the Bulletin is dedicated to a topic which affects us all – ageing. The demographic transition to lower mortality in early life and consequent longer life expectancy is one of the great success stories of population health and, more recently, of advances in health care. Compounding this trend to longer lives in the ACT is the relatively recent trend for our retirees to remain resident in the Territory, rather than to relocate elsewhere, as was previously the more common path. The result is that Canberra is growing older faster than the rest of Australia, at least from a demographic sense. This has, in turn, led to one of our key population health challenges now and into the future: how can we maximise health and wellbeing in our ageing population? This is a public good in itself, but also has the potential for large economic and social benefits, including savings in health service expenditure.

As we age, patterns of disease, hospitalisation and causes of death change. Whilst many illnesses become more prevalent with age, many are preventable or at least modifiable through health protection and health promotion and preventative programs. Screening for certain cancers as well as early diagnosis of treatable conditions such as diabetes or the recognition of modifiable risk factors for both cardiovascular disease and cognitive decline are important for decreasing or at least delaying the burden of disease in this age group. Vaccination has benefits beyond the well known and important disease protection in childhood. For older Canberrans, influenza, pneumococcal and Herpes zoster (shingles) vaccines are also recommended. Residents and staff of Aged Care Facilities are vulnerable to outbreaks of respiratory and gastrointestinal illness and ACT Health, in collaboration with facility management, have instituted novel and successful prevention and response programs in recent years across Canberra. For a variety of reasons the elderly are also particularly vulnerable to our warming climate and there will need to be specific adaptation and mitigation strategies in coming years during our increasingly warm summer months.

The main take home message from this Issue of the Bulletin is that whilst ageing brings many health challenges, these challenges are not an inevitable result of the ageing process. In fact, the keys to healthy ageing share many similarities to achieving and maintaining good health at any age – eat well (and not too much), keep moving (and add some muscle strengthening exercises), stay socially connected, learn something new from time to time and be positive in your outlook. Each of these broad topics are covered in articles in this Issue.

Thanks to our two guest editors, Paula Sutton and Ingrid Coote and to all the authors. A special thank you to Dr Sue Packer for her positive and personal message on the health benefits of volunteering.

Dr Paul Kelly
ACT Chief Health Officer
February 2017

Breaking News

Announcement of Healthy Ageing Grants

On 31 January 2017, Yvette Berry MLA announced successful applicants for healthy ageing grants. Healthy Ageing Grants aim to support programs which reduce age-related chronic disease risk factors and promote healthy lifestyles for older Canberrans.

The two successful programs are aimed at reducing onset of Alzheimer's disease and supporting older Canberrans in our community to stay fit and healthy.

Image: Exercise program. Amanda Mills. Public Health Image Library

"With an ageing population, we know that age-related chronic disease is an ever-increasing trend that is putting pressure on our health system." Minister Berry said

"That's why I am pleased to announce that the government is making a significant investment through our Healthy Ageing Grants to reduce the lifestyle risk factors that contribute to age-related chronic disease."

Alzheimer's Australia ACT will receive $435,000 over three years to deliver the 'Fill your Bucket' program to encourage people to undertake daily challenges to maintain brain health and function.

The program will be built around evidence-based risk reduction strategies, and will help people understand that looking after brain, body and heart will provide the best chance for good cognitive health into older age.

Belconnen Arts Centre will receive $107,000 over three years to expand its 'Dance for Wellbeing' program, to assist hundreds of older Canberrans to improve their physical activity levels, balance, strength and social and emotional well-being.

This program is about keeping older Canberrans active in a fun way, which provides the best chance for positive cognitive health into older age.

ACT performs strongly in national healthy food environment study

On 20 February 2017, findings from the Government Healthy Food Environment Policy Index – Australia 2016 study were released. The study, led by the Global Obesity Centre, Deakin University, assessed how governments across Australia are implementing globally recommended policies to tackle obesity and create healthier food environments.

The ACT Government was recognised as a leader in a number of areas including requiring fast food chains to display energy content, restricting advertising of unhealthy food on government buses, monitoring unhealthy food marketing to children, setting clear targets for obesity rates and showing clear leadership through the whole of government Healthy Weight Initiative.

The study showed a few areas for improvement such as increasing the availability of in-store healthy foods, which the ACT Government will be working on through collaborative arrangements with local food businesses. The ACT Government has committed $250,000 to the project which encourages local businesses to make healthier food and drink choices more readily available, and reduce unhealthy marketing.

The findings from the study will be considered by the ACT Government in taking forward its preventative health agenda. This includes the development of a Preventative Health Strategy and appointment of a Preventative Health Coordinator.

Image: Government Healthy Food Environment Policy Index - Australia 2016 Report

Acronyms and Resources

Acronyms

ACAT	Aged Care Assessment Team
ACIR	Australian Childhood Immunisation Register
AIR	Australian Immunisation Register
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ApoE	Apolipoprotein E
CDC	Communicable Disease Control
CERG	Community and Expert Reference Group
CHSP	Commonwealth Home Support Program
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular diseases
DALY	Disability-adjusted life-year
DHA	Docosahexaenoic acid
EPA	Eicosapentaenoic acid
HALO	Health, Age, Lifestyle and Occupation
HPHP	Healthy Parks Healthy People
HPV	Human papillomavirus
ILI	Influenza-like illness
IPCC	Inter-governmental Panel on Climate Change
IPD	Invasive pneumococcal disease
MCD	Mild cognitive disorders
MCI	Mild cognitive impairment
MMR	Measles, mumps, rubella
MVPA	Moderate to vigorous physical activity
NHMRC	National Health and Medical Research Council
NIP	National Immunisation Program
PAGs	Physical activity guidelines
PATH	Personality and Total Health (through life)
PHN	Post-herpetic neuralgia
RACF	Residential Aged Care Facility
TTCP	Transitional Therapy and Care Program
WHO	World Health Organization
YLD	Years of life lived with a disability
YLL	Years of life lost
YTD	Year to date

Resources

- Healthy Canberra: ACT Chief Health Officer's Report - http://www.health.act.gov.au/datapublications/reports/chief-health-officers-report-2016
- HealthStats ACT - http://stats.health.act.gov.au/
- Towards Zero Growth: Healthy Weight Action Plan - http://www.health.act.gov.au/sites/default/files/Towards%20Zero%20Growth%20Healthy%20Weight%20Action%20Plan.pdf
- Health and Wellbeing of Older Persons Report - http://health.act.gov.au/sites/default/files//Health%20and%20Wellbeing%20of%20Older%20Persons%20in%20the%20ACT%20Report.pdf
- ACT Government. 2015, Active Ageing Framework 2015-18 http://www.communityservices.act.gov.au/__data/assets/pdf_file/0009/795258/Active-Ageing-Framework_4.pdf
- Demography ACT, ACT Population Projections: 2013 to 2062 - http://apps.treasury.act.gov.au/demography/projections/act
- ACT Government - Statement of Planning Intent http://www.planning.act.gov.au/__data/assets/pdf_file/0006/898278/Statement_of_Planning_Intent_2016-web-Access.pdf
- ABS National Health Survey - http://www.abs.gov.au/ausstats/abs@.nsf/PrimaryMainFeatures/4364.0.55.001?OpenDocument
- ABS General Social Survey - http://www.abs.gov.au/ausstats/abs@.nsf/mf/4159.0
- Gastroenteritis Fact Sheet - http://www.health.act.gov.au/research-publications/fact-sheets
- Guidelines for the public health management of gastroenteritis outbreaks due to norovirus or suspected viral agents in Australia - http://www.health.gov.au/internet/main/publishing.nsf/content/cda-cdna-norovirus.htm
- ACT Health Influenza Fact Sheet - http://www.health.act.gov.au/research-publications/fact-sheets
- Government Healthy Food Environment Policy Index – Australia 2016 study - http://www.opc.org.au/food-policy-index.aspx
- Zoster vaccine for Australian adults factsheet - http://www.ncirs.edu.au/assets/provider_resources/fact-sheets/herpes-zoster-vaccine-fact-sheet.pdf
- PATH Through Life Project - http://crahw.anu.edu.au/research/projects/personality-total-health-path-through-life
- National Health and Medical Research Council - Eat for Health: Australian Dietary Guidelines - https://www.nhmrc.gov.au/guidelines-publications/n55
- Climate change impacts in the Australian Capital Territory - https://www.environment.gov.au/climate-change/climate-science/impacts/act

Demography of the ACT - focus on an ageing population

Australians are living longer than ever before and the ACT currently has the longest life expectancy in the nation.[1] Our relatively high income and education levels, as well as factors such as low smoking rates, may all contribute to this. Although ageing is associated with a rise in chronic illness, many older ACT residents (those aged 65 years or more) report enjoying good health[2] and continue to actively contribute to their community through voluntary and paid employment, extended family support, and participation in community, social, sporting and cultural activities.

People born during the "Baby Boomer" years after the Second World War (generally considered to be between 1946 and 1964) began to reach age 65 around 2010. Along with increasing life expectancy, this has accelerated the ageing of the ACT population. The graphic below depicts the 'shape' of the ACT population at three time points (1975, 2015 and the projected distribution in 2055), as well as the growth in our population during this period. It shows that over time, older age groups are increasingly making up a larger proportion of our community compared to younger age groups, and the number and proportion of older persons is expected to continue to increase over the next few decades.

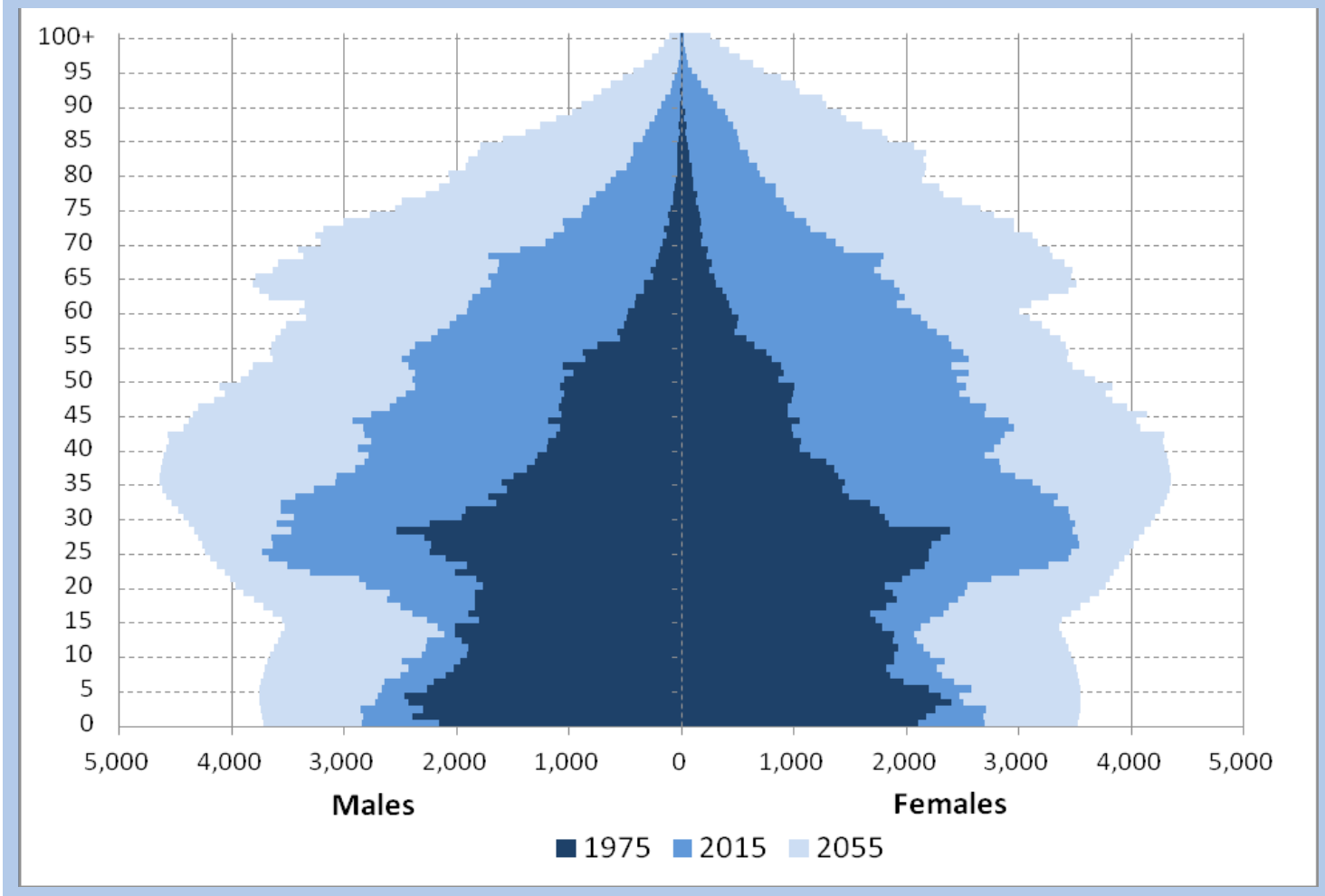

Figure 1: ACT Population distribution by sex, 1975, 2015 and 2055* Source: Demography ACT, ACT Population Projections: 2013 to 2062. http://apps.treasury.act.gov.au/demography/projections/act

***2015 and 2055 populations are projected**

In 2015, 12 percent of the ACT population was estimated to be aged 65 years and over, compared with 3% in 1975. By 2055, more than one in five (21 percent) ACT residents is expected to be aged 65 years or more. Women tend to live slightly longer than men, and in 2015, they made up just over half (54.1 percent) of the ACT's older people. Between 2015 and 2055, the number of ACT people aged 65 years or more is projected to almost triple (from 47,120 to 136,637), while the number of people aged 85 years or more is expected to increase almost five-fold (from 5,761 to 27,838).[3]

The growth in the numbers and percentage of people aged 65 years or more has varied across ACT regions. The graph below shows that since 1996, this proportion has shown a modest decrease in North Canberra and South Canberra, but in all other areas has shown increases over this period. In 2015, Weston Creek had the largest percentage of older residents, with more than one in five (20.8 percent) aged 65 years or more.[4] However, in terms of actual numbers, Belconnen had the most older residents (around 13,000), followed by Tuggeranong (around 9,500).

Demography of the ACT - focus on an ageing population

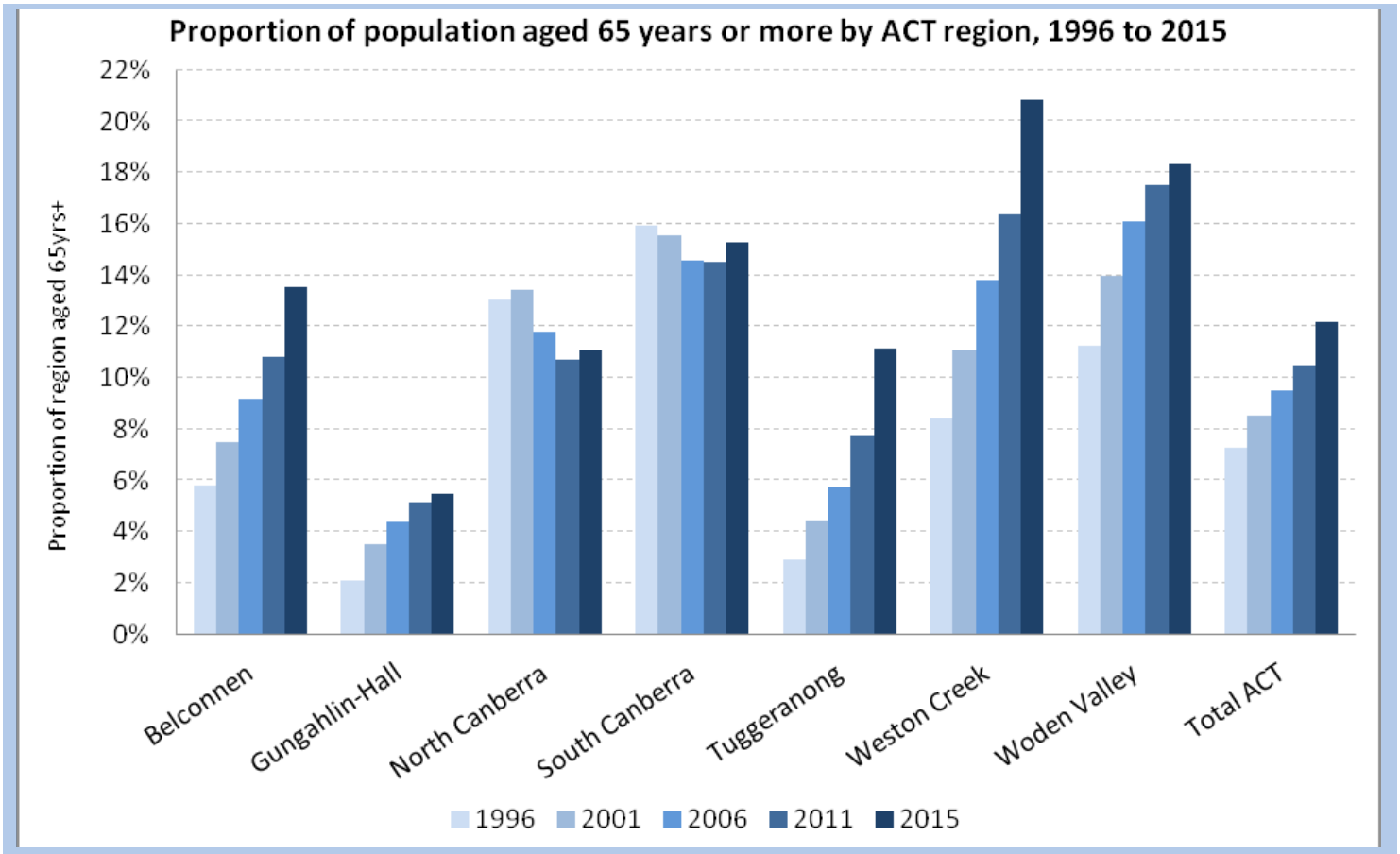

Figure 2: Proportion of population aged 65 years or more by ACT region. Source: ABS, Population by Age and Sex, Regions of Australia (2016), cat. no. 3235.0

Most ACT older people were born in Australia (57 percent), or Europe (29 percent). The majority of those who were not born in Australia (87 percent) indicated that they were proficient in English; however, almost 1,900 (around 12 percent) were not able to speak English well, or did not speak it at all. This is important because difficulties in speaking and understanding English can restrict community involvement and access to services. Those who had English language difficulties most frequently spoke Italian (13 percent), Greek (10 percent), Spanish (9 percent), Croatian (9 percent), Mandarin (7 percent), Cantonese (7 percent), or Vietnamese (7 percent).[5]

Around 68 percent of ACT people aged 65 years or more live with a family member or members (most commonly with a spouse or partner), while around 32 percent live alone.[6] In 2015, approximately 4 percent of ACT older people lived in a residential aged care facility (RACF), and women made up just over 70 percent of ACT RACF residents overall. As people continued to age, they were more likely to need RACF, with almost one third (33 percent) of ACT residents aged 85 years or more living in residential care.[7]

While most (77 percent) older adults in the ACT report being in good, very good or excellent health,[8] ageing is associated with a greater likelihood of many chronic diseases, including diabetes, cardiovascular disease, cancer, respiratory disease, musculoskeletal disease and dementia. Understanding the demography of our older population, including current population estimates and future projections, will assist the ACT government and health providers to plan for changes in disease burden (including increases and decreases in specific health conditions). It will also help us determine where to concentrate most of our chronic disease prevention efforts and where best to place health services, as well as with estimating future costs of health care for our older population.

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ACT population ageing and the burden of disease

Mirka Smith, Epidemiology Section, Population Health Protection & Prevention

Chronic, non-communicable health conditions now make up the majority of the disease burden in most developed societies, and this is also the case in the ACT. Although the majority of ACT older people (those aged 65 years or more) report being in good to excellent health, the incidence and prevalence of most chronic diseases increases with population ageing. This has obvious repercussions not only for individuals and their families or carers, but also for our health system. It is important to consider that a substantial proportion of the chronic disease burden can be avoided, reduced or delayed through a preventive health approach, including clearly identified lifestyle modification strategies such as smoking cessation, healthy eating and sufficient physical activity.[1]

Life expectancy and health

Australians are living longer than ever before, and the ACT continues to have the longest life expectancy in the nation.[2] Although increasing life expectancy tends to be accompanied by increased incidence and prevalence of many chronic diseases, Australians are continuing to live longer with more years free of disability,[3] and the majority (77 percent) of ACT residents aged 65 years or more report being in good to excellent health.[4] Nevertheless, recent data suggest that we are at risk of reversing our health gains if we do not continue to target the rise in risk factors such as obesity and (largely lifestyle-related) chronic diseases.[5]

What does 'burden of disease' mean?

The concept of burden of disease allows us to examine the effects of different health conditions on a population. Burden of disease is usually assessed in terms of living with an illness or injury (the non-fatal burden, measured in 'years of life lived with a disability', or YLD) and dying from that illness or injury (the fatal burden, measured in 'years of life lost', or YLL). It also allows us to approximate the contribution that risk factors (such as smoking, or insufficient physical activity) may make to the disease burden. Adding the YLD and the YLL together produces the disability-adjusted life-year, or DALY, which estimates the total burden of disease.[6]

The disease burden for particular conditions or injuries can vary by age, sex and other population characteristics. Older people are more likely to experience a range of chronic diseases, many of which can affect quality of life and contribute to disability and the need for care. This means that population ageing won't just have an impact on the health status of our older people – it will also affect their families and carers, and present unique challenges for our healthcare system.

Image: Hospital treatment. ACT Health

Ageing and the burden of disease in the ACT

The Australian Institute of Health and Welfare's (AIHW) most recent Burden of Disease Study[6] indicates that in 2011, cardiovascular diseases (CVDs) and cancers contributed most to the disease burden in ACT people aged 65 years or more. CVDs were the largest contributor to the total disease burden among ACT residents aged 65 years and over (24.0 percent of the DALYs for this age group), followed by cancers (21.8 percent). In terms of the fatal burden, or YLL, around a third (33.2 percent) was due to cancers, with almost another third (30.5 percent) due to CVDs. The graph below depicts the changes in total selected disease burden (DALY) between age groups of ACT older people. It shows that while the total CVD and neurological disease burden increased with advancing age, the total burden due to cancers, musculoskeletal and respiratory conditions tended to decline as people got older.

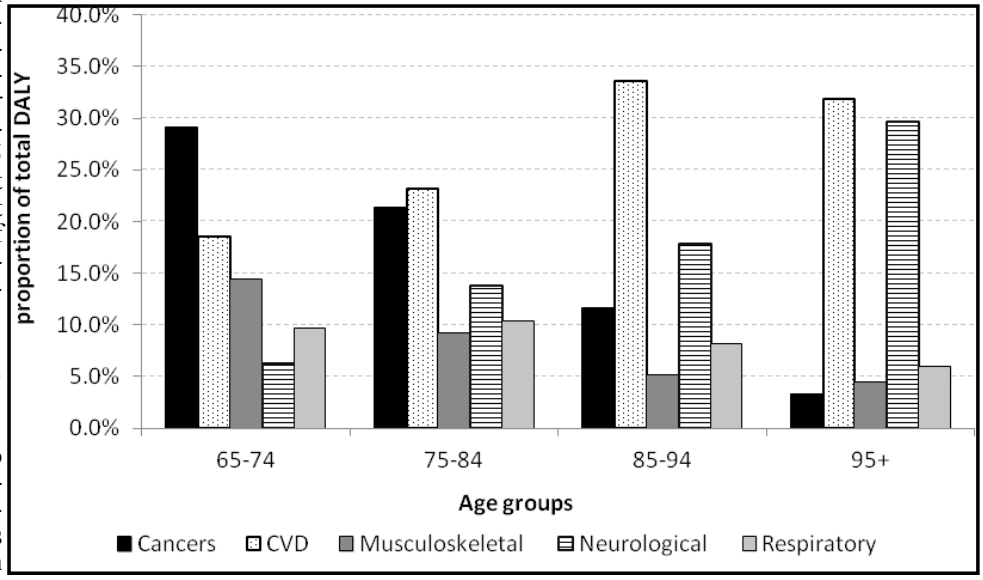

Figure 1: Proportion of total disease burden for selected health condition, by age group, ACT residents aged 65 years or more, 2011. Source: AIHW Australian Burden of Disease Study 2011, state and territory table data, ACT

The economic burden of chronic diseases

Chronic diseases cost the nation a lot of money, and while detailed disease-specific ACT expenditure data is not available, it is reasonable to assume that they consume a considerable slice of the ACT's total health budget. AIHW data indicates that in 2008-09, Australia spent almost $126 billion on health (constant prices).[7] By 2011-12, this figure had risen to over $140 billion, or 9.5 percent of the gross domestic product – 1.7 times higher than in 2001-02, and increasing faster than population growth.[3]

Most recent estimates for specific disease groups (2008-09) indicate that chronic diseases such as CVD, musculoskeletal conditions, cancer and diabetes received substantial amounts of health spending, and that it is often highest for those aged 65 years or more. However, it is worth noting that ageing alone cannot solely account for increases in health expenditure among older age groups. Over the last 25 years, Australia's health spending has risen much more rapidly than population growth in the older age groups. The availability of more effective and expensive treatments for a range of conditions, along with higher community expectations regarding access to these therapies, may also be contributing to rapid rise in health expenditure.[3]

ACT population ageing and the burden of disease *(continued)*

Nationally, AIHW estimates that in 2008-09:

- CVD was the most expensive of the disease groups, costing Australia $7.6 billion (12 percent of total allocated healthcare spending);[8]
- musculoskeletal conditions cost Australia almost $5.7 billion (9 percent of the total heathcare budget);[9]
- cancer cost the nation over $4.5 billion (excluding population screening, which cost a further $332 million), or 7 percent of total healthcare spending;[10]
- diabetes cost another $1.5 billion, or 2.3 percent of national healthcare spending.[11]

As a broadly indicative measure only, if these national proportions were applied to the ACT's total health expenditure (of $2,960 million in 2014-15[12]), it would suggest that around $355 million may have been spent on CVD, $266 million on musculoskeletal conditions, $207 million on cancer and $68 million on diabetes. Although these figures are unlikely to be very accurate due to many factors, including the age of the national estimates (2008-09), as well as variability in healthcare systems and differences in population structure, geographical classification and socioeconomics, they do provide a rough guide to the magnitude of the costs which may be associated with the chronic disease burden in the ACT.

ACT chronic disease hospitalisations

The graph below represents the proportion of the ACT population hospitalised in 2014-15 for selected chronic diseases, and shows the impact these have on different age groups. While younger people made up the bulk of ACT hospitalisations for asthma, oral disease and depression, older ACT residents were more commonly hospitalised for chronic kidney disease, osteoarthritis, coronary heart disease, colorectal and lung cancers, cerebrovascular disease, osteoporosis and chronic obstructive pulmonary disease (COPD), with around 50-60 percent of hospitalisations for these conditions being for ACT residents aged 65-84 years. Those aged 65 years or more made up almost two thirds of hospitalisations for coronary heart disease and colorectal cancer, as well as around three quarters of hospitalisations for CVD and COPD, and over four in five hospitalisations for osteoporosis.

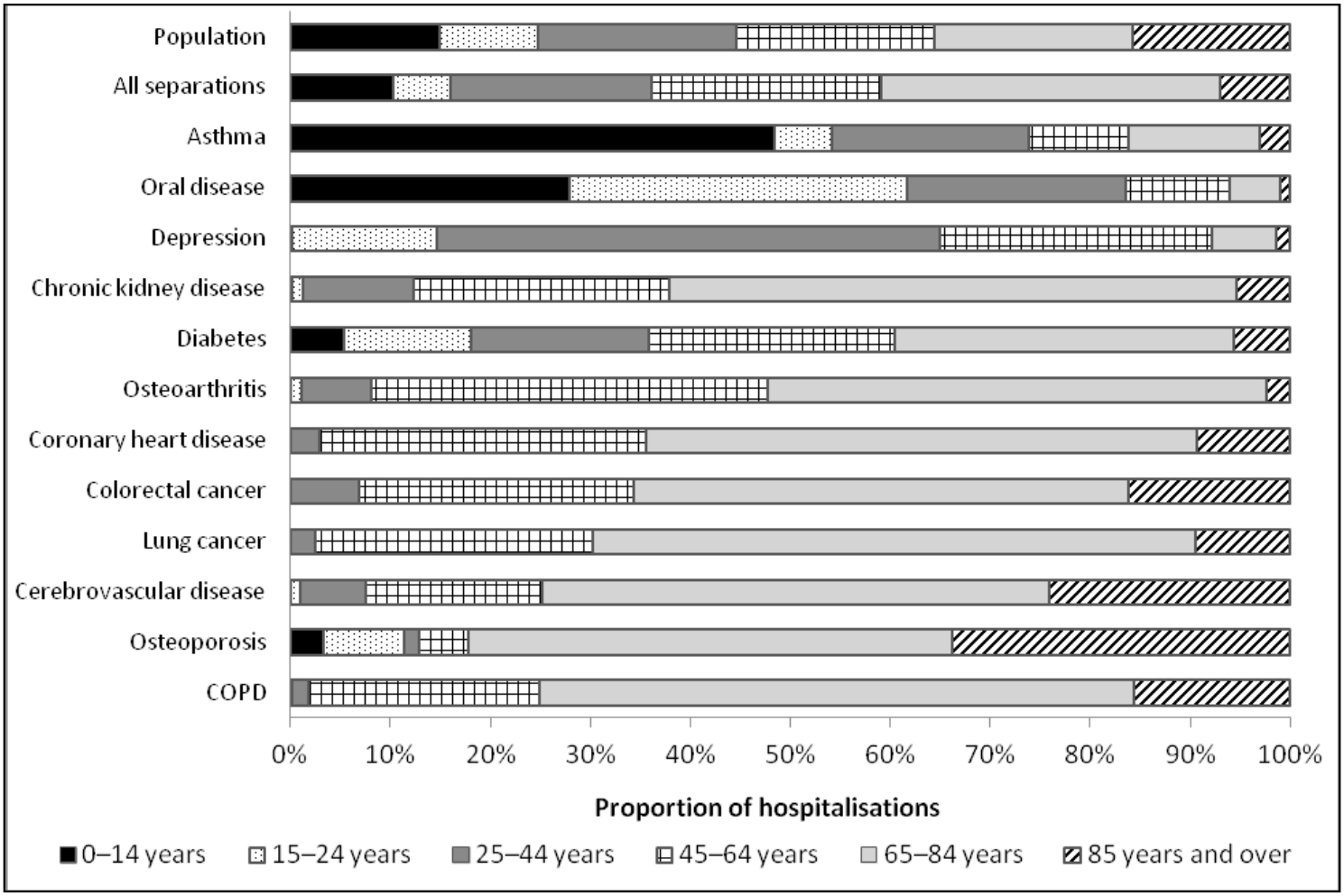

Figure 2: ACT Hospitalisation for selected chronic disease by age group, 2014-15. Source: ACT Health, Admitted Patient Care data, 2014-15

ACT population ageing and the burden of disease *(continued)*

Mitigating the burden of chronic disease and ageing in the ACT

While the incidence and prevalence of chronic disease is rising, and some of this is driven by population ageing, these increases are not entirely age-related, nor are they inevitable. Robust, wide-ranging evidence indicates that much of the chronic disease burden can be delayed, ameliorated or even prevented using concerted cross-sectoral interventions which aim to reduce the risk factors for these conditions among the population by using voluntary approaches, including education, advertising, social marketing and health promotion campaigns, as well as mandated measures, such as legislation, taxes and levies, and regulation (for example, in urban design).[3,13]

The ACT has numerous prevention and early intervention initiatives, programs and services in place to help reduce the prevalence of key chronic disease risk factors among our population. Some examples include: promoting healthy eating and adequate exercise levels, which are designed to reduce levels of chronic diseases such as diabetes and CVD;[14] sustained tobacco reduction strategies, which have contributed to the ACT having the lowest smoking rates in Australia;[15] and the Healthy Weight Initiative, which is aiming to arrest the growing rates of overweight and obesity in the community.[16] Finally, in recognition of the importance of reducing age-related chronic disease risk factors, the most recent round of Healthy Canberra Grants focuses on prevention programs that support healthy ageing.[17]

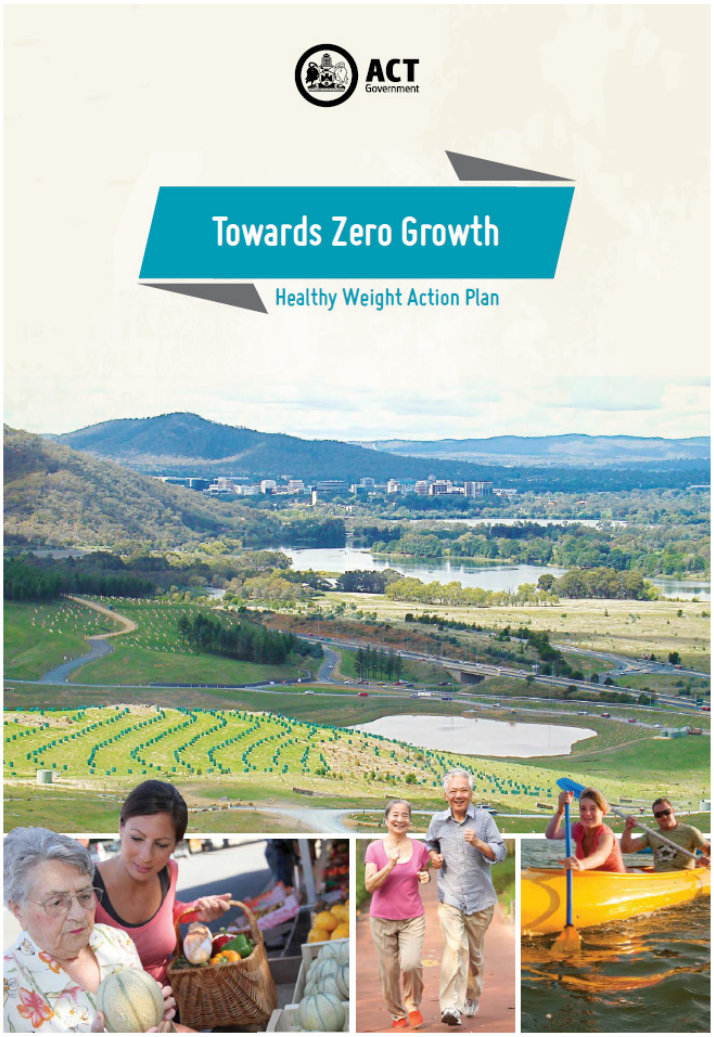

Image: Towards Zero Growth: Healthy Weight Action Plan. ACT Government.

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What does an "ageing population" mean to health care in the ACT?

In the Australian Capital Territory (ACT), there are two significant changes occurring to the group of Canberrans aged 65 and over: firstly, this group is increasing in size; and secondly, this group contains increasing numbers of people who are aged 80 years and over. Our population is both growing and ageing rapidly – there are more people overall, more older people overall and older people are making up a larger proportion of the total population. These changes are not confined to the ACT, but are occurring across Australia and the world and are often described using the phrase "an ageing population" – a catch-all term that can hide the nuanced implications of these changes.

With the increasing number and proportion of older people comes both opportunities and challenges. Some of the challenges brought about by the ageing population in the ACT are seen predominantly in the implications for health care. These include the increase in accessing health care associated with age-related conditions – people who are ageing are more likely to require health care, and the health care they require is more likely to be more complex and protracted, such as involving longer stays in hospital and with more co-morbidities. For example:

- 42 percent of adults aged 45 and over had at least two chronic conditions and 10 percent of had either cancer, chronic obstruction pulmonary disease, cardiovascular disease or diabetes.[1]
- More than one in five (21.8 percent) older persons, aged 65 or over in the ACT reported falling within the last 12 months. Of this group, almost half (49.3 percent) fell more than once, and 22.4 percent were hospitalised as a result.[2]
- Between 2005-06 and 2014-15, just over one-quarter (26.5 percent) of fall-related hospitalisations involved hospital stays of 8 or more days. (Source: Admitted patient care data 2005-06 to 2014-15)
- The fall-related hospitalisation rate for ACT older persons increased by 40 percent between 2005-06 and 2014-15 (compared to the total hospitalisation rate for ACT older people, which rose by 32 percent during this time) (Source: Admitted patient care data 2005/06 - 2014/15).
- It is estimated that in 2011, there were 3,600 people in the ACT living with dementia, most of whom were aged 65 years or more. This is likely to increase to approximately 5,200 by 2020.[2]
- In the ACT the number of dementia-related hospitalisations more than doubled between 2004–2005 (637) and 2013–2014 (1404). While the average length of stay in hospital for dementia in the ACT has decreased over time such patients stay much longer (12 days) compared to those without a dementia diagnosis (4 days).[1]

This picture of health and wellbeing of ageing Canberrans has implications for our future health care costs. The projected health (including aged care) expenditure increase for the period of 2003-2033 attributable to population ageing is $37.8 billion in Australia, accounting for almost a quarter of the total projected increase.[3] Dementia is the single greatest cause of disability in older Australians (65 years +) and the third leading cause of disability burden overall. Neurological diseases are set to be one of the leading causes of projected Australian health expenditure increases from 2003 to 2033. The projected expenditure attributable solely to ageing is $8.09 billion with $7.71 billion attributed to dementia alone.[3] Nationally, the estimated total cost of falls-related injury in 2001 was almost $500 million per year; by 2051, this figure is expected to reach $1.375 billion per year. These challenges are significant and drive an important agenda emphasising the need to support Canberrans to maintain good health and minimise health care use – both in to old age as well as in the years preceding old age.

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Aged care setting in Australia and the ACT

Peter Matwijiw, Aged & Community Care Policy, Policy and Stakeholder Relations

The formal aged care system in Australia is regulated and predominantly funded by the Australian Government as set out in legislation (*Aged Care Act 1997*), although other levels of government and individuals receiving care make some contributions. Aged care services funded by the Australian Government represent around one quarter of the total assistance provided to older people with around three quarters coming from informal (non funded) carers.[1]

The need for aged care services is expected to rise as older Australians will make up a greater proportion of the population and their numbers increase in coming decades. This will place substantial pressure on the aged care system in the future. As well, shifting social trends and the changing pattern of age related disease are also expected to alter the relative demand for different types of aged care.[2]

Types of Care

The system offers a range of services for Australians aged 65 and over (and Aboriginal and Torres Strait Islander Australians aged 50 and over) on the basis of frailty or age related disability comprising four broad service types: assessment, care and support at home, residential care and flexible care services. Often people first enter the aged care system through care at home, before eventually progressing to permanent residential care.

The ACT Government has agreements with the Australian Government to deliver the Aged Care Assessment Team (ACAT), the Commonwealth Home Support Program (CHSP) and the Transitional Therapy and Care Program (TTCP). CHSP provides basic support services, such as social support, personal care, domestic assistance, home maintenance, home modifications, transport, nursing, allied health services meals as well as respite for carers. TTCP is a jointly funded, community based program providing up to 12 weeks support and therapy at the end of a hospital stay. ACAT undertakes the comprehensive assessment and approval process which is required before a client is able to be admitted to residential care, receive home care or enter transition care.

The Living Longer Living Better aged care reform package announced on 20 April 2012 gives priority to providing more support and care in the home, better access to residential care, more support for those with dementia and strengthening the aged care workforce. More recently, the Australian Government announced further changes in the way home care services are delivered by giving people greater choice and flexibility in the services they receive.

Image: Aged care. FreeDigitalPhotos.net

Aged Care Places in the ACT

The Australian Government controls the supply of subsidised aged care places through its role in setting the aged care planning ratio target as a predictor of demand. Under this framework, it is aiming for a national target of 125 residential and home care places for every 1,000 people aged 70 years or over (Aboriginal and Torres Strait Islander Australians aged over 50 years) by 2021-22.

In the ACT, the current aged care planning target is 118 per 1000 people aged 70 years or over. The target mix of service type within this target total is 76.5 residential places, 39.6 community care places and 1.8 transition care places.[3] The number of aged care places is determined in accordance with this target and are allocated to approved aged care service providers via a competitive tender process.

Aged care services in the ACT are delivered by different not-for-profit, for-profit and government providers, with some providing more than one type of care. According to the Department of Health, as at 30 June 2016 there were 13 home care providers offering 1,182 home care packages through 28 service outlets; 18 residential aged care providers providing 2,473 places in 26 residential aged care facilities; and a single joint provider offering 15 residential and 43 community based transition care places.[4] There are 31 CHSP providers.

Future Reform

The Australian Government announced major aged care changes in the 2015-16 Budget. From February 2017 onwards, home care places will be allocated directly to clients who can then choose their preferred provider. Providers of residential care who want to increase their allocation of places will continue to compete for new places annually. In 2018, home care packages will be integrated with the CHSP to create a single care at home program and short term restorative care places will be introduced.

Additionally, an independent legislated review of the reforms is underway and will report to Parliament in August 2017. This review will look at the impact of the changes to date and may recommend further reform of the aged care system.

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Longitudinal research to inform population health policy on healthy ageing: The PATH Through Life Study

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Late-life health is the outcome of incremental risk and protective effects over decades. We describe a unique resource on ageing through the adult life-course that has followed three cohorts for 12 years. The PATH Through Life Study (n = 7485 at baseline) examines lifestyle, personality, medical, social and biological factors within the same individuals. Our findings have linked these factors to incident diseases such as depression, dementia, brain ageing, as well as health service use.

Understanding the factors that determine how people age requires long term studies that follow individuals repeatedly over time and which take a multidisciplinary approach. Within Australia, the Personality and Total Health (PATH) Through Life Project is uniquely placed to inform policy makers, clinicians and researchers about health and wellbeing in ageing. PATH is a large cohort study of 7,485 adults drawn from the Canberra and Queanbeyan regions. Since 1999, this ongoing study has followed three age cohorts (aged 20-24, 40-44, and 60-64 at baseline) who were randomly sampled from the electoral roll.[1,2]

Trajectories of ageing vary not only within a person, but also between cohorts. Different age-groups are exposed to different environmental and historical variables, including amongst others, education, technology, medical treatments and societal norms relating to health behaviour and help seeking. In PATH, we have used a number of measures to assess such differences and changes over time. Areas investigated include lifestyle, personality, social engagement, mental health, physical health, genetics, health service use, neuroimaging, and biological measures, providing a rich database to examine risk factors and outcomes in ageing. In this article we focus on common lifestyle, medical and psychosocial risk and protective factors and chronic conditions, to demonstrate the value of the dataset for understanding trajectories and outcomes in ageing individuals.

Smoking

Tobacco smoking has been established as a significant risk factor for cardiovascular disease and stroke.[3] Current smokers have a 79 percent increased risk (95 percent CI: 43-123 percent) of developing dementia of Alzheimer's or vascular type.[4] The risk of cognitive decline is also increased in current smokers. In the PATH dataset, 30-40 percent of middle aged and older adults reported previous smoking behaviour and 10-20 percent reported current smoking at baseline. Despite lower prevalence than in the general population[5], current smoking in PATH is significantly associated with poorer cognitive processing speed in all age groups – the 20s, 40s and the 60s – independent of gender, education, number of other existing health conditions and self-reported health.[6] It also increased the risk of developing mild cognitive impairment in later life.[7]

In analyses that have harmonised PATH data with other major Australian longitudinal studies of health and ageing,[8] researchers have found that smoking reduces life expectancy by 3.82 years in men and 5.88 years in women. Importantly, smoking increases the number of years spent with cognitive impairment by 1.29 years for women and 0.87 years for men. PATH findings are also consistent with other literature showing that smokers tend to have multiple lifestyle risk factors for cognitive decline, with 47.7 percent having at least two risk factors, and 8.8% three risk factors,[9] and in particular, clustering with harmful alcohol consumption and physical inactivity. Smoking is a behavioural risk factor that, due to its clear impact on health and cognition and tendency to cluster with multiple other lifestyle risk factors, should be one of the primary targets for chronic disease prevention.

Obesity

World-wide obesity rates have doubled in the past thirty years.[10] Obesity is a risk factor for respiratory, cardiovascular and musculoskeletal disease, type two diabetes, cancer, brain atrophy, cognitive impairment, dementia, and all-cause mortality.[11-16]

Rates of overweight and obesity in PATH at baseline (47 percent) were similar to population estimates for adult Australians at the time of data collection (46 percent).[17] Analysis of PATH data has shown that obesity impacts on brain health, specifically that higher body mass index is associated with decreased hippocampus volume, which is critical for the consolidation of short term memory into long term memory.[18] The combination of PATH data alongside other longitudinal health studies have indicated that obesity reduces total life expectancy beyond 65 by over half a year.[8] PATH data show that BMI is increasing in young and middle-aged adults but is stable for older adults in the Canberra and Queanbeyan regions (Figure 1).

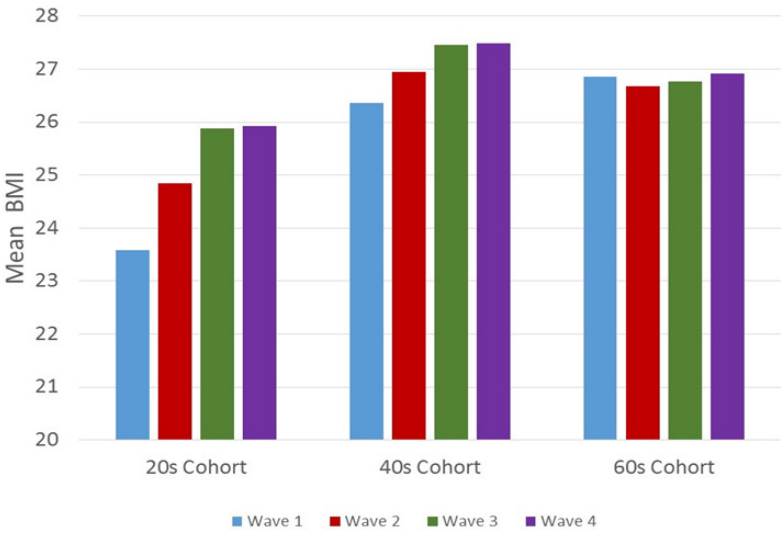

Figure 1. Average Body Mass Index for each cohort over 12 years.

Hypertension

High blood pressure is a major contributor to global disease burden, particularly due to an association between hypertension and cardiovascular disease[19] and stroke.[20] The prevalence of hypertension in Australia increases with age, with population estimates for 2012 of 9.1 percent at ages 25-34, 26 percent at ages 45-54, and 38 percent at 65-74.[5] Prevalence of hypertension in the PATH data is approximately equivalent to these population figures for the 20s (13 percent) and 40s (25 percent) cohorts, but is higher in the 60s (63 percent). Analyses in PATH data highlight hypertension as a risk factor for the development of mild cognitive impairment.[7]

Diabetes

Type 2 diabetes is a substantial and growing contributor to the global disease burden.[21] It is associated with a wide range of negative health outcomes, including cognitive decline, dementia and cardiovascular disease.[22,23] Figure 2 shows the percentage of each PATH cohort reporting diagnosis of diabetes. Sex differences are not apparent in the 20s but by middle age, males experience higher rates of diabetes. Among males in the 40s, rates trebled over 12 years, and among males in the 60s, rates more than doubled over

Longitudinal research to inform population health policy on healthy ageing: The PATH Through Life Study *(continued)*

the same period of time. Linking this information to risk profiles will enable investigation of factors leading to increased risk among males and inform prevention strategies. Research on PATH cohorts using magnetic resonance imaging have also demonstrated that high blood glucose levels even in the normal range (fasting blood plasma glucose concentration of <5.6 mmol/L,24) can cause brain atrophy.[25]

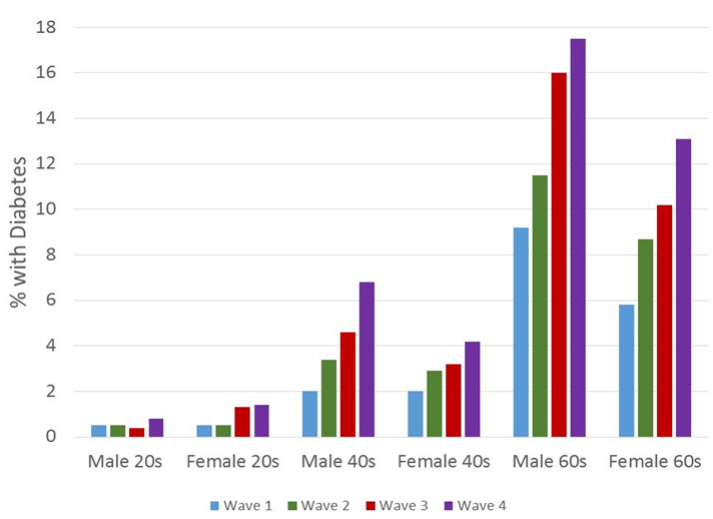

Figure 2. Percent of males and females with diabetes in each cohort over 12 years.

Depression and suicidality

Depression is a leading cause of disability worldwide26. The lifetime prevalence of depression in the Australian population is approximately 16.6 percent[27], and slightly higher in the PATH study (24 percent) although rates vary depending on methods of assessment. Research from PATH data has shown that a number of risk factors predict higher levels of depressive symptoms[28,29] including unemployment, financial hardship, cardiovascular health (cholesterol-lowering medications, hypertension, diabetes, past stroke, and higher body mass index) unhealthy diet[30], but not pregnancy.[31] Moreover, depressed individuals are four times more likely than non-depressed individuals to rate their health to be poor[32], and to have lower resilience levels.[33]

Importantly, depression is associated with suicidality[34]. At baseline, the twelve-month prevalence rates for suicidal ideation and suicide attempt were 8.2 percent and 0.8 percent for PATH participants respectively, which are higher than those reported in the National Mental Health Survey, although this may be due to differences in the wording of questions. In general, suicidal ideation was highest in the youngest cohort (higher in females than males) and lowest in the oldest cohort (higher in males than females). There were no gender differences in the mid-aged cohort.[2]

Cognitive health

Maintaining cognitive function is intrinsic to healthy ageing. The risk factors for chronic diseases are also associated with the development of cognitive decline and dementia.[35] Evidence from the PATH study shows that even by midlife, chronic disease risk factors are relevant to cognitive health. In the 40's cohort who were aged 40-44 at baseline (n= 2,530), a summary risk score was computed for the presence of smoking, hypertension, depression, high body mass index, diabetes, and insufficient physical activity. A higher risk score was associated with poorer cognitive performance and greater slowing on reaction time tasks over 8-years.[36] By combining self-report, clinical diagnosis and MRI data, PATH has substantially contributed to the literature on cognitive decline and impairment, in terms of prevalence[37], risk factors and consequence. PATH data has: supported findings that genetic markers such as APOE[38] are risk factors for cognitive decline; helped to highlight new potential risk factors (e.g. location and number of brain lesions[39], and self-rated cognitive decline[40,41]); and clarified previous findings (e.g. concluding it is unlikely that hormone replacement therapy is a risk factor[42]). PATH has also shown the correlates and consequences of poor cognitive health, including physical changes in the brain[43-45], prediction of subsequent decline or dementia diagnosis[46,47], negative impact on daily functioning[48], and increased reliance on general practitioner visits.[49]

Mild Cognitive Impairment and Dementia

Dementia is a leading cause of disability and death in older Australians above the age of 65, and has significant social and financial costs. Currently there is no cure. PATH provides the ideal framework through which prevalence, incidence and stability of diagnoses of dementia and sub-clinical states such as Mild Cognitive Impairment (MCI) and Mild Cognitive Disorders (MCD) can be assessed in the population.[50-52] For instance, findings from PATH characterised the progression to MCD over an 8 year period in a cohort of young-old (aged 68-72 at wave 3), showing approximately 10 percent of the sample have MCD at wave 3 and that diagnoses in this age group were not stable with 20 percent of classifications changing over time.[52] These findings are of particular importance as they highlight the significance of considering age when evaluating rates of progression from MCI to dementia.[52] Longitudinal characterisation of sub-clinical states and dementia in population-based samples is vital, as it allows us to obtain a full picture of the epidemiology of neurocognitive disorders (e.g. dementia), help determine disease aetiologies and select treatment strategies.

Diet

Dietary findings that higher intake of potassium, iron, and alcohol can increase the risk of developing cognitive impairment later in life[7,53] are complemented by findings that consumption of unhealthy foods can negatively impact on the brain.[54] Low consumption of healthy food (regardless of unhealthy food intake) is also independently associated with smaller left hippocampal volume[54], a part of the brain instrumental to the formation of long-term memories.

Activity engagement more broadly is also linked to cognitive health across adulthood. Across the three age cohorts in the PATH study (the 20's, the 40's and the 60's) greater average engagement in leisure-time intellectual, artistic, social and enterprising activities was associated with baseline cognitive ability but not with cognitive development or decline over eight years.

Engaged lifestyle, work and wellbeing

Contemporary theoretical frameworks of ageing emphasise that well-being in later life is impacted by multiple factors. The capacity for social participation and lifestyle engagement play a pivotal role in defining healthy ageing, particularly amongst older adults themselves.[55] Engagement in volunteering is a lifestyle factor that has been associated typically with higher levels of wellbeing and cognitive function in older adults.[56] Longitudinal associations between hours spent volunteering and wellbeing were assessed in the PATH study and interestingly, not only non-volunteers but also those who volunteered at high levels had lower wellbeing relative to those who spent a moderate amount of time volunteering; suggesting that at upper levels (> 800 hours/year) benefits to wellbeing diminish.[57] This may possibly be due to a reduction in opportunities for engagement in other activities or burden caused by volunteering. PATH is a rich source of information about the impact of lifestyle choices on ageing throughout the lifespan. This can be seen in single studies - for example, the impact on poor job security on multiple outcomes in the same individuals in the same study (high job insecurity was associated with a threefold risk of depression

Longitudinal research to inform population health policy on healthy ageing: The PATH Through Life Study *(continued)*

and anxiety, and doubled risk for poor physical health[58]). Alternatively, the synthesis of multiple studies on PATH data can form a picture of how combinations of lifestyle factors impact on ageing outcomes, and suggest mechanisms for those impacts. One study concluding that higher education is associated with decreased risk of cognitive impairment in later life[59] is complimentary to another study on PATH data showing that higher education is associated with larger grey and white matter volume in the prefrontal cortex (particularly in men).[60]

Conclusion

The PATH Through Life project is a large, on-going, population-based, longitudinal cohort study that aims to inform discussion and policy making around clinical outcomes that constitute the major burden of disease within the Australian community. The dataset is linked to the Medical Benefits Scheme, Pharmaceutical Benefits Scheme, National Death Index and Hospital databases. This allows for evaluation of the impact of ageing trajectories and outcomes on health service use and costs, as well as identification of unmet needs in the community. High quality, long-term studies of ageing are an essential resource for governments and practitioners as the Australian population ages.

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What does "early intervention" mean for our ageing population?

Some of the challenges brought about by the ageing population in the ACT include the increase in health care costs associated with age-related conditions. However, many of the chronic diseases and poor physical and mental health experienced in old age are not an inevitable part of ageing but the result of the cumulative effects of a lifetime of unhealthy environments and behaviours.[1] About one-third (31 percent) of the total burden of disease is preventable. The modifiable risk factors causing the most burden include tobacco use, high body mass, alcohol use, physical inactivity and high blood pressure.[2]

Prevention and early intervention strategies that promote healthy lifestyle behaviours targeting adults in mid-life (i.e. from 45 to 65 years old) have the potential to delay and in some cases prevent many age-related chronic diseases, thereby significantly improving health in later life and reducing the projected social and health costs of population ageing.[3] Individual behaviour change approaches are likely to be more cost effective when supported by population based approaches.[3]

In Australia a focus on preventative health measures to keep people healthier for longer, along with improvements to healthcare productivity to offset cost increases, are recommended to mitigate the impact of the ageing population on our health and social care systems.[4] The ACT Chief Health Officer's Report 2016 highlights the role of health promotion and prevention - in recent years, progress has been made in slowing the prevalence of obesity and overweight in our children and increasing adults' participation in active travel.[5]

Image: Older persons. FreeDigitalPhotos.net

And it is important to remember that older Canberrans also make many contributions. For example, evidence suggests that older people are increasingly taking on volunteering and intergenerational caring responsibilities – for example, caring for their grandchildren (de Vaus, Gray, Stanton 2003). The ABS also recently reported that "higher proportions of people in the Australian Capital Territory participated in voluntary work in the last 12 months, compared with people in Queensland and New South Wales."[6]

We often think of "the aged" as those 65 years and older. However our support for "healthy ageing" (also variably labelled successful, positive, or active ageing) should begin in mid life.

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Strengthening the case for moving beyond aerobic exercise: Muscle strengthening exercises and their importance for healthy ageing

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Strength and balance activities are key components of Physical Activity Guidelines and are an essential ingredient of healthy ageing, notably in preventing falls and reducing fall-related injuries amongst older age groups. Population health strategies and monitoring efforts generally focus on moderate to vigorous physical activity, or aerobic exercise, with muscle strengthening activities often overlooked. This article describes the benefits of muscle strengthening, the current prevalence of participation, and makes a case for strengthening the public health focus on strength and balance activities.

One of the most important approaches to delay the morbidity associated with ageing is to increase physical activity in older adults, and to increase participation in physical activity across the lifespan.[1] Increasing physical activity levels is a health priority in the ACT, especially given the ageing population (see article page 6), and progress is monitored by the proportion of the population taking part in the recommended duration of moderate to vigorous physical activity (MVPA).[2,3]

The evolution of the Physical Activity Guidelines

Until recently, Physical Activity Guidelines (PAGs) for adults were based around the accumulation of MVPA. However, in Australia in 2012 these were updated to include muscle strengthening activities (also known as resistance or strength training) and to minimise time spent in sedentary behaviours.[4] Similar changes were made to physical activity guidelines for adults in the United Kingdom (UK), the United States (US), and Canada around the same time. The Australian PAGs recommend that adults do muscle strengthening activities on at least two days each week (for the full guidelines see Box 1 below). In terms of guidelines for older adults (over 65 years), the current PAGs for older Australians (over 65 year olds), released in 2005, recommended that older adults should be active in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.[5] More recent PAGs for older adults boost the emphasis on muscle strengthening and balance exercises, with the 2010 World Health Organization (WHO) Physical Activity Guidelines for Older Adults (65 years and older) recommending muscle strengthening activities on two or more days per week.[6] The 2010 Canadian and 2011 UK PAGs for older adults are consistent with the WHO guidelines in adding muscle and bone strengthening activities two days per week.[1]

Image: Walking. Amanda Mills. Public Health Image Library

Guidelines translate epidemiological evidence into behavioural recommendations for the public and professionals. The inclusion of muscle strengthening guidelines was based on growing evidence that showed that higher levels of muscle strength are associated with a reduced risk of premature mortality and cardiovascular disease across all ages, independent of MVPA levels.[1,7] Additionally, muscle strengthening activities provide extra musculoskeletal benefits, such as reducing risk of osteoporosis, osteoarthritis, and sarcopenia (age-related decline in muscle mass).[1,7] There are also documented metabolic benefits, such as improved blood sugar control, which are critical in the prevention of type 2 diabetes, and some evidence about the role of muscle strengthening activities in improving symptoms of anxiety and depression.[1,7] In older adults, muscle strengthening activities help prevent osteoporosis, reduce risk of falls, maintain functional capacity, and aid in reducing sarcopenia.[1,7]

Falls and fall-related injuries deserve specific mention given the associated social and economic burden in the ACT. Data from the 2014-15 ACT General Health Surveys shows that almost one quarter (24.7 percent) of older persons in the ACT reported having had a fall within the last 12 months, with more than two in five (41.5 percent) indicating they fell more than once. Of those who fell, 28.9 percent required medical attention as a result of their fall, and nearly one half of this group (48.2 percent) reported requiring hospital admission. Only 10.3 percent reported getting more exercise as a way of reducing their falls risk.[8]

Box 1: Australia's Physical Activity and Sedentary Behaviour Guidelines for adults (18 – 64 years old)

Physical activity

- Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount.
- Be active on most, preferably all, days every week.
- Accumulate 150 to 300 minutes (2 ½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week.
- Do muscle strengthening activities on at least 2 days each week.

Sedentary behaviour

- Minimise the amount of time spent in prolonged sitting.
- Break up long periods of sitting as often as possible.

Population health surveillance of physical activity

National and local surveillance systems are utilised to get a picture of the proportion of adults who participate in the recommended amounts of physical activity for health. However, these surveillance systems focus on measuring participation in the recommended amount of aerobic exercise (more specifically, moderate to vigorous physical activity or MVPA), and largely ignore participation in muscle strengthening activities.[9] At time of writing, there has only been one study in Australia that has established the prevalence and correlates of MVPA, strength training and sedentary behaviours amongst a nationally representative sample of Australian adults.[9] This study of 9345 Australian adults aged 18-85 found that only 18.6 percent met the strength training component of the Australian physical activity guideline, and 15 percent met the combined aerobic and strength training component of the PAGs. This is compared to over half (52.5 percent) meeting the moderate to vigorous physical activity component of the guidelines. Being female, older age, low/medium levels of education, poorer rated self-health, be-

Strengthening the case for moving beyond aerobic exercise: Muscle strengthening exercises and their importance for healthy ageing *(continued)*

ing classified as obese or underweight, and being a current smoker were associated with lower odds of meeting the strength training guideline.[9]

These findings are similar to those reported in the US and the UK. For example, researchers in Scotland, using a slightly different methodology, found that approximately half as many adults and older adults met the muscle strengthening guidelines (31 percent of men and 24 percent of women) compared to the aerobic physical activity guideline.[7] A 2014 survey in the US reported that 28 percent of men and 20 percent of women meet the muscle strengthening guidelines.[10] Despite methods not being directly comparable between these studies and the Australian study, the international evidence indicates that the proportion of adults meeting the muscle strengthening guidelines are lower than their aerobic component of the PAGs.

Box 2: What is muscle strengthening? How to incorporate it into your daily life?

Muscle strengthening activities increases your muscle strength by making your muscles work against a weight or force. Different forms of resistance training include supporting your own bodyweight, as well as lifting heavy objects, free weights, weight machines, and using resistance bands.[1]To be effective, a muscle strengthening program must be progressive—as you become stronger, the weights you use should increase.[12]

It is recommended that adults do muscle strengthening activities on at least 2 days each week.[4,6]

Contrary to popular perception, strength activities do not need to be done at the gym and can be built into your everyday life and activities. If you are doing no muscle strengthening activities, even small increases are likely to have health benefits.[1]Ideas for getting started include household chores that involve digging, carrying or lifting; bodyweight exercises like squats, push ups, hanging, or sit ups; or accessing a gym to do weights or other strength training.[13]

As always, for people who have not done any physical activity in a while; speak to your doctor first.

Implications for population health

Research described in this article shows that vast majority of adults in Australia are not meeting the full physical activity guidelines and that the proportion of adults and older adults meeting the muscle strengthening component of the guidelines is much lower than the proportion of the population participating in MVPA, or aerobic physical activity. Across Australia and in the ACT, physical activity policies and programs, as well as population-level monitoring, have, to date, been focussed almost exclusively on aerobic activity.

For the ACT population to age healthily, innovative population-level efforts are required to increase participation in muscle strengthening activities across the life course and to prevent loss of muscle strength and maintain balance in older adults. Research findings highlight younger women and older adults are specific groups with low participation rates in muscle strengthening activities that would benefit from policy focus and intervention.[7,9] For older adults, muscle strengthening is of particular importance to reduce the risk of falling and sustaining an injury. Women, particularly younger women, are also a key target group to increase bone density to prevent osteoporosis later in life.[7]

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Good nutrition for prevention of cognitive decline

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Healthy eating is essential for promoting good health and well-being and reducing chronic disease, cancer and cognitive decline. Poor dietary intake increases the risk of developing many chronic diseases. These include coronary heart disease, stroke, hypertension, atherosclerosis, obesity, some forms of cancer, Type 2 diabetes, osteoporosis, dental caries, gallbladder disease, dementia and nutritional anaemias.[1,2] There are particular dietary measures linked with age related cognitive decline that will be discussed in this article.

Improving dietary patterns to be healthier could benefit memory. Lower intakes of nutrient dense foods and higher intakes of unhealthy foods have been found to be associated with smaller hippocampus.[7] The hippocampus is a brain structure associated with both learning and memory, as well as mood regulation.[3] Obesity in mid life is linked with a higher prevalence of dementia. Several factors can interfere with the rate of cognitive decline in the elderly such as diet and physical activity.[1,4]

The Mediterranean dietary pattern has been associated with less cognitive decline, dementia or Alzheimer's disease compared to other dietary patterns.[1,5] Generally the Mediterranean diet is a diet high in vegetables, fruits, cereals, nuts and olive oil (main source of added fat), moderate intake of fish and alcohol (mostly wine), and low intake of dairy products, red meat and meat products. Such a diet has higher intakes of several antioxidant nutrients and polyphenols present in fruits, vegetables, cereals, beverages such as wine, coffee and tea.[1]

Adequate intake of fruit and vegetables that meet the Australian Dietary Guidelines[6] act as sources of protective antioxidants against cognitive decline, dementia and Alzheimer's disease.[2] It has been suggested that a balance of several antioxidant nutrients for the benefit of cognitive decline and dementia prevention and avoidance of adverse effects from overdosing on some is important.[2]

Image: Australian Guide to Healthy Eating. Australian Government.

Some research has indicated that there appears to be a potential link between moderate consumption of coffee and caffeine with a reduction in cognitive decline.[1]

Light to moderate consumption of alcoholic beverages can reduce age-related cognitive decline. Some studies have found this correlation to be related to consumption of usually wine as the source of alcohol.[1,2] For vascular dementia, cognitive decline, and pre-dementia syndromes, the current evidence is only suggestive that light to moderate alcohol intake is protective.[2] The health benefit in relation to light to moderate alcohol consumption may be related to the physiological effect of ethanol as a vasodilator or the benefit from other substances present such as antioxidants.

Long chain Omega 3 poly-unsaturated fatty acids, EPA and DHA have been associated with decreased brain inflammation and preservation of the integrity and function of neuronal membranes.[1,2] Increasing fish consumption has been found to lower risk of Alzheimer's disease (in longitudinal cohort studies).[2,4]

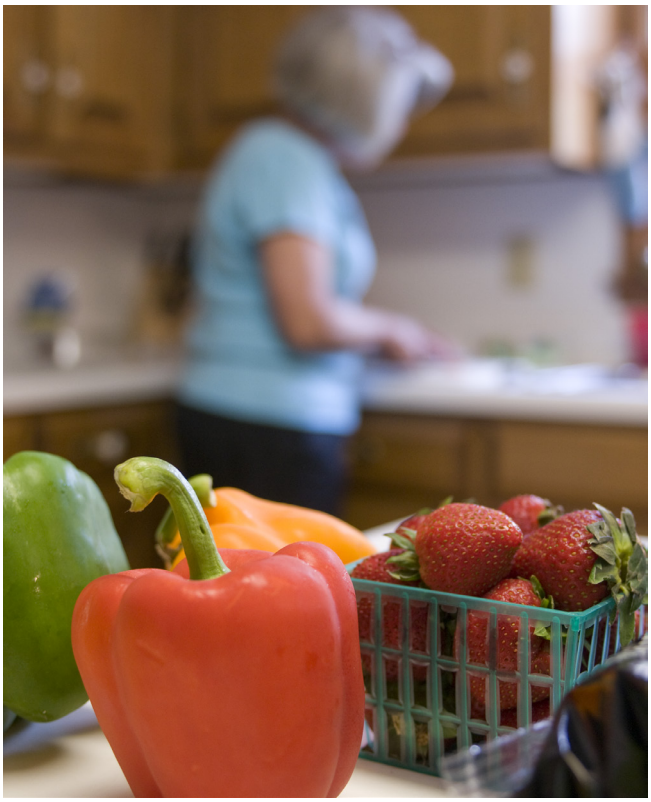

Image: Healthy eating. Amanda Mills. Public Health Image Library

Diets high in saturated fats reduce molecular substrates that support cognitive processing and increase the risk of neurological dysfunction.[1,2] Diets high in saturated and trans-unsaturated (hydrogenated) fats have been found to be positively associated with increased risk of age-related cognitive decline and mild cognitive impairment and Alzheimer's disease.[2]

Some studies have showed slowed cognitive decline with vitamin B supplementation including folic acid.[1] Adequate intake of B-vitamins, particularly vitamins B9 (folate) and B12 showed slowed cognitive decline and dementia.[2,4]

Many observational studies have showed a reduced risk of dementia in people who exercise.[1,2] Following the national guidelines for exercise is recommended.[1,2]

Good nutrition for prevention of cognitive decline *(continued)*

Risk factors for Alzheimer's disease are similar to those for Cardiovascular disease, such as high blood pressure, smoking, high cholesterol and obesity and need to be treated in midlife at the latest to reduce risk of dementia later in life. Focusing on midlife healthy lifestyles with exercise and healthy diets is the most important factor for prevention of dementia.[1,2]

Following general recommendations from the National Health and Medical Research Council (NHMRC) Guidelines for the Management of Overweight and Obesity 2013 and NHRMC Australian Dietary Guidelines 2013, it is recommended that we achieve energy balance and healthy weight for prevention of chronic disease by limiting excess energy intake from total fats and saturated fats, eliminating trans-fatty acids, increasing consumption of fruit and vegetables.[2,3,4,6,7]

Epidemiological studies have shown that a lower risk of dementia or cognitive decline is associated with diets relatively low in energy but full of several key nutrients and food bioactives, these include long chain omega 3 fats, vitamins B, antioxidants such as vitamins C, E, and carotenoids and polyphenols.[1,3] There is a need for more randomised controlled trials to demonstrate the impact of diet on cognition in older persons. Randomised controlled trials (RCTs) are the gold standard for efficacy of drugs but this may not be the achievable for diet.[1] In the case of primary prevention this may be difficult to establish the effect of nutrition on cognition through RCTs which would require participants to be followed up for potentially decades.[1]

Conclusion

Several health conditions such as cardiovascular disease, diabetes, or obesity are closely related to cognition. It has been identified that when addressing dietary approaches to promote healthy brain ageing using a holistic approach including general healthy eating guidelines, exercise and lifestyle factors, which not only target the brain but also overall cardio-metabolic health is the best strategy.

There is reasonable evidence that consuming Mediterranean-style diets protects against cognitive impairment. Adherence to dietary patterns rather than adequate intake of single dietary components (which have shown mixed results in randomised controlled trials) may be the most effective means of protecting against cognitive decline.

A major goal of future research should be to define the nutritional requirement for healthy cognitive ageing, and to translate these into effective dietary recommendations. Realistically however, this may be only achieved via epidemiological studies due to limitations of RCTs.

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Age-friendly cities: A Planner's perspective

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An age-friendly city that supports Canberrans to age well into their 'lifestyle' years and beyond requires a cross-sector approach. With an ageing population, the current focus on urban renewal, becoming a more compact city and reducing our carbon emissions, it is timely that we discuss an age-friendly for Canberra. Planning policy and implementation is an important part of a complex matrix of shaping age-friendly cities. This begs the questions: What makes an age-friendly city? Why is an age-friendly city important for Canberra? And, what is the Planners' role in shaping Canberra into an age-friendly city?

What is an age-friendly city?

Approaching the planning and design of our cities from an age-friendly perspective has benefits for us all.[1] Even though this article focuses on older people, an age-friendly city is about recognising the diversity of needs and contributions of people of all ages and abilities. By recognising the rights of all and providing the necessary infrastructure and services, an age-friendly city supports everyone to live an active, productive and healthy life.[1]

The World Health Organization (WHO) has defined the characteristics that make an age-friendly city (Figure 1). These characteristics highlight the complexity of creating age-friendly cities and can be grouped into the physical environment, social environment, and municipal services. Interventions that cut across two or more of these clusters and take a holistic approach across government, community and private sectors, have been shown to be more successful in providing an age-friendly city.[2]

Figure 1: Age friendly city. WHO, 2007

Recognising the rights of older people (and indeed all people), their diverse needs, aspirations and respecting the contributions that they make to civic life, benefits the individual by preventing isolation, improving their quality of life, and creates safe places for all (Jackisch, Zamaro, Green, Huber, 2015).

Why is an age-friendly city important for Canberra?

Canberra has one of the fastest growing populations of people aged 65 years and over in Australia (ACT Government, 2015) and recent trends show that this cohort will increase from 12 percent in 2015, to approximately 21 percent by 2055.[3]

Key messages from the consultation on the Minister for Planning and Land Management's Statement of Planning Intent (2015), echoed the view that Canberrans wanted to be part of an inclusive community, were seeking environments that were age-friendly, support cycling and walking (active travel), are in close proximity to recreation, parks and community facilities (active living), and provide housing choices that meet the needs of all socio-demographic groups and allow for ageing-in-place.

There will be an increasing demand for diversity in housing types to age-in-place as the ageing population grows.[4] Ageing-in-place can allow people to staying their local neighbourhoods, either in their current home, renovating for their changing needs, or moving within the locality to a smaller,well-located retirement living choices, while gradually requiring the introduction of supportive aged care services.[1]

Older adults are more likely than younger adults to have lived in the same home for a long period of time and consequently feel more attached to that place.[5] Current research confirms the positive benefits of people ageing within their community and continuing to live in familiar neighbourhoods.[6] Enabling older people to age-in-place can provide them with a higher quality life.[1]

As Canberra moves towards becoming a more compact city, higher density housing that is adaptable to people's changing needs would enable ageing-in- place as an alternative to the predominately low density housing. Higher density housing, located around established community services, open space and transportation such as around local and group centres could be an alternative option. These opportunities could also support older people in their 'lifestyle' years and beyond, something that our city's population has not ever really experienced before (Figure 2).

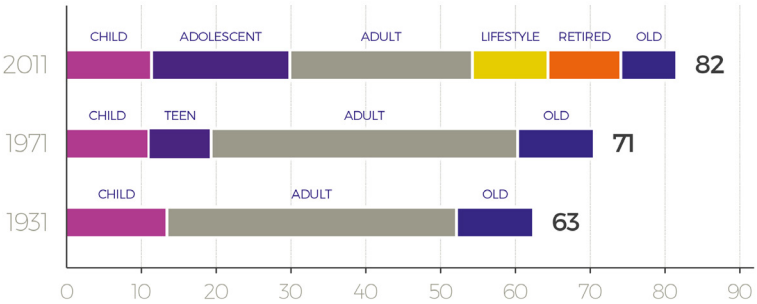

Figure 2. Lifestyle years, average life expectancy in years. Bernard Salt.

An age-friendly city could also be assumed to encourage increased physical activity in older Canberrans. 71.4 percent of Canberrans aged 65 years and older are overweight or obese.[7] With our attention focussing on reducing our carbon emissions[8] and activating public spaces to be more conducive to physical, social, and economic activity[9]; there are now opportunities to include an age-friendly agenda into these discussions and policy frameworks.

Age-friendly cities: A Planner's perspective *(continued)*

What is the Planner's role?

Research shows that the built environment - the buildings, places and spaces where we live, work and play - can have a significant impact on our levels of physical activity and wellbeing.[10] Strategic and statutory planning policies can make a difference to how the ageing population is catered for at a metropolitan and local level.

The ACT Government has embedded age-friendly principles into planning documents and into infrastructure upgrades, including:

- Master Plans for town and group centres. For example, the Belconnen town centre and Calwell group centre master plans;[11,12]
- Planning for urban renewal along the Northbourne Avenue corridor to support future light rail, age-friendly environments and housing;
- Incorporating active living principles into the ACT's key statutory planning document, the Territory Plan, through draft variation to the Territory Plan 348;
- Implementing active travel infrastructure upgrades and open space improvements in the suburbs of Ainslie and Weston;
- Creating a Healthy Parks Healthy People (HPHP) policy . This policy is in early stages of development and is based on the Parkes Victoria model taking a nature-based approach to population health through recognising the connection to nature as an integral component to people's health and wellbeing.

Image: Active ageing: ACT Health

Conclusion

Planners can provide the policy framework to facilitate neighbourhoods which have easy access to a mix of land-uses and activities, good quality open space, housing, commercial and community services, which are clean, safe, and easily accessible by public transport or active travel. Community facilities and services should be centrally located and easily accessible so that older people can live as independently as possible.

Planners can influence how and where public space upgrades should occur and what supportive infrastructure is required, such as rest areas, shade, public toilets and water bubblers to support healthy active lifestyles. Prioritising these elements in our planning policies will aid the development of Canberra as an age-friendly city.

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Volunteering- an alternative career for ageing people: a personal reflection

Dr Sue Packer

Reading through an edition of Population Health Bulletin devoted to ageing- even healthy ageing- can be a very depressing exercise despite its relevance and importance. Even if we have strived to live careful and healthy lifestyles, together with a modicum of luck (and well -chosen parents!), old age is inevitably going to change us and limit our opportunities.

The elements of a successful, satisfying life are so deeply embedded in the social determinants of health.

Fortunately, here in ACT, most of us reaching old age have enjoyed useful control over so much of our lives, including the major decisions we have made. What we have learned from this can really help us move into old age with some optimism.

Conversely, now in the 21st century, and despite our explosion of relevant knowledge and services, ageing now is made more difficult because we live in a culture and at a time where age does not seem to be valued. What can be retrieved from all of this? Without any planning, or even conscious thought about it until now, in my retirement I continue to be impressed and influenced by the boundless opportunities afforded by volunteering in our ACT community.

I have volunteered- and been co-opted to volunteer- so often. Most organisations I am involved with concern children and their world, especially their families. What my involvement as a volunteer has taught me is that there are almost limitless opportunities to make use of f the skills I have acquired during my working life and in ways that give me great satisfaction in my retirement.

I am also excited by the continuing evolution of volunteering possibilities. There is so much in the world- more relevantly in our local world- that needs to be "fixed" and so often volunteers are the ones with time, skills and passion to tackle these neglected issues and find solutions.

But the contribution of experienced older people volunteering can give far more than this.

Underpinning the whole concept of social determinants of health is having a community which cares about people as individuals and has people within it prepared to work together to improve the situation and prospects for others.

My belief is that communities, as they are traditionally seen, have changed. Reliable support from neighbours, local church, school and shops, community venues and shared amenities, has become the exception rather than the rule for families living in ACT. Moreover, the prevailing intensive work ethic, with families juggling demanding jobs, children and often ageing parents as well means that even those willing to become involved in their communities simply cannot manage to fit anything else into their overcommitted lives.

I believe that volunteering by retired people with skills, knowledge and decades of learning is an ideal way to provide the impetus and cohesion needed to strengthen our community structure- and in this way contribute to the survival and regeneration of our social determinants of health.

Into these community landscapes we can come as an enthusiastic army of older, skilled, knowledgeable people, finally freed from the constraints of full time employment and able to help nurture social capital. This is a positive and achievable goal so many of us can contribute to post-retirement.

My most recent volunteer learning, a different learning, has come as Chair of the Community and Expert Reference Group (CERG) for the Asbestos Taskforce, which was set up to deal with the legacy of Mr Fluffy homes and help find a final solution. It is a position I was reluctant to take on, but one which has taught me and continues to teach me so much about evolving ways of working with people and communities. I have seen firsthand what can be achieved by respectful cooperation and the importance of having a group of older people, with relevant life experiences, able to work alongside people whose job it is to implement government plans to remove the "Fluffy" legacy. The ultimate goal is to have to have removed the threat posed by Mr Fluffy homes and in the process help repair affected communities to develop cohesively in their new iteration. We hope we will end up with communities which have learned from this catastrophe, remain aware of our history and are stronger because of all we have experienced. In our CERG work we have repeatedly referred to the earlier community experiences in the 2003 bushfires in ACT, which were at that time instrumental in the development of the ACT as a more cohesive community.

In many less challenging ways, volunteers are taking up opportunities that help Canberra to become a more caring and alive place- from more formal volunteering in museums, libraries, national parks and schools, through national and local community organisations, to informal neighbourhood groups making their neighbourhood a better, more enjoyable place to live. For example, each week I meet people who volunteer regularly to keep Mt Taylor a pristine and exhilarating place to walk, in the middle of our growing city.

If all of this is not persuasive enough, , the recognised direct health benefits of volunteering, founded in our sense of purpose and the relevance of these new activities, support us to remain more physically and mentally active and positive as we age.

Vaccinations don't stop in childhood

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When most people think of immunisation they think of babies and young children. Vaccine preventable diseases don't stop as we get older and some diseases have a greater impact on the elderly compared to the young.

Immunisation is recommended throughout life and factors that determine which vaccinations are required include lifestyle, health and occupation as well as age.

The need for vaccination does not end in childhood. Vaccination is as important in protecting against serious and, sometimes deadly, diseases in adults as it is for children.[1] Although the childhood immunisation program in the ACT achieves high coverage rates[2] the same rates are not achieved in older populations.[3] The vaccines adults require are determined by factors such as health conditions, age, lifestyle, occupation, previous vaccinations and locations of travel.[4] Immunisation providers have a key role in increasing the uptake of vaccine in adults.[5]

To prevent disease, vaccinations are recommended from birth to old age. Every year, vaccine preventable diseases affect many adults. Some may become ill or require hospitalisation, and some people die.[6] The majority of deaths due to influenza occur in the elderly population, even though the highest incidence of the disease is amongst children.[7] For some diseases, the illness may be less severe in adults but they can still transmit the infection to vulnerable groups. For example, adult household contacts have been identified as the major source of pertussis infection in young infants.[8] Despite these dangers many adults are unaware of the risks of vaccine preventable diseases, or that they may require vaccinations. Many older people don't realise that even healthy adults need to be vaccinated.[5]

Image: Adult immunisation. James Ganthany. Public Health Image Library

There may be some adults who did not complete or missed their childhood vaccinations.[8] Although many adults were fully vaccinated as a child the immunity provided by some vaccines may have waned over time. Adults born overseas may not have received all the vaccines available on the Australian immunisation schedule which may put them at risk of some diseases.[1]

Some adults, such as Aboriginal and Torres Strait Islanders or people with a chronic health condition, are at higher risk of catching a vaccine preventable disease or have increased rates of complications if they get the disease.[7] In young Aboriginal and Torres Strait Islander adults, rates of invasive pneumococcal disease (IPD) are 12 times greater than in the non-Indigenous population.[8] Influenza disease may cause irreversible deterioration in lung function in persons who have a pre-existing chronic respiratory condition.[4]

Planning an adult vaccination schedule

Health Care Workers are one of the most important influences on a patient's decision on immunisation. Studies have shown that advice from a family doctor or nurse is a major factor in the uptake of vaccination.[5]

The HALO principle (Health, Age, Lifestyle and Occupation) is a useful tool when planning which vaccines to give an adult. It allows for assessment of vaccines needed depending on risk factors.[4]

Everyone's HALO is different. The HALO is a conversation starter, to help health care workers determine which immunisations would be beneficial. It is applied as follows:[9]

- pre-existing HEALTH issues, such as asthma, diabetes, heart, lung, spleen or kidney conditions;
- older AGE groups may require additional vaccinations;
- some LIFESTYLE choices, such as overseas travel or smoking will determine vaccination requirements;
- some OCCUPATIONS expose the person to a greater risk of contact with diseases such as child care workers or plumbers.[9] Lists of occupations requiring additional vaccines can be found at http://www.health.act.gov.au/our-services/immunisation/are-you-risk

Some recommended vaccines may need to be purchased by the patient. There are, however, a number of vaccines funded through the National Immunisation Program and the ACT Government vaccination program.

Routine adult vaccine available through the National Immunisation Program (NIP) Influenza.

Annual seasonal influenza vaccinations are funded for:

- persons over 65 years of age and older;
- pregnant women ;
- any person 6 months of age or older with specific underlying medical conditions that put them at increased risk of severe influenza;
- Aboriginal and Torres Strait Islander Australians 6 months to 5 years and 15 years of age or older. [4]

Pneumococcal disease

Pneumococcal polysaccharide vaccine (Pneumovax 23®) is funded under the NIP for:

- persons at 65 years of age;
- Aboriginal and Torres Strait Islander people at 50 years of age;
- Aboriginal and Torres Strait Islander people 15–49 years of age who have a medical condition that increases their risk of IPD (as outlined in the Australian Immunisation Handbook 10th ed.).[4]

Shingles Vaccine

Shingles vaccine is funded for all adults at 70 years of age. A single catch-up dose is also funded for adults aged 71–79 years for a five year period.[10]

Vaccinations don't stop in childhood *(continued)*

Adult vaccines available through ACT Government vaccination programs

Antenatal pertussis

Pertussis vaccination is funded for all pregnant women in every pregnancy. The vaccine should be given at 28 weeks gestation but can be administered anytime up until delivery. This provides protection to the newborn in the first months of life due to the transfer of antibodies against pertussis in utero. Pertussis vaccination of pregnant women at least seven days before delivery has been shown to prevent pertussis in 91 percent of infants less than three months of age.[8]

Measles, mumps, rubella (MMR)

MMR vaccine is funded for adults born after 1965 who do not have documented evidence of having received two vaccines.

Hepatitis B

The ACT Government funds hepatitis B vaccine for:

- Household and sexual contacts of hepatitis B positive persons; and
- Intravenous drug users.

Recording adult vaccinations

The Australian Childhood Immunisation Register (ACIR) has expanded to become the Australian Immunisation Register (AIR) to capture all vaccines administered throughout a person's life (birth to death). This will include all vaccines funded under the National Immunisation Program, as well as private vaccines. All vaccinations should be reported to the AIR.

Expansion of the register will improve immunisation data capture in Australia. This will allow immunisation rates among adults to be better understood, ultimately leading to improvements in immunisation coverage rates.

The AIR will improve access to records for immunisation providers, ACT Health and individuals. Immunisation providers will have secure access to a range of due and overdue reports, which will allow them to improve vaccine uptake among their older patients. ACT Health will be able to identify areas of low coverage within the ACT to enable targeted effort and information to boost immunisation rates among adults in these areas. Finally, individuals will be able to access their own record of the vaccines they have received and had recorded in the AIR.[11]

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Heat stress and ageing: staying safe in the heat

Samuel McEwen, Communicable Disease Control, Population Health Protection and Prevention

It is important to consider the effect of heat on the elderly population, particularly in the face of the threat of increased frequency of extreme heat resulting from climate change. This review discusses climate change and demographic changes in the context of the ACT. It also provides a brief review of biological mechanisms of ageing on susceptibility to heat and the resulting epidemiology of heat and mortality among the elderly. The review finishes by providing recommendations for staying safe in heat in line with ACT Health advice for avoiding heat related stress.

Climate and demographic change in the ACT

The latest Inter-Governmental Panel on Climate Change (IPCC) Assessment Report (5th) identifies the susceptibility of the health of human populations to shifts in weather patterns and other aspects of climate change.[1] There is consensus in the scientific literature that all regions of the globe are expected to become warmer in the future[2] The Australian Capital Territory (ACT), is likely to experience rising temperatures and a greater number of hot days and extreme heat-related weather events (e.g. heat waves) without global action to reduce emissions.[3]

The association between increase risk of morbidity and mortality in the elderly population (65 years and over) associated with heat related weather events has been established in the literature.[4-9] In the ACT, the general population has been expected to continue to age according to the most recent ACT Population Projection for Suburbs and Districts: 2007 to 2019 (2009) report.[10]. The report predicts the percentage of the ACT's population aged 65 years and over to rise from approximately 10.0 percent 2007 to 14.3 percent in 2019.[10] In 2016, using Australian Bureau of Statistics population estimates (as of 30 June 2016), the population of ACT residents aged over 65 years was 12.5 percent, seemingly on track with projections. The 'health shift' associated with an ageing population and people living longer, with multiple chronic and disabling conditions has important implications for how care is best organised. With a higher risk of mortality associated with shifts in weather patterns towards increased frequency of extremely hot (>35ºC) days and heatwaves, it is important to consider what public health initiatives can be utilised to decrease the risk of mortality in the elderly.

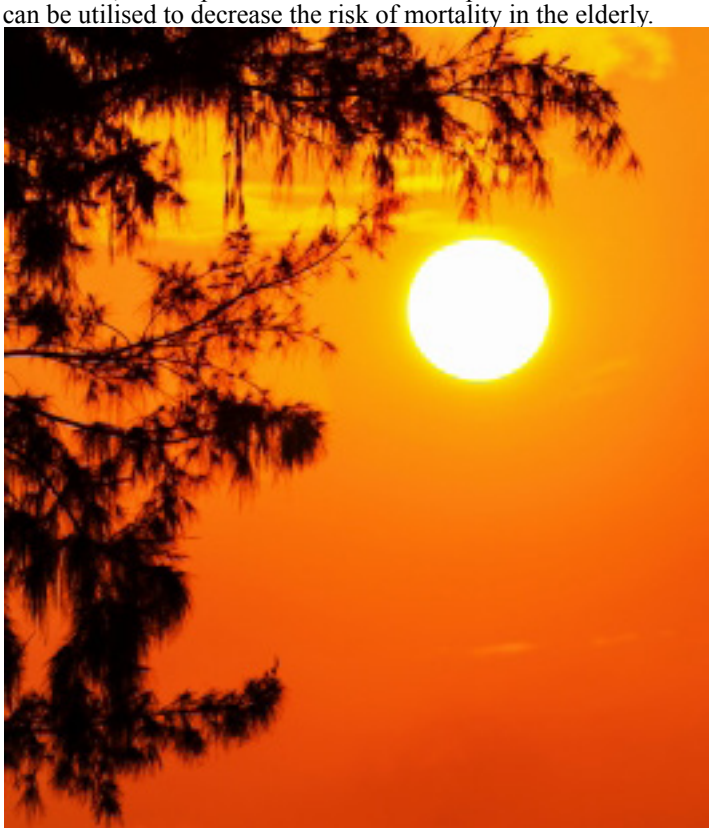

Image: Heat. FreeDigitalPhotos.net

Heat and the Elderly

The elderly have a greater risk of mortality during heatwaves and periods of consistent excessive heat (>35C).[11] The exacerbation of existing medical conditions and heat-specific related health events such as heat stress and heat stroke has been observed to result in increased hospitalisations and emergency department presentations in older age groups.[8,12,13] The increased likelihood of adverse health events in the elderly in association with exposure to excessive heat is primarily a function of biological changes associated with age. Socio-economic and environmental factors also function as determinants of risk level.

Compared to younger people, healthy older people have altered cardiovascular responses to heat stress.[13] The lower limits of thermal tolerance in the elderly during passive heat exposure is expressed in attenuated increase in cardiac output, in part due to a lack of ability to maintain stroke volume.[13] During heat stress older people therefore rely on a greater percentage of their heart rate reserve to increase cardiac output.[14] The increased cardiovascular strain and body's demand for increases in myocardial oxygen, with a reduced increase in thermoregulatory skin blood flow, may prompt acute cardiovascular events in those with clinical or subclinical disease.[13]

The reduction in the ability to increase skin blood flow in response to heat stress with age limits the ability of the body to maintain core temperature during heat stress.[13] Along with reduced thermoregulatory skin blood flow, ageing is also associated with a decreased sweat rate and sweat output per gland.[15] This results in greater heat storage in the elderly, which can also exacerbate cardiovascular strain in response to heat exposure. Although older people have reduced ability regulate body temperature by sweating, sustained exposure to heat stress and prolonged sweating associated with exposure can cause a significant reduction in plasma volume.[13] This reduction and additional changes in blood properties associated with reduced plasma volume contribute to increased susceptibility to acute coronary events and ultimately mortality.[13]

The increased biological susceptibility to heat results in an increased risk of acute coronary events, heat stress/stroke and exacerbation of pre-existing morbidity and mortality among the elderly.

Heat waves and prolonged extreme heat conditions and the potential effect on health are frequently reported on in the media, in Australia and globally.

Following the 2003 European heat wave it was frequently reported in the media that the number of deaths attributable to the heat were in the tens of thousands. France alone reported nearly 14,000 deaths during the heat wave period, the majority of which were observed in people aged over 70 years.[5] Even after controlling for long-term and seasonal time trends with the usual effects of temperature and air pollution, a revised estimate still attributed 3,096 excess deaths to the heat wave.[6] In 2010, in the northern-eastern Indian state of Gujarat, a heat wave was found to be associated with a 43.1 percent increase in all-cause mortality compared to a reference period of non-heat wave conditions.[16] In 2015, in India's east, a heat wave was reported by Time Magazine to have resulted in more than 2,300 deaths, primarily amongst elderly populations.[17] A study of mortality displacement in London found the elderly had the greatest increase in excess deaths compared to younger counterparts.[18] A review of extreme heat events in Australia over 167 years, from 1844 - 2010 identified that extreme heat has resulted in more deaths than the sum of all other natural hazards estimating at least 5,332 people to have died from extreme heat events in Australia.[4] Of these deaths, the elderly were found to be significantly more vulnerable to the risk of heat-associated death than the general population.[4]

Heat stress and ageing: staying safe in the heat *(continued)*

Staying safe in the heat*

Considering the increased vulnerability of the elderly to extreme heat and acute events such as heat waves, it is important they are guided to act cautiously in hot weather. ACT Health advises[19] that to reduce the risk of heat-relates stress the elderly should:

1. Drink plenty of fluids and avoid dehydration:
- Dehydration reduced the body's ability to cool itself by sweating. Despite the reduced sweat rate and output per gland associated with ageing it is important to seek advice from medical professionals as to how much should be consumed, especially if the person is on limited fluids or fluid pills;
- Water is the best fluid to drink;
- Avoid beverages which are diuretics, namely beverages that contain caffeine or alcohol.

2. Stay in a cool environment
- Stay indoors or in the shade wherever possible;
- Sleep in the coolest part of the house or apartment;
- Keep air circulating and use air conditioning if available. If air conditioning is not available at the residence, it should be considered to visit an air-conditioned facility, such as a shopping centre, library or aged care facility (if living independently), or a family member who has air conditioning.

3. Reduce physical activity
- Avoid strenuous physical activity;
- If activity is unavoidable, rest often and drink plenty of fluids.

4. Take extra measures to increase cooling
- Wear light-weight clothing;
- Take a shower, bath or sponge bath;
- Eat regular, light meals.

4. Have relatives or carers in contact
- Relatives or carers should frequently check in on sick or frail people who may need help in coping with the heat.

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Managing outbreaks of communicable disease in aged care facilities

Dr Marlena Kaczmarek and Laura Ford, Communicable Disease Control Section, Health Protection Service, Population Health Protection and Prevention

Introduction

Residential aged care facilities (RACFs) are susceptible to outbreaks of communicable diseases, particularly gastrointestinal and respiratory illnesses, due to the close proximity and mixing of vulnerable residents. In addition, many illnesses that are relatively mild and short-lived in healthy adults can be severe and life-threatening in the elderly. The Communicable Disease Control (CDC) Section of the Health Protection Service (HPS) provides ACT-based RACFs with support and assistance to prevent and manage outbreaks of communicable diseases, including outbreaks of gastrointestinal and respiratory illness (see Box 1 for a list of available resources).

Without appropriate early intervention, an outbreak in an RACF setting can quickly become widespread, leading to a high proportion of residents and staff becoming unwell in a very short period of time. This may result in increased hospitalisations and/or deaths among residents, difficulty maintaining staffing levels due to staff being off sick, physical and psychological decline among residents (due to isolation requirements and cancellation of regular activities), and financial and resource implications for the RACF.

Is important that RACFs work to prevent outbreaks year-round and protect their residents by:

- mandating that staff consistently practice good hand hygiene,
- ensuring that both residents and staff are vaccinated annually against influenza,
- strongly encouraging the family and friends of residents to stay away when they are unwell, and
- ensuring that staff do not attend work when they are unwell.

Outbreaks of viral gastroenteritis and respiratory illness (influenza or influenza-like-illness) occur in RACFs. An outbreak of gastrointestinal illness is defined as two or more cases of vomiting and/or diarrhoea within a 24 hour period.[2] Respiratory outbreaks are defined as three or more cases of influenza-like illness within 72 hours. Influenza-like illness is a combination of fever, cough (or other respiratory symptoms) and one of a range of other symptoms (such as fatigue, muscle aches, or headache).[1]

When an outbreak is notified to the CDC Section, information is obtained about the facility (location, size, number of residents and staff), how many residents and staff are unwell, their symptoms, and when they became unwell. Detailed infection control advice and recommendations are then provided to the RACF to ensure that further spread of the infection can be limited. RACFs are advised to collect specimens in order to identify the pathogen responsible for the outbreak.

Throughout the outbreak, CDC staff liaise with RACF staff on a daily basis in order to monitor the situation, and provide additional advice and/or assistance as needed. For respiratory illness outbreaks that are caused by influenza, CDC can also assist with access to antivirals (such as oseltamivir – tamiflu®) as an additional tool to control the outbreak. Antivirals used in an institutional outbreak setting can potentially prevent infections and reduce the morbidity and mortality associated with an influenza outbreak.[1]

RACF outbreaks of gastrointestinal illness during 2016

There were 16 outbreaks of gastroenteritis illness in RACFs during 2016. These outbreaks affected 301 residents and staff and resulted in 10 hospitalisations. Norovirus was detected in at least one faecal specimen during six of the outbreaks. No pathogens were detected in seven outbreaks and no specimens were submitted for testing in the remaining three outbreaks. On average the outbreaks lasted 14 days (from first onset to the outbreak being declared over), but ranged from five to 24 days.

The number of outbreaks reported was above average in January, as well as between April and July (Figure 1). Norovirus was detected in 50 percent of outbreaks during the autumn and winter months.

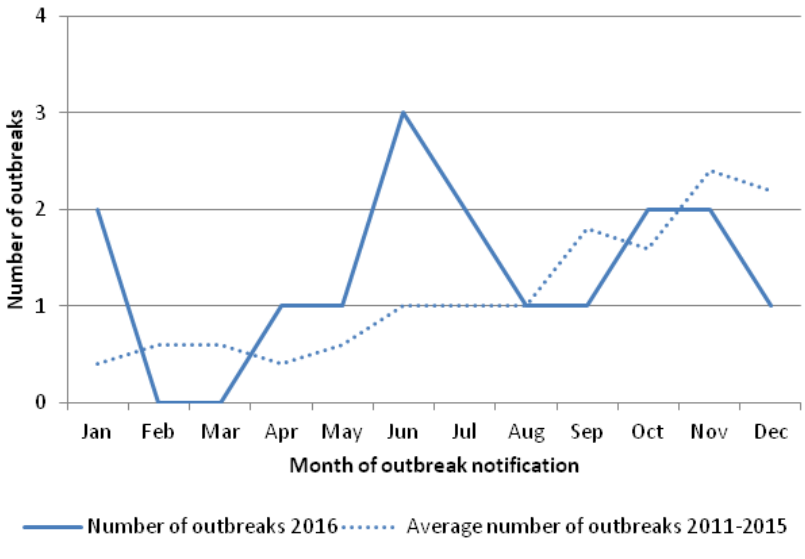

Figure 1. Number of gastroenteritis outbreaks notified in RACFs, by notification date, 2016, Australian Capital Territory.

Case Study

Managing outbreaks of communicable disease in aged care facilities

RACF outbreaks of influenza-like illness (ILI) during 2016

There were 16 ILI outbreaks in RACFs across the ACT during the 2016 influenza season affecting a total of 272 residents and 99 staff, and resulting in 35 hospitalisations and 12 deaths. The number of cases and timing of the outbreak varied by RACF (Figure 2). Outbreaks ranged in duration from nine to 54 days (first onset to outbreak being declared over), although the average duration was 24 days.

Influenza was identified as the predominant respiratory pathogen in 15 of the 16 outbreaks, and there were a total of 115 laboratory-confirmed influenza cases associated with the 16 outbreaks. Antivirals were widely used in two RACFs to manage the outbreaks.

There were two RACFs that were provided with oseltamivir (tamiflu) from the ACT Health stockpile to assist in managing the outbreaks. Overall, 183 courses of oseltamivir were dispensed to residents and staff of these two RACFs.

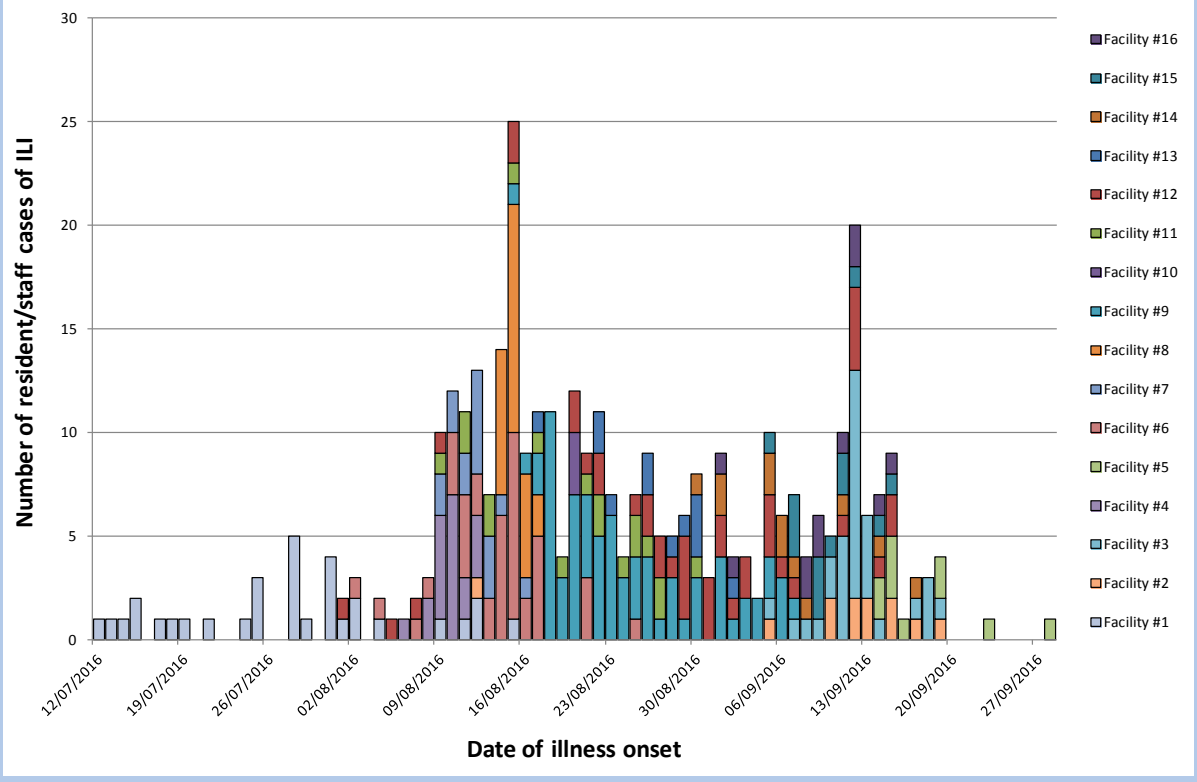

Figure 2. Number of ILI cases associated with RACFs outbreaks, by onset date and facility, 12 July 2016 to 28 September 2016, Australian Capital Territory. Source: Communicable Disease Control Section, ACT Health.

Box 1: Communicable disease outbreak related resources

ACT Health Viral Gastroenteritis Fact Sheet

ACT Health Norovirus Gastroenteritis Fact Sheet

Guidelines for the public health management of gastroenteritis outbreaks due to norovirus or suspected viral agents in Australia

ACT Health Influenza Fact Sheet

A Practical Guide to assist in the Prevention and Management of Influenza Outbreaks in Residential Care Facilities in Australia

Influ-Info Influenza Kit for Aged Care

'Flu and Gastro - Managing infectious diseases in aged care homes - Information for family, carers & friends - Brochure

Influenza in the ACT

For further information or to report an outbreak, you can contact the Communicable Disease Control Information Line on (02) 6205 2155.

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Cancer screening in the ACT

Sonia McCarthy, Office of the Chief Health Officer, Elizabeth Chalker and Leah Newman, Epidemiology Section, Population Health Protection and Prevention Division

Cancer caused the greatest burden of disease in Australia in 2011 and was the leading cause of death in the ACT in 2014.[1,2] The risk of developing cancer increases with age (see Figure 1). In 2013, 1 in 3 males and 1 in 4 females in the ACT were at risk of developing cancer by 75 years of age.[1]

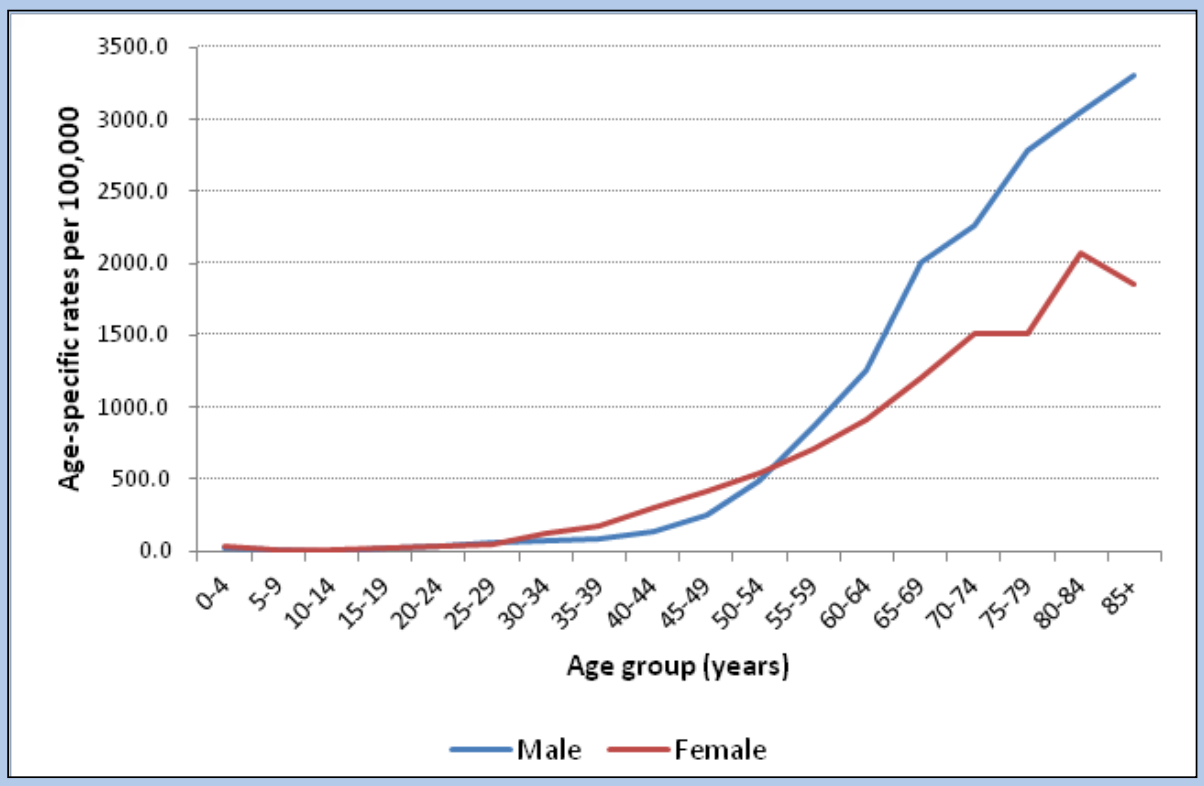

Figure 1: Age-specific incidence for all cancers (excluding non-melanoma skin cancers), ACT, 2010–2014. Source: ACT Cancer Registry

Population-based screening programs have an important role to play in cancer control. Screening enables us to detect certain cancers early, before symptoms develop, and can reduce the number of deaths from cancer in a population. Screening separates people without symptoms into two categories – those with positive screening test results who are likely to have the disease, from those who probably do not. The former are referred for diagnosis and treatment.[3] So why is population-based screening only available for some cancers and not others? The Australian Population Based Screening Framework for cancer is based on the World Health Organization's classic screening criteria, developed by Wilson and Jungner in 1968.[4,5]

In summary, population-based screening should ideally only be offered for conditions that are significant health problems, with existing treatment that is 'effective, available, easily accessible and acceptable'.[4] Screening tests should be safe, accurate and capable of effectively detecting a disease at an early stage. Existing scientific evidence should be taken into consideration; weighing the potential benefits and risks, as well as costs involved. A population-based screening program should ensure that the 'overall benefits of screening outweigh the harm'.[4] As the risk of cancer increases in older age groups, policies and procedures should guide cancer treatment and management, so that the vulnerability and needs of the ageing population are reflected.

Not all types of cancer are suitable for population-based screening. There are three population-based cancer screening programs in the ACT that meet the above criteria and are part of national screening programs:[6]

- BreastScreen ACT: Women aged 50–74 years who are ACT residents and do not have symptoms are actively encouraged to have a free screening mammogram every two years. Women between 40–49 years of age or aged 75 years and over are also eligible for free screening, although they are not actively invited or reminded to attend.[7,8]
- The National Bowel Cancer Screening Program: All Australian men and women aged 50, 55, 60, 64, 65, 70, 72 and 74 are provided with a free bowel cancer home screening kit.[9]
- ACT Cervical Screening Program: All women in the ACT aged between 20–69 years, who have ever been sexually active are currently offered a Pap test every two years.[10,11]

Breast cancer is the most common cancer in females in the ACT, while colorectal (bowel) cancer is the second most common cancer in both males and females. The risk of developing breast and bowel cancer increases after the age of 50. Breast and bowel cancer are among the top five common causes of cancer mortality in the ACT.[1] Cervical cancer, although not as common, is often only symptomatic at a late stage and can be effectively treated if detected early.[6] The incidence of cervical cancer in the ACT peaks in women aged 30–49 years and 60–69 years, which supports the Cervical Screening Program's target age group.[12]

Cancer screening in the ACT *(continued)*

Although prostate cancer is the most common cancer in males in the ACT, there is no population-based screening program for it. This is because unlike breast, bowel and cervical cancer, existing evidence indicates that the harms of screening using the prostate specific antigen (PSA) test outweigh the benefits for population-based screening.[13]

All population-based screening programs have target participation rates and continually monitor and report screening uptake. Between 2014–2015, 55 percent of eligible women participated in BreastScreen ACT, compared to a participation rate of 53 percent nationally, while 56 percent of women aged 20–69 years participated in the ACT Cervical Screening Program – the same as the national participation rate.[14,15] Between 2013–2014, 37 percent of invited people in Australia participated in the National Bowel Screening Program, the newest of the three National Screening Programs – a higher participation rate than in previous years.[16]

ACT Cervical Screening

Meeting a screening program's target participation rate is ideal in order to provide maximum benefit. Measures of participation can provide essential information needed to guide strategies to engage people missing out on screening, noting that people may opt to have screening done privately instead of through national programs.[17] Evidence from population-based cancer screening programs has demonstrated their effectiveness in detecting cancer at an earlier stage and reducing cancer-related deaths. Since BreastScreen Australia was established in 1991, the mortality rate for breast cancer has decreased.[18] The introduction of the National Cervical Screening Program in the same year has resulted in a 50 percent reduction in the number of new cases of cervical cancer and related deaths.[19] The National Bowel Cancer Screening Program was only established in 2006; however initial findings demonstrate that the program is contributing towards a decrease in deaths from bowel cancer in Australia.[20]

Screening programs should not be static, but evolve with time, in keeping with existing evidence and evolving technology. The development of the human papillomavirus (HPV) vaccine and success of the fully funded National HPV Vaccination Program in 2014 has changed the landscape for the future of cervical cancer screening in Australia. In December 2017, the Pap test, currently used for cervical screening will be replaced with a Cervical Screening Test, with associated changes to the frequency and age of screening. Under the new program, women aged between 25 and 74 years will be invited to participate in cervical screening every 5 years. This will include women who have already received the HPV vaccine, as it does not provide protection against all types of HPV and hence, will not prevent all cases of cervical cancer.[21] The National Bowel Cancer Screening Program has changed the age of eligibility for screening since it was started in 2006. The program is also expanding so that by 2019, everyone aged between the age of 50 and 74 years will be provided with a free home screening kit every two years.[9]

Australia's ageing population is contributing to an increasing number of new cancer cases.[18] By 2053, it is estimated that up to 21 percent of the ACT's population will be made up of older persons (aged 65 years and over).[1] Although population-based cancer screening programs have demonstrated public health benefits, it is essential for programs to remain evidence-based and encourage participation of their target populations within an appropriate context. Adequate information about the benefits and risks of screening should be provided, in order for informed consent to be given. In an ageing population, the benefits of screening, early diagnosis and treatment can result in decreased mortality and improved quality of life for the individual, as well as reducing the burden of cancer on the health system.

For further information please contact:

- BreastScreen ACT: http://www.health.act.gov.au/our-services/women-youth-and-children/breastscreen
- The ACT Cervical Screening Program: http://www.health.act.gov.au/healthy-living/cervical-screening
- The National Bowel Cancer Screening Program: http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/content/bowel-screening-1

Cancer screening in the ACT *(continued)*

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Notifiable Disease Report

Number of notifications of notifiable conditions received in the Australian Capital Territory, 1 October to 31 December 2016 (4th Quarter 2016).

	4th QTR 2016	YTD 2016	YTD Average 2011-2015	Ratio YTD:YTD average	Annual Total 2015	Annual Average 2011-2015
VACCINE PREVENTABLE CONDITIONS						
INFLUENZA	**121**	1603	791.0	**2.0**	1205	791.0
PERTUSSIS*	**182**	500	442.2	**1.1**	486	442.2
GASTROINTESTINAL DISEASES						
CAMPYLOBACTERIOSIS	**168**	581	492.6	**1.2**	608	492.6
CRYPTOSPORIDIOSIS	**12**	48	25.4	**1.9**	26	25.4
GIARDIA	**30**	128	121.6	**1.1**	140	121.6
HEPATITIS A *	**0**	2	3.2	**0.6**	3	3.2
HEPATITIS E	**1**	2	1.0	**2.0**	0	1.0
LISTERIOSIS	**0**	0	0.8	**0.0**	1	0.8
SALMONELLOSIS	**49**	265	227.0	**1.2**	237	227.0
SHIGELLOSIS	**1**	5	7.8	**0.6**	7	7.8
STEC/VTEC	**0**	0	2.8	**0.0**	0	2.8
TYPHOID	**2**	3	2.2	**1.4**	2	2.2
YERSINIOSIS	**4**	16	9.8	**1.6**	22	9.8
SEXUALLY TRANSMITTED INFECTIONS						
CHLAMYDIA	**296**	1362	1255.2	**1.1**	1266	1255.2
GONOCOCCAL INFECTION	**56**	201	118.8	**1.7**	141	118.8
VECTORBORNE & ARBOVIRUS						
BARMAH FOREST VIRUS INFECTION	**0**	0	2.6	**0.0**	2	2.6
CHIKUNGUNYA^	**1**	2	0.6	**3.3**	3	0.6
DENGUE FEVER*	**3**	35	16.8	**2.1**	19	16.8
LEPTOSPIROSIS	**0**	0	0.4	**0.0**	1	0.4
MALARIA	**2**	9	9.8	**0.9**	7	9.8
Q FEVER	**0**	2	0.6	**3.3**	0	0.6
ROSS RIVER VIRUS INFECTION	**4**	13	7.6	**1.7**	10	7.6
RESPIRATORY CONDITIONS						
TUBERCULOSIS #	**3**	24	20.2	**1.2**	16	20.2

All Diseases except Tuberculosis are reported by onset date or closest known test date. Tuberculosis is reported by notification date.

* This condition includes cases that meet the probable and confirmed case definitions. Both probable and confirmed cases are nationally notifiable.

^ Zika virus infection became nationally notifiable in 2016. As a result, five-year means and other associated calculations are not available.

For the relevant year, Q1 refers to 1 January to 31 March, Q2 refers to 1 April to 30 June, Q3 refers to 1 July to 30 September, Q4 refers to 1 October to 31 December.

YTD refers to 1 January 2016 to 31 December 2016.

N.B. Data reported are the number of notifications received by ACT Health. Data are provisional and subject to change.

The number of notifications received for all notifiable diseases in the ACT is available at: http://www9.health.gov.au/cda/source/cda-index.cfm

HIV data are reported annually by the Kirby Institute: http://www.kirby.unsw.edu.au/surveillance/Annual-Surveillance-Reports

Notifiable Disease Report

Number of notifications of notifiable conditions received in the Australian Capital Territory, 1 October to 31 December 2016 (4th Quarter 2016).

Vaccine-preventable Diseases

The 2016 influenza season occurred largely during the third quarter of 2016 (1 July to 30 September 2016). Notifications of influenza reported to ACT Health between 1 October and 31 December 2016 (Q4 2016) were significantly lower than during Q3 2016 and similar to notifications received during the same period in previous years.

There were 182 cases of pertussis notified during Q4 2016 and a total of 500 cases for 2016. The number of pertussis cases in 2016 is similar to the number of cases notified in the previous five years (2011-2015) with a ratio of 1.1 times the 5-year year-to-date (YTD) mean. In 2016, primary school children (aged 5-12 years) accounted for 25% of cases and there were instances of ongoing transmission at a number of primary schools. ACT Health conducts public health follow-up of notified cases of pertussis to limit the spread of disease to groups at risk of serious complications such as infants <6 months. Vaccination is the most effective way to avoid pertussis infection, however immunity does fade over time and it is still possible to get pertussis even if vaccinated in the past. Pertussis immunisation is offered to children and adolescents as part of the National Immunisation Program. In addition, a pertussis booster is recommended and funded for pregnant women during each pregnancy when they are between 28-32 weeks gestation.

During 2016 there were a total of two notifications of measles in the ACT. Both cases were linked (family members) and occurred in overseas-born children who had not been fully vaccinated for their age, who were likely exposed overseas. Measles is a serious and highly contagious viral illness that usually begins with fever, tiredness, cough, runny nose and sore eyes. People that are considered to be most susceptible to measles include those born in or after 1966 who have not had two doses of a measles-containing vaccine as well as people who are immunosuppressed (even if they have been fully immunised or have had past measles infection).

There were no cases of invasive meningococcal disease, mumps, rubella, or tetanus notified in the ACT during Q4 2016.

Gastrointestinal Diseases

During the fourth quarter of 2016, there were 265 notifications of gastrointestinal diseases. While overall notifications were higher than the five year fourth quarter average, notifications were generally lower than the fourth quarter of 2015. Increased used of polymerase chain reaction testing for campylobacteriosis, cryptosporidiosis, and yersiniosis over the last few years have likely contributed to the increase in notifications compared to the five year average.

There was one outbreak of suspected foodborne gastroenteritis investigated during this quarter. The outbreak was identified via complaints following two separate events on the same day at different locations catered by the same company. Eighteen of the 50 people across the two events developed symptoms of vomiting, diarrhoea, and nausea and two people visited the GP; however no faecal specimens were collected for testing, so the cause of the outbreak remains unknown. An inspection of the catering business did not identify any issues with food safety standards, there were no ill food handlers identified, and no pathogens were detected in food samples and environmental swabs collected for testing.

Thirty seven outbreaks of non-foodborne gastroenteritis were investigated during the fourth quarter of 2016. Norovirus was detected in at least one faecal specimen from 3 of these outbreaks. There was no testing or no pathogen identified in the remaining 34 outbreaks, but a viral agent was suspected.

Vectorborne and Arbovirus infections

Although there were only 3 notifications of dengue fever during Q4 2016, the total for the year (n=35) was 2.1 times the 5-year mean. All 35 cases diagnosed with dengue infection in 2016 acquired their infections overseas, primarily in countries in South and South-East Asia. Dengue is a viral illness spread by the *Aedes aegypti* mosquito. The virus itself is not endemic in Australia, but there is potential for transmission locally due to the presence of *Aedes aegypti* in parts of northern Australia.

In 2016, there have been a total of 13 cases of Ross River virus notified to ACT Health, of which four were reported during Q4. Although all cases notified during Q1-Q3 2016 reported possible exposures interstate (including in NSW) or overseas, three of the four cases notified during Q4 were likely exposed in the ACT (no history of interstate or overseas travel). Symptoms can include: an influenza-like illness (fever, chills, headache, muscle aches); joint pain, swelling, or stiffness; a rash over the body, arms or legs; and a general feeling of being unwell, tired or weak.

Section Highlight

Office of the Chief Health Officer

The Office of the Chief Health Officer (OCHO) is an office within the Population Health Division of ACT Health.

The OCHO supports the Chief Health Officer in the carriage of statutory responsibilities, and is responsible for the development and implementation of policy and legislative frameworks across a range of public health issues. The OCHO also undertakes select policy and project work at the direction of the CHO.

Key areas of responsibility include:

- Coordination and development of Medicinal Cannabis policy;
- gene technology policy;
- organ and tissue donation policy;
- provision of public health physician support to the Health Protection Service; and
- provision of public health surge capacity to the Population Health Division.

Left to right: Dr Sonia McCarthy, Dr Vanessa Johnston, Kirsty Whybrow, Dr Andrew Pengilley, Dr Ranil Appuhamy, Emily Harper.

Absent: Paula Sutton

Shingles vaccine

A single dose of herpes zoster vaccine is now funded on the National Immunisation Program (NIP) for all adults at 70 years of age. A single catch-up injection will also be funded for adults aged 71–79 years for a five year period.[1]

For most people, herpes zoster (commonly known as shingles) is an acute, self-limiting, vesicular rash which is often painful and lasts approximately 10–15 days. The rash is usually only on one side of the body. In 80 percent of shingles cases the person feels unwell 48–72 hours before the appearance of the rash with symptoms of itching, tingling or severe pain in the affected area and sometimes headache, photophobia and malaise.[2]

The most common complication of shingles is persistent chronic neuropathic pain known as post-herpetic neuralgia (PHN). Post-herpetic neuralgia can have a substantial impact on quality of life.[2]

Clinical trials and post marketing surveillance have shown the vaccine to be safe and well tolerated. Shingles vaccine is contraindicated for persons with significant immunocompromise.[1]

The Australian Immunisation Handbook recommends shingles vaccination for adults 60 years and older who have not previously received the vaccine. Although vaccine efficacy is lower in people over 80 years of age there may be some benefit if they receive the vaccine. Only persons 70-79 years can access the NIP funded shingles vaccine.[3] People outside this age range will need to purchase the vaccine via private prescription.

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