

# Ophelia Grampians - Optimising Health Literacy and Access to Cancer Care in the Grampians

Final Report  
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Health Systems Improvement Unit  
Centre for Population Health Research  
Deakin University



## Contributors

This report was developed by Health Systems Improvement Unit, Deakin University, Melbourne, Australia.

Website: <http://www.deakin.edu.au/hmnbs/research/phi/index.php>

Investigators: Dr Sarity Dodson, Professor Richard Osborne, Dr Alison Beauchamp, Mr Roy Batterham and Professor Patricia Livingston

Contributors: Ms Carol Wildey, Ms Crystal McPhee, Ms Alexandra Fulton, Ms Lauren Waycott, Dr Jonathan O'Hara and Ms Melanie Hawkins.

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## Keywords

- |                                  |                          |
|----------------------------------|--------------------------|
| 1. Health literacy               | 5. Health services       |
| 2. Cancer                        | 6. Cancer survival       |
| 3. Rural                         | 7. Patient engagement    |
| 4. Social determinants of health | 8. Participation in care |

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# Executive Summary

This project explored health literacy and related factors that may contribute to observed higher incidence of cancer and cancer mortality in the Grampians region of Victoria, Australia. The project engaged local stakeholders and explored opportunities for service improvement along the cancer care pathway and at the patient, provider, service and regional levels.

## Background

Excess mortality from cancer is a public health issue in the Grampians region. The reasons are unknown.

Rates of participation in cancer screening across the region are slightly higher than the state average for breast [1] and bowel [2], whilst cervical screening participation is lower [3]. There is a higher prevalence of lifestyle risk factors for cancer, including smoking, physical inactivity, and poor diet [4].

Access to primary care is limited in some areas, with the ratio of GPs to patients being lower than the state average [5]. Cancer care services are available across the region, however Ballarat offers the widest range of public and private cancer care options.

A combination of patient- and system-related factors may contribute to poorer cancer outcomes in the Grampians region. Higher rates of unhealthy behaviours may be indicative of lower health literacy and other social determinants of health, and of lower levels of engagement with primary and preventative care.

Prior to the current study, there were no data available to describe the health literacy of Grampians residents, or the relationships between health literacy strengths and challenges, lifestyle behaviours, participation in cancer screening programs, and people's experiences when engaging with local services.

## *The Ophelia approach for generating fit-for-purpose solutions*

The Ophelia process was developed by Deakin University to guide large-scale development and implementation of health service improvement initiatives. It is a structured approach to identifying, understanding and responding to the health literacy needs of a community. There are three phases of the Ophelia approach, and the current project operationalised Phase 1: Identifying the health literacy needs and strengths of the local community.

## *Study aims*

This project sought to understand health literacy-related factors that may contribute to disparities in cancer diagnoses and mortality in the Grampians region. An improved understanding may assist the design of interventions seeking to improve health literacy, access to services, and the quality of cancer care.

The specific aims of this project were to identify:

- the health literacy profiles of residents of the Grampians region;
- factors influencing Grampians residents' engagement with health activities and healthcare (especially cancer prevention, early detection and treatment services); and
- potential service improvement initiatives that could be implemented in the Grampians region to address identified engagement issues.

## Method

Application of Phase 1 of the Ophelia process involved three steps: 1) project set up; 2) consultation with residents of the Grampians region to uncover health literacy strengths and challenges, and barriers and enablers to effective engagement with health information and care; and 3) consultation with residents and providers to identify strategies that might improve the fit between service delivery and consumer needs.

People with cancer, and members of the community without a cancer diagnosis, were recruited to participate. People with cancer were recruited to provide insights into experiences with cancer care services. Members of the general community were recruited to allow us to capture the experiences, knowledge and skills of people who are potential future users of cancer services, and people receiving surveillance and diagnostic services.

### ***Collection of health literacy data from residents of the Grampians region***

Participants completed a questionnaire that consisted of the Health Literacy Questionnaire (HLQ), questions relating to lifestyle and cancer screening behaviours, and self-rated overall health. People with cancer were also asked to provide information about their cancer and cancer care.

A subgroup of survey respondents also took part in phone based semi-structured interviews exploring their health care experiences.

### ***Response Ideas Workshops***

Seven response ideas workshops were undertaken across the region: three with consumer participants; three with cancer healthcare workers; and one with general practitioners. Workshops involved discussion of a series of vignettes derived from the data, each representing a different pattern of challenges experienced by survey and interview respondents. Stakeholders reflected upon the challenges represented and considered service improvements that might be implemented to better support people experiencing such difficulties.

## Findings

### ***Health literacy and healthcare experiences of residents of the Grampians region***

Health literacy was explored quantitatively using a health literacy questionnaire, and qualitatively through telephone interviews. Across all domains of the HLQ, the cancer sample reported higher health literacy than the community sample ( $p < 0.01$ ).

Cluster analysis of the HLQ scale scores for the community sample revealed eight distinct respondent sub-groups. Similarly, nine respondent sub-groups were identified within the cancer sample. Sub-groups were distinct in terms of their pattern of responses to the HLQ, and differed also on some demographic characteristics and health behaviours.

Interviewees reported a number of intra- and inter-personal factors that influenced the way they accessed and engaged with health information and healthcare services. Six themes relating to respondent skills and attributes were identified, and six themes relating to engagement barriers and enablers.

### ***Service improvement ideas generated by local stakeholders in response to issues identified through surveys and interviews***

Overall, 56 ideas for improving experiences of care, and residents' access to health information and services were generated during a series of cancer care consumer and service provider workshops.

Ideas generated by cancer care consumers centred around improvements that could be made to services that were available, and to the nature of the patient-provider interaction. Also discussed were a range of 'opportunistic' strategies that providers and organisations could employ to engage community members in self-care and screening programs. Ideas generated by providers also centred in part around service availability. There was less focus in service provider workshops, on the nature of the patient-provider relationship, and more focus on systems, training, and tools to support effective patient engagement and the provision of quality care.

## Recommendations

The data generated provides guidance for service improvement and complements the Optimal Cancer Care Pathways [52]. The data collection and synthesis steps undertaken for this study constitute Phase 1 of the Ophelia approach. Phase 2 and 3 involve using the data gathered and relationships established during Phase 1, to empower and equip local stakeholders to produce and implement fit-for-purpose, integrated and scalable interventions.

**R 1.** Discuss and use the results of this needs assessment, along with other local data, to develop and implement a regional cancer care improvement plan.

Specific recommendations for improving community engagement with healthcare and health activities are presented across five levels: 1) community, 2) primary care services, 3) cancer care services, 4) regional partnerships, and 5) policy and funding bodies.

These recommendations are a synthesis of service improvement ideas and comments made within workshops and interviews. They offer a way to operationalise the ideas generated by stakeholders, and improve consumer engagement with health activities and health care.

### ***Actions at the level of communities***

**R 2.** Work with local organisations, social groups, community leaders and health providers to deliver local campaigns promoting key public health messages.

**R 3.** Work with local organisations, social groups, community leaders and health providers to deliver local campaigns promoting cancer screening programs.

**R 4.** Value and engage carers, peers and volunteers.

### ***Actions at the primary care level***

**R 5.** Protect and promote people's relationships with their general practitioner.

**R 6.** Promote and make access to screening easy.

**R 7.** Undertake ongoing monitoring and review of cancer screening promotion practices at the service level.

**R 8.** Participate in health promotion and service improvement activities.

**R 9.** Identify and address personal barriers to engagement in cancer prevention behaviours, early detection and screening activities, and cancer care.

**R 10.** Facilitate engagement with health information.

**R 11.** Undertake provider training.

**R 12.** Coordinate care.

### ***Actions at the cancer services level***

Recommendations 5,8,9,10,11,12 apply at the level of cancer services in addition to primary care.

### ***Actions at the regional partnership level***

**R 13.** Region-wide service coordination.

**R 14.** Development of infrastructure, technology and environments that promote and facilitate engagement in health activities and care.

### ***Actions at the policy and funding level***

**R 15.** Partner with local services.

**R 16.** Focus investments in the development of workforce capacity, infrastructure, health messaging, technology solutions, service quality, and community and service capacity to plan and organise local resources.

**R 17.** Identify and communicate to local services, observed gaps in service provision, issues with communications materials and technologies, and issues with pathways between services at the regional and local levels.

**R 18.** Implement practice standards for coordination, assessment, care planning, and care provision. Guidelines for the development and provision of written information should also be implemented.

# Background

The current study sought to understand health literacy-related factors that may contribute to disparities in cancer diagnoses and mortality in the Grampians region. An improved understanding may assist the design of interventions seeking to improve health literacy, access to services, and the quality of cancer care in the region.

## Environmental and social characteristics of the Grampians region

The Grampians region spans from western Melbourne to the border with South Australia. The region comprises 11 Local Government Areas (LGAs) (see Figure 1) [6], which are distributed between three subregions: 1) Central Highlands; 2) Grampians Pyrenees; and 3) Wimmera. Ballarat is the regional centre and hosts a population of just over 100,000 residents [7].

Compared with the Victorian state average, the Grampians population has lower levels of educational attainment, less cultural and

linguistic diversity, higher rates of community members reporting Aboriginal and Torres Strait Islander descent, and lower individual income. There are also more residents aged over 65 years compared with the state average [5]. Different economic characteristics exist across the region. Dry-land farming and mining predominate in the western Wimmera sub-region, and the Central Highlands sub-region hosts the regional centre of Ballarat, and benefits from its close proximity to Melbourne. The region is also host to a number of significant manufacturing bases. Challenges for the region include the potential for changing climate patterns impacting dry-land farming and the vulnerability some communities have to bushfires [6].

**Figure 1: Eleven local government areas (LGAs) of Victoria's Grampians region**



Source: Victorian Department of Health and Humans Services

## Cancer in the Grampians region – the key facts

Excess mortality from cancer is a public health issue in the Grampians region. Cancer Council Victoria report 5-year survival rates (see Table 1) at 64% for Grampians residents in contrast to an average of 69% for Melbourne and 65% for the rest of Victoria [8]. Incidence rates are also

high in some areas (see Table 2) [5]. Mortality rates from cancer vary across the region (see Table 3) [2]. Rates of bowel cancer and melanoma are the highest in Victoria, with rates of lung and breast cancer also above the state average [5]. Consistent with these trends, the rate of admissions for oncology and radiology is 44 per 1000 residents. In contrast, the state average is 26 admissions per 1000 residents [5].

**Table 1: Five year survival (percentage) by region of residence for all Victorians with cancer 2009-2013 (unstandardised) [8]**

|                            | 5 year survival % | 95% confidence interval | p-value |
|----------------------------|-------------------|-------------------------|---------|
| Melbourne                  | 69                | 68,69                   | ←0.01   |
| Rest of Victoria           | 65                | 64,65                   |         |
| Southern Region            | 69                | 69,70                   | ←0.01   |
| Western and Central Region | 66                | 65,67                   |         |
| North Eastern Region       | 70                | 69,71                   |         |
| Barwon Region              | 65                | 64,66                   |         |
| <b>Grampians Region</b>    | <b>64</b>         | <b>62,65</b>            |         |
| Loddon-Mallee Region       | 65                | 64,67                   |         |
| Hume Region                | 67                | 66,69                   |         |
| Gippsland Region           | 62                | 61,63                   |         |

**Table 2: Total malignant cancers diagnosed per 1000 population, in 2011, across 11 Grampians LGAs (unstandardised) [5]**

|                    | Total       |
|--------------------|-------------|
| Ararat             | 5.58        |
| Ballarat           | 5.59        |
| Golden Plains      | 5.66        |
| Hepburn            | 6.55        |
| Hindmarsh          | 6.98        |
| Horsham            | 6.09        |
| Moorabool          | 5.42        |
| Northern Grampians | 6.62        |
| Pyrenees           | 7.58        |
| West Wimmera       | 10.73       |
| Yarriambiack       | 7.83        |
| <b>Grampians</b>   | <b>6.00</b> |
| <b>Victoria</b>    | <b>5.13</b> |

**Table 3: Average annual death rate from cancer per 100,000 population aged 0 to 74 years (unstandardised) [6]**

|                    | Average    |
|--------------------|------------|
| Ararat             | 116.2      |
| Ballarat           | 107.2      |
| Golden Plains      | 126.4      |
| Hepburn            | 99.1       |
| Hindmarsh          | 104.3      |
| Horsham            | 92.8       |
| Moorabool          | 89.7       |
| Northern Grampians | 138.6      |
| Pyrenees           | 101.2      |
| West Wimmera       | 97.1       |
| Yarriambiack       | 119.3      |
| <b>Victoria</b>    | <b>103</b> |

## Patient- and system-related factors related to cancer outcomes

The reasons for poorer cancer outcomes in the Grampians region are unknown, but it is likely that a mix of disease (e.g. type of cancer), patient (e.g. lifestyle, genetics, timing of presentation, and participation in treatment), system (e.g. treatment access and quality), and environmental (e.g. exposure to carcinogen) factors contribute [11]. Health outcomes observed in the Grampians region are consistent with a national trend towards poorer health outcomes for people living outside major cities [10]. Reporting issues may also explain observed variation.

### Participation in cancer screening programs

Rates of participation in cancer screening across the region are shown in Table 4. Participation in breast [1] and bowel [2] cancer screening is slightly higher than the state average, whilst cervical cancer screening participation is lower [3].

## Lifestyle behaviours

Residents of the Grampians region report a high prevalence of lifestyle risk factors for cancer. A higher proportion of Grampians residents report smoking (21%) [4] than the state average (12.6%) [12]. Fewer residents, particularly in some parts of the region, report meeting physical activity (up to 6% lower than state average) and dietary guidelines (up to 9% lower than the state average). Rates of alcohol consumption are consistent with state norms [4]. Higher rates of unhealthy behaviours may be indicative of lower health literacy and other social determinants of health, and of lower levels of engagement with primary and preventative care.

### Healthcare in the Grampians region

**Primary care** is provided by a mix of small and large general practices across the region, with the ratio of primary care providers to patients being lower than the state average [5]. Rural Health Workforce Australia report 315 GPs practicing in the region, 38% of whom are women [13]. Specialist screening services exist for breast cancer screening in Ballarat and Horsham.

**Table 4: Cancer screening participation across 11 Grampians LGAs**

|                    | Breast cancer screening participation % [12] | Cervical cancer screening participation % [13] | Bowel cancer screening % [6] |
|--------------------|--|--|------------------------------|
| Ararat             | 52.7   | 48.6   | 40.8                         |
| Ballarat           | 59.4   | 54.8   | 43.7                         |
| Golden Plains      | 49.5   | 62.9   | 42.2                         |
| Hepburn            | 52.8   | 63.3   | 35.8                         |
| Hindmarsh          | 58.9   | 57.8   | 41.2                         |
| Horsham            | 65.1   | 58.2   | 42.0                         |
| Moorabool          | 53.4   | 58.2   | 38.7                         |
| Northern Grampians | 60.2   | 54.1   | 39.2                         |
| Pyrenees           | 45.9   | 52.1   | 38.0                         |
| West Wimmera       | 56.6   | 49.5   | 40.5                         |
| Yarriambiack       | 58.6   | 50.7   | 35.9                         |
| <b>Grampians</b>   | 56.9   | 56.2   | 41.0                         |
| <b>Victoria</b>    | 55.9   | 60.7   | 37.1                         |



Programs to increase numbers of general practitioners in rural areas – including the 10 year moratorium on overseas trained doctors (OTDs) and rural practice incentives – has resulted in an increased ratio of OTD to Australian-trained doctors practicing in outer regional areas [14]. 57% of the GPs in the Grampians region are OTD [13]. Further, programs such as the 5-year OTD scheme enables OTDs to reduce their 10-year obligation for rural practice if (amongst other requirements) they seek a Fellowship with RACGP or ACRRM during their term within rural practice. One requirement of these Fellowship programs is a series of 6-month placements in eligible rural areas.

**Secondary and tertiary care** are available through public hospitals in all Grampians LGAs, with the exception of Golden Plains. Six of these services provide emergency care. The major regional health service is *Ballarat Health Service (BHS)*. The ratio of nurses to patients is higher in the Grampians than the state average, while the ratio of specialist medical practitioners to patients is substantially lower [5].

For secondary and tertiary care, residents of Ararat most frequently attend the Ararat-based *East Grampians Health Service (EGHS)*. Residents of Ballarat, Hepburn, Moorabool, and Pyrenees most frequently attend the Ballarat-based *Ballarat Health Services (BHS)*. Residents of Golden Plains most often attend *Geelong Hospital*. Residents of Hindmarsh, Horsham, West Wimmera and Yarriambiack most often attend the Horsham-based *Wimmera Base Hospital*, and North Grampians residents attend *Stawell Regional Health (SRH)* [5].

**Cancer care** services are available across the region, however Ballarat offers the widest range of public and private cancer care options. Public acute, day oncology, outpatient, and wellness care are provided by *Ballarat Regional Integrated Cancer Centre (BRICC)* in partnership with *Ballarat Austin Radiation Oncology Centre (BAROC)*. Ballarat based *St John of God Hospital* also offers a range of acute, outpatient and day oncology services for private patients. *Ballarat Oncology and Haematology Services (BOHS)* at *Ballarat Day Procedure Centre*, *Ballarat Cancer Care*, and *Ballarat Urology* also offer private services within Ballarat.

Cancer care within the Grampians Pyrenees and Wimmera sub-regions is provided by *Wimmera Health Care Group (WHCG)*, *EGHS* and *SRH* which offer outpatient care, a cancer nurse practitioner, some cancer surgical services, and day oncology. BOHS also runs clinics in Horsham and Stawell, BRICC offer oncology services in Stawell, and *Ballarat Urology* consult in Ararat, Stawell and Horsham.

Specialist breast, prostate and blood cancer nurses provide support and care across the region, as do nurses in the palliative care network. Cancer resource nurses provide a defined scope of supportive care from services in the Wimmera sub-region.

**Integrated Cancer Services (ICS)** is a statewide initiative that seeks to form regional cancer clinical networks across Victoria. Grampians Integrated Cancer Services (GICS) is a partnership between Grampians region health and community services that works to facilitate and promote service integration and quality improvement.

### **Health literacy**

Health literacy brings together many concepts that relate to what people and communities need in order to make effective decisions about health for themselves, their families and their community (see Figure 2).

Health-related decisions can impact a person's own health, the health of another person, or the health of the community. These decisions may be made either by a group of people (e.g., a family or community) or an individual.

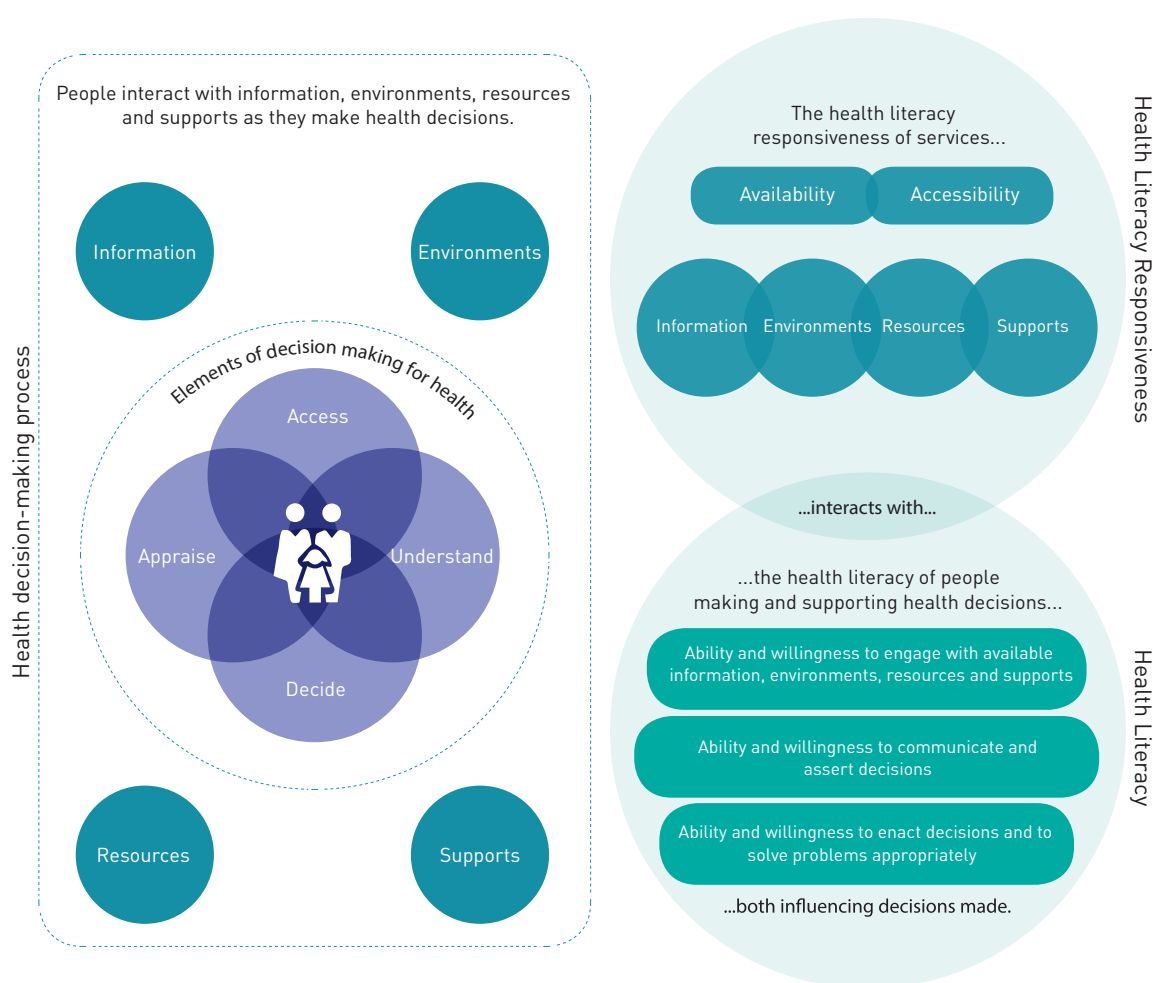
#### **What is health literacy?**

Health literacy refers to the personal characteristics and social resources needed for individuals and communities to access, understand, appraise and use information and services to make decisions about health. Health literacy includes the capacity to communicate, assert and enact these decisions [15, 16].

Individuals and communities can have health literacy strengths and challenges that influence how effectively they engage with health information and services. Health and social service systems can also have strengths and challenges in how they respond to the health literacy of the people they serve [17, 18]. Health literacy responsiveness describes the way in which services make health information, resources, supports and environments available and accessible to people with different health literacy strengths and challenges [15, 16].

The health literacy of individuals and communities influences (and is influenced by) health behaviours and the characteristics of society and the healthcare system [19-22]. Further, it is context- and content-specific, so health literacy challenges for an individual in one setting (e.g., cancer screening or supermarket shopping) may be quite different in another (e.g., decisions about cancer treatment when interacting with an oncologist) [21] (see Figure 3).

**Figure 2: The interaction between health literacy and the health literacy responsiveness of services [14,15]**





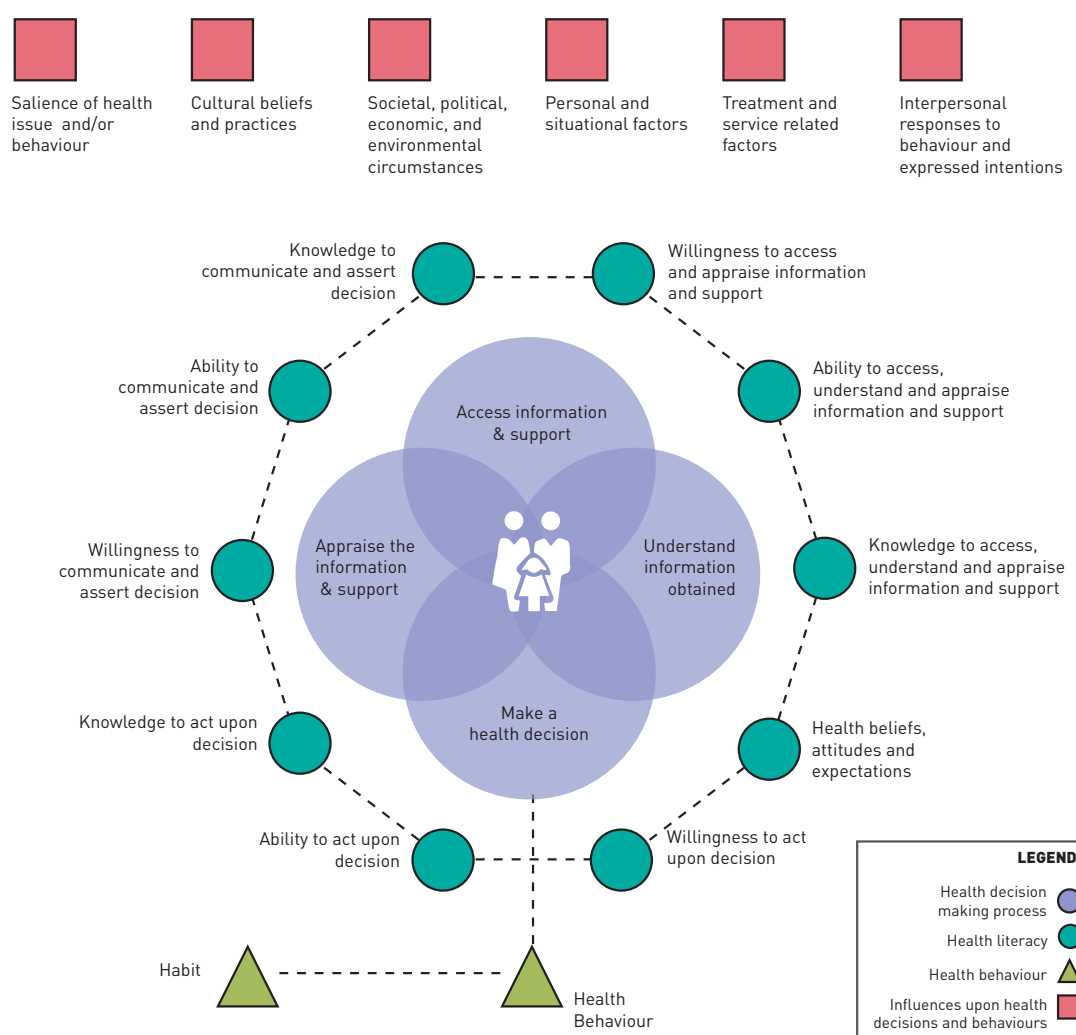
Low health literacy has been measured using tools that mainly capture reading ability and numeracy. These studies have shown correlations between health literacy and:

1. increased hospital admissions and re-admissions [23-27]
2. poorer medication adherence and increased adverse medication events [28, 29]
3. less participation in prevention activities [26, 30-33]
4. higher prevalence of health risk factors [34, 35]
5. poorer self-management of chronic diseases [35-39] and poorer disease outcomes [39, 40]

6. less effective communication with health care professionals [39, 41, 42]
7. increased health care costs [43-45]
8. lower functional status [46] and poorer overall health status [47, 48] including increased mortality [49-51].

Prior to the current study, there were no data available to describe the health literacy of Grampians residents. In particular, there was no information exploring the relationships between health literacy strengths and challenges and lifestyle behaviours, participation in cancer screening programs, or people's experiences when engaging with local services.

**Figure 3: Links between health literacy and health behaviours [15]**



## The Ophelia approach for generating fit-for purpose solutions

The Ophelia process was developed by Deakin University to guide large-scale development and implementation of health service improvement initiatives. It is a structured approach to identifying, understanding and responding to the health literacy needs of a community [18].

### Ophelia means

Optimizing  
Health  
Literacy and  
Access to health  
information and services

The Ophelia process is guided by the following eight principles:

- 1 Focus on improving health and wellbeing **outcomes**
- 2 Focus on increasing **equity** in health outcomes and access to services for people with varying health literacy needs
- 3 Prioritise **local wisdom, culture and systems**
- 4 Respond to **locally-identified health literacy needs**
- 5 Respond to the **varying and changing health literacy needs** of individuals and communities
- 6 Engage all relevant stakeholders in the **co-creation** and implementation of solutions
- 7 Focus on improvements at, and across, **all levels of the health system**
- 8 Focus on achieving **sustained improvements** through changes to environments, practice, culture and policy

There are three phases of the Ophelia approach (see Figure 4). The approach draws upon three key conceptual models/discourses: intervention mapping, quality improvement collaboratives, and realist synthesis [18].

***Phase 1: Identifying the health literacy needs and strengths of the local community***

Information about the health literacy needs of the full range of people relevant to target services is collected using the HLQ and other available data sources. These data are analysed and presented to project sites for open discussion, interpretation and decision-making about local priorities.

***Phase 2: Co-creation of health literacy interventions***

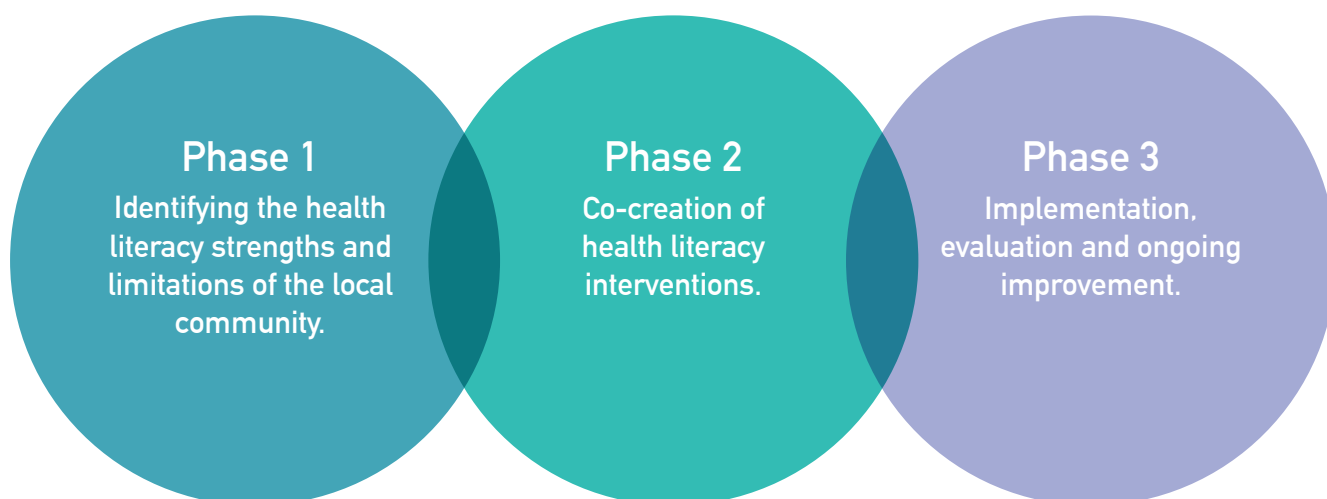
Local stakeholders work together to identify and collate their local experiences, expertise, and innovative ideas. Interventions that respond to local health literacy needs are designed and the processes and resources required for implementation are planned and tested.

***Phase 3: Implementation, evaluation and ongoing improvement***

Following refinement of interventions, using quality improvement cycles, organisations develop and implement trials to determine the efficacy of developed strategies.

The current project - Ophelia Grampians: Optimising Health Literacy and Access to Cancer Care in the Grampians - operationised Phase 1 of the Ophelia approach, to understand the health literacy needs of Grampians residents and work with local stakeholders to identify ideas for cancer care improvements. Within this context of examining cancer care, the project drew upon the Cancer Council of Victoria's Optimal Cancer Care Pathways as a framework to examine the experiences of consumers across the cancer care journey.

**Figure 4: Phases 1 to 3 of the Ophelia approach**

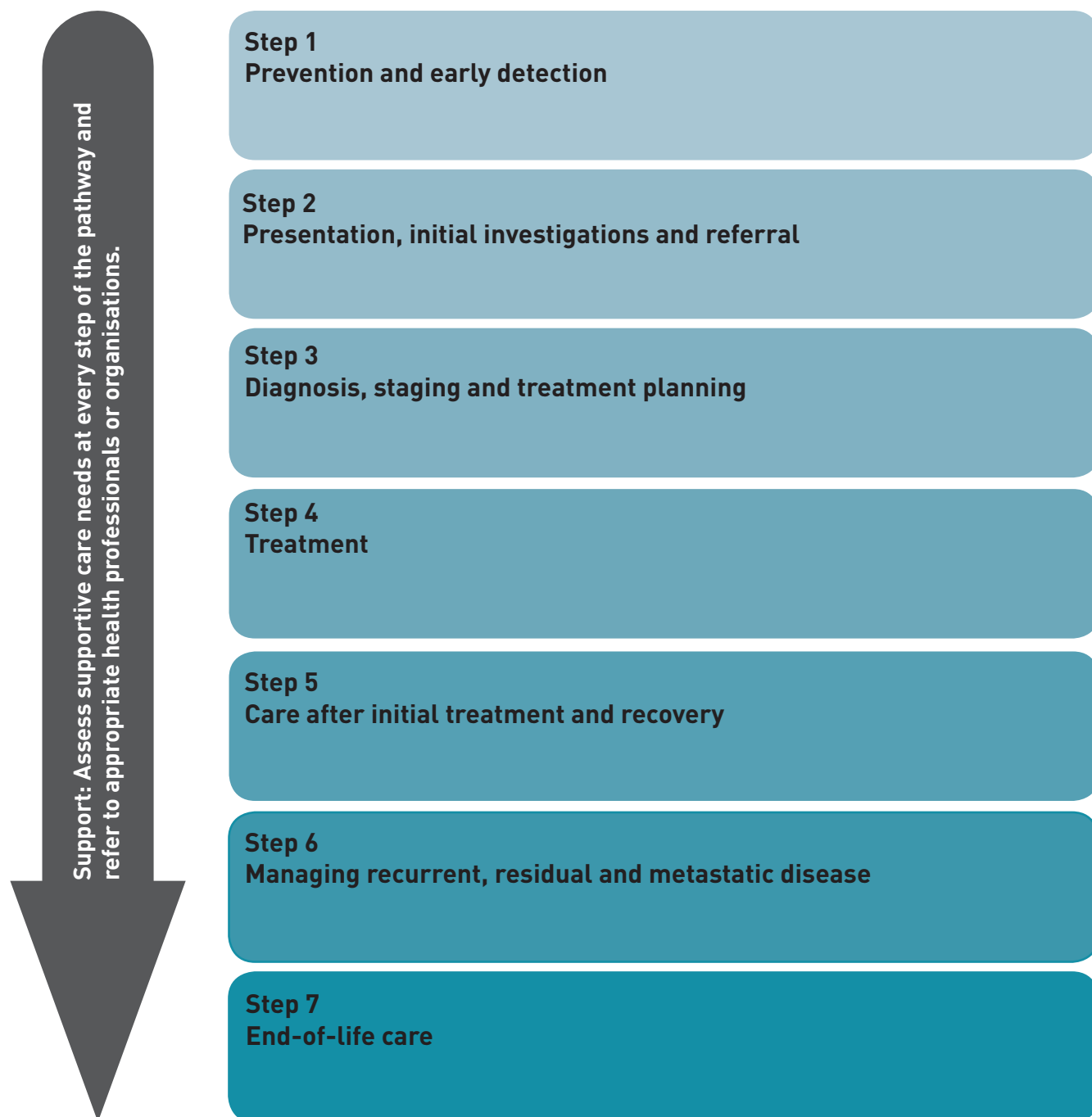


## The Optimal Cancer Care Pathway

Cancer Council Victoria was commissioned by the Victorian Department of Health and Human Services in 2012 to undertake a review of the Patient Management Frameworks now known as the Optimal Care Pathways (OCPs) for specific cancer types [52]. These OCPs (see

Figure 5) describe the patient journey through cancer care services, and are intended to promote understanding of patient experiences and the delivery of quality cancer care along the continuum of care. OCPs describe critical points along the care pathway and the care that is recommended at each point.

Figure 5: Optimal Cancer Care Pathway [7]



## **Rationale and aims of the study**

Poorer cancer outcomes have been observed in the Grampians region compared with other Victorian regions. This project sought to understand health literacy-related factors that may contribute to higher rates of cancer diagnoses and mortality in the Grampians region. An improved understanding may assist the design of interventions seeking to improve health literacy, access to services, and the quality of cancer care. The outcomes of this project are expected to inform the development and implementation of service improvement initiatives.

### ***Study aims***

The overall aim of this project was to understand potential mechanisms that contribute to poorer cancer outcomes in the Grampians region.

The specific aims of this project were to identify:

- the health literacy profiles of residents of the Grampians region;
- factors influencing Grampians residents' engagement with health activities and healthcare (especially cancer prevention, early detection and treatment services); and
- potential service improvement initiatives that could be implemented in the Grampians region to address identified engagement issues.

# Methods

The Ophelia approach was used to uncover patient- and system-related factors that potentially contribute to disparities in cancer outcomes for Grampians residents, and use these insights to generate ideas for addressing consumer needs and improving service delivery. These factors were examined as potential barriers to an optimal cancer care pathway.

The project sought to uncover mechanisms that may influence:

- participation in screening programs;
- engagement with primary care services;
- timing of diagnosis and treatment commencement;
- engagement with treatment planning; and
- engagement with treatment and ongoing management.

Application of Phase 1 of the Ophelia process involved three steps (see Figure 6): 1) project set up; 2) consultation with residents of the Grampians region to uncover health literacy strengths and challenges, and barriers and enablers to effective engagement with health information and care; and 3) consultation with residents and providers to identify strategies that might improve the fit between service delivery and consumer needs.

**Figure 6: Ophelia process - Phase 1: Steps 1 to 3**

## Step 1: Project set-up

**Purpose:** To define the project aims and scope, and establish a project team.

**Activities:** The project focus, scope and overall aims were first confirmed and described in discussion with the project partners (Grampians Integrated Cancer Services, Department of Health and Human Services, and Ballarat Health Services). A project team was then established and key stakeholders across the region were identified. Project governance and advisory groups were established, and a strategy for communicating and engagement with stakeholders was initiated. This included the conduct of a series of initial briefings and presentations.

## Step 2: Data collection and/or extraction

**Purpose:** To source local data and use this to identify local needs, strengths and issues.

**Activities:** A strategy was developed that sought to ensure a representative sample of the Grampians community was engaged – particularly those who may have low health literacy and live in more rural areas. Ethics approvals were then sought before health literacy, demographic, lifestyle behaviours, cancer screening and health service engagement data were collected (between February and September 2015). This involved the collection of survey data and the conduct of phone-based semi-structured interviews. These data were synthesised and analysed, and materials for consultation activities were prepared.

## Step 3: Response ideas consultation activities

**Purpose:** To identify effective local practices and innovative intervention ideas

**Activities:** Plans and arrangements were made for a series of workshops across the region, involving health providers and managers, and consumers. Seven workshops were undertaken, during which vignettes derived from the experiences of community members were presented. Participants used these vignettes as the basis for discussions about the challenges consumers face and the potential strategies that might improve the way services communicate and engage with the community. These strategies were presented to senior managers of local health services for consideration.

## Recruitment approach

People with cancer, and members of the community without a cancer diagnosis, were recruited to participate. People with cancer were recruited to provide in-depth information about their experiences with cancer services. Members of the general community were recruited to provide in-depth information about experiences, knowledge and skills of potential future users of cancer services, and people receiving surveillance and diagnostic services.

### *People from the community*

Prospective participants were approached by members of the research team at community events and venues across the region: local health and community centres, a machinery field day, a fishing competition, sports clubs, Returned Services League clubs, Salvation Army centres, senior citizens clubs, a community library, a performing arts centre, shopping centres, local council, neighbourhood houses, the multicultural council, and an Aboriginal cooperative. Individuals were eligible to participate if they were residents of the Grampians region, spoke English, were over the age of 18, and were able to give informed consent.

### *People with a recent history of cancer*

Lists of adult residents diagnosed with cancer between 1 July 2012 and 31 March 2015 were generated from medical records within the two major cancer care hospitals in the Grampians region and the Victorian Cancer Registry (VCR). People who had received a diagnosis of one of the following tumour types were included (ICD-10 codes are provided in brackets): 1. bowel (C18-C20); 2. breast (C50); 3. kidney (C64); 4. leukaemia (C91-C95); 5. lung (C34); 6. melanoma (C43); 7. oral cavity & pharynx (C01-C14); 8. prostate (C61); 9. stomach (C16); and 10. uterine (C54-55).

Patients were excluded from participating if 1) they were known to have been approached by the VCR for another study; 2) their diagnosis was based on distant or regional metastases, borderline malignancies, carcinoids or teratomas; and 3) in the case of melanoma the Clark Level was less than level II and/or Breslow thickness was less than 3mm at diagnosis. Cases with

multiple primaries (previous and synchronous) were approached. Where details were available, treating doctors were first approached by VCR, and provided the opportunity to exclude patients on the basis of their capacity to speak English, their prognosis, or their psychological and cognitive capacity to provide informed consent.

## Ethical approvals

The project was approved by:

- Deakin University Human Research Ethics Committee (No: HEAG-H07-2015),
- Ballarat Health Services & St John of God Hospital Ethics Committee (No: HREC/15/BHSSJOG/36),
- Victorian Cancer Council Ethics Committee (No: HREC1503), and
- Royal Australian College of General Practitioners (NREEC15-002).

## Participants

Overall, 1,211 people from the community were surveyed along with 487 people who had received a diagnosis of cancer in the past three years. Interviews were conducted with 81 respondents from the community sample, and 39 from the people diagnosed with cancer sample. Response idea workshop participants were 14 consumers, one carer, six general practitioners, and 28 health providers from a range of other clinical disciplines. Senior stakeholder workshop participants were 9 senior clinicians and managers of local care services.

### *People from the community*

The average age of participants in the community sample was 52 years (range: 18 to 105 years), and 64% were women. Most were born in Australia or New Zealand (92%), and almost all spoke English at home (99%). A total of 6% of participants in this group identified as Aboriginal or Torres Strait Islander (ATSI), 42% reported they were full or part time employed, and 23% reported they live alone. In relation to Socio-economic Index for Area (SEIFA), 23% of participants lived in areas featuring an Index of Relative Disadvantage (IRSD) above 60% (suggesting higher local socio-economic disadvantage). See Table 5 for further details relating to the demographics of participants across the region.

### Box 1: The nine scales of the Health Literacy Questionnaire (HLQ)

1. Feel understood and supported by healthcare providers
2. Have sufficient information to manage my health
3. Actively managing health
4. Have social support for health
5. Appraise health information
6. Ability to actively engage with healthcare providers
7. Ability to navigate the healthcare system
8. Ability to find good health information
9. Ability to understand health information well enough to know what to do

Diversity in terms of age, gender, and sub-region of residence was sought for the interview sample. Overall, 3% of those interviewed were aged between 18 and 29 years, 4% were between 30 and 45, 36% were between 46 and 65 years, 46% were aged 66 to 80, and 7% were aged 81 or above. The average age of interviewees from the community sample was 63 years (range: 23 to 91 years); 62% of the interview sample were women; 25% lived within the Grampians Pyrenees sub-region; 41% within Central Highlands; and 34% within Wimmera.

#### ***People with a recent history of cancer***

The average age of participants in the cancer sample was 65 years (range: 20 to 100 years), and 57% were women. The majority of people with cancer who participated were born in Australia or New Zealand (91%), and most spoke English at home (99%). A total of 2% of participants identified as Aboriginal or Torres Strait Islander (ATSI); 33% reported they were employed in either a full or part time capacity; 19% reported they live alone; and 26% reported living in postcodes with a SEIFA IRSD percentile of 60% or greater. See Table 5 for further details relating to the demographics of participants across the region, and Appendix G for a breakdown by LGA.

Fifty-three percent of those interviewed from the cancer sample were between 46 and 65 years, 37% were aged 66 to 80, and 10% were aged 81 or above. The average age of interviewees from the community sample was 66 years (range: 49 to 87 years). 37% of the interview sample were women. 13% lived within the Grampians Pyrenees sub-region, 60% within Central Highlands, and 10% within Wimmera.

## **Materials**

### ***Survey***

The survey comprised demographic questions, the Health Literacy Questionnaire (HLQ), questions relating to lifestyle and cancer screening behaviours, and self-rated overall health. People with cancer were also asked to provide information about their cancer and cancer care. Participants were given the option of completing the survey in three formats: paper and pen, online, or orally with the assistance of a researcher. See Appendix A and B for details of the surveys used.

**Demographic questions.** The following demographic details were collected from participants: year of birth, gender, living arrangements, country of birth, postcode, Aboriginal and Torres Strait Islander status, English spoken at home, highest educational level attained, employment status, chronic disease diagnoses, private health insurance, healthcare card, and family history of cancer.

**Health Literacy Questionnaire (HLQ).** We measured health literacy using the HLQ. This 44-question self-report questionnaire assesses specific domains of health literacy across nine subscales (see Box 1 and Appendix A) [19].

The HLQ was developed in Victoria by Deakin University in partnership with Monash University and Department of Health and Human Services. The subscales provide detailed information on the health literacy needs of individuals and groups. Extensive validation studies were completed with 1593 people across Victoria (from



three independent samples) and it is now one of the most widely applied multidimensional assessments used globally. Reliability has been established for the nine individual subscales of the HLQ, which achieved Cronbach's alphas of between 0.77 and 0.90 [19].

**Lifestyle and cancer screening behaviour questions.** The following lifestyle and cancer screening participation questions were included within the survey: smoking status (current and past, and year quit if relevant); height and weight (used to calculate Body Mass Index); if their occupation is/was mainly outdoors; use of different forms of sun protection (sunscreen, hat, long sleeves); frequency of take away food consumption; typical daily consumption of vegetables, fruit and alcohol; weekly frequency and intensity of physical activity; participation (in the past 5 years) in cancer screening (prostate, bowel, breast and cervical).

**Self-rated overall health.** Included in the survey was a question asking for a rating of overall health on a 5-point scale from poor to excellent.

**Cancer and cancer care.** For cancer patients the following additional questions were asked relating to cancer diagnoses and treatment: cancer type; year of diagnosis; tests undertaken; treatments completed; current treatments; if treatment was commenced within 30 days of diagnosis; if they had to travel more than 20km to receive treatment; if they chose not to attend treatment at any time due to distance, family or work commitments; what might have led them to have been diagnosed earlier; the stage of their cancer at diagnosis; and if they had access to a cancer nurse.

### **Interview schedule**

An interview schedule was developed to guide semi-structured interviews with those survey respondents who agreed to take part in a follow-up interview (see Appendix C). Five interviewers conducted the interviews by phone. The interview schedule contained key questions and prompts to guide interviewers through a discussion with participants about their health and healthcare experiences.

### **Response idea workshop materials**

Reports were developed that outlined local health literacy profiles, sample demographic details and a series of vignettes derived from synthesis of survey results and interview data.

## **Procedures**

### **Surveys**

**Community sample.** Prospective participants were provided with written and verbal information about the study and invited to complete a survey, either independently (pen-and-paper or online) or with the assistance of a researcher (by phone or in-person). Within the survey, participants were asked to indicate their interest in taking part in a follow-up phone interview.

**Cancer patient sample.** Eligible cancer patients were sent a letter, consent form, survey, and reply paid envelope. Those who did not return the survey were either phoned by a member of the research team, or sent a reminder letter, depending on whether phone contact details were available. Prospective participants were invited to complete the survey, either independently (pen-and-paper or online) or with the assistance of a researcher (by phone). Within the survey, participants were asked to indicate their interest in taking part in a follow-up phone interview.

### **Interviews**

Interviews were conducted by phone, and were guided by the interview schedule. Audio recordings of interviews were transcribed verbatim.

### **Response Ideas Workshops**

Seven response ideas workshops were undertaken across the region: three workshops with consumer participants (one each in Ballarat, Horsham and Ararat); three workshops with cancer healthcare workers from a range of clinical disciplines (one each in Ballarat, Horsham and Ararat); and one workshop with general practitioners (hosted in Ballarat). Workshops ran for between two and three hours. The workshops commenced with an overview of the project and data collection activities, and then involved discussion of a series of vignettes derived from

the data, each representing a different pattern of challenges experienced by respondents (see Appendix D). Stakeholders reflected upon the challenges represented and considered service improvements to support people experiencing such difficulties. Specifically, participants were asked 1) How would this profile of health literacy influence a person's engagement with information and services at each point in the cancer journey?; and 2) What do (or could) providers and services do to make it easier for people with cancer to access and engage with information and care? Audio recordings of workshops were transcribed verbatim.

## Data analysis

### *Quantitative data*

**Reporting.** Categorical data are presented as frequencies and percentages, and continuous data are presented with means, standard deviations and 95% confidence intervals. To aid interpretation, differences are expressed as Cohen's effect sizes where  $\leq 0.3$  is small, 0.3 to 0.8 is medium, and  $\geq 0.8$  is large.

**Data quality check.** Five per cent of the HLQs were identified using a random number generator. Data entered were checked against the original hard copy HLQs by 2 researchers. Data entry errors were highlighted and the error rate was calculated at 0.71%. This was considered to be a low and acceptable error rate.

**Missing data procedures.** HLQ scale scores were calculated by averaging responses to individual HLQ scale items. HLQ scales featuring missing data were retained if the missing number of items did not cross a maximum missing value threshold of 33.3%. The nine HLQ scales consist of 4, 5, or 6 individual items. For scales containing 4 and 5 items, only 1 missing item was permissible with maximum missing value thresholds of 25% and 20% respectively. For the 6-item scale, 2 missing items were permissible, representing a maximum missing value threshold of 33.3%.

**Clustering Procedures.** A hierarchical cluster analysis using Ward's minimum variance method [53] was run on the standardised scores (z-scores) of each of the nine HLQ scales, using the R statistical computation language and environment (Version 3.2.1) [54].

Hierarchical cluster analysis is a method for grouping observations together in a step-wise manner, where pairs of data points with the least distance between them are linked successively until a cluster emerges [55]. Cases were merged so the resulting clusters were as similar within themselves and as different from each other as possible [56]. To select the number of clusters to report, we worked backward from the smallest number of clusters to identify the point at which the relative change between clusters appeared to drop away.

**Group comparison procedure.** Comparisons across clusters were conducted using One-way ANOVA for continuous variables and cross-tabulations for categorical variables. These comparisons identified associations between clusters and other variables of interest.

### *Qualitative synthesis of interview data*

Audio recordings of interviews were coded within NVIVO software (version 10) [57]. Transcripts were coded in the first instance to identify responses corresponding to each of the interview questions. Two researchers independently proposed a set of high order themes to represent the content of transcripts. These sets of themes were then integrated and refined by the research team. A second tier of themes was then identified to represent further detail evident within the interview data. Again, these themes were agreed upon by the research team. This approach to analysing the qualitative data analysis was based on Green's recommendations for systematically utilising qualitative data [58]

### *Synthesis of Response Ideas Workshop data*

Audio recordings of workshops were transcribed verbatim and coded within NVIVO. Transcripts were coded in the first instance to identify challenges and strengths of cancer patients, and ideas for service improvement. Challenges and strengths were further coded using themes and subthemes established to code interview data. Service improvement ideas were coded against the Optimal Cancer Care Pathway [52], and the Health Literacy Response Framework [59].

**Table 5: Demographic characteristics of survey respondents from the community and cancer samples**

|  | Overall            | Central Highlands  | Wimmera            | Grampians Pyrenees | ANOVA (F) or Chi-Square ( $\chi^2$ ) (p) |
|--|--------------------|--------------------|--------------------|--------------------|--|
|  | M, SD [CI] or n, % | M, SD [CI] or n, % | M, SD [CI] or n, % | M, SD [CI] or n, % |  |
| <b>Community sample</b>  | (n=1211)           | (n=567)            | (n=336)            | (n=228)            |  |
| <b>Age</b>   | 52, 17 [51 - 53]   | 52, 17 [51 - 54]   | 49, 17 [48 - 51]   | 56, 17 [54 - 58]   | F = 9.94 (0.01)                          |
| <b>Female</b>  | 720, 64%           | 372, 66%           | 183, 54%           | 165, 72%           | $\chi^2$ = 21.80 (0.01)                  |
| <b>Born in Australia/NZ</b>  | 1035, 92%          | 506, 89%           | 318, 95%           | 211, 93%           | $\chi^2$ = 8.88 (0.01)                   |
| <b>Speaks English at home</b>                                      | 1113, 99%          | 556, 98%           | 330, 98%           | 227, 99%           | $\chi^2$ = 2.25 (0.33)                   |
| <b>Aboriginal/TSI</b>  | 36, 3%             | 27, 5%             | 5, 1%              | 4, 2%              | $\chi^2$ = 9.27 (0.01)                   |
| <b>Finished high school</b>  | 860, 76%           | 437, 77%           | 255, 76%           | 168, 74%           | $\chi^2$ = 1.23 (0.54)                   |
| <b>Employed</b>  | 476, 42%           | 217, 38%           | 171, 51%           | 88, 39%            | $\chi^2$ = 15.19 (0.01)                  |
| <b>Lives alone</b>   | 254, 23%           | 127, 22%           | 64, 19%            | 63, 28%            | $\chi^2$ = 6.23 (0.04)                   |
| <b>SEIFA Disadvantage Percentile <math>\rightarrow</math> = 60</b> | 263, 23%           | 132, 23%           | 80, 24%            | 51, 22%            | $\chi^2$ = 0.18 (0.92)                   |
| <b>Outer Regional</b>  | 381, 34%           | 0, 0%              | 331, 99%           | 50, 22%            | $\chi^2$ = 949.79 (0.01)                 |
| <b>Has private health insurance</b>                                | 570, 51%           | 322, 57%           | 148, 44%           | 100, 44%           | $\chi^2$ = 16.73 (0.01)                  |
| <b>Has a healthcare card</b>                                       | 451, 41%           | 251, 44%           | 103, 31%           | 97, 43%            | $\chi^2$ = 18.17 (0.01)                  |
| <b>Family history of cancer</b>                                    | 648, 61%           | 325, 57%           | 194, 58%           | 129, 57%           | $\chi^2$ = 1.05 (0.59)                   |
| <b>Cancer sample</b>   | (n=487)            | (n=325)            | (n=55)             | (n=73)             |  |
| <b>Age</b>   | 65, 12 [64 - 67]   | 65, 12 [64 - 67]   | 62, 14 [58 - 66]   | 68, 12 [65 - 71]   | F = 2.64 (0.08)                          |
| <b>Female</b>  | 256, 57%           | 176, 54%           | 35, 64%            | 45, 62%            | $\chi^2$ = 2.65 (0.27)                   |
| <b>Born in Australia/NZ</b>  | 411, 91%           | 291, 90%           | 52, 95%            | 68, 93%            | $\chi^2$ = 1.80 (0.41)                   |
| <b>Speaks English at home</b>                                      | 445, 99%           | 320, 98%           | 52, 95%            | 73, 100%           | $\chi^2$ = 8.51 (0.01)                   |
| <b>Aboriginal/TSI</b>  | 2, <1%             | 0, 0%              | 2, 4%              | 0, 0%              | $\chi^2$ = 14.46 (0.01)                  |
| <b>Finished high school</b>  | 304, 68%           | 225, 69%           | 31, 56%            | 48, 66%            | $\chi^2$ = 3.35 (0.19)                   |
| <b>Employed</b>  | 147, 33%           | 102, 31%           | 20, 36%            | 25, 34%            | $\chi^2$ = 0.73 (0.70)                   |
| <b>Lives alone</b>   | 84, 19%            | 58, 18%            | 10, 18%            | 16, 22%            | $\chi^2$ = 0.64 (0.73)                   |
| <b>SEIFA Disadvantage Percentile <math>\rightarrow</math> = 60</b> | 120, 26%           | 78, 24%            | 7, 13%             | 35, 48%            | $\chi^2$ = 23.64 (0.01)                  |
| <b>Outer Regional</b>  | 70, 16%            | 0, 0%              | 51, 93%            | 19, 26%            | $\chi^2$ = 342.20 (0.01)                 |
| <b>Has private health insurance</b>                                | 275, 61%           | 204, 63%           | 31, 56%            | 40, 55%            | $\chi^2$ = 1.71 (0.42)                   |
| <b>Has a healthcare card</b>                                       | 222, 50%           | 166, 51%           | 21, 38%            | 35, 48%            | $\chi^2$ = 2.61 (0.27)                   |
| <b>Family history of cancer</b>                                    | 166, 69%           | 114, 35%           | 24, 44%            | 28, 38%            | $\chi^2$ = 0.77 (0.68)                   |

# Findings

Results are presented in two sections, to reflect the two project aims. Part A presents a description of the health literacy profiles and health service experiences of people from the Grampians region. Part B presents potential service improvement initiatives that could be implemented in the region to address identified health literacy needs and service engagement issues.

## Part A: A description of the health literacy profiles and healthcare experiences of residents of the Grampians region

Health literacy profiles and healthcare experiences from the community and cancer samples are presented separately. Across all HLQ domains, the cancer sample reported higher health literacy than the community sample (see Table 6). These differences were moderate for scales: 1) *Feeling understood and supported by healthcare providers* ( $ES=0.48$ ); 4) *Social support for health* ( $ES=0.48$ ); and 6) *Ability to actively engage with healthcare providers* ( $ES=0.40$ ). The HLQ scores of the Grampians community sample were consistent with those of the Ophelia Victoria sample ( $d \leq 0.22$ ) (see Appendix E)\*. Significant differences between the community and cancer samples, for cancer screening history and lifestyle behaviours were also reported (see Table 6).

## ***Health literacy profiles identified within the community and cancer samples***

Cluster analysis of the HLQ scale scores for the community sample revealed eight distinct respondent sub-groups (see Figure 7). Similarly, nine respondent sub-groups were identified within the cancer sample (see Figure 8). Sub-groups were distinct in terms of their pattern of responses to the HLQ, and differed also on some demographic characteristics and health behaviours (see Appendix F and G). For further detail relating to the health literacy profiles of community members from Grampians sub-regions and LGAs, see Appendices H and I respectively.

### What are health literacy profiles?

People can have strengths in some areas, and difficulties in others. The HLQ produces nine scores to represent respondents' level in each of the nine health literacy scales. Collectively these nine scores produce a 'profile' of a person's (or group's) health literacy strengths and challenges.

*\*The Ophelia Victoria sample contained 813 consumers of nine Victorian health and community services. These data are reported in Beauchamp, Buchbinder, Dodson et al (2015) [60].*

**Table 6: HLQ scale scores, lifestyle and cancer screening behaviours for the community and cancer samples**

|  | Community Sample<br>(n=1211) | Cancer Sample<br>(n=487)    | F or X <sup>2</sup><br>(p) | Cohen's d<br>(effect size) |
|--|------------------------------|-----------------------------|----------------------------|----------------------------|
| <b>Health Literacy Questionnaire Scales</b>                        |                              |                             |                            |                            |
| 1. Feeling understood and supported by healthcare providers        | 3.09, 0.58<br>[3.06 - 3.12]  | 3.35, 0.49<br>[3.31 - 3.39] | 88.09<br>(0.01)            | 0.48<br>(medium)           |
| 2. Having sufficient information to manage my health               | 3.03, 0.50<br>[3.00 - 3.06]  | 3.13, 0.44<br>[3.09 - 3.17] | 17.21<br>(0.01)            | 0.21<br>(small)            |
| 3. Actively managing my health                                     | 3.00, 0.55<br>[2.97 - 3.03]  | 3.11, 0.49<br>[3.07 - 3.16] | 16.89<br>(0.01)            | 0.21<br>(small)            |
| 4. Social support for health                                       | 3.04, 0.51<br>[3.01 - 3.07]  | 3.28, 0.49<br>[3.24 - 3.33] | 84.93<br>(0.01)            | 0.48<br>(medium)           |
| 5. Appraisal of health information                                 | 2.79, 0.56<br>[2.76 - 2.83]  | 2.92, 0.49<br>[2.88 - 2.96] | 20.47<br>(0.01)            | 0.25<br>(small)            |
| 6. Ability to actively engage with healthcare providers            | 3.85, 0.70<br>[3.81 - 3.89]  | 4.11, 0.58<br>[4.06 - 4.16] | 60.92<br>(0.01)            | 0.40<br>(medium)           |
| 7. Navigating the healthcare system                                | 3.70, 0.68<br>[3.67 - 3.74]  | 3.93, 0.58<br>[3.87 - 3.98] | 45.23<br>(0.01)            | 0.36<br>(small)            |
| 8. Ability to find good health information                         | 3.79, 0.67<br>[3.75 - 3.83]  | 3.90, 0.57<br>[3.85 - 3.95] | 45.23<br>(0.01)            | 0.18<br>(small)            |
| 9. Understanding health information well enough to know what to do | 3.97, 0.64<br>[3.93 - 4.01]  | 4.13, 0.56<br>[4.08 - 4.18] | 45.23<br>(0.01)            | 0.27<br>(small)            |
| <b>Lifestyle factors</b>   |                              |                             |                            |                            |
| Overweight or Obese (BMI → 25)                                     | 335, 33%                     | 171, 41%                    | 1.97 (0.16)                | n/a                        |
| Eats takeaway 2 or more times a week                               | 125, 11%                     | 20, 4%                      | 18.02 (0.01)               | n/a                        |
| Eats vegetables 3 or more times a day                              | 612, 55%                     | 280, 63%                    | 7.87 (0.01)                | n/a                        |
| Eats fruit 2 or more times a day                                   | 559, 50%                     | 256, 57%                    | 6.60 (0.01)                | n/a                        |
| Drinks alcohol 3 or more times a day                               | 220, 20%                     | 87, 19%                     | 0.34 (0.85)                | n/a                        |
| Smoker   | 135, 12%                     | 28, 6%                      | 13.37 (0.01)               | n/a                        |
| Sets aside time for healthy activities most days                   | 754, 69%                     | 323, 73%                    | 0.04 (0.85)                | n/a                        |
| Does physical activity for at least 30 minutes most days           | 796, 72%                     | 319, 72%                    | 0.00 (1.00)                | n/a                        |
| <b>Cancer screening</b>  |                              |                             |                            |                            |
| Has had bowel screen in past 5 years (aged over 50)                | 379, 62%                     | 261, 74%                    | 14.12 (0.01)               | n/a                        |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 286, 82%                     | 154, 92%                    | 9.02 (0.01)                | n/a                        |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 407, 70%                     | 124, 78%                    | 3.42 (0.06)                | n/a                        |
| Has had prostate screen in past 5 years (aged over 50)             | 145, 69%                     | 138, 82%                    | 10.83 (0.01)               | n/a                        |

Figure 7: Eight health literacy profiles of Grampians residents

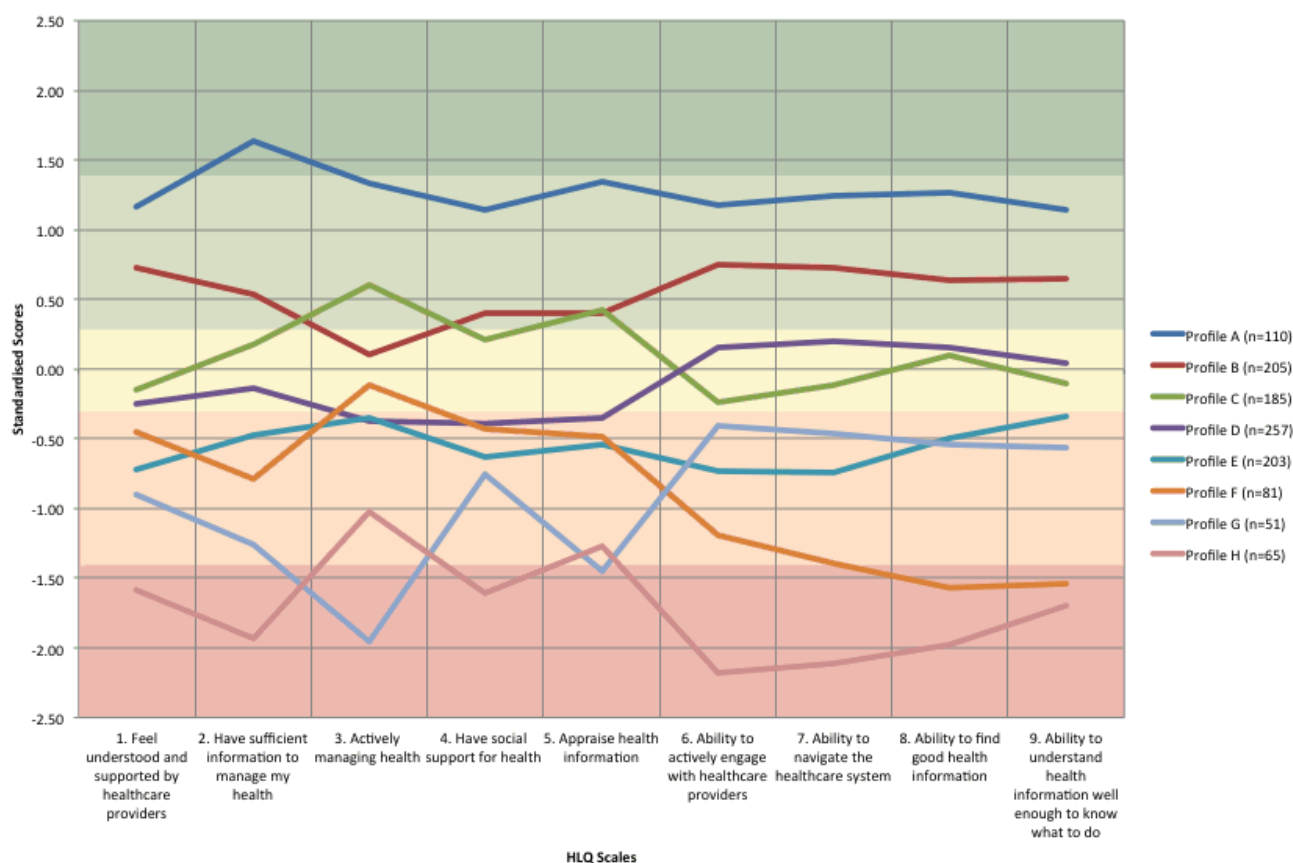
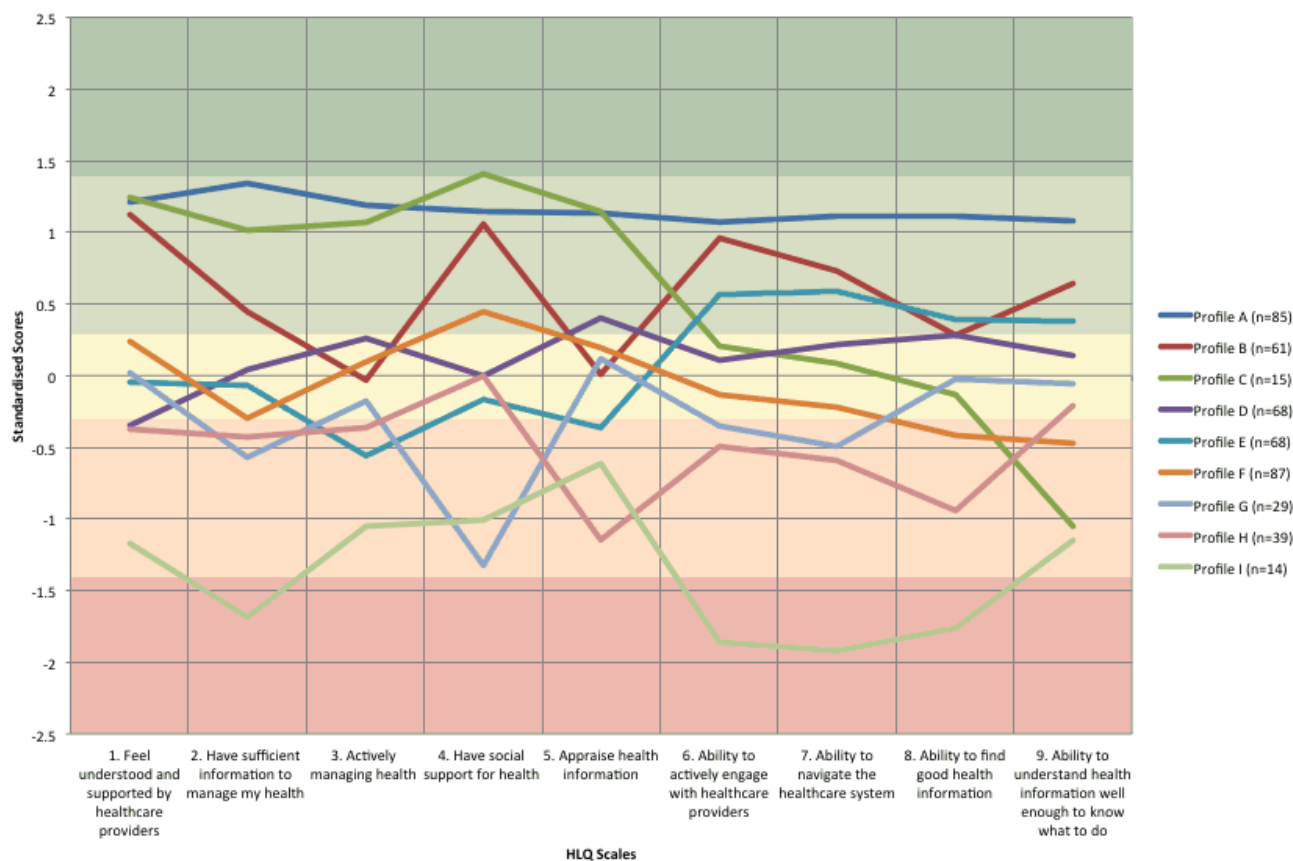


Figure 8: Nine health literacy profiles of Grampians residents with a recent history of cancer





## Health literacy and cancer screening

Each HLQ scale was also examined in relation to participants' self-reported cancer screening behaviour. For every HLQ scale increase of 1 unit on the scale (e.g. from 3.2 to 4.2), odds ratios were used to quantify the likelihood of people undergoing cancer screening, independent of age, education and rurality.

**Bowel cancer screening.** Increases in the following HLQ scales were associated with a greater likelihood of having undergone bowel screening in the past 5 years (see Table 7): 1) *Feeling understood and supported by healthcare providers*; 2) *Having sufficient information to manage my health*; 3) *Actively managing my health*; 4) *Social support for health*; 5) *Critical appraisal of health information*; and 7) *Navigating the healthcare system*.

**Table 7. Likelihood of bowel screening in the past 5 years (men and women aged over 50 years)**

|   | Odds ratios<br><i>(adjusted for education, age and rurality)</i> | Odds ratios<br><i>(incomplete secondary education)</i> | Odds ratios<br><i>(age)</i> | Odds ratios<br><i>(outer regional area)</i> |
|---|--|--|-----------------------------|---|
|   | OR (95% CI)  | OR (95% CI)  | OR (95% CI)                 | OR (95% CI)                                 |
| <b>Health Literacy Questionnaire Scales</b>                               |  |  |                             |   |
|   |  | 0.66 [0.46, 0.95] <sup>1</sup> , n=613                 | 1.00 [0.98, 1.02] n=618     | 0.93 [0.65, 1.32] n=618                     |
| <b>1. Feeling understood and supported by healthcare providers</b>        | 1.53 [1.13, 2.09] <sup>2</sup> , n=617                           | 0.68 [0.47, 0.99]                                      | 1.00 [0.98, 1.02]           | 0.97 [0.68, 1.39]                           |
| <b>2. Having sufficient information to manage my health</b>               | 1.49 [1.05, 2.12] <sup>3</sup> , n=615                           | 0.68 [0.47, 0.99]                                      | 1.00 [0.98, 1.02]           | 0.98 [0.68, 1.40]                           |
| <b>3. Actively managing my health</b>                                     | 1.79 [1.28, 2.51] <sup>4</sup> , n=615                           | 0.71 [0.49, 1.03]                                      | 1.00 [0.98, 1.02]           | 1.00 [0.70, 1.44]                           |
| <b>4. Social support for health</b>                                       | 1.60 [1.15, 2.25] <sup>5</sup> , n=605                           | 0.66 [0.45, 0.95]                                      | 1 [0.98, 1.02]              | 0.96 [0.67, 1.38]                           |
| <b>5. Appraisal of health information</b>                                 | 1.41 [1.02, 1.97] <sup>6</sup> , n=601                           | 0.67 [0.46, 0.97]                                      | 1.00 [0.98, 1.02]           | 0.96 [0.67, 1.38]                           |
| <b>6. Ability to actively engage with healthcare providers</b>            | 1.23 [0.96, 1.58], n=611   | 0.63 [0.44, 0.91]                                      | 1.00 [0.98, 1.02]           | 0.95 [0.66, 1.37]                           |
| <b>7. Navigating the healthcare system</b>                                | 1.37 [1.05, 1.79] <sup>7</sup> , n=612                           | 0.65 [0.45, 0.94]                                      | 1.00 [0.98, 1.02]           | 0.99 [0.69, 1.43]                           |
| <b>8. Ability to find good health information</b>                         | 1.25 [0.97, 1.62], n=611   | 0.69 [0.48, 1.01]                                      | 1.00 [0.98, 1.02]           | 0.95 [0.66, 1.37]                           |
| <b>9. Understanding health information well enough to know what to do</b> | 1.16 [0.90, 1.51], n=613   | 0.67 [0.46, 0.98]                                      | 1.00 [0.98, 1.02]           | 0.94 [0.66, 1.36]                           |

Abbreviations: OR = odds ratio; CI = confidence interval

1. For respondents without complete secondary education we expect to see an approximate decrease of 34% in the odds of having a bowel screen in the past 5 years independent of age and rurality.

2. For each one-unit increase in HLQ scale 1: *Feeling understood and supported by healthcare providers*, we expect to see an approximate increase of 53% in the odds of having a bowel screen in the past 5 years independent of education, age and rurality.

3. For each one-unit increase in HLQ scale 2: *Having sufficient information to manage my health*, we expect to see an approximate increase of 49% in the odds of having a bowel screen in the past 5 years, independent of education, age and rurality.

4. For each one-unit increase in HLQ scale 3: *Actively managing my health*, we expect to see an approximate increase of 79% in the odds of having a bowel screen in the past 5 years independent of education, age and rurality.

5. For each one-unit increase in HLQ scale 4: *Social support for health*, we expect to see an approximate increase of 60% in the odds of having a bowel screen in the past 5 years independent of education, age and rurality.

6. For each one-unit increase in HLQ scale 5: *Appraisal of health information*, we expect to see an approximate increase of 41% in the odds of having a bowel screen in the past 5 years independent of education, age and rurality.

7. For each one-unit increase in HLQ scale 7: *Navigating the healthcare system*, we expect to see an approximate increase of 37% in the odds of having a bowel screen in the past 5 years independent of education, age and rurality.

**Breast cancer screening.** Increases in the following HLQ scales were associated with a greater likelihood of having undergone breast screening in the past 5 years (see Table 8):

1) *Feeling understood and supported by healthcare providers* ; 2) *Having sufficient information to manage my health*; and 5) *Critical appraisal of health information*.

**Table 8. Likelihood of breast screening in the past 5 years (female participants aged from 50 to 74)**

|   | Odds ratios<br><i>(adjusted for education, age and rurality)</i> | Odds ratios<br><i>(incomplete secondary education)</i> | Odds ratios<br><i>(age)</i> | Odds ratios<br><i>(outer regional area)</i> |
|---|--|--|-----------------------------|---|
|   | OR (95% CI)  | OR (95% CI)  | OR (95% CI)                 | OR (95% CI)                                 |
| <b>Health Literacy Questionnaire Scales</b>                               |  |  |                             |   |
|   |  | 0.93 (0.51, 1.77), n=357                               | 1.02 (0.98, 1.06), n=359    | 1.29 (0.70, 2.46), n=352                    |
| <b>1. Feeling understood and supported by healthcare providers</b>        | 2.15 (1.35, 3.45) <sup>1</sup> , n=359                           | 0.93 (0.50, 1.79)                                      | 1.02 (0.98, 1.07)           | 1.44 (0.78, 2.80)                           |
| <b>2. Having sufficient information to manage my health</b>               | 2.24 (1.26, 4.05) <sup>2</sup> , n=358                           | 0.95 (0.51, 1.82)                                      | 1.02 (0.98, 1.07)           | 1.44 (0.78, 2.80)                           |
| <b>3. Actively managing my health</b>                                     | 1.63 (0.94, 2.86), n=358   | 0.96 (0.52, 1.83)                                      | 1.02 (0.98, 1.06)           | 1.37 (0.74, 2.62)                           |
| <b>4. Social support for health</b>                                       | 1.68 (0.97, 2.93), n=353   | 0.94 (0.51, 1.83)                                      | 1.03 (0.99, 1.07)           | 1.41 (0.76, 2.76)                           |
| <b>5. Appraisal of health information</b>                                 | 1.87 (1.06, 3.34) <sup>3</sup> , n=352                           | 1.02 (0.55, 2.00)                                      | 1.02 (0.98, 1.07)           | 1.43 (0.76, 2.80)                           |
| <b>6. Ability to actively engage with healthcare providers</b>            | 1.17 (0.78, 1.72), n=355   | 0.93 (0.50, 1.81)                                      | 1.03 (0.99, 1.07)           | 1.23 (0.67, 2.37)                           |
| <b>7. Navigating the healthcare system</b>                                | 1.16 (0.76, 1.76), n=356   | 0.97 (0.52, 1.87)                                      | 1.03 (0.99, 1.07)           | 1.25 (0.68, 2.41)                           |
| <b>8. Ability to find good health information</b>                         | 1.00 (0.63, 1.56), n=355   | 1.03 (0.54, 2.05)                                      | 1.03 (0.99, 1.07)           | 1.20 (0.65, 2.31)                           |
| <b>9. Understanding health information well enough to know what to do</b> | 0.92 (0.58, 1.44), n=355   | 0.92 (0.49, 1.81)                                      | 1.03 (0.99, 1.07)           | 1.20 (0.65, 2.31)                           |

Abbreviations: OR = odds ratio; CI = confidence interval

1. For each one-unit increase in HLQ scale 1: *Feeling understood and supported by healthcare providers*, we expect to see an approximate increase of 115% in the odds of having a breast screen in the past 5 years independent of education, age and rurality.

2. For each one-unit increase in HLQ scale 2: *Having sufficient information to manage my health*, we expect to see an approximate increase of 124% in the odds of having a breast screen in the past 5 years independent of education, age and rurality.

3. For each one-unit increase in HLQ scale 5: *Critical appraisal of health information*, we expect to see an approximate increase of 87% in the odds of having a breast screen in the past 5 years independent of education, age and rurality.



**Cervical cancer screening.** No associations were seen between HLQ scales and cervical screening behaviour (see Table 9).

**Table 9. Likelihood of cervical screening in the past 5 years (female participants aged from 18 to 70)**

|   | Odds ratios<br><i>(adjusted for education, age and rurality)</i> | Odds ratios<br><i>(incomplete secondary education)</i> | Odds ratios<br><i>(age)</i> | Odds ratios<br><i>(outer regional area)</i> |
|---|--|--|-----------------------------|---|
|   | OR (95% CI)  | OR (95% CI)  | OR (95% CI)                 | OR (95% CI)                                 |
| <b>Health Literacy Questionnaire Scales</b>                               |  |  |                             |   |
|   |  | 0.56 (0.36, 0.88), n=595                               | 0.99 (0.98, 1.01), n=600    | 0.91 (0.62, 1.34), n=588                    |
| <b>1. Feeling understood and supported by healthcare providers</b>        | 1.10 (0.81, 1.50), n=598   | 0.57 (0.36, 0.88)                                      | 0.99 (0.98, 1.01)           | 0.92 (0.62, 1.36)                           |
| <b>2. Having sufficient information to manage my health</b>               | 1.37 (0.96, 1.95), n=598   | 0.57 (0.37, 0.90)                                      | 0.99 (0.98, 1.01)           | 0.92 (0.62, 1.36)                           |
| <b>3. Actively managing my health</b>                                     | 1.23 (0.88, 1.72), n=598   | 0.58 (0.37, 0.90)                                      | 0.99 (0.98, 1.01)           | 0.90 (0.61, 1.33)                           |
| <b>4. Social support for health</b>                                       | 1.01 (0.71, 1.44), n=590   | 0.58 (0.37, 0.91)                                      | 0.99 (0.98, 1.01)           | 0.87 (0.59, 1.29)                           |
| <b>5. Appraisal of health information</b>                                 | 1.09 (0.79, 1.52), n=589   | 0.59 (0.38, 0.92)                                      | 0.99 (0.98, 1.01)           | 0.87 (0.59, 1.29)                           |
| <b>6. Ability to actively engage with healthcare providers</b>            | 1.10 (0.85, 1.42), n=596   | 0.56 (0.36, 0.88)                                      | 0.99 (0.98, 1.01)           | 0.91 (0.62, 1.35)                           |
| <b>7. Navigating the healthcare system</b>                                | 1.04 (0.80, 1.34), n=597   | 0.56 (0.36, 0.88)                                      | 0.99 (0.98, 1.01)           | 0.90 (0.61, 1.34)                           |
| <b>8. Ability to find good health information</b>                         | 1.09 (0.83, 1.44), n=596   | 0.6 (0.38, 0.95)                                       | 0.99 (0.98, 1.01)           | 0.90 (0.62, 1.34)                           |
| <b>9. Understanding health information well enough to know what to do</b> | 1.10 (0.82, 1.47), n=596   | 0.59 (0.37, 0.93)                                      | 0.99 (0.98, 1.01)           | 0.90 (0.61, 1.33)                           |

Abbreviations: OR = odds ratio; CI = confidence interval

**Prostate cancer screening.** Increases in the following HLQ scales were associated with a greater likelihood of having undergone prostate screening in the past 5 years (see Table 10): 1/ *Feeling understood and supported by healthcare providers* ; 7/ *Navigating the healthcare system*.

**Table 10. Likelihood of prostate screening in the past 5 years (male participants aged over 50)**

|   | Odds ratios<br><i>(adjusted for education, age and rurality)</i> | Odds ratios<br><i>(incomplete secondary education)</i> | Odds ratios<br><i>(age)</i>            | Odds ratios<br><i>(outer regional area)</i> |
|---|--|--|--|---|
|   | OR (95% CI)  | OR (95% CI)  | OR (95% CI)                            | OR (95% CI)                                 |
| <b>Health Literacy Questionnaire Scales</b>                               |  |  |  |   |
|   |  | 0.43 (0.21, 0.84) <sup>1</sup> , n=211                 | 1.06 (1.02, 1.10) <sup>2</sup> , n=212 | 1.27 (0.67, 2.47), n=202                    |
| <b>1. Feeling understood and supported by healthcare providers</b>        | 2.32 (1.30, 4.33), n=212 <sup>3</sup>                            | 0.49 (0.24, 0.98)                                      | 1.05 (1.01, 1.09)                      | 1.34 (0.70, 2.65)                           |
| <b>2. Having sufficient information to manage my health</b>               | 1.70 (0.91, 3.23), n=211   | 0.41 (0.20, 0.82)                                      | 1.06 (1.02, 1.10)                      | 1.45 (0.75, 2.89)                           |
| <b>3. Actively managing my health</b>                                     | 1.49 (0.86, 2.60), n=212   | 0.45 (0.22, 0.89)                                      | 1.05 (1.02, 1.09)                      | 1.38 (0.72, 2.73)                           |
| <b>4. Social support for health</b>                                       | 1.62 (0.88, 3.06), n=208   | 0.41 (0.20, 0.83)                                      | 1.06 (1.02, 1.10)                      | 1.45 (0.75, 2.86)                           |
| <b>5. Appraisal of health information</b>                                 | 1.45 (0.81, 2.62), n=208   | 0.41 (0.20, 0.82)                                      | 1.06 (1.02, 1.10)                      | 1.46 (0.75, 2.89)                           |
| <b>6. Ability to actively engage with healthcare providers</b>            | 1.36 (0.85, 2.20), n=212   | 0.44 (0.22, 0.87)                                      | 1.05 (1.02, 1.09)                      | 1.37 (0.71, 2.70)                           |
| <b>7. Navigating the healthcare system</b>                                | 1.72 (1.05, 2.89) <sup>4</sup> n=212                             | 0.45 (0.22, 0.89)                                      | 1.05 (1.02, 1.09)                      | 1.59 (0.80, 3.22)                           |
| <b>8. Ability to find good health information</b>                         | 1.42 (0.91, 2.24), n=212   | 0.48 (0.24, 0.96)                                      | 1.05 (1.02, 1.10)                      | 1.43 (0.74, 2.85)                           |
| <b>9. Understanding health information well enough to know what to do</b> | 1.30 (0.82, 2.08), n=212   | 0.46 (0.23, 0.94)                                      | 1.05 (1.02, 1.09)                      | 1.38 (0.71, 2.73)                           |

Abbreviations: OR = odds ratio; CI = confidence interval

1. For respondents without secondary education we expect to see an approximate decrease of 57% in the odds of having a prostate screen in the past 5 years independent of age and rurality.

2. For each one-year increase in age we expect to see an approximate increase of 6% in the odds of having a prostate screen in the past 5 years independent of education and rurality.

3. For each one-unit increase in HLQ scale 1: *Feeling understood and supported by healthcare providers*, we expect to see an approximate increase of 132% in the odds of having a prostate screen in the past 5 years independent of education, age and rurality.

4. For each one-unit increase in HLQ scale 7: *Navigating the healthcare system*, we expect to see an approximate increase of 72% in the odds of having a prostate screen in the past 5 years independent of education, age and rurality.

### ***Interview responses - Respondent skills, attributes and approaches, and service system factors influencing engagement***

Interviewees from the community and cancer samples reported a number of intra- and inter-personal factors that influenced the way they accessed and engaged with health information and healthcare services. Six themes relating to

respondent skills and attributes are summarised in Box 2, and detailed in Appendix J. Also, several factors related to the health system were reported by interviewees as influencing the way they accessed and engaged with health information and healthcare services. Five themes relating to engagement barriers and enablers are summarised in Box 3 (also see Appendix J).

#### **Box 4: Six themes relating to respondent skills and attributes for health and health service engagement, derived from interviews with community members and people with cancer**

1. **Competing priorities.** Several interviewees indicated health was not a priority for them, therefore they had little engagement in healthy activities or with healthcare services. *(community sample)*
2. **Co-morbid medical conditions** were reported by participants as factors that limited their ability to actively manage their health. Conditions such as obesity, stroke, diabetes and Crohn's disease were reported by participants as barriers to exercising. *(community sample)*
3. **Support from family and friends** was identified by many as a strategy to facilitate healthcare and health information engagement. *(cancer and community samples)*
4. **Confidence, ability, and willingness to ask questions** assisted community members to successfully engage with healthcare providers, gain access to and understand health information, and navigate health services. *(cancer and community samples)*
5. **Independence in health decisions.** Deferring health decisions to healthcare providers was also noted by several of the interviewees. Some residents suggested that they trust their doctors above themselves to make important decisions about their treatment. *(cancer and community samples)*
6. **Computer literacy** and the ability to search the internet for information reportedly enabled respondents to explore health information. It is important to note that those who did report searching the internet also discussed checking the reliability of information. *(community sample)*

#### **Box 5: Six themes relating to barriers and enablers to health service and information engagement, derived from interviews with community members and people with cancer**

1. **Service availability,** waiting times, access to specialists, and the proximity of services was identified by participants as factors influencing engagement with healthcare providers. This was a key enabler for those living in Ballarat and the surrounding areas. *(cancer and community samples)*
2. **Healthcare provider continuity** reportedly affecting communication, engagement, trust and participants feeling their health needs were understood and supported. *(cancer and community samples)*
3. **Healthcare provider attributes** such as approachability, respect, compassion, and taking the time to listen and ask questions were identified as key enablers. Negative healthcare provider attributes such as lack of communication and explanation, using jargon, or displaying judgement or lack of empathy were identified by participants as barriers to feeling supported and understood as well as hindering their ability to find and understand health information. Cultural and language barriers between patients and doctors were also noted in relation to overseas trained doctors providing care within local GP practices. Respondents reported difficulty feeling supported and understood, and a hesitance to actively engage with these doctors. Some participants also noted that pap screening was something some doctors did not offer due to cultural or religious reasons. *(cancer and community samples)*
4. **Service coordination** made it difficult or easier for participants to feel supported and understood as well as find the correct health information. *(community sample)*
5. **The form and delivery of information.** Use of plain language and providing readable materials in a variety of forms was reported to promote engagement with health information and support decision making. *(cancer sample)*
6. **Level of support from cancer agencies and local support services** was reported to support healthcare system navigation, and health management. They also reported assisting people with cancer to feel understood and supported, and source and understand health information. *(cancer sample)*

## Part B: Service improvement ideas generated by local stakeholders in response to issues identified through surveys and interviews

Health literacy profiles and issues emerging from semi-structured interviews with Grampians residents were presented to key stakeholders in a series of local workshops. These structured workshops collectively yielded 56 ideas for improving experiences of care, and residents' access to health information and services. The full set of ideas and their descriptions are shown in Appendix K.

### **Consumer workshops**

Ideas generated by consumers in the Ballarat, Horsham and Ararat workshops were about improvements that could be made to available services and about the nature of the patient-provider interaction. Also raised were a range of 'opportunistic' strategies that providers and organisations could employ to engage community members in self-care and screening programs.

### **Provider workshops**

Ideas from providers across the region also related to service availability. The focus in workshops was less about the nature of the patient-provider relationship and more about the systems, training and tools that support effective patient engagement and the provision of quality care.

### **Workshop themes**

Intervention ideas were thematically analysed with 8 themes emerging (see Figure 9). At the consumer level, identified strategies sought to:

#### **1. Make access to services and information easy.**

Ideas were proposed for delivering information and services to local venues and other places that people routinely visit, and for providers to be responsive when opportunities arise to engage people. It was thought that these approaches would make it easier for people to be exposed to information and for providers to promote self-care.

- Use regular community meetings and groups to promote health messages (Idea 37)
- Promote health messages and cancer screening at local events (Idea 43)
- Provide opportunistic health checks for carers - double appointments (Idea 49)
- Check in with carers during visits (Idea 13)
- Make health messages visible around towns (Idea 34)
- Go to where the men are! Promote healthy messages and screening programs at field days, men's shed meetings, community meetings, sporting events, pubs etc. (Idea 41)
- Provide simple health messages posted in men's toilets (Idea 42)
- Conduct / promote cancer screening programs at places such as gyms (Idea 45)
- Provide visible and easy to access cancer screening options (Idea 52)
- Offer workplace health checks and screening (Idea 53)
- Implement technology, policy and guidelines supporting telehealth and Skype consultations (Idea 7)
- Provide after hours screening appointments (Idea 51)
- Provide female health professionals for pap smears at every clinic (Idea 47)

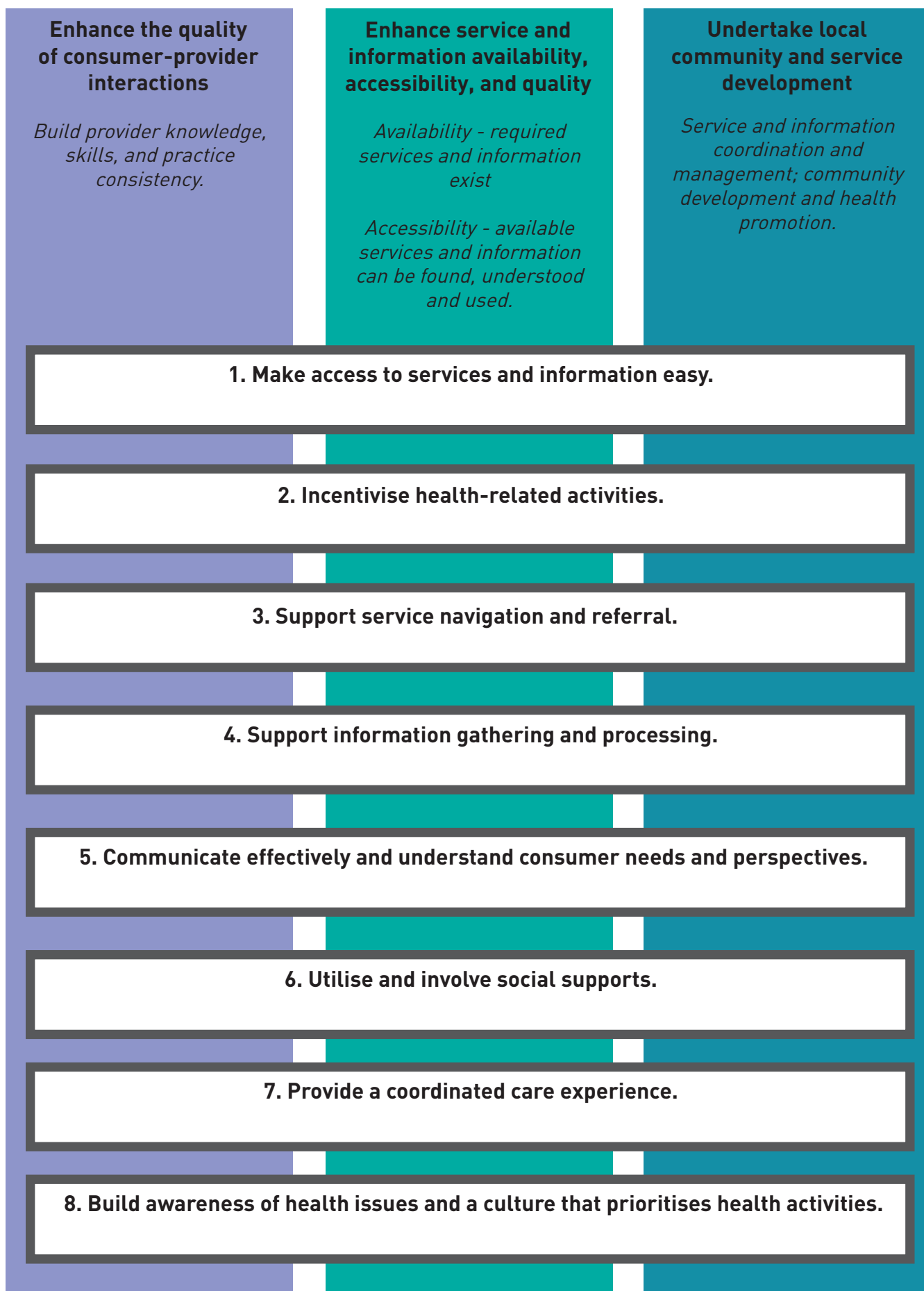
**2. Incentivise health-related activities.** Several of the ideas focused on creating a social or recreational incentive for engaging in educational, health monitoring and health management activities.

- Make screening appointments a social event (Idea 54)
- Facilitate men's health mornings (Idea 35)

#### **3. Support service navigation and referral.**

Positive experiences with cancer care nurses were discussed as a key strategy for supporting people practically and emotionally through transitions between points in the cancer care pathway.

Figure 9: Ideas for cancer care improvement proposed by stakeholders across the Grampians region



- Promote the role of Cancer Council Victoria as a source of information about cancer and cancer services (Idea 1)
- Employ cancer support nurses (Idea 2)
- Facilitate peer support networks (Idea 3)
- Provide a point of contact for patients throughout the cancer journey (Idea 11)
- Facilitate appointment follow up (Idea 24)
- Have a local directory of health services and supports (Idea 10)
- Widely implement a supportive care screening tool (Idea 17)
- Pro-actively introduce advanced care planning (Idea 56)
- Provide respite care services to support carers (Idea 33)
- Facilitate local support groups for carers of elderly relatives (Idea 36)

#### 4. Support information gathering and processing.

Several ideas suggested the importance of and the challenge associated with information management. Consumers suggested strategies to support them to be able to take important information away from medical appointments, and to process this information to make decisions during periods of adjustment.

- Facilitate people bringing someone to their appointments (Idea 22)
- Provide a health appointment 'buddy' (Idea 23)
- Provide appointment support (Idea 27)
- Facilitate tape recording of appointments (Idea 28)
- Document key messages and actions from appointments (Idea 29)
- Facilitate people taking notes in appointments (Idea 31)
- Provide people with an appointment summary (Idea 32)
- Promote community pharmacists as providers of health information (Idea 44)
- Produce guidelines for production of written health information (Idea 6)
- Implement a system for sending people a copy of their clinic letters (Idea 15)
- Implement a system-wide patient-held appointment and treatment diary (Idea 21)
- Provide education about the more rare

cancer types (Idea 55)

- Implement a health screening recall/reminder system in general practice (Idea 50)

#### 5. Communicate effectively and understand consumer needs and perspectives.

Participants noted that having trust in and feeling understood by providers plays a key role in supporting people to engage effectively with information and treatment.

- Train health professionals to check understanding (Idea 4)
- Tap into what is important to people (Idea 5)
- Train health professionals in motivational interviewing and health coaching (Idea 12)
- Provide training, orientation and support to GPs who are recent arrivals to the region/ Australia (Idea 19)
- Promote the health of carers to health providers (Idea 14)

**6. Utilise and involve social supports.** A number of strategies proposed revolved around the critical role of family and friends, and the potential for these social supports to facilitate better information management and self-care.

- Facilitate people bringing someone to their appointments (Idea 22)
- Target wives as a way of promoting health to men (Idea 46)

**7. Provide a coordinated care experience.** Both consumers and providers discussed the need for effective communication and coordination between providers and services. Providers focused particularly on systems to ensure effective practice becomes routine.

- Facilitate multidisciplinary meetings for more complex patients (Idea 8)
- Implement a system for coordinating appointments (Idea 16)
- Promote shared care for cancer patients across the region (Idea 20)
- Prompt sharing of information between services (Idea 26)

- Implement electronic medical records (Idea 25)

## 8. Build awareness of health issues and a culture that prioritises health activities.

Use of role models and community engagement were seen as potential strategies to shift the community culture to place more value on health and to encourage people to prioritise their health. At the level of health service systems, ideas were raised about how to encourage a culture of continuous quality improvement.

- Identify local community health champions (Idea 38)
- Using sports icons as health ambassadors (Idea 39)
- Implement town level health promotion programs (Idea 40)

- Undertake regular practice-based audits of cancer screening and management (Idea 10)
- Implement a small-town cancer care strategy (Idea 9)

## Senior stakeholder workshop

The ideas generated during provider and consumer workshops were presented to ten local senior managers and clinicians for consideration. These stakeholders rated each of the ideas for: 1) feasibility, 2) impact, 3) sustainability, 4) acceptability, and 5) equity. The 12 most highly rated ideas are shown in Table 11.

Table 11: Ideas rated most highly by a group of senior managers and clinicians

|    | Idea   | Impact | Feasibility | Sustainability | Equity | Acceptability |
|----|--|--------|-------------|----------------|--------|---------------|
| 17 | Supportive care screening tool                               | 5      | 4.5         | 4.5            | 5      | 4.5           |
| 13 | Checking in with carers during visits                        | 4.5    | 4.5         | 4.5            | 4.5    | 4.5           |
| 1  | Promote the role of the Cancer Council                       | 4      | 5           | 4              | 5      | 4             |
| 56 | Pro-active introduction of advanced care planning            | 5      | 4           | 4              | 4      | 4.5           |
| 10 | Have a local directory of health services and supports       | 4.5    | 3.5         | 4              | 4.5    | 4.5           |
| 25 | Electronic medical records                                   | 5      | 5           | 4              | 5      | 2             |
| 26 | Prompt sharing of information between services               | 5      | 5           | 4              | 5      | 2             |
| 34 | Make health messages visible around towns                    | 3      | 5           | 5              | 4      | 4             |
| 24 | Appointment follow up (call people after appointments)       | 4.5    | 3           | 3              | 5      | 5             |
| 15 | A system for sending patients a copy of all clinic letters   | 4.5    | 2           | 4              | 5      | 4.5           |
| 16 | A system for coordinating appointments                       | 5      | 2.5         | 3              | 4.5    | 5             |
| 50 | Health screening recall/reminder systems in general practice | 4      | 3.5         | 3.5            | 4      | 5             |



# Discussion and Recommendations

The Ophelia Grampians project identified health literacy profiles of Grampians residents, influences upon engagement with health and healthcare, and health promotion and service improvement ideas proposed by local stakeholders.

The data collection and synthesis steps undertaken for this study constitute Phase 1 of the Ophelia approach. Phase 2 and 3 involve using the data gathered and relationships established during Phase 1, to empower and equip local stakeholders to produce and implement interventions.

The current study sought to identify:

- the health literacy profiles of residents of the Grampians region;
- factors influencing Grampians residents' engagement with health activities and healthcare (especially cancer prevention, early detection and treatment services); and
- potential service improvement initiatives that could be implemented in the Grampians region to address identified engagement issues.

Three sources of data were synthesised to generate recommended actions:

1. Health Literacy Questionnaire (HLQ) data - used to identify health literacy profiles of Grampians residents (n=1698);
2. Qualitative interviews - used to identify influences upon engagement with health and healthcare experienced by Grampians residents (n=120); and
3. Service improvement ideas generated by stakeholders participating in seven local workshops (n=42).

Key findings are presented below, along with recommended actions at the levels of community, primary care, cancer care, region, and policy and funding.

## Key findings

The data generated provides guidance for service improvement and complements the Optimal Cancer Care Pathways [52]. Specifically, the findings highlight the need to provide services and regional partnerships with insights into consumer and service strengths, and the challenges community members experience when accessing and engaging with services.

### ***The health literacy profile of Grampians residents (n=1698), and associations with health behaviours***

Analysis of Health Literacy Questionnaire (HLQ) data obtained from 487 people with a history of cancer and 1211 people from the community demonstrated:

**KF 1.** People with a history of cancer had higher health literacy than people without cancer, across all domains of the HLQ.

**KF 2.** Across the Grampians region there are sub-groups of residents with distinct profiles of high, mixed and low health literacy strengths and challenges.

**KF 3.** Respondents that displayed patterns of low health literacy were often: a) men; b) lived in outer regional areas; and c) less likely to meet dietary and physical activity guidelines, and to smoke.

**KF 4.** Strong positive associations were observed between several HLQ scales and participation in cancer screening. In particular, having enough information and a relationship with a trusted



healthcare provider were associated with cancer screening behaviours. Ability to navigate the health system (i.e. knowing about services and supports) was also positively associated with participation in bowel and prostate screening.

*Note: While these data are cross-sectional (limiting causal inferences), they indicate that potential intervention targets include provision of information that helps people understand what to do, strengthening consumer-provider engagement, and improving the ease with which people can navigate the healthcare system. They also indicate that men and people in more remote areas may particularly benefit from these interventions.*

### ***Influences upon engagement with health and healthcare reported by Grampians residents during qualitative interviews (n=120)***

**KF 5.** Overall, Grampians residents reported the following types of factors influenced their engagement with healthcare: 1) service availability, 2) healthcare provider continuity, 3) healthcare provider attributes, 4) service coordination, 5) the form and delivery of information, and 6) level of support from cancer agencies and local support services; 7) competing priorities, 8) co-morbid medical conditions, 9) support from family and friends, 10) confidence, ability, and willingness to ask questions, 11) independence in health decisions, and 12) computer literacy.

### ***Service improvement ideas generated by stakeholders participating in seven local workshops (n=42)***

**KF 6.** Local stakeholders reflected on vignettes describing some of the healthcare experiences reported by interviewees, and generated 56 service improvement ideas. These ideas focused on: a) enhancing the quality of consumer-provider interactions; b) enhancing service and information availability, accessibility and quality; and/or c) undertaking local community and service development.

**KF 7.** The following eight themes were identified from the 56 service improvement ideas generated by stakeholders:

1. Make access to services and information easy;
2. Incentivise health-related activities;

3. Support service navigation and referral;
4. Support information gathering and processing;
5. Communicate effectively and understand consumer needs and perspectives;
6. Utilise and involve social supports;
7. Provide a coordinated care experience; and
8. Build awareness of health issues and a culture that prioritises health activities.

## **Recommendations**

### **R 1. Discuss and use the results of this needs assessment, along with other local data, to develop and implement a regional cancer care improvement plan.**

Specific recommendations for improving community engagement with healthcare and health activities are presented across five levels: 1) community, 2) primary care services, 3) cancer care services, 4) regional partnerships, and 5) policy and funding bodies.

These recommendations are a synthesis of service improvement ideas and comments made within workshops and interviews. They offer a way to operationalise the ideas generated by stakeholders, and improve consumer engagement with health activities and health care. Some of the improvement ideas proposed relate to initiatives that are already being operationalised by some services. In these instances, recommendations relate to improving access to these initiatives across the region.

### ***Actions at the level of communities***

Many of the ideas generated in the workshops were strategies for intervening at the level of local communities. Most of these ideas related to identifying and building on existing community assets. It was recognised that there is high variability in the resources available and that each community may have its own needs.

Recommendations for action at the community level, arising from workshop discussions and service improvement ideas, are:

### **R 2. Work with local organisations, social groups, community leaders and health providers to deliver local campaigns promoting key public health messages.** Promotion of health messages

in community locations such as sporting facilities, public toilets, and visible locations within towns; the recruitment of local health champions and sporting icons to act as ambassadors; and the use of local media. Working with existing community organisations and groups was highlighted as a potential opportunity to promote health messages in locally relevant ways. There is a large body of existing health promotion materials that could be utilised within these campaigns.

### **R 3. Work with local organisations, social groups, community leaders and health providers to deliver local campaigns promoting cancer screening programs.**

Promotion of screening programs in community locations such as sporting facilities, public toilets, and visible locations within towns; the recruitment of local health champions and sporting icons to act as ambassadors; and the use of local media. Activities to promote cancer screening could be undertaken in conjunction with campaigns to promote broader public health messages.

**R 4. Value and engage carers, peers and volunteers.** Carers, peers and volunteers should be supported and encouraged to engage in the development and delivery of health programs and public health campaigns. These community resources could also be utilised to provide practical supports required for patients to engage effectively and easily with treatment (e.g., transport services).

*The role of each sector of the health and community care system.* At the community level, engagement is required across the service system. Each of the actions noted above become more effective and sustainable when community members, and service providers and managers from across the system engage together in program design and delivery. It should also be noted, that interventions at the community level overlap in many instances, with interventions at other levels. So, for example, interventions to promote participation in screening need to occur in conjunction with interventions to make screening accessible and non-stigmatising.

*The role of community level strategies to enhance cancer care along the Optimal Cancer Care Pathway.* Community level strategies provide opportunities to improve engagement of consumers in each step along the cancer care pathway. Recommendations 2 and 3 hold

particular potential to strengthen engagement in prevention and early detection activities.

### **Actions at the primary care level**

The role of primary care services (including general practices, community health services, and pharmacies) in the delivery of cancer care was highlighted within workshops. Many suggestions related to improvements to primary care, and to the linkages between primary care and cancer services.

Recommendations for action at the primary care level, arising from workshop discussions and service improvement ideas, are:

**R 5. Protect and promote people's relationships with their general practitioner.** Significant benefits to consumers could be realised by establishing a relationship with a general practitioner or ensuring existing relationships are maintained following a cancer diagnosis. General practitioners can assist with care management, reinforce messages relating to self-management, support monitoring and review activities, assist patients to navigate cancer information and services, and support advanced care planning and end of life care. Whilst this occurs currently to some extent, efforts to systematise shared care could improve consistency of access to comprehensive support and reduce dependence upon high consumer health literacy and extraordinary clinical practice.

**R 6. Promote and make access to screening easy.** Screening could be more actively promoted and evaluated, and where appropriate, offered in places people routinely attend, including local events, gyms and workplaces. Screening could also be made available out of office hours. These opportunities for screening should be highly visible. During appointments and appointment bookings, primary care services could proactively recruit consumers and carers to participate in screening by using letters, phone calls, recall and reminder systems, and opportunistic suggestions during consultations.

**R 7. Undertake ongoing monitoring and review of cancer screening promotion practices at the service level.** Primary care services could routinely evaluate their screening promotion activities to identify opportunities for quality improvement and increased participation.

**R 8. Participate in health promotion and service improvement activities.** To foster and promote the role of primary care services across the cancer pathway, and the relationships between services and consumers, primary care organisations could actively participate in community health promotion and cancer care service improvement initiatives.

**R 9. Identify and address personal barriers to engagement in cancer prevention behaviours, early detection and screening activities, and cancer care.** A critical part of primary care is the formal and informal assessment of barriers to participation in health management. Understanding the needs, circumstances and priorities of consumers, and tailoring responses accordingly, can facilitate participation. Examples of strategies that service providers could employ include tailoring health messages to respond to specific consumer beliefs and values (e.g., the importance of staying well in order to fulfil carer responsibilities), and facilitating consumer access to a female general practitioners in the local area.

**R 10. Facilitate engagement with health information.** It is critical that there is a shift in practice and culture away from seeing health providers as information providers to seeing them as understanding facilitators. Complementary to supporting consumers to engage with facts about health, illness and treatment at critical care points, are improvements to the amount, timing, type and form of information provided. However, beyond information provision is a need to recognise that information processing and making decisions about health is a complex process that occurs over a period of time. Enabling consumers to revise, discuss and question information facilitates this process. Ideas about engaging with health information included allowing audio recordings of consultations, hand held records, provision of clinic letters to consumers, supporting note taking during appointments, and encouraging consumers to bring support people along to appointments.

**R 11. Undertake provider training.** To ensure that effective referral and communication channels are established at the commencement of practice, it is important that new doctors, including the increasing overseas trained doctor workforce, receive effective local orientation and

professional support. Providers could also be trained in effective consumer communication and education, such that they are equally as skilled in educational practice as they are clinical practice. Training programs might include motivational interviewing and teach-back approaches. Understanding and responding to the needs of carers was also noted as a training need.

**R 12. Coordinate care.** Strong and effective pathways between services and providers that facilitate information sharing, shared care, and referrals would reduce the burden on consumers to coordinate their own care and increase their access to information and services.

*The role of each sector of the health and community care system.* At the primary care level, engagement of stakeholders from across the service system is required. Each of the actions noted above become more effective and sustainable when community members, practices and service providers collectively view primary care as part of the fabric of the community. Communities can facilitate primary care providers to engage in community level health promotion and screening programs. Primary care providers can reach beyond their practices and offer services within other community settings. Cancer services can facilitate a role for primary care providers and services in cancer care. There is significant opportunity for Primary Health Networks to support facilitation of connections between these sectors of the health system.

*The role of primary care level strategies to enhance cancer care along the Optimal Cancer Care Pathway.* Primary care has a role to play in each step along the cancer care pathway, perhaps particularly in Steps 1 and 2. It is important to view the care pathway, not as a linear journey. People can move back and forth and cycle through the steps during their lifetime. Primary care providers voiced concern that cancer care services view the primary care role as ending at the time of diagnosis, and that the practices and subtle messages of cancer care providers can act to disrupt the trust and relationship that patients and their primary care providers have often built over a long period of time. Primary care has a critical role to play in cancer care and is important to value and facilitate.

### **Actions at the cancer services level**

Cancer services have a specialised role to play in providing cancer specific information and care, and the value of these services were highlighted across workshops. Many suggestions were made that related to improvements to cancer care, and to the linkages between primary care and cancer services.

Recommendations for action at the cancer care level, arising from workshop discussions and service improvement ideas, are:

**R 5. Protect and promote people's relationships to their general practitioner** (also see R 5 under the sub-heading *Actions at the primary care level*). Cancer services have a significant role to play in supporting and promoting consumers' relationships with their general practitioner following a cancer diagnosis. There will be periods during cancer care in which contact with general practitioners is minimal, however efforts to maintain linkages with GPs can offer more personalised, local and long term support to consumers than can be offered by specialised care services.

**R 8. Participate in health promotion and service improvement activities** (also see R 8 under the sub-heading *Actions at the primary care level*). Communities and primary care services could benefit from the specialised knowledge and experience that exists within cancer services. Cancer care services could actively participate in community health promotion and primary care service improvement initiatives.

**R 9. Identify and address personal barriers to engagement in cancer prevention behaviours, early detection and screening activities, and cancer care** (also see R 9 under the sub-heading *Actions at the primary care level*). This action becomes a critical requirement for those diagnosed with cancer. All providers have a role to play in identifying and addressing barriers and support service navigation. However, a dedicated point of contact with a person with the skills and time to assess, follow-up, coordinate and support appears to be particularly helpful. The role of local specialist cancer nurses was repeatedly noted in workshops, as an effective strategy.

**R 10. Facilitate engagement with health information** (also see R 10 under the sub-heading *Actions at the primary care level*). This action become a critical requirement during the early stages of a person's cancer journey, given the amount and complexity of information provided, and the importance of the decisions being made. Special effort is required to ensure that patients diagnosed with rarer cancer types have access to the same level and quality of information as those with more common cancers.

**R 11. Undertake provider training** (also see R 11 under the sub-heading *Actions at the primary care level*).

**R 12. Coordinate care** (also see R 12 under the sub-heading *Actions at the primary care level*). The increased complexity of care, during cancer treatment, further necessitates the need for effective pathways between services and providers.

*The role of each sector of the health and community care system:* At the cancer care level, engagement is required across the service system. Strong and effective partnerships between cancer care services, primary care services, and community services and resources allows people with cancer to gain access to a full suite of information and supports during their cancer journey. The supports that people require often reach beyond medical care to include, for example, access to transport, support for activities of daily living, emotional supports, and financial supports. Facilitating links between health services and other community resources can fill gaps in available services. Cancer services have a specialised role to play in providing cancer specific information and care. Efforts to bring together services across sectors must occur in a coordinated way to ensure the burden of navigation is not placed on the consumer.

*The role of cancer care level strategies to enhance cancer care along the Optimal Cancer Care Pathway:* Cancer services are best placed to provide specialised information, treatment and support, and to facilitate consumer and carer access to community services and resources. A shared care approach with general practice will also support consumers to access the full range of supports they require throughout their cancer journey. Improvements to service provision,



access and coordination at the cancer care level holds potential to improve consumer engagement in critical points along the cancer care pathway, particularly steps 2 to 7.

### ***Actions at the regional partnership level***

Discussions during workshops noted the need for partnerships between services at a regional level to optimise resources and ensure consumers receive streamlined and coordinated care.

Recommendations for action at the regional partnership level, arising from workshop discussions and service improvement ideas, are:

**R 13. Region-wide service coordination.** A register of local services and supports should be available and accessible to each community. These could be actively promoted to ensure equal access to services. Also needed are effective, accessible and usable electronic medical records and policies that support their use. Shared care could be encouraged and facilitated, with sharing of information and coordinated appointments. Leadership and ongoing facilitation of service coordination needs to be provided at the regional level to facilitate provider level care coordination.

**R 14. Development of infrastructure, technology and environments that promote and facilitate engagement in health activities and care.** Accessible, and usable service environments and facilities can improve the health of communities and encourage engagement with health and care. Increasingly, technology is available to facilitate sharing of information, improved communication, monitoring of health metrics, and improvements in health behaviours. Local, state and national bodies can provide access to relevant local information.

### ***Actions at the policy and funding level***

Discussions during workshops acknowledged the role of policies, guidelines, funding decisions, funding models and performance measurement systems in influencing the capacity of communities, organisations, and service providers to enact improvement initiatives.

Recommendations for action at the policy and funding level, arising from workshop discussions and service improvement ideas, are:

**R 15. Partner with local services** to address local issues in locally appropriate ways. Whilst traditionally policy and funding bodies operate at arms length from local communities and organisations, this limits their capacity to identify and respond to issues associated with policy implementation. It also limits their capacity to educate local services about broader demands and issues. Innovative project governance arrangements can allow appropriate, responsible, and effective partnerships between local services and policy and funding bodies in local projects.

**R 16. Focus investments** in the development of workforce capacity, infrastructure, health messaging, technology solutions, service quality, and community and service capacity to plan and organise local resources. Funding needs to support strategies that engage people who are currently least engaged in health activities and services.

**R 17. Identify and communicate to local services, observed gaps in service provision,** issues with communications materials and technologies, and issues with pathways between services at the regional and local levels.

**R 18. Implement practice standards** for coordination, assessment, care planning, and care provision. Guidelines for the development and provision of written information should also be implemented. Performance measures that support breadth of coverage and equity should be instituted.

## **Specific strategies to improve community engagement with cancer prevention activities and healthcare**

The following strategies integrate some of the improvement ideas generated. The list is not exhaustive, but rather demonstrate how some of the recommendations presented might be operationalised.

### ***Small town cancer strategy***

Small, remote towns experience greater cancer prevalence and mortality, have greater health literacy difficulties and report more barriers and fewer enablers than more populous centres. They also vary in the number, type and quality of resources that are available to the community. These factors suggest that it might be beneficial

to plan strategies to build cancer awareness and increase access to care at a town level. An organised small towns cancer care strategy could systematically organise efforts to make cultural changes, build community capacity to participate in screening and surveillance, and promote full engagement in cancer care.

Communities could be facilitated to assess their needs and develop plans to take action to improve access to local services. This could be a locally developed and coordinated process to build resources, and improve local capacity. A simple example could be a town-level car pool, to assist individuals to attend medical appointments in regional centres.

### ***Cancer care navigators***

Specific and positive experiences with specialist cancer care nurses were repeatedly mentioned across workshops by consumers and providers. The support provided by these services were reported as difficult to describe in concrete terms, but were proposed as solutions to many of the challenges described within the vignettes presented at workshops. Supports offered included being a point of contact for emerging questions, providers of practical information relating to living with cancer and navigating services, and providers of reassurance and emotional support. It was noted that equitable access to this type of service is lacking. Such a service is not available for all cancer types or in all parts of the region.

It should be noted, that while the specialist cancer care nurse service was the most common solution offered within workshops, this is not the only way these needs might be met. The underlying needs appear to be for: a) an accessible, approachable single point of contact; b) care coordination; c) facilitated engagement with health information and services; and d) someone to identify and respond to barriers to engagement with information and care.

While there are a number of practical barriers to expansion of the specialist cancer care nurse service (in its current form) to all cancer types and across the whole region, innovative solutions can be developed to ensure equitable access to

these supports. A regional initiative to identify ways to offer all cancer patients the type of support currently offered to breast and prostate cancer patients could improve the quality of care provided to patients with rare cancer types and those in remote areas.

### ***Quality of communications monitoring systems***

The consultations revealed that communication breakdowns (both formal and informal) or poor care coordination had caused considerable distress and/or impacted consumer engagement in care. For example delays in referral to cancer services, late cancellation of appointments, or poor quality of printed materials.

Communication is core to quality service delivery, however the consistency of communication practices is rarely the focus of quality monitoring processes or improvement initiatives. A regional initiative to implement communication and care coordination practice standards and quality indicators could be undertaken. Routine collection of quality indicator data is a demonstrated driver of care improvement.

### ***Local service register***

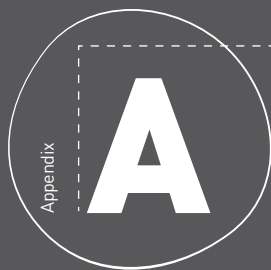
Several stakeholders suggested the need for an electronic register of cancer and community services, and discussions highlighted the inadequacies of existing service databases. Many recognised however, the challenges of establishing and maintaining a locally relevant, up-to-date database and advocated their preference for the systems they have personally developed for themselves over time. There was acknowledgement, across workshops of the challenges that consumers face (particularly those with lower health literacy and/or without access to specialist cancer care nurses or particularly well connected general practitioner) in gaining access to allied health and supportive services, and how current arrangement exacerbate existing inequities. A regional initiative could establish and maintain an up-to-date, locally relevant, and easily accessible register of services.

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# About the Health Literacy Questionnaire (HLQ)

The Health Literacy Questionnaire (HLQ) identifies the specific health literacy strengths and limitations of people and communities. It examines nine areas of health literacy.

**The Health Literacy Questionnaire (HLQ)** is a critical advancement in health literacy measurement. It is a multi-dimensional tool that has been designed to provide practitioners, organisations and governments with data that describes the health literacy strengths and limitations of individuals and populations.

These data allow development and selection of fit-for-purpose response strategies that optimise opportunities to improve equity in health outcomes and access.

## Psychometric properties of the HLQ

Modern and rigorous psychometric tests have shown the HLQ is a robust measure of nine identified health literacy dimensions. It has excellent psychometric properties, construct validity, reliability, and is shown to provide unbiased mean estimates of group differences.<sup>1</sup>

## Structure and administration of the HLQ

The HLQ consists of 44 questions and can be either self-administered or orally administered. It is available in paper and online formats (at [Ophelia.net.au](http://Ophelia.net.au)). Completion time varies depending on the skills and approach of the respondent. It usually takes between 7 and 30 minutes to complete. When orally administered by telephone or in person the HLQ takes between 20 and 45 minutes to complete.

## Languages available

The HLQ is available in several languages. Visit the [Ophelia.net.au](http://Ophelia.net.au) website for an up-to-date list of available translations. A strict protocol is followed for each translation to help ensure each version of the HLQ is linguistically, culturally and psychometrically robust. The translation protocol used to translate the HLQ is available from [Ophelia.net.au](http://Ophelia.net.au).

## Accessing the HLQ

Visit the [Ophelia.net.au](http://Ophelia.net.au) website to register and obtain a license to use the HLQ.

## Scoring the HLQ

The HLQ provides nine scale scores. Each score provides insight into the strengths and limitations of the respondent, but the scores are most powerful when viewed together to show the health literacy profile of the respondent.

The score for each scale is obtained by calculating the mean of the 4-6 questions from the scale. These scales, their corresponding question numbers in the HLQ and the interpretation of what each scale score tells you about a person's health literacy are shown in Table 1. Scales 1-5 have a possible score range from 1-4. Scales 6-9 have a possible score range from 1-5.

**Average scale scores** for groups of respondents (along with standard deviations) provide useful insights into health literacy strengths and limitations. An Excel spreadsheet and SPSS syntax is available to assist with the calculation of scale scores. The simplest way to present the results of the HLQ is to report the means (and standard deviations) for each scale in a bar graph.

**Effect sizes** can be used to describe the difference in mean scale scores before and after an intervention, or of different groups. Effect sizes provide an indication of how large the difference is. An instructional guide is available to assist with the calculation of effect sizes. Effect sizes are usually presented in tables.

**Cluster analysis** is recommended to identify groups of individuals that have similar health literacy profiles. This approach to examining HLQ data reveals sub-groups of people who have particular strengths that can be built upon, or sub-groups with limitations, which services might need to provide support to address. Statistical software and some statistics training is required to undertake this sort of analysis and interpret the results.

**Table 1: Interpretation of the nine scales of the Health Literacy Questionnaire (HLQ)<sup>2</sup>**

| HLQ Scale   | Item location in the HLQ   | Interpretation - what do the scale scores mean?  |
|---|--|--|
| <b>1.</b> Feel understood and supported by healthcare providers                   | Part 1 - Q 2<br>Part 1 - Q 8<br>Part 1 - Q 17<br>Part 1 - Q 22                                   | <b>High:</b> Has an established relationship with at least one healthcare provider who knows them well and who they trust to provide useful advice and information and to assist them to understand information and make decisions about their health.<br><br><b>Low:</b> People who are low on this domain are unable to engage with doctors and other healthcare providers. They don't have a regular healthcare provider and/or have difficulty trusting healthcare providers as a source of information and/or advice.   |
| <b>2.</b> Have sufficient information to manage my health                         | Part 1 - Q 1<br>Part 1 - Q 10<br>Part 1 - Q 14<br>Part 1 - Q 23                                  | <b>High:</b> Feels confident that they have all the information that they need to live with and manage their condition and to make decisions.<br><br><b>Low:</b> Feels that there are many gaps in their knowledge and that they don't have the information they need to live with and manage their health concerns.   |
| <b>3.</b> Actively managing health  | Part 1 - Q 6<br>Part 1 - Q 9<br>Part 1 - Q 13<br>Part 1 - Q 18<br>Part 1 - Q 21                  | <b>High:</b> Recognise the importance of and are able to take responsibility for their own health. They proactively engage in their own care and make their own decisions about their health.<br><br><b>Low:</b> People with low levels don't see their health as their responsibility, they are not engaged in their healthcare and regard healthcare as something that is done to them.  |
| <b>4.</b> Have social support for health  | Part 1 - Q 3<br>Part 1 - Q 5<br>Part 1 - Q 11<br>Part 1 - Q 15<br>Part 1 - Q 19                  | <b>High:</b> A person's social system provides them with all the support they want or need.<br><br><b>Low:</b> Completely alone and unsupported.   |
| <b>5.</b> Appraise health information   | Part 1 - Q 4<br>Part 1 - Q 7<br>Part 1 - Q 12<br>Part 1 - Q 16<br>Part 1 - Q 20                  | <b>High:</b> Able to identify good information and reliable sources of information. They can resolve conflicting information by themselves or with help from others.<br><br><b>Low:</b> No matter how hard they try, they cannot understand most health information and get confused when there is conflicting information.  |
| <b>6.</b> Ability to actively engage with healthcare providers                    | Part 2 - Q 2<br>Part 2 - Q 4<br>Part 2 - Q 7<br>Part 2 - Q 15<br>Part 2 - Q 20                   | <b>High:</b> Is proactive about their health and feels in control in relationships with healthcare providers. Is able to seek advice from additional health care providers when necessary. They keep going until they get what they want. Empowered.<br><br><b>Low:</b> Is passive in their approach to health care, inactive, i.e., they do not proactively seek or clarify information and advice and/or service options. They accept information without question. Unable to ask questions to get information or to clarify what they don't understand. They accept what is offered without seeking to ensure that it meets their needs. Feel unable to share concerns. |
| <b>7.</b> Ability to navigate the healthcare system                               | Part 2 - Q 1<br>Part 2 - Q 8<br>Part 2 - Q 11<br>Part 2 - Q 13<br>Part 2 - Q 16<br>Part 2 - Q 19 | <b>High:</b> Able to find out about services and supports so they get all their needs met. Able to advocate on their own behalf at the system and service level.<br><br><b>Low:</b> Unable to advocate on their own behalf and unable to find someone who can help them use the healthcare system to address their health needs. Do not look beyond obvious resources and have a limited understanding of what is available and what they are entitled to.   |
| <b>8.</b> Ability to find good health information                                 | Part 2 - Q 3<br>Part 2 - Q 6<br>Part 2 - Q 10<br>Part 2 - Q 14<br>Part 2 - Q 18                  | <b>High:</b> Is an 'information explorer'. Actively uses a diverse range of sources to find information and is up to date.<br><br><b>Low:</b> Cannot access health information when required. Is dependent on others to offer information.   |
| <b>9.</b> Ability to understand health information well enough to know what to do | Part 2 - Q 5<br>Part 2 - Q 9<br>Part 2 - Q 12<br>Part 2 - Q 17<br>Part 2 - Q 21                  | <b>High:</b> Is able to understand all written information (including numerical information) in relation to their health and able to write appropriately on forms where required.<br><br><b>Low:</b> Has problems understanding any written health information or instructions about treatments or medications. Unable to read or write well enough to complete medical forms.   |

**Figure 1: The nine scales of the Health Literacy Questionnaire (HLQ)<sup>2</sup>**



#### Reference

1. Osborne RH, Batterham R, Elsworth GR, Hawkins M, Buchbinder R. The grounded theory, psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). BMC Public Health. 2013;13:658. <http://www.biomedcentral.com/1471-2458/13/658>.
2. Dodson S, Beauchamp A, Batterham RW and Osborne RH. Information sheet 10: About the Health Literacy Questionnaire (HLQ). In Ophelia Toolkit: A step-by-step guide for identifying and responding to health literacy needs within local communities. 2015. Retrieved from [www.ophelia.net.au](http://www.ophelia.net.au)

**Scales 1 to 5:** How strongly you disagree or agree with the following statements

(Strongly disagree/disagree/Agree/Strongly agree)

| 1. Feeling understood and supported by healthcare providers  |                 |
|--|-----------------|
| <b>High:</b> Has an established relationship with at least one healthcare provider who knows them well and who they trust to provide useful advice and information and to assist them to understand information and make decisions about their health.       | QN<br>in<br>HLQ |
| <b>Low:</b> People who are low on this domain are unable to engage with doctors and other healthcare providers. They don't have a regular healthcare provider and/or have difficulty trusting healthcare providers as a source of information and/or advice. |                 |
| I have at least one healthcare provider who knows me well  | 2               |
| I have at least one healthcare provider I can discuss my health problems with  | 8               |
| I have the healthcare providers I need to help me work out what I need to do   | 17              |
| I can rely on at least one healthcare provider   | 22              |
| 2. Having sufficient information to manage my health   |                 |
| <b>High:</b> Feels confident that they have all the information that they need to live with and manage their condition and to make decisions   | QN<br>in<br>HLQ |
| <b>Low:</b> Feels that there are many gaps in their knowledge and that they don't have the information they need to live with and manage their health concerns   |                 |
| I feel I have good information about health  | 1               |
| I have enough information to help me deal with my health problems  | 10              |
| I am sure I have all the information I need to manage my health effectively  | 14              |
| I have all the information I need to look after my health  | 23              |
| 3. Actively managing my health   |                 |
| <b>High:</b> Recognise the importance of and are able to take responsibility for their own health. They proactively engage in their own care and make their own decisions about their health.  | QN<br>in<br>HLQ |
| <b>Low:</b> People with low levels don't see their health as their responsibility, they are not engaged in their healthcare and regard healthcare as something that is done to them.   |                 |
| I spend quite a lot of time actively managing my health  | 6               |
| I make plans for what I need to do to be healthy   | 9               |
| Despite other things in my life, I make time to be healthy   | 13              |
| I set my own goals about health and fitness  | 18              |
| There are things that I do regularly to make myself more healthy   | 21              |
| 4. Social support for health   |                 |
| <b>High:</b> A person's social system provides them with all the support they want or need   | QN<br>in<br>HLQ |
| <b>Low:</b> Completely alone and unsupported   |                 |
| I can get access to several people who understand and support me   | 3               |
| When I feel ill, the people around me really understand what I am going through  | 5               |
| If I need help, I have plenty of people I can rely on  | 11              |
| I have at least one person who can come to medical appointments with me  | 15              |
| I have strong support from family or friends   | 19              |

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| 5. Appraisal of health information  |           |
|---|-----------|
| <b>High:</b> Able to identify good information and reliable sources of information. They can resolve conflicting information by themselves or with help from others | QN in HLQ |
| <b>Low:</b> No matter how hard they try, they cannot understand most health information and get confused when there is conflicting information                      |           |
| I compare health information from different sources   | 4         |
| When I see new information about health, I check up on whether it is true or not  | 7         |
| I always compare health information from different sources and decide what is best for me   | 12        |
| I know how to find out if the health information I receive is right or not  | 16        |
| I ask healthcare providers about the quality of the health information I find   | 20        |

### Scales 6 to 9: How easy or difficult the following tasks are for you to do now

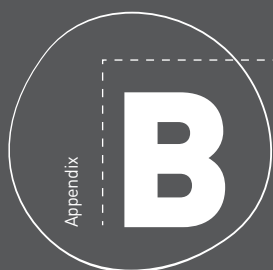
(Cannot do or always difficult/usually difficult/sometimes difficult/usually easy/always easy)

| 6. Ability to actively engage with healthcare providers  |           |
|--|-----------|
| <b>High:</b> Is proactive about their health and feels in control in relationships with healthcare providers. Is able to seek advice from additional health care providers when necessary. They keep going until they get what they want. Empowered.   | QN in HLQ |
| <b>Low:</b> Is passive in their approach to health care, inactive i.e. they do not proactively seek or clarify information and advice and/or service options. They accept information without question. Unable to ask questions to get information or to clarify what they don't understand. They accept what is offered without seeking to ensure that it meets their needs. Feel unable to share concerns. |           |
| Make sure that healthcare providers understand your problems properly  | 2pt2      |
| Feel able to discuss your health concerns with a healthcare provider   | 4pt2      |
| Have good discussions about your health with doctors   | 7pt2      |
| Discuss things with healthcare providers until you understand all you need to  | 15pt2     |
| Ask healthcare providers questions to get the health information you need  | 20pt2     |
| 7. Navigating the healthcare system  |           |
| <b>High:</b> Able to find out about services and supports so they get all their needs met. Able to advocate on their own behalf at the system and service level.   | QN in HLQ |
| <b>Low:</b> Unable to advocate on their own behalf and unable to find someone who can help them use the healthcare system to address their health needs. Do not look beyond obvious resources and have a limited understanding of what is available and what they are entitled to.   |           |
| Find the right health care   | 1pt2      |
| Get to see the healthcare providers I need to  | 8pt2      |
| Decide which healthcare provider you need to see   | 11pt2     |
| Make sure you find the right place to get the healthcare you need  | 13pt2     |
| Find out what healthcare services you are entitled to  | 16pt2     |
| Work out what the best care is for you   | 19pt2     |

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The HLQ can only be used under license. Information: [Richard.Osborne@Deakin.edu.au](mailto:Richard.Osborne@Deakin.edu.au) or [Rachele.buchbinder@monash.edu](mailto:Rachele.buchbinder@monash.edu)

| 8. Ability to find good health information   |           |
|--|-----------|
| <b>High:</b> Is an 'information explorer'. Actively uses a diverse range of sources to find information and is up to date.   | QN in HLQ |
| <b>Low:</b> Cannot access health information when required. Is dependent on others to offer information.   |           |
| Find information about health problems   | 3pt2      |
| Find health information from several different places  | 6pt2      |
| Get information about health so you are up to date with the best information   | 10pt2     |
| Get health information in words you understand   | 14pt2     |
| Get health information by yourself   | 18pt2     |
| 9. Understanding health information well enough to know what to do   |           |
| <b>High:</b> Is able to understand all written information (including numerical information) in relation to their health and able to write appropriately on forms where required     | QN in HLQ |
| <b>Low:</b> Has problems understanding any written health information or instructions about treatments or medications. Unable to read or write well enough to complete medical forms |           |
| Confidently fill medical forms in the correct way  | 5pt2      |
| Accurately follow the instructions from healthcare providers   | 9pt2      |
| Read and understand written health information   | 12pt2     |
| Read and understand all the information on medication labels   | 17pt2     |
| Understand what healthcare providers are asking you to do  | 21pt2     |

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# Survey Items

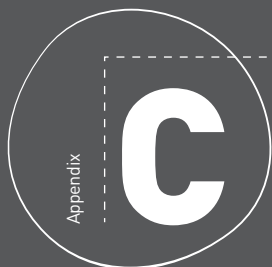
The survey used for the current study consisted of the 44 items of the Health Literacy Questionnaire (HLQ) (see appendix A), along with demographic, lifestyle, cancer screening, health and healthcare questions. The questions used are shown in the table below.

| Items  | Community Sample | Cancer Patient Sample |
|--|------------------|-----------------------|
| <b>Demographic Questions</b>                         |                  |                       |
| In what year were you born?                          | ✓                | ✓                     |
| What is your gender?                                 | ✓                | ✓                     |
| Do you live alone?                                   | ✓                | ✓                     |
| In which country were you born?                      | ✓                | ✓                     |
| What is your home post code                          | ✓                | ✓                     |
| Are you an Aboriginal or Torres Strait Islander?     | ✓                | ✓                     |
| Do you speak English at home?                        | ✓                | ✓                     |
| What is the highest level of education you attended? | ✓                | ✓                     |
| What is your current employment status?              | ✓                | ✓                     |
| Do you have a long standing illness or disability?   | ✓                | ✓                     |
| Type of cancer and year of diagnosis                 | X                | ✓                     |
| Do you have private health insurance?                | ✓                | ✓                     |
| Do you have a healthcare card?                       | ✓                | ✓                     |
| <b>Lifestyle Questions</b>                           |                  |                       |
| Are you a current smoker?                            | ✓                | ✓                     |
| If yes, how many per day?                            | ✓                | ✓                     |
| Are you a past smoker?                               | ✓                | ✓                     |
| If yes how many per day did you smoke?               | ✓                | ✓                     |
| What year did you quit smoking?                      | ✓                | ✓                     |
| What is your height?                                 | ✓                | ✓                     |
| What is your weight?                                 | ✓                | ✓                     |
| Is/was your occupation mainly outdoors?              | ✓                | ✓                     |
| If yes please comment                                | ✓                | ✓                     |
| When you go outside do you wear sunscreen?           | ✓                | ✓                     |
| When you go outside do you wear a hat?               | ✓                | ✓                     |



| Items   | Community Sample | Cancer Patient Sample |
|---|------------------|-----------------------|
| When you go outside do you wear long sleeves?   | ✓                | ✓                     |
| How many times a week do you usually eat take away food? (e.g. McDonalds, KFC, local fish and chip shop, local pizza shop, local chicken shop)  | ✓                | ✓                     |
| On a typical day, how many servings of vegetables do you eat?   | ✓                | ✓                     |
| On a typical day, how many servings of fruit do you eat?  | ✓                | ✓                     |
| On a typical day how many standard alcoholic drinks do you have?  | ✓                | ✓                     |
| Please indicate how strongly you disagree or agree with each of the following statements:   |                  |                       |
| I walk for exercise, for at least 15 minutes per day, most days of the week   | ✓                | ✓                     |
| I do at least one type of physical activity every day for at least 30 minutes (e.g. walking, gardening, housework, golf, bowls, dancing, Tai Chi, swimming)   | ✓                | ✓                     |
| On most days of the week, I do at least one activity to improve my health (e.g. walking, relaxation, exercise)  | ✓                | ✓                     |
| On most days of the week, I set aside time for healthy activities (e.g. walking, relaxing, exercise)  | ✓                | ✓                     |
| <b>Cancer Screening Questions</b>   |                  |                       |
| In the past 5 years, have you had any of these screening tests:<br>Bowel cancer screening: Faecal occult blood test (FOBT)?<br>Breast cancer screening: mammogram/ultrasound?<br>Cervical cancer screening: Pap smear?<br>Prostate cancer screening: A PSA blood test or DRE test?<br>Other - please state? | ✓                | ✓                     |
| Have any of your family members been diagnosed with cancer?<br>Family members should only include blood relatives, not those related by marriage or otherwise?  | ✓                | ✓                     |
| If yes, relationship, type of cancer and age at diagnosis   | ✓                | ✓                     |
| <b>Self-rated Overall Health Questions</b>  |                  |                       |
| How would you rate your overall health (excellent, very good, good, fair, poor)   | ✓                | ✓                     |
| <b>Cancer and Cancer Care Questions</b>   |                  |                       |
| What type of cancer were you diagnosed with? (If you have been diagnosed with several cancers, please list all)   | X                | ✓                     |
| What treatment are you currently having?  | X                | ✓                     |
| Surgery (Location e.g. Ballarat)  | X                | ✓                     |
| Chemotherapy (Location e.g. Ballarat)   | X                | ✓                     |
| Radiotherapy (Location e.g. Ballarat)   | X                | ✓                     |
| Hormonal therapy  | X                | ✓                     |

| Items  | Community Sample | Cancer Patient Sample |
|--|------------------|-----------------------|
| Targeted therapies   | X                | ✓                     |
| No treatment   | X                | ✓                     |
| Don't know   | X                | ✓                     |
| What treatment have you completed for your cancer?   | X                | ✓                     |
| Surgery  | X                | ✓                     |
| Chemotherapy   | X                | ✓                     |
| Radiotherapy   | X                | ✓                     |
| Hormonal therapy   | X                | ✓                     |
| Year of diagnosis?   | X                | ✓                     |
| What stage was your cancer at the time of diagnosis?   | X                | ✓                     |
| Stage 0 (in situ)  | X                | ✓                     |
| Stage 1 (localised cancer)   | X                | ✓                     |
| Stage 2 or 3 (regional spread)   | X                | ✓                     |
| Stage 4 (distant spread)   | X                | ✓                     |
| Don't know   | X                | ✓                     |
| Who provided you with this diagnosis?  | X                | ✓                     |
| What type of tests did you have before your cancer diagnosis?  | X                | ✓                     |
| Biopsy (a small tissue sample is surgically removed) , Location  | X                | ✓                     |
| Endoscopy (a flexible plastic tube with a tiny camera on the end is inserted into body), Location              | X                | ✓                     |
| Diagnostic imaging e.g. X-ray, CAT scan, Magnetic Resonance Imaging (MRI), (PET scanner), ultrasound, Location | X                | ✓                     |
| Blood tests, Location  | X                | ✓                     |
| Don't know   | X                | ✓                     |
| Did you start your treatment within 30 days of diagnosis?  | X                | ✓                     |
| Did you travel more than 20km to receive treatment?  | X                | ✓                     |
| At any time did you not attend treatment due to distance barriers?   | X                | ✓                     |
| At any time did you not attend treatment due to family commitments?  | X                | ✓                     |
| At any time did you not attend treatment due to work commitments?  | X                | ✓                     |
| Did you have any symptoms or health problems prior to diagnosis?   | X                | ✓                     |
| If yes, what were they and how long did you have these?  | X                | ✓                     |
| Did/do you have access to a cancer nurse?  | X                | ✓                     |



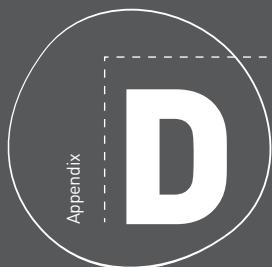
# Interview Schedules

Phone interviews were semi-structured and guided by the following interview questions and prompts.

| Questions and Prompts  | Community Sample | Cancer Patient Sample |
|--|------------------|-----------------------|
| <b>Questions related experiences with GPs</b>  |                  |                       |
| Can you tell me a bit about your experiences with GPs in your area?  | ✓                | ✓                     |
| Do you have any health conditions that impact on your daily life?  | ✓                | ✓                     |
| How often do you go to the GPs?<br><i>What was your last visit for?</i>  | ✓                | ✓                     |
| Do you find going to the GPs useful?   | ✓                | ✓                     |
| Do you go along to the doctors readily when you have symptoms, or do you tend to put off going when you can?   | ✓                | ✓                     |
| What sort of things might get in the way of you going to the doctors when you are unwell?  | ✓                | ✓                     |
| When you need to go to the GPs, where do you go?<br><i>Why do you go there and not somewhere else?</i><br><i>How far away from your home is this?</i><br><i>Is there somewhere closer?</i>       | ✓                | ✓                     |
| How do you feel generally about GPs in your area?<br><i>Are you generally satisfied or dissatisfied?</i><br><i>Why?</i>  | ✓                | ✓                     |
| <b>Questions related to experience with private healthcare services</b>  |                  |                       |
| Can you tell me a bit about your experiences with private healthcare services in your area?  | ✓                | ✓                     |
| How often do you see a private healthcare provider?<br><i>What was your last visit for?</i>  | ✓                | ✓                     |
| Do you prefer to see public or private healthcare services?  | ✓                | ✓                     |
| What sort of things might get in the way of you attending a private healthcare service?  | ✓                | ✓                     |
| Where do you go to see private providers (ask if relevant)?<br><i>Why do you go there and not somewhere else?</i><br><i>How far away from home is this?</i><br><i>Is there somewhere closer?</i> | ✓                | ✓                     |
| Are there any other comments you'd like to make about private healthcare services in your area?  | ✓                | ✓                     |

| Questions and Prompts  | Community Sample | Cancer Patient Sample |
|--|------------------|-----------------------|
| <b>Questions related to experience with hospitals</b>  |                  |                       |
| Can you tell me a bit about your experiences with the hospitals in your area?  | ✓                | ✓                     |
| How often do you go to the hospital?<br><i>What was your last visit for?</i>   | ✓                | ✓                     |
| Do you go along to the hospital readily when you have a significant medical problem, or do you tend to put off going when you can?   | ✓                | ✓                     |
| What sort of things get in the way of you going to the hospital when you need to?  | ✓                | ✓                     |
| When you need to go to the hospital, where do you go?<br><i>Why do you go there and not somewhere else?</i><br><i>How far away from your home is this?</i><br><i>Is there somewhere closer?</i>  | ✓                | ✓                     |
| How do you feel generally about the hospitals in your area?<br><i>Are you generally satisfied or dissatisfied?</i><br><i>Why?</i>  | ✓                | ✓                     |
| <b>Questions related to experience with cancer diagnosis and treatment</b>   |                  |                       |
| Can you please tell me when you were diagnosed with cancer?  | X                | ✓                     |
| And what type and stage of cancer you were diagnosed with?   | X                | ✓                     |
| Who diagnosed you and was this someone local?<br>[e.g. GP or specialist at Ararat clinic, Ballarat Hospital, Tristar Ballarat, Tristar Ararat]   | X                | ✓                     |
| Can you tell me how the cancer was found?<br><i>Was it a result of symptoms or through tests or screening (such as breast screen / bowel cancer screening etc.)?</i>   | X                | ✓                     |
| Was there any delay in you getting your diagnosis?<br><i>Were you feeling unwell before you were diagnosed?</i><br><i>For how long?</i><br><i>Did the doctor/s diagnose your illness quickly or did it take a while?</i><br><i>Did you need to get a second opinion or got to another clinic / GP</i>  | X                | ✓                     |
| How long was it from when you received your diagnosis to when you started treatment?   | X                | ✓                     |
| How were decisions made about what treatments might be best for you?<br><i>Were there many treatment options available to you?</i><br><i>Why did your GP/Specialist refer you to a particular place?</i><br><i>If you went to Melbourne - why? Following a particular doctor or to attend Peter Mac etc? Didn't like/have option to attend in Grampians??</i><br><i>Did you make these decisions by yourself or did your family/friends help?</i><br><i>Did you rely on your doctors to guide your decisions?</i><br><i>Were you given a choice or the chance to discuss options with your doctor / specialist or did they just refer you?</i> | X                | ✓                     |
| What type of treatment/s did you receive?<br><i>And from whom and where? E.g. was it in a private or public hospital (specialist or nurse)</i>   | X                | ✓                     |

| Questions and Prompts   | Community Sample | Cancer Patient Sample |
|---|------------------|-----------------------|
| How far did you have to travel to get your diagnosis and receive treatment?<br><i>Did you have to go to different places for different treatments?</i><br><i>Were you able to get follow up care (day to day care) where you live?</i>                                      | X                | ✓                     |
| Did you experience any difficulties getting treatment e.g. distance, no one to take you to appointments etc. financial difficulties paying for treatments, difficulty getting time off work or babysitting etc.?  | X                | ✓                     |
| Did you experience any dissatisfaction with your care or treatments?  | X                | ✓                     |
| Do you have any other general comments about your diagnosis, treatment, care or experiences?  | X                | ✓                     |
| <b>Patient-specific strengths and challenges as indicated by HLQ (low / med / high) scores</b>  |                  |                       |
| <b>Feeling understood and supported by healthcare providers.</b><br>How supported by your health care to you feel?<br>Can you explain why you feel this way?  | ✓                | ✓                     |
| <b>Social support for health</b><br>What support do you have from your family and friends, when it comes to managing your health?<br>What do you family and friends do to help you?   | ✓                | ✓                     |
| <b>Actively managing my health</b><br>What sorts of things do you do to stay healthy or take care of yourself?  | ✓                | ✓                     |
| <b>Navigating the healthcare system</b><br>How easy or hard is it to find the health service you need, when you need it?  | ✓                | ✓                     |
| <b>Ability to find good health information</b><br>How easy or hard is it for you to find health information you need?<br>Do you get any help?<br>Where do you go, and what do you do?   | ✓                | ✓                     |
| <b>Understanding health information well enough to know what to do.</b><br>How easy or hard do you find health information generally is to understand?<br>Do you always understand the information you are given to read?<br>Do you always understand what the doctors say? | ✓                | ✓                     |
| <b>Appraisal of health information</b><br>Do you usually think very carefully (and do a lot of research) about decisions about medications and treatment etc... or do you usually rely on the doctors (or others) advising you about what is best for you?                  | ✓                | ✓                     |
| <b>Ability to actively engage with healthcare providers</b><br>How easy or difficult do you find talking to health providers, doctors etc?<br>Are there certain providers that are particularly difficult to talk openly with?  | ✓                | ✓                     |
| <b>Having sufficient information to manage my health</b><br>Do you feel like you have all the information you need to live well and stay healthy?<br>Why / why not?   | ✓                | ✓                     |



# Comparison Sample

HLQ scale scores, and demographic characteristics of the Grampians sample and a comparison sample of 813 Victorian healthcare consumers

Table 1: Demographic characteristics of survey respondents from the community and cancer samples

|                              | Grampians<br>Community<br>Sample | Ophelia<br>Victoria<br>Sample* |
|------------------------------|----------------------------------|--------------------------------|
|                              | M, SD or<br>n, %                 | M, SD or<br>n, %               |
|                              | [n=1211]                         | [n=813]                        |
| Age                          | 52, 17                           | 72, 14                         |
| Female                       | 720, 64%                         | 505, 63%                       |
| Born in Australia/NZ         | 1035, 92%                        | 541, 67%                       |
| Speaks English at home       | 1113, 99%                        | 723, 91%                       |
| Finished high school         | 860, 76%                         | 407, 52%                       |
| Lives alone                  | 254, 23%                         | 337, 43%                       |
| Has private health insurance | 570, 51%                         | 298, 38%                       |

*\*The Ophelia Victoria sample contained 813 consumers of nine Victorian health and community services. These data are reported in Beauchamp, Buchbinder, Dodson et al (2015) [60].*

**Table 2: HLQ scale scores for the community sample, in contrast to the Ophelia Victoria sample and Melbourne residents from the Ophelia Victoria sample**

|                                      |   | Grampians Community Sample | Ophelia Victoria Sample  |                         |
|--------------------------------------|---|----------------------------|--------------------------|-------------------------|
|                                      |   | (n=1211)                   | (n=813)                  |                         |
|                                      |   | M, SD (CI) or n, %         | M, SD (CI) or n, %       | F or $\chi^2$ (p)       |
|                                      |   |                            |                          | Cohen's d (effect size) |
| Health Literacy Questionnaire Scales |   |                            |                          |                         |
| 1.                                   | Feeling understood and supported by healthcare providers        | 3.09, 0.58 [3.06 - 3.12]   | 3.21, 0.54 [3.17 - 3.25] | 23.47 [0.01]            |
| 2.                                   | Having sufficient information to manage my health               | 3.03, 0.50 [3.00 - 3.06]   | 2.98, 0.54 [2.94 - 3.01] | 4.44 [0.04]             |
| 3.                                   | Actively managing my health                                     | 3.00, 0.55 [2.97 - 3.03]   | 3.02, 0.50 [2.99 - 3.06] | 0.89 [0.35]             |
| 4.                                   | Social support for health                                       | 3.04, 0.51 [3.01 - 3.07]   | 3.03, 0.55 [2.99 - 3.07] | 0.04 [0.85]             |
| 5.                                   | Critical appraisal of health information                        | 2.79, 0.56 [2.76 - 2.83]   | 2.78, 0.54 [2.75 - 2.82] | 0.18 [0.68]             |
| 6.                                   | Ability to actively engage with healthcare providers            | 3.85, 0.70 [3.81 - 3.89]   | 3.97, 0.69 [3.92 - 4.02] | 14.30 [0.01]            |
| 7.                                   | Navigating the healthcare system                                | 3.70, 0.68 [3.67 - 3.74]   | 3.83, 0.67 [3.78 - 3.87] | 15.22 [0.01]            |
| 8.                                   | Ability to find good health information                         | 3.79, 0.67 [3.75 - 3.83]   | 3.66, 0.74 [3.60 - 3.71] | 16.52 [0.01]            |
| 9.                                   | Understanding health information well enough to know what to do | 3.97, 0.64 [3.93 - 4.01]   | 3.86, 0.74 [3.81 - 3.91] | 12.45 [0.01]            |
|                                      |   |                            |                          |                         |
| Grampians Community Sample           |   | (n=1211)                   | (n=396)                  |                         |
|                                      |   | M, SD (CI) or n, %         | M, SD (CI) or n, %       | F or $\chi^2$ (p)       |
|                                      |   |                            |                          | Cohen's d (effect size) |
| 1.                                   | Feeling understood and supported by healthcare providers        | 3.09, 0.58 [3.06 - 3.12]   | 3.21, 0.50 [3.16 - 3.26] | 16.84 [0.01]            |
| 2.                                   | Having sufficient information to manage my health               | 3.03, 0.50 [3.00 - 3.06]   | 2.99, 0.52 [2.94 - 3.04] | 1.76 [0.19]             |
| 3.                                   | Actively managing my health                                     | 3.00, 0.55 [2.97 - 3.03]   | 3.04, 0.49 [2.99 - 3.09] | 2.03 [0.16]             |
| 4.                                   | Social support for health                                       | 3.04, 0.51 [3.01 - 3.07]   | 3.03, 0.56 [2.97 - 3.08] | 0.06 [0.81]             |
| 5.                                   | Critical appraisal of health information                        | 2.79, 0.56 [2.76 - 2.83]   | 2.79, 0.54 [2.73 - 2.84] | 0.06 [0.81]             |
| 6.                                   | Ability to actively engage with healthcare providers            | 3.85, 0.70 [3.81 - 3.89]   | 3.96, 0.74 [3.88 - 4.03] | 6.44 [0.01]             |
| 7.                                   | Navigating the healthcare system                                | 3.70, 0.68 [3.67 - 3.74]   | 3.84, 0.70 [3.77 - 3.91] | 10.97 [0.01]            |
| 8.                                   | Ability to find good health information                         | 3.79, 0.67 [3.75 - 3.83]   | 3.64, 0.81 [3.56 - 3.72] | 10.17 [0.01]            |
| 9.                                   | Understanding health information well enough to know what to do | 3.97, 0.64 [3.93 - 4.01]   | 3.87, 0.79 [3.79 - 3.94] | 5.69 [0.02]             |





# Example Workshop Report

Thank you for agreeing to come to this group workshop. We greatly appreciate your time and effort.

## What is the workshop about?

This group workshop is to discuss your ideas about how to make health information and services easier to find and connect with.

## What will happen in the workshop?

We will first show you some short 'stories', about the way in which people look after their health.

The people we write about in these stories are made up, even though they may sound like someone you know

We will then ask you, and other people in the group some questions. The sorts of questions we ask will be about:

- what you think this person might need, or
- what their health service might do to help them look after their health more easily.

We will ask you these questions as a group. Please feel free to answer the questions honestly and put forward any ideas you have.

## What will happen to the answers I give?

The answers that the group provides will be recorded so that we can write them down and discuss them with local community organisations and health services.

You will not be identified in anything that we write about this workshop. Your name will be removed from any notes that we take.

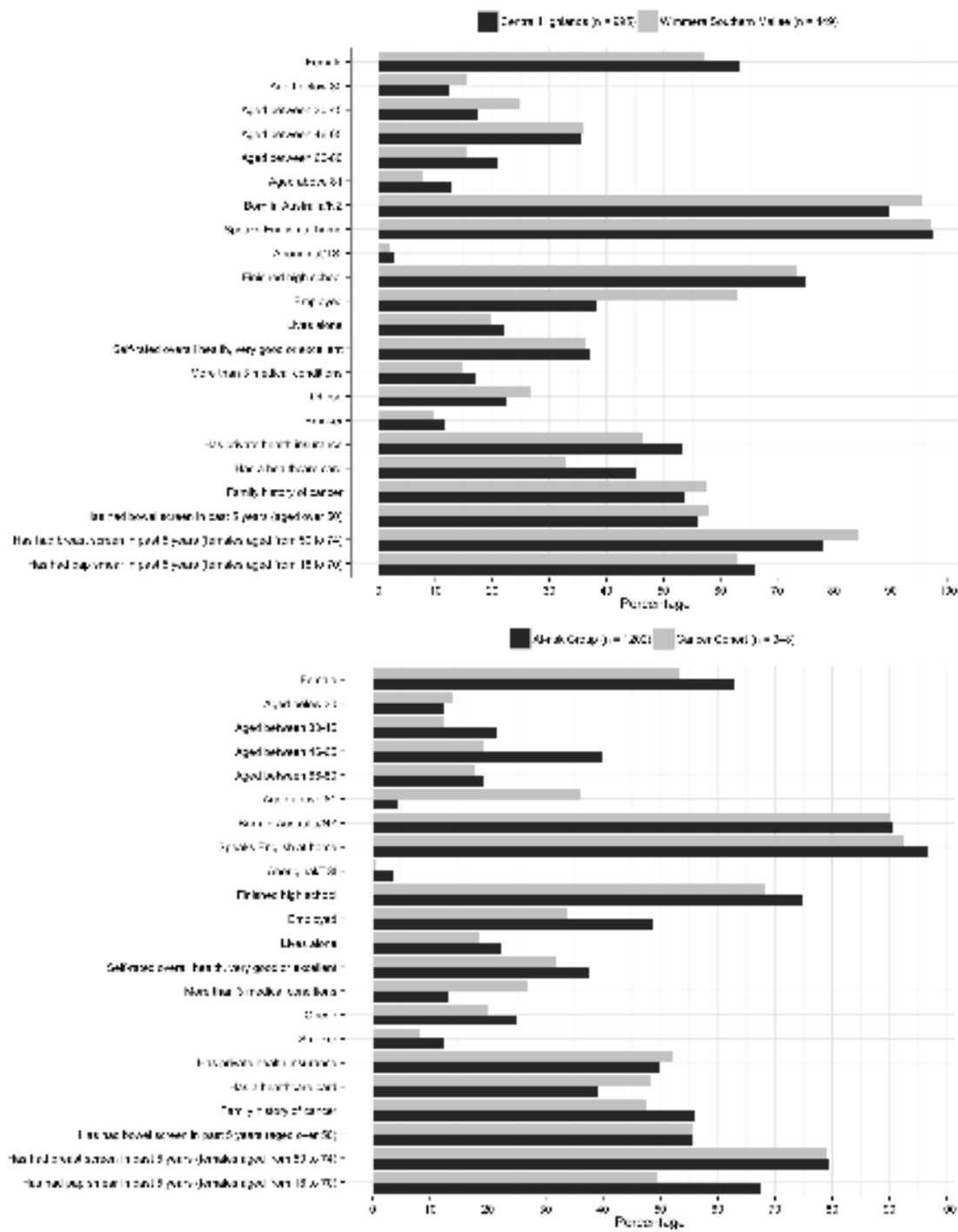
## What if I find the workshop brings up some difficult emotions for me?

It is very natural to experience a mix of emotions when thinking about and discussing issues around your cancer journey. Many people find the process of talking very helpful. Some people may feel it brings to the fore, things they hadn't realised were concerns for them.

If you feel you need some support, please contact your GP, phone the Cancer Council helpline (13 11 20), or find a psychologist in your area by visiting [www.psychology.org.au](http://www.psychology.org.au) or phoning 1800 333 497.



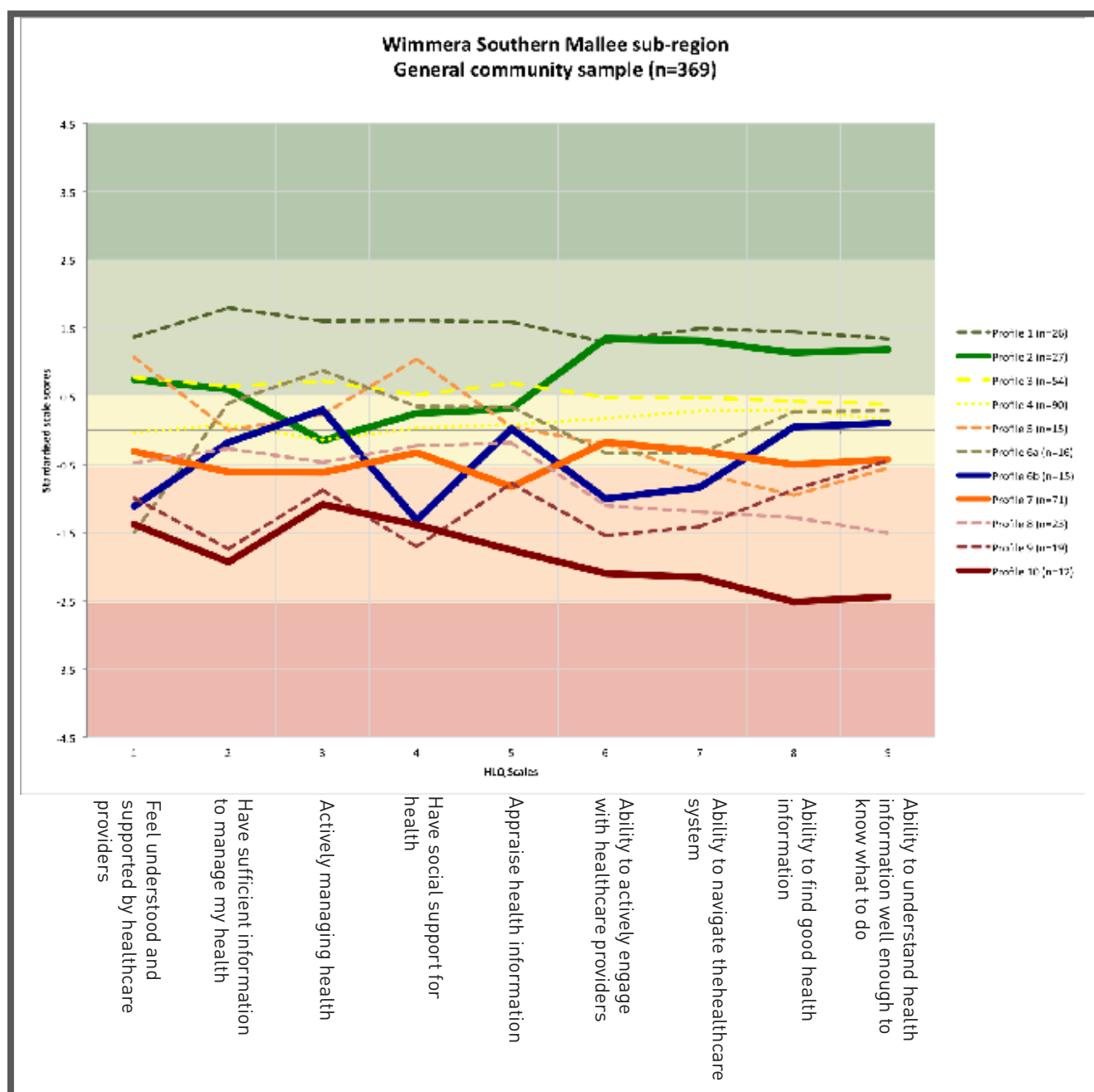
# Who participated?



# Profile summary - Wimmera Southern Mallee subregion

(Hindmarsh, Horsham Rural City, Northern Grampians, West Wimmera, Yarriambiack and Buloke LGAs)

## Health literacy profiles uncovered - general community sample



| Demographics - general community sample      | Profile 1<br>n=26 | Profile 2<br>n=27 | Profile 3<br>n=54 | Profile 4<br>n=90 | Profile 5<br>n=15 | Profile 6a<br>n=16 | Profile 6b<br>n=15 | Profile 7<br>n=71 | Profile 8<br>n=23 | Profile 9<br>n=19 | Profile 10<br>n=12 |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|
| Age (mean, SD)                               | 45.8              | 56.1              | 51.9              | 50.4              | 48.5              | 37.1               | 48.5               | 49.3              | 42.7              | 46.9              | 55.1               |
| Females (number, %)                          | 88.5%             | 66.7%             | 57.4%             | 60%               | 33.3%             | 43.8%              | 80%                | 47.9%             | 26.1%             | 60%               | 41.7%              |
| % Finished high school                       | 88.5%             | 66.7%             | 81.5%             | 76.7%             | 40%               | 93.8%              | 40%                | 74.6%             | 60.9%             | 85%               | 58.3%              |
| % People with musculoskeletal condition      | 23.1%             | 59.3%             | 42.6%             | 33.3%             | 66.7%             | 37.5%              | 53.3%              | 40.8%             | 39.1%             | 36.8%             | 16.7%              |
| Average number of health conditions          | 0.6               | 1.4               | 1.2               | 0.8               | 1.4               | 0.8                | 0.9                | 0.9               | 1                 | 1                 | 0.6                |
| Average BMI                                  | 24.1              | 29.8              | 28                | 28.6              | 33.0              | 25.8               | 33.0               | 27.4              | 28.2              | 29.4              | 29.8               |
| Average SEIFA disadvantage percentile in Vic | 30.8              | 33.9              | 31.3              | 34.5              | 29.7              | 26.0               | 29.7               | 33.5              | 27.7              | 39.9              | 42.3               |
| % of age/sex appropriate cancer screening    | 84.0%             | 62.3%             | 83.7%             | 68.5%             | 61.7%             | 71.4%              | 59.5%              | 55.6%             | 66.7%             | 66.7%             | 70.8%              |

**Notes:**

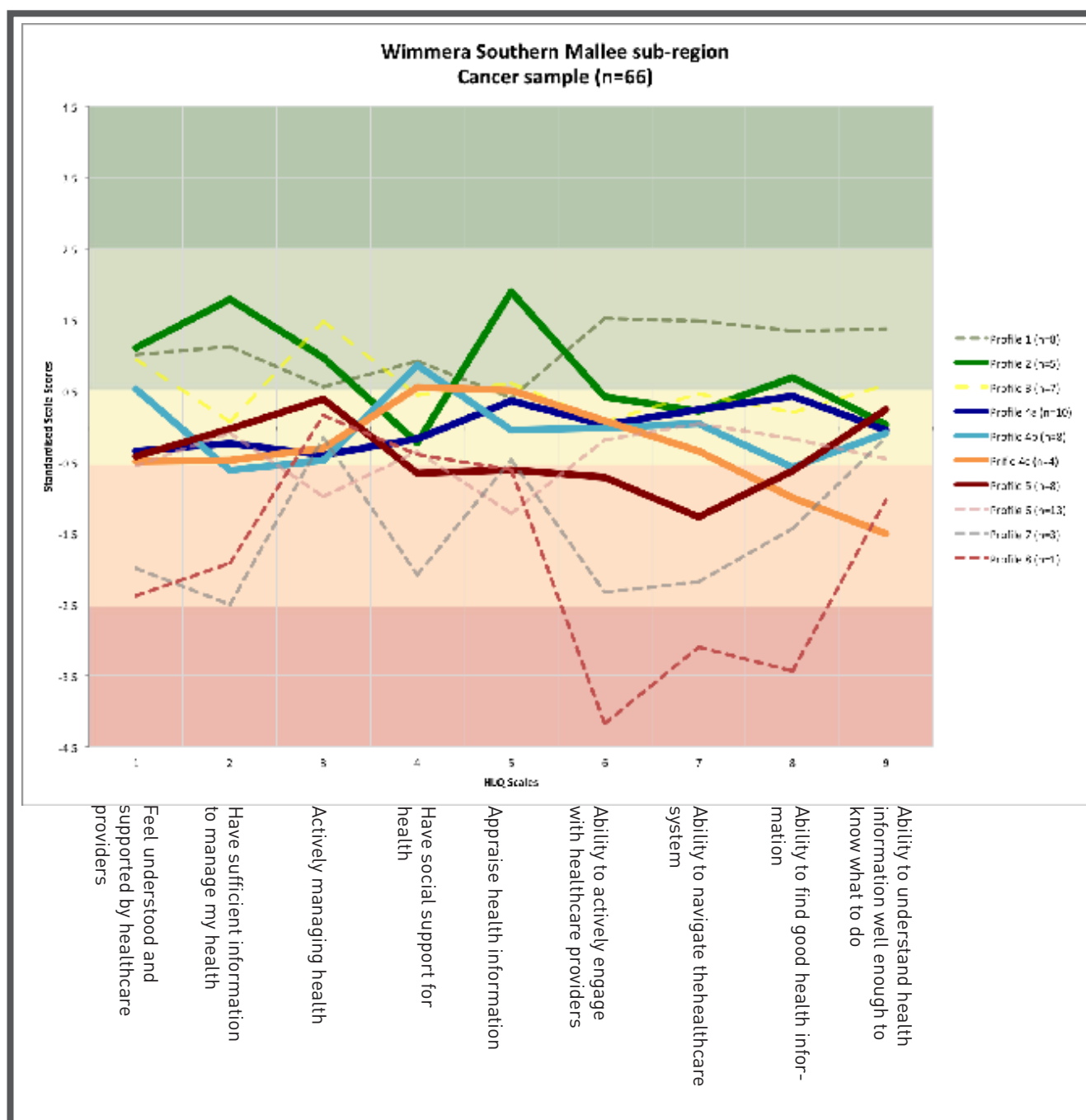
Lower SEIFA Scores indicate greater socio-economic disadvantage

| Demographics - cancer sample                 | Profile 1<br>n=8 | Profile 2<br>n=5 | Profile 3<br>n=7 | Profile 4a<br>n=10 | Profile 4b<br>n=8 | Profile 4c<br>n=4 | Profile 5<br>n=8 | Profile 6<br>n=13 | Profile 7<br>n=3 | Profile 8<br>n=1 |
|--|------------------|------------------|------------------|--------------------|-------------------|-------------------|------------------|-------------------|------------------|------------------|
| Age (mean, SD)                               | 59.5             | 60.2             | 55.2             | 52.8               | 64.7              | 58                | 51.1             | 59.2              | 87.0             | 39.0             |
| Females (number, %)                          | 75.0%            | 80.0%            | 42.9%            | 70%                | 25%               | 50%               | 61.5%            | 62.5%             | 100.0%           | 0.0%             |
| % Finished high school                       | 62.5%            | 100%             | 71.4%            | 60%                | 62.5%             | 0%                | 75%              | 53.8%             | 100%             | 100%             |
| Average number of health conditions          | 1.3              | 1.6              | 1.9              | 2                  | 1.9               | 1.5               | 1.6              | 2.5               | 1.5              | 0                |
| % People with musculoskeletal conditions     | 50%              | 40%              | 28.6%            | 30%                | 13%               | 50%               | 54%              | 38.5%             | 0%               | 0%               |
| Average BMI                                  | 25.5             | 26.9             | 26.8             | 32.7               | 29.7              | 21.7              | 26.2             | 26.5              | 24.6             | 29.7             |
| Average SEIFA disadvantage percentile in Vic | 28.5             | 47.6             | 21.9             | 20.3               | 28.6              | 22.3              | 24               | 15.4              | 34.5             | 40               |
| % commencing treatment within 30 days        | 38%              | 80%              | 57%              | 70%                | 75%               | 50%               | 69%              | 38%               | 100%             | 0%               |
| % of age/sex appropriate cancer screening    | 46.7%            | 80%              | 83.3%            | 66.7%              | 83.3%             | 83.3%             | 87.5%            | 57.1%             | 100%             | n/a              |

**Notes:**

Lower SEIFA Scores indicate greater socio-economic disadvantage

## Health literacy profiles uncovered - cancer patient sample



# Vignette 1.

## Generally confident in own abilities, but currently not very focused on health

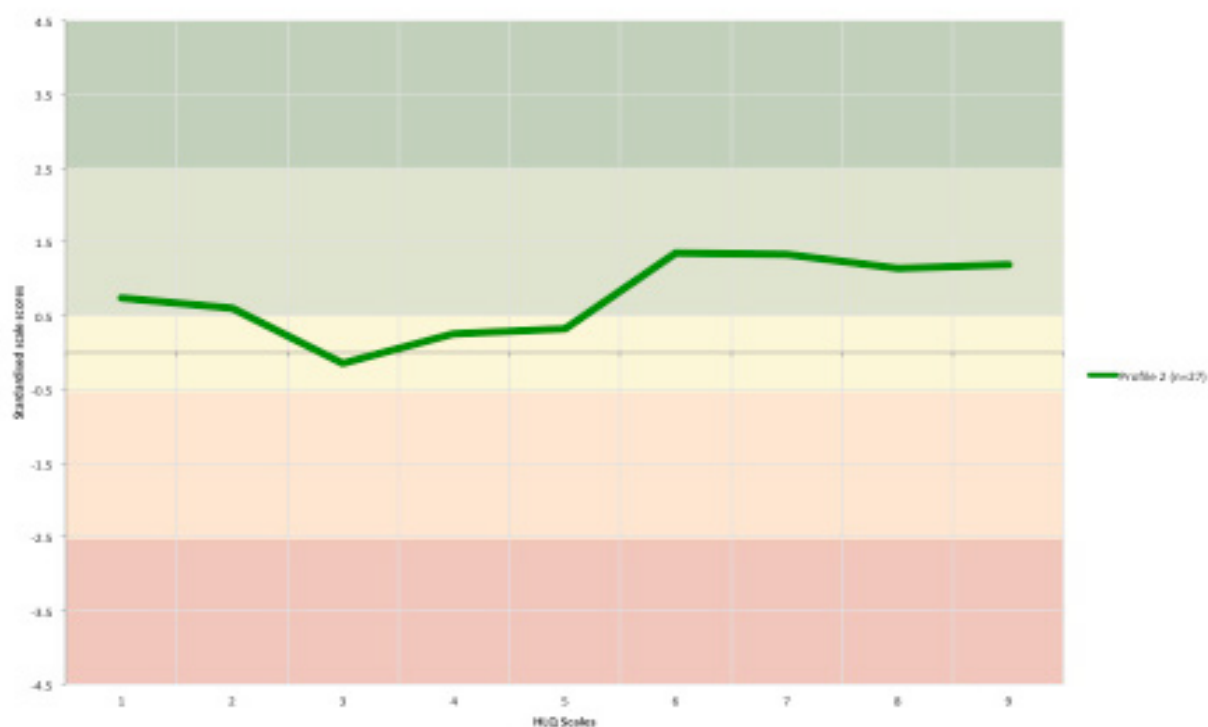
### Vignette

Mrs Western is a 58 year old lady from a small town 33 km from Horsham. She was diagnosed with diabetes six years ago and received education from the nurse at the local GP practice. At that time she lost quite a bit of weight which brought the diabetes under control. She has not talked to a doctor about it for a couple of years.

She runs a small book-keeping business and also spends considerable time caring for her parents who live in the same town. Her father is the primary carer for her mother, who has advanced dementia, but he also has problems with his heart and his knees that have made it increasingly difficult to cope over the past two years. She has a daughter working in Melbourne and a son completing year 12 in a nearby town. Mrs L frequently accompanies her parents to medical appointments but feels she is too busy to worry about her own health.

Mrs W has many friends in the town but tries not to burden them with her own concerns or those of her parents. Her priority is keeping her business and her family afloat. She is somewhat sceptical about a lot of health information and thinks that advice about diet is mostly fads and fashions and that every week you hear something different. She has had both PAP smears and one mammogram but is not sure in what years these were done

Wimmera Southern Mallee sub-region  
General community sample (n=369)



### Overview

n = 27  
Average age = 56.1  
% female = 66.7%  
% Finished high school = 66.7%  
Average number of health conditions = 1.4

% People with musculoskeletal condition = 59.3%  
Average BMI = Overweight  
Average SEIFA = 33.9  
% appropriate cancer screening = 62.3%



## Vignette 2. Fairly confident in own abilities but feels they have little support from others including health professionals and the health system

### Vignette

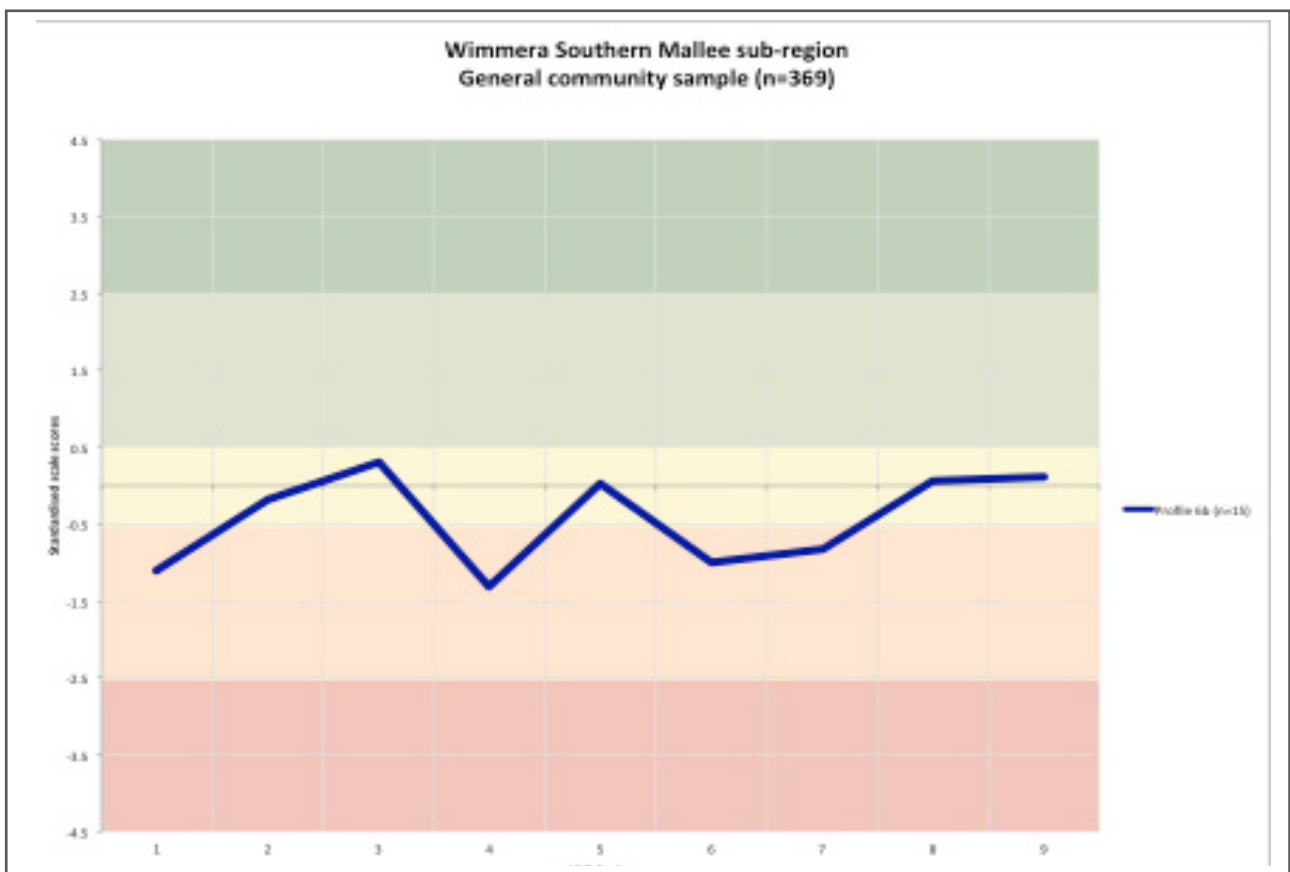
Ms Smith is a 50 year old lady living on the outskirts of Horsham. She was divorced 11 years ago and had to shift away from her husband's family farm.

She qualified as a primary school teacher but since the birth of her first child, 30 years earlier, she has only done occasional sessional work. All her children are working away from the area.

She tries to keep healthy; she walks most days and goes to the gym three times per week. She has had a range of gynaecological problems and has had regular PAP tests.

She used to see a regular female GP but since that GP left the area she has found it difficult to find a GP that she trusts. She complains that you can never see the same person twice at the local practice. She tried to attend outpatients for a recent problem but was frustrated by repeated appointment changes and in the end she went to a private specialist.

She is eager to look after her health well but isn't sure what she should be doing.



### Overview

n = 15  
Average age = 48.5  
% female = 80%  
% Finished high school = 40%  
Average number of health conditions = 0.9

% People with musculoskeletal condition = 53%  
Average BMI = Overweight  
Average SEIFA = 29.7  
% appropriate cancer screening = 59.5%

## Vignette 3. Moderate health literacy

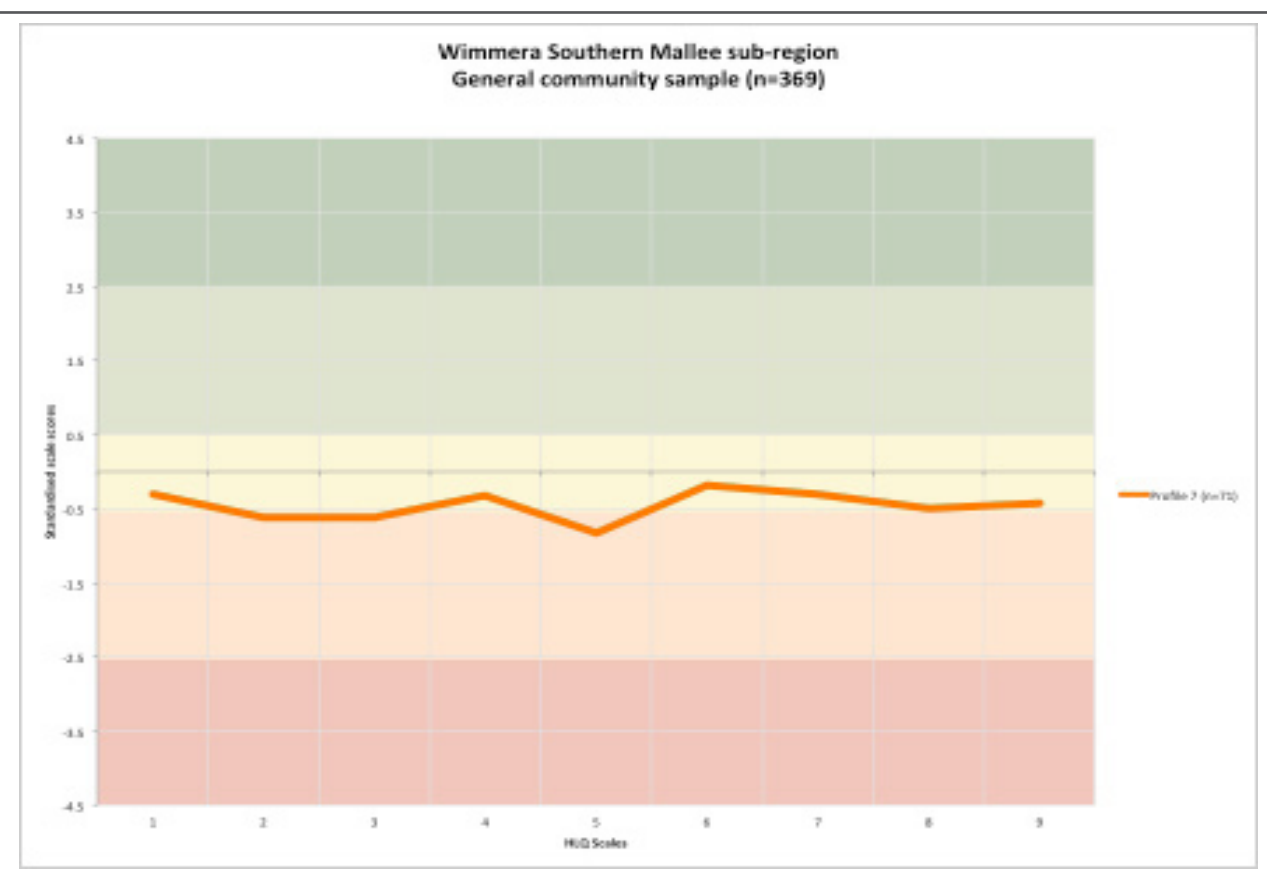
### Vignette

Mr Mustard is a 53 year old year old farmer.

Mr Mustard has spent many years diversifying the produce from his farm and developing a small cheese and dairy factory. Most of his time is spent in management activities and he has put on quite a bit of weight over the last few years.

Mr Mustard rarely goes to the GP because he doesn't want them lecturing him. He doesn't think that he needs to do anything special to care for his health because he has such an active life. If his wife ever tries to talk to him about taking care of his health he just tells her that he's not going to stop enjoying his life when he could be hit by a truck any day.

Mr M has cut back on his smoking a bit but mostly because he can't smoke in the factory and his wife won't let him smoke in the house. Despite the fact that his father died of bowel cancer he doesn't really believe in screening because even if he had the test he wouldn't want anyone poking around his backside.



### Overview

n = 71

Average age = 49.3

% female = 47.9%

% Finished high school = 75%

Average number of health conditions = 0.9

% People with musculoskeletal condition = 41%

Average BMI = Overweight

Average SEIFA = 33.5

% appropriate cancer screening = 55.6%

## Vignette 4. Low health literacy

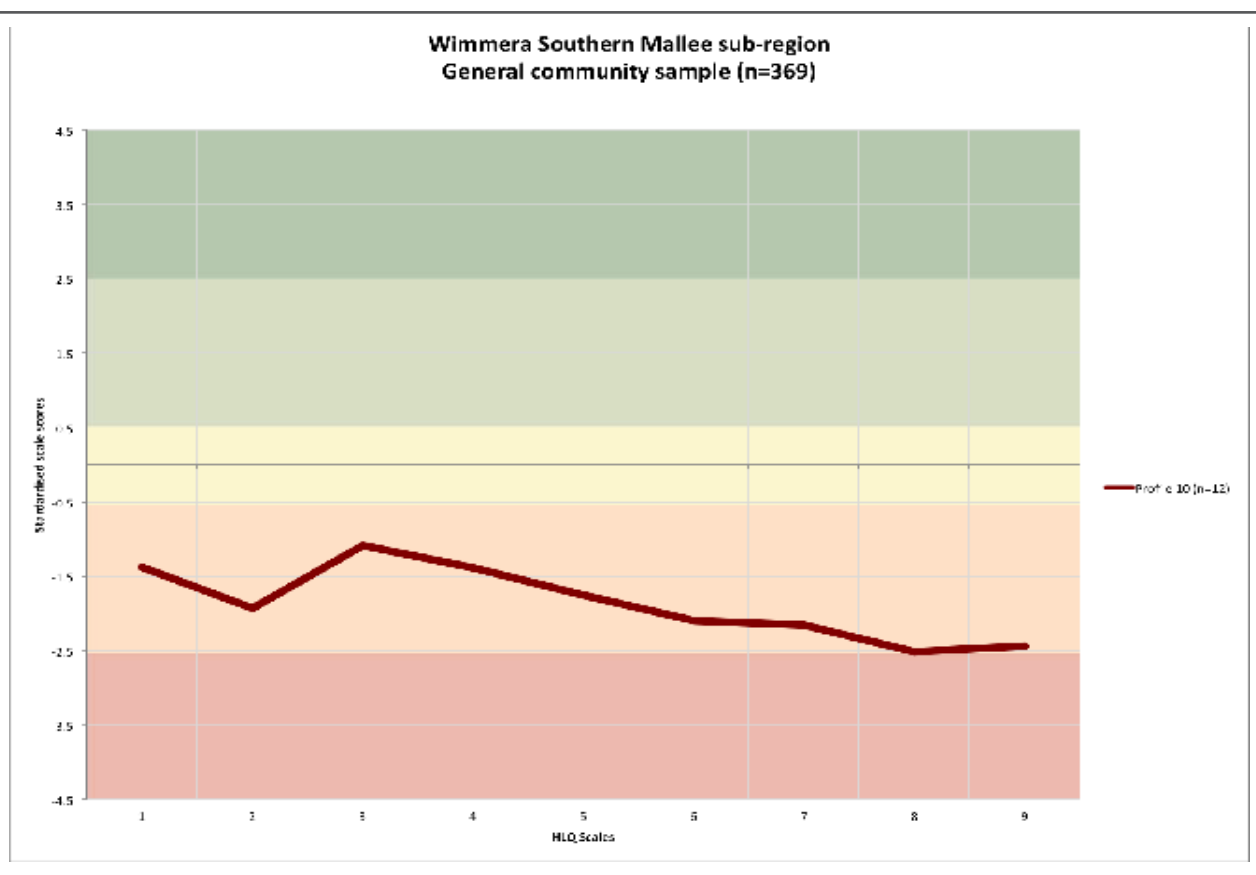
### Vignette

Mr Forsyth is a 57 year old man who works in warehouse at the edge of Horsham.

Mr F and his wife are mostly healthy and usually only attend a doctor when a specific health problem occurs. He thinks that the last time he went to the doctor was about two years ago. From what he's heard it's pretty difficult to get into the local practices now. For most minor complaints he just asks the pharmacist what he should take.

Mr Forsyth usually has a drink with mates after work and plays golf on weekends. From time to time someone comes to talk to them about health issues at work and he and most of the blokes did a faecal occult blood test about four years ago after one of these talks. It was all fine for him and he never talked to any of the other guys about it.

Mr F has come across health brochures and posters from time to time but most of it just seems like a lot of big words that have nothing to do with him.



### Overview

n = 12  
Average age = 55.1  
% female = 41.7%  
% Finished high school = 58%  
Average number of health conditions = 0.6

% People with musculoskeletal condition = 17%  
Average BMI = Overweight  
Average SEIFA = 42.3  
% appropriate cancer screening = 70.8%

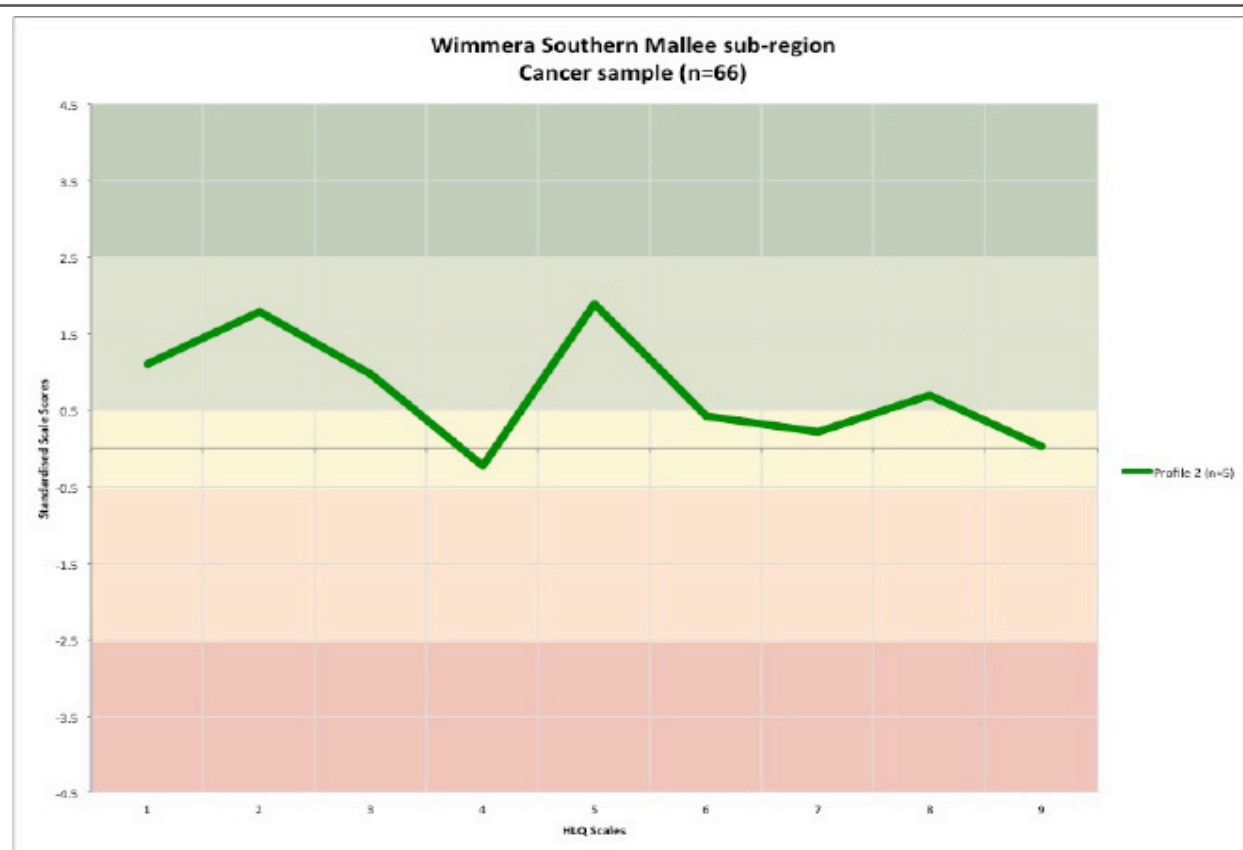
## Vignette 5. Diagnosed with cancer, and has high health literacy

### Vignette

Mrs Thompson is a 55 year old widow living in Stawell. She shifted to Stawell from Natimuk after her Husband died suddenly from a heart attack three years ago. Her daughter lives in Melbourne.

Mrs Thompson has had hypertension for a number of years and usually sees her GP every three months. Six months ago she was diagnosed with breast cancer following a mammogram at a private clinic in Horsham. It was the first mammogram she had had since she shifted because of the stress and busyness associated with her husband's death and moving house.

Mrs T had not really had anything to do with hospitals and other health services up until that time but she has found the staff at the mammography service, her GP and staff at the cancer services very helpful and willing to answer the same questions over and over. She had a single mastectomy followed by radiotherapy and has had quite a lot of problems with swelling in her arm. She is also considering a reconstruction.



### Overview

n = 5  
Average age = 60.2  
% female = 80%  
% Finished high school = 100%  
Average number of health conditions = 1.6  
% People with musculoskeletal condition = 40%

Average BMI = overweight  
Average SEIFA = 47.6  
% appropriate cancer screening = 80%  
% commenced tx within 30 days = 80%

## Vignette 6. Diagnosed with cancer, and has moderate health literacy

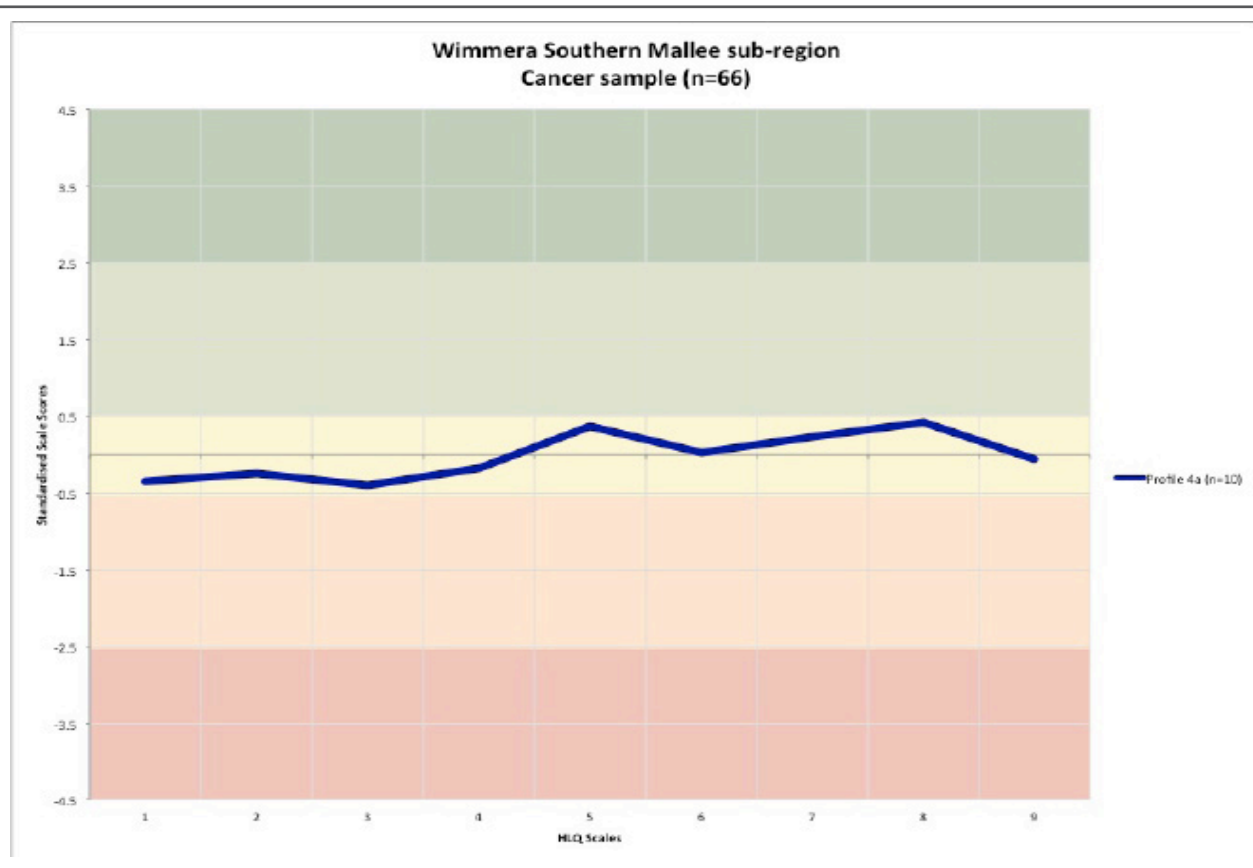
### Vignette

Ms Scarlet is a 55 year old lady from Nhill. She was recently diagnosed with a Melanoma when a skin lesion that she had had for some time started to become painful. At first she hadn't thought it was anything serious because she has had a number of other skin changes over the last few years including a few purple patches that the GP had reassured her were not serious.

The melanoma was removed in Horsham but after it was sent for testing Ms Scarlet was sent to Melbourne for a more extensive resection.

Ms S has a son living in Bendigo but he was unable to go to Melbourne at that time so Ms Scarlet felt she was left alone at that time. She is still unsure why she needed to go to Melbourne rather than having the treatment more locally.

Ms Scarlet feels that she understands melanoma pretty well now and says she will show all skin changes to the doctor. She wishes she could get more information about the services available in the local area so that she doesn't need to travel to Ballarat and Melbourne.



### Overview

n = 10  
Average age = 52.8  
% female = 70%  
% Finished high school = 60%  
Average number of health conditions = 2

% People with musculoskeletal condition = 30%  
Average BMI = Obese  
Average SEIFA = 20.3  
% appropriate cancer screening = 66.7%  
% commencing tx within 30 days = 70%

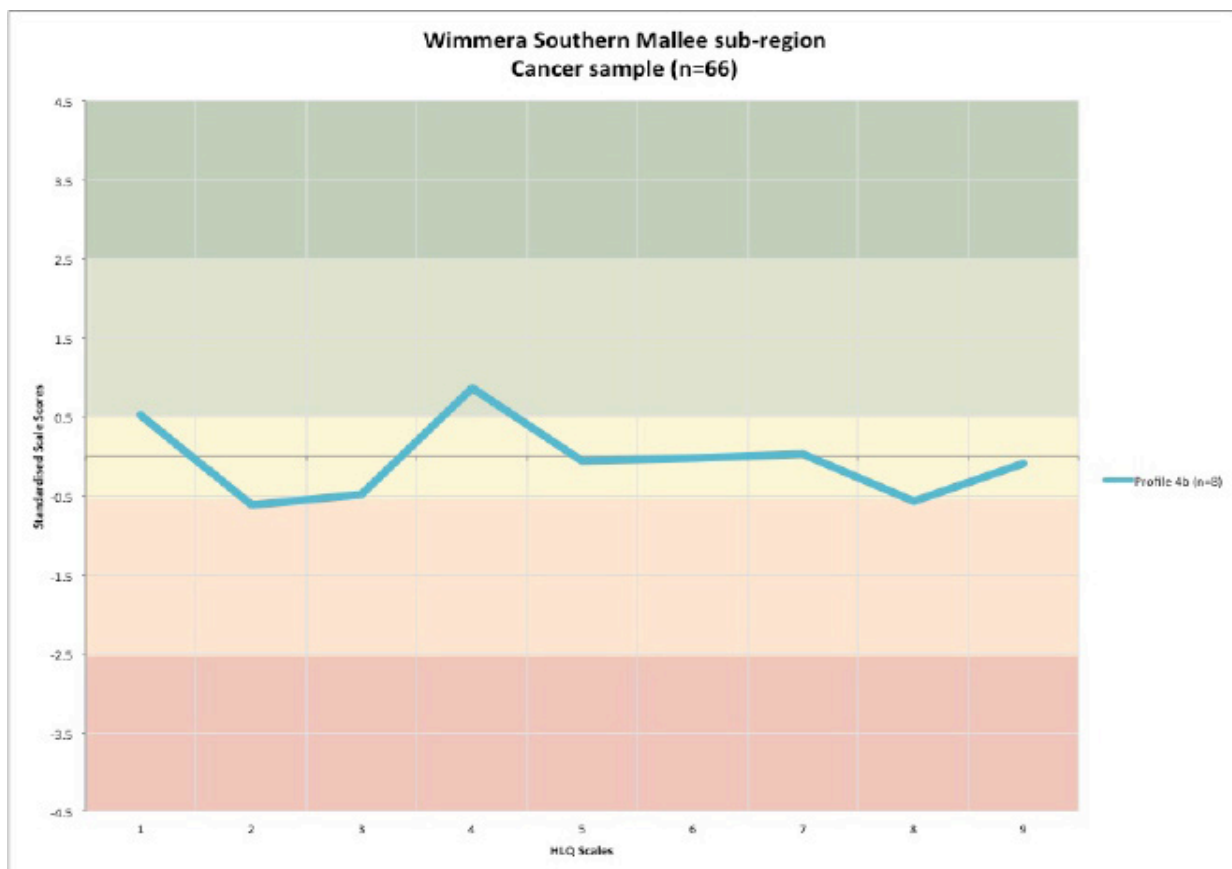
## Vignette 7. Diagnosed with cancer, and has low to moderate health literacy

### Vignette

Mr Leven is a 71 year old man who was diagnosed with advanced prostate cancer 11 months ago. The cancer was diagnosed after a routine set of blood tests to which PSA testing was added.

Mr Leven was offered a choice between hormone therapy and radiation therapy. He chose to go with the hormone therapy because he is the main carer for his wife. His daughter lives nearby and offered to assist if he wanted to try radiotherapy but he felt bad that he would be unable to support his wife and didn't want to be a burden on his daughter.

The hormones seem to be controlling the cancer but they make him feel tired. He finds a lot of the information about prostate cancer and treatments confusing and he gets conflicting advice from different doctors as well as from friends and family.



### Overview

n = 8  
Average age = 64.7  
% female = 25%  
% Finished high school = 63%  
Average number of health conditions = 1.9

% People with musculoskeletal condition = 13%  
Average BMI = Overweight  
Average SEIFA = 28.6  
% appropriate cancer screening = 83.3%  
% commenced tx within 30 days = 75%

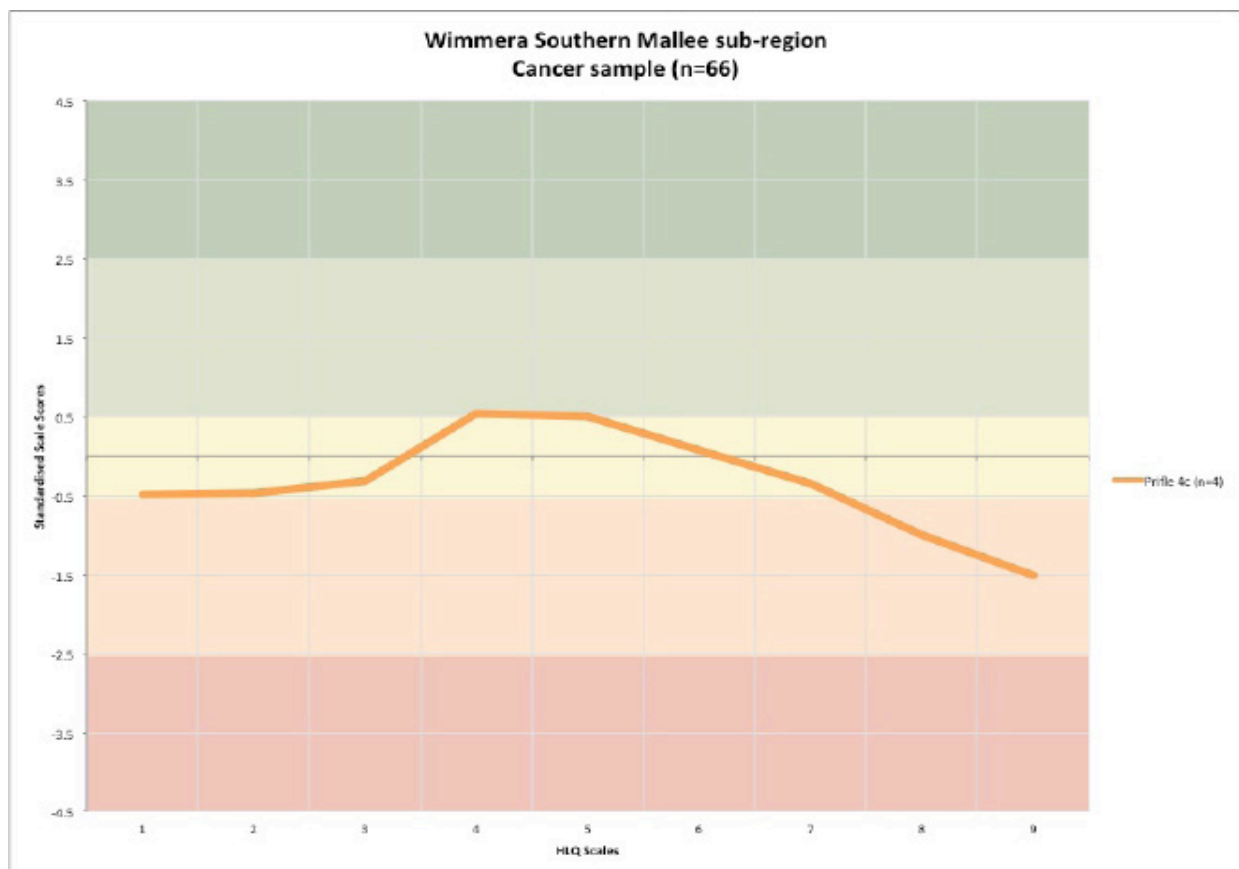
## Vignette 8. Diagnosed with cancer, and has low to moderate health literacy

### Vignette

Mr Red a 62 year old man who was diagnosed with an unusual throat cancer 17 months ago. The process of getting a diagnosis took some time during which Mr Red was referred to three different specialists.

Mr Red originally had surgery and at the time he believed that would be all that was required. Six weeks after the surgery he was informed that he would also require radiotherapy. At first he was quite annoyed because he felt he hadn't been told that it might be necessary but his wife reassured him that it had been mentioned. He says that the first few weeks after diagnosis seem like a blur and he felt like he was being pushed from pillar to post. He says that if it wasn't for his wife he wouldn't remember anything.

Mr Red has had some hypertension and a couple of episodes of severe back pain but before his cancer, he had not visited the doctor in more than two years.



### Overview

n = 4  
Average age = 58  
% female = 50.0%  
% Finished high school = 0%  
Average number of health conditions = 2.5

% People with musculoskeletal condition = 50%  
Average BMI = Healthy  
Average SEIFA = 22.3  
% appropriate cancer screening = 83.3%  
% commenced tx within 30 days = 50%



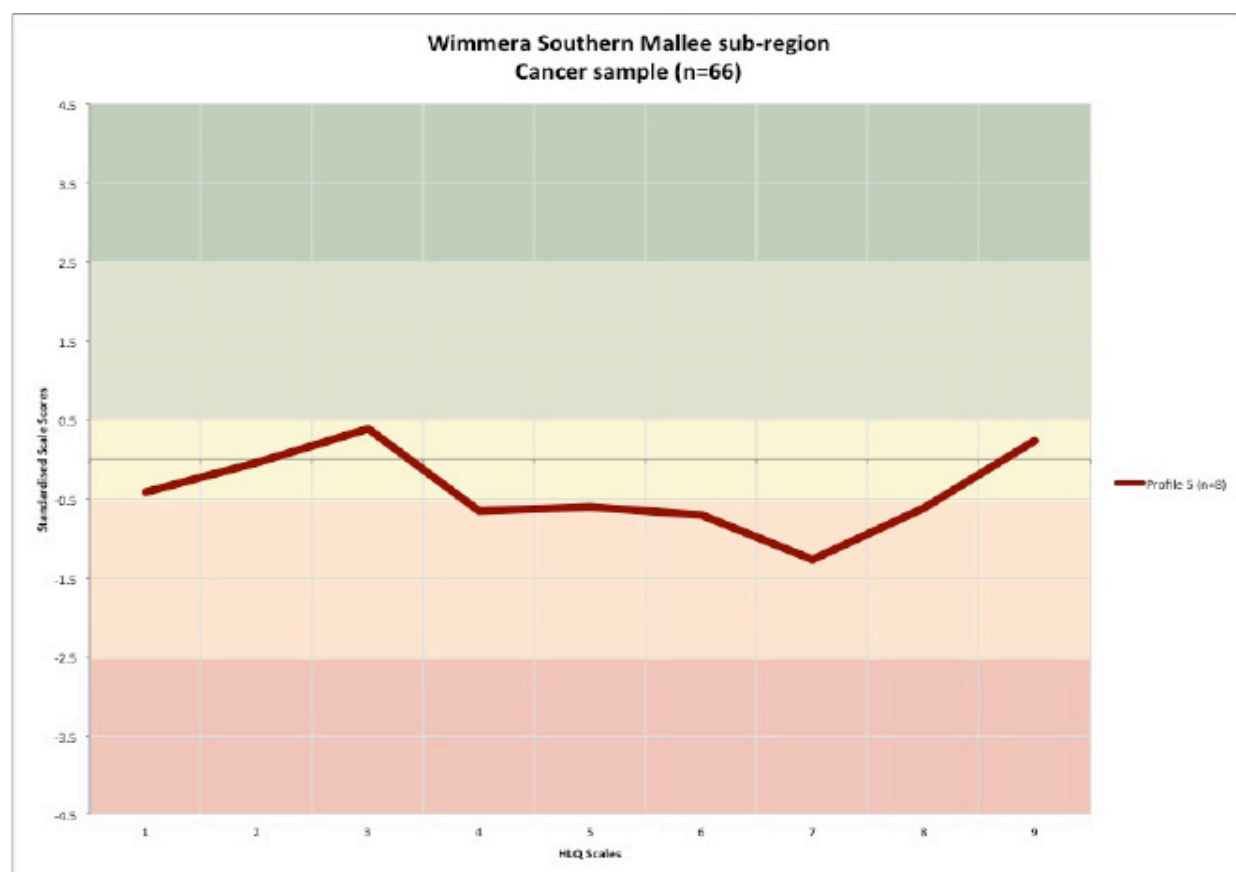
## Vignette 9. Diagnosed with cancer, and has low health literacy

### Vignette

Mrs Marple is a 58 year old lady who is living on the farm that was previously operated by her and her husband. They have had to give up running the farm due to health issues and have leased most of the land to neighbours.

Mrs Marple's husband has been quite depressed since his forced retirement and their doctor has indicated that he may have early Alzheimer's disease. Mrs Marple had an extensive network of friends in a nearby town but is finding it harder to get into town to spend time with them. Mr and Mrs Marple visit a medical clinic in Horsham every three months.

Mrs Marple was recently diagnosed with bowel cancer after noticing blood in her stools. The doctor immediately referred her for colonoscopy following which she was referred to regional cancer services. A friend recommended that she should go to a private specialist who did visiting sessions in Horsham. She chose to visit the private specialist but was also contacted by a nurse from the public cancer service. In a period of three weeks she ended up seeing four different doctors and talking to several nurses which made her anxious because she was thinking she should just have surgery and get it out. The range of options that she must consider are overwhelming her.



### Overview

n = 8  
Average age = 59.2  
% female = 62.5%  
% Finished high school = 75%  
Average number of health conditions = 2.5

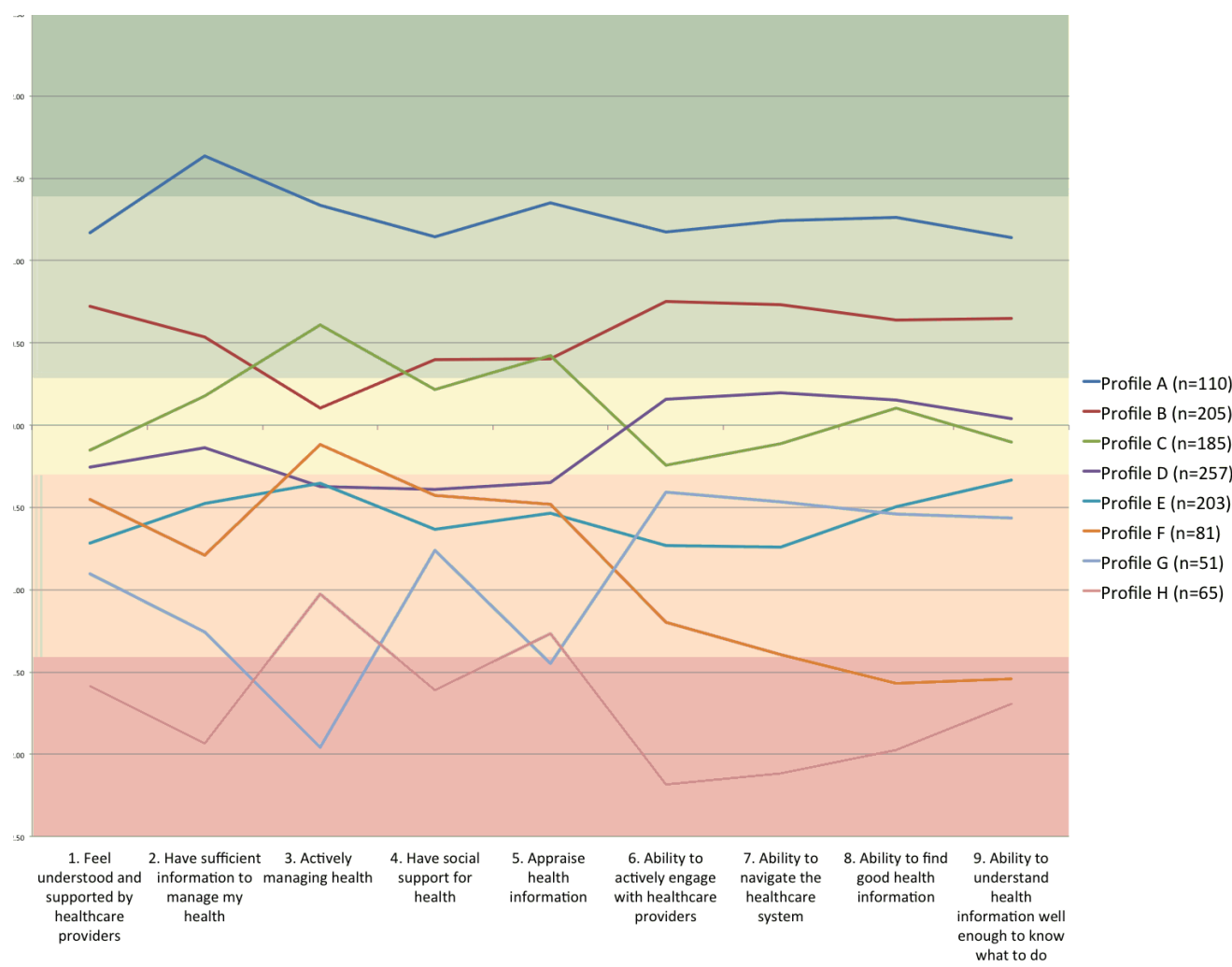
% People with musculoskeletal condition = 54%  
Average BMI = Overweight  
Average SEIFA = 15.4  
% appropriate cancer screening = 57.1%  
% commenced tx within 30 days = 38%



# Community Sample Profiles

HLQ scale scores, lifestyle and cancer screening behaviours for 8 distinct sub-groups of respondents from the community samples

Figure 1: Health literacy profiles of eight distinct sub-groups of respondents from the community sample



| Community Sample   |             | Profile A                   | Profile B                   | Profile C                   | Profile D                   | Profile E                   | Profile F                   | Profile G                   | Profile H                   | F or $\chi^2$ (p) | eta square (Levene's test) |
|--|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------|----------------------------|
| (n=1211)   |             | (n=110)                     | (n=205)                     | (n=185)                     | (n=257)                     | (n=203)                     | (n=81)                      | (n=51)                      | (n=65)                      |                   |                            |
| M, SD (CI) or n, %   |             | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          | M, SD (CI) or n, %          |                   |                            |
| Health Literacy Questionnaire Scales                               |             |                             |                             |                             |                             |                             |                             |                             |                             |                   |                            |
| 1. Feeling understood and supported by healthcare providers        | 3.091, 0.58 | 3.83, 0.31<br>[3.77 - 3.88] | 3.57, 0.37<br>[3.52 - 3.62] | 3.08, 0.35<br>[3.03 - 3.13] | 3.02, 0.33<br>[2.98 - 3.06] | 2.76, 0.52<br>[2.69 - 2.83] | 2.91, 0.49<br>[2.80 - 3.02] | 2.65, 0.47<br>[2.52 - 2.79] | 2.27, 0.59<br>[2.12 - 2.41] | 163.67<br>(0.01)  | 0.49<br>(0.01)             |
| 2. Having sufficient information to manage my health               | 3.025, 0.50 | 3.85, 0.21<br>[3.82 - 3.89] | 3.32, 0.32<br>[3.28 - 3.36] | 3.14, 0.26<br>[3.11 - 3.18] | 2.99, 0.18<br>[2.97 - 3.01] | 2.82, 0.32<br>[2.78 - 2.87] | 2.67, 0.45<br>[2.57 - 2.77] | 2.44, 0.37<br>[2.34 - 2.55] | 2.11, 0.46<br>[2.00 - 2.23] | 328.62<br>(0.01)  | 0.64<br>(0.01)             |
| 3. Actively managing my health                                     | 3.004, 0.55 | 3.75, 0.31<br>[3.69 - 3.80] | 3.09, 0.44<br>[3.03 - 3.15] | 3.36, 0.37<br>[3.30 - 3.41] | 2.83, 0.36<br>[2.79 - 2.88] | 2.85, 0.42<br>[2.79 - 2.90] | 2.97, 0.33<br>[2.90 - 3.04] | 1.99, 0.41<br>[1.88 - 2.11] | 2.49, 0.54<br>[2.35 - 2.62] | 175.64<br>(0.01)  | 0.48<br>(0.01)             |
| 4. Social support for health                                       | 3.035, 0.51 | 3.70, 0.32<br>[3.64 - 3.76] | 3.32, 0.43<br>[3.26 - 3.37] | 3.22, 0.34<br>[3.17 - 3.27] | 2.91, 0.26<br>[2.87 - 2.94] | 2.78, 0.45<br>[2.72 - 2.84] | 2.89, 0.45<br>[2.79 - 2.99] | 2.71, 0.33<br>[2.62 - 2.81] | 2.27, 0.56<br>[2.13 - 2.41] | 131.44<br>(0.01)  | 0.44<br>(0.01)             |
| 5. Critical appraisal of health information                        | 2.792, 0.56 | 3.57, 0.39<br>[3.49 - 3.64] | 3.05, 0.45<br>[2.99 - 3.11] | 3.06, 0.33<br>[3.01 - 3.11] | 2.64, 0.37<br>[2.59 - 2.69] | 2.54, 0.43<br>[2.48 - 2.60] | 2.57, 0.46<br>[2.46 - 2.67] | 2.04, 0.41<br>[1.92 - 2.16] | 2.14, 0.54<br>[2.01 - 2.27] | 142.27<br>(0.01)  | 0.47<br>(0.01)             |
| 6. Ability to actively engage with healthcare providers            | 3.849, 0.70 | 4.72, 0.30<br>[4.66 - 4.78] | 4.43, 0.40<br>[4.38 - 4.49] | 3.76, 0.41<br>[3.70 - 3.82] | 4.03, 0.31<br>[3.99 - 4.07] | 3.43, 0.51<br>[3.36 - 3.50] | 3.12, 0.42<br>[3.02 - 3.21] | 3.65, 0.45<br>[3.52 - 3.78] | 2.45, 0.57<br>[2.31 - 2.59] | 290.01<br>(0.01)  | 0.66<br>(0.01)             |
| 7. Navigating the healthcare system                                | 3.702, 0.68 | 4.59, 0.34<br>[4.52 - 4.65] | 4.25, 0.44<br>[4.19 - 4.31] | 3.69, 0.33<br>[3.65 - 3.74] | 3.90, 0.25<br>[3.87 - 3.93] | 3.28, 0.39<br>[3.23 - 3.34] | 2.85, 0.45<br>[2.75 - 2.95] | 3.46, 0.45<br>[3.33 - 3.59] | 2.38, 0.51<br>[2.25 - 2.51] | 293.52<br>(0.01)  | 0.69<br>(0.01)             |
| 8. Ability to find good health information                         | 3.787, 0.67 | 4.63, 0.37<br>[4.56 - 4.70] | 4.23, 0.43<br>[4.17 - 4.29] | 3.89, 0.38<br>[3.83 - 3.94] | 3.92, 0.33<br>[3.88 - 3.96] | 3.50, 0.40<br>[3.45 - 3.56] | 2.81, 0.43<br>[2.72 - 2.91] | 3.47, 0.48<br>[3.34 - 3.61] | 2.55, 0.70<br>[2.38 - 2.72] | 218.56<br>(0.01)  | 0.62<br>(0.01)             |
| 9. Understanding health information well enough to know what to do | 3.971, 0.64 | 4.73, 0.32<br>[4.67 - 4.79] | 4.42, 0.43<br>[4.36 - 4.48] | 3.95, 0.41<br>[3.89 - 4.01] | 4.04, 0.34<br>[4.00 - 4.08] | 3.81, 0.41<br>[3.75 - 3.86] | 3.06, 0.58<br>[2.93 - 3.19] | 3.66, 0.48<br>[3.53 - 3.80] | 2.96, 0.86<br>[2.75 - 3.17] | 152.67<br>(0.01)  | 0.52<br>(0.01)             |

| Community Sample                    | Profile A          | Profile B          | Profile C          | Profile D          | Profile E          | Profile F          | Profile G          | Profile H          |                            |
|-------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------------------------|
| (n=1211)                            | (n=110)            | (n=205)            | (n=185)            | (n=257)            | (n=203)            | (n=81)             | (n=51)             | (n=65)             |                            |
| M, SD (CI) or n, %                  | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | F or $\chi^2$ (p)          |
|                                     |                    |                    |                    |                    |                    |                    |                    |                    | eta square (Levene's test) |
| Participant characteristics         |                    |                    |                    |                    |                    |                    |                    |                    |                            |
| Age                                 | 52, 17 (51 - 56)   | 53, 18 (49 - 56)   | 52, 17 (50 - 55)   | 53, 18 (51 - 56)   | 55, 17 (53 - 57)   | 50, 16 (48 - 52)   | 52, 18 (48 - 56)   | 46, 15 (41 - 50)   | 49, 14 (45 - 52)           |
|                                     | 3.40<br>[0.01]     |                    |                    |                    |                    |                    |                    |                    | 0.02<br>[0.11]             |
| Female                              | 733, 64%           | 86, 78%            | 135, 66%           | 128, 69%           | 152, 59%           | 133, 66%           | 40, 49%            | 19, 37%            | 40, 62%                    |
|                                     | 38.52<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Born in Australia/NZ                | 1065, 93%          | 100, 91%           | 193, 94%           | 162, 88%           | 240, 93%           | 185, 91%           | 77, 95%            | 48, 94%            | 60, 92%                    |
|                                     | 8.16<br>[0.32]     |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Speaks English at home              | 1131, 99%          | 107, 97%           | 200, 98%           | 183, 99%           | 250, 97%           | 200, 99%           | 79, 98%            | 49, 96%            | 63, 97%                    |
|                                     | 4.37<br>[0.74]     |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Aboriginal/TSI                      | 195, 17%           | 22, 20%            | 37, 18%            | 36, 19%            | 38, 15%            | 35, 17%            | 8, 10%             | 8, 16%             | 11, 17%                    |
|                                     | 6.03<br>[0.54]     |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Finished high school                | 877, 77%           | 90, 82%            | 162, 79%           | 145, 78%           | 186, 72%           | 164, 81%           | 49, 60%            | 35, 69%            | 46, 71%                    |
|                                     | 21.52<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Employed                            | 483, 42%           | 40, 36%            | 70, 34%            | 78, 42%            | 103, 40%           | 98, 48%            | 34, 42%            | 37, 73%            | 23, 35%                    |
|                                     | 29.98<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Lives alone                         | 260, 23%           | 14, 13%            | 51, 25%            | 41, 22%            | 63, 25%            | 44, 22%            | 22, 27%            | 3, 6%              | 22, 34%                    |
|                                     | 21.05<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| SEIFA Disadvantage Percentile →= 60 | 259, 23%           | 21, 19%            | 44, 21%            | 44, 24%            | 50, 19%            | 41, 20%            | 21, 26%            | 14, 27%            | 24, 37%                    |
|                                     | 12.51<br>[0.09]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Outer Regional                      | 379, 34%           | 30, 27%            | 44, 21%            | 62, 34%            | 70, 27%            | 81, 40%            | 38, 47%            | 21, 41%            | 33, 51%                    |
|                                     | 39.42<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Has private health insurance        | 581, 51%           | 76, 69%            | 112, 55%           | 95, 51%            | 136, 53%           | 87, 43%            | 42, 52%            | 18, 35%            | 15, 23%                    |
|                                     | 47.21<br>[0.01]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Has a healthcare card               | 452, 40%           | 41, 37%            | 90, 44%            | 74, 40%            | 93, 36%            | 68, 34%            | 41, 51%            | 15, 29%            | 30, 46%                    |
|                                     | 13.28<br>[0.07]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |
| Family history of cancer            | 662, 61%           | 64, 58%            | 129, 63%           | 108, 58%           | 133, 52%           | 119, 59%           | 46, 57%            | 26, 51%            | 37, 57%                    |
|                                     | 14.76<br>[0.40]    |                    |                    |                    |                    |                    |                    |                    | n/a                        |

| Community Sample   | Profile A          | Profile B          | Profile C          | Profile D          | Profile E          | Profile F          | Profile G          | Profile H          | F or $\chi^2$ (p) | eta square (Levene's test) |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|----------------------------|
| (n=1211)   | (n=110)            | (n=205)            | (n=185)            | (n=257)            | (n=203)            | (n=81)             | (n=51)             | (n=65)             |                   |                            |
| M, SD (CI) or n, %                                       | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % |                   |                            |
| Lifestyle factors  |                    |                    |                    |                    |                    |                    |                    |                    |                   |                            |
| Overweight or Obese (BMI $\rightarrow$ 25)               | 33, 30%            | 63, 31%            | 58, 31%            | 81, 32%            | 47, 23%            | 21, 26%            | 17, 33%            | 18, 28%            | 40.68<br>(0.01)   | n/a                        |
| Eats takeaway 2 or more times a week                     | 3, 3%              | 26, 13%            | 11, 6%             | 27, 11%            | 20, 10%            | 12, 15%            | 16, 31%            | 13, 20%            | 40.68<br>(0.01)   | n/a                        |
| Eats vegetables 3 or more times a day                    | 82, 75%            | 100, 49%           | 124, 67%           | 131, 51%           | 112, 55%           | 37, 46%            | 22, 43%            | 25, 38%            | 45.94<br>(0.01)   | n/a                        |
| Eats fruit 2 or more times a day                         | 73, 66%            | 90, 44%            | 125, 68%           | 131, 51%           | 78, 38%            | 37, 46%            | 13, 25%            | 26, 40%            | 65.52<br>(0.01)   | n/a                        |
| Drinks alcohol 3 or more times a day                     | 18, 16%            | 34, 17%            | 30, 16%            | 55, 21%            | 36, 18%            | 21, 26%            | 18, 35%            | 12, 18%            | 7.97<br>(0.34)    | n/a                        |
| Smoker   | 8, 7%              | 25, 12%            | 9, 5%              | 27, 11%            | 40, 20%            | 12, 15%            | 10, 20%            | 9, 14%             | 25.99<br>(0.01)   | n/a                        |
| Sets aside time for healthy activities most days         | 91, 83%            | 141, 69%           | 148, 80%           | 173, 67%           | 123, 61%           | 51, 63%            | 15, 29%            | 27, 42%            | 66.61<br>(0.01)   | n/a                        |
| Does physical activity for at least 30 minutes most days | 92, 84%            | 139, 68%           | 147, 79%           | 176, 68%           | 136, 67%           | 54, 67%            | 24, 47%            | 39, 60%            | 39.25<br>(0.01)   | n/a                        |

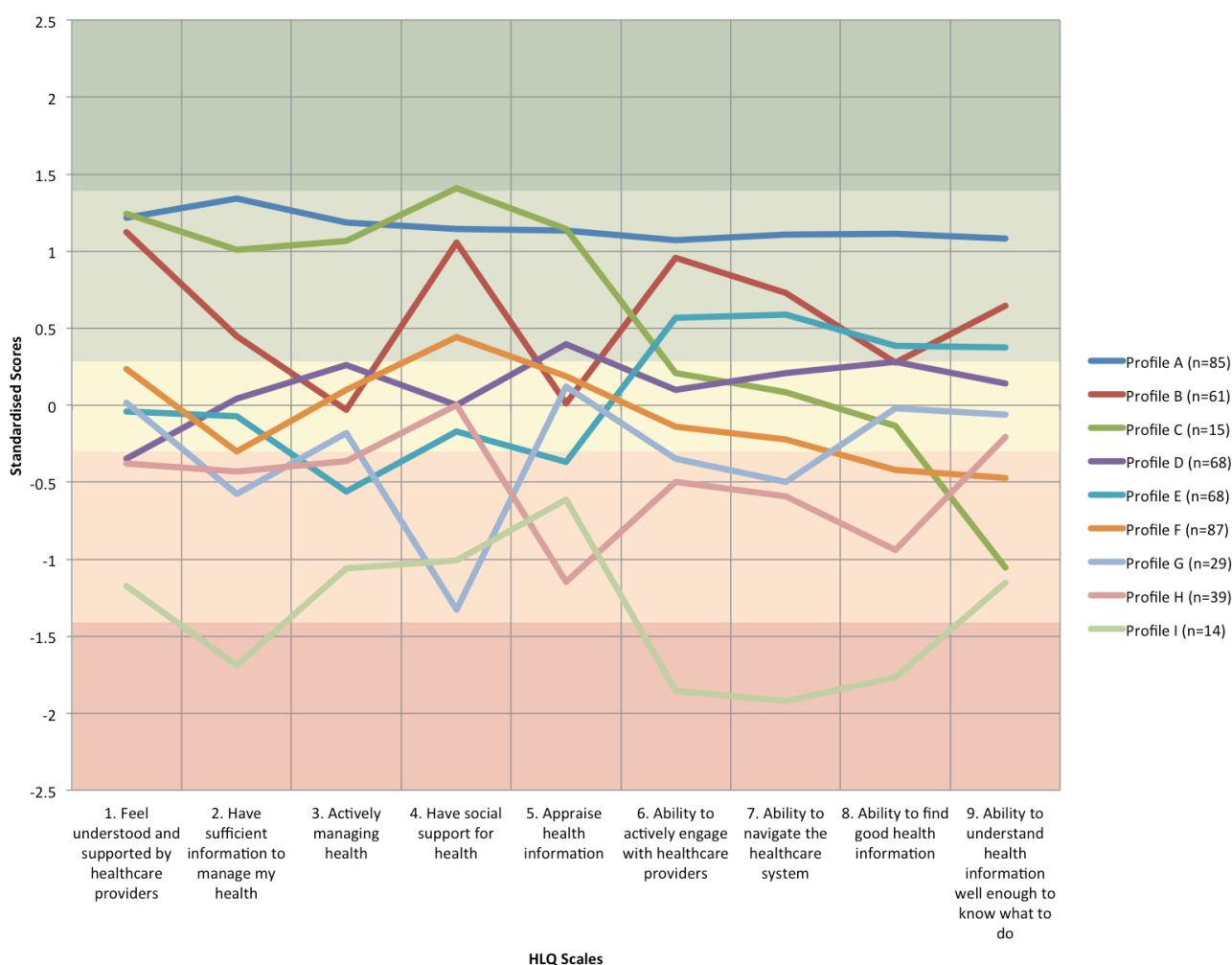
|  | Community Sample   | Profile A          | Profile B          | Profile C          | Profile D          | Profile E          | Profile F          | Profile G          | Profile H          |                   |                            |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|----------------------------|
|  | (n=1211)           | (n=110)            | (n=205)            | (n=185)            | (n=257)            | (n=203)            | (n=81)             | (n=51)             | (n=65)             |                   |                            |
|  | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | M, SD (CI) or n, % | F or $\chi^2$ (p) | eta square (Levene's test) |
| Cancer screening   |                    |                    |                    |                    |                    |                    |                    |                    |                    |                   |                            |
| Has had bowel screen in past 5 years (aged over 50)                | 379, 62%           | 75%                | 67%                | 69%                | 63%                | 57%                | 51%                | 37%                | 57%                | 16.31<br>(0.02)   |                            |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 286, 82%           | 89%                | 92%                | 85%                | 76%                | 79%                | 92%                | 60%                | 77%                | 12.42<br>(0.09)   |                            |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 407, 70%           | 72%                | 67%                | 69%                | 78%                | 72%                | 65%                | 67%                | 59%                | 6.43<br>(0.49)    |                            |
| Has had prostate screen in past 5 years (aged over 50)             | 147, 67%           | 25, 71%            | 14, 88%            | 27, 82%            | 42, 72%            | 14, 47%            | 11, 58%            | 9, 69%             | 5, 36%             | 20.06<br>(0.01)   |                            |



# Cancer Sample Profiles

HLQ scale scores, lifestyle and cancer screening behaviours for 9 distinct sub-groups of respondents from the cancer samples

Figure 1: Health literacy profiles of nine distinct sub-groups of respondents from the cancer sample



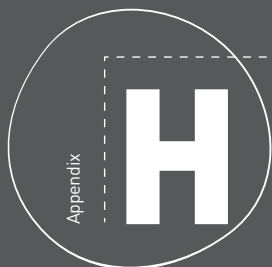


|  | Cancer Sample               | Profile A                   | Profile B                   | Profile C                   | Profile D                   | Profile E                   | Profile F                   | Profile G                   | Profile H                   | Profile I                   |                      |                                     |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------|-------------------------------------|
|  | [n=466]                     | [n=85]                      | [n=61]                      | [n=15]                      | [n=68]                      | [n=68]                      | [n=87]                      | [n=29]                      | [n=39]                      | n=14)                       |                      |                                     |
|  | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI)<br>or n, %       | M, SD (CI) or<br>n, %       | F or $\chi^2$<br>(p) | eta<br>square<br>(Levene's<br>test) |
| Health Literacy Questionnaire Scales                               |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                      |                                     |
| 1. Feeling understood and supported by healthcare providers        | 3.35, 0.49<br>[3.31 - 3.39] | 3.85, 0.26<br>[3.80 - 3.91] | 3.80, 0.25<br>[3.74 - 3.86] | 3.87, 0.16<br>[3.78 - 3.96] | 2.97, 0.28<br>[2.90 - 3.04] | 3.14, 0.26<br>[3.08 - 3.20] | 3.30, 0.35<br>[3.22 - 3.37] | 3.17, 0.37<br>[3.03 - 3.31] | 2.95, 0.39<br>[2.83 - 3.08] | 2.50, 0.43<br>[2.25 - 2.75] | 106.70<br>[0.01]     | 0.62 [0.01]                         |
| 2. Having sufficient information to manage my health               | 3.13, 0.44<br>[3.09 - 3.17] | 3.71, 0.31<br>[3.64 - 3.78] | 3.27, 0.36<br>[3.18 - 3.37] | 3.55, 0.33<br>[3.37 - 3.73] | 3.08, 0.19<br>[3.03 - 3.12] | 3.02, 0.15<br>[2.98 - 3.06] | 2.91, 0.27<br>[2.85 - 2.97] | 2.78, 0.39<br>[2.63 - 2.92] | 2.85, 0.28<br>[2.75 - 2.94] | 2.23, 0.42<br>[1.99 - 2.48] | 65.14<br>[0.01]      | 0.60 [0.01]                         |
| 3. Actively managing my health                                     | 3.11, 0.49<br>[3.07 - 3.16] | 3.66, 0.30<br>[3.60 - 3.73] | 3.02, 0.41<br>[2.91 - 3.12] | 3.60, 0.30<br>[3.43 - 3.77] | 3.17, 0.37<br>[3.08 - 3.26] | 2.74, 0.32<br>[2.66 - 2.81] | 3.09, 0.25<br>[3.03 - 3.14] | 2.94, 0.40<br>[2.78 - 3.09] | 2.84, 0.54<br>[2.66 - 3.02] | 2.47, 0.62<br>[2.11 - 2.83] | 52.60<br>[0.01]      | 0.45 [0.01]                         |
| 4. Social support for health                                       | 3.28, 0.49<br>[3.24 - 3.33] | 3.70, 0.33<br>[3.63 - 3.77] | 3.66, 0.29<br>[3.58 - 3.73] | 3.84, 0.17<br>[3.74 - 3.94] | 3.11, 0.33<br>[3.03 - 3.19] | 3.02, 0.21<br>[2.97 - 3.07] | 3.34, 0.30<br>[3.27 - 3.40] | 2.42, 0.50<br>[2.23 - 2.61] | 3.11, 0.32<br>[3.00 - 3.21] | 2.59, 0.49<br>[2.30 - 2.87] | 78.25<br>[0.01]      | 0.58 [0.01]                         |
| 5. Critical appraisal of health information                        | 2.92, 0.49<br>[2.88 - 2.96] | 3.45, 0.39<br>[3.37 - 3.53] | 2.84, 0.43<br>[2.73 - 2.95] | 3.45, 0.36<br>[3.25 - 3.65] | 3.05, 0.25<br>[2.99 - 3.11] | 2.63, 0.33<br>[2.55 - 2.71] | 2.93, 0.25<br>[2.88 - 2.99] | 2.90, 0.34<br>[2.77 - 3.02] | 2.21, 0.31<br>[2.10 - 2.31] | 2.50, 0.68<br>[2.10 - 2.89] | 56.94<br>[0.01]      | 0.51 [0.01]                         |
| 6. Ability to actively engage with healthcare providers            | 4.11, 0.58<br>[4.06 - 4.16] | 4.65, 0.38<br>[4.57 - 4.73] | 4.57, 0.34<br>[4.49 - 4.66] | 4.07, 0.50<br>[3.79 - 4.34] | 3.99, 0.20<br>[3.94 - 4.04] | 4.31, 0.38<br>[4.22 - 4.40] | 3.83, 0.39<br>[3.75 - 3.91] | 3.69, 0.36<br>[3.55 - 3.83] | 3.59, 0.46<br>[3.44 - 3.74] | 2.67, 0.66<br>[2.29 - 3.05] | 62.64<br>[0.01]      | 0.59 [0.01]                         |
| 7. Navigating the healthcare system                                | 3.93, 0.58<br>[3.87 - 3.98] | 4.50, 0.40<br>[4.41 - 4.58] | 4.25, 0.35<br>[4.16 - 4.34] | 3.82, 0.50<br>[3.55 - 4.10] | 3.91, 0.22<br>[3.85 - 3.96] | 4.16, 0.34<br>[4.07 - 4.24] | 3.62, 0.32<br>[3.56 - 3.69] | 3.44, 0.33<br>[3.32 - 3.57] | 3.38, 0.52<br>[3.21 - 3.55] | 2.51, 0.65<br>[2.13 - 2.88] | 60.40<br>[0.01]      | 0.59 [0.01]                         |
| 8. Ability to find good health information                         | 3.90, 0.57<br>[3.85 - 3.95] | 4.53, 0.35<br>[4.46 - 4.61] | 4.00, 0.45<br>[3.88 - 4.11] | 3.73, 0.48<br>[3.47 - 4.00] | 4.00, 0.23<br>[3.95 - 4.06] | 4.07, 0.36<br>[3.98 - 4.16] | 3.55, 0.29<br>[3.49 - 3.61] | 3.81, 0.38<br>[3.66 - 3.95] | 3.22, 0.51<br>[3.05 - 3.38] | 2.69, 0.68<br>[2.29 - 3.08] | 65.60<br>[0.01]      | 0.57 [0.01]                         |
| 9. Understanding health information well enough to know what to do | 4.13, 0.56<br>[4.08 - 4.18] | 4.69, 0.35<br>[4.62 - 4.77] | 4.42, 0.37<br>[4.33 - 4.51] | 3.36, 0.22<br>[3.24 - 3.48] | 4.11, 0.25<br>[4.04 - 4.17] | 4.25, 0.41<br>[4.15 - 4.35] | 3.72, 0.35<br>[3.65 - 3.80] | 3.98, 0.40<br>[3.83 - 4.13] | 3.89, 0.47<br>[3.73 - 4.04] | 3.30, 1.12<br>[2.65 - 3.95] | 71.51<br>[0.01]      | 0.48 [0.01]                         |

| Cancer Sample                        | Profile A                             | Profile B                             | Profile C                             | Profile D                             | Profile E                             | Profile F                             | Profile G                             | Profile H                             | Profile I                             |                                       |
|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| [n=466]<br>M, SD (CI)<br>or n, %     | [n=85]<br>M, SD (CI)<br>or n, %       | [n=61]<br>M, SD (CI)<br>or n, %       | [n=15]<br>M, SD (CI)<br>or n, %       | [n=68]<br>M, SD (CI)<br>or n, %       | [n=68]<br>M, SD (CI)<br>or n, %       | [n=87]<br>M, SD (CI)<br>or n, %       | [n=29]<br>M, SD (CI)<br>or n, %       | [n=39]<br>M, SD (CI)<br>or n, %       | n=14]<br>M, SD (CI)<br>or n, %        |                                       |
| Participant characteristics          |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |
| Age                                  | 65.45,<br>12.29<br>[64.34 -<br>66.56] | 64.39,<br>10.79<br>[62.05 -<br>66.74] | 65.25,<br>11.31<br>[62.33 -<br>68.17] | 68.60,<br>10.28<br>[62.91 -<br>74.29] | 64.45,<br>11.73<br>[61.59 -<br>67.31] | 69.45,<br>14.21<br>[65.93 -<br>72.97] | 65.71,<br>12.22<br>[63.06 -<br>68.37] | 59.44,<br>11.76<br>[54.79 -<br>64.10] | 63.23,<br>12.85<br>[59.06 -<br>67.40] | 61.21,<br>15.46<br>[52.29 -<br>70.14] |
| Female                               | 262,<br>56.59%                        | 61,<br>71.76%                         | 37,<br>60.66%                         | 9, 60%                                | 38,<br>55.88%                         | 33,<br>48.53%                         | 40,<br>45.98%                         | 16,<br>55.17%                         | 22,<br>56.41%                         | 6,<br>42.86%                          |
| Born in Australia/NZ                 | 416,<br>90.43%                        | 75,<br>88.24%                         | 56,<br>91.8%                          | 12, 80%                               | 61,<br>89.71%                         | 57,<br>83.82%                         | 82,<br>94.25%                         | 25,<br>86.21%                         | 36,<br>92.31%                         | 12,<br>85.71%                         |
| Speaks English at home               | 455,<br>98.91%                        | 84,<br>98.82%                         | 60,<br>98.36%                         | 15, 100%                              | 66,<br>97.06%                         | 64,<br>94.12%                         | 84,<br>96.55%                         | 29, 100%                              | 39, 100%                              | 14, 100%                              |
| Aboriginal/TSI                       | 7, 1.53%                              | 0, 0%                                 | 2, 3.28%                              | 0, 0%                                 | 2, 2.94%                              | 0, 0%                                 | 1, 1.15%                              | 1, 3.45%                              | 1, 2.56%                              | 0, 0%                                 |
| Finished high school                 | 311,<br>68.05%                        | 63,<br>74.12%                         | 36,<br>59.02%                         | 8, 53.33%                             | 51, 75%                               | 42,<br>61.76%                         | 52,<br>59.77%                         | 20,<br>68.97%                         | 27,<br>69.23%                         | 12,<br>85.71%                         |
| Employed                             | 156,<br>33.99%                        | 28,<br>32.94%                         | 21,<br>34.43%                         | 3, 20%                                | 21,<br>30.88%                         | 22,<br>32.35%                         | 29,<br>33.33%                         | 12,<br>41.38%                         | 13,<br>33.33%                         | 7, 50%                                |
| Lives alone                          | 87,<br>18.91%                         | 18,<br>21.18%                         | 8,<br>13.11%                          | 4, 26.67%                             | 11,<br>16.18%                         | 15,<br>22.06%                         | 11,<br>12.64%                         | 13,<br>44.83%                         | 5, 12.82%                             | 2,<br>14.29%                          |
| SEIFA Disadvantage Percentile → = 60 | 119,<br>25.93%                        | 22,<br>25.88%                         | 16,<br>26.23%                         | 3, 20%                                | 14,<br>20.59%                         | 16,<br>23.53%                         | 25,<br>28.74%                         | 9,<br>31.03%                          | 10,<br>25.64%                         | 4,<br>28.57%                          |
| Outer Regional                       | 76,<br>16.89%                         | 15,<br>17.65%                         | 11,<br>18.03%                         | 2, 13.33%                             | 6, 8.82%                              | 16,<br>23.53%                         | 12,<br>13.79%                         | 5,<br>17.24%                          | 7, 17.95%                             | 2,<br>14.29%                          |
| Has private health insurance         | 279,<br>60.52%                        | 58,<br>68.24%                         | 39,<br>63.93%                         | 6, 40%                                | 45,<br>66.18%                         | 40,<br>58.82%                         | 48,<br>55.17%                         | 15,<br>51.72%                         | 21,<br>53.85%                         | 7, 50%                                |
| Has a healthcare card                | 225,<br>50.11%                        | 39,<br>45.88%                         | 27,<br>44.26%                         | 6, 40%                                | 26,<br>38.24%                         | 40,<br>58.82%                         | 51,<br>58.62%                         | 14,<br>48.28%                         | 16,<br>41.03%                         | 6,<br>42.86%                          |
| Family history of cancer             | 177,<br>71.08%                        | 39,<br>45.88%                         | 18,<br>29.51%                         | 8, 53.33%                             | 22,<br>32.35%                         | 23,<br>33.82%                         | 32,<br>36.78%                         | 17,<br>58.62%                         | 14, 35.9%                             | 4,<br>28.57%                          |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 1.98<br>[0.06]                        |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 14.173<br>0.08                        |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 6.273<br>0.62                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 4.589<br>0.80                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 5.962<br>0.65                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 12.664<br>0.12                        |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 3.994<br>0.86                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 18.985<br>0.02                        |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 2.308<br>0.97                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 6.932<br>0.54                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 8.703<br>0.37                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 13.01<br>0.11                         |
|                                      |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       |                                       | 13.3<br>0.10                          |

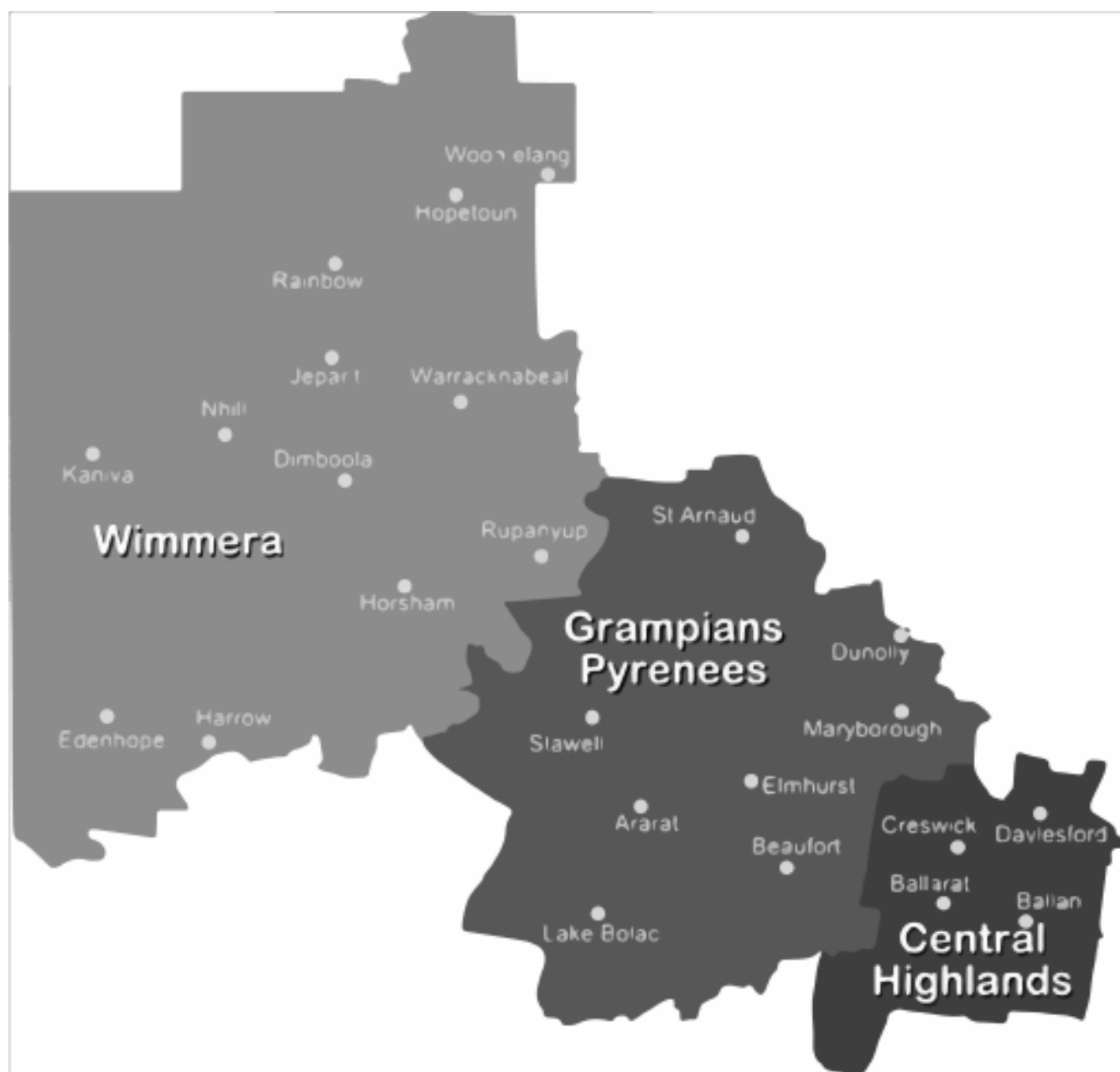
| Cancer Sample   | Profile A             | Profile B             | Profile C             | Profile D             | Profile E             | Profile F             | Profile G             | Profile H             | Profile I             |                                     |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------------------|
| (n=466)   | (n=85)                | (n=61)                | (n=15)                | (n=68)                | (n=68)                | (n=87)                | (n=29)                | (n=39)                | n=14)                 |                                     |
| M, SD (CI)<br>or n, %   | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | <b>F or <math>\chi^2</math> (p)</b> |
| <b>Lifestyle factors</b>  |                       |                       |                       |                       |                       |                       |                       |                       |                       |                                     |
| <b>Overweight or Obese (BMI → 25)</b>                           | 173,<br>40.42%        | 29,<br>34.12%         | 21,<br>34.43%         | 7, 46.67%             | 23,<br>33.82%         | 28,<br>41.18%         | 36,<br>41.38%         | 10,<br>34.48%         | 12,<br>30.77%         | 7, 50%<br>5.01<br>0.76              |
| <b>Eats takeaway 2 or more times a week</b>                     | 21, 4.53%             | 0, 0%                 | 2, 3.28%              | 0, 0%                 | 3, 4.41%              | 4, 5.88%              | 4, 4.6%               | 2, 6.9%               | 3, 7.69%              | 3, 21.43%<br>15.86<br>0.04          |
| <b>Eats vegetables 3 or more times a day</b>                    | 289,<br>62.55%        | 65,<br>76.47%         | 37,<br>60.66%         | 11,<br>73.33%         | 44,<br>64.71%         | 41,<br>60.29%         | 47,<br>54.02%         | 18,<br>62.07%         | 19,<br>48.72%         | 7, 50%<br>14.43<br>0.07             |
| <b>Eats fruit 2 or more times a day</b>                         | 267,<br>57.67%        | 63,<br>74.12%         | 30,<br>49.18%         | 11,<br>73.33%         | 45,<br>66.18%         | 36,<br>52.94%         | 45,<br>51.72%         | 15,<br>51.72%         | 14, 35.9%             | 8, 57.14%<br>24.14<br>0.00          |
| <b>Drinks alcohol 3 or more times a day</b>                     | 92,<br>19.91%         | 10,<br>11.76%         | 14,<br>22.95%         | 3, 20%                | 19,<br>27.94%         | 15,<br>22.06%         | 15,<br>17.24%         | 8, 27.59%             | 7, 17.95%             | 1, 7.14%<br>10.14<br>0.26           |
| <b>Smoker</b>   | 31, 6.71%             | 2, 2.35%              | 6, 9.84%              | 2, 13.33%             | 3, 4.41%              | 7, 10.29%             | 5, 5.75%              | 4, 13.79%             | 1, 2.56%              | 1, 7.14%<br>10.23<br>0.25           |
| <b>Sets aside time for healthy activities most days</b>         | 335,<br>73.79%        | 74,<br>87.06%         | 39,<br>63.93%         | 13,<br>86.67%         | 60,<br>88.24%         | 40,<br>58.82%         | 57,<br>65.52%         | 21,<br>72.41%         | 22,<br>56.41%         | 9, 64.29%<br>39.60<br>0.00          |
| <b>Does physical activity for at least 30 minutes most days</b> | 330,<br>72.37%        | 69,<br>81.18%         | 42,<br>68.85%         | 13,<br>86.67%         | 55,<br>80.88%         | 40,<br>58.82%         | 65,<br>74.71%         | 15,<br>51.72%         | 23,<br>58.97%         | 8, 57.14%<br>25.91<br>0.00          |

| Cancer Sample  | Profile A             | Profile B             | Profile C             | Profile D             | Profile E             | Profile F             | Profile G             | Profile H             | Profile I             |   |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| (n=466)  | (n=85)                | (n=61)                | (n=15)                | (n=68)                | (n=68)                | (n=87)                | (n=29)                | (n=39)                | (n=14)                |   |
| M, SD (CI)<br>or n, %  | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | M, SD (CI)<br>or n, % | <b>F or <math>\chi^2</math><br/>(p)</b> |
| Cancer screening   |                       |                       |                       |                       |                       |                       |                       |                       |                       |   |
| Has had bowel screen in past 5 years (aged over 50)                | 264, 74.16%           | 56, 74.67%            | 30, 56.6%             | 9, 60%                | 37, 62.71%            | 33, 55%               | 55, 68.75%            | 14, 63.64%            | 24, 70.59%            | 6, 54.55%                               |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 158, 92.4%            | 38, 90.48%            | 21, 91.3%             | 4, 80%                | 22, 75.86%            | 15, 93.75%            | 27, 87.1%             | 11, 100%              | 17, 100%              | 3, 75%                                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 132, 78.11%           | 38, 79.17%            | 17, 68%               | 2, 50%                | 20, 64.52%            | 13, 76.47%            | 18, 58.06%            | 9, 81.82%             | 13, 68.42%            | 2, 40%                                  |
| Has had prostate screen in past 5 years (aged over 50)             | 142, 83.53%           | 21, 87.5%             | 19, 86.36%            | 6, 100%               | 20, 76.92%            | 19, 59.38%            | 34, 77.27%            | 7, 63.64%             | 12, 80%               | 4, 66.67%                               |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 0.75                                    |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 5.105                                   |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 0.66                                    |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 5.916                                   |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 5.414                                   |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 0.71                                    |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 12.367                                  |
|  |                       |                       |                       |                       |                       |                       |                       |                       |                       | 0.14                                    |



# Sub-regional Reports

Sub-region Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a sub-region of the Grampians.



**Table 1: Lifestyle and cancer screening behaviours by sub-region, for the community sample**

|  | Overall<br>(n=1131)   | Central<br>Highlands<br>(n=567) | Wimmera<br>(n=336)    | Grampians<br>Pyrenees<br>(n=228) |                      |        |
|--|-----------------------|---------------------------------|-----------------------|----------------------------------|----------------------|--------|
|  | M, SD [CI] or<br>n, % | M, SD [CI] or<br>n, %           | M, SD [CI] or<br>n, % | M, SD [CI] or<br>n, %            | F or $\chi^2$<br>(p) |        |
| Lifestyle factors  |                       |                                 |                       |                                  |                      |        |
| Overweight or Obese (BMI → 25)                                     | 335, 33.23%           | 168, 29.63%                     | 96, 28.57%            | 71, 31.14%                       | 0.87                 | (0.65) |
| Eats takeaway 2 or more times a week                               | 125, 11.24%           | 64, 11.29%                      | 37, 11.01%            | 24, 10.53%                       | 0.09                 | (0.96) |
| Eats vegetables 3 or more times a day                              | 612, 55.04%           | 308, 54.32%                     | 183, 54.46%           | 121, 53.07%                      | 0.08                 | (0.96) |
| Eats fruit 2 or more times a day                                   | 559, 50.09%           | 294, 51.85%                     | 157, 46.73%           | 108, 47.37%                      | 2.66                 | (0.27) |
| Drinks alcohol 3 or more times a day                               | 220, 19.8%            | 102, 17.99%                     | 70, 20.83%            | 48, 21.05%                       | 1.73                 | (0.42) |
| Smoker   | 135, 12.1%            | 70, 12.35%                      | 35, 10.42%            | 30, 13.16%                       | 1.19                 | (0.55) |
| Sets aside time for healthy activities most days                   | 754, 69.17%           | 390, 68.78%                     | 217, 64.58%           | 147, 64.47%                      | 2.93                 | (0.23) |
| Does physical activity for at least 30 minutes most days           | 796, 72.04%           | 404, 71.25%                     | 239, 71.13%           | 153, 67.11%                      | 1.52                 | (0.47) |
|  |                       |                                 |                       |                                  |                      |        |
| Cancer screening   |                       |                                 |                       |                                  |                      |        |
| Has had bowel screen in past 5 years (aged over 50)                | 379, 62.44%           | 199, 59.4%                      | 92, 54.44%            | 88, 58.67%                       | 1.35                 | (0.51) |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 286, 82.18%           | 157, 80.93%                     | 68, 83.95%            | 61, 73.49%                       | 3.66                 | (0.16) |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 407, 70.42%           | 221, 68.85%                     | 107, 67.72%           | 79, 62.7%                        | 2.52                 | (0.28) |
| Has had prostate screen in past 5 years (aged over 50)             | 145, 68.7%            | 72, 67.3%                       | 52, 74.3%             | 21, 61.8%                        | 1.88                 | (0.39) |

**Table 2: Lifestyle and cancer screening behaviours by sub-region, for the cancer sample**

|  | Overall<br>(n=453)    | Central<br>Highlands<br>(n=325) | Wimmera<br>(n=55)     | Grampians<br>Pyrenees<br>(n=73) |                      |        |
|--|-----------------------|---------------------------------|-----------------------|---------------------------------|----------------------|--------|
|  | M, SD [CI] or<br>n, % | M, SD [CI] or<br>n, %           | M, SD [CI] or<br>n, % | M, SD [CI] or<br>n, %           | F or $\chi^2$<br>(p) |        |
| Lifestyle factors  |                       |                                 |                       |                                 |                      |        |
| Overweight or Obese (BMI → 25)                                     | 171, 40.91%           | 121, 37.23%                     | 26, 47.27%            | 24, 32.88%                      | 2.85                 | (0.24) |
| Eats takeaway 2 or more times a week                               | 20, 4.44%             | 16, 4.92%                       | 1, 1.82%              | 3, 4.11%                        | 1.07                 | (0.59) |
| Eats vegetables 3 or more times a day                              | 280, 62.5%            | 196, 60.31%                     | 33, 60%               | 51, 69.86%                      | 2.02                 | (0.37) |
| Eats fruit 2 or more times a day                                   | 256, 57.02%           | 182, 56%                        | 35, 63.64%            | 39, 53.42%                      | 1.76                 | (0.42) |
| Drinks alcohol 3 or more times a day                               | 87, 19.42%            | 59, 18.15%                      | 14, 25.45%            | 14, 19.18%                      | 1.69                 | (0.43) |
| Smoker   | 28, 6.19%             | 24, 7.38%                       | 3, 5.45%              | 1, 1.37%                        | 3.80                 | (0.15) |
| Sets aside time for healthy activities most days                   | 323, 73.41%           | 230, 70.77%                     | 41, 74.55%            | 52, 71.23%                      | 2.13                 | (0.34) |
| Does physical activity for at least 30 minutes most days           | 319, 72.17%           | 227, 69.85%                     | 41, 74.55%            | 51, 69.86%                      | 2.71                 | (0.26) |
|  |                       |                                 |                       |                                 |                      |        |
| Cancer screening   |                       |                                 |                       |                                 |                      |        |
| Has had bowel screen in past 5 years (aged over 50)                | 261, 74.36%           | 178, 61.38%                     | 29, 64.44%            | 54, 79.41%                      | 3.54                 | (0.17) |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 154, 92.22%           | 106, 87.6%                      | 22, 88%               | 26, 92.86%                      | 0.03                 | (0.99) |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 124, 77.99%           | 89, 69.53%                      | 18, 69.23%            | 17, 62.96%                      | 0.26                 | (0.88) |
| Has had prostate screen in past 5 years (aged over 50)             | 138, 82.14%           | 106, 75.18%                     | 12, 75%               | 20, 76.92%                      | 0.18                 | (0.92) |



# Wimmera

## Health Literacy Report

The Wimmera Health Literacy Report provides a snapshot of the health literacy strengths and challenges of residents within the Wimmera sub-region of the Grampians.

### Wimmera - Key Facts

**Townships:** Nhill, Dimboola, Rainbow, Jeparit, Horsham, Natimuk, Blackheath, Dadswells Bridge, Edenhope, Kaniva, Harrow, Goroke, Serviceton, Dergholm, Apsley, Warracknabeal, Beulah, Brim, Hopetoun, Lubeck, Minyip, Rapanyup, Tempy, Yaapect

**Main industries:** Agriculture, forestry and fishing, Health care and social assistance, Retail trade, Public administration and safety, Education and training<sup>1</sup>

**Remoteness classification:** Outer regional

**Main public hospitals attended:** Wimmera base Hospital (Horsham)<sup>2</sup>

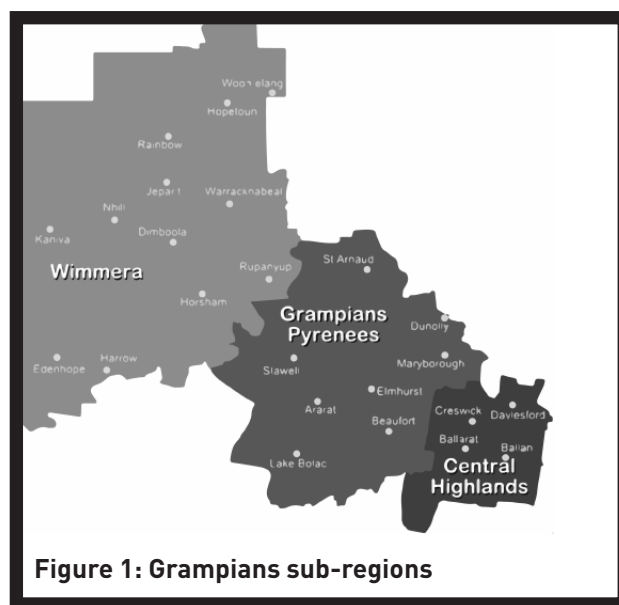


Figure 1: Grampians sub-regions

| Table 1. Wimmera - key facts   | Wimmera      | Grampians Region | Victoria |
|--|--------------|------------------|----------|
| Population size <sup>3</sup>   | 36852        | 223848           | 5534526  |
| % of population over the age of 65 years (range across LGAs) <sup>3</sup>      | 17.6-24.4    | 16.1             | 14       |
| % of households with broadband internet (range across LGAs) <sup>1</sup>       | 56-62.5      | 65.7             | 72.6     |
| Median household income (range across LGAs) <sup>1</sup>                       | 773-946      | NA               | 1216     |
| Median house price (range across LGAs) <sup>4</sup>                            | 83500-212000 | NA               | 380000   |
| Unemployment rate (range across LGAs) <sup>5</sup>                             | 2.7-3.8      | 5                | 5.4      |
| % of population who did not complete year 12 (range across LGAs) <sup>1</sup>  | 62-70.8      | 58               | 43.7     |
| % of persons with private health insurance (range across LGAs)                 | 32.2-38.1    | 38.3             | 48       |
| % current smoker (range across LGAs) <sup>6</sup>                              | 13.3-23.2    | 20.9             | 19.1     |
| % overweight or obese (range across LGAs) <sup>6</sup>                         | 53.9-61.5    | 52.1             | 48.6     |
| % breast screening participation (range across LGAs) <sup>7</sup>              | 56.6-65.1    | 56.7             | 55.9     |
| % cervical cancer participation (range across LGAs) <sup>8</sup>               | 49.5-58.2    | 56.2             | 60.7     |
| % bowel screening participation (range across LGAs) <sup>9</sup>               | 35.9-42      | 41               | 37.1     |
| Total malignant cancers diagnosed per 1000 (range across LGAs) <sup>10</sup>   | 6.09-10.73   | 6                | 5.13     |
| GPs per 1000 population (range across LGAs) <sup>11</sup>                      | .029-1.02    | 0.95             | 1.33     |
| % accessed inpatient care within the region (range across LGAs) <sup>2</sup>   | 82.8-92.3    | 82.2             | NA       |
| Avoidable mortality from cancers per 100,000 (range across LGAs) <sup>12</sup> | 92.8-119.3   | NA               | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

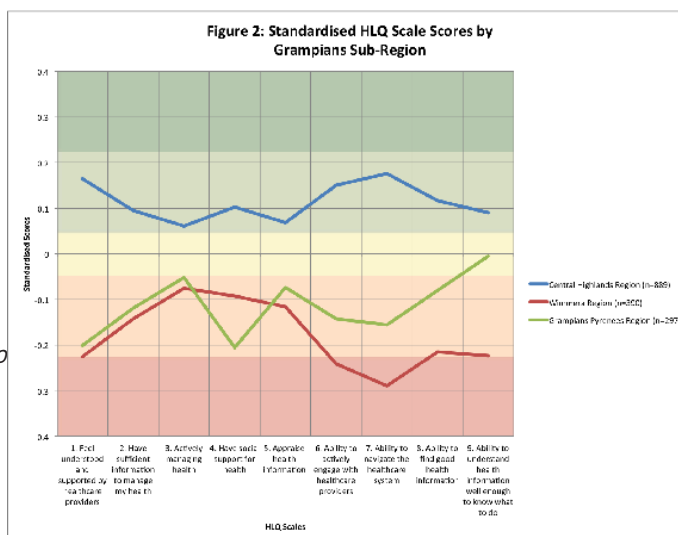
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

| Table 2: Demographic data (Ophelia Grampians dataset)              | Wimmera (n=391)              | Grampians (n=1584)           |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 51.25, 17.38 [49.52 - 52.98] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 55, 14.07%                   | 453, 28.6%                   |
| Female   | 218, 55.75%                  | 976, 61.89%                  |
| Born in Australia/NZ   | 370, 94.63%                  | 1446, 91.87%                 |
| Speaks English at home   | 382, 97.7%                   | 1558, 98.67%                 |
| Aboriginal/TSI   | 15, 3.84%                    | 196, 12.44%                  |
| Finished high school   | 286, 73.15%                  | 1164, 73.95%                 |
| Employed   | 191, 48.85%                  | 623, 39.51%                  |
| Lives alone  | 74, 18.93%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 87, 22.25%                   | 383, 24.23%                  |
| Outer Regional   | 382, 97.7%                   | 451, 28.67%                  |
| Has private health insurance                                       | 179, 45.78%                  | 845, 53.86%                  |
| Has a healthcare card  | 124, 31.71%                  | 673, 43.42%                  |
| Family history of cancer   | 218, 55.75%                  | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 122, 31.2%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 38, 9.72%                    | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 216, 55.24%                  | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 192, 49.1%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 84, 21.48%                   | 307, 19.69%                  |
| Smoker   | 38, 9.72%                    | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 258, 65.98%                  | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 280, 71.61%                  | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 121, 56.54%                  | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 90, 84.91%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 125, 67.93%                  | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 64, 71.91%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 42, 10.74%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 33, 8.44%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 8, 2.05%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 18, 4.6%                     | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 2, 0.51%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 1, 0.26%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 3, 0.77%                     | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 1, 0.26%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 2, 0.51%                     | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 7, 1.79%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 2, 0.51%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 5, 1.28%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 1, 0.26%                     | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 0.26%                     | 13, 0.82%                    |

## Wimmera - Health Literacy Strengths and Challenges

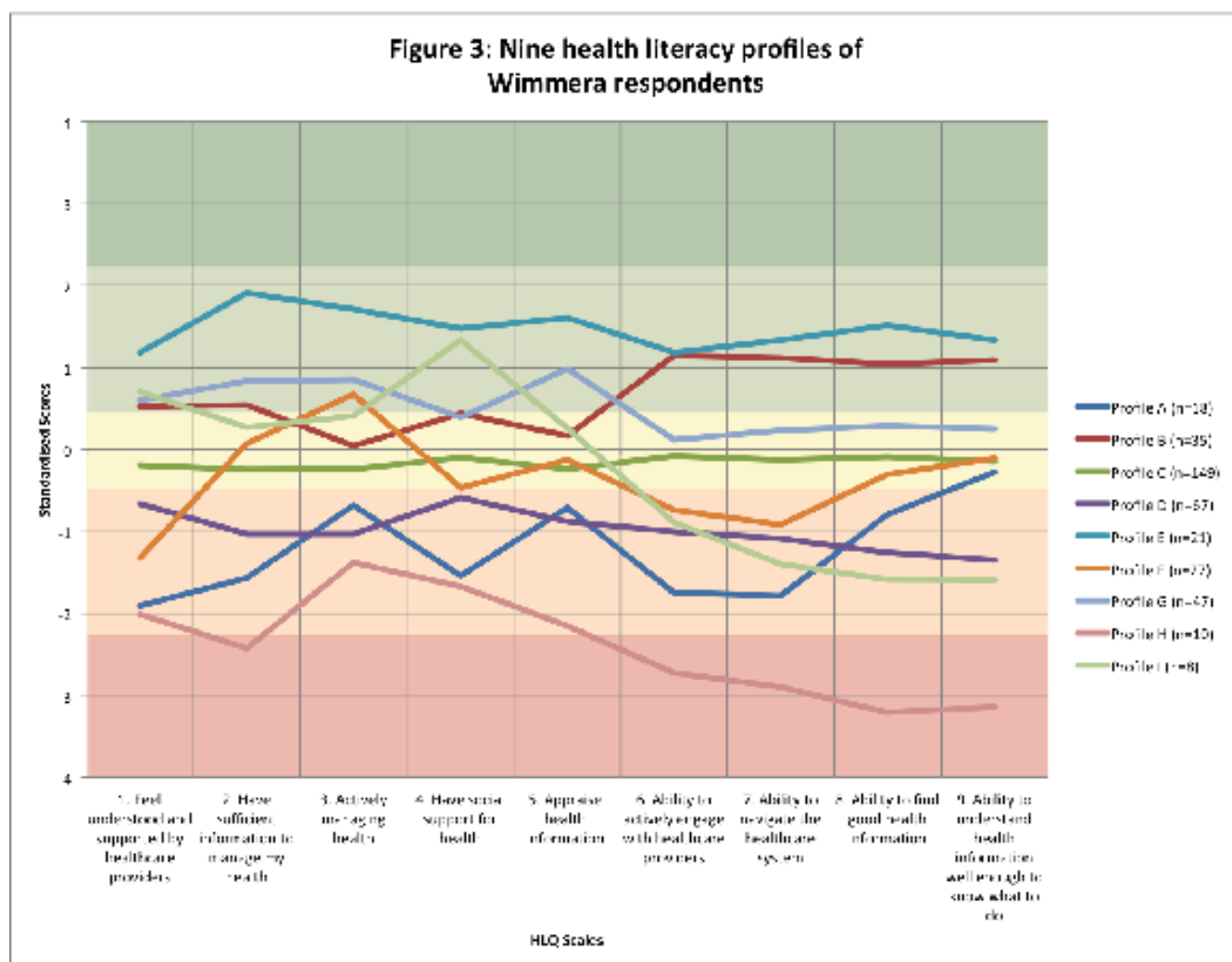
As shown in Figure 2, Wimmera respondents reported lower health literacy, than those from Central Highlands (p=0.01), across all HLQ domains with the exception of 3. *Actively managing my health*.

Wimmera respondents only differed from Grampians Pyrenees respondents on one domain (p=0.02): 9. *Ability to understand health information well enough to know what to do*.



## Wimmera - Health Literacy Profiles

Nine health literacy profiles were identified within the sample of Wimmera respondents (see Figure 3 below).



| Table 3: Health Literacy Questionnaire (HLQ and demographics for 9 clusters of respondents from Wimmera | Profile A (n=18)              | Profile B (n=35)              | Profile C (n=149)             | Profile D (n=67)              | Profile E (n=21)              | Profile F (n=27)              | Profile G (n=47)              | Profile H (n=10)             | Profile I (n=8)               | <i>F or <math>\chi^2</math>, p</i> |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------------|
| 1. Feel understood and supported by healthcare providers  | 2.08, 0.49<br>[1.84 - 2.32]   | 3.46, 0.38<br>[3.33 - 3.59]   | 3.05, 0.34<br>[3.00 - 3.11]   | 2.79, 0.29<br>[2.72 - 2.86]   | 3.83, 0.34<br>[3.68 - 3.99]   | 2.42, 0.55<br>[2.20 - 2.64]   | 3.51, 0.39<br>[3.39 - 3.62]   | 2.02, 0.69<br>[1.53 - 2.52]  | 3.56, 0.37<br>[3.25 - 3.87]   | 47.96, 0.01                        |
| 2. Have sufficient information to manage my health  | 2.29, 0.66<br>[1.96 - 2.62]   | 3.32, 0.36<br>[3.20 - 3.45]   | 2.94, 0.22<br>[2.90 - 2.97]   | 2.55, 0.36<br>[2.47 - 2.64]   | 3.99, 0.05<br>[3.96 - 4.01]   | 3.09, 0.35<br>[2.96 - 3.23]   | 3.46, 0.36<br>[3.36 - 3.57]   | 1.88, 0.40<br>[1.59 - 2.16]  | 3.19, 0.44<br>[2.82 - 3.55]   | 389.79, 0.01                       |
| 3. Actively managing health   | 2.67, 0.55<br>[2.40 - 2.94]   | 3.06, 0.33<br>[2.94 - 3.17]   | 2.91, 0.39<br>[2.84 - 2.97]   | 2.49, 0.50<br>[2.37 - 2.61]   | 3.94, 0.09<br>[3.90 - 3.98]   | 3.39, 0.44<br>[3.22 - 3.57]   | 3.49, 0.55<br>[3.33 - 3.65]   | 2.30, 0.61<br>[1.86 - 2.74]  | 3.25, 0.40<br>[2.92 - 3.58]   | 146.35, 0.01                       |
| 4. Have social support for health   | 2.31, 0.47<br>[2.08 - 2.55]   | 3.34, 0.33<br>[3.23 - 3.45]   | 3.06, 0.26<br>[3.01 - 3.10]   | 2.80, 0.34<br>[2.72 - 2.89]   | 3.88, 0.12<br>[3.82 - 3.93]   | 2.87, 0.46<br>[2.68 - 3.05]   | 3.31, 0.46<br>[3.18 - 3.45]   | 2.24, 0.86<br>[1.63 - 2.85]  | 3.80, 0.11<br>[3.71 - 3.89]   | 122.90, 0.01                       |
| 5. Appraise health information  | 2.44, 0.39<br>[2.25 - 2.64]   | 2.92, 0.56<br>[2.73 - 3.11]   | 2.70, 0.38<br>[2.64 - 2.76]   | 2.35, 0.45<br>[2.24 - 2.46]   | 3.70, 0.40<br>[3.52 - 3.89]   | 2.76, 0.64<br>[2.51 - 3.02]   | 3.37, 0.35<br>[3.26 - 3.47]   | 1.66, 0.38<br>[1.39 - 1.93]  | 2.98, 0.76<br>[2.34 - 3.61]   | 48.40, 0.01                        |
| 6. Ability to actively engage with healthcare providers   | 2.74, 0.70<br>[2.40 - 3.09]   | 4.70, 0.28<br>[4.61 - 4.80]   | 3.87, 0.35<br>[3.82 - 3.93]   | 3.25, 0.42<br>[3.15 - 3.35]   | 4.72, 0.31<br>[4.58 - 4.86]   | 3.43, 0.64<br>[3.18 - 3.68]   | 4.00, 0.39<br>[3.89 - 4.12]   | 2.08, 0.36<br>[1.83 - 2.33]  | 3.33, 0.48<br>[2.93 - 3.72]   | 108.90, 0.01                       |
| 7. Ability to navigate the healthcare system  | 2.60, 0.57<br>[2.31 - 2.89]   | 4.50, 0.36<br>[4.38 - 4.63]   | 3.69, 0.33<br>[3.63 - 3.74]   | 3.05, 0.41<br>[2.95 - 3.15]   | 4.64, 0.33<br>[4.49 - 4.79]   | 3.16, 0.43<br>[3.00 - 3.33]   | 3.92, 0.28<br>[3.84 - 4.00]   | 1.87, 0.49<br>[1.52 - 2.22]  | 2.85, 0.45<br>[2.48 - 3.23]   | 95.52, 0.01                        |
| 8. Ability to find good health information  | 3.31, 0.67<br>[2.98 - 3.65]   | 4.49, 0.45<br>[4.33 - 4.65]   | 3.76, 0.34<br>[3.71 - 3.82]   | 3.01, 0.48<br>[2.90 - 3.13]   | 4.79, 0.19<br>[4.70 - 4.88]   | 3.62, 0.55<br>[3.40 - 3.84]   | 4.01, 0.35<br>[3.91 - 4.11]   | 1.76, 0.43<br>[1.45 - 2.07]  | 2.80, 0.45<br>[2.42 - 3.18]   | 124.9, 0.01                        |
| 9. Ability to understand health information well enough to know what to do                              | 3.84, 0.41<br>[3.64 - 4.05]   | 4.70, 0.30<br>[4.59 - 4.80]   | 3.92, 0.36<br>[3.87 - 3.98]   | 3.18, 0.51<br>[3.05 - 3.30]   | 4.85, 0.22<br>[4.75 - 4.95]   | 3.95, 0.48<br>[3.76 - 4.14]   | 4.17, 0.43<br>[4.05 - 4.30]   | 2.06, 0.53<br>[1.68 - 2.44]  | 3.02, 0.75<br>[2.40 - 3.65]   | 95.63, 0.01                        |
| Participant Age (M, SD [95% CI])  | 41.33, 14.38<br>[34.18-48.48] | 57.00, 16.37<br>[51.29-62.71] | 53.70, 17.61<br>[50.84-56.56] | 49.63, 17.09<br>[45.46-53.80] | 47.29, 18.26<br>[38.97-55.60] | 43.33, 16.03<br>[36.99-49.67] | 51.30, 16.84<br>[46.35-56.24] | 55.20, 9.90<br>[48.12-62.28] | 48.86, 23.46<br>[27.16-70.56] | 2.96, 0.01                         |
| Cancer Cohort   | 1, 5.56%                      | 13, 37.14%                    | 24, 16.11%                    | 2, 2.99%                      | 2, 9.52%                      | 3, 11.11%                     | 8, 17.02%                     | 0, 0%                        | 0, 0%                         | 27.97, 0.01                        |
| Female  | 11, 61.11%                    | 23, 65.71%                    | 83, 55.7%                     | 27, 40.3%                     | 19, 90.48%                    | 13, 48.15%                    | 29, 61.7%                     | 5, 50%                       | 1, 12.5%                      | 24.63, 0.01                        |
| Finished high school  | 16, 88.89%                    | 26, 74.29%                    | 106, 71.14%                   | 45, 67.16%                    | 17, 80.95%                    | 23, 85.19%                    | 38, 80.85%                    | 5, 50%                       | 3, 37.5%                      | 15.98, 0.04                        |
| Overweight or Obese (BMI $\rightarrow$ 25)  | 5, 27.78%                     | 16, 45.71%                    | 44, 29.53%                    | 19, 28.36%                    | 5, 23.81%                     | 8, 29.63%                     | 16, 34.04%                    | 3, 30%                       | 3, 37.5%                      | 4.77, 0.78                         |
| Smoker  | 3, 16.67%                     | 0, 0%                         | 12, 8.05%                     | 12, 17.91%                    | 1, 4.76%                      | 2, 7.41%                      | 6, 12.77%                     | 1, 10%                       | 1, 12.5%                      | 11.62, 0.17                        |
| Has had bowel screen in past 5 years (aged over 50)   | 1, 20%                        | 13, 54.17%                    | 57, 59.38%                    | 17, 48.57%                    | 6, 75%                        | 5, 62.5%                      | 14, 56%                       | 6, 85.71%                    | 2, 66.67%                     | 8.86, 0.35                         |
| Has had breast screen in past 5 years (females aged from 50 to 74)                                      | 2, 66.67%                     | 11, 73.33%                    | 35, 81.4%                     | 12, 85.71%                    | 6, 100%                       | 4, 100%                       | 13, 92.86%                    | 4, 100%                      | 1, 100%                       | 4.80, 0.78                         |
| Has had pap smear in past 5 years (females aged from 18 to 70)  | 8, 72.73%                     | 12, 66.67%                    | 43, 64.18%                    | 15, 60%                       | 15, 88.24%                    | 8, 72.73%                     | 18, 66.67%                    | 2, 50%                       | 0, NaN%                       | 4.28, 0.75                         |
| Has had prostate screen in past 5 years (aged over 50)  | 1, 50%                        | 4, 57.14%                     | 33, 78.57%                    | 12, 63.16%                    | 1, 100%                       | 2, 66.67%                     | 9, 90%                        | 1, 33.33%                    | 1, 50%                        | 9.90, 0.27                         |
| Cancer treatment limited by travel distance over 20km   | 0, 0%                         | 9, 25.71%                     | 18, 12.08%                    | 2, 2.99%                      | 2, 9.52%                      | 3, 11.11%                     | 6, 12.77%                     | 0, 0%                        | 0, 0%                         | Na                                 |
| Cancer treatment within 30 days   | 0, 0%                         | 6, 17.14%                     | 14, 9.4%                      | 2, 2.99%                      | 1, 4.76%                      | 1, 3.7%                       | 7, 14.89%                     | 0, 0%                        | 0, 0%                         | Na                                 |

# Grampians Pyrenees Health Literacy Report

Sub-region Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a sub-region of the Grampians.

## Grampians Pyrenees - Key Facts

**Townships:** Ararat, Willaura, Lake Bolac, Elmhurst, Moyston, Pomonal, Streatham, Glenorchy, Great Western, Halls Gap, Mar-noo, Navarre, St Arnaud, Stawell, Stuart Mill, Beaufort, Avoca,

**Main industries:** Health care and social assistance, Public administration and safety, Retail trade, Agriculture, forestry and fishing, Manufacturing.<sup>1</sup>

**Remoteness classification:** Inner and Outer Regional.

**Main public hospitals attended:** East Grampians Health Service - Ararat Campus, Stawell Regional Health, Ballarat Health Services (Base Campus).<sup>2</sup>

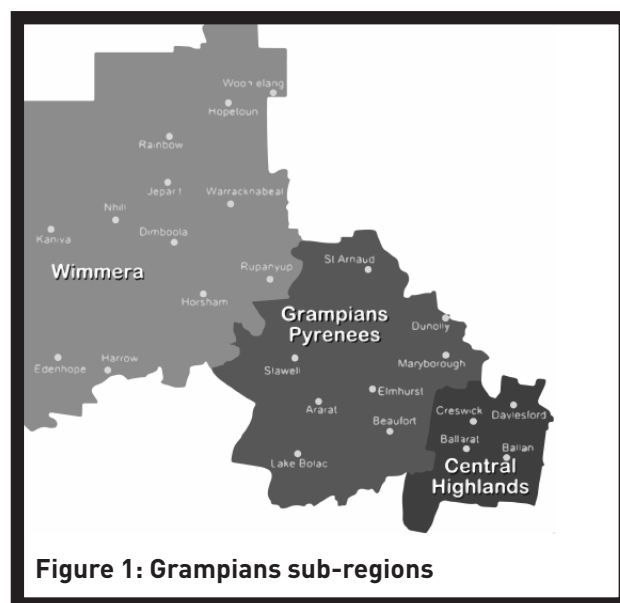


Figure 1: Grampians sub-regions

| Table 1. Grampians Pyrenees - key facts  | Grampians Pyrenees | Grampians Region | Victoria |
|--|--------------------|------------------|----------|
| Population size <sup>3</sup>   | 29966              | 223848           | 5534526  |
| % of population over the age of 65 years (range across LGAs) <sup>3</sup>      | 19.7-21.9          | 16.1             | 14       |
| % of households with broadband internet (range across LGAs) <sup>1</sup>       | 58-59.6            | 65.7             | 72.6     |
| Median household income (range across LGAs) <sup>1</sup>                       | 732-844            | NA               | 1216     |
| Median house price (range across LGAs) <sup>4</sup>                            | 166700-172500      | NA               | 380000   |
| Unemployment rate (range across LGAs) <sup>5</sup>                             | 4.7-5.2            | 5                | 5.4      |
| % of population who did not complete year 12 (range across LGAs) <sup>1</sup>  | 64-67.1            | 58               | 43.7     |
| % of persons with private health insurance (range across LGAs)                 | 33.2-36.3          | 38.3             | 48       |
| % current smoker (range across LGAs) <sup>6</sup>                              | 17.5-31.4          | 20.9             | 19.1     |
| % overweight or obese (range across LGAs) <sup>6</sup>                         | 53-59.2            | 52.1             | 48.6     |
| % breast screening participation (range across LGAs) <sup>7</sup>              | 45.9-60.2          | 56.7             | 55.9     |
| % cervical cancer participation (range across LGAs) <sup>8</sup>               | 51.6               | 56.2             | 60.7     |
| % bowel screening participation (range across LGAs) <sup>9</sup>               | 48.6-54.1          | 41               | 37.1     |
| Total malignant cancers diagnosed per 1000 (range across LGAs) <sup>10</sup>   | 5.582-7.58         | 6                | 5.13     |
| GPs per 1000 population (range across LGAs) <sup>11</sup>                      | 0.68-1.08          | 0.95             | 1.33     |
| % accessed inpatient care within the region (range across LGAs) <sup>2</sup>   | 75.8-87.2          | 82.2             | NA       |
| Avoidable mortality from cancers per 100,000 (range across LGAs) <sup>12</sup> | 101.2-138.6        | NA               | 103      |

1. Australian Bureau of Statistics, 2011 - Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 - Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 - Guide to Property Values 2011.

5. Department of Employment and Workplace Relations - Small area labour markets, September quarter 2012

6. Department of Health - Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register - statistical report, 2010

9. Public Health Information Development Unit (PHIDU) - Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria - Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) - Medical Directory of Australia; GP attendances (2009-10) - PHIDU Social Health Atlas; Estimated Resident Population - ABS, 2011

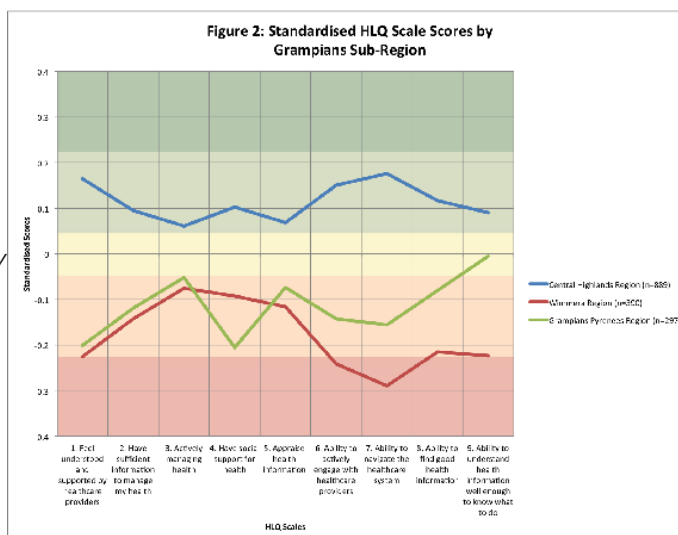
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

| Table 2: Demographic data (Ophelia Grampians dataset)              | Grampians Pyrenees (n=301)   | Grampians (n=1584)           |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 58.91, 16.98 [56.97 - 60.85] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 73, 24.25%                   | 453, 28.6%                   |
| Female   | 210, 69.77%                  | 976, 61.89%                  |
| Born in Australia/NZ   | 279, 92.69%                  | 1446, 91.87%                 |
| Speaks English at home   | 300, 99.67%                  | 1558, 98.67%                 |
| Aboriginal/TSI   | 27, 8.97%                    | 196, 12.44%                  |
| Finished high school   | 216, 71.76%                  | 1164, 73.95%                 |
| Employed   | 113, 37.54%                  | 623, 39.51%                  |
| Lives alone  | 79, 26.25%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 86, 28.57%                   | 383, 24.23%                  |
| Outer Regional   | 69, 22.92%                   | 451, 28.67%                  |
| Has private health insurance                                       | 140, 46.51%                  | 845, 53.86%                  |
| Has a healthcare card  | 132, 43.85%                  | 673, 43.42%                  |
| Family history of cancer   | 157, 52.16%                  | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 95, 31.56%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 27, 8.97%                    | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 172, 57.14%                  | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 147, 48.84%                  | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 62, 20.6%                    | 307, 19.69%                  |
| Smoker   | 31, 10.3%                    | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 199, 66.11%                  | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 204, 67.77%                  | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 142, 65.14%                  | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 87, 78.38%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 96, 62.75%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 41, 60.29%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 65, 21.59%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 48, 15.95%                   | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 13, 4.32%                    | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 21, 6.98%                    | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 2, 0.66%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 1, 0.33%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 4, 1.33%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 8, 2.66%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 3, 1%                        | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 13, 4.32%                    | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 1, 0.33%                     | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 0.33%                     | 13, 0.82%                    |

## Grampians Pyrenees - Health Literacy Strengths and Challenges

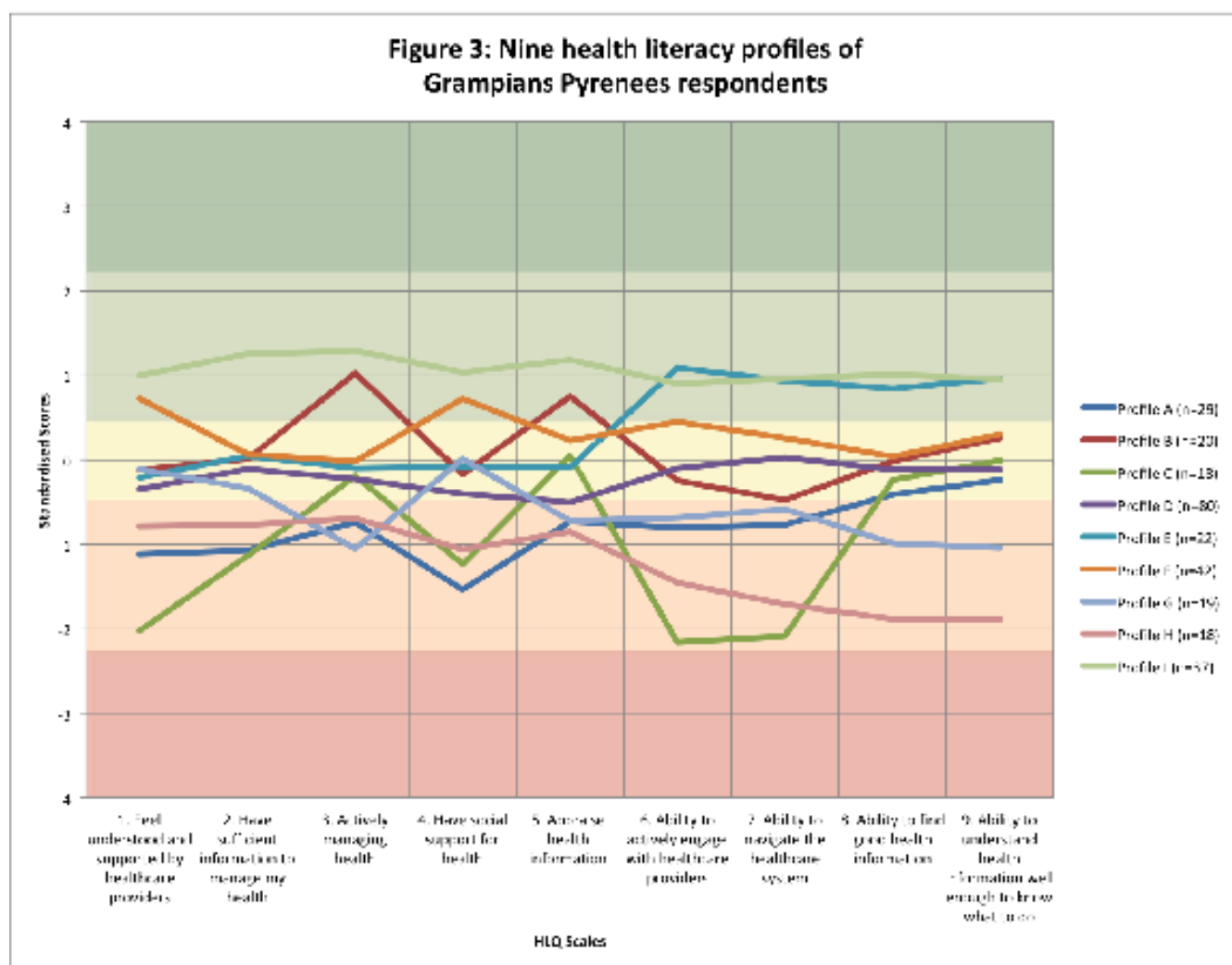
As shown in Figure 2, Grampians Pyrenees respondents reported lower health literacy, than those from Central Highlands (p=0.01), across most HLQ domains. Exceptions to this were 3. *Actively managing my health*, 5. *Appraise health information* and 9. *Ability to understand health information well enough to know what to do*.

Grampians Pyrenees respondents only differed from Wimmera respondents on one domain: 9. *Ability to understand health information well enough to know what to do* (p=0.02).



## Grampians Pyrenees - Health Literacy Profiles

Nine health literacy profiles were identified within the sample of Grampians Pyrenees respondents (see Figure 3 below).





| Table 3: Health Literacy Questionnaire (HLQ and demographics for 9 clusters of respondents from Grampians Pyrenees | Profile A (n=29)                | Profile B (n=20)                | Profile C (n=18)                | Profile D (n=80)                | Profile E (n=22)                | Profile F (n=42)                | Profile G (n=19)                | Profile H (n=18)                | Profile I (n=37)                | <i>F or <math>\chi^2</math>, p</i> |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------------------|
| 1. Feel understood and supported by healthcare providers   | 2.53, 0.46<br>[2.36 - 2.71]     | 3.10, 0.45<br>[2.89 - 3.31]     | 2.02, 0.46<br>[1.79 - 2.25]     | 2.97, 0.25<br>[2.91 - 3.02]     | 3.05, 0.30<br>[2.91 - 3.18]     | 3.57, 0.30<br>[3.48 - 3.66]     | 3.11, 0.34<br>[2.94 - 3.27]     | 2.72, 0.46<br>[2.49 - 2.95]     | 3.73, 0.34<br>[3.62 - 3.84]     | 48.046, 0.01                       |
| 2. Have sufficient information to manage my health   | 2.54, 0.42<br>[2.38 - 2.70]     | 3.06, 0.37<br>[2.89 - 3.24]     | 2.50, 0.62<br>[2.20 - 2.81]     | 3.00, 0.24<br>[2.95 - 3.06]     | 3.08, 0.25<br>[2.97 - 3.19]     | 3.09, 0.26<br>[3.01 - 3.17]     | 2.89, 0.19<br>[2.80 - 2.99]     | 2.68, 0.43<br>[2.47 - 2.89]     | 3.67, 0.32<br>[3.56 - 3.77]     | 26.991, 0.01                       |
| 3. Actively managing health  | 2.64, 0.43<br>[2.48 - 2.80]     | 3.58, 0.27<br>[3.46 - 3.70]     | 2.93, 0.36<br>[2.75 - 3.11]     | 2.97, 0.26<br>[2.88 - 2.97]     | 2.98, 0.26<br>[2.87 - 3.10]     | 3.02, 0.48<br>[2.88 - 3.17]     | 2.47, 0.44<br>[2.26 - 2.69]     | 2.67, 0.39<br>[2.47 - 2.86]     | 3.72, 0.29<br>[3.62 - 3.82]     | 44.512, 0.01                       |
| 4. Have social support for health  | 2.31, 0.56<br>[2.10 - 2.52]     | 3.02, 0.32<br>[2.87 - 3.17]     | 2.47, 0.45<br>[2.25 - 2.69]     | 2.90, 0.30<br>[2.83 - 2.97]     | 3.07, 0.29<br>[2.94 - 3.20]     | 3.49, 0.31<br>[3.39 - 3.58]     | 3.12, 0.35<br>[2.94 - 3.29]     | 2.56, 0.37<br>[2.37 - 2.74]     | 3.65, 0.31<br>[3.55 - 3.75]     | 41.26, 0.01                        |
| 5. Appraise health information   | 2.43, 0.33<br>[2.31 - 2.56]     | 3.24, 0.33<br>[3.09 - 3.40]     | 2.86, 0.39<br>[2.66 - 3.05]     | 2.56, 0.34<br>[2.48 - 2.63]     | 2.78, 0.40<br>[2.60 - 2.96]     | 2.96, 0.24<br>[2.88 - 3.03]     | 2.44, 0.45<br>[2.22 - 2.66]     | 2.37, 0.59<br>[2.07 - 2.66]     | 3.48, 0.34<br>[3.36 - 3.59]     | 34.381, 0.01                       |
| 6. Ability to actively engage with healthcare providers  | 3.38, 0.50<br>[3.19 - 3.57]     | 3.76, 0.48<br>[3.53 - 3.99]     | 2.47, 0.72<br>[2.11 - 2.82]     | 3.86, 0.29<br>[3.80 - 3.92]     | 4.66, 0.34<br>[4.51 - 4.81]     | 4.23, 0.30<br>[4.14 - 4.32]     | 3.47, 0.33<br>[3.31 - 3.63]     | 2.94, 0.41<br>[2.74 - 3.15]     | 4.54, 0.42<br>[4.40 - 4.67]     | 56.676, 0.01                       |
| 7. Ability to navigate the healthcare system   | 3.26, 0.42<br>[3.11 - 3.42]     | 3.46, 0.29<br>[3.32 - 3.59]     | 2.40, 0.44<br>[2.18 - 2.62]     | 3.79, 0.28<br>[3.73 - 3.85]     | 4.38, 0.40<br>[4.20 - 4.56]     | 3.94, 0.21<br>[3.87 - 4.00]     | 3.38, 0.37<br>[3.21 - 3.56]     | 2.65, 0.36<br>[2.47 - 2.83]     | 4.40, 0.43<br>[4.26 - 4.55]     | 70.228, 0.01                       |
| 8. Ability to find good health information   | 3.56, 0.49<br>[3.37 - 3.74]     | 3.81, 0.47<br>[3.59 - 4.03]     | 3.67, 0.57<br>[3.38 - 3.95]     | 3.74, 0.35<br>[3.67 - 3.82]     | 4.36, 0.35<br>[4.21 - 4.52]     | 3.85, 0.30<br>[3.75 - 3.94]     | 3.19, 0.24<br>[3.08 - 3.30]     | 2.61, 0.47<br>[2.38 - 2.85]     | 4.47, 0.40<br>[4.34 - 4.60]     | 48.154, 0.01                       |
| 9. Ability to understand health information well enough to know what to do   | 3.87, 0.34<br>[3.74 - 4.00]     | 4.18, 0.32<br>[4.03 - 4.33]     | 4.01, 0.54<br>[3.74 - 4.28]     | 3.94, 0.23<br>[3.89 - 4.00]     | 4.62, 0.36<br>[4.46 - 4.78]     | 4.20, 0.42<br>[4.07 - 4.33]     | 3.37, 0.59<br>[3.08 - 3.65]     | 2.84, 0.51<br>[2.59 - 3.10]     | 4.61, 0.44<br>[4.46 - 4.76]     | 32.292, 0.01                       |
| Participant Age (M, SD [95% CI])   | 54.07, 12.04<br>[49.40 - 58.74] | 53.10, 15.52<br>[45.84 - 60.36] | 49.50, 12.69<br>[43.19 - 55.81] | 58.03, 18.05<br>[53.98 - 62.07] | 67.77, 17.40<br>[60.06 - 75.49] | 62.45, 15.33<br>[57.67 - 67.23] | 52.63, 16.85<br>[44.51 - 60.75] | 52.28, 22.98<br>[40.85 - 63.70] | 66.11, 11.19<br>[62.38 - 69.84] | 5.311, 0.01                        |
| Cancer Cohort  | 2.6.9%                          | 2.10%                           | 4.22.22%                        | 15.18.75%                       | 5.22.73%                        | 19.45.24%                       | 6.31.58%                        | 2.11.11%                        | 15.40.54%                       | 25.776, 0.01                       |
| Female   | 19.65.52%                       | 17.85%                          | 17.94.44%                       | 56.70%                          | 15.68.18%                       | 27.64.29%                       | 12.63.16%                       | 10.55.56%                       | 24.64.86%                       | 10.754, 0.22                       |
| Finished high school   | 25.86.21%                       | 18.90%                          | 16.88.89%                       | 57.71.25%                       | 10.45.45%                       | 31.73.81%                       | 14.73.68%                       | 10.55.56%                       | 27.72.97%                       | 20.504, 0.01                       |
| Overweight or Obese (BMI → 25)   | 6.20.69%                        | 7.35%                           | 5.27.78%                        | 24.30%                          | 9.40.91%                        | 12.28.57%                       | 6.31.58%                        | 7.38.89%                        | 13.35.14%                       | 5.289, 0.73                        |
| Smoker   | 5.17.24%                        | 0.0%                            | 2.11.11%                        | 8.10%                           | 1.4.55%                         | 3.7.14%                         | 4.21.05%                        | 5.27.78%                        | 1.2.7%                          | 15.619, 0.05                       |
| Has had bowel screen in past 5 years (aged over 50)  | 15.78.95%                       | 9.81.82%                        | 8.80%                           | 33.57.89%                       | 9.50%                           | 27.77.14%                       | 6.60%                           | 3.30%                           | 26.74.29%                       | 11.969, 0.15                       |
| Has had breast screen in past 5 years (females aged from 50 to 74)   | 8.66.67%                        | 6.75%                           | 8.80%                           | 25.80.65%                       | 5.100%                          | 13.81.25%                       | 5.83.33%                        | 1.50%                           | 13.81.25%                       | 4.612, 0.80                        |
| Has had pap smear in past 5 years (females aged from 18 to 70)   | 9.56.25%                        | 11.78.57%                       | 8.50%                           | 25.62.5%                        | 6.66.67%                        | 9.50%                           | 7.77.78%                        | 4.50%                           | 11.64.71%                       | 6.292, 0.62                        |
| Has had prostate screen in past 5 years (aged over 50)   | 3.42.86%                        | 0.0%                            | 0.NaN%                          | 9.52.94%                        | 2.28.57%                        | 11.84.62%                       | 3.100%                          | 3.50%                           | 9.69.23%                        | NaN                                |
| Cancer treatment limited by travel distance over 20km  | 2.6.9%                          | 2.10%                           | 3.16.67%                        | 13.16.25%                       | 5.22.73%                        | 17.40.48%                       | 6.31.58%                        | 2.11.11%                        | 13.35.14%                       | 2.657, 0.95                        |
| Cancer treatment within 30 days  | 2.6.9%                          | 1.5%                            | 2.11.11%                        | 8.10%                           | 4.18.18%                        | 14.33.33%                       | 3.15.79%                        | 2.11.11%                        | 10.27.03%                       | 3.102, 0.93                        |

# Central Highlands

## Health Literacy Report

Sub-region Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a sub-region of the Grampians.

### Central Highlands - Key Facts

**Townships:** Ballarat, Bannockburn, Enfield, Inverleigh, Lethbridge, Linton, Meredith, Smythedale, Teesdale, Daylesford, Hepburn Springs, Trentham, Clunes, Ballan, Bacchus Marsh

**Main industries:** Health care and social assistance, Retail trade, Manufacturing, Agriculture, forestry and fishing, construction, education and training, Accommodation and food services, Construction.<sup>1</sup>

**Remoteness classification:** Inner Regional.

**Main public hospitals attended:** Ballarat Health Services (Base Campus), Geelong Hospital.<sup>2</sup>

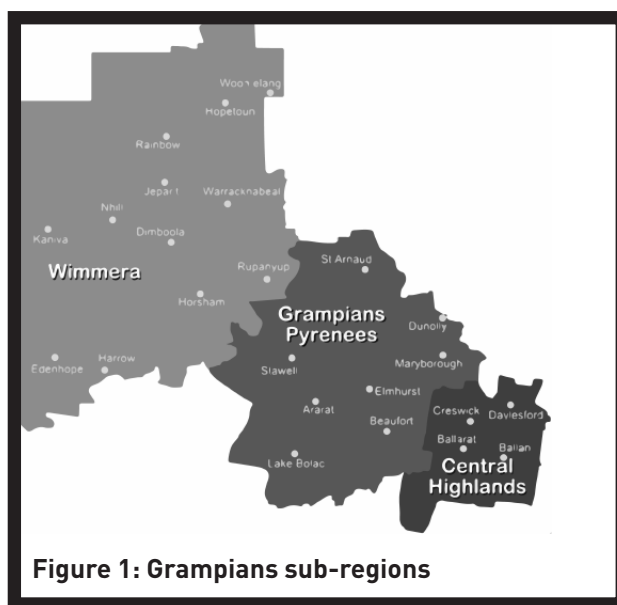


Figure 1: Grampians sub-regions

| Table 1. Grampians Pyrenees - key facts  | Central Highlands | Grampians Region | Victoria |
|--|-------------------|------------------|----------|
| Population size <sup>3</sup>   | 157030            | 223848           | 5534526  |
| % of population over the age of 65 years (range across LGAs) <sup>3</sup>      | 10.4 - 18.9       | 16.1             | 14       |
| % of households with broadband internet (range across LGAs) <sup>1</sup>       | 65.5 - 74.9       | 65.7             | 72.6     |
| Median household income (range across LGAs) <sup>1</sup>                       | 850 - 1217        | NA               | 1216     |
| Median house price (range across LGAs) <sup>4</sup>                            | 280000 - 327000   | NA               | 380000   |
| Unemployment rate (range across LGAs) <sup>5</sup>                             | 4 - 6             | 5                | 5.4      |
| % of population who did not complete year 12 (range across LGAs) <sup>1</sup>  | 52.6 - 59.6       | 58               | 43.7     |
| % of persons with private health insurance (range across LGAs)                 | 35.7 - 45         | 38.3             | 48       |
| % current smoker (range across LGAs) <sup>6</sup>                              | 16.7 - 23.6       | 20.9             | 19.1     |
| % overweight or obese (range across LGAs) <sup>6</sup>                         | 49.2 - 53.1       | 52.1             | 48.6     |
| % breast screening participation (range across LGAs) <sup>7</sup>              | 49.5 - 59.4       | 56.7             | 55.9     |
| % cervical cancer participation (range across LGAs) <sup>8</sup>               | 54.8 - 63.3       | 56.2             | 60.7     |
| % bowel screening participation (range across LGAs) <sup>9</sup>               | 35.8 - 43.7       | 41               | 37.1     |
| Total malignant cancers diagnosed per 1000 (range across LGAs) <sup>10</sup>   | 5.42 - 6.55       | 6                | 5.13     |
| GPs per 1000 population (range across LGAs) <sup>11</sup>                      | 0.41 - 1.3        | 0.95             | 1.33     |
| % accessed inpatient care within the region (range across LGAs) <sup>2</sup>   | 45.6 - 90.9       | 82.2             | NA       |
| Avoidable mortality from cancers per 100,000 (range across LGAs) <sup>12</sup> | 89.7 - 126.4      | NA               | 103      |

1. Australian Bureau of Statistics, 2011 - Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 - Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 - Guide to Property Values 2011.

5. Department of Employment and Workplace Relations - Small area labour markets, September quarter 2012

6. Department of Health - Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register - statistical report, 2010

9. Public Health Information Development Unit (PHIDU) - Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria - Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) - Medical Directory of Australia; GP attendances (2009-10) - PHIDU Social Health Atlas; Estimated Resident Population - ABS, 2011

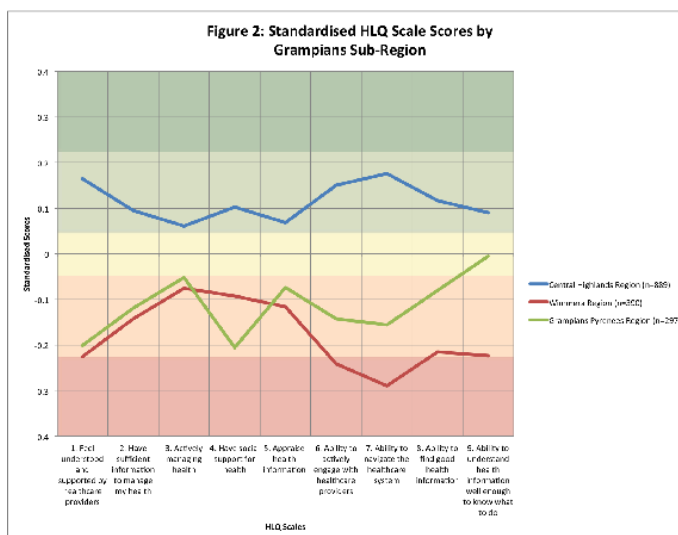
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Central Highlands<br>(n=892) | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 57.14, 16.36 [56.06 - 58.23] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 325, 36.43%                  | 453, 28.6%                   |
| Female   | 548, 61.43%                  | 976, 61.89%                  |
| Born in Australia/NZ   | 797, 89.35%                  | 1446, 91.87%                 |
| Speaks English at home   | 876, 98.21%                  | 1558, 98.67%                 |
| Aboriginal/TSI   | 154, 17.26%                  | 196, 12.44%                  |
| Finished high school   | 662, 74.22%                  | 1164, 73.95%                 |
| Employed   | 319, 35.76%                  | 623, 39.51%                  |
| Lives alone  | 185, 20.74%                  | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 210, 23.54%                  | 383, 24.23%                  |
| Outer Regional   | 0, 0%                        | 451, 28.67%                  |
| Has private health insurance                                       | 526, 58.97%                  | 845, 53.86%                  |
| Has a healthcare card  | 417, 46.75%                  | 673, 43.42%                  |
| Family history of cancer   | 439, 49.22%                  | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 289, 32.4%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 80, 8.97%                    | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 504, 56.5%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 476, 53.36%                  | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 161, 18.05%                  | 307, 19.69%                  |
| Smoker   | 94, 10.54%                   | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 620, 69.51%                  | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 631, 70.74%                  | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 377, 60.32%                  | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 263, 83.49%                  | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 310, 69.04%                  | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 178, 69.53%                  | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 123, 13.79%                  | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 199, 22.31%                  | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 41, 4.6%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 79, 8.86%                    | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 2, 0.22%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 7, 0.78%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 13, 1.46%                    | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 11, 1.23%                    | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 4, 0.45%                     | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 28, 3.14%                    | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 2, 0.22%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 61, 6.84%                    | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 1, 0.11%                     | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 11, 1.23%                    | 13, 0.82%                    |

## Central Highlands - Health Literacy Strengths and Challenges

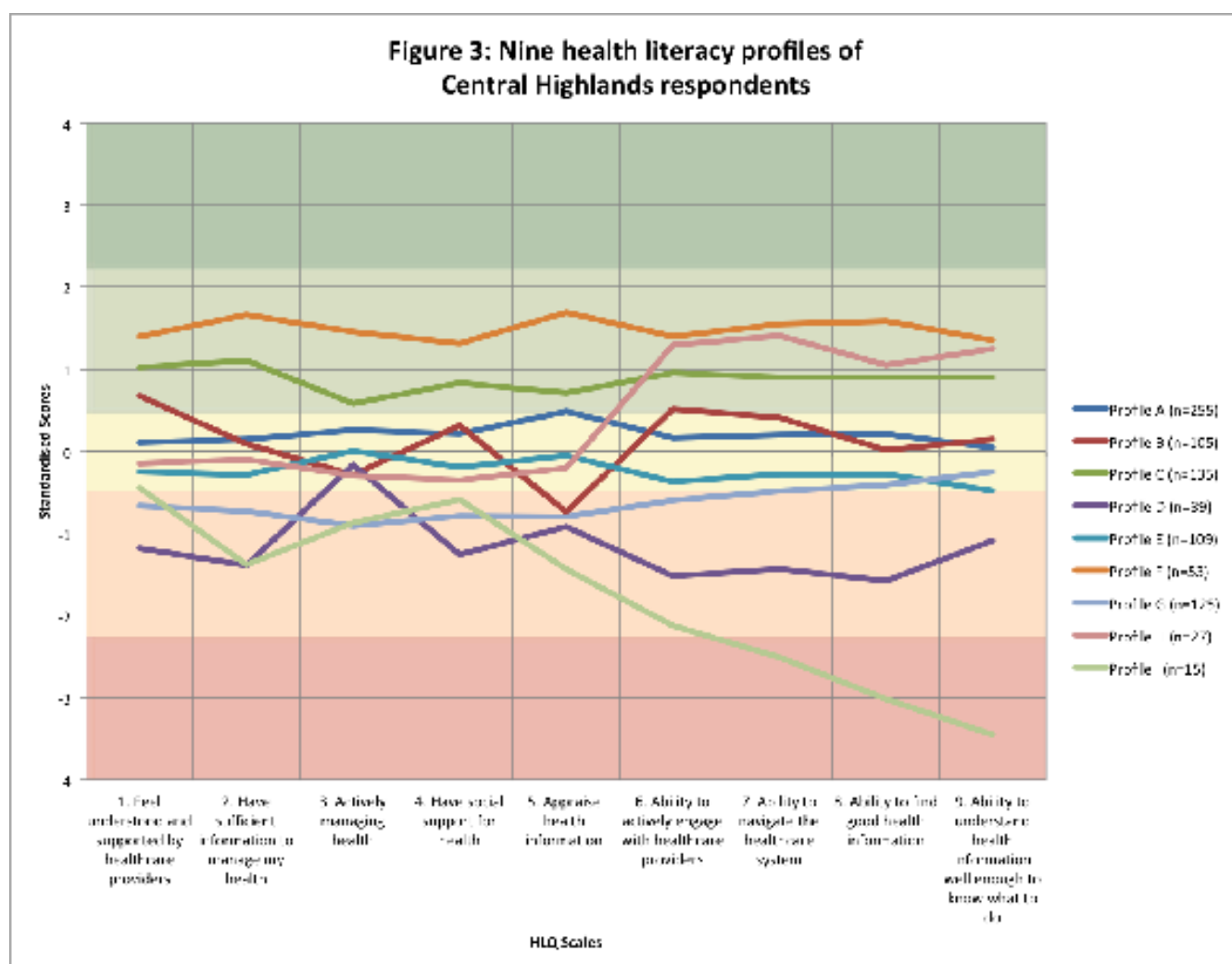
As shown in Figure 2, Central Highlands residents reported higher health literacy, than those from Wimmera ( $p=0.01$ ), across all HLQ domains with the exception of 3. *Actively managing my health*.

Central Highlands residents also reported higher health literacy across most HLQ domains than Grampians Pyrenees residents ( $p=0.01$ ). Exceptions to this were again 3. *Actively managing my health*, 5. *Appraise health information* and 9. *Ability to understand health information well enough to know what to do*.



## Central Highlands - Health Literacy Profiles

Nine health literacy profiles were identified within the sample of Central Highlands respondents (see Figure 3 below).



# LGA Reports

Local Government Areas (LGA) Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within each LGA of the Grampians.



# Ararat

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Ararat- Key Facts

**Sub-region:** Grampians Pyrenees

**Townships:** Ararat, Willaura, Lake Bolac, Elmhurst, Moyston, Pmonal and Streatham

**Main industries:** Health care and social assistance, Public administration and safety, Retail trade<sup>1</sup>

**Remoteness classification:** Inner and Outer Regional

**Main public hospitals attended:** East Grampians Health Service - Ararat Campus<sup>2</sup>



|  | Ararat | Grampians | Victoria |
|--|--------|-----------|----------|
| Population size                              | 11297  | 223848    | 5534526  |
| % of population over the age of 65 years     | 19.7   | 16.1      | 14       |
| % of households with broadband internet      | 59.6   | 65.7      | 72.6     |
| Median household income                      | 844    | NA        | 1216     |
| Median house price                           | 166700 | NA        | 380000   |
| Unemployment rate                            | 4.7    | 5         | 5.4      |
| % of population who did not complete year 12 | 64     | 58        | 43.7     |
| % of persons with private health insurance   | 36.3   | 38.3      | 48       |
| % current smoker                             | 20.9   | 20.9      | 19.1     |
| % overweight or obese                        | 59.2   | 52.1      | 48.6     |
| % breast screening participation             | 52.7   | 56.7      | 55.9     |
| % cervical cancer participation              | 48.6   | 56.2      | 60.7     |
| % bowel screening participation              | 40.6   | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 5.58   | 6         | 5.13     |
| GPs per 1000 population                      | 1.08   | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 87.2   | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 116.2  | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

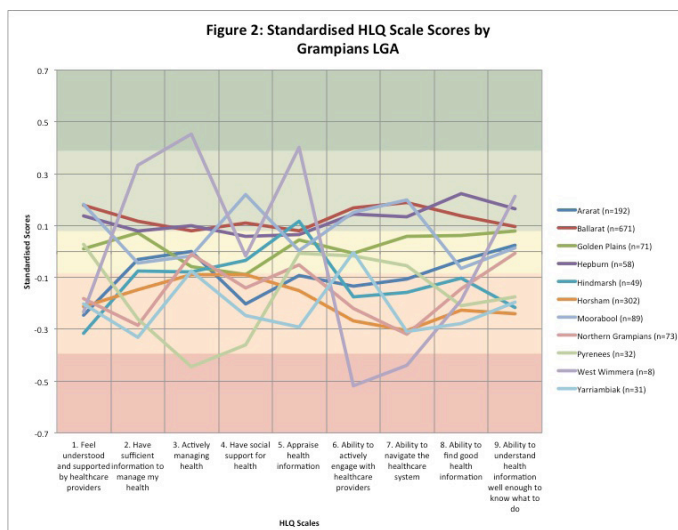
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Ararat<br>(n=195)            | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 59.01, 17.04 [56.59 - 61.43] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 27, 13.85%                   | 453, 28.6%                   |
| Female   | 137, 70.26%                  | 976, 61.89%                  |
| Born in Australia/NZ   | 175, 89.74%                  | 1446, 91.87%                 |
| Speaks English at home   | 195, 100%                    | 1558, 98.67%                 |
| Aboriginal/TSI   | 14, 7.18%                    | 196, 12.44%                  |
| Finished high school   | 142, 72.82%                  | 1164, 73.95%                 |
| Employed   | 68, 34.87%                   | 623, 39.51%                  |
| Lives alone  | 48, 24.62%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 1, 0.51%                     | 383, 24.23%                  |
| Outer Regional   | 30, 15.38%                   | 451, 28.67%                  |
| Has private health insurance                                       | 84, 43.08%                   | 845, 53.86%                  |
| Has a healthcare card  | 82, 42.05%                   | 673, 43.42%                  |
| Family history of cancer   | 99, 50.77%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 60, 30.77%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 17, 8.72%                    | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 105, 53.85%                  | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 101, 51.79%                  | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 41, 21.03%                   | 307, 19.69%                  |
| Smoker   | 23, 11.79%                   | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 136, 69.74%                  | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 133, 68.21%                  | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 90, 63.83%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 56, 78.87%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 63, 63.64%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 22, 50%                      | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 22, 11.28%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 16, 8.21%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 7, 3.59%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 8, 4.1%                      | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 1, 0.51%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 3, 1.54%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 2, 1.03%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 0, 0%                        | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 7, 3.59%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 0.51%                     | 13, 0.82%                    |



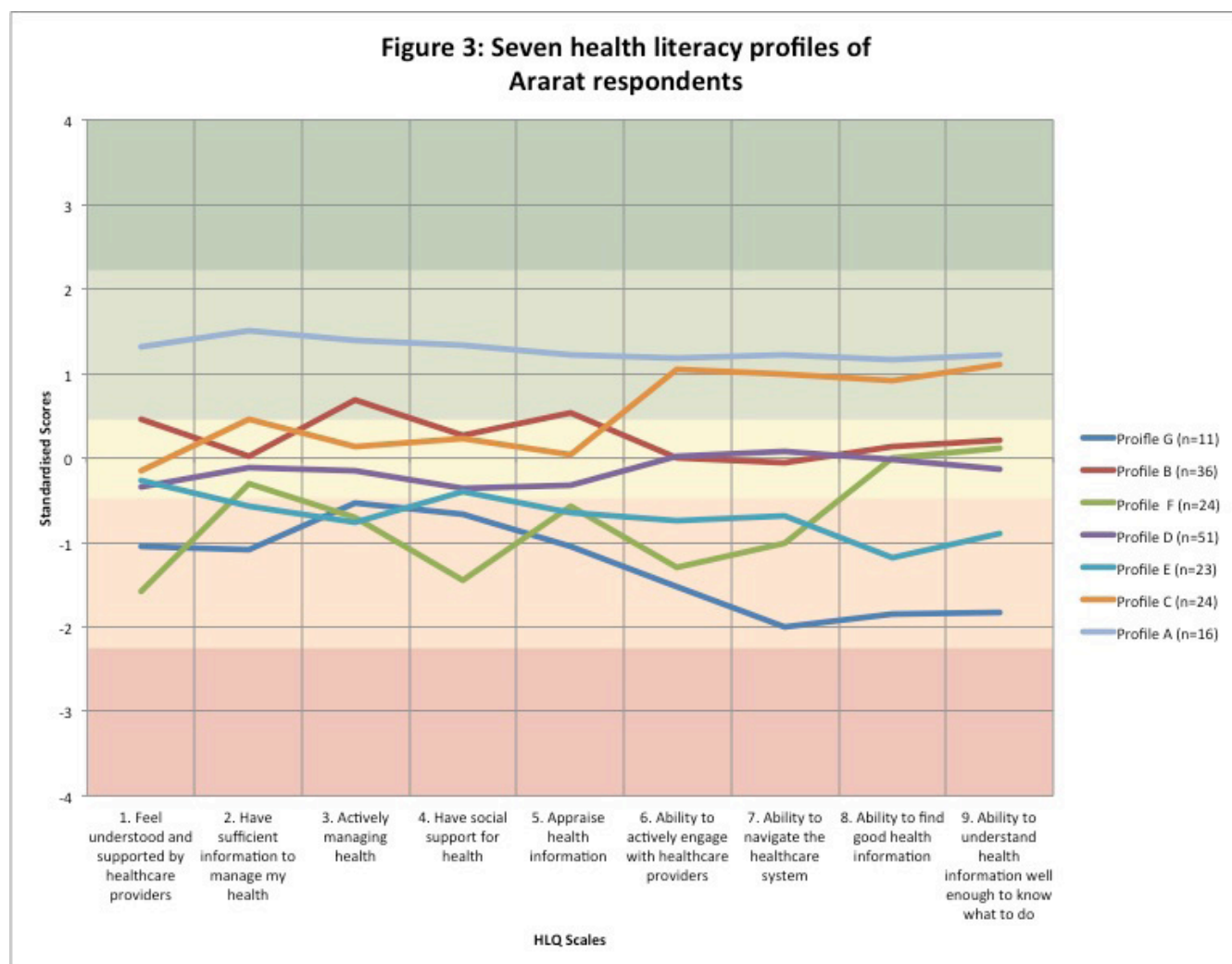
## Ararat- Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Ararat residents was one of moderate health literacy across most domains. Their average scores for scales one (1. *Feel understood and supported by healthcare providers*) and four (4. *Social support for health*) were relatively low in contrast to other LGAs.



## Ararat - Health Literacy Profiles

Seven health literacy profiles were identified within the sample of Ararat respondents (see Figure 3 below).



# Ballarat

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Ballarat - Key Facts

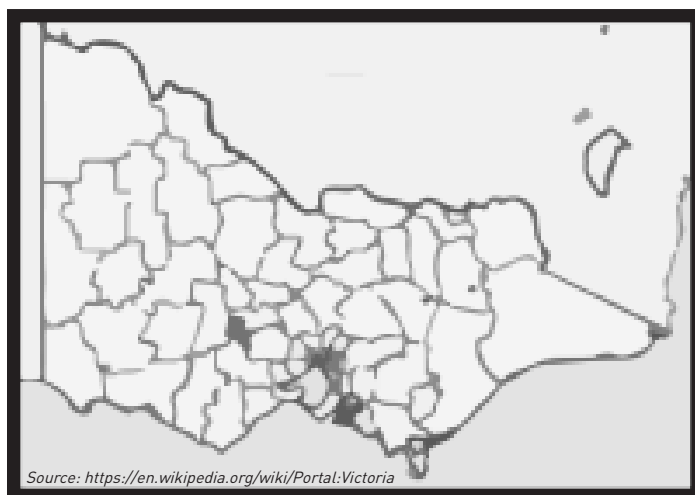
**Sub-region:** Central Highlands

**Townships:** Ballarat

**Main industries:** Health care and social assistance, Retail trade, Manufacturing<sup>1</sup>

**Remoteness classification:** Inner regional

**Main public hospitals attended:** Ballarat Health Services (Base Campus)<sup>2</sup>



|  | Ballarat | Grampians | Victoria |
|--|----------|-----------|----------|
| Population size                              | 95007    | 223848    | 5534526  |
| % of population over the age of 65 years     | 14.9     | 16.1      | 14       |
| % of households with broadband internet      | 67.6     | 65.7      | 72.6     |
| Median household income                      | 988      | NA        | 1216     |
| Median house price                           | 280000   | NA        | 380000   |
| Unemployment rate                            | 6        | 5         | 5.4      |
| % of population who did not complete year 12 | 52.6     | 58        | 43.7     |
| % of persons with private health insurance   | 38.7     | 38.3      | 48       |
| % current smoker                             | 23.6     | 20.9      | 19.1     |
| % overweight or obese                        | 50       | 52.1      | 48.6     |
| % breast screening participation             | 59.4     | 56.7      | 55.9     |
| % cervical cancer participation              | 54.8     | 56.2      | 60.7     |
| % bowel screening participation              | 43.7     | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 5.59     | 6         | 5.13     |
| GPs per 1000 population                      | 1.12     | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 90.9     | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 107.2    | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

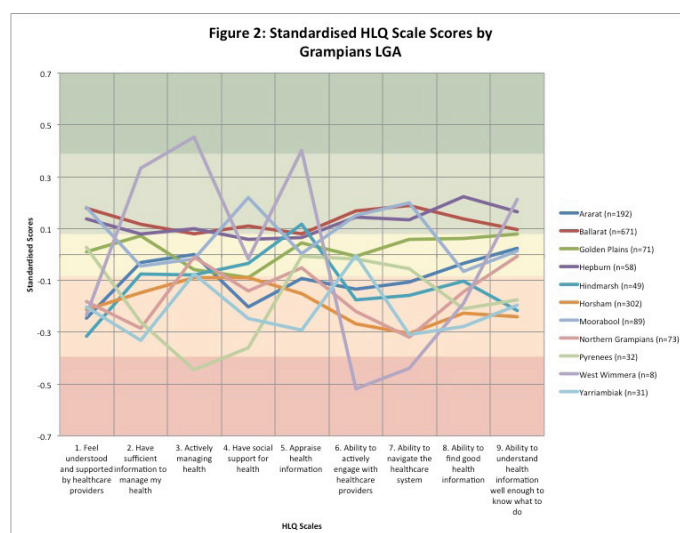
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|   | <b>Ballarat<br/>(n=674)</b>  | <b>Grampians<br/>(n=1584)</b> |
|---|------------------------------|-------------------------------|
| <b>Participant Age (M, SD [95% CI])</b>                                   | 55.78, 16.56 [54.52 - 57.04] | 56.19, 16.97 [55.37 - 57.00]  |
| <b>Cancer Cohort</b>  | 218, 32.34%                  | 453, 28.6%                    |
| <b>Female</b>   | 422, 62.61%                  | 976, 61.89%                   |
| <b>Born in Australia/NZ</b>   | 606, 89.91%                  | 1446, 91.87%                  |
| <b>Speaks English at home</b>   | 659, 97.77%                  | 1558, 98.67%                  |
| <b>Aboriginal/TSI</b>   | 130, 19.29%                  | 196, 12.44%                   |
| <b>Finished high school</b>   | 516, 76.56%                  | 1164, 73.95%                  |
| <b>Employed</b>   | 245, 36.35%                  | 623, 39.51%                   |
| <b>Lives alone</b>  | 138, 20.47%                  | 338, 21.51%                   |
| <b>SEIFA Disadvantage Percentile →= 60</b>                                | 194, 28.78%                  | 383, 24.23%                   |
| <b>Outer Regional</b>   | 0, 0%                        | 451, 28.67%                   |
| <b>Has private health insurance</b>                                       | 414, 61.42%                  | 845, 53.86%                   |
| <b>Has a healthcare card</b>  | 306, 45.4%                   | 673, 43.42%                   |
| <b>Family history of cancer</b>   | 332, 49.26%                  | 814, 62.86%                   |
| <b>Overweight or Obese (BMI → 25)</b>                                     | 213, 31.6%                   | 506, 35.48%                   |
| <b>Eats takeaway 2 or more times a week</b>                               | 62, 9.2%                     | 145, 9.28%                    |
| <b>Eats vegetables 3 or more times a day</b>                              | 383, 56.82%                  | 892, 57.18%                   |
| <b>Eats fruit 2 or more times a day</b>                                   | 367, 54.45%                  | 815, 52.08%                   |
| <b>Drinks alcohol 3 or more times a day</b>                               | 116, 17.21%                  | 307, 19.69%                   |
| <b>Smoker</b>   | 72, 10.68%                   | 163, 10.4%                    |
| <b>Sets aside time for healthy activities most days</b>                   | 482, 71.51%                  | 1077, 70.39%                  |
| <b>Does physical activity for at least 30 minutes most days</b>           | 474, 70.33%                  | 1115, 72.07%                  |
| <b>Has had bowel screen in past 5 years (aged over 50)</b>                | 287, 63.36%                  | 640, 66.81%                   |
| <b>Has had breast screen in past 5 years (females aged from 50 to 74)</b> | 197, 84.19%                  | 440, 85.44%                   |
| <b>Has had pap smear in past 5 years (females aged from 18 to 70)</b>     | 239, 67.71%                  | 531, 72.05%                   |
| <b>Has had prostate screen in past 5 years (aged over 50)</b>             | 131, 71.58%                  | 283, 74.67%                   |
| <b>Cancer treatment limited by travel distance over 20km</b>              | 42, 6.23%                    | 230, 54.25%                   |
| <b>Cancer treatment within 30 days</b>                                    | 139, 20.62%                  | 280, 69.65%                   |
| <b>Bowel - Cancer Diagnosis</b>   | 29, 4.3%                     | 62, 3.91%                     |
| <b>Breast - Cancer Diagnosis</b>  | 51, 7.57%                    | 118, 7.45%                    |
| <b>Cervical - Cancer Diagnosis</b>  | 2, 0.3%                      | 6, 0.38%                      |
| <b>Kidney - Cancer Diagnosis</b>  | 2, 0.3%                      | 9, 0.57%                      |
| <b>Leukaemia - Cancer Diagnosis</b>                                       | 6, 0.89%                     | 16, 1.01%                     |
| <b>Lung - Cancer Diagnosis</b>  | 9, 1.34%                     | 16, 1.01%                     |
| <b>Lymphoma - Cancer Diagnosis</b>  | 3, 0.45%                     | 6, 0.38%                      |
| <b>Melanoma - Cancer Diagnosis</b>  | 16, 2.37%                    | 43, 2.71%                     |
| <b>Oral-Pharynx - Cancer Diagnosis</b>                                    | 1, 0.15%                     | 7, 0.44%                      |
| <b>Prostate - Cancer Diagnosis</b>  | 43, 6.38%                    | 79, 4.99%                     |
| <b>Stomach - Cancer Diagnosis</b>   | 0, 0%                        | 2, 0.13%                      |
| <b>Testicular - Cancer Diagnosis</b>                                      | 0, 0%                        | 1, 0.06%                      |
| <b>Uterine - Cancer Diagnosis</b>   | 8, 1.19%                     | 13, 0.82%                     |

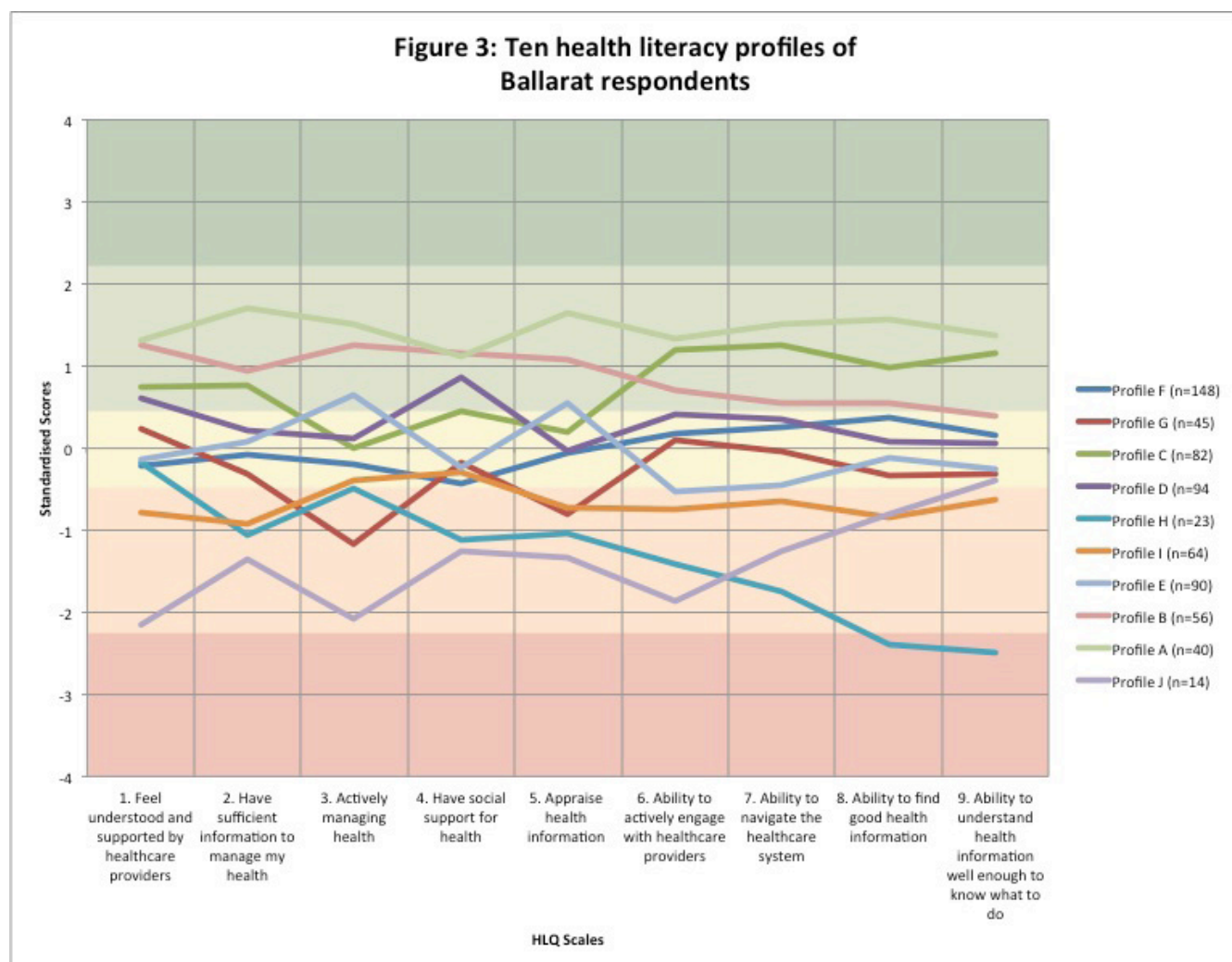
## Ballarat- Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Ballarat residents was one of higher health literacy across domains, relative to residents of other LGAs.



## Ballarat - Health Literacy Profiles

Ten health literacy profiles were identified within the sample of Ballarat respondents (see Figure 3 below).



# Golden Plains Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

## Golden Plains - Key Facts

**Sub-region:** Central Highlands

**Townships:** Bannockburn, Enfield, Inverleigh, Lethbridge, Linton, Meredith, Smythedale and Teesdale

**Main industries:** Agriculture, forestry and fishing, construction, education and training<sup>1</sup>

**Remoteness classification:** Inner regional

**Main public hospitals attended:** Geelong Hospital<sup>2</sup>



|  | Golden Plains | Grampians | Victoria |
|--|---------------|-----------|----------|
| Population size                              | 18917         | 223848    | 5534526  |
| % of population over the age of 65 years     | 10.4          | 16.1      | 14       |
| % of households with broadband internet      | 74.9          | 65.7      | 72.6     |
| Median household income                      | 1217          | NA        | 1216     |
| Median house price                           | 327000        | NA        | 380000   |
| Unemployment rate                            | 4             | 5         | 5.4      |
| % of population who did not complete year 12 | 59.6          | 58        | 43.7     |
| % of persons with private health insurance   | 45            | 38.3      | 48       |
| % current smoker                             | 16.7          | 20.9      | 19.1     |
| % overweight or obese                        | 49.2          | 52.1      | 48.6     |
| % breast screening participation             | 49.5          | 56.7      | 55.9     |
| % cervical cancer participation              | 62.9          | 56.2      | 60.7     |
| % bowel screening participation              | 42.2          | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 5.66          | 6         | 5.13     |
| GPs per 1000 population                      | 45.6          | 0.95      | 1.33     |
| % accessed inpatient care within the region  |               | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 126.4         | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

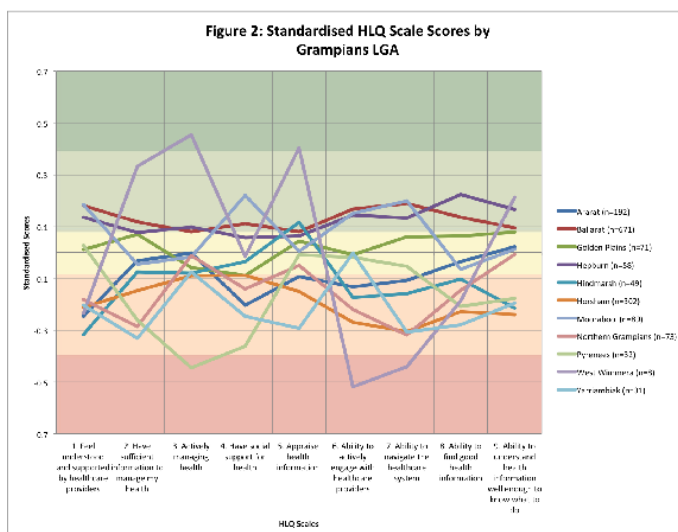
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Golden Plains<br>(n=71)      | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 58.09, 15.36 [54.42 - 61.75] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 36, 50.7%                    | 453, 28.6%                   |
| Female   | 38, 53.52%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 63, 88.73%                   | 1446, 91.87%                 |
| Speaks English at home   | 71, 100%                     | 1558, 98.67%                 |
| Aboriginal/TSI   | 8, 11.27%                    | 196, 12.44%                  |
| Finished high school   | 47, 66.2%                    | 1164, 73.95%                 |
| Employed   | 34, 47.89%                   | 623, 39.51%                  |
| Lives alone  | 15, 21.13%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 10, 14.08%                   | 383, 24.23%                  |
| Outer Regional   | 0, 0%                        | 451, 28.67%                  |
| Has private health insurance                                       | 34, 47.89%                   | 845, 53.86%                  |
| Has a healthcare card  | 34, 47.89%                   | 673, 43.42%                  |
| Family history of cancer   | 30, 42.25%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 27, 38.03%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 6, 8.45%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 42, 59.15%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 41, 57.75%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 20, 28.17%                   | 307, 19.69%                  |
| Smoker   | 10, 14.08%                   | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 43, 60.56%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 45, 63.38%                   | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 30, 56.6%                    | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 18, 69.23%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 21, 70%                      | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 14, 58.33%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 24, 33.8%                    | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 20, 28.17%                   | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 6, 8.45%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 7, 9.86%                     | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 4, 5.63%                     | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 1, 1.41%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 1, 1.41%                     | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 3, 4.23%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 1, 1.41%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 8, 11.27%                    | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 1.41%                     | 13, 0.82%                    |



## Golden Plains- Health Literacy Strengths and Challenges

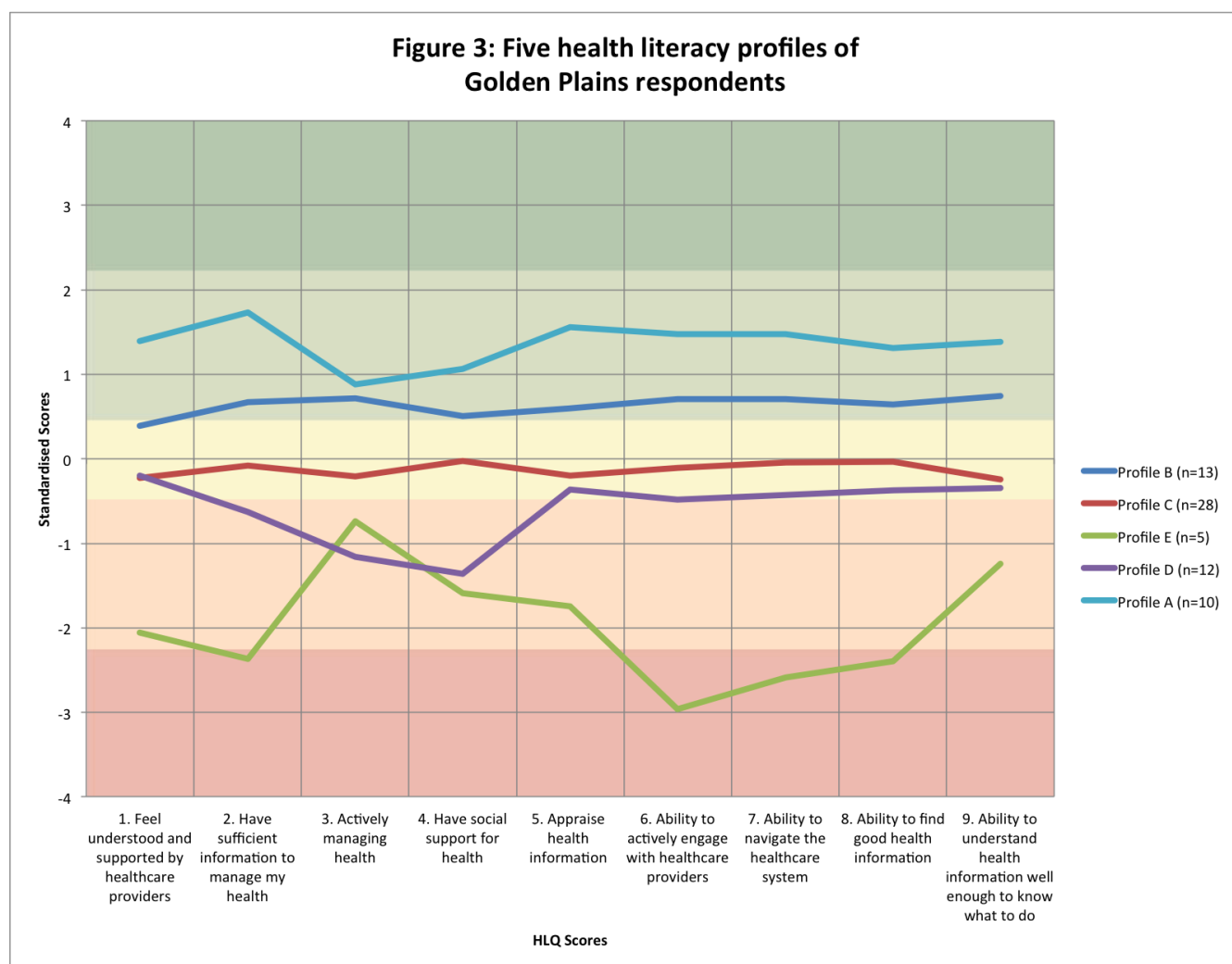
As shown in Figure 2, the health literacy profile of Golden Plains residents was one of moderate health literacy across domains relative to residents of other LGAs.



## Golden Plains - Health Literacy Profiles

Five health literacy profiles were identified within the sample of Golden Plains respondents (see Figure 3 below).

**Figure 3: Five health literacy profiles of Golden Plains respondents**





# Hepburn

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Hepburn - Key Facts

**Sub-region:** Central Highlands

**Townships:** Daylesford, Hepburn Springs, Trentham, Clunes

**Main industries:** Health care and social assistance, Retail trade, Accommodation and food services<sup>1</sup>

**Remoteness classification:** Inner regional

**Main public hospitals attended:** Ballarat Health Services (Base Campus)<sup>2</sup>



|  | Hepburn | Grampians | Victoria |
|--|---------|-----------|----------|
| Population size                              | 14506   | 223848    | 5534526  |
| % of population over the age of 65 years     | 18.9    | 16.1      | 14       |
| % of households with broadband internet      | 65.5    | 65.7      | 72.6     |
| Median household income                      | 850     | NA        | 1216     |
| Median house price                           | 315000  | NA        | 380000   |
| Unemployment rate                            | 5.6     | 5         | 5.4      |
| % of population who did not complete year 12 | 54.2    | 58        | 43.7     |
| % of persons with private health insurance   | 35.7    | 38.3      | 48       |
| % current smoker                             | 17.8    | 20.9      | 19.1     |
| % overweight or obese                        | 46.9    | 52.1      | 48.6     |
| % breast screening participation             | 52.8    | 56.7      | 55.9     |
| % cervical cancer participation              | 63.3    | 56.2      | 60.7     |
| % bowel screening participation              | 35.8    | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 6.55    | 6         | 5.13     |
| GPs per 1000 population                      | 1.3     | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 83.5    | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 99.1    | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

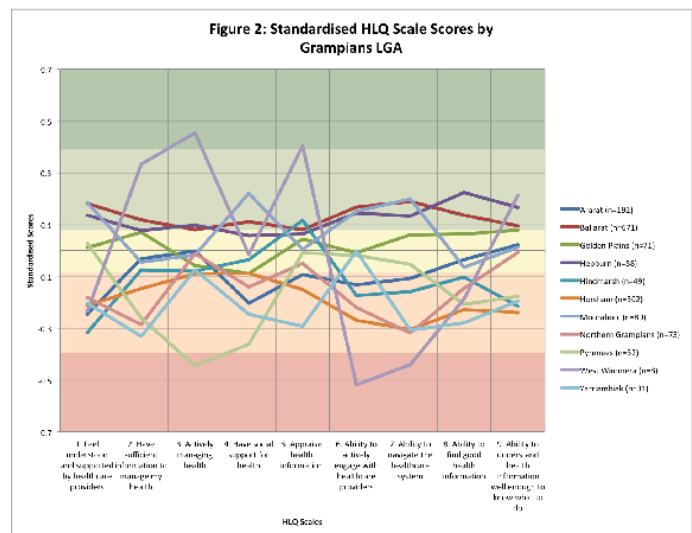
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Hepburn<br>(n=58)            | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 62.60, 12.94 [59.20 - 66.01] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 38, 65.52%                   | 453, 28.6%                   |
| Female   | 38, 65.52%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 51, 87.93%                   | 1446, 91.87%                 |
| Speaks English at home   | 57, 98.28%                   | 1558, 98.67%                 |
| Aboriginal/TSI   | 7, 12.07%                    | 196, 12.44%                  |
| Finished high school   | 40, 68.97%                   | 1164, 73.95%                 |
| Employed   | 18, 31.03%                   | 623, 39.51%                  |
| Lives alone  | 15, 25.86%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 4, 6.9%                      | 383, 24.23%                  |
| Outer Regional   | 0, 0%                        | 451, 28.67%                  |
| Has private health insurance                                       | 34, 58.62%                   | 845, 53.86%                  |
| Has a healthcare card  | 31, 53.45%                   | 673, 43.42%                  |
| Family history of cancer   | 27, 46.55%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 21, 36.21%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 2, 3.45%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 31, 53.45%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 30, 51.72%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 11, 18.97%                   | 307, 19.69%                  |
| Smoker   | 2, 3.45%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 36, 62.07%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 42, 72.41%                   | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 26, 54.17%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 23, 88.46%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 21, 67.74%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 10, 55.56%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 30, 51.72%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 22, 37.93%                   | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 3, 5.17%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 13, 22.41%                   | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 3, 5.17%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 0, 0%                        | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 6, 10.34%                    | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 0, 0%                        | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 5, 8.62%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 1.72%                     | 13, 0.82%                    |

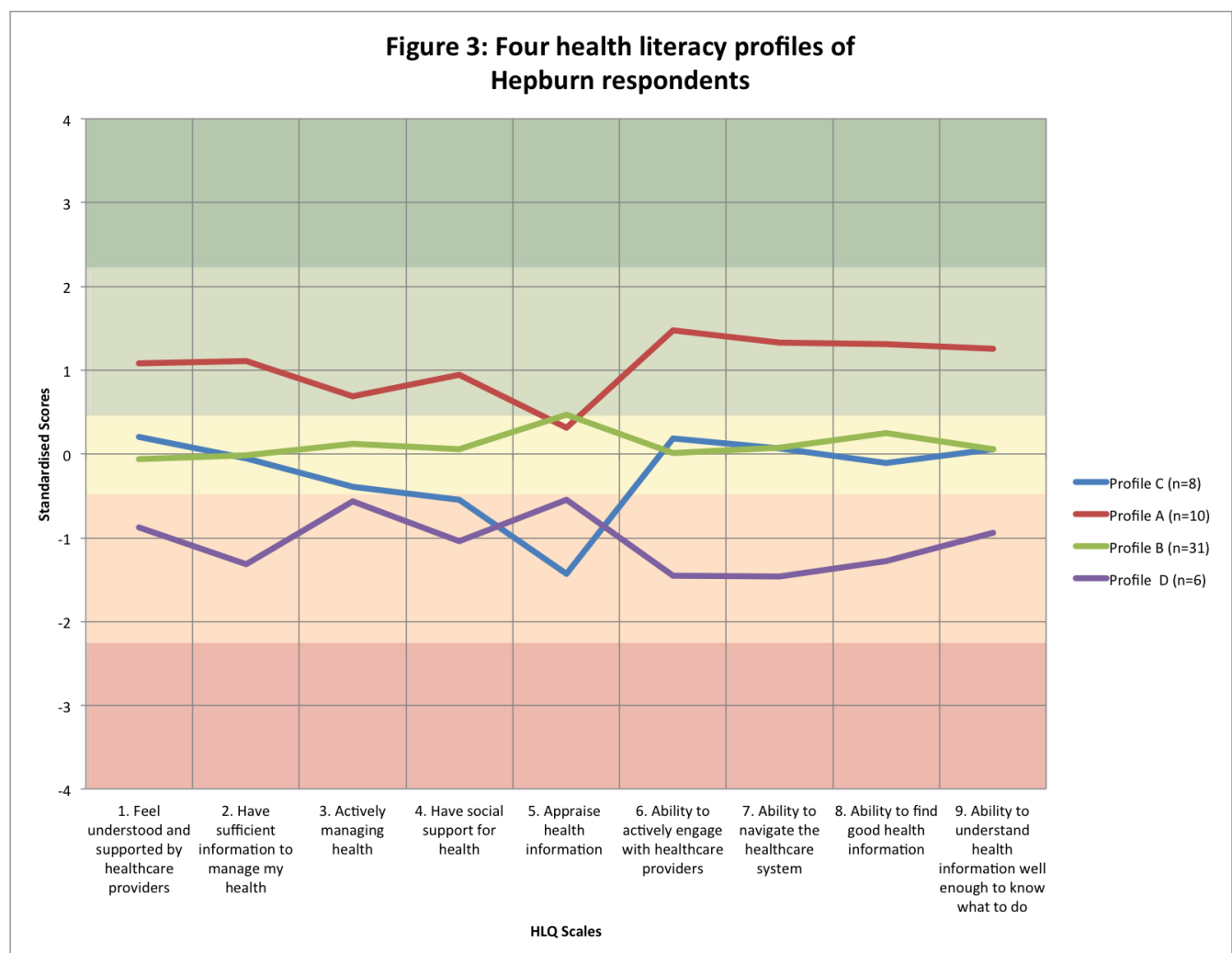
## Hepburn - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Hepburn residents was one of higher health literacy across domains, relative to residents of other LGAs.



## Hepburn - Health Literacy Profiles

Four health literacy profiles were identified within the sample of Hepburn respondents (see Figure 3 below).



# Hindmarsh

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Hindmarsh - Key Facts

**Sub-region:** Wimmera

**Townships:** Nhill, Dimboola, Rainbow Jeparit

**Main industries:** Agriculture, forestry and fishing, Health care and social assistance, Retail trade<sup>1</sup>

**Remoteness classification:** Outer regional

**Main public hospitals attended:** Wimmera base Hospital (Horsham)<sup>2</sup>



|  | Hindmarsh | Grampians | Victoria |
|--|-----------|-----------|----------|
| Population size                              | 5870      | 223848    | 5534526  |
| % of population over the age of 65 years     | 24.1      | 16.1      | 14       |
| % of households with broadband internet      | 56        | 65.7      | 72.6     |
| Median household income                      | 785       | NA        | 1216     |
| Median house price                           | 90000     | NA        | 380000   |
| Unemployment rate                            | 3.8       | 5         | 5.4      |
| % of population who did not complete year 12 | 70.7      | 58        | 43.7     |
| % of persons with private health insurance   | 32.2      | 38.3      | 48       |
| % current smoker                             | 22.5      | 20.9      | 19.1     |
| % overweight or obese                        | 55.8      | 52.1      | 48.6     |
| % breast screening participation             | 58.9      | 56.7      | 55.9     |
| % cervical cancer participation              | 57.8      | 56.2      | 60.7     |
| % bowel screening participation              | 41.2      | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 6.98      | 6         | 5.13     |
| GPs per 1000 population                      | 1.02      | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 91        | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 104.3     | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

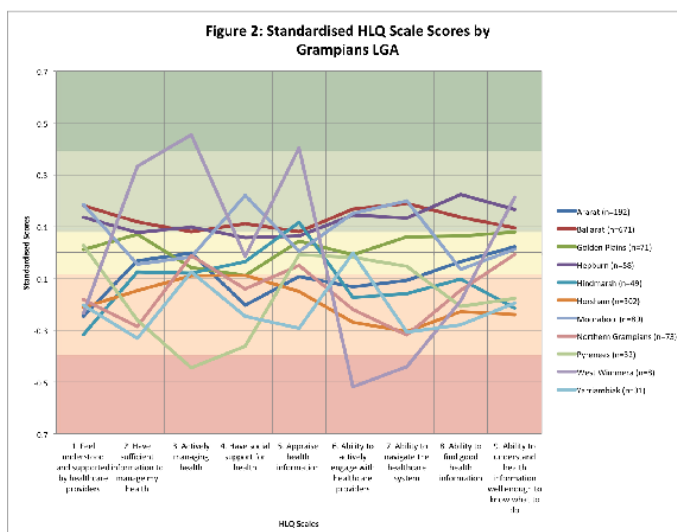
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Hindmarsh<br>(n=49)          | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 56.21, 19.48 [50.49 - 61.93] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 11, 22.45%                   | 453, 28.6%                   |
| Female   | 36, 73.47%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 49, 100%                     | 1446, 91.87%                 |
| Speaks English at home   | 48, 97.96%                   | 1558, 98.67%                 |
| Aboriginal/TSI   | 2, 4.08%                     | 196, 12.44%                  |
| Finished high school   | 33, 67.35%                   | 1164, 73.95%                 |
| Employed   | 15, 30.61%                   | 623, 39.51%                  |
| Lives alone  | 12, 24.49%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 19, 38.78%                   | 383, 24.23%                  |
| Outer Regional   | 44, 89.8%                    | 451, 28.67%                  |
| Has private health insurance                                       | 19, 38.78%                   | 845, 53.86%                  |
| Has a healthcare card  | 22, 44.9%                    | 673, 43.42%                  |
| Family history of cancer   | 28, 57.14%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 11, 22.45%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 2, 4.08%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 32, 65.31%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 28, 57.14%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 3, 6.12%                     | 307, 19.69%                  |
| Smoker   | 4, 8.16%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 34, 69.39%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 40, 81.63%                   | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 16, 59.26%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 12, 92.31%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 19, 79.17%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 4, 66.67%                    | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 7, 14.29%                    | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 6, 12.24%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 1, 2.04%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 5, 10.2%                     | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 0, 0%                        | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 1, 2.04%                     | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 0, 0%                        | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 1, 2.04%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 0, 0%                        | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 0, 0%                        | 13, 0.82%                    |

## Hindmarsh - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Hindmarsh residents was somewhat mixed. On average residents of Hindmarsh reported low scores on scales one [1. *Feel understood and supported by healthcare providers*], six [6. *Ability to actively engage with healthcare providers*], and nine [9. *Ability to understand health information well enough to know what to do*]. Their average scores were however high for scale five [5. *Appraise health information*].



## Hindmarsh - Health Literacy Profiles

The Hindmarsh sample contained too few respondents to allow cluster analysis to be performed.

# Horsham

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Horsham - Key Facts

**Sub-region:** Wimmera

**Townships:** Horsham, Natimuk, Blackheath, Dadswells Bridge

**Main industries:** Health care and social assistance, Retail trade, Agriculture, forestry and fishing<sup>1</sup>

**Remoteness classification:** Outer regional

**Main public hospitals attended:** Wimmera Base Hospital (Horsham)<sup>2</sup>



|  | Horsham | Grampians | Victoria |
|--|---------|-----------|----------|
| Population size                              | 19540   | 223848    | 5534526  |
| % of population over the age of 65 years     | 17.6    | 16.1      | 14       |
| % of households with broadband internet      | 62.5    | 65.7      | 72.6     |
| Median household income                      | 946     | NA        | 1216     |
| Median house price                           | 212000  | NA        | 380000   |
| Unemployment rate                            | 3.8     | 5         | 5.4      |
| % of population who did not complete year 12 | 62      | 58        | 43.7     |
| % of persons with private health insurance   | 38.1    | 38.3      | 48       |
| % current smoker                             | 13.3    | 20.9      | 19.1     |
| % overweight or obese                        | 53.9    | 52.1      | 48.6     |
| % breast screening participation             | 65.1    | 56.7      | 55.9     |
| % cervical cancer participation              | 58.2    | 56.2      | 60.7     |
| % bowel screening participation              | 42      | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 6.09    | 6         | 5.13     |
| GPs per 1000 population                      | 0.86    | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 92.3    | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 92.8    | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

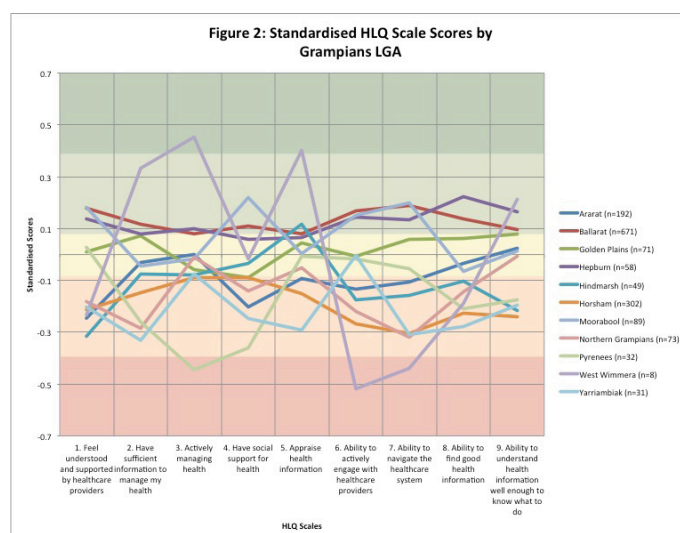
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.



|  | Horsham<br>(n=303)           | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 49.60, 16.76 [47.70 - 51.50] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 29, 9.57%                    | 453, 28.6%                   |
| Female   | 166, 54.79%                  | 976, 61.89%                  |
| Born in Australia/NZ   | 285, 94.06%                  | 1446, 91.87%                 |
| Speaks English at home   | 295, 97.36%                  | 1558, 98.67%                 |
| Aboriginal/TSI   | 12, 3.96%                    | 196, 12.44%                  |
| Finished high school   | 228, 75.25%                  | 1164, 73.95%                 |
| Employed   | 161, 53.14%                  | 623, 39.51%                  |
| Lives alone  | 54, 17.82%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 67, 22.11%                   | 383, 24.23%                  |
| Outer Regional   | 302, 99.67%                  | 451, 28.67%                  |
| Has private health insurance                                       | 141, 46.53%                  | 845, 53.86%                  |
| Has a healthcare card  | 85, 28.05%                   | 673, 43.42%                  |
| Family history of cancer   | 164, 54.13%                  | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 94, 31.02%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 35, 11.55%                   | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 162, 53.47%                  | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 143, 47.19%                  | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 71, 23.43%                   | 307, 19.69%                  |
| Smoker   | 30, 9.9%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 197, 65.02%                  | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 210, 69.31%                  | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 92, 57.86%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 68, 81.93%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 97, 65.99%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 47, 71.21%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 21, 6.93%                    | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 17, 5.61%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 6, 1.98%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 11, 3.63%                    | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 1, 0.33%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 1, 0.33%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 2, 0.66%                     | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 1, 0.33%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 1, 0.33%                     | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 4, 1.32%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 1, 0.33%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 3, 0.99%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 1, 0.33%                     | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 1, 0.33%                     | 13, 0.82%                    |

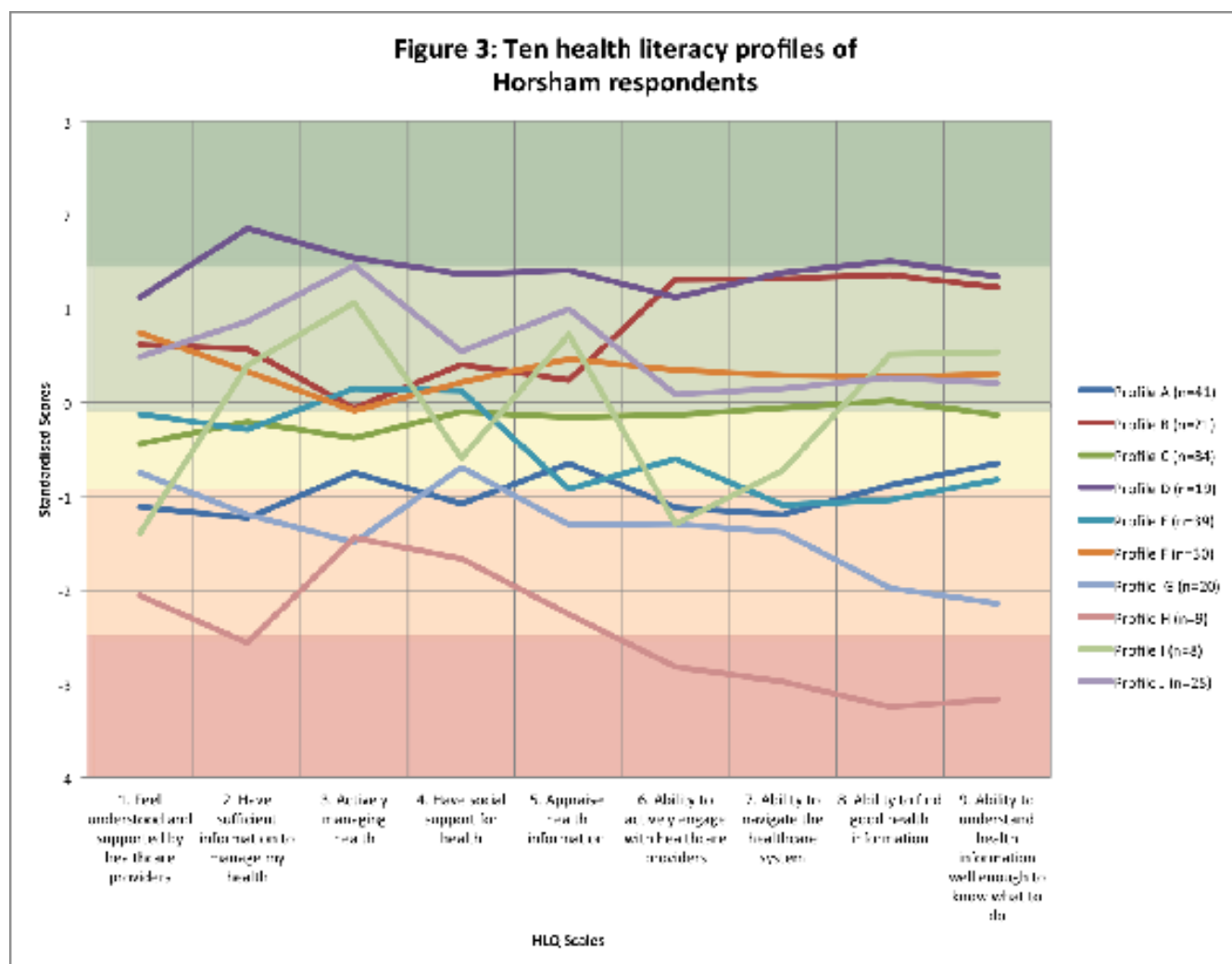
## Horsham - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Horsham residents was one of lower health literacy across domains, relative to residents of other LGAs. Their average scores for scales three (3. *Actively managing my health*) and four (4. *Social support for health*) were moderate.



## Horsham - Health Literacy Profiles

Ten health literacy profiles were identified within the sample of Horsham respondents (see Figure 3 below).



# Moorabool

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Moorabool - Key Facts

**Sub-region:** Central Highlands

**Townships:** Ballan, Bacchus Marsh

**Main industries:** Construction, Health care and social assistance, Retail trade, Manufacturing<sup>1</sup>

**Remoteness classification:** Inner Regional

**Main public hospitals attended:** Ballarat Health Services (Base Campus)<sup>2</sup>



|  | Moorabool | Grampians | Victoria |
|--|-----------|-----------|----------|
| Population size                              | 28600     | 223848    | 5534526  |
| % of population over the age of 65 years     | 12.5      | 16.1      | 14       |
| % of households with broadband internet      | 70.3      | 65.7      | 72.6     |
| Median household income                      | 1183      | NA        | 1216     |
| Median house price                           | 308000    | NA        | 380000   |
| Unemployment rate                            | 4         | 5         | 5.4      |
| % of population who did not complete year 12 | 58.3      | 58        | 43.7     |
| % of persons with private health insurance   | 42.5      | 38.3      | 48       |
| % current smoker                             | 18.4      | 20.9      | 19.1     |
| % overweight or obese                        | 53.1      | 52.1      | 48.6     |
| % breast screening participation             | 53.4      | 56.7      | 55.9     |
| % cervical cancer participation              | 58.2      | 56.2      | 60.7     |
| % bowel screening participation              | 38.7      | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 5.42      | 6         | 5.13     |
| GPs per 1000 population                      | 0.77      | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 51        | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 89.7      | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

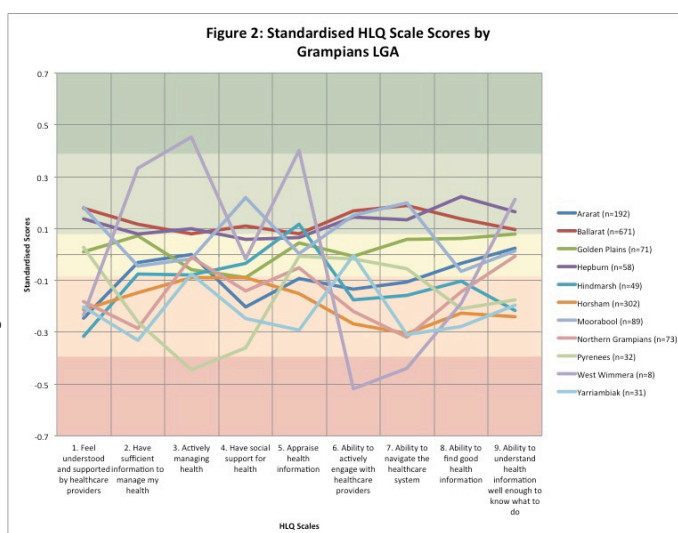
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|   | <b>Moorabool<br/>(n=89)</b>  | <b>Grampians<br/>(n=1584)</b> |
|---|------------------------------|-------------------------------|
| <b>Participant Age (M, SD [95% CI])</b>                                   | 63.13, 15.73 [59.77 - 66.48] | 56.19, 16.97 [55.37 - 57.00]  |
| <b>Cancer Cohort</b>  | 33, 37.08%                   | 453, 28.6%                    |
| <b>Female</b>   | 50, 56.18%                   | 976, 61.89%                   |
| <b>Born in Australia/NZ</b>   | 77, 86.52%                   | 1446, 91.87%                  |
| <b>Speaks English at home</b>   | 89, 100%                     | 1558, 98.67%                  |
| <b>Aboriginal/TSI</b>   | 9, 10.11%                    | 196, 12.44%                   |
| <b>Finished high school</b>   | 59, 66.29%                   | 1164, 73.95%                  |
| <b>Employed</b>   | 22, 24.72%                   | 623, 39.51%                   |
| <b>Lives alone</b>  | 17, 19.1%                    | 338, 21.51%                   |
| <b>SEIFA Disadvantage Percentile →= 60</b>                                | 2, 2.25%                     | 383, 24.23%                   |
| <b>Outer Regional</b>   | 0, 0%                        | 451, 28.67%                   |
| <b>Has private health insurance</b>                                       | 44, 49.44%                   | 845, 53.86%                   |
| <b>Has a healthcare card</b>  | 46, 51.69%                   | 673, 43.42%                   |
| <b>Family history of cancer</b>   | 50, 56.18%                   | 814, 62.86%                   |
| <b>Overweight or Obese (BMI → 25)</b>                                     | 28, 31.46%                   | 506, 35.48%                   |
| <b>Eats takeaway 2 or more times a week</b>                               | 10, 11.24%                   | 145, 9.28%                    |
| <b>Eats vegetables 3 or more times a day</b>                              | 48, 53.93%                   | 892, 57.18%                   |
| <b>Eats fruit 2 or more times a day</b>                                   | 38, 42.7%                    | 815, 52.08%                   |
| <b>Drinks alcohol 3 or more times a day</b>                               | 14, 15.73%                   | 307, 19.69%                   |
| <b>Smoker</b>   | 10, 11.24%                   | 163, 10.4%                    |
| <b>Sets aside time for healthy activities most days</b>                   | 59, 66.29%                   | 1077, 70.39%                  |
| <b>Does physical activity for at least 30 minutes most days</b>           | 70, 78.65%                   | 1115, 72.07%                  |
| <b>Has had bowel screen in past 5 years (aged over 50)</b>                | 34, 47.89%                   | 640, 66.81%                   |
| <b>Has had breast screen in past 5 years (females aged from 50 to 74)</b> | 25, 86.21%                   | 440, 85.44%                   |
| <b>Has had pap smear in past 5 years (females aged from 18 to 70)</b>     | 29, 82.86%                   | 531, 72.05%                   |
| <b>Has had prostate screen in past 5 years (aged over 50)</b>             | 23, 74.19%                   | 283, 74.67%                   |
| <b>Cancer treatment limited by travel distance over 20km</b>              | 27, 30.34%                   | 230, 54.25%                   |
| <b>Cancer treatment within 30 days</b>                                    | 18, 20.22%                   | 280, 69.65%                   |
| <b>Bowel - Cancer Diagnosis</b>   | 3, 3.37%                     | 62, 3.91%                     |
| <b>Breast - Cancer Diagnosis</b>  | 8, 8.99%                     | 118, 7.45%                    |
| <b>Cervical - Cancer Diagnosis</b>  | 0, 0%                        | 6, 0.38%                      |
| <b>Kidney - Cancer Diagnosis</b>  | 2, 2.25%                     | 9, 0.57%                      |
| <b>Leukaemia - Cancer Diagnosis</b>                                       | 3, 3.37%                     | 16, 1.01%                     |
| <b>Lung - Cancer Diagnosis</b>  | 1, 1.12%                     | 16, 1.01%                     |
| <b>Lymphoma - Cancer Diagnosis</b>  | 0, 0%                        | 6, 0.38%                      |
| <b>Melanoma - Cancer Diagnosis</b>  | 3, 3.37%                     | 43, 2.71%                     |
| <b>Oral-Pharynx - Cancer Diagnosis</b>                                    | 0, 0%                        | 7, 0.44%                      |
| <b>Prostate - Cancer Diagnosis</b>  | 5, 5.62%                     | 79, 4.99%                     |
| <b>Stomach - Cancer Diagnosis</b>   | 0, 0%                        | 2, 0.13%                      |
| <b>Testicular - Cancer Diagnosis</b>                                      | 1, 1.12%                     | 1, 0.06%                      |
| <b>Uterine - Cancer Diagnosis</b>   | 1, 1.12%                     | 13, 0.82%                     |

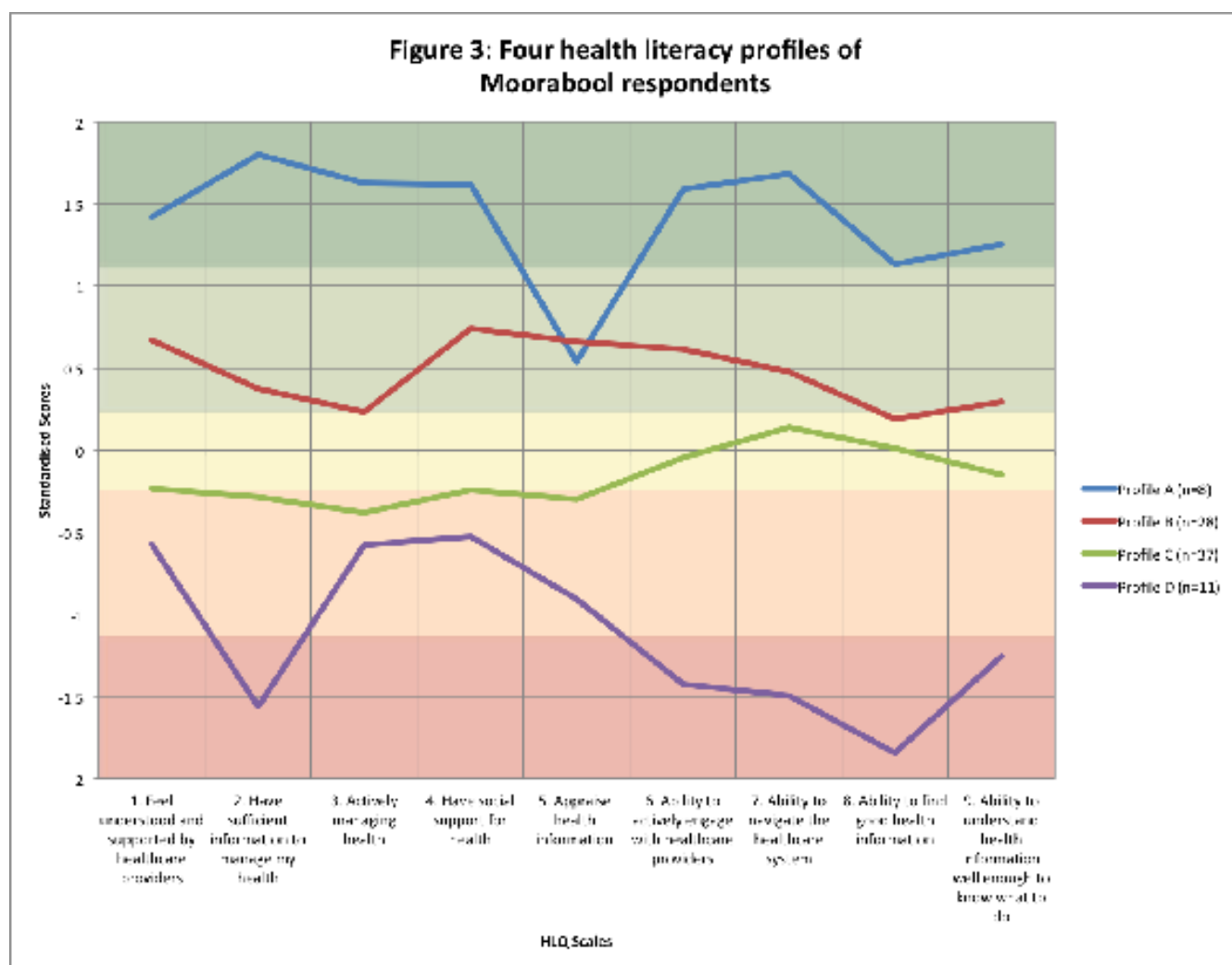
## Moorabool - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Moorabool residents was moderate to high health literacy across domains. Relative to residence of other LGAs, Moorabool residents reported high scores on scales one (1. *Feel understood and supported by healthcare providers*), four (4. *Social support for health*), and seven (7. *Ability to navigate the healthcare system*).



## Moorabool - Health Literacy Profiles

Four health literacy profiles were identified within the sample of Moorabool respondents (see Figure 3 below).



# Northern Grampians Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

## Northern Grampians - Key Facts

**Sub-region:** Grampians Pyrenees

**Townships:** Glenorchy, Great Western, Halls Gap, Marnoo, Navarre, St Arnaud, Stawell, Stuart Mill

**Main industries:** Health care and social assistance, Agriculture, forestry and fishing, Manufacturing<sup>1</sup>

**Remoteness classification:** Inner and Outer regional

**Main public hospitals attended:** Stawell Regional Health<sup>2</sup>



|  | Northern Grampians | Grampians | Victoria |
|--|--------------------|-----------|----------|
| Population size                              | 11942              | 223848    | 5534526  |
| % of population over the age of 65 years     | 20.1               | 16.1      | 14       |
| % of households with broadband internet      | 58.5               | 65.7      | 72.6     |
| Median household income                      | 815                | NA        | 1216     |
| Median house price                           | 172500             | NA        | 380000   |
| Unemployment rate                            | 4.7                | 5         | 5.4      |
| % of population who did not complete year 12 | 66                 | 58        | 43.7     |
| % of persons with private health insurance   | 33.8               | 38.3      | 48       |
| % current smoker                             | 17.5               | 20.9      | 19.1     |
| % overweight or obese                        | 53                 | 52.1      | 48.6     |
| % breast screening participation             | 60.2               | 56.7      | 55.9     |
| % cervical cancer participation              | 54.1               | 56.2      | 60.7     |
| % bowel screening participation              | 39.2               | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 6.62               | 6         | 5.13     |
| GPs per 1000 population                      | 0.89               | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 84.4               | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 138.6              | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 - Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

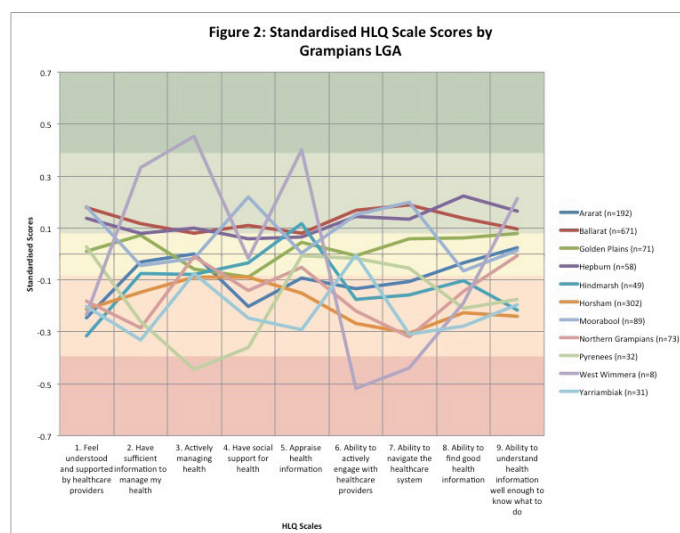
12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Northern Grampians<br>(n=74) | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 58.59, 17.55 [54.53 - 62.66] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 30, 40.54%                   | 453, 28.6%                   |
| Female   | 51, 68.92%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 74, 100%                     | 1446, 91.87%                 |
| Speaks English at home   | 73, 98.65%                   | 1558, 98.67%                 |
| Aboriginal/TSI   | 10, 13.51%                   | 196, 12.44%                  |
| Finished high school   | 53, 71.62%                   | 1164, 73.95%                 |
| Employed   | 34, 45.95%                   | 623, 39.51%                  |
| Lives alone  | 20, 27.03%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 64, 86.49%                   | 383, 24.23%                  |
| Outer Regional   | 31, 41.89%                   | 451, 28.67%                  |
| Has private health insurance                                       | 42, 56.76%                   | 845, 53.86%                  |
| Has a healthcare card  | 31, 41.89%                   | 673, 43.42%                  |
| Family history of cancer   | 43, 58.11%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 24, 32.43%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 6, 8.11%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 50, 67.57%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 36, 48.65%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 13, 17.57%                   | 307, 19.69%                  |
| Smoker   | 6, 8.11%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 45, 60.81%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 51, 68.92%                   | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 41, 75.93%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 21, 75%                      | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 22, 57.89%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 12, 75%                      | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 28, 37.84%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 20, 27.03%                   | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 5, 6.76%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 11, 14.86%                   | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 1, 1.35%                     | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 1, 1.35%                     | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 4, 5.41%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 2, 2.7%                      | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 4, 5.41%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 0, 0%                        | 13, 0.82%                    |



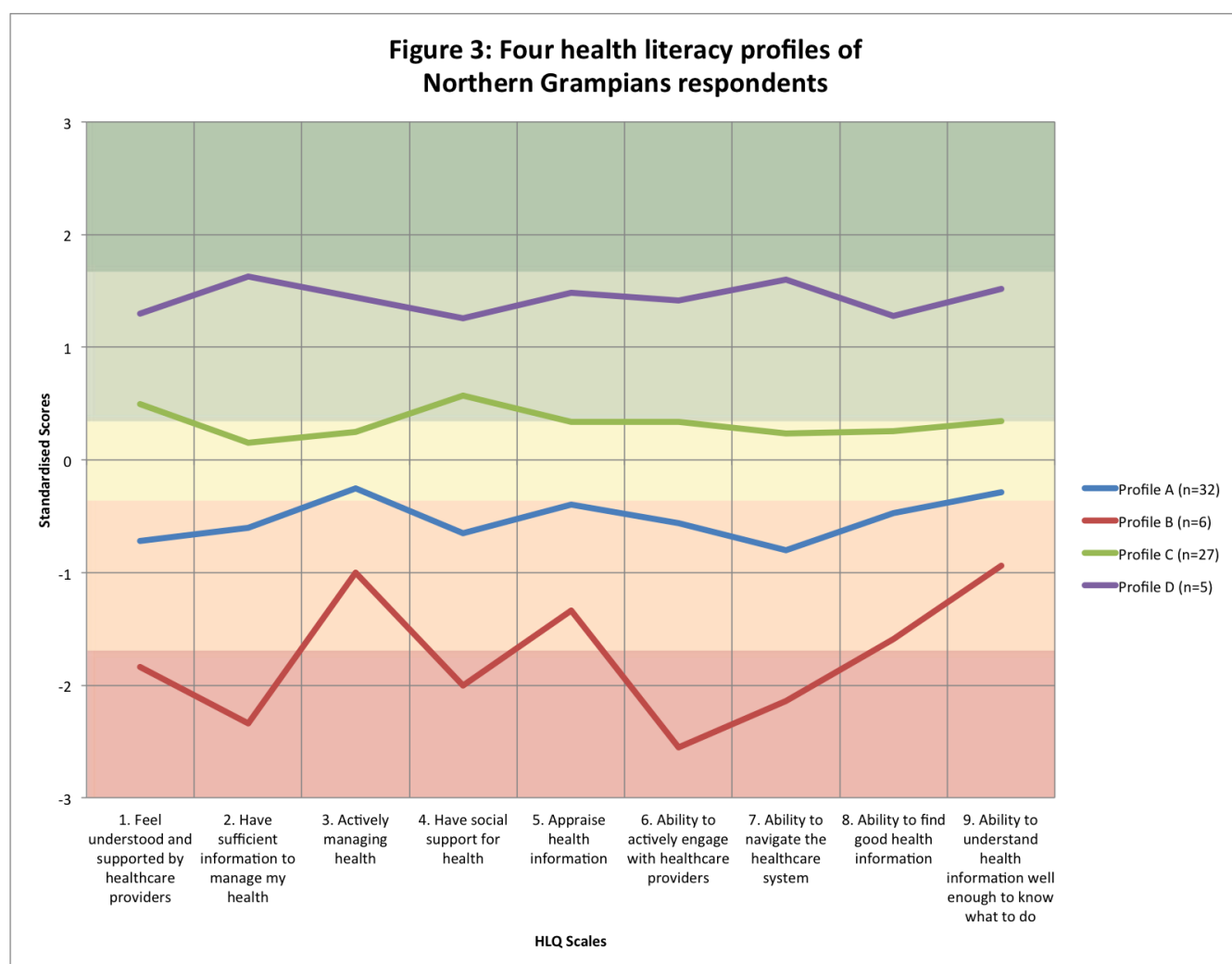
## Northern Grampians - Health Literacy Strengths and Challenges

As shown in Figure 2, the Northern Grampians residents reported moderate to low health literacy across domains, relative to residents of other LGAs.



## Northern Grampians - Health Literacy Profiles

Four health literacy profiles were identified within the sample of Northern Grampians respondents (see



# Pyrenees

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Pyrenees - Key Facts

**Sub-region:** Grampians Pyrenees

**Townships:** Beaufort, Avoca

**Main industries:** Agriculture, forestry and fishing, Manufacturing, Health care and social assistance<sup>1</sup>

**Remoteness classification:** Inner and Outer Regional

**Main public hospitals attended:** Ballarat Health Services (Base Campus)<sup>2</sup>



|  | Pyrenees | Grampians | Victoria |
|--|----------|-----------|----------|
| Population size                              | 6727     | 223848    | 5534526  |
| % of population over the age of 65 years     | 21.9     | 16.1      | 14       |
| % of households with broadband internet      | 58       | 65.7      | 72.6     |
| Median household income                      | 732      | NA        | 1216     |
| Median house price                           | 170500   | NA        | 380000   |
| Unemployment rate                            | 5.2      | 5         | 5.4      |
| % of population who did not complete year 12 | 67.1     | 58        | 43.7     |
| % of persons with private health insurance   | 33.2     | 38.3      | 48       |
| % current smoker                             | 31.4     | 20.9      | 19.1     |
| % overweight or obese                        | 56.7     | 52.1      | 48.6     |
| % breast screening participation             | 45.9     | 56.7      | 55.9     |
| % cervical cancer participation              | 52.1     | 56.2      | 60.7     |
| % bowel screening participation              | 38       | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 7.58     | 6         | 5.13     |
| GPs per 1000 population                      | 0.68     | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 75.8     | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 101.2    | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

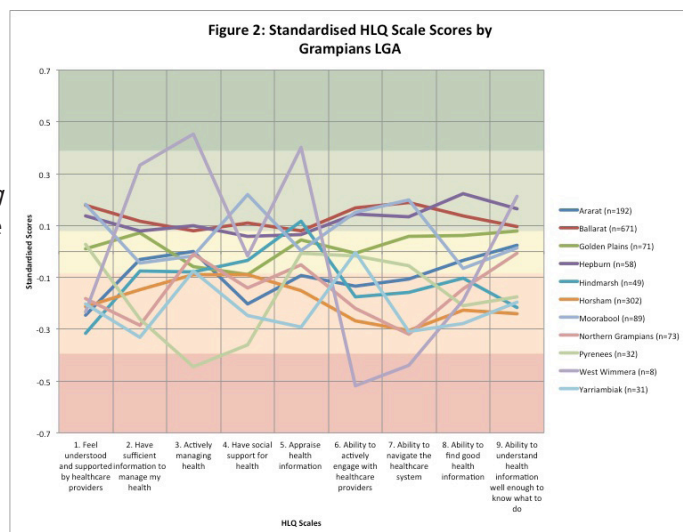
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Pyrenees<br>(n=32)           | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 59.03, 15.77 [53.25 - 64.82] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 16, 50%                      | 453, 28.6%                   |
| Female   | 22, 68.75%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 30, 93.75%                   | 1446, 91.87%                 |
| Speaks English at home   | 32, 100%                     | 1558, 98.67%                 |
| Aboriginal/TSI   | 3, 9.38%                     | 196, 12.44%                  |
| Finished high school   | 21, 65.62%                   | 1164, 73.95%                 |
| Employed   | 11, 34.38%                   | 623, 39.51%                  |
| Lives alone  | 11, 34.38%                   | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 21, 65.62%                   | 383, 24.23%                  |
| Outer Regional   | 8, 25%                       | 451, 28.67%                  |
| Has private health insurance                                       | 14, 43.75%                   | 845, 53.86%                  |
| Has a healthcare card  | 19, 59.38%                   | 673, 43.42%                  |
| Family history of cancer   | 15, 46.88%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 11, 34.38%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 4, 12.5%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 17, 53.12%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 10, 31.25%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 8, 25%                       | 307, 19.69%                  |
| Smoker   | 2, 6.25%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 18, 56.25%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 20, 62.5%                    | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 11, 47.83%                   | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 10, 83.33%                   | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 11, 68.75%                   | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 7, 87.5%                     | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 15, 46.88%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 12, 37.5%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 1, 3.12%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 2, 6.25%                     | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 1, 3.12%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 0, 0%                        | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 2, 6.25%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 1, 3.12%                     | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 2, 6.25%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 1, 3.12%                     | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 0, 0%                        | 13, 0.82%                    |

## Pyrenees - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Pyrenees residents was somewhat mixed. On average, their HLQ scores for scales three (*3. Actively managing my health*), and four (*4. Social support for health*) were relatively low.



## Pyrenees - Health Literacy Profiles

The Pyrenees sample contained too few respondents to allow cluster analysis to be performed.

# West Wimmera Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

## West Wimmera - Key Facts

**Sub-region:** Wimmera

**Townships:** Edenhope, Kaniva, Harrow, Goroke, Serviceton, Dergholm, Apsley

**Main industries:** Agriculture, forestry and fishing, Health care and social assistance, Public administration and safety<sup>1</sup>

**Remoteness classification:** Outer Regional

**Main public hospitals attended:** Wimmera base Hospital (Horsham)<sup>2</sup>



|  | West Wimmera | Grampians | Victoria |
|--|--------------|-----------|----------|
| Population size                              | 4289         | 223848    | 5534526  |
| % of population over the age of 65 years     | 21.5         | 16.1      | 14       |
| % of households with broadband internet      | 57.9         | 65.7      | 72.6     |
| Median household income                      | 815          | NA        | 1216     |
| Median house price                           | 85000        | NA        | 380000   |
| Unemployment rate                            | 2.7          | 5         | 5.4      |
| % of population who did not complete year 12 | 69           | 58        | 43.7     |
| % of persons with private health insurance   | 36.2         | 38.3      | 48       |
| % current smoker                             | 23.2         | 20.9      | 19.1     |
| % overweight or obese                        | 61.5         | 52.1      | 48.6     |
| % breast screening participation             | 56.6         | 56.7      | 55.9     |
| % cervical cancer participation              | 49.5         | 56.2      | 60.7     |
| % bowel screening participation              | 40.5         | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 10.73        | 6         | 5.13     |
| GPs per 1000 population                      | 0.29         | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 87.1         | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 97.1         | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

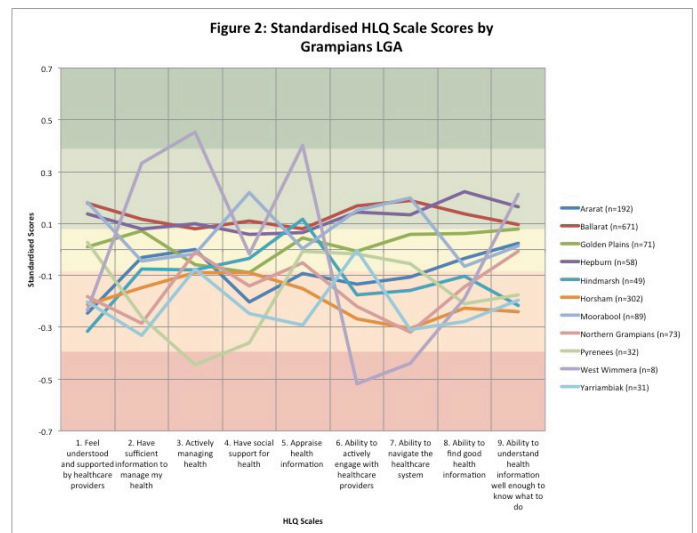
11. GPs per 1,000 population [2013] – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | West Wimmera<br>(n=8)        | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 46.75, 17.51 [32.11 - 61.39] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 5, 62.5%                     | 453, 28.6%                   |
| Female   | 5, 62.5%                     | 976, 61.89%                  |
| Born in Australia/NZ   | 8, 100%                      | 1446, 91.87%                 |
| Speaks English at home   | 8, 100%                      | 1558, 98.67%                 |
| Aboriginal/TSI   | 0, 0%                        | 196, 12.44%                  |
| Finished high school   | 7, 87.5%                     | 1164, 73.95%                 |
| Employed   | 5, 62.5%                     | 623, 39.51%                  |
| Lives alone  | 1, 12.5%                     | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 0, 0%                        | 383, 24.23%                  |
| Outer Regional   | 8, 100%                      | 451, 28.67%                  |
| Has private health insurance                                       | 6, 75%                       | 845, 53.86%                  |
| Has a healthcare card  | 1, 12.5%                     | 673, 43.42%                  |
| Family history of cancer   | 6, 75%                       | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 1, 12.5%                     | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 0, 0%                        | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 6, 75%                       | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 8, 100%                      | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 1, 12.5%                     | 307, 19.69%                  |
| Smoker   | 1, 12.5%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 6, 75%                       | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 7, 87.5%                     | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 2, 66.67%                    | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 1, 100%                      | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 4, 100%                      | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 2, 100%                      | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 4, 50%                       | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 3, 37.5%                     | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 0, 0%                        | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 0, 0%                        | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 0, 0%                        | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 0, 0%                        | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 2, 25%                       | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 0, 0%                        | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 0, 0%                        | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 0, 0%                        | 13, 0.82%                    |

## West Wimmera - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of West Wimmera residents was very mixed. On average residents of West Wimmera reported low scores on scales one (*1. Feel understood and supported by healthcare providers*), six (*6. Ability to actively engage with healthcare providers*), seven (*7. Ability to navigate the healthcare system*), and eight (*8. Ability to find good health information*). Their average scores were however high for scales two (*2. Have sufficient information to manage my health*), three (*3. Actively managing my health*), five (*5. Appraise health information*), and nine (*9. Ability to understand health information well enough to know what to do*).



## West Wimmera - Health Literacy Profiles

The West Wimmera sample contained too few respondents to allow cluster analysis to be performed.



# Yarriambiak

## Health Literacy Report

LGA Health Literacy Reports provide a snapshot of the health literacy strengths and challenges of residents within a Local Government Area (LGA).

### Yarriambiak - Key Facts

**Sub-region:** Wimmera

**Townships:** Warracknabeal, Beulah, Brim, Hopetoun, Lubeck, Minyip, Rapanyup, Tempy, Yaapeet

**Main industries:** Agriculture, forestry and fishing, Retail trade, Education and training<sup>1</sup>

**Remoteness classification:** Outer Regional

**Main public hospitals attended:** Wimmera Base Hospital (Horsham)<sup>2</sup>



|  | Yarriambiak | Grampians | Victoria |
|--|-------------|-----------|----------|
| Population size                              | 7153        | 223848    | 5534526  |
| % of population over the age of 65 years     | 24.4        | 16.1      | 14       |
| % of households with broadband internet      | 56.1        | 65.7      | 72.6     |
| Median household income                      | 773         | NA        | 1216     |
| Median house price                           | 83500       | NA        | 380000   |
| Unemployment rate                            | 3.4         | 5         | 5.4      |
| % of population who did not complete year 12 | 70.8        | 58        | 43.7     |
| % of persons with private health insurance   | 32.4        | 38.3      | 48       |
| % current smoker                             | 22.5        | 20.9      | 19.1     |
| % overweight or obese                        | 58          | 52.1      | 48.6     |
| % breast screening participation             | 58.6        | 56.7      | 55.9     |
| % cervical cancer participation              | 50.7        | 56.2      | 60.7     |
| % bowel screening participation              | 35.9        | 41        | 37.1     |
| Total malignant cancers diagnosed per 1000   | 7.83        | 6         | 5.13     |
| GPs per 1000 population                      | 0.84        | 0.95      | 1.33     |
| % accessed inpatient care within the region  | 82.8        | 82.2      | NA       |
| Avoidable mortality from cancers per 100,000 | 119.3       | NA        | 103      |

1. Australian Bureau of Statistics, 2011 – Census 2011

2. Department of Health, Victorian Admitted Episodes Dataset, 2011-12.

3. Australian Bureau of Statistics, 2012 – Estimated Resident Population at 30 June 2011

4. Valuer-General Victoria, 2011 – Guide to Property Values 2011.

5. Department of Employment and Workplace Relations – Small area labour markets, September quarter 2012

6. Department of Health – Victorian Population Health Survey, 2008.

7. Breast Screen Victoria, 2010-11

8. Victorian Cervical Cytology Register – statistical report, 2010

9. Public Health Information Development Unit (PHIDU) – Social Health Atlas of Victorian Local Government Areas, 2011

10. Cancer Council of Victoria – Victorian Cancer Registry, 2011.

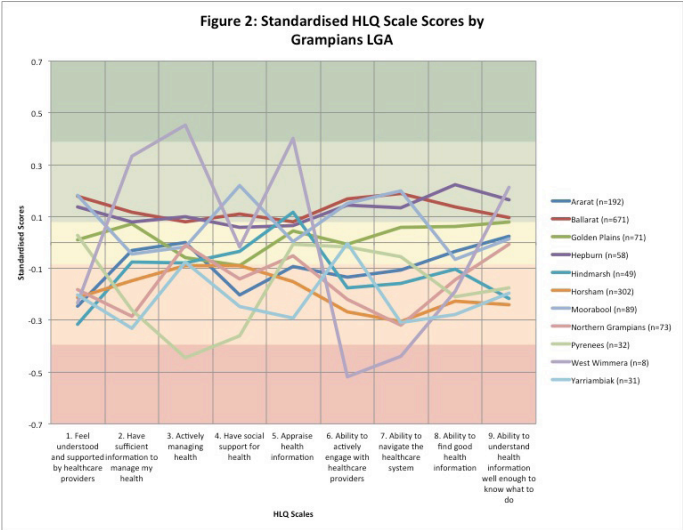
11. GPs per 1,000 population (2013) – Medical Directory of Australia; GP attendances (2009-10) – PHIDU Social Health Atlas; Estimated Resident Population – ABS, 2011

12. Victorian Injury Surveillance Unit, Monash University, data extracted from VAED, 2011-12.

|  | Yarriambiak<br>(n=31)        | Grampians<br>(n=1584)        |
|--|------------------------------|------------------------------|
| Participant Age (M, SD [95% CI])                                   | 60.97, 15.93 [55.12 - 66.81] | 56.19, 16.97 [55.37 - 57.00] |
| Cancer Cohort  | 10, 32.26%                   | 453, 28.6%                   |
| Female   | 11, 35.48%                   | 976, 61.89%                  |
| Born in Australia/NZ   | 28, 90.32%                   | 1446, 91.87%                 |
| Speaks English at home   | 31, 100%                     | 1558, 98.67%                 |
| Aboriginal/TSI   | 1, 3.23%                     | 196, 12.44%                  |
| Finished high school   | 18, 58.06%                   | 1164, 73.95%                 |
| Employed   | 10, 32.26%                   | 623, 39.51%                  |
| Lives alone  | 7, 22.58%                    | 338, 21.51%                  |
| SEIFA Disadvantage Percentile →= 60                                | 1, 3.23%                     | 383, 24.23%                  |
| Outer Regional   | 28, 90.32%                   | 451, 28.67%                  |
| Has private health insurance                                       | 13, 41.94%                   | 845, 53.86%                  |
| Has a healthcare card  | 16, 51.61%                   | 673, 43.42%                  |
| Family history of cancer   | 20, 64.52%                   | 814, 62.86%                  |
| Overweight or Obese (BMI → 25)                                     | 16, 51.61%                   | 506, 35.48%                  |
| Eats takeaway 2 or more times a week                               | 1, 3.23%                     | 145, 9.28%                   |
| Eats vegetables 3 or more times a day                              | 16, 51.61%                   | 892, 57.18%                  |
| Eats fruit 2 or more times a day                                   | 13, 41.94%                   | 815, 52.08%                  |
| Drinks alcohol 3 or more times a day                               | 9, 29.03%                    | 307, 19.69%                  |
| Smoker   | 3, 9.68%                     | 163, 10.4%                   |
| Sets aside time for healthy activities most days                   | 21, 67.74%                   | 1077, 70.39%                 |
| Does physical activity for at least 30 minutes most days           | 23, 74.19%                   | 1115, 72.07%                 |
| Has had bowel screen in past 5 years (aged over 50)                | 11, 44%                      | 640, 66.81%                  |
| Has had breast screen in past 5 years (females aged from 50 to 74) | 9, 100%                      | 440, 85.44%                  |
| Has had pap smear in past 5 years (females aged from 18 to 70)     | 5, 55.56%                    | 531, 72.05%                  |
| Has had prostate screen in past 5 years (aged over 50)             | 11, 73.33%                   | 283, 74.67%                  |
| Cancer treatment limited by travel distance over 20km              | 10, 32.26%                   | 230, 54.25%                  |
| Cancer treatment within 30 days                                    | 7, 22.58%                    | 280, 69.65%                  |
| Bowel - Cancer Diagnosis   | 1, 3.23%                     | 62, 3.91%                    |
| Breast - Cancer Diagnosis  | 2, 6.45%                     | 118, 7.45%                   |
| Cervical - Cancer Diagnosis  | 1, 3.23%                     | 6, 0.38%                     |
| Kidney - Cancer Diagnosis  | 0, 0%                        | 9, 0.57%                     |
| Leukaemia - Cancer Diagnosis                                       | 1, 3.23%                     | 16, 1.01%                    |
| Lung - Cancer Diagnosis  | 0, 0%                        | 16, 1.01%                    |
| Lymphoma - Cancer Diagnosis  | 0, 0%                        | 6, 0.38%                     |
| Melanoma - Cancer Diagnosis  | 1, 3.23%                     | 43, 2.71%                    |
| Oral-Pharynx - Cancer Diagnosis                                    | 0, 0%                        | 7, 0.44%                     |
| Prostate - Cancer Diagnosis  | 2, 6.45%                     | 79, 4.99%                    |
| Stomach - Cancer Diagnosis   | 0, 0%                        | 2, 0.13%                     |
| Testicular - Cancer Diagnosis                                      | 0, 0%                        | 1, 0.06%                     |
| Uterine - Cancer Diagnosis   | 0, 0%                        | 13, 0.82%                    |

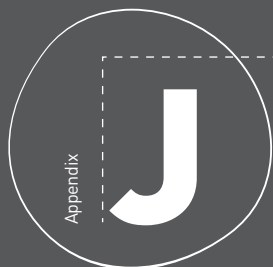
# Yarriambiak - Health Literacy Strengths and Challenges

As shown in Figure 2, the health literacy profile of Yarriambiak residents was moderate to low health literacy across domains.



## Yarriambiak - Health Literacy Profiles

The Yarriambiak sample contained too few respondents to allow cluster analysis to be performed.



# Interview Themes

Six themes relating to respondent skills and attributes for health and health service engagement, emerged from interviews with community members and people with cancer. Six themes relating to barriers and enablers to health service and information engagement, also emerged.

## Six themes relating to respondent skills and attributes for health and health service engagement, derived from interviews with community members and people with cancer

**1. Competing priorities.** Several interviewees indicated health was not a priority for them, therefore they had little engagement in healthy activities or with healthcare services. *(community sample)*

"I keep active. I try to, I don't probably do as much exercise as I should but I do, because I work five days a week, I'm active." IDAR523

"I just finished work 2 weeks ago and I have bloated. I'm not looking after things as much as I could but my husband is launching into another manic episode so it's not a great place to be." IDCC1189

"I don't go out of my way to be healthy ... I probably should." AR222

**2. Co-morbid medical conditions** were reported by participants as factors that limited their ability to actively manage their health. Conditions such as obesity, stroke, diabetes and crohns disease were reported by participants as barriers to exercising. *(community sample)*

"I mean apart from going to the pool and doing exercises in the pool, I cant keep doing that because I keep getting chest infections and UTI's from the pool so I cant keep going. So he says I wont get any better until I lose weight which he thinks is 50 kilos so yeah I suppose he and I are at a standstill at the minute." IDAR94

"I've got arthritis and its easier to ride my bike than walk but you get out and do what you can." IDCC1049

"I'm trying to walk a bit which I cant do on my own, I need to have someone with me. When I'm well enough to drive I walk around the supermarket. I cant walk up and down hills, I need to have someone with me. I don't have a lot of people that can help me here. Some have offered but I cant get in and out of the car." IDCC1601

**3. Support from family and friends** was identified by many as a strategy to facilitate healthcare and health information engagement. *(cancer and community samples)*

"I am not a person who takes in medical jargon, so I always involve my husband because he understands it. My husband is always there with me listening to what the information is and then to talk through things. AR765

"We can get all that, my daughter is in charge of all of that. There is a lot of information at oncology on where to go and what to do." IDCC1274

**4. Confidence, ability, and willingness to ask questions** assisted community members to successfully engage with healthcare providers, gain access to and understand health information, and navigate health services. *(cancer and community samples)*

"Look you ask questions till you get the answer that you need, well not that you need, that you can comprehend, if they say just do this then you say well why." ID AR107

## Six themes relating to respondent skills and attributes for health and health service engagement, derived from interviews with community members and people with cancer

**5. Independence in health decisions.** Deferring health decisions to healthcare providers was also noted by several of interviewees. Some residents suggested that they trust their doctors above themselves to make important decisions about their treatment. *(cancer and community samples)*

"I'd probably go by what the doctor says, his advice really, I don't tell him too much what to do. He is the boss really." ID AR559

"I would just take whatever they gave me but because I have a number of health issues because I have other issues I'm on other medications I need to see if it's going to react." IDCC1089

"Well it wasn't really my decision I was just told that's what the plan was. I had done the research beforehand so I knew that was the only treatment." IDCC037

**6. Computer literacy** and the ability to search the internet for information reportedly enabled respondents to explore health information. It is important to note that those who did report searching the internet also discussed checking the reliability of information. *(community sample)*

"Well, I think it's very easy these days if you're lucky enough to own a computer. I know doctors don't like you doing it, but if I hear about something, I'll check it out on the internet and try and keep abreast of what's going on. I go on google I suppose. I don't go to any of those health.com places. I just search widely, I also cross reference as you find that a lot of sites will say one thing you know. In the past I've looked at my wife's nursing textbooks. They're a bit outdated but they're still here. I'm pretty self-sufficient in that sense and don't need help and I'll check it out myself." ID AR400

"I use the internet. I'm careful about who I believe on the internet, I don't look at anybody.com." AR625

"I go online and online isn't one of the best things, we call him Dr Google and he probably isn't the best person and I know not to take everything as it is. But sometimes you can read the wrong information and people can go off on a tangent but I think it's good to get as much information as you can, so I mainly go online." IDCC1108

## Six themes relating to barriers and enablers to health service and information engagement, derived from interviews with community members and people with cancer

**1. Service availability,** waiting times, access to specialists, and the proximity of services was identified by participants as factors influencing engagement with healthcare providers. This was a key enabler for those living in Ballarat and the surrounding areas. *(cancer and community samples)*

"No cant really say I felt supported, I know from other peoples experience its very patchy the experience of surgeons at the Base and I have heard some horror stories from the Western suburbs of Melbourne and it seems the good surgeons hang out in the Eastern suburbs of Melbourne and concentrate all of their services there so there is an inequity." IDCC1068

"My local GP is great and we have had some pretty serious conversations that can be a 15 minutes or whatever. When I leave, I leave as happy as I can be. My GP isn't backwards in telling me what is going on. I'm pretty fortunate to have what I've got. The distance is a real pain. But what I get in return is a great service." IDCC1704 – cluster B

"Some of the health services are quite separated, there is not that cohesive approach. Not always easy pathway. For example if I needed to see a social worker I don't know whether I should go to the hospital or go to the community health centre. I don't actually understand what they do enough to know where to go. I should but I don't." IDAR555

## Six themes relating to barriers and enablers to health service and information engagement, derived from interviews with community members and people with cancer

### 2. **Healthcare provider continuity** reportedly affecting communication, engagement, trust and participants feeling their health needs were understood and supported. *(cancer and community samples)*

"Well seeing the same GP is just impossible here." ID CC153

"I guess with the GPs, the really good ones, you can basically never get in to see them because there is such a long waiting list.....You find a good doctor and then they move on within a year or a couple of months". AR210

"In rural areas you don't have a lot of options."AR226

"You can't really get to a specialist without going to Ballarat."AR730

"I think it's the health professionals that support me that is an advantage of having doctors that are there long term" AR113

"I have a lovely doctor in Horsham, I have been going to her for years, so wherever she is I go. I think she is an experienced doctor, we are lucky to have her has been in Horsham for probably 30 years. She has been here for a long time." IDAR103

### 3. **Healthcare provider attributes** such as approachability, respect, compassion, and taking the time to listen and ask questions were identified as key enablers. Negative healthcare provider attributes such as lack of communication and explanation, using jargon, or displaying judgement or lack of empathy were identified by participants as barriers to feeling supported and understood as well as hindering their ability to find and understand health information. Cultural and language barriers between patients and doctors were also noted in relation to overseas trained doctors providing care within local GP practices. Respondents reported difficulty feeling supported and understood, and a hesitance to actively engage with these doctors. Some participants also noted that pap screening was something some doctors did not offer due to cultural or religious reasons. *(cancer and community samples)*

"Very easy to talk to them ←cancer specialists→. They listened. They were down to earth and not stand off ish". IDCC1530 – cluster D

"I'm on a first name basis with all of them ←oncology team→" IDCC1049 – cluster B

"Plenty of support and literature given to me, I didn't feel any pressure from them. They handled it very professionally. We experienced very good follow up care. I have been visiting a specialist for follow ups every 6 months. People I spoke to were very competent and professional. It has been a straight forward process" IDCC1530 – cluster D

"I have had to growl at doctors for poor bedside manner. Tending to treat me as a lump of meat rather than a person and not taking the time to sit down and explain things." IDCC1595

"I think sometimes it comes down to their manner. The ones I try to avoid are the ones who have the perception that they are the 'top of the tree' and they know best, you wouldn't dare question their judgement. It is very much what I say goes." IDAR555

### 4. **Service coordination** made it difficult or easier for participants to feel supported and understood as well as find the correct health information. *(community sample)*

"The GP was in contact with the specialist and because most of the specialists were here. The GP just stepped in. For instance I was going to the cancer doctor because I had iron in the blood and it was 2 months to get in and as soon as it was cancer that came up on the screen they called me back the next day. And the same with the surgeon, I don't know how long you usually wait for that but they put the priority on and worked it all out amongst themselves. They set the specialist I was going to." IDCC1150

"Some of the health services are quite separated, there is not that cohesive approach. Not always easy pathway. For example if I needed to see a social worker I don't know whether I should go to the hospital or go to the community health centre. I don't actually understand what they do enough to know where to go. I should but I don't." IDAR555

**Six themes relating to barriers and enablers to health service and information engagement, derived from interviews with community members and people with cancer**

**5. The form and delivery of information.** Use of plain language and providing readable materials in a variety of forms was reported to promote engagement with health information and support decision making. *(cancer sample)*

"Some problems with international doctors as their English is not very well". AR747

"At the moment in a small country town we attract a lot of new doctors, and a lot of the new doctors are a different nationality, and sometimes I really do feel I'm not sure if I'm being understood, or if I'm understanding". AR760

"They gave me this book through Ballarat health services which outlines what you need to know and how to get in touch with people." ID439 – cluster A

"The books the doctor gave me to read were on people's experiences and how to speak to doctors. It was in plain language it was good". ID1530 – cluster D

"It's all written in plain language ←the cancer information provided→ so it's easy to understand." ID1596 – cluster A

**6. Level of support from cancer agencies and local support services** was reported to support healthcare system navigation, and health management. They also reportedly assisted people with cancer feel understood and supported, and source and understand health information. *(cancer sample)*

"The McGrath breast care nurses were caring people and such a contrast to the surgeon. When I was having chemo they told you to call if you were worried". ID154 – cluster F

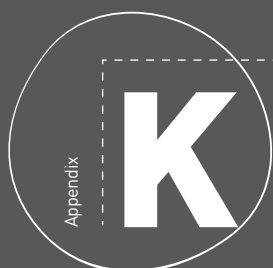
"I went onto the breast cancer sites BCNA and you get the my journey kit, that was a great start." ID1189 – cluster E

"I think for most people what was provided by BCNA and breast care nurse would be more than adequate for breast cancer to understand what is going on." ID1189 – cluster E

"Yes the McGrath nurse gave that to me and she explained it to me as well. She came to see me in Ballarat, Maryborough and at home so that was really good." ID439 – cluster A

"If I hadn't had the Cancer Council to ring I would have been completely lost and you just need that extra information. They were an enormous help to me." ID1208 – cluster F





# Local Improvement Ideas

| Intervention Idea |  |    |  |
|-------------------|--|----|--|
| 1                 | Promote the role of the Cancer Council   | 29 | Providers to note key messages and actions from appointments     |
| 2                 | Cancer support nurse   | 30 | Provide audio recording of consultations to patients             |
| 3                 | Peer support networks  | 31 | Taking notes in appointments                                     |
| 4                 | <u>Training</u> for health professionals to check understanding                          | 32 | Providing patients with an appointment summary                   |
| 5                 | Tap into what is important to people   | 33 | Respite care services to support carers                          |
| 6                 | Produce <u>guidelines</u> for production of written health information                   | 34 | Make health messages visible around towns                        |
| 7                 | <u>Technology, policy &amp; guidelines</u> supporting telehealth and Skype consultations | 35 | Men's health mornings  |
| 8                 | Multidisciplinary <u>meetings</u> for more complex patients                              | 36 | Local support groups for carers of elderly relatives             |
| 9                 | Small <u>town</u> cancer care strategy   | 37 | Use regular community meetings/groups to promote health messages |
| 10                | Have a <u>local directory</u> of health services and supports                            | 38 | Identify local community health champions                        |
| 11                | Point of contact for patients throughout the cancer journey                              | 39 | Using sports icons as health ambassadors                         |
| 12                | Training in motivational interviewing and health coaching                                | 40 | Town level health promotion programs                             |
| 13                | Checking in with carers during visits  | 41 | Ways to promote health messages and screening to men             |
| 14                | Promoting carer health to health providers   | 42 | Simple health messages posted in men's toilets                   |
| 15                | A <u>system</u> for sending patients a copy of all clinic letters                        | 43 | Promote health messages & cancer screening at local events       |
| 16                | A <u>system</u> for coordinating appointments  | 44 | Promote community pharmacists as providers of health information |
| 17                | Supportive care screening <u>tool</u>  | 45 | Conduct / promote cancer screening programs at places like gyms  |
| 18                | Provide transport for travelling to appointments   | 46 | Targeting wives as a way of accessing men                        |
| 19                | Support for GPs who are recent arrivals to the region/ Australia                         | 47 | Female health professionals for pap smears at every clinic       |
| 20                | Promote shared care for cancer patients <u>across the region</u>                         | 48 | Ongoing practice-based audit of cancer screening and management  |
| 21                | <u>System-wide</u> patient-held appointment and treatment diary                          | 49 | Opportunistic health checks for carers - double appointments     |
| 22                | Encourage patients to bring someone to their appointments                                | 50 | Health screening recall/reminder systems in general practice     |
| 23                | A health appointment 'buddy'<br>Health app   | 51 | After hours screening appointments                               |
| 24                | Appointment follow up  | 52 | Visible and easy to access cancer screening options              |
| 25                | Electronic medical records   | 53 | Workplace health checks and screening                            |
| 26                | Prompt sharing of information between services   | 54 | Make screening appointments a social event                       |
| 27                | Appointment support  | 55 | More information and education about rarer cancer types          |
| 28                | Tape recording appointments  | 56 | Pro-active introduction of advanced care planning                |

| Care Pathway       | Interventions - consumer level  | Practitioner level pre-requisites / strategies  | Organisational level pre-requisites / strategies   | Regional level pre-requisites / strategies  |
|--------------------|---|---|--|---|
| Across the Journey | <p><b>1. Promote the role of the Cancer Council</b><br/>Cancer council has lots of resources for people with cancer including the facility to link up people in similar circumstances.</p> <p><b>2. Cancer support nurse</b><br/>For some types of cancer, there are dedicated 'cancer support nurses'. Their role is very flexible, but involves assisting patients with service navigation and coordination, providing education/advice, facilitating referrals. They provide a single point of contact and a consistent support to people through their cancer journey. This service could be expanded so that it is available across the region and to people with all cancer types.</p> <p><b>3. Peer support networks</b><br/>Set up local networks to put people in touch with other people who have been through/are going through similar experiences.</p> | <p><b>4. Training for health professionals to check understanding</b><br/>Training and support for health professionals to enable them to be able to check that their patient has understood what has been said to them in the consultation and has an opportunity to ask questions.</p> <p><b>5. Tap into what is important to people</b><br/>E.g.: For business owners - they are likely to be interested in the productivity of their workers and so may be encouraged to offer workplace health checks (and even participate in them themselves). For carers and parents - they are likely to be interested in staying well enough to keep up their responsibilities. Providing opportunities for check ups and screening at convenient locations is likely to encourage participation.</p> | <p><b>6. Produce guidelines for production of written health information</b><br/>Written health information such as leaflets or posters should use pictures and diagrams wherever possible and limit the amount of written information. All written information should avoid the use of jargon and be easy to understand.</p> <p><b>7. Technology, policy &amp; telehealth supporting consultations</b><br/>Use of technology for follow-up appointments with Skype consultations to prevent patients having to travel long distances for appointments.</p> <p><b>8. Multidisciplinary meetings for more complex patients</b><br/>Management plans to be discussed at multidisciplinary team meetings and referrals made to other staff such as allied health where appropriate.</p> | <p><b>9. Small town cancer care strategy</b><br/>A description of what sorts of supports and services should be available to people in small towns and the sorts of ways these can be made available and accessible (from the time of diagnosis) even if they can't be located there permanently. Each small town can then review what they have in place and make a plan of how to fill gaps they identify.</p> <p><b>10. Have a local directory of health services and supports</b><br/>Keeping up to date with what services are around, who is eligible for them, and how to access them is very difficult for health providers. A maintained and easy to use directory of services would be very useful for providers. Those that appear most useful are those that can be used in real time when seeing patients, and that can be personalised by providers (who perhaps like to 'tag' trusted/relevant providers in the area, or include personal notes about areas of expertise, availability etc).</p> |

| Care Pathway       | Interventions - consumer level   | Practitioner level pre-requisites / strategies   | Organisational level pre-requisites / strategies  | Regional level pre-requisites / strategies   |
|--------------------|--|--|---|--|
| Across the Journey | <p><b>11. Point of contact for patients throughout the cancer journey</b></p> <p>People often have a lot of worries and questions during their cancer journey, and can easily be confused and lost within our complex health system. Having a trusted and very available support person (e.g. cancer nurse) to call/email/visit when questions come up can be very helpful. This person should be consistent throughout the cancer journey, and therefore the relationship should be established at diagnosis... and perhaps before diagnosis for people undergoing an extended period of tests before diagnosis. This person acts as someone to raise questions or concerns with, support referrals, translate complex medical information etc. They may have an educational role, a coordination of care role, and a nursing role. <i>Comment: This is an invaluable resource for anyone facing the diagnosis of cancer. It is imperative to support the client and ensure all information is gathered and taken in as well as supporting family and carers. Many people do not have the medical knowledge to understand what they are being told or have the enough knowledge to make an informed decision about their treatment.</i></p> | <p><b>12. Training in motivational interviewing and health coaching</b></p> <p>High quality training for health professionals in MI and health coaching - help to avoid 'lecturing patients' who may be difficult to engage in proactive preventive health/screening programs.</p> <p><b>13. Checking in with carers during visits</b></p> <p>For carers and parents attending health appointments with their relatives, as a matter of routine practice, health professionals could ask carers a few questions about their own health - e.g. to check whether they are up-to-date with screening and health checks. Referrals and appointments could be arranged for carers if needed.</p> <p><b>14. Promoting carer health to health providers</b></p> <p>Raising awareness of carer health needs and the importance of carer health. Providing simple ways for providers to enquire about carer health, and encourage carers to prioritise their own needs.</p> | <p><b>15. A system for sending patients a copy of all clinic letters</b></p> <p>Clinic letters to be copied to patients in a jargon-free format to remind patients of what was said in their appointment.</p> <p><b>16. A system for coordinating appointments</b></p> <p>Rather than having people travel to a medical centre several times over a week or month for different appointments, a multidisciplinary 'clinic' model could be established that allows people to see several providers during one visit.</p> <p><b>17. Supportive care screening tool</b></p> <p>Ensure that all patients are assessed for supportive care needs.</p> <p><b>18. Provide transport for travelling to appointments</b></p> <p>Some patients travel long distances to appointments, and some are physically unable to drive. It would be helpful to have transport provided.</p> <p><b>19. Support for GPs who are recent arrivals to the region/Australia</b></p> <p>Provide effective local orientation and support to GPs (and other health providers) that are new to the area. Make it easy for them to find out information about the Australian health system, local services and supports and make referrals.</p> | <p><b>20. Promote shared care for cancer patients across the region</b></p> <p>Before a diagnosis of cancer, patients often have a relationship with a trusted GP. Often after a diagnosis, their care will mostly be provided by specialists. After treatment, often people feel a bit 'left alone' by the system. Including GPs in aspects of cancer care, and supporting a transition back to primary care at the end of treatment will likely support people during the survivorship phase to feel well supported. This would also encourage patients to trust that their GP is part of the cancer care process and can be trusted to manage their ongoing health needs. <i>Comment: This is essential! We need to ensure that medical oncologists, radiation oncologists and surgeons are spending the majority of their time looking after newly diagnosed patients and following up high risk patients. Nurse practitioners/cancer resource nurses, GPs and practice nurses should be supported to provide as much care as possible for patients nearing the end of active treatment and certainly during follow up.</i></p> <p><b>21. System-wide patient-held appointment and treatment diary</b></p> <p>Patient-held record of appointments, surgery and treatments as well as goals and priorities.</p> |

| Care Pathway       | Interventions - consumer level  | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies  | Regional level pre-requisites / strategies |
|--------------------|---|--|---|--|
| Across the Journey | <p><b>22. Encourage patients to bring someone to their appointments</b><br/>There is a lot for patients to take in at their appointments so it can be helpful for them to bring a partner/friend/advocate to the appointment so that they can discuss what was said afterwards.</p> <p><b>23. A health appointment 'buddy'</b><br/>Health appointments can be stressful and confusing. Many people find they forget what was said in appointments, forget to ask all their questions, don't understand the jargon etc. Having a friend, family member or health professional come along to appointments can help.</p> <p><b>24. Appointment follow up</b><br/>Call people the day after important appointment to see if they have any questions or concerns, and to check they have retained the key messages (as noted by the doctor/providers). 2 votes. <i>Comment: Who is going to be responsible for doing this? If it is the GP, time spent on this means that other patients don't get to be seen. Also, GPs don't get paid for phone calls!</i></p> |  | <p><b>25. Electronic medical records</b><br/>Electronic health records to improve communications between health service providers and patients.</p> <p><b>26. Prompt sharing of information between services</b><br/>Develop systems to enable prompt sharing of information discharge summaries, and death notices between health providers. Could include acknowledgement of referrals, hospital discharge summaries, letters following outpatient and GP appointments.</p> |  |

| Care Pathway       | Interventions - consumer level   | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies | Regional level pre-requisites / strategies |
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| Across the Journey | <p><b>27. Appointment support</b></p> <p>If people are attending several appointments in one centre visit, they are likely to have a lot of information to process. It might be valuable to have someone available to meet briefly with people before they leave the centre to check in and see how they went with the appointments, if they got everything they needed from the appointment, and if they have any burning worries or concerns. This might provide an opportunity to address any misunderstandings, get any extra info from doctors, raise concerns etc while everything is fresh in people's minds and whilst doctors are likely to be somewhat available.</p> <p><b>28. Tape recording appointments</b></p> <p>Important appointments could be tape recorded, so people can play back at home to ensure they don't miss important details and can share the messages with family.</p> <p><b>29. Providers to note key messages and actions from appointments</b></p> <p>Where a team of people are involved in care, and when appointments are dense with important information for patients - providers could get into the habit of writing in their notes (and giving to patients) a very brief and clear dot point summary of the key 'take home' messages and actions. Other providers could then use these to check patient understanding and follow up on patient's actions.</p> |  |  |  |

| Care Pathway       | Interventions - consumer level  | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies | Regional level pre-requisites / strategies |
|--------------------|---|--|--|--|
| Across the Journey | <p><b>30. Provide audio recording of consultations to patients</b><br/>Audio recording of appointments to provide to patients to enable them to listen to what they were told after their appointment and absorb more of what was said.</p> <p><b>31. Taking notes in appointments</b><br/>Encouraging people to take notes in appointments can help them remember important points and actions.</p> <p><b>32. Providing patients with an appointment summary</b><br/>A written (or audio recorded) appointment summary could be provided to patients following appointments to help them remember all the information provided and any actions they need to take.</p> <p><b>33. Respite care services to support carers</b><br/>Carers need respite from time to time. When they have the opportunity to have a break from their carer role, they can attend to other priorities (including their own health). Making respite available, ensuring people are aware it is available, making it easy to arrange, and encouraging people to use it - will all help carers look after themselves better.</p> |  |  |  |



| Care Pathway  | Interventions - consumer level  | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies | Regional level pre-requisites / strategies   |
|---|---|--|--|--|
| Health Promotion & Cancer Prevention (including promotion of screening) | <p><b>34. Make health messages visible around towns</b></p> <p>People move around their towns on a day to day basis, doing their shopping, running errands etc. Messages about healthy lifestyles and about cancer screening programs could be made visible in ordinary places that people visit everyday.</p> <p><b>35. Men's health mornings</b></p> <p>Host a regular men's health morning – no wives allowed (except to help out with catering!). Men come along to get together socially, have a good meal, and learn something (or do something) productive for their health.</p> <p><b>36. Local support groups for carers of elderly relatives</b></p> <p>Community-based support groups for carers. Carers often benefit from opportunities to talk with other carers and debrief about the challenges they experience. These support groups could also provide an opportunity to promote messages around the importance of carer health, and promote cancer screening programs.</p> <p><b>37. Use regular community meetings/groups to promote health messages</b></p> <p>People often attend regular community meetings and groups. These could be a good venue for promoting healthy lifestyle messages and cancer screening programs and providing an opportunity for people to ask questions.</p> |  |  | <p><b>38. Identify local community health champions</b></p> <p>One community example was that one person at a health event noted that weight was a concern, so started up footy practice for farmers. Dietitian came along to one session and cooked quinoa. They are still meeting 2 years later. <i>Comment: This is a particularly important and worthwhile idea</i></p> <p><b>39. Using sports icons as health ambassadors</b></p> <p>Engaging local sports personalities in health campaigns relating to men's health. Helping men to see health as 'men's business' and seeing some of the benefits of taking steps to take care of it.</p> <p><b>40. Town level health promotion programs</b></p> <p>Towns could have focussed health promotion campaigns - like 'cancer screening month' or 'heart health month'. Messages relating to the campaign could be promoted across town in a range of ways (media, posters, banners, talks etc). Would be best if messages were kept simple and action oriented - for example if the campaign was about cancer screening, the action would be to visit the GP, or health centre, or mobile screening van etc for a free test. For this period, services could be extended to make them really convenient to participate in (like the mobile screening van, or screening at work places or events).</p> |



| Care Pathway  | Interventions - consumer level  | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies | Regional level pre-requisites / strategies |
|---|---|--|--|--|
| Health Promotion & Cancer Prevention (including promotion of screening) | <p><b>41. Ways to promote health messages and screening to men</b><br/>Go to where the men are! Promote healthy messages and screening programs at field days, men's shed meetings, community meetings, sporting events, pubs etc. Awareness raising is only part of the picture though - need to make tests quick and available on the day (or available to take home).</p> <p><b>42. Simple health messages posted in men's toilets</b><br/>Visual messages in men's toilets.</p> <p><b>43. Promote health messages &amp; cancer screening at local events</b><br/>There are a large range of community events that occur across the region, throughout the year. Healthy lifestyle messages and cancer screening programs could be promoted at these events, where they are likely to be seen by a broad spectrum of the community. Simple key messages could be presented to passers-by - messages that help people understand the value of screening and other health activities, and who should participate in screening (and when and how). Community events could include field days, shows, markets, swap meets, car shows, and the horse races.</p> |  |  |  |

| Care Pathway  | Interventions - consumer level   | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies | Regional level pre-requisites / strategies |
|---|--|--|--|--|
| Health Promotion & Cancer Prevention (including promotion of screening) | <p><b>44. Promote community pharmacists as providers of health information</b></p> <p>Some consumers (particularly in rural areas) noted that they were often unable to get an appointment with their preferred GP, or they might have to book for 2 weeks time. Community pharmacists were seen to be available and approachable sources of health information. Their role in this space could be expanded and promoted. <i>Comment: As a GP married to a pharmacist, I have some reservations about this. Cancer screening is becoming increasingly complicated, with continuing debate around the pros/cons of both mammography and prostate checks. In addition, early detection of symptoms is also more difficult, due to the prevalence of multi-morbidity and polypharmacy. Accordingly, I think it is unfair and unrealistic to expect pharmacists to be able to provide enough information for patients to make informed choices. I think that improving access to GPs would be a much better way to go. This could be at least partly achieved by helping practices to review their appointment booking structures. Practice nurses may also be able to play a role, assuming that they undergo adequate training. The other important way of freeing up GPs is to fix up the access issues throughout the entire health system. This is especially the case for hospital outpatient clinics - at present, these clinics are filled up with high numbers of patients returning for review and follow-up, much of which could be entrusted to the GP. Paradoxically, this is likely to free up GPs somewhat, as we will spend much less time looking after patients in the early diagnosis/pre treatment phases.</i></p> |  |  |  |

| Care Pathway    | Interventions - consumer level  | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies  | Regional level pre-requisites / strategies |
|-----------------|---|--|---|--|
| Early detection | <p><b>45. Conduct / promote cancer screening programs at places likes gyms</b><br/>People especially interested in their health will visit places like gyms and exercise classes. They might be especially interested in more information about how to participate in cancer screening programs. Promoting cancer screening at these places might be a good way to give people already interested in their health, a gentle 'nudge' or reminder to get screened. <i>Comment: I wonder if we can actually take this idea a bit further. GP clinics are often located close to pharmacies, pathology collection centres, allied health providers, etc. Why can't gyms be found next door to GP clinics too? Equally, why couldn't doctors be recruited to do regular consulting sessions at a gym? These could be marketed as wellness checks!</i></p> <p><b>46. Targeting wives as a way of accessing men</b><br/>Wives often play a very important role in supporting their husbands to look after their health. Provide wives with good information about men's health, and strategies for supporting their husbands to visit the doctor and take part in screening.</p> |  | <p><b>47. Female health professionals for pap smears at every clinic</b><br/>It was noted that some health professionals will not undertake pap smears or other gynae-type investigations. The reason stated for this was cultural. In these cases it is important to ensure there is a trained health professional who provides these services.</p> <p><b>48. Ongoing practice-based audit of cancer screening and management</b><br/>Practice-based audit and continuous quality improvement cycles for screening and management.</p> |  |

| Care Pathway    | Interventions - consumer level   | Practitioner level pre-requisites / strategies | Organisational level pre-requisites / strategies  | Regional level pre-requisites / strategies |
|-----------------|--|--|---|--|
| Early detection | <p><b>49. Opportunistic health checks for carers - double appointments</b></p> <p>Often family members arrange doctor appointments for elderly relatives or for their children and take them along to these appointments. As a matter of routine, reception staff could ask (when someone rings and says they are making an appointment for their relative) if they would like to take the opportunity to have a routine health check at the same time. They could explain that the practice understands the important role that carers play and how important it is for carers to have the chance to look after their own health too... and that the most convenient way to fit in a health check might be when they are there any way. If the carer indicates interest, a double appointment could be booked. They could also be asked when they last had certain (age and gender appropriate) cancer screening tests and if they are overdue these could be arranged to be done during the visit too.</p> |  | <p><b>50. Health screening recall/reminder systems in general practice</b></p> <p>Practice nurses could manage recall/reminder systems. Practice software could generate alerts of patients that are due for certain tests. Letters, emails, and sms messages could be sent to prompt people to book an appointment for their test. The system should make it as easy as possible for people to agree - e.g. 'text "yes" and we'll book you in for an appointment next week', or 'text "yes" and we'll call you today and book an appointment for you'. Follow up phone calls could be made to people who don't respond.</p> <p><b>51. After hours screening appointments</b></p> <p>Screening appointments outside office hours to make screening more accessible.</p> <p><b>52. Visible and easy to access cancer screening options</b></p> <p>Make it easy for people to participate in screening programs. Have mobile screening vans, screening available at community events and regular meetings, at gyms, at pharmacies, at schools, at workplaces etc.</p> |  |

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|-----------------|--|--|--|--|
| Early detection | <p><b>53. Workplace health checks and screening</b></p> <p>Hosting health checks and screening at workplaces - allows workers to conveniently participate in screening and learning a bit about health. <i>Comment: I really like ideas involving GPs getting out of the consulting room and into the community more. The biggest barrier relates to financial issues. Most GP clinics are private businesses, and therefore need to generate income. Unfortunately community based activities don't pay as well, and are often conducted out of hours.</i></p> <p><b>54. Make screening appointments a social event</b></p> <p>Examples were given where women travelled by bus to the screening centre for mammograms and then went out for lunch and did something afterwards e.g. facial, manicure. This makes screening more fun and a day out so women are more likely to attend, especially if they have to travel to a screening centre. Some insisted champagne and chocolate should accompany any screening.</p> |  |  |  |

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|-----------------------------------|--|--|--|--|
| Initial Investigations & Referral | <p><b>55. More information and education about rarer cancer types</b></p> <p>Improve availability of evidence-based information for health professionals and patients about less common cancer types.</p> <p><b>56. Pro-active introduction of advanced care planning</b></p> <p>Advanced care planning to be introduced in order to address the patient's goals and priorities, improving quality of life, symptom management and addressing end of life care if appropriate. <i>Comment: Critically important. A patient's goals and priorities are always important in any medical decision making, especially in the cancer field.</i></p> |  |  |  |