Social Research Institute
Understanding Society

Secondary research to determine the size of the national print disabled audience

RPH

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The RPH Radio Reading Network offers spoken word access to print media for those with a print disability. This comprises those who cannot access print due to a literacy, learning, physical or vision disability.

Research objective

This research aimed to understand the reach and profile of those with a print disability, and therefore RPH's target audience. Previous iterations of this research were conducted in 2002 and 2007, and this current iteration aimed to update the information produced by these reports.

Method

The research involved consulting a range of sources to determine the updated audience size estimations. These were informed primarily by data provided by the Australian Bureau of Statistics, as well as various disability advocacy associations. In addition, research was conducted to provide relevant audience data for the appropriate media in Australia.

It should be noted that:

- More accurate estimates have been made in this report than in previous due to the use of decimal places in the overall population figures when calculating print disabled figures and ABS population figures for the specific locations, rather than the proportion of each State or Territory that lives in that location; and
- As a limitation, the overall population figure cannot account for the population of those who are print disabled for multiple reasons. For example, an individual who is print disabled both for literacy and learning reasons would have been counted twice in the audience size estimate.

Findings

Audience sizing and future trends

- In total, 4,726,186 Australians are estimated to be print disabled, or 22% of the overall population of 21,507,717 people.
- This compares with 18.4% in 2007. This increase is explained below.
- The table below shows this estimate profiled by disability type, as well as those for 2007 and 2002.

	Literacy	Learning	Physical	Vision	**Total**
2002	2,607,400	298,216	205,723	193,300	3,304,639
2007	2,515,300	635,389	318,200	187,000	3,655,869
2014	3,032,600	668,176	860,610	164,800	4,726,186

  - It is estimated that 3,032,588 Australians have a print disability through literacy impairment. This compares with the estimate of 2,515,300 in 2007. The increase in the 2014 figure is explained by both the increased Australian population and the underestimation of the audience size in 2007
  - It is estimated that 668,176 Australians have a print disability through learning disability, such as dyslexia, or attention impairment. This compares with the estimate of 635,389 in 2007. The increase in the 2014 figure is reflective of the increased Australian population.

- It is estimated that 860,610 Australians have a print disability through physical impairment. Such impairments include arthritis, spinal disability, multiple sclerosis and cerebral palsy. This compares with the estimate of 318,200 in 2007. This difference is explained primarily by an underestimation of the audience size in 2007.
- It is estimated that 164,800 Australians have a print disability through vision impairment, whether vision impairment or blindness. This compares with the greater estimates of 187,000 in 2007, and 193,300 in 2002. Uncorrected refracted error is the most common cause of vision impairment, followed by cataract and age-related macular degeneration.

- While the increase in the audience size overall is primarily due to what is believed to be an underestimation of the population size in 2007, the research suggests that the print disabled population will increase at a faster rate than the Australian population in coming years.
  - Although the overall disabled population (print disability or otherwise) is decreasing as a proportion of the Australian population, the proportion of these disabilities identified as profound or severe core activity limiting is increasing. The estimates in this report have been determined primarily using ABS population estimates for those suffering from profound, severe or moderate core activity limiting disabilities. Therefore an increase in the proportion of Australians who suffer a profound or severe core activity limitation also results in an increase in the proportion who suffer a print disability.
  - Australia's population is ageing, and with age comes a greater risk of developing disability.
  - Survival rates for life-threatening events that, if survived, limit activities are increasing,
  - There appears to be an increasing willingness to identify as having a disability in surveys, and therefore to identify as severely or profoundly core limited.
- While recognising that the increases in the literacy and physical print disability audience size estimates are primarily due to the greater Australian population in 2014 and underestimations in 2007, it should be noted that the overall print disabled audience appears to be shifting away from physical and vision print disabilities to literacy and physical. It appears likely that the latter disability types will continue to form a greater proportion of the audience size in the future.
  - Particularly influencing this shift in 2014 was the reduction in the overall vision print disability audience size, which was primarily accounted for by a reduction of nearly 20,000 among those aged 65 or older (from 129,400 in 2007 to 112,600 in 2014). This suggests that the prevalence of vision print disability associated with old age is decreasing, and may continue to do so.
- Regarding learning disabilities, it should be noted that the print disability audience size is potentially much larger than estimated, and would also have been much larger in 2007. This is because several organisations estimated that the incidence of dyslexia is as high as 10%, with a further 10% on the continuum, compared with the figure of 4% of the population suffering from either a learning disability or attention impairment used in the learning print disability estimate.
- Similarly, the physical print disability audience size is potentially much larger than estimated. Some organisations report that as much as 20% of Australians have arthritis, compared with the less than 4% included in the estimate (those who reported suffering from profound, severe or moderate core limiting arthritis).
  - Partly explaining the expected greater prevalence of physical disability among those suffering from print disability is the ageing population and the association between physical disability and age. Also explaining this is the rising obesity rate, a higher diagnosis rate for disabilities caused by musculoskeletal disorders, and an increasing willingness to identify as arthritic.
- It can be assumed that the print disabled population is relatively evenly split between males and females, and that the audience is skewed towards older ages.

- It can also be assumed that the audience experiences a lower standard of living on average than overall. This includes lower participation, higher unemployment rates, lower household income and lower qualifications.
- The research suggests that the incidence of print disability may be higher in Tasmania than in the rest of Australia, and lower in Western Australia, the ACT and the Northern Territory. It also suggests that the incidence is higher in regional locations and lower in major cities.

The Australian media landscape

- In the 12 months to the end of 2012, commercial radio grew 1% across the metro cities and culminated in 9.5 million people listening in each week.
- Over 350 community stations are licenced to broadcast across Australia, resulting in an estimated audience of 5.2 million or 29% of the population listening to community radio each week.
- 93% of the overall population turns to content issued by a news publisher, and 86% turn to a newspaper every month across local, metropolitan or national formats.
- For papers, the printed format is now joined by 47% who read it on the web, 16% on tablet and 16% on mobile. Recent data shows that Australian ownership of smartphones is 65% and tablets are 51%, the latter of which is expected to continue growing. The increased ownership of such devices will provide further avenues for people with a vision disability for the means of getting access to media branded content not just via radio but through the web.
- Broadband of some type now accounts for 98% of internet connections, and mobile wireless broadband solutions makes up half of all internet connections.
- 83% of the population are internet users, with younger people aged 15-17 years old having the highest proportion of users at 98%, while only 46% of people aged 65 and over have used the internet.
- While the usage levels for the internet are high and take up of radio streaming is increasing, it should be noted that for those with impairment, the ease of accessing and taking up such technology may prove more difficult in using them due to connection, access and navigation issues, or in learning to use them. Additionally, consideration should be given to cost, geographical location, download speeds and to the age level of users in assessing the future usage rates. Those with impairment who are older, may not be as familiar with new services that come online in the media space nor have the ability to make changes to their routine when using support services without disruption or distress.

2 About RPH

RPH Australia

RPH Australia (RPHA) is the national peak body for the RPH Radio Reading Network, which plays a unique role in the Australian media landscape. It offers ‘alternate format’ (spoken word) access to print media for those with a print disability. It consists of 18 AM/FM radio services around Australia, as well as digital radio services in the five mainland capital cities.

RPHA’s Vision

A nation where a print disability is not a barrier to participation.

RPHA’s Position

RPH champions the rights for all Australians to access published material.

RPHA’s Unique Offer

RPHA represents the only radio network service with a mission to provide access to published material to Australians with a print disability. RPH services enable all Australians to participate in the community's cultural, political and social life, irrespective of their ability to read printed material.

3 Background and objectives

The term ‘print disabled’ describes those who cannot access print due to one or more of the following disabilities.

- Literacy impairment;
- Learning disabilities, such as dyslexia, and attention impairments;
- Physical dexterity problems, such as arthritis, spinal disability, multiple sclerosis and cerebral palsy; or
- Vision disability, whether vision impairment or blindness.[1] [2]

People with print disability are one of the most disadvantaged groups, with restrictions ranging from their ability to perform communication through to those associated with schooling or employment. Being print disabled requires alternative methods to access information otherwise in the form of printed material. However, recent research conducted by Ipsos identified that many print disabled people struggled to find such services, and felt that these were often poorly promoted where they did exist. Many people with print disability see this as a barrier to their full participation in the economic and social life of the community.

Research objectives

As mentioned, RPH offers such alternate format (spoken word) access to print media. The objective of this research was to understand the reach and profile of those with a print disability, and therefore RPH’s target audience. Previous iterations of this research were conducted in 2002 and 2007, and this current iteration aimed to update the information produced by these reports. Prior to these reports, RPH lacked such information whatsoever.

In addition to estimating the national audience size, the research aimed to profile the target audience by:

- State;
- Metropolitan and regional locations; and
- Print disability type.

[1] Reading Rights Coalition, ‘The definition of “print disabled”?, 2014, available at: http://www.readingrights.org/definition-print-disabled

[2] Vision Australia, ‘What is print disability?’, 2012, available at: http://www.visionaustralia.org/business-and-professionals/print-accessibility-services/what-is-print-disability-

4 The approach

The 2007 iteration, conducted by Synovate, provided the framework for Ipsos' approach. Specifically, this involved consulting a range of sources to determine the updated audience size estimations. In addition, research was conducted to provide relevant audience data for the appropriate media in Australia.

Table 1 below shows the sources consulted, including both those taken into account in determining estimates in a manner consistent with the 2007 report, and those new to this report.

Table 1: List of sources consulted in gathering the findings

Literacy Impairment	Learning Impairment	Physical Impairment	Vision Impairment	Other
Australian Bureau of Statistics	Dyslexia-Speld Foundation WA Defy Dyslexia Speld VIC, NSW, QLD, SA Learning and Attention Disorder Society Australia (LADS) Every Day with ADHD	Australian Bureau of Statistics Australian Institute of Health and Welfare Arthritis Foundation WA, NSW, SA, QLD, VIC, ACT, NT Paraplegic-Quadriplegic Association WA, NSW, VIC, QLD, TAS, SA, NT, ACT Spinal Cord Injury Australia Multiple Sclerosis Society of NSW, WA, VIC, QLD, SA, TAS Cerebral Palsy Association WA, NSW, VIC, QLD, TAS, SA, NT, ACT	Australian Bureau of Statistics Association for the Blind WA Royal Institute for the Blind SA Lion's Eye Institute Centre for Eye Research Australia Eye Health Promotion Unit Vision Australia Ltd Vision 2020 Australia	Australian Bureau of Statistics Disability Services Commission and other respective State bodies Australian Council of Social Service (ACOSS) Office of Disability emma™ Pricewaterhouse Coopers

As the table shows, audience size estimations were informed primarily by data provided by the Australian Bureau of Statistics (ABS). Specifically, the following reports were utilised.

- Programme for the International Assessment of Adult Competencies (PIAAC) (2012);
- Australian Health Survey (AHS) (2012); and
- Disability, Ageing and Carers report (2009).

The PIAAC and AHS were introduced by the ABS to replace the Adult Literacy and Life Skills Survey (2006) and the the National Health Survey (2004-05), used in the 2007 report.

A note on interpreting this report

While all figures presented in this report are specific to the print disabled population, there are a number of areas where, due to lack of available data, inferences have been made by assuming similar trends among the print disabled population as among the overall disabled population. That is, disabled Australians who have a disability but are not necessarily print disabled. This group is referred to wherever the term 'overall disabled population' is used throughout this report.

Total potential audience

Table 2 below shows the estimated print disabled population of Australians by impairment type. In total, 4,726,186 Australians are estimated to be print disabled, or 22% of the overall population of 21,507,717 people.

This compares with 18.4% in 2007. Note that the respective population increases for each State and Territory are impacted by the use of decimal places for overall populations in calculations, as opposed to rounding in previous reports.

Table 2: Print disabled population of Australia by impairment type (all ages)

	Literacy	Learning	Physical	Vision	**Total**
2002	2,607,400	298,216	205,723	193,300	3,304,639
2007	2,515,300	635,389	318,200	187,000	3,655,869
2014	3,032,600	668,176	860,610	164,800	4,726,186

It should be noted that:

- The overall population figure cannot account for the population of those who are print disabled for multiple reasons. For example, an individual who is print disabled both for literacy and learning reasons would have been counted twice in this figure. Exemplifying this, four million Australians, or 18.5% of the population, reported having a disability in 2009 – more than the print disabled population estimate;[3]
- Some of these figures may be conservative. The reasons for this are detailed throughout the report. In addition, to the greatest extent possible, figures have been determined using data from updated versions of the same reports used for the 2007 report; and
- The size of the discrepancies between the literacy and physical print disabled population estimates in 2007 and 2014 is primarily due to what is believed to be an underestimation of these population sizes in 2007. These are explained in the relevant chapters.

Gender

Although these figures have not been disaggregated by gender, it can be assumed that the print disabled population is relatively evenly split between males and females, as per the gender split among the overall disabled population.

Age

These figures have also not been disaggregated by age. However, the audience is likely to be skewed towards older ages, given that the overall disabled population is so.[4] Among this overall disabled population, two in five of those aged 65-69 and about nine in ten of those aged 90 years and over were disabled in 2012 (40% and 88% respectively).

[3] Australian Bureau of Statistics, '4430.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2009.'

[4] Ibid.

Other characteristics

It can be assumed that print disabled people experience a lower standard of living on average than their non-print disabled counterparts, given that this is so for the overall disabled population. Research by the Australian Bureau of Statistics in 2012 and the Organisation for Economic Co-operation and Development (Directorate for Employment, Labour and Social Affairs) in 2009 indicated that the overall disabled population generally experiences a lower standard of living than the non-disabled population[5] [6]:

- They (aged 15-64 years) had both lower participation (53%) and higher unemployment rates (9.4%) than those without disability (83% and 4.9% respectively);
- They were more likely to live in a household in the lowest two equivalised gross household income quintiles (48% compared with 22%);
- They were less likely to have achieved a bachelor degree or higher (13% compared with 25%); and
- Almost one in two lived in or near poverty (45%).

5 State and region breakdown

As with the 2007 report, accurate populations for each State and Territory, capital city and region have not been possible to estimate due to the lack of disaggregation of available data. The estimates shown in Table 3, Although the above figures could not be disaggregated by State and Territory, it is worth noting that the Australian Bureau of Statistics' figures from 2012 indicate that, for the overall disabled population, Tasmania has the greatest prevalence of disability (25%, compared with 18.5% overall) and Western Australia, the ACT and Northern Territory the lowest (16%, 16% and 12% respectively). Partly explaining this, Tasmania also had the highest proportion of people aged 65 years and over. This suggests that the print disabled population may be higher in Tasmania than shown above, and those for Western Australia, the ACT and the Northern Territory may be lower. Due to lack of reliable data, however, the figures in the table are not reflective of these differences.

Table 4 below shows the estimated print disabled populations for each capital city in Australia, and Table 5 those for each regional location in which the RPH Radio Reading Network broadcasts. Again note that the respective population sizes for each city are impacted by the use of decimal places for overall populations in calculations, as opposed to rounding in previous reports, and therefore the respective differences in the changes between 2007 and 2014 may not necessarily be representative of overall population changes.

Table 4 Table 5 below have therefore been determined by applying the print disability incidence figure (approximately 22%) to the population of each location from the 2011 census.

It should be noted that more accurate estimates have been made in this report than in previous due to the use of:

- Decimal places in the overall population figures when calculating print disabled figures; and
- ABS population figures for the specific locations, rather than the proportion of each State or Territory that lives in that location.[7]

This means that any differences between the respective print disabled population percentage changes per State and Territory are not necessarily representative of the overall population changes (note, for example,

[5] Australian Bureau of Statistics, 4430.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2012, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/A813E50F4C45A338CA257C21000E4F36?opendocument

[6] Organisation for Economic Co-operation and Development (Directorate for Employment, Labour and Social Affairs), Sickness, Disability and Work – Keeping On Track In The Economic Downturn 2009, available at: http://www.oecd.org/employment/emp/42699911.pdf

[7] For cities and towns, 'Statistical Area Level' figures from the 2011 Census have been used.

that the same print disabled populations were given in 2007 for Tasmania and the ACT, while for 2014 they are substantially different).

Table 3 below shows the estimated print disabled populations for each State and Territory.

Table 3: Print disabled population of Australia by State/Territory

	% of total Australian population 2002	% of total Australian population 2007	% of total Australian population 2014	Estimated print disabled population 2002	Estimated print disabled population 2007	Estimated print disabled population 2014
New South Wales	34	33	32.16	1,123,580	1,206,437	1,519,941
Victoria	24	25	24.89	793,117	913,967	1,176,348
Queensland	19	20	20.15	627,885	731,173	952,327
Western Australia	10	10	10.41	330,467	365,587	491,996
South Australia	8	8	7.42	264,375	292,470	350,683
Tasmania	3	2	2.30	99,117	73,117	108,702
Australian Capital Territory	1	2	1.66	33,049	73,117	78,455
Northern Territory	1	1	0.99	33,049	36,559	46,789
TOTAL	**100%**	**100%**	**100%**	**3,304,639**	**3,655,869**	**4,726,186**

Although the above figures could not be disaggregated by State and Territory, it is worth noting that the Australian Bureau of Statistics' figures from 2012 indicate that, for the overall disabled population, Tasmania has the greatest prevalence of disability (25%, compared with 18.5% overall) and Western Australia, the ACT and Northern Territory the lowest (16%, 16% and 12% respectively).[8] Partly explaining this, Tasmania also had the highest proportion of people aged 65 years and over. This suggests that the print disabled population may be higher in Tasmania than shown above, and those for Western Australia, the ACT and the Northern Territory may be lower. Due to lack of reliable data, however, the figures in the table are not reflective of these differences.

Table 4 below shows the estimated print disabled populations for each capital city in Australia, and Table 5 those for each regional location in which the RPH Radio Reading Network broadcasts. Again note that the respective population sizes for each city are impacted by the use of decimal places for overall populations in calculations, as opposed to rounding in previous reports, and therefore the respective differences in the changes between 2007 and 2014 may not necessarily be representative of overall population changes.

Table 4: Print disabled population of Australia by capital city

	% of State Population in Capital City 2002	% of State Population in Capital City 2007	% of State Population in Capital City 2014	Print Disabled TOTAL 2002	Print Disabled TOTAL 2007	Print Disabled TOTAL 2014
Greater Sydney	62	63	63.48	696,619	760,055	965,043
Greater Melbourne	72	73	74.71	571,044	667,195	878,971
Greater Brisbane	44	45	47.68	276,256	329,027	453,990
Greater Perth	72	74	77.21	237,936	270,534	379,908
Greater Adelaide	73	73	76.74	192,993	213,503	269,238
Canberra	99	99	99[9]	32,718	72,386	77,574
Greater Hobart	41	42	42.73	40,637	30,709	46,510

[8] Australian Bureau of Statistics, 4430.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2012, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3A5561E876CDAC73CA257C210011AB9B?opendocument

[9] This figure is based on the 2007 report's figure of 99% as the proportion of ACT residents living in Canberra. The 2011 Census did not break down the ACT population by Canberra and the rest of the Territory.

Greater Darwin	44	55	56.89	14,451	40,214	26,498
TOTAL	**100%**	**100%**	**100%**	**2,062,654**	**2,383,623**	**3,097,730**

Table 5: Print disabled population of Australia by regional locations

	Estimated print disabled population in location in 2007	% of State Population in Location 2014	Estimated print disabled population in location in 2014
Albury-Wodonga	18,279	0.64[10]	17,223
Bathurst	N/A	0.63	9,571
Katoomba	N/A	0.19	2,839
Geelong	30,161	4.68	55,079
Bendigo	15,537	2.63	30,917
Mildura	8,226	0.95	11,202
Shepparton	8,226	2.33	27,445
Warragul	2,742	0.31	3,675
Warrnambool	5,484	0.36	4,294
Launceston	15,281	15.96	17,370
TOTAL	**N/A**	**817,381**	**179,614**

Although, as mentioned, figures could not be disaggregated by location, it should be noted that the overall disabled population is lower in major cities than in inner regional areas (17% compared with 22%). This suggests that the print disabled population figures for major cities (in Table 4) may be overestimated, and those for regional locations (in Table 5) underestimated.[11]

[10] Note that this figure is a proportion of the combined populations of New South Wales and Victoria

[11] Australian Bureau of Statistics, 430.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2012, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3A5561E876CDAC73CA257C210011AB9B?opendocument

6 Literacy impairment

It can be estimated that 3,032,588 Australians had a print disability through literacy impairment in 2012. This figure extends from the ABS Programme for the International Assessment of Adult Competencies (PIAAC), which estimated that 14.1% of Australians aged 15-74 had a literacy proficiency level of 1. The figure has been extended to represent all ages (those aged 15-74 accounted for 73.6% of the population in 2011[12]).

3,032,588 is a higher figure than those in both the 2007 and 2002 reports. This is primarily because those reports only estimated the figure for Australians aged 15-74.

The PIAAC replaced the Adult Literacy and Life Skills Survey (ALLS; 2006) which was used to estimate the figure for the 2007 report. As with the ALLS, the PIAAC measured literacy proficiency among Australians aged 15-74. This was measured on a scale from 0 to 500 points, with scores grouped into five skill levels from level 1 – the lowest skill level group – to level 5.

The ALLS measured proficiency in prose and document literacy separately. Consultation with the ABS for the 2007 report determined that those with level 1 proficiency (0 to 225 points) "would experience considerable difficulty in reading the newspaper daily and therefore have a print disability." The prose and document literacy scales from the ALLS were combined into a single scale for the PIAAC: 'literacy.' As a result, there is a difference between the definitions of level 1 prose literacy proficiency for the ALLS and literacy proficiency for the PIAAC. These definitions are in Table 6 below for comparison. Also below is the definition for level 1 document literacy proficiency for the ALLS, as Australians in this level were not included in the literacy impairment print disability population in the 2007 report.

Table 6: Comparison of definitions of literacy proficiency in the ALLS and PIAAC

Prose literacy proficiency level 1 (ALLS; 2006)	"Most of the tasks in this level require the respondent to read relatively short text to locate a single piece of information which is identical to or synonymous with the information given in the question or directive. If plausible but incorrect information is present in the text, it tends not to be located near the correct information."
Literacy proficiency level 1 (PIAAC, 2012)	"Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information which is identical to or synonymous with the information given in the question or directive. Some tasks may require the respondent to enter personal information onto a document, in the case of some non-continuous texts. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognising basic vocabulary, evaluating the meaning of sentences, and reading of paragraph text is expected."
Document literacy proficiency level 1 (ALLS; 2006)	"Tasks in this level tend to require the respondent either to locate a piece of information based on a literal match or to enter information from personal knowledge onto a document. Little, if any, distracting information is present."

[12] Australian Bureau of Statistics, 2011 Census

Consultation with the ABS for the 2007 report indicated that those with a skill of level 1, prose literacy would "experience considerable difficulty in reading the newspaper daily and therefore have a print disability". Similar consultation conducted for this report indicated that because of the mentioned combination, the single literacy scale was now the most accurate measurement for print disability through literacy impairment, rather than a manipulation of this data based on the previous ratio between the estimated prose and document literacy scale disabled populations.

Table 7 below compares the estimated populations for each level in 2006 and 2012, with the figures used to estimate the print disabled populations highlighted.

Table 7: Number and proportion at each skill level

	Literacy scale (PIAAC; 2012) 15-74		Literacy scale (PIAAC; 2012) Extended to all ages		Prose scale (ALLS; 2006) 15-74		Document scale (ALLS; 2006) 15-74	
Skill level	**'000**	**%**	**'000**	**%**	**'000**	**%**	**'000**	**%**
Level 1/Below level 1	2,361.1	14.1	3,032.6	14.1	2,515.3	16.7	2,718.8	18.0
Level 2	5,036	30.1	6,473.8	30.1	4,487.6	29.7	4,349.1	28.8
Level 3	6,339	37.9	8,151.4	37.9	5,649.2	37.4	5,361.9	35.5
Level 4/5	2,611.9	15.6	3,355.2	15.6	2,453.4	16.2	2,676.7	17.7
Total	16,348	97.9*	21,507.7	97.9*	15,105.4	100	15,105.4	100

*Adults in the missing category did not receive a proficiency score because they were not able to answer more than five questions in the background questionnaire. Figures for each level are rounded, accounting for where they do not add to 97.9.

7 Learning disability and attention Impairment

Overall findings

It can be estimated that 668,176 Australians have a print disability through learning disability or attention impairment. As noted in the 2007 report, "over 4% of the Australian population would have trouble reading a newspaper or book daily" due to a learning disability or attention impairment. For the purpose of consistency with this report, this same proportion has been used to determine the estimate, despite this being conservative as demonstrated by the figures below.

Learning disabilities

Among the organisations consulted, estimates regarding the proportion of Australians suffering learning difficulties ranged from 20% to 25%. These can take a range of forms, however, including:

- Reading;
- Written expression;
- Mathematics;
- Co-ordination; and
- Language.

In terms of print disabilities, the most relevant of these forms is reading. Learning difficulties of this form are primarily accounted for by dyslexia. As with the 2007 report, the consulted organisations typically estimated that between 3% and 5% of Australians had dyslexia. Several organisations, however, estimated that this figure could be as high as 10%, with a further 10% on the continuum.

For consistency with the 2007 report, the population figure for those who had a print disability through learning disabilities has been based on those provided by the Dyslexia-SPELD Foundation of Western Australia (4%). It should be noted, however, that this estimate is conservative, and that this figure could be as high as 2,150,772 if assuming a higher incidence.

Attention impairments

It can be estimated that 1,462,524 Australians had a print disability through learning disabilities. The reason for this is detailed below.

As with the 2007 report, the consulted organisations typically estimated that between 5% and 7% of Australians had attention impairments, including Attention Deficit Hyperactivity Disorder (ADHD) and Attention Deficit Disorder (ADD). Indeed, among children, 6.8% have been diagnosed with one of these impairments.[13] In addition, 1% of Australians have been diagnosed with Autism Spectrum Disorder, though due to lack of available data on the crossover between this and the other attention impairments mentioned, this has been omitted from the overall population figure.

It should be noted that some organisations thought these were conservative estimate due to their perception that many people who suffer from these impairments are not diagnosed.

[13] Every Day with ADHD, 'How many kids in Australia have ADHD?', available at http://www.everydaywithadhd.com.au/FAQRetrieve.aspx?ID=41495

State profile

As with the 2007 report, the figures could not contain be disaggregated by State and Territory.

8 Physical impairment

Overall findings

It can be estimated that 860,610 Australians have a print disability through physical impairment. This figure encompasses arthritis and multiple sclerosis sufferers. As with the 2007 report, this estimate is conservative due to the lack of granularity of available data for disabilities including cerebral palsy, spinal injury, and old age. Sufferers of these disabilities have been omitted from overall population figures.

State profile

As with the 2007 report, the figures could not contain be disaggregated by State and Territory.

Physical impairment type

Arthritis

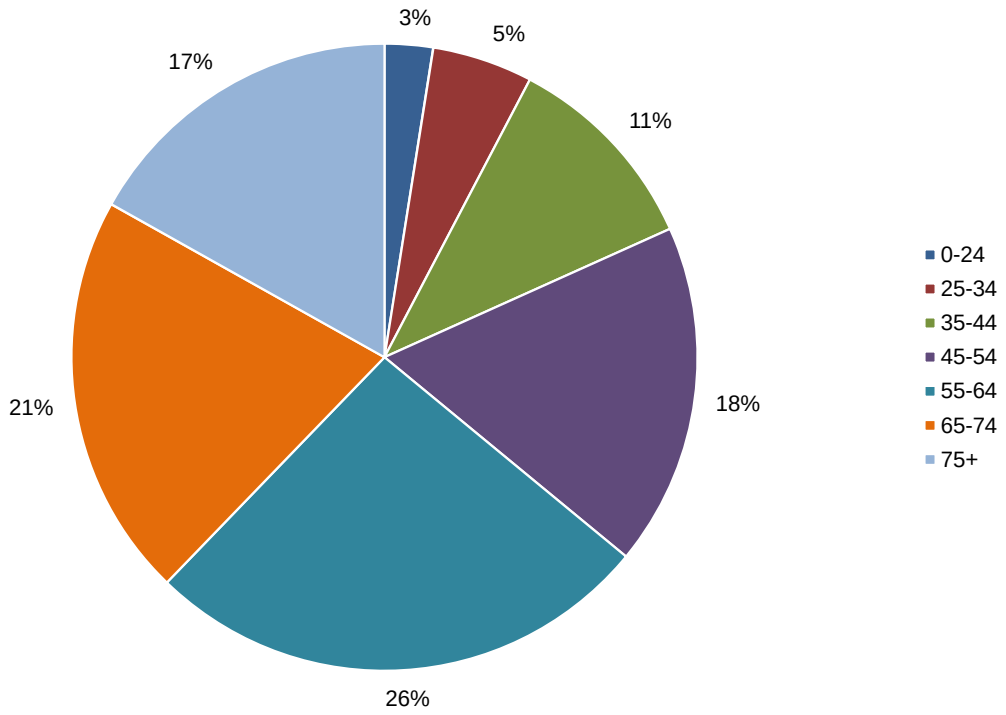
It can be estimated that, in 2012, 853,500 Australians had a print disability through arthritis. This estimate extends from the ABS Australian Health Survey.

The 2012 figure is higher than that in the 2007 report (318,200). Although the latter stated that “561,300 arthritis sufferers…listed themselves as having arthritis or a related disability” (referenced as an ABS figure), the 2004-05 National Health Survey stated that 15% of Australians reported having arthritis. Based on the population from the 2006 Census (19,855,288), this indicates that actually about 3,000,000 Australians had arthritis. This compares with 3,265,400 from the mentioned Australian Health Survey, and suggests that the prevalence of print disability through arthritis was underestimated in 2007.

It should be noted that, as observed by the organisations consulted, arthritis is not a single disease, but an umbrella term encompassing more than 100 medical conditions. The figure of 3,265,400 Australians suffering from arthritis in 2012 is supported by the organisations consulted, each of which estimated a figure of between 2 and 4 million. The print disabled arthritis sufferer population estimate was therefore informed by consultation with the ABS for the 2007 report which determined that those arthritis sufferers with a profound, severe or moderate core activity restriction would have a print disability “encounter difficulties in basic physical tasks, paperwork reading or writing tasks such as filling in forms, writing letters, checking bills or bank statements for a reasonable amount or extended period of time.”

It should also be noted, however, that some of the organisations consulted reported that as much as 20% of Australians had arthritis. Also commonly reported, despite the common perception that arthritis is generally confined to older people, was that about two in three arthritis suffers are aged 15-60. This is supported by Figure 1 below, provided by the Arthritis Foundation NSW, which shows the breakdown of arthritis sufferers by age group. It was estimated that 55% of sufferers were aged 15-65, and 38% over 60.

Figure 1: Arthritis sufferers by age[14]



State profile

As with the 2007 report, the ABS figures could not contain be disaggregated by State and Territory. However, the Arthritis Foundation NSW estimated that 41.5% of arthritis sufferers live in NSW. This compares with about 32% of the population overall, suggesting a higher prevalence of arthritis among NSW residents than elsewhere.

Spinal disability

The 2007 report noted that about 300-400 new cases of spinal cord injuries (SCI) occurred each year. It also noted that the SCI population in 2005 was about 9,000, based on the 2005 'Spinal cord injury Australia report' by the Australian Institute of Health and Welfare. The most recent iteration of the report, published in 2010, predicted the population to increase to between 10,500 and 12,000 by 2021. It also reported a total of 362 new cases of SCI were reported in 2007–08. Although this figure is relatively outdated, it suggests that the occurrence rate has been steady.

It should be noted, however, as with the 2007 report, that sufferers of spinal disability have been omitted from the overall physical impairment figures as the organisations consulted thought that "occupational therapy in the home is sufficiently sophisticated that reading assistance apparatus' are fitted easily, making reading an easy task despite the spinal disability," and, in addition, "paraplegics and quadriplegics are typically very high television watchers."

[14] Arthritis Foundation NSW, Adults and Arthritis, available at: http://arthritisnsw.org.au/arthritis/adults-and-arthritis/

Multiple sclerosis

It can be estimated that 7,110 Australians had a print disability through multiple sclerosis in 2009.

It was estimated in 2009 that 23,700 Australians suffered from multiple sclerosis (MS). This figure is substantially higher than that in the 2007 report (17,000), indicating an increase in either the occurrence or diagnosis rates, or both. The population figure extends from the ABS Disability, Ageing and Carers report. It is informed by consultation with the ABS for the 2007 report which determined that about 30% of MS sufferers would “have difficulty either holding a book or newspaper, have blurred vision, or other impairment that equates to a print disability.” The figure of 7,110 is 30% of 23,700.

Cerebral palsy

The organisations consulted currently estimate that about 34,000 Australians suffer from cerebral palsy. Suffers of this disability, however, have been omitted from overall physical impairment figures as the crossover rate with the other disabilities in this section cannot be determined.

Old age as a print disability

As noted in the 2007 report, old age may be a catalyst for a print disability, however it has been determined that such print disabilities may be caused by old age-related conditions such as vision impairment and arthritis. Therefore, to avoid duplication, figures for old age have not been included in overall physical impairment figures.

9 Vision impairment

Overall findings

In 2009, it was estimated that 164,800 Australians had a print disability through vision impairment. This represents 0.8% of the population. Of this figure, it was estimated that 112,600 were aged 65 or older and 52,200 under 65. This compares with 2003, when 129,400 were aged 65 or older and 57,500 under 65.

The population figure extends from the ABS National Health Survey, which was also used to determine the figure for the 2007 report. It is informed by consultation with the ABS for that report which determined that those with total or partial uncorrected sight loss who suffered a profound, severe or moderate core activity restriction would have a print disability. Those who suffered only a mild core activity restriction (54,000), and those whose sight was corrected by wearing glasses or contacts were not determined to have a print disability.

It should be noted that although the National Health Survey was conducted more recently, in 2012 (in the form of the Australian Health Survey), overall figures for loss of sight among the disabled population are not yet available.

Table 8 below compares the estimated populations that did and did not suffer vision impairment in 2003 and 2009, with the figures used to estimate the print disabled populations highlighted.

Table 8: Sight limitation by disability status and age

	2003			2009		
	No sight loss/corrected	Partial loss of sight	All with loss of sight(a)	No sight loss/corrected	Partial loss of sight	All with loss of sight(a)
	'000	'000	'000	'000	'000	'000
0-64 years						
Core activity limitation						
Profound	212.4	18.4	21.9	244.6	15	18.7
Severe	424.6	21.9	23.9	397.4	18	19.6
Moderate	426	11.1	11.7	376.3	13.6	13.9
Mild	603.4	21.5	23.3	649.5	23	23.3
Total	**2,444.4**	**113.3**	**122.4**	**18,775.8**	**97.5**	**104.3**
65 years and older						
Core activity limitation						
Profound	282.9	66.3	76.8	296.5	68.4	74.8
Severe	173.1	27.8	28.8	195.7	21.8	23.3
Moderate	238.7	23.6	23.8	254.4	14	14.5
Mild	408.3	21.3	22.1	511.0	30.4	30.8
Total	**1,229.5**	**148.5**	**162**	**2748.4**	**145.2**	**154.7**
Total						
Core activity limitation						
Profound	495.4	84.7	98.7	541.1	83.4	93.5
Severe	597.7	49.7	52.7	593.1	39.8	42.9
Moderate	664.8	34.7	35.6	630.8	27.6	28.4
Mild	1,011.7	42.8	45.4	1,160.5	53.4	54
Total	**3,673.9**	**261.8**	**284.4**	**21,524.2**	**242.7**	**259.0**

State profile

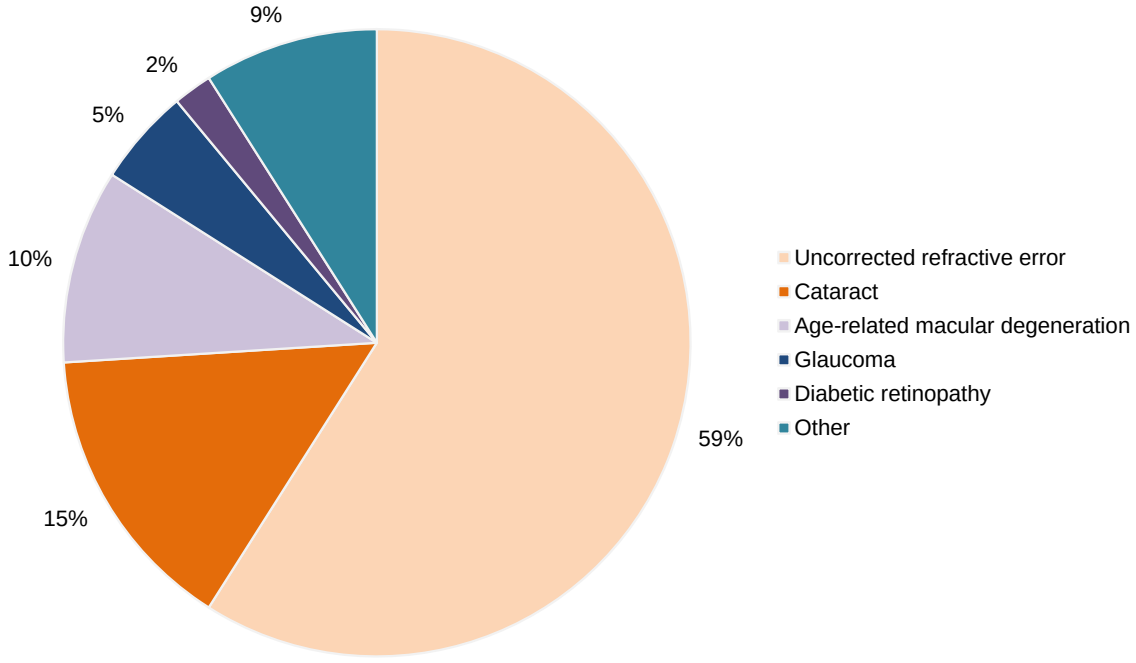
As with the 2007 report, the figures could not contain be disaggregated by State and Territory.

Vision impairment type

Figure Figure 2: Visual impairment by cause in over-40s, Australia 2009 , Figure 3 and Figure 4 below show the proportions for causes of vision impairment and blindness in 2009 among Australians aged over 40. It should be noted that these figures are almost identical to those in the 2007 report. The figures were produced by Access Economics Pty Limited for the Centre for Eye Research Australia and the Eye Research Australia Foundation, in 2009.

Figure 2 below shows that the cause of vision impairment for most Australians was uncorrected refracted error (59%).

Figure 2: Visual impairment by cause in over-40s, Australia 2009[15]

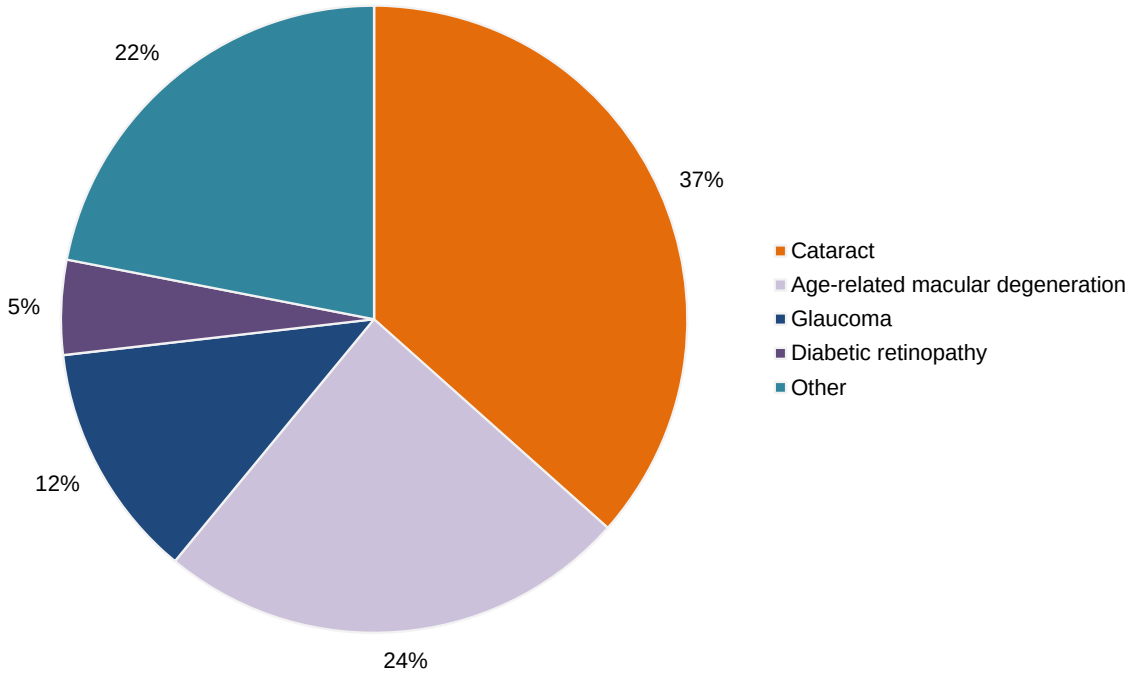


Total: 574,896

Figure 3 below shows that among those for whom the cause of impairment was another reason, a cataract was the most common reason (37%), then an age-related macular degeneration (24%). About one in ten suffered from glaucoma (12%), and 5% from diabetic retinopathy (5%). For about one in five, another reason was the cause (22%).

[15] Vision 2020 Australia and Access Economics, 'Clear Focus: The Economic Impact of Vision Loss in Australia in 2009', available at: http://www.vision2020australia.org.au/uploads/page/111/v2020aus_report_clear_focus_overview_jun10.pdf

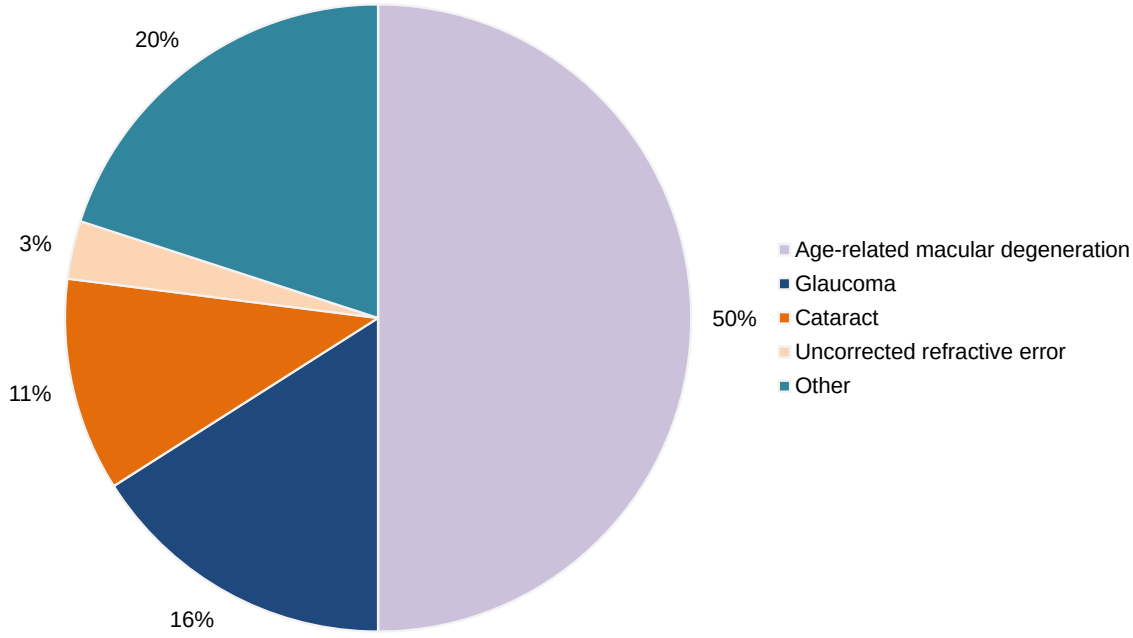
Figure 3: Visual impairment not correctable by refraction, by cause in over-40s, Australia, 2009



Total: 233,677

Figure 4 shows that among Australians who suffered from blindness, it was caused by age-related macular degeneration (50%). For 16%, it was caused by glaucoma, for 11% a cataract, and for 3% an uncorrected refractive error. For one in five participants, it was another reason (20%).

Figure 4: Blindness by cause in over-40s, Australia, 2004



Total: 66,465

10 Discussion

Interpreting the estimate

Although the estimated prevalence of print disability among the Australia population size is higher in this report than in its predecessors, this should be tempered by the following.

- It is believed there was an underestimation of the literacy and physical print disabled population sizes in 2007, which have been corrected in this report; and
- The estimate cannot take into account the population of those who are print disabled for multiple reasons. Given that the overall disabled population figures are lower than the print disabled population estimate in this report, it is likely that the exact figure for the latter is lower.

Future trends

The sources consulted generally suggest that the print disabled population will increase at a faster rate than the Australian population.

It should be noted, firstly, that the overall disabled population is decreasing as a proportion of the Australian population. This has been explained by generally improved health through nutrition, sanitation and education.[16] Between 2003 and 2009, the overall disabled population decreased from 20% to 18.5% of the Australian population.[17] The decrease was particularly evident among younger Australians:

- From 9% to 6.6% for those aged 15-24; and
- From 11% to 8.6% for those aged 25-34.

Importantly, however, the proportion of disabilities identified as profound or severe core activity limiting is increasing. The estimates in this report for the physical and vision print disabled populations have been determined using ABS population estimates for those suffering from profound, severe or moderate core activity limiting physical or vision disabilities. In addition, although not classified in this way by the ABS, it can be assumed that those who suffer from the equivalent of a profound or severe core activity limiting literacy disability or learning or attention impairment would be more likely to suffer a print disability than those with a less core activity limiting disability. Therefore an increase in the proportion of Australians who suffer a profound or severe core activity limitation also results in an increase in the proportion who suffer a print disability.

In 2009, approximately 1.3 million Australians identified as having such a disability, compared with a projected 4 million in 2099.[18] While this rate triples, Australia's population overall is only expected to double over the same period. This is so for the following reasons.

[16] National Center for Biotechnology Information, Recent declines in chronic disability in the elderly U.S. population: risk factors and future dynamics, 2008, available at: http://www.ncbi.nlm.nih.gov/pubmed/18031222

[17] Australian Bureau of Statistics, 4300.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2009

[18] Pricewaterhouse Coopers, 'Disability expectations – Investing in a better life, a stronger Australia, 2011, available at: http://www.pwc.com.au/industry/government/assets/disability-in-australia.pdf

- Australia's population is ageing, and with age comes a greater risk of developing a severe or profound core limiting disability. The median age of Australians is expected to increase substantially in coming years: from 37.3 in 2012 to as high as 40.5 in 2031, and 44.5 in 2061.[19] Further, the life expectancy of Australians is predicted to reach as high as 93.6 for females and 92.1 for males in the next 50 years, with the number of people aged 85 and over to reach 5.5 million in the next 90 years;
- Survival rates for life-threatening events that, if survived, limit activities (such as premature birth, accidents and disease) are increasing[20]; and
- There appears to be an increasing willingness to identify as having a disability in surveys, and therefore to identify as severely or profoundly core limited. This also suggests a greater likelihood to view RPH's broadcasting as relevant.

Physical print disability is likely to experience the greatest increase in prevalence due to the association between physical disability and age. While other disabilities overall have decreased in prevalence, physical disabilities have generally remained consistent.[21] This has been explained by the rising obesity rate,[22] and by a higher diagnosis rate for disabilities caused by musculoskeletal disorders, such as arthritis and back problems.

While arthritis is typically associated with older age groups, it should be noted that the prevalence of identifying as an arthritic also appears to be increasing among younger Australians. Several sources consulted noted an increase in the arthritis diagnosis rate among this group. While this would suggest an increasing prevalence of arthritis among younger people, it may also be explained by the availability of new treatments for joint disorder and inflammation that require this diagnosis before being prescribed. It is therefore likely that much of RPH's expanding audience in years to come will be print disabled through physical disability.

[19] Australian Bureau of Statistics, 3222.0 - Population Projections, Australia, 2012 (base) to 2101, 2013, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/3222.0Main%20Features52012%20%28base%29%20to%202101?opendocument&tabname=Summary&prodno=3222.0&issue=2012%20%28base%29%20to%202101&num=&view

[20] Australian Productivity Commission, 'The prevalence of disability,' available at: http://www.pc.gov.au/__data/assets/pdf_file/0005/13676/technicalpaper07.pdf

[21] Australian Bureau of Statistics, 4300.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2009

[22] National Center for Biotechnology Information, Recent declines in chronic disability in the elderly U.S. population: risk factors and future dynamics, 2008, available at: http://www.ncbi.nlm.nih.gov/pubmed/18031222

11 The Australian media landscape

The media landscape in Australian has changed greatly over the last few years and this analysis of the media market aims to provide context in which RPH now operates.

Publishers and media companies alike have had to come to terms with a rapidly evolving landscape and technological innovation. They have had to provide flexibility in the way they connect with audiences through the delivery of content across multiple platforms. As this pace accelerates, it continues to provide complexity and opportunity for all across this landscape, those who consume their content, those who produce it, and those, like RPH, who convey its content as an ongoing and valued service.

Radio broadcasting

Radio has also undergone adjustments as the sector evolves with the advent of technology. Developments, such as new data capture techniques for audiences, content packaging and most notably the introduction of digital radio in 2009 across metro and regional locations, have seen the emergence of new, niche and innovative programming transmitting across the airwaves. Indeed, in the 12 months to the end of 2012, commercial radio grew 1% across the metro cities and culminated in 9.5 million people listening in each week[23]. Digital radio audiences are numbered at over 1.4 million people, a growth of 400,000 over a 12 month period[24].

The diversity of such content is not limited to the commercial area of course, with over 350 community stations licenced to broadcast across Australia, resulting in an estimated audience of 5.2 million or 29% of the population listening to community radio each week[25].

Newspapers & magazines

In terms of the print world, according the most recent release of information from The Newspaper Works[26], 16.2 million Australians turn to content issued by a news publisher, projected to be 93% of the overall population, indeed, 86% turn to a newspaper every month across local, metropolitan or national formats and over 70% read magazines.

For papers, the printed format is now joined by 47% who read it on the web, 16% on tablet and 16% on mobile[27] and has expanded the audience reach of media content rather than erode its enjoyment. The appeal and type of journalism continues to hold great interest for Australians and more than ever they are open to the ability to access this in a multitude of ways. As device ownership increases, so too will the desire to get such content in this way – an impressive trajectory given the fact that it was only 2010 when the Apple iPad launched into the market, a product largely attributed to the worldwide take up of tablet usage.

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[23] Nielsen Radio Ratings, Survey 1-8 2012. 5 Metro Cap Cities. Total People 10+yrs Mon-Sun Midnight to Midnight unless otherwise stated, all Commercial and Digital listening

[24] Source: Nielsen Radio Ratings Survey 8, 2010, 2011 and 2012. Data prior to the move of radio audience metrics to GfK have been used to enable evidence of audience growth over a sustained period. This is not currently possible with the new measurement service.

All people 10+ Monday to Sunday, Midnight to Midnight.

[25] McNair Ingenuity Research, 2013, People aged 15+, CBX, Community Broadcasting Association of Australia, May 2014

[26] The Newspaper Works is the newspaper publishers industry body in Australia

[27] The Readership Works, emma™ conducted by Ipsos MediaCT, 12months to December 2013, All People 14+

Device ownership & web services

Recent data shows that Australian ownership of smartphones is 65% and tablets are 51%, the latter of which is expected to continue growing. At the end of 2013, sales of tablets had doubled to reach 4.8 million and based on this progression, is expected to exceed computer or PC ownership by mid-2015[28], fuelled by the release of new models made available at a lower price points. The increased ownership of such devices will provide further avenues for people with a vision disability for the means of getting access to media branded content not just via radio but through the web. Currently across Australia, for those people aged 14+, approximately 41%[29] have accessed the internet for streaming or downloading of radio or music and shows no signs of abating.

Table 10: Accessed the internet for streaming or downloading (Last 7 days)[30]

	Profile %	Usage %
Age 14-29	45.4	67.9
Age 30-44	27.8	44.4
Age 45-64	21.5	28.6
Age 65+	5.3	12.8

One of the key growth areas in terms of streaming is that of music streaming services and as at February 2014, there were 15 services competing for attention in the Australian market. The main thrust of these services is aimed at providing a way to build on existing digital collections and can be accessed via computers and mobile devices as desired. The positioning of the competing services is determined by breadth and type of content, price, trial offers and whether its ad supported or not. Currently the main players are:-

Table 11: Main Music Streaming Services in Australia[31]

Deezer	Rara
Google Play	Rdio
Grooveshark	Samsung Music Hub
Guvera	Sony Music Unlimited
iTunes Radio	Songl
JB Hi-Fi Now	Spotify
MOG	Vevo
Nokia Music+	Xbox Music
Pandora	

Internet

While online is seemly everywhere, it is still a growing market according to the ABS. As at the end of December 2013, there were 12,397,000 internet subscribers in Australia, and this was up 2% on the previous year[32]. Indeed the report also indicated that dial up was continuing to decline and broadband of some type now accounted for 98% of internet connections. Of note, mobile wireless broadband solutions made up half of all internet connections.

[28] Telsyte, March 2014, www.theaustralian.com.au

[29] The Readership Works, emma™ conducted by Ipsos MediaCT, 12months to December 2013, All People 14+

[30] The Readership Works, emma™ conducted by Ipsos MediaCT, 12months to December 2013, All People 14+

[31] Cnet.com.au

[32] Australian Bureau of Statistics, 8153.0 - Internet Activity, Australia, December 2013

Table 12: Internet subscribers by type of access connection (a)(b), for ISPs with more than 1,000 subscribers

Type of Connection	Dec 2012 000's	June 2013 000's	Dec 2013 000's
Dial-Up	282	227	205
Broadband			
DSL	4727	4787	4898
Cable	918	934	944
Fibre	91	115	167
Satellite	92	93	91
Fixed Wireless	49	49	48
Mobile Wireless	5995	6150	6040
Other	7	3	3
All Broadband Connections	*11879*	*12131*	*12192*
Total Number of Subscribers	12161	12358	12397

(a) Dial-up and broadband figures reported by type of access connection may not equal figures collected by advertised download speeds, due to some broadband connections being reported as less than 256kbps.
(b) Data reported by type of access connection may be influenced by cyclical factors, such as educational semesters. This could impact on the data reported at each reference period of the IAS, namely 30 June and 31 December, particularly for types of access connection where relatively small numbers are reported.

In terms of usage, in 2012-13, 83%[33] of the population were internet users, with younger people aged 15-17 years old having the highest proportion of users at 98%, while only 46% of people aged 65 and over had used the internet. There was no difference between usage patterns of men and woman, but only 77% people with lower incomes (less than $40,000 p.a) had accessed the internet, compared to 97% of people on higher incomes (over $120,000 p.a.) having used it. Those with a higher education were also more likely to have used it.

Most commonly the internet was accessed from home with 97% of accessed registered here, while the next most popular location was at work (49%), followed by someone else's place (neighbour, friend or relative) at 41%.

Around 76% of people have made some type of internet purchase, whether that be accommodation, travel, CD, music, videos, books of all types, or fashion. Trepidation around using this service has diminished and need accounted for the most prevalent reason for not using it at 33%, while security concerns only rated at 12%.

[33] Australian Bureau of Statistics, 8146.0 - Household Use of Information Technology, Australia, 2012-13

12 Glossary of terms

Arthritis[34]

Arthritis is a name for a group of conditions affecting the joints. These conditions cause damage to the joints, usually resulting in pain and stiffness. Arthritis can affect many different parts of the joint and nearly every joint in the body.

Attention Deficit Hyperactivity Disorder[35]

Attention Deficit Hyperactivity Disorder is a developmental problem which results in poor concentration and control of impulses. It can affect children's learning and social skills, and also family functioning.

Autism Spectrum Disorder[36]

Autism spectrum disorder is a lifelong development disability characterised by difficulties in social interaction, communication, restricted and repetitive interests and behaviours, and sensory sensitivities. These behaviours often manifest in an intense and focused interest in a particular subject matter; stereotyped body movements like hand flapping and spinning; and an unusual and heightened sensitivity to everyday sounds or textures. People with ASD experience difficulties with social interaction and impaired and unusual verbal and non-verbal communication.

Cataracts[37]

A cataract is a clouding of the clear lens in the eye.

Cerebral palsy[38]

Cerebral palsy is an umbrella term that refers to a group of disorders affecting a person's ability to move. It is a permanent life-long condition, but generally does not worsen over time. It is due to damage to the developing brain either during pregnancy or shortly after birth.

Diabetic retinopathy[39]

Diabetic retinopathy occurs when the tiny blood vessels inside the retina at the back of the eye are damaged as a result of diabetes. This can seriously affect vision and in some cases cause blindness.

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[34] Arthritis Foundation WA, 'Overview', available at: https://www.arthritiswa.org.au/content/page/arthritis-overview.html

[35] The Royal Children's Hospital Melbourne, 'ADHD – an overview', available at: http://www.rch.org.au/kidsinfo/fact_sheets/ADHD_an_overview/

[36] Autism Spectrum Australia, 'About autism spectrum disorders', available at: http://www.autismspectrum.org.au/content/about-autism-spectrum-disorders

[37] Vision Australia, 'What is a cataract?', available at: http://www.visionaustralia.org/eye-health/eye-conditions/cataracts

[38] Cerebral Palsy Alliance, 'What is Cerebral Palsy?', available at: https://www.cerebralpalsy.org.au/what-is-cerebral-palsy/

[39] Vision Australia, 'What is Diabetic Retinopathy?', available at: http://www.visionaustralia.org/eye-health/eye-conditions/diabetic-retinopathy

Dyslexia[40]

Dyslexia is a specific learning disability that is neurological in origin. It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge.

Glaucoma[41]

Glaucoma is a common form of eye disease that often runs in families. It affects the optic nerve connecting the eye to the brain. Glaucoma is often caused by high intraocular pressure, a result of a blockage in the eye's drainage system.

Macular degeneration[42]

Macular degeneration is a set of conditions in which the central part of the retina, called the macula, develops degenerative changes due to damage caused by the accumulation of metabolic waste products.

Multiple sclerosis[43]

Multiple sclerosis is a disease of the central nervous system – it may affect the brain, spinal cord and/or optic nerve. It is a very variable condition and the symptoms depend on which areas of the central nervous system have been affected. There is no set pattern to MS and everyone with MS has a different set of symptoms, which vary from time to time and can change in severity and duration, even in the same person.

Paraplegia and quadriplegia[44]

Paraplegia and quadriplegia are conditions which result from damage to the spinal cord from an accident or other trauma.

Refractive error[45]

Refractive error is a deficiency or a failure of the optical surfaces of the eye to focus images clearly on the retina. This results in a blurred image being perceived, even when all other parts of the eye and visual system are working perfectly.

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[40] Dyslexia-SPELD Foundation, 'What is Dyslexia?', available at: http://dsf.net.au/what-is-dyslexia/

[41] Vision Australia, 'What is glaucoma?', available at: http://www.visionaustralia.org/eye-health/eye-conditions/glaucoma

[42] The Fred Hollows Foundation, 'Macular degeneration', available at: http://www.hollows.org.au/eye-health/macular-degeneration

[43] MS Queensland, 'What is MS?', available at: http://msqld.org.au/about-ms/what-is-ms

[44] Better Health Victoria, 'Spinal cord injury', available at: http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Paraplegia_%28spinal_cord_injury%29

[45] The Fred Hollows Foundation, 'Refractive error', available at: http://www.hollows.org.au/eye-health/refractive-error