



Health outcomes and issues facing rural and remote communities

Findings from Public Health Research Study
and Health Check Clinics conducted at
BEEF 2018 - Rockhampton, May 2018



Authors

Dan Halliday
Richard Franklin
Tarun Sen Gupta
Marissa Loxton
Marg Moss

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Acknowledgments

This report has been prepared by RDAQ Foundation using primary data collected with patient permission during a series and health check and primary data collected from face to face interviews. It is supported by secondary data and evidence from existing research reports and studies. RDAQ Foundation acknowledges the collaboration of The University of Queensland Rural Medical School and James Cook University Rural Generalist Training Program in organising and supporting the Health Check Clinics and Public Health Surveys from which primary data was sourced.

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About RDAQ Foundation

RDAQ Foundation was established in 2014 by the Rural Doctors Association Queensland (RDAQ) to improve health care in rural and remote communities. The Foundation was established by rural doctors to work with communities at the local level. The Foundation prioritises projects that directly help rural and remote communities, so they get the support they deserve.

RDAQ Foundation was born from the floods that occurred in Queensland in 2011.

Many rural and remote Queenslanders were cut off from health facilities. Rural health professionals and their families faced similar circumstances as their neighbours. The experiences of those difficult weeks prompted RDAQ to consider how such gaps in support for rural communities and their health professionals could be addressed.

Dr Dan Halliday and Dr John Hall - then President and Secretary of RDAQ - shared a vision of creating a health charity with a focus to improve access to health and wellbeing for all rural and remote Queenslanders. The purpose broadened from times of disaster to include addressing the inequities in accessing health care in rural and remote communities.

In 2013, Dr Dan Halliday presented a proposal for the establishment of a health promotion charity to the RDAQ membership. The membership enthusiastically supported the initiative at the 2014 Annual General Meeting. Outgoing RDAQ president, Dr Adam Coltzau was endorsed as the inaugural chair of RDAQ Foundation.

A founding board of three directors was established. In 2015, formal recognition by the Australian Charities and Not-for-profits Commission and Australian Taxation Office as a deductible gift recipient was achieved.

Today, RDAQ Foundation provides financial support and health initiatives that enables innovative approaches to addressing health inequities in rural and remote communities. The volunteer board, supported by a General Manager, remain committed to prioritising action-based initiatives that deliver real outcomes.

Our vision is for rural and remote communities to enjoy healthy lives and access to quality local care through innovations, research and inspiration.

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Foreword

RDAQ Foundation is passionate about the quality of health care for rural and remote communities. Our vision is for those communities to enjoy healthy lives with access to quality local care. RDAQ Foundation was established by a group of rural doctors with a passion to support communities living in rural and remote locations.

Understanding the current health condition and health needs of those living in rural and remote communities is the first step in improving service provision and access.

Working in partnership with The University of Queensland Rural Clinical School (UQRCS) Rockhampton, RDAQ Foundation conducted health checks and face to face research with those living in remote locations. BEEF 2018, a rural trade show provided the opportunity to conduct free health checks and to speak to many people from rural and remote communities. The health checks and associated research provided insight into their health needs and the challenges they face living remotely from medical and health services.

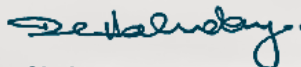
This report outlines the findings of this research and includes information collected from the interviews and from health checks conducted by rural doctors during the BEEF 2018 event.

This research will inform future activities of RDAQ Foundation and the Rural Doctors Association Queensland and provide a basis for an ongoing research program to better understand and serve those living in rural and remote communities.

It will also inform our grants programs ensuring that funding is provided to initiatives and regions that will gain the most benefit from the investment.

Improving health outcomes in rural and remote communities is fundamental to RDAQ Foundation. I am proud this research will increase awareness of the health issues faced by rural doctors and their communities.

Dr Dan Halliday



**Chair
RDAQ Foundation**



1. Introduction

Since its formation, RDAQ Foundation has developed initiatives to address health inequalities in rural and remote communities. Importantly, the organisation has action-based initiatives that deliver real outcomes for rural communities, including the provision of free health check clinics and grants to support innovation in service delivery in rural and remote communities.

The importance of health checks and primary health research is significant as it is well demonstrated that generally rural and remote Australians have poorer health outcomes than those living in major cities (Australian Institute of Health and Welfare, 2016) (Queensland Government (Queensland Health), 2014) (Garvan Research Foundation, 2015).

Health check clinics provide patients with an opportunity to have their health status assessed by volunteering health professionals. Often these checks highlight important health concerns which require further investigation by the patient's general practitioner. It is hoped these Health Check Clinics encourage patients to seek medical advice to improve their health outcomes and health status.

Public health surveys highlight healthcare issues experienced by rural and remote communities. In particular, the RDAQ Foundation survey focused on access to urgent and non-urgent medical care, perceived health status and major healthcare issues.

Similar studies have previously been conducted, including the survey by Rural Flying Doctor's Service (RFDS) (Centre for International Economics, 2015). RDAQ Foundation commends the RFDS on their findings regarding rural and remote health. RDAQ Foundation have aimed to expand on their findings and conclusions by designing a similar public health survey for this study.

1.1 Definition of rural and remote Australia

For the purposes of this study, rural and remote Australia is defined as areas outside the nation's major cities. Approximately 7 million or 29% of the population reside in rural and remote areas (Australian Bureau of Statistics, 2017).

The Australian Statistical Geographical Standard (ASGS) system has often been used to categorise rural and remote communities in Australia. The ASGS is a geographical classification system which ranks areas rurality or remoteness by the Australian Bureau of Statistics (ABS) gathered from federal census data. In the ASGS areas are ranked from RA1 to RA5, with RA1 being major cities and RA5 for very remote locations.

Recently a new classification system has been developed, the Modified Monash Model (MMM). The MMM is an updated geographical classification system which categorises urban, rural and remote locations based on population and isolation. Compared to the ASGS, the MMM provides clearer distinctions between large, medium and small communities in rural and remote Australia. It was developed to recognise challenges for attracting and retaining healthcare workers in rural and remote communities. In the MMM, areas are ranked from MM1-MM7. MM2-MM5 are classified as rural. MM6-MM7 are considered remote (National Disability Insurance Agency (NDIS), 2016).

Health check clinics provide patients with an opportunity to have their health status assessed by health professionals. Often these checks highlight important health concerns which require further investigation by the patient's general practitioner. It is hoped these Health Check Clinics encourage patients to seek medical advice to improve their health outcomes and health status.

1.2 Health of rural and remote Australians

Rural and remote communities are diverse due to their unique location, economy, population and climate. As a result, healthcare and health status can vary greatly between individuals living in different rural and remote locations in Australia (Rural Doctor's Association of Australia, 2018).

There is substantial evidence demonstrating that Australians living in rural and remote communities have poorer health outcomes than those living in major cities (Australian Institute of Health and Welfare, 2016). Overall, Australians living in rural and remote areas have lower life expectancy and greater disease prevalence compared with their counterparts living in major cities (Australian Institute of Health and Welfare, 2016).

In 2014-2015 self-reported data in the National Health Survey demonstrated that rural and remote communities had a higher prevalence of diabetes, cardiovascular diseases, asthma, mental health issues and other diseases than those living in major cities (Australian Institute of Health and Welfare, 2016). This information is demonstrated in the figure below (Figure 1.1)

	Major Cities	Inner Regional	Outer Regional/Remote
Arthritis	14%	20%	18%
Back pain and problems	16%	18%	16%
Asthma	10%	12%	12%
COPD	2.4%	3.4%	2.7%
Blindness	0.5%	0.9%	0.8%
Deafness	9.8%	15%	14%
Diabetes	4.7%	6%	6.7%
CVD	4.7%	6.7%	5.8%
Cancer	1.6%	1.7%	1.8%
Mental health problems	17%	19%	19%

Notes

1. '%' represents prevalence of chronic diseases in each region (excluding *very remote* areas of Australia).
2. Proportions are not age-standardised, and in some instances higher prevalence may reflect the older age profiles in *inner regional and outer regional/remote* areas.
3. 'COPD' refers to chronic obstructive pulmonary disease.
4. 'Blindness' includes partial and complete blindness.
5. 'CVD' refers to heart, stroke and vascular disease.

Figure 1.1 Self reported disease prevalence in the 2014-2015 National Health Survey by remoteness **Source:** (Australian Institute of Health and Welfare, 2016)

The 2014-2015 National Health Survey also demonstrated that rural and remote Australians had higher self-reported rates of high blood pressure, obesity, smoking and alcohol intake (Australian Institute of Health and Welfare, 2016). This information is demonstrated in Figure 1.2.

	Major Cities	Inner Regional	Outer Regional/Remote
Current daily smoker	13%	17%	21%
Overweight or obese	61%	69%	69%
No/low levels of exercise	64%	70%	72%
Exceed lifetime alcohol risk guidelines	16%	18%	23%
High blood pressure	22%	27%	24%

Notes

1. '%' represents prevalence of risk factor in each region (excluding *very remote* areas of Australia).
2. 'Proportions' are not age-standardised and, in some instances, higher prevalence may reflect the older age profiles in *inner regional and outer regional/remote* areas.

Figure 1.2 Self reported health risk factors, 2014-2015 National Health Survey by remoteness **Source:** (Australian Institute of Health and Welfare, 2016)



1.3 Social determinants of health

Social determinants of health are recognised to greatly impact on a population's health status. According to the World Health Organisation (WHO) social determinants of health are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. Some examples of social determinants of health include socio-economic status, access to education, access to healthcare, employment, age and race (World Health Organisation, 2018). According to WHO, social determinants are an important reason for the unavoidable differences in health outcomes between groups in society globally.

In Australia, people living in rural and remote areas generally have lower levels of education and employment, lower incomes, higher incidence of occupational risks and hazards, higher needs for long distance travel and poorer access to healthcare than their counterparts living in major cities (Garvan Research Foundation, 2015; Bishop L, 2017). These social factors play an important role in an individual's health outcomes and can partially explain poorer health outcomes in rural Australia.

1.3.1. Access to healthcare

Access to healthcare services is a major issue for many Australians living in rural and remote areas (Thomas, 2015). Compared to those living in major cities, there is a lower use of health services in rural areas. A reason for this is the inequitable distribution of healthcare providers in rural areas, including GP's, nurses and allied health professionals (Health Workforce Queensland, 2018).

In 2014, there were 437 full-time equivalent (FTE) medical practitioners per 100,000 people working in major cities. In comparison, there were only 264 FTE medical practitioners per 100,000 working in remote and very remote areas (Bishop L, 2017) (Australian Institute of Health and Welfare, 2016).

Access to mental health services is also poor in rural and remote Australia. Data from 2016 demonstrated that there were only 4.7 full-time equivalent (FTE) psychiatrists in outer regional areas and four FTE psychiatrists in very remote areas per 100,000 people (Australian Institute of Health and Welfare, 2018). In comparison, there were 16 FTE psychiatrists per 100,000 people in major cities. Furthermore, 87.5% of psychiatrists worked in major cities (Australian Institute of Health and Welfare, 2018). This trend is continued with psychologists, with there being 102.6 FTE psychologists per 100,000 in major cities, 43.1 in outer regional areas and 23 in very remote areas (Australian Institute of Health and Welfare, 2018).

Furthermore, access to services decreases as remoteness increases. Appropriate services and facilities are often not available in remote areas due to low and dispersed populations

(Duckett, Breadon and Ginnivan 2013 (RFDS report)). Reduced workforce and services contribute greatly to the poor access to healthcare experienced in rural and remote Australia.

Due to limited services, rural Australians may have to travel long distances or face long waiting times for medical care. These factors can have a significant effect on an individual's health outcomes (Bishop L, 2017). This is supported by data from the Medicare Benefits Scheme (MBS) (Centre for International Economics, 2015)(Bishop L, 2017). Access to the MBS was significantly lower in rural and remote Australia than in major cities. Studies have shown that individuals living in very remote communities accessed GP's at half the rate as individuals living in major cities (Centre for International Economics, 2015)(Bishop L, 2017).

1.4 Purpose

RDAQ Foundation operated a Health Check Clinic in collaboration with University of Queensland Rural Clinical School (UQRCS), Rockhampton and James Cook University (JCU) Rural Generalist Program. It provided patrons at BEEF 2018 a free non-invasive health check to assess their individual health status. Each health check provided an assessment designed in line with RACGP guidelines.

In addition to providing this valuable service, the purpose of the Health Checks Clinics was to gain insight into the health of rural and remote Australians and their concerns regarding their health and access to health care. The findings will inform the service model for future health clinics provided by RDAQ Foundation.

The purpose of the Public Health Survey was to collect information on the major health issues facing rural and remote Australians. It explored access to health care and what the health care priorities are for those living in rural and remote communities.

Together, the data from the Health Check Clinics and the Public Health Survey will provide a better understanding of health services needed in rural and remote Queensland.

Due to limited services, rural Australians may have to travel long distances or face long waiting times for medical care. These factors can have a significant effect on an individual's health outcomes.

2. Health Check Clinics findings

The purpose of the Health Check Clinic was to provide patrons with an overview of their current health status, specifically their diabetes risk, chronic disease risk and cardiovascular risk. With permission, de-identified data on the results of these health checks were collated to inform this research report.

2.0 Distribution

RDAQ Foundation held a Health Check Clinic at BEEF 2018 in Rockhampton in May 2018 following successful Health Check Clinics being held at BEEF 2015. The health check was designed by RDAQ Foundation in collaboration with the University of Queensland Rural Clinical School and the James Cook University Generalist Medical Training Program. The selection of BEEF 2018 was considered appropriate, being a cattle exhibition attracting thousands of people from rural and remote locations across Australia, with a large proportion of attendees residing in Queensland. Due to the nature of the event, it was assumed a significant number of patrons were from rural and remote communities and this was confirmed in the collection of de-identified demographic data.

2.1 Consent process

Prior to commencement, each patient was advised of the process for the health check. This included acknowledgment that unidentified data from each consultation would be collected and stored electronically by RDAQ Foundation on a password protected 'Survey Monkey' site. Each patient provided written consent by signing a consent form. Each consent form was collected and stored securely by RDAQ Foundation. See Appendix A.

2.2 Health Check methodology

Each health check was conducted by a medical student, from The University of Queensland Rural Clinical School, while supervised by a practicing doctor. Overall, 92 health checks were completed.

Prior to the commencement of the health check, data regarding each patient's current town of residence and postcode was collected. This data was collected to determine the geographical spread of the patrons who attended the clinic. Location data was collected independently to the health check data for privacy reasons, and therefore cannot be correlated. No other identifying information such as name, address or contact details were recorded.

During the health check, several health assessment perimeters were determined. These included type-2 Diabetes Mellitus (T2DM) risk, chronic health risk and 5-year cardiovascular risk. Each calculated risk was determined using guidelines developed by the Royal Australian College of General Practitioners (RACGP). Clinical volunteers recorded other patient demographics including sex and age. Each participant's smoking status and history was also recorded.

Each patient was provided with a copy of their calculated disease risk and were encouraged to visit their local General Practitioner (GP) to further discuss concerns. See Appendix B.

2.3 Data analysis

All health check data was collected and stored on Survey Monkey. Participants were also provided with a paper copy of their health check data which could be taken to their current General Practitioner (GP) or kept for individual use. The data collected electronically was analysed by RDAQ Foundation using Microsoft Excel and Survey Monkey.

2.4 Results

In total, 92 participants attended the clinic. However, not all participants answered all questions provided. The number (n=) of responses for each question is provided.

2.4.1 Place of residence of participants

Of the 92 participants, 84 provided details of their place of residence. 61 (73%) were from Queensland, 18 (21%) were from interstate and 5 (6%) were international visitors. (Figure 2.1)



Figure 2.1 Geographical distribution of Health Check Clinic participants

Of those residing in Queensland, the region in which they lived was determined using the Queensland Hospital and Health Services (HHS) map. Of the 73% that lived in Queensland, 42% were from Central Queensland, followed by Mackay and Wide Bay regions (both 15%), Darling Downs (10%) and South West Queensland (8%). (Figure 2.2)

This data set provides a reliable representation of health issues for rural and remote Australians within the beef industry. However, this does not mean the results are representative for rural and remote Australians involved in other industries or agriculture sectors. The beef industry will be over-represented in our sample.

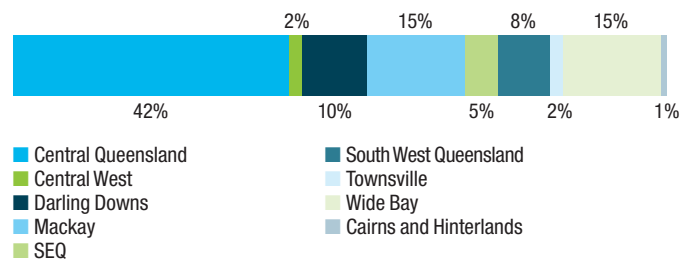


Figure 2.2 Region of residence as determined by HHS in Queensland for health check participants (n=61)

2.4.2 Age of participants

The median age of participants in the health checks was 55-64 years old. The highest proportion of participants were aged 65-74 years old (33.7%) (Figure 2.3). The median age of Australians was 37 years (Australian Bureau of Statistics, 2017). Thus, the participants in our survey were older than the median age in Australia. This is not surprising, considering the nature of the service provided.

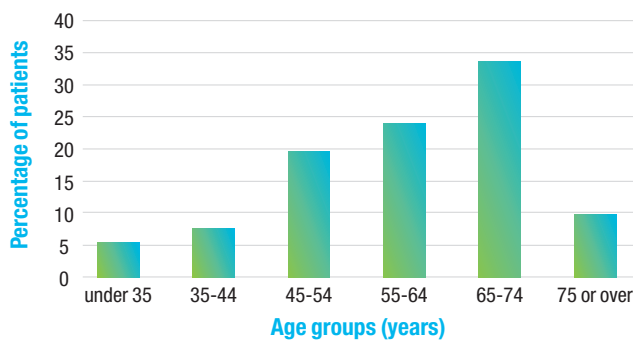


Figure 2.3 Identified Age ranges of health check participants (n=92)

2.4.3 Gender of participants

Of the 92 participants, 67.4% were male and 32.6% were female (Figure 2.4).

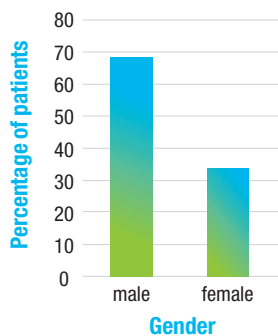


Figure 2.4 Gender distribution of health check participants (n=92)

2.4.4 Smoking status of participants

Smoking status was reported by each participant. Each participant was categorised as a smoker, non-smoker or ex-smoker based on the information provided to volunteers. In total, 5.43% of participants were current smokers, 69.57% were non-smokers and 25% were ex-smokers (Figure 2.5). Non-smokers are a lower percentage than recorded in other reports regarding smoking rates in rural and remote Australia (Australian Institute of Health and Welfare, 2016). Other reports found that the percentage of current smokers in inner regional areas was as high as 17% and 21% in outer regional and remote areas (Australian Institute of Health and Welfare, 2016).

One reason for the variation between studies could be due to the sample population. Although this study did have a reasonable sample size and location distribution, other studies may have had significantly more participants from a greater range of rural and remote locations.

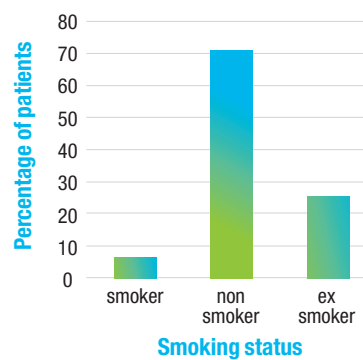


Figure 2.5 Smoking status as self-reported by participants (n=92)

2.4.5 Diabetes Risk Assessment for participants

In total, diabetes risk for 88 participants was recorded. Using the Australian Type 2 Diabetes Risk Assessment (AUDRSIK) tool, participants were determined to have a low, moderate or high risk of developing Type 2 Diabetes (T2DM) Overall, 13.6% of participants were identified as having a low risk of developing Type 2 Diabetes while 37.5% were identified as having a moderate risk of developing the disease (Figure 2.6). The highest proportion of people (48.8%) were categorised as high risk for developing Type 2 Diabetes (Figure 2.6). Participants who had already been diagnosed as diabetic were recorded as having a high risk of diabetes.

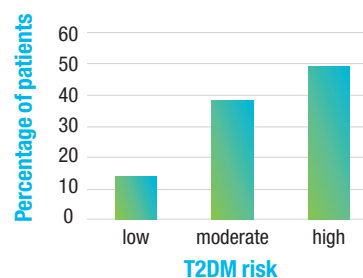


Figure 2.6 Estimated patient T2DM risk based on self-reported AUDRSIK questionnaire (n=88)

Diabetes is a major health concern in contemporary Australia (Baker IDI Heart and Diabetes Institute, 2012). In 2015, it was estimated that 1.2 million people, or 5.1% of the population, suffered from some form of diabetes (Australian Bureau of Statistics, 2015). Unfortunately, there is a higher prevalence of diabetes in rural and remote Australia than seen in major cities (Australian Institute of Health and Welfare, 2018).

Increased prevalence of chronic disease places additional strain on rural health services. Like other chronic diseases, diabetes contributes to increased morbidity and mortality.

2.4.6 Body Mass Index classification

Body Mass Index (BMI) was calculated for each patient and recorded. Each BMI value was classified into one of four categories; underweight, normal, overweight or obese, based on BMI charts developed by the Australian Government Department of Health. From this data, the percentage of participants who were classified as a normal weight, overweight or obese was calculated (Figure 2.7).

Previous data demonstrates that in inner regional areas, 67% of people are overweight or obese. In outer regional

These results confirm that obesity is a major health concern in rural Australia. This can be attributed to a number of factors, including poor access to health services, lack of health literacy, poor access to fresh foods and lower income.

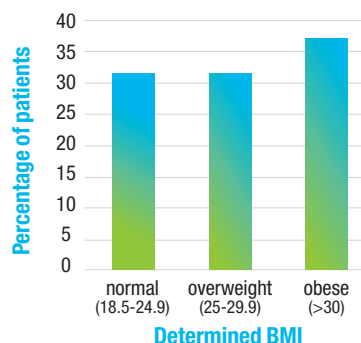


Figure 2.7 Determined BMI

and remote areas this percentage increases to 68% (Australian Institute of Health and Welfare, 2018). In major cities, this percentage drops to 61% of the population. These results are consistent with our results, as 68.5% of participants were classified as overweight or obese based on BMI.

In addition, 37% of this survey population were clinically obese (Figure 2.7). In 2017, it was estimated that 28% of Australians were clinically obese (Australian Institute of Health and Welfare, 2018). The findings of this report indicated a percentage significantly above the national average.

These results confirm that obesity is a major health concern in rural Australia. This can be attributed to a number of factors, including poor access to health services, lack of health literacy, poor access to fresh foods and lower income (Australian Institute of Health and Welfare, 2018).





2.4.7 Chronic health risk

In total, chronic health risk for 91 participants was recorded. By calculating BMI and assessing associated risk factors, participants were identified as having a low, moderate, high or very high risk of developing chronic health diseases. Overall, 29.6% of participants were categorised as having a low chronic disease risk (Figure 2.8). The majority of participants (42.9%) were identified as having a moderate chronic disease risk (Figure 2.8). 18.7% of participants were determined to have a high chronic disease risk while 8.8% were determined to have a very high chronic disease risk (Figure 2.8).

Chronic diseases are a significant burden to individuals, communities and society. Many chronic diseases are preventable by reducing known risk factors and maintaining a healthy lifestyle (Australian Institute of Health and Welfare, 2012). In regional and rural areas, 54% of people live with one or more chronic diseases compared to 48% of those living in major cities (Australian Institute of Health and Welfare, 2018). Chronic diseases are the leading cause of morbidity and mortality (Drue H. Barrett, 2016). Chronic diseases also pose a significant financial burden (Australian Government, Department of Health, 2017).

In regional and rural areas, 54% of people live with one or more chronic diseases compared to 48% of those living in major cities

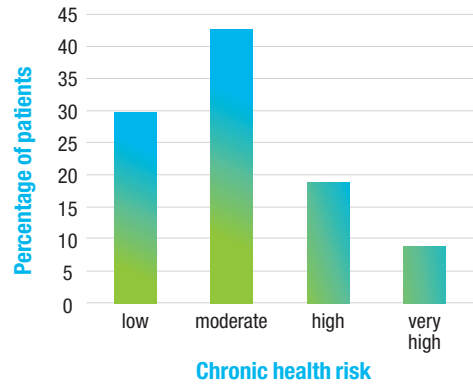


Figure 2.8 The percentage of participants with a low, moderate, high and very high chronic health risk (n=91)

2.4.8 Cardiovascular risk

Cardiovascular risk was determined using the Australian Cardiovascular Risk Charts developed by the Heart Foundation. The 5-year cardiovascular risk estimates an individual's risk of experiencing cardiovascular disease in the next 5 years. From the health check data, 20.6% of patrons had an estimated risk below 5%, 34.8% had a risk between 5-9%, 25% had a moderate risk between 10-15%, 9.8% had a high risk between 16-19%, 3.3% had a high risk between 20-24%, 4.3% had a high risk between 25-30% and 2.2% had a high risk above 30% (Figure 2.9).

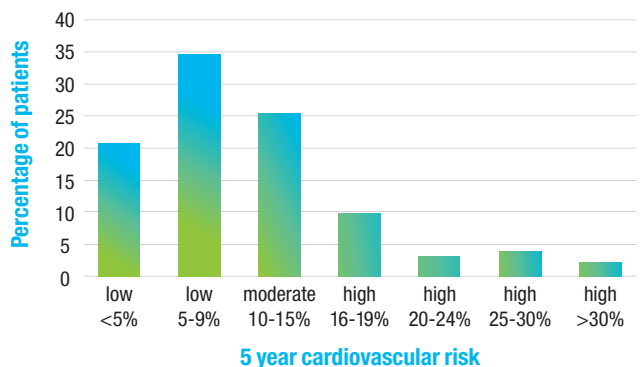


Figure 2.9 The percentage of participants with low, moderate or high calculated 5-year cardiovascular risk

Cardiovascular disease is the leading cause of death and disease burden in Australia. It is an increasing health concern due to the nation's ageing population and lifestyle changes (Australian Government, Department of Health, 2016).



3. Public Health Survey

3.0 Distribution

RDAQ Foundation conducted research at BEEF 2018 in Rockhampton in May 2018. Visitors to the event were approached randomly to determine interest in participating in a Public Health Survey. The survey was administered by volunteers from The University of Queensland Rural Clinical School. Each survey was completed on an iPad via the Survey Monkey website.

3.1 Consent process

When approached by a researcher, visitors were provided with an overview of the research topics and expected time to complete. It was their decision whether to participate. Following agreement to participate in the research, the consent box was checked on the survey loaded onto each researchers IPAD. This included acknowledgment that the data would be unidentified and data would be collected and stored electronically by RDAQ Foundation on a password protected Survey Monkey site.

3.2 Methodology

RDAQ Foundation developed a Public Health Survey and acknowledges this survey is designed using the Royal Flying Doctor Service (RFDS) (Centre for International Economics, 2015) survey as a guide.

The survey was developed using Survey Monkey, an online survey tool that provides the ability to analyse de-identified data. The survey comprised 11 questions regarding patient demographics, access to medical services and opinions regarding major healthcare issues. All information collected was non-identifiable as the participant's name, date of birth or contact details were not collected.

A copy of the Public Health Survey is available in Appendix C.

3.3 Data collection

Data was collected using Survey Monkey and responses were available in real time. Data was downloaded and analysed on Microsoft Excel and Survey Monkey data analysis tools. Graphs were developed using Microsoft Excel and Survey Monkey graphing tools.

83% of participants in the Public Health Survey were from Queensland, with 17% from interstate.

3.4 Results

In total 422 participants completed the survey, however not all participants provided answers to all questions. The number of responses for each question is provided.

3.4.1 Place of residence of participants

83% of participants in the Public Health Survey were from Queensland, with 17% from interstate. Of those residing in Queensland, 47% came from Central Queensland, followed by South East Queensland (12%), the Darling Downs (7%), Wide Bay (5%), and Mackay (5%) (Figure 3.1).

Percentage of participants from hospital and health service districts in Queensland

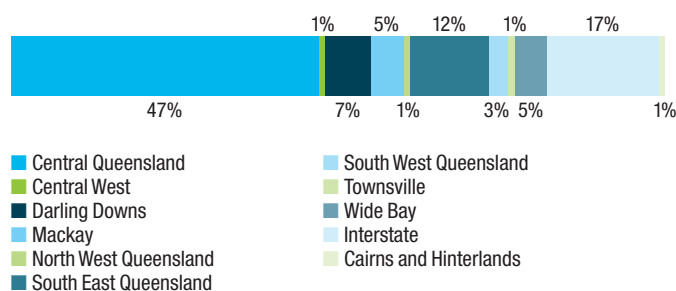


Figure 3.1 Hospital and Health Service District of residence in Queensland (n=414)

3.4.2 Age of participants

The median age of respondents was 46-55 years of age and the highest proportion of participants were aged 55-65 years. (Figure 3.2).

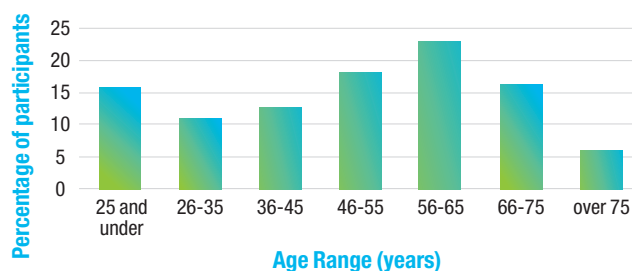


Figure 3.2 Age groups of participants (n=412)

3.4.3 Gender of participants

The gender of each participant was recorded (n=420). There were a higher percentage of males (55%) who participated than females (45%) (Figure 3.3).

Percentage of male and female participants in the Public Health Survey

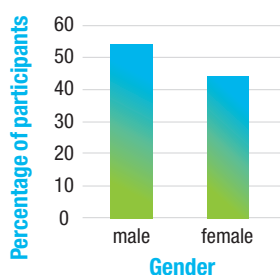


Figure 3.3

Reported gender of health survey participants (n=414)

3.4.4 Health status of participants

Participants were asked to self-assess their health status as either excellent, above average, average, below average or poor. The majority of participants determined their health to be above average (39%). A large proportion of participants self-determined their health as average (37%) and excellent (20%). Lower percentages determined their health as below average (3%) or poor (1%) (Figure 3.4).

Participant self assessed health status

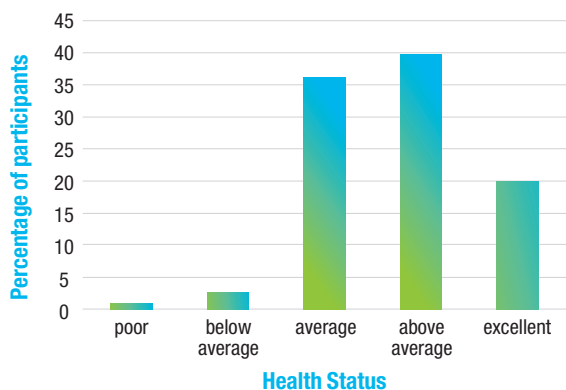


Figure 3.4 Self reported health status by health survey participants (n=410)

This contrasts with many studies regarding rural and remote health. In rural and remote areas it is well established that there are higher rates obesity and other chronic diseases in rural and remote Australia than in major cities (Australian Institute of Health and Welfare, 2018).

3.4.5 Most important health issues

In the survey, each participant was asked what they considered the most important health issue in rural and remote Australian communities. Access to GP services was the most common response (26%), followed by access to emergency services (20%) and mental health (19%). Other issues including surgical services, expenses, cardiovascular, cancer care and aged care were rated much lower (Figure 3.5).

The concern regarding mental health was also found in the Health Check Clinic data and was of a significant nature regardless of age, sex and geographical location. This finding also demonstrates that developing future projects regarding improved access and development of mental services should be considered by RDAQ Foundation.

Compared with major cities, there are significantly less mental health professionals working in rural Australia (Australian Institute of Health and Welfare, 2018). Access to mental health services is an issue outside urban areas. Additionally, there is a higher prevalence of people with mental health issues in rural areas (Australian Institute of Health and Welfare, 2016). Increased incidence of poor mental health can be attributed to the impact of stressors, such as drought, on rural communities. Drought related stress can greatly impact mental health. A report by Austin et al., found that drought place great financial stress on individuals and communities reliant on agriculture (Austin, 2018).

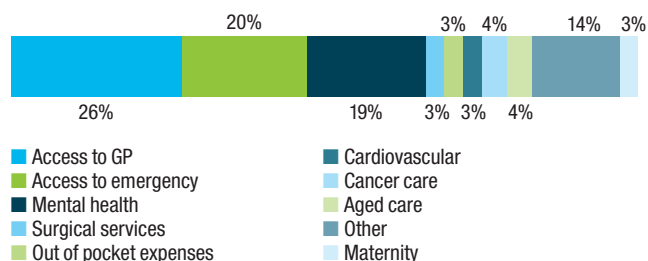


Figure 3.5 Most important health issues in rural and remote health in Australia as per rural and remote residents (n=407)

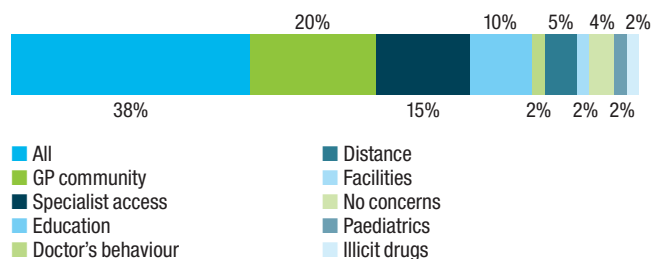


Figure 3.6 Health concerns and issues, provided as 'other', in rural and remote communities (n=55)

3.4.6 Average travel time to nearest GP

Almost half (47%) of participants had a travel time under 15 minutes to their local General Practitioner (GP) while 40% had a travel time between 15-20 minutes. A smaller proportion of participants had a travel time between 1-2 hours (10%) and 2-5 hours (3%).

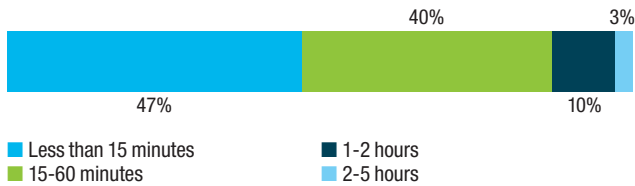


Figure 3.7 Average travel time to nearest GP for non-emergency medical care (n=410)

Although the majority of people lived within 1 hour of their closest GP (87%), one in eight people had to travel over 1 hour to their closest GP (Figure 3.7). In regards to urgent medical care, while most people were able to access urgent care under 4 hours (76%), one in eight people could not reach medical care within the same day (Figure 3.9). The majority of participants had visited a GP within the last 12 months (88%), however one in eight people had not seen a GP in over one year (Figure 3.8).

3.4.7 Average time since last GP visit

Over half of participants (57%) had visited a GP within the past 3 months. This was followed by 31% of participants seeing their GP within 3-12 months, 9% within 1-3 years, 2% within 3-5 years and 1% over 5 years.

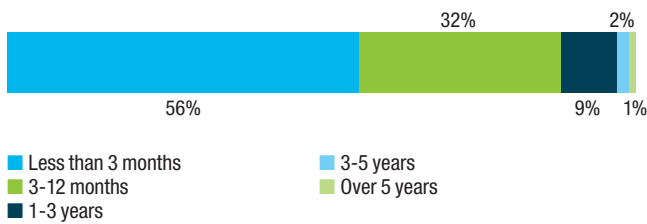


Figure 3.8 Time since last seen a doctor (GP) for medical advice (n=409)

3.4.8 Time taken to receive urgent medical care

Most participants did receive urgent medical care within 4 hours (76%). The remaining participants were able to receive urgent medical care within the same day but over 4 hours (12%). 7% received care within 2 days. 3% within 3-5 days and 2% had to wait over 5 days. The average time to seek urgent medical care was under 4 hours.

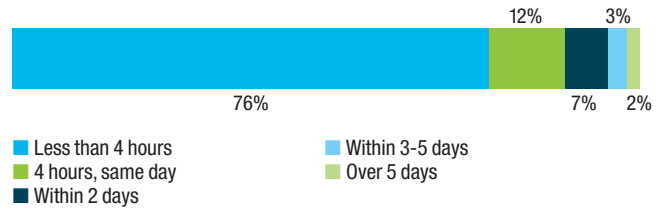


Figure 3.9 Waiting time to receive urgent medical care (n=354)



The concern regarding mental health was of a significant nature regardless of age, gender and geographical location. This highlights that mental health is a significant issue within rural communities.

4. Strengths and limitation of methodologies

The nature of the research and its population sample offered both strengths and limitations.

4.1 Strengths

The Health Check Clinic and Public Health Research Survey were successful in facilitating collaboration between RDAQ Foundation and other organisations including The University of Queensland (UQ) Rural Clinical School and James Cook University Generalist Medical Training. The clinics also facilitated mentoring opportunities between medical students from The University of Queensland and practicing medical practitioners.

High participant rates were facilitated by the access to visitors at BEEF 2018.

The face to face nature of the health checks and research allowed clinical volunteers to engage and provided participants the opportunity to explain and discuss their concerns. Without this engagement, issues outside the scope of the health check, such as mental health would not have been discussed. The extent of mental health concerns or need for services may not have been recorded. It is unlikely this engagement could be replicated using an online modality.



4.2 Limitations

The population sample was limited to patrons at BEEF 2018. There is an over-representation of people involved in the beef industry or from areas where this industry is prominent. It is unknown if our population is representative of all rural Australians. To improve diversity and size of our population, similar clinics and research studies should be held at different events and locations.

Due to location and facilities, all health checks and procedures were non-invasive. This included any blood tests commonly used to determine blood sugar and cholesterol levels. This posed a significant issue when determining 5-year cardiovascular risk. For this test, the patient's cholesterol level was required. This was often unknown and therefore the health data provided is predictive, rather than accurate.

The length of the research survey was cognisant that people were time-constrained and anxious to visit other exhibits.

4.3 Recommendations

Mental health was raised as a significant concern. The health check structure could be modified to better address health issues and concerns in rural and remote Australia. Inclusion of mental health screening tools should be considered by RDAQ Foundation for Health Check Clinics in future.

To improve sample size and variety, similar clinics and research surveys should be held at different exhibitions and agriculture events. This would not only increase sample size but include participants from other rural and remote communities.

There were more male participants than female participants in both the health clinic and survey. This was an unexpected result as similar surveys and studies often record significantly higher female participation (Centre for International Economics, 2015). The location of the survey could be a contributing factor. BEEF 2018 may attract more male participants. The location may also be preferable as participants were not required to organise a health check in advance and the clinic was not held in their local community. To ensure gender balance in line with the general population, RDAQ Foundation would need to expand the types of events at which data is collected.

5. Conclusion

The combined results from the Health Check Clinic data and the Public Health Research Study has provided important information regarding health issues prevalent in rural and remote areas. This data is vital for RDAQ Foundation to develop future initiatives which cater for the needs of rural and remote communities. It will also inform future research studies which will seek to improve population sample size and diversity of population.

Appendices

Appendix A - Consent Form

RDAQ Foundation Health Check at Beef Australia 2018 Rockhampton

This consent form must be completed by any patron undergoing a Health Check co-ordinated by RDAQ Foundation.

This Health Check encompasses screening tools for Diabetes (AUSDRISK), Cardiovascular Disease (referenced to Heart Foundation), Chronic Disease Risk and Smoking Cessation (Lifestyle Scripts) where appropriate. Each screening tool is either endorsed by the RACGP Redbook – Guidelines for preventative activities in General Practice 8th Edition or the Australian Government Department of Health and Ageing.

At the conclusion of the health check, you will be provided with a health summary. With appropriate consent, RDAQ Foundation would also complete an online summary of your health check data. The data collected electronically will be unidentified and only used for statistical analysis. If you do not want to have your data collected electronically, you will still receive a paper summary of your visit.

If you have any further questions regarding the health check or data collection, please ask a RDAQ Foundation staff member or the doctor completing your health check.

PATIENT CONSENT

I consent to complete a health check provided by RDAQ Foundation and for my unidentified data to be stored online by RDAQ Foundation. I understand my data may be included in statistical analysis undertaken by RDAQ Foundation.

Participant signature _____ Date _____

Doctor's signature _____ Date _____

I consent to complete a health check provided by RDAQ Foundation but NOT for my unidentified data to be stored online by RDAQ Foundation.

Participant signature _____ Date _____

Doctor's signature _____ Date _____

Appendix B - Health Check 2018

To the General Practitioner/Health Provider

Regarding: **RDAQ Foundation Health Check at Beef Australia 2018 Rockhampton**

Your Patient attended a free Health Check co-ordinated by RDAQ Foundation.

This Health Check encompassed screening tools for Diabetes (AUSDRISK), Cardiovascular Disease (referenced to Heart Foundation), Chronic Disease Risk and Smoking Cessation (Lifestyle Scripts) where appropriate. Each screening tool is either endorsed by the RACGP Redbook – Guidelines for preventative activities in General Practice 8th Edition or the Australian Government Department of Health and Ageing.

Your patient has copies of the screening tools utilised and referenced and a summary of results is as follows;

Where appropriate your patient's Smoking Status has been determined.

- Non-smoker
- Smoker
- Ex-smoker

If your patient is a current smoker or an ex-smoker their probability of nicotine addiction or dependence is (circled or underlined where applicable);

- Very Low or Low
- Moderate to Very High.

Diabetes Risk

Your patient's overall risk of developing type 2 diabetes within 5 years according to AUSDRISK is;

Low (5 or less points)	Intermediate (6-11)	High (>12)
Approx 1 in 100 people in this range will develop diabetes in the next five years	Approx 1 person in 50 for scores 6-8 and one person in 30 for scores 9-11 will develop diabetes in five years.	For scores 12-15, approx 1 in 14 will develop diabetes; 16-19, approx 1 in 7 will develop diabetes. For scores > 20, approx 1 in 3 will develop diabetes.

Chronic Disease Risk (BMI +/- Risk Factors)

Height	Weight	BMI
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Associated Risk Factors (ticked)

- Lipid Abnormality Hypertension Impaired Glucose Tolerance Type 2 Diabetes

Risk level

Moderate	High	Very High
BMI >25 kg/m ² OR waist circumference >102 cm (men) or waist >88 cm (women)	BMI 25–35 kg/m ² + 2 risk factors	Very high BMI ≥ 40 kg/m ² OR BMI >35 kg/m ² + 2 risk factors

Cardiovascular Risk

Your patient's Blood Pressure as measured today is (sitting) _____ / _____ mmHg.

Your patient's estimated risk level for 5-year cardiovascular risk with an assumption of normal cholesterol findings is highlighted on the attached screening tool and where cholesterol is known by patient adjusted accordingly. Based on today's assessment, where risk factors are (ticked)

Gender:	<input type="checkbox"/> Male	<input type="checkbox"/> Female		
Diabetic Status:	<input type="checkbox"/> With	<input type="checkbox"/> Without		
Smoking Status:	<input type="checkbox"/> Smoker	<input type="checkbox"/> Non-Smoker		
Age:	<input type="checkbox"/> 35-44	<input type="checkbox"/> 45-54	<input type="checkbox"/> 55-64	<input type="checkbox"/> 65-74
Systolic BP (mmHg)	<input type="checkbox"/> <120	<input type="checkbox"/> <140	<input type="checkbox"/> <160	<input type="checkbox"/> 160-180 or above
Cholesterol (known)	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7/8

Your patient approximates at the lowest level of 5-year risk (Adults over the age of 60 with diabetes are equivalent to high risk, regardless of calculated level, nevertheless reductions in risk factors in this age group can still lower overall absolute risk);

Low	Moderate	High
5-9%	10-15%	16-19%
<5%		20-24%
		25-29%
		>30%

Where appropriate your patient has been provided with information on suitable resources to assist with smoking cessation and has been advised to seek your professional help to improve their chance of succeeding in stopping smoking.

Thank you for your time and consideration of the results of these screening tools as provided. RDAQ Foundation welcomes any feedback you may have in our attempts at ensuring our rural participants and communities achieve the best possible health outcomes.

Should you wish to find out more about RDAQ Foundation and its programs "supporting rural doctors and rural communities" please feel free to contact the office.

Kind Regards,

Doctor _____

RDAQ Foundation Management / RDAQ Member

Disclaimer:

This is a general screening tool only. It is not diagnostic and figures generated are an estimate only. It does not replace the full assessment and management provided by a General Practitioner (GP). RDAQ Foundation believes that everyone should have their own GP. GPs provide comprehensive, holistic primary health care to all Australians. Attendees are advised to see their GP for a comprehensive check-up today.

Appendix C - Public Health Survey

1. Which town do you currently live in or nearest to? (town and postcode)

2. Gender?

Male Female Other

3. Which age range do you belong to?

25 and under 26-35 36-45 46-55 56-65 66-75 Over 75

4. How would you rate your overall health?

Poor Below average Average Above average Excellent

5. Do you have a regular GP? (see the same doctor regularly)

Yes No

6. When was the last time you visited your GP?

Less than 3 months 3-12 months 1-3 years 3-5 years Over 5 years

7. On average, how far do you travel to your nearest GP?

Less than 15 minutes 15-60 minutes 1-2 hours 2-5 hours Over 5 hours

8. Consider your most recent 'urgent care' attendance to see a doctor, how long did you have to wait?

Less than 4 hours More than 4 hours, but the same day Within 2 days 3-5 days Over 5 days

9. In your opinion, which is the most important concern in regard to health care for rural and remote areas?

<input type="checkbox"/> Access to GP and allied health services	<input type="checkbox"/> Obesity
<input type="checkbox"/> Access to emergency services	<input type="checkbox"/> Out of pocket expenses for health care
<input type="checkbox"/> Aged care	<input type="checkbox"/> Surgical services
<input type="checkbox"/> Cancer care	<input type="checkbox"/> Women's health and maternity care
<input type="checkbox"/> Cardiovascular (heart) care	<input type="checkbox"/> Other (provide own answer)
<input type="checkbox"/> Diabetes	
<input type="checkbox"/> Mental health services	

References

- Austin, H. K. (2018). Drought-related stress among farmers: findings from the Australian Rural Mental Health Study. *MJA*.
- Australian Bureau of Statistics. (2015). 4364.0.55.001 - *National Health Survey: First Results, 2014-15*. Canberra: Australian Bureau of Statistics.
- Australian Bureau of Statistics. (2017). 3218.0 - *Regional Population Growth, Australia, 2016-17*. Canberra: Australian Bureau of Statistics.
- Australian Government Department of Health. (n.d.). *Body Mass Index (BMI)*. Retrieved August 14, 2018, from [http://healthyweight.health.gov.au/wps/portal/Home/get-started/are-you-a-healthy-weight/bmi/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJ9LFydPbxMDD3djQMMDDzdnEP8Q8OcjNy9DPULsh0VAWZyjas/](http://healthyweight.health.gov.au/wps/portal/Home/get-started/are-you-a-healthy-weight/bmi/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJ9LFydPbxMDD3djQMMDDzdnEP8Q8OcjNy9DPULsh0VAWZyjas!/)
- Australian Government, Department of Agriculture and Fisheries. (n.d.). *Queensland's beef product*. Retrieved August 14, 2018, from <https://www.daf.qld.gov.au/business-priorities/animal-industries/beef/queensland-product>
- Australian Government, Department of Health. (2016, November). *Cardiovascular Disease*. Retrieved October 10, 2018, from Department of Health: <http://www.health.gov.au/internet/main/publishing.nsf/content/chronic-cardio>
- Australian Institute of Health and Welfare. (2016). *Australia's Health. Australia's Health Series no. 15*. Canberra: Australian Institute of Health and Welfare.
- Australian Institute of Health and Welfare. (2012). *Risk Factors Contributing to Chronic Diseases*. Canberra: Australian Government.
- Australian Institute of Health and Welfare. (2018). *Mental Health Services in Australia*. Canberra: Australian Institute of Health and Welfare.
- Baker IDI Heart and Diabetes Institute. (2012). *Diabetes: The silent pandemic and its impact on Australia*. Baker IDI Heart and Diabetes Institute.
- Bishop L, R. A. (2017). *Health Care Access, Mental Health, and Preventative Health. Health Priority Survey Findings for People in the Bush*. Canberra: Royal Flying Doctor Service.
- Centre for International Economics. (2015). *The Royal Flying Doctor Service: Flexible and responsive primary healthcare for rural and remote Australia*. Canberra: Centre for International Economics.
- Department of Health. (2018, June 12). *Modified Monash Model*. Retrieved July 31, 2018, from <http://www.health.gov.au/internet/main/publishing.nsf/content/modified-monash-model>
- Garvan Research Foundation. (2015). *Medical Research and Rural Health: Garvan Report 2015*. Darlighthurst: Garvan Research Foundation.
- Health Workforce Queensland. (2018). *Health Workforce Needs Assessment-2018. Summary of Findings*. Brisbane: Health Workforce Queensland.
- Heart Foundation. (n.d.). *Australian Cardiovascular Risk Charts*. Retrieved August 14, 2018, from Heart Foundation: https://www.heartfoundation.org.au/images/uploads/publications/Absolute-CVD-Risk-Quick-Reference-Guide_2018.pdf
- National Disability Insurance Agency (NDIS). (2016). *National Disability Insurance Agency Rural and Remote Strategy 2016-2019*. Canberra: National Disability Insurance Agency.
- Queensland Government (Queensland Health). (2014). *Better Health for the Bush*. Brisbane: Queensland Government (Queensland Health).
- Rural Doctor's Association of Australia. (2018). *Submission to the Senate Economic References Committee- Regional Inequality in Australia*. Rural Doctor's Association of Australia.
- Thomas, W. a. (2015). Ensuring equity of access to primary health care in rural and remote Australia - what core services should be locally available? *International Journal for Equity in Health*.
- World Health Organisation. (2018). *Social Determinants of Health*. Retrieved 07 31, 2018, from http://www.who.int/social_determinants/en/



RDAQ Foundation

Level 1/324 Queen Street, Brisbane, QLD 4000
Postal address: GPO Box 1495 Brisbane QLD 4001
Phone: 07 **3221 4444**
ABN: 25 603 089 881

www.rdaqfoundation.com.au