



**FINAL REPORT**

# The Royal Flying Doctor Service

Flexible and responsive primary healthcare for rural and remote Australia



*Prepared for  
Royal Flying Doctor Service of Australia  
March 2015*

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## *Summary*

**The Royal Flying Doctor Service (RFDS) is internationally recognised as an aeromedical innovator, widely known for its ability to respond to health emergencies in remote parts of Australia.**

**The capacity of the RFDS to evacuate injured or ill patients and transport them to hospital whilst delivering emergency care allows many to live in, work in, and visit remote parts of Australia.**

**Alongside its better-known emergency and patient transport services, the RFDS also plays a vital role in meeting the universal service obligation for access to primary healthcare in remote parts of Australia.**

**This report focuses on the complementary, less well-known primary healthcare services that are delivered by the RFDS from its aeromedical platform, which enable extensive primary healthcare services to be delivered in remote and rural areas of Australia. Leveraged off permanent bases spread throughout the country, these services provide around-the-clock access to medical professionals, pharmaceuticals and first aid provisions, as well as primary health medical and nursing clinics.**

**Using only a fraction of the resources available to those living in urban areas, the RFDS primary healthcare service is both an efficient and effective model that meets the high health needs of the communities it serves.**

### ***Meeting the community service obligation for universal healthcare***

The RFDS is providing access to primary healthcare in areas of greatest need, where low population densities make it unviable to support locally residing general practitioners (GPs). People living in very remote areas receive barely half of the GP services funded under the Medicare Benefits Schedule (MBS) as those living in metropolitan areas.

Access to other MBS services are also well below the national average for people living remotely. For instance, 7.6 per cent of city residents accessed MBS mental health services in cities in 2011-12, compared to 3 per cent in Remote areas and just 1.5 per cent in Very Remote areas. By providing care where MBS services cannot be accessed, the RFDS is helping to meet the national priority of universal access to primary healthcare across Australia.

The RFDS finds its way to areas of need with large catchments through low population zones with bases servicing clinics up to 1 100 kilometres away, providing rural health clinics on a weekly, fortnightly, or monthly basis.

Communities cannot exist without access to primary healthcare, making these clinics essential to the social and economic infrastructure of the communities they serve.

### ***Providing care to those with the greatest health needs***

The communities served by the RFDS are those with the highest health needs, where the value of early intervention and appropriate primary healthcare is the greatest.

Low population areas of Australia display poorer health outcomes across a range of indicators:

- the age standardised death rate is significantly higher in Very Remote areas (8.4 per 1 000 population) and Remote areas (6.7 per 1 000 population), compared to Major Cities (5.5 per 1 000 population)
- life expectancy is 2.5 years lower for males and 1.3 years lower for females for Outer Regional, Remote and Very Remote areas compared with Major Cities and Inner Regional Areas
- life expectancy of Indigenous boys/girls born is 10 years lower for boys and almost 10 years lower for girls compared with their non-Indigenous counterparts
- the coronary heart disease (CHD) death rate for men in Remote and Very Remote areas is 1.3 times as high as that for Major cities and for women, 1.2 times as high
- people living in Remote and Very Remote areas are more likely to have diabetes, and after adjusting for age composition, Indigenous Australians are 3.3 times more likely to have diabetes compared with non-Indigenous Australians
- Indigenous Australians are 5 times as likely as non-Indigenous Australians to die from endocrine, nutritional and metabolic conditions such as diabetes, and 3 times as likely to die of digestive conditions, and
- the five-year survival rate from all cancers is highest among people living in Major cities, and Indigenous Australians are 1.1 times more likely to be diagnosed with cancer and 1.5 times more likely to die of cancer compared to non-Indigenous Australians.<sup>1</sup>

These areas also have high levels of social disadvantage, with areas served by the RFDS ranked 2 out of 10 on the Socio-Economic Indexes for Areas (SEIFA). This partly reflects the over-representation of Indigenous populations in rural and remote areas.

Indigenous Australians are not only over-represented in rural and remote areas, but also in the client population of the RFDS, which provides primary healthcare to a higher proportion of Indigenous Australians than their representation in the rural and remote population.

### ***Most of what the RFDS does is provide access to primary healthcare in rural and remote Australia***

The RFDS is well known for its emergency evacuation service, provided 24 hours a day and 7 days per week, with an average response rate of two hours for the highest priority patients. Less is known about the vital role it plays in delivering primary healthcare to remote Australia.

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<sup>1</sup> AIHW 2014. *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW.

The RFDS provides around-the-clock access to telephone and radio consultations with medical and other health professionals, access to pharmaceuticals and first aid provisions through a ‘medical chests’ program, and primary health medical and nursing clinics. In fact, most of what the RFDS provides is direct access to primary healthcare.

- Approximately 65 000 people can access **regular rural health clinics**, and in the past year alone 29 460 patients attended General Practitioner (GP) clinics and 9 073 attended Community Health Nurse (CHN) clinics, in communities that are up to 1 300 kilometres away from RFDS bases.
- Over the phone or radio, highly trained and experienced GPs specialising in remote health provided 82 000 **remote consultations** over the past year, providing patients and their carers with the advice needed to determine their care strategy and meet immediate and ongoing needs.
- People far removed from pharmacy services have been able to access 1 794 medical chests, providing **access to pharmaceuticals in remote areas** at no cost to patients.
- **Face-to-face specialist healthcare services** have been provided on an occasional basis as RFDS flights for rural health clinics make room for visiting specialists to run field days and programs in areas such as mental and sexual health, dental services, and a wide range of allied health services that meet local community needs.

### *The RFDS primary healthcare model is unique*

The RFDS primary healthcare service is characterised by:

- a capacity to **resolve** rather than refer for treatment — its remote consultations are not a triage or referral service – they resolve concerns and set treatment plans with over 98 per cent of remote telehealth consultations provided by fully qualified GPs who have vast experience in servicing the health needs of remote communities and can determine a course of action without referring to another service. Available data shows that three quarters of the remote consultations conducted by the RFDS are resolved over the phone without patient transport or evaluation
- the provision of **continuity of care** for patients over time (often over generations), which builds trust and community relationships that improve the uptake of care services — all achieved in a way that overcomes the usual recruitment and retention problems that exist in sparsely populated communities
- an ability to meet the **wide range of (often high) care needs** of patients from prevention, ongoing management of healthcare needs, critical intervention strategies, and emergency evacuation when hospital level care is required — all with relatively few resources, and
- a **practical approach** to do what needs to be done, unlike Community Health Centres that are not resourced to treat acute issues, RFDS medical officers see and expect it all.

RFDS ‘Medical Chests’ is one of the few programs across the globe that can dispense timely medications to those residing in remote areas, using telehealth consultation services. In many cases, medical chests are doing the job of both primary healthcare and hospital substitution, with most medications dispensed used for managing pain, wounds,

infection, and inflammation. All of this is achieved in areas with minimal medical infrastructure – no ambulances, and no emergency departments.

### ***Value of primary healthcare provided by the RFDS***

The RFDS meets the high care needs of its population with relatively few resources, as most of its funding is spent on primary evacuations.

Australians living in the rural and remote areas served by the RFDS receive visits by RFDS GPs and Community Health Nurses at an average rate of 0.5 per '000 head of population, a fraction of the face-to-face primary healthcare services available to individuals living in regional and metropolitan areas where the Australia-wide rate is 1.2 full time equivalent GPs per '000 head of population.

Hence, the health outcomes being delivered represent an efficient and effective means of delivering services to those in need. The synergies achieved across the services delivered provide 'more' for much less than would be the case if each Traditional Service were undertaken separately.

The convenience and appropriateness of the primary healthcare service promotes utilisation, and helps avoid the substantial opportunity cost of time that would otherwise be required to seek alternative care, conservatively valued at around \$1million per annum if alternative care was sought.

If patients were to travel to seek care, then the distance of equivalent travel to seek care (avoided through the RFDS primary healthcare service) is estimated to be in the order of 13.7 million kilometres per year, with an associated cost of fuel of approximately \$1.7 million per year.

Other financial benefits are associated with the prevention of more serious tertiary care because of greater access to a quality and timely local primary healthcare service.

RFDS primary healthcare services also enable economic activity in areas that would otherwise be very difficult to populate.

Non-relocatable rural industries comprise 15 per cent of activity in the regions that the RFDS serves, compared to approximately 2 per cent across Australia. In Western Australia alone, four fifths of industry value added within the regions served by the RFDS are in rural industries.

Primary healthcare services provided by the RFDS are also highly valued by patients and patient satisfaction is high.

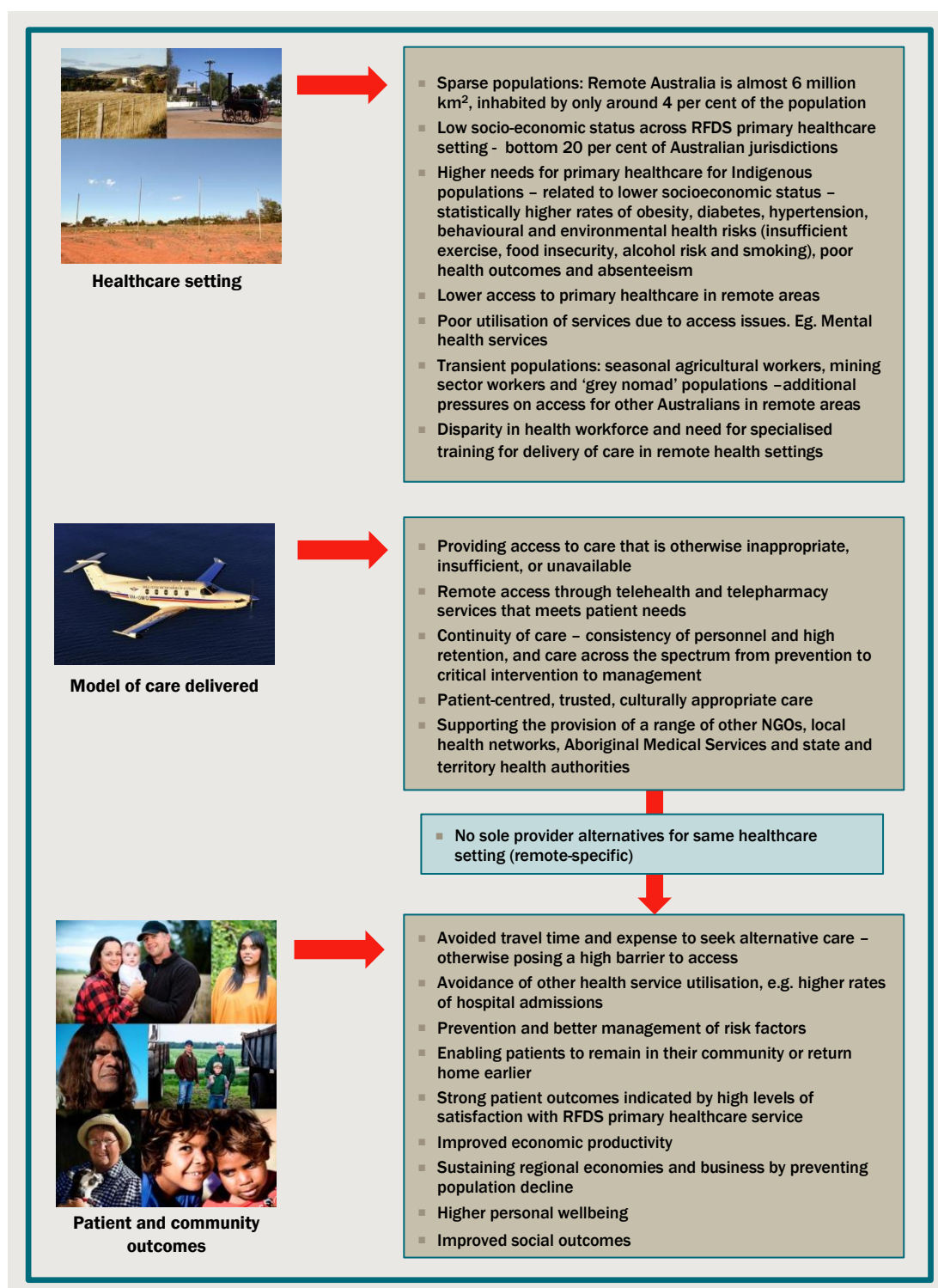
### ***Purpose of this report***

This report focuses on the primary healthcare service of the RFDS to improve the understanding of the role of the RFDS in providing ongoing healthcare, beyond the more well-recognised primary evaluation service. This includes rural health clinics, telehealth services, and medical chests provided across rural and remote Australia.



It sets out the elements of the broader primary health service, the level and type of activity and services provided, and the value of the service to patients, their carers, rural and remote communities, and wider Australia. The more well-known and equally essential primary evacuation service provided by the RFDS is not the focus of this report.

## 1 Drivers of value of the RDFS primary healthcare service



Data source: The CIE.

## *1 Unparalleled health services for those in need*

**The RFDS's network of aviation bases enables essential access to primary evacuations across rural and remote Australia, with a national average response rate of two hours by air for the most urgent category.**

**Unknown to many outside of remote communities, on a day-to-day basis, this same infrastructure is supporting wide reaching primary healthcare services, that provide essential and regular medical and health advice, treatment and care in remote areas.**

**This 24-hour operation of health services is funded under a shared service model, with funding from the Australian Government supplemented by State and Territory Government funding and private sources.**

**Taking into account all funding sources, the primary healthcare service provides essential care with relatively few resources, representing an efficient as well as effective means of delivering services to those in need. The synergies achieved across the services delivered provides 'more' for much less than would be the case if each Traditional Service was undertaken separately.**

### *The RFDS aeromedical and aviation platform*

The RFDS aviation and aeromedical services provide the infrastructure to enable the efficient delivery of primary healthcare services to these areas.

Operating from 21 bases, the broader federation of the RFDS operates across all Australian states and territories. Its fleet of 63 aircraft flew a distance of more than 26.4 million kilometres in 2013-14, making over 282 000 patient contacts including clinics, patients transported, and telehealth consultations. In that year, the RFDS employed over 1 144 staff or 978 staff in full time equivalent terms.

The contribution of the aviation and aeromedical infrastructure through patient evacuation and transportation services is well understood. The delivery of vital primary healthcare services from the aviation and aeromedical infrastructure platform and the value of these services warrants further attention and is the focus of this report.

### *Overview of health need in the communities served*

The RFDS exists as a key platform for primary healthcare access to locations where the MBS cannot attract primary healthcare providers. In doing so, **the RFDS plays a key role in meeting the principle of universal access to healthcare in Australia.** Providing universal access to healthcare to the populations served by the RFDS is essential, as

people living in rural and remote areas have higher health needs than the wider Australian community.

### ***Restricted access to MBS services***

Reflecting the geographic isolation of populations, remote Australia is almost 6 million square kilometres but inhabited by only around 4 per cent of the population. Australia wide, access to primary healthcare decreases with remoteness and population size. The CIE previously estimated that the average town size required to sustain access to a General Practitioner is around 1 400 people, meaning there are limited alternatives outside of the RFDS for patients residing in rural and remote areas.

Given the difficulties in accessing services, people living outside major cities defer medical care, such as GP and dental services.<sup>2</sup>

Published data suggests the proportion of MBS GP services received or utilised by people residing in Remote areas was 71 per cent of people residing in Major Cities, and was 54 per cent (of the services used by people in Major Cities) for people residing in Very Remote areas.<sup>3</sup> The data suggests that the gap in services received was even greater for MBS Specialist services, with residents of Remote (and Very Remote) areas receiving 38 per cent of the services used in Major Cities (30 per cent for Very Remote).

Access to other MBS services are well below the national average for people living remotely, with residents of Remote areas receiving 24 per cent of the MBS allied health services received by their city counterparts (and only 9 per cent in Very Remote areas).<sup>4</sup> Chart 1.1 shows that 7.6 per cent of city residents accessed MBS mental health services in 2011-12, compared to 3 per cent in Remote and 1.5 per cent in Very Remote areas.<sup>5</sup>

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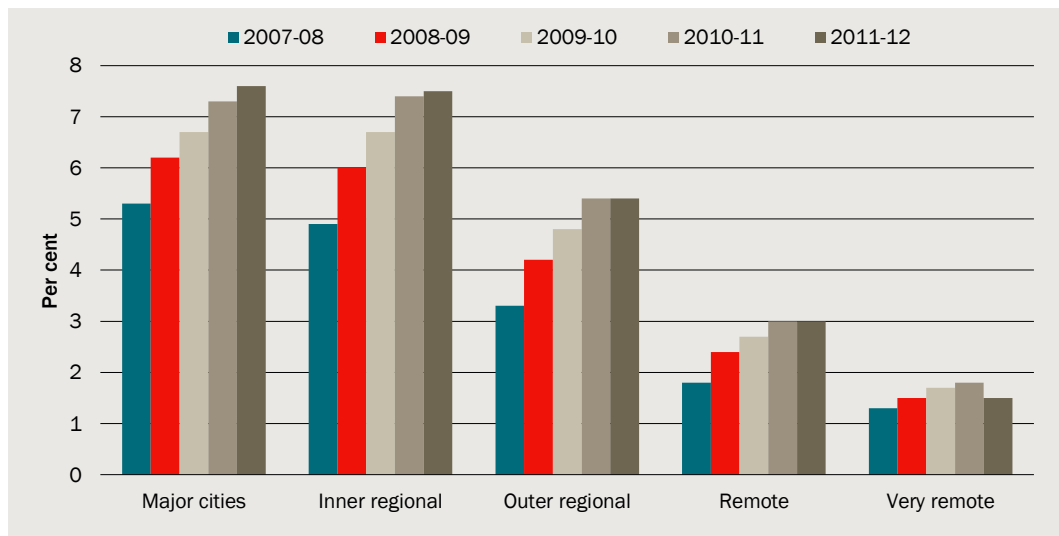
<sup>2</sup> AIHW 2014. *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW. p84.

<sup>3</sup> Data is for 2006-07. National Rural Health Alliance Incorporated, 2010. 'Measuring the metropolitan-rural inequity'. Fact Sheet 23, November 2010.

<sup>4</sup> Ibid, 2010.

<sup>5</sup> COAG (Council of Australian Governments) Reform Council 2013. Indigenous reform 2011–12: comparing performance across Australia. Sydney: COAG Reform Council.

### 1.1 Utilisation of MBS Mental Health item numbers, by remoteness



Data source: COAG 2013 (cited in RFDS, 2014. 2015-19 Australian Government funding proposal).

The rate of employed medical practitioners (including specialists) remains lower in regional and remote areas, despite recent increases to the rate of employed GPs.<sup>6</sup>

Moreover, the professional scope of the practice as well as health system inefficiencies means that, despite more GPs being sent to regional and remote areas, there remains a significant gap between cities and regions in terms of the GP services provided per person. The Grattan Institute estimates that Very Remote areas received about half of the GP services provided per person in Major cities in 2010-11.<sup>7</sup>

The Grattan Institute suggests that despite efforts to send more Medical Practitioners to regional and remote areas, the gap in services persists and, at current rates of improvement, it would take over 65 years for very remote areas of Australia to catch up to the levels of GP services that the big cities have today.<sup>8</sup>

Also reiterating the gap in primary healthcare services available in rural areas, the AIHW's index (rating) for median access to GPs for people living in Very Remote areas is 5.4, compared to 9.7 for people in metropolitan areas and 9.1 for Australia as a whole.<sup>9</sup> For statistical areas covering the RFDS' traditional services, the rating is 6.3.

As a result of poorer access (with limited options) to primary healthcare as well as higher population health needs related to demographic factors (discussed below), regional and remote areas have higher rates of (expensive) hospital admission, compared to major cities per '000 population (chart 1.2). Higher utilisation of hospitals due to low primary

<sup>6</sup> AIHW 2014. *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW

<sup>7</sup> AIHW 2014. *Australia's health 2014*.

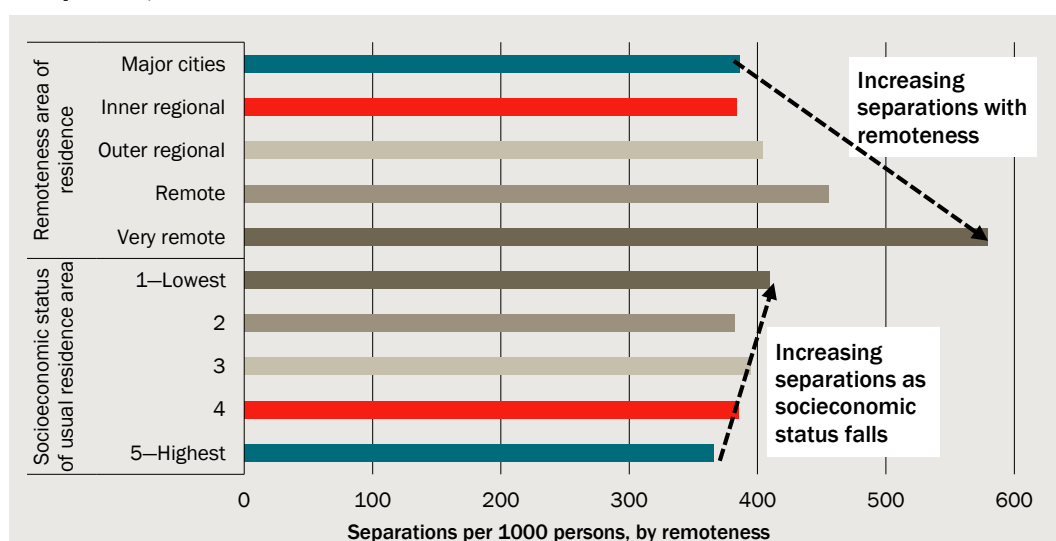
<sup>8</sup> Duckett, S., Breadon, P. and Ginnivan, L., 2013. *Access all areas: new solutions for GP shortages in rural Australia*. Grattan Institute, Melbourne.

<sup>9</sup> The index is a measure of the extent to which the population of an area has access to GPs that have the capacity to meet the demand from all population groups, taking into account travel time, population size and competition for access from other jurisdictions.

healthcare access has important cost implications in terms of cost per separation. The Grattan Institute estimates that for each additional full-time equivalent GP per 100 000 people in a Medicare Local area, public hospital separations cost \$7.14 less (per hospitalisation) for that Medicare Local area.<sup>10</sup>

In addition, the proportion of people who go to hospital for conditions that are considered potentially preventable with timely and adequate non-hospital care, either through preventing the condition from occurring or the need for hospitalisation, is also higher for people living outside of major cities, with associated cost implications.<sup>11</sup>

### 1.2 Separations per '000 population, by remoteness area of usual residence, public and private, 2012-13



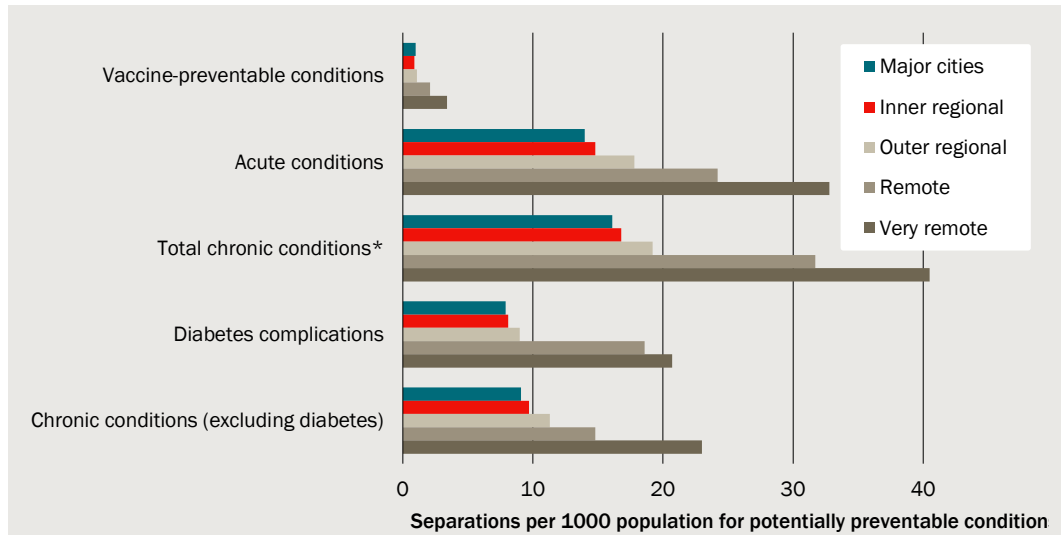
Data source: AIHW, 2013. <http://www.aihw.gov.au/haag12-13/admitted-patient-care/>

As shown in chart 1.3, in 2012-13, people living in Remote and Very Remote areas had the highest rates of Potentially Preventable Hospitalisations across a range of conditions, including vaccine-preventable, acute, diabetic and chronic conditions. Those living in major cities had the lowest.

<sup>10</sup> Duckett et al, 2013.

<sup>11</sup> AIHW, 2013. 'Admitted patient care'. Available at: <http://www.aihw.gov.au/haag12-13/admitted-patient-care/>

**1.3 Potentially preventable hospitalisations by remoteness area of usual residence, all hospitals, 2012–13**



\* As more than one chronic condition may be reported for a separation, the sum of Diabetes complications and Chronic conditions (excluding diabetes) does not necessarily equal the total number of separations for Chronic conditions.

Data source: AIHW, 2013. <http://www.aihw.gov.au/haag12-13/admitted-patient-care/>

As highlighted in box 1.4, low access to primary healthcare is likely to have a detrimental impact on health outcomes, particularly for people living outside of major population centres (in rural and remote areas), and likely accounts for higher use of tertiary care facilities such as emergency departments.

#### **1.4 The case study of Tasmania –poor GP access and worse health outcomes for those living outside major cities**

Tasmanians have poorer health outcomes than the rest of Australia across a range of health indicators. The *State of Public Health 2013* report for Tasmania found that potentially avoidable mortality remains significantly higher than the national average, and that the life expectancy gap between Tasmanian and Australian women is widening.<sup>12</sup>

Age standardised mortality rates are higher in Tasmania than the national average for a number of conditions: cancer, diabetes, mellitus, ischaemic heart disease, stroke and intentional self-harm.

The most common causes of preventable hospitalisations in Tasmania are chronic conditions, including chronic obstructive pulmonary disease (likely linked to high smoking rates), diabetes complications, dental conditions and congestive heart failure.

While only 2 per cent of Tasmanians live remotely, around one third live outside of the major population centres of Hobart and Launceston. The supply of GPs in these Outer Regional areas is lower than in all other Australian states and territories. In addition, Tasmanians have consistently lower rates of specialist service use per person per year (for 2010-11) than other states and territories, across all remoteness categories with the exception of Very Remote areas.

Low access to a GP has been shown to be associated with higher utilisation of emergency departments by patients, according to recent Tasmanian research conducted at the Mersey Community Hospital. Better management of chronic conditions could potentially lower the use of tertiary care facilities for preventable hospitalisations.

Source: KPH, 2015. An update of the 2013 report "Provision of Primary Health Care Services Strategic Study". Draft version (not publicly available), Prepared for Tasmanian Royal Flying Doctors Service, February 2015.

#### ***Greater levels of social disadvantage resulting in higher health needs***

People living in more inaccessible regions of Australia have fewer educational and employment opportunities, lower income, restricted access to goods and services and, in some areas, poorer access to basic necessities such as clean water and fresh food.<sup>13</sup> These factors increase their level of vulnerability to a lack of primary healthcare services.

In rural and remote areas, there is also an over-representation of Indigenous populations. Around a third of patients accessing face-to-face RFDS primary healthcare are of Aboriginal or Torres Strait Islander (ATSI) descent, compared to the proportion of Indigenous people in rural and regional areas and Australia wide, of around 10 per cent

<sup>12</sup> Department of Health and Human Services, 2013. *State of Public Health 2013*. State of Tasmania, May 2013.

<sup>13</sup> AIHW 2008. *Rural, regional and remote health: indicators of health status and determinants of health*. Cat. no. PHE 97. Canberra: AIHW.

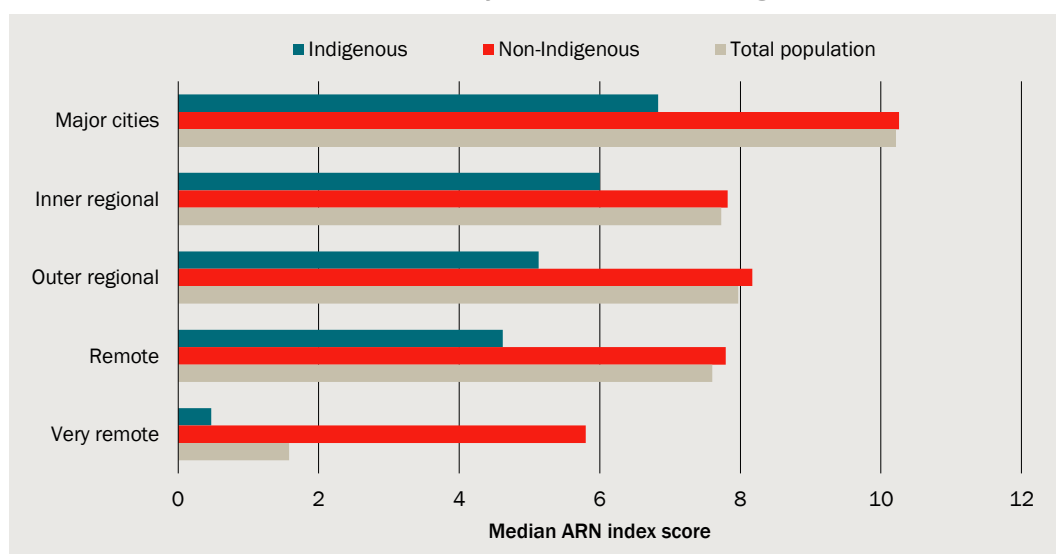
and 2.5 per cent, respectively. Aboriginality is associated with greater health needs, making it all the more important that health services are provided in remote areas. In addition, among the drivers of healthcare needs impacting on rural and remote areas of Australia are demographic change – the ageing of rural and remote populations leading to increased prevalence of chronic diseases and need for healthcare services.

Rural and remote areas score poorly in terms of access to primary healthcare relative to predicted need.

The AIHW’s Access Relative to Need index<sup>14</sup> considers access to primary healthcare relative to predicted need for primary healthcare, as well as population mobility.

- As shown in chart 1.5, in very remote areas, Access Relative to Need is **0.47** for Indigenous persons, compared to **6.8** in major cities. This reflects the decline in access with remoteness, low mobility and increasing need in remote communities.
- For non-Indigenous persons, Access Relative to Need in very remote areas is considerably higher, but still less than 6 compared to 10 for non-Indigenous people living in cities.

### 1.5 Access Relative to Need index, by remoteness and Indigenous status, 2011



Data source: AIHW, 2014. Access to primary health care relative to need for Indigenous Australians.

### Poorer health outcomes

As a result, people living in rural and remote areas also tend to have *higher* rates of poor health outcomes.<sup>15</sup>

<sup>14</sup> See AIHW, 2014. ‘Access to primary health care relative to need for Indigenous Australians’. Catalogue no. IHW 128. Canberra.

<sup>15</sup> Based on 2001 data. See Turrell, G., Stanley, L., de Looper, M., and Oldenburg, B. 2006. Australia: morbidity, health behaviours, risk factors and health service use. Health Inequalities Monitoring Series. AIHW Cat. No. PHE 72. Canberra: Queensland University of Technology and the Australian Institute of Health and Welfare.



These include higher rates of obesity, diabetes, hypertension, behavioural and environmental health risks (insufficient exercise, food insecurity, alcohol risk and smoking), and indicators of poor health outcomes including self-assessed health as fair or poor and days away from study or work.

This results in a 'health gap' for those living in rural and remote areas. For instance:

- in 2012, the age standardised death rate was significantly higher in Very Remote areas (8.4 per 1 000 population) and Remote areas (6.7 per 1 000 population), compared to Major Cities (5.5 per 1 000 population)
- life expectancy in 2010-2012 for Outer Regional, Remote and Very Remote areas was 2.5 years lower for males and 1.3 years lower for females compared with Major Cities and Inner Regional Areas<sup>16</sup>
- life expectancy of Indigenous boys/girls born between 2010-2012 is estimated to be 10 years lower for boys and almost 10 years lower for girls<sup>17</sup> compared with non-Indigenous counterparts
- in 2009-10, the coronary heart disease (CHD) death rate for men in Remote and Very Remote areas was 1.3 times as high as that for Major cities and, for women, 1.2 times as high
- people living in Remote and Very Remote areas are more likely to have diabetes (with a prevalence of 4.9 per cent in 2008-09) compared with people living in Major Cities (with a prevalence of 3.9 per cent)<sup>18</sup>, and after adjusting for age composition, Indigenous Australians are 3.3 times more likely to have diabetes compared with non-Indigenous Australians<sup>19</sup>
- Indigenous Australians are 5 times as likely as non-Indigenous Australians to die from endocrine, nutritional and metabolic conditions such as diabetes, and 3 times as likely to die of digestive conditions<sup>20</sup> and
- while the rate of cancer is similar between bush and city dwellers, the five-year survival rate from all cancers was highest among people living in Major cities (67 per cent), and declined for increasing remoteness to 63 per cent in Remote and Very Remote areas. Indigenous Australians were 1.1 times more likely to be diagnosed with cancer between 2004 and 2008 and 1.5 times more likely between 2007 and 2011 to die of cancer compared to non-Indigenous Australians.

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<sup>16</sup> ABS, 2013. Catalogue 3302.0.55.003 - Life Tables for Aboriginal and Torres Strait Islander Australians, 2010-2012, <http://www.abs.gov.au/ausstats/abs@.nsf/Products/A80BD411719A0DEECA257C230011C6D8?opendocument>

<sup>17</sup> Ibid, 2014.

<sup>18</sup> AIHW, 2015. 'Prevalence of diabetes'. <http://www.aihw.gov.au/diabetes-indicators/prevalence/>

<sup>19</sup> AIHW 2014. *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW

<sup>20</sup> Ibid, 2014.

### *The RFDS – doing much more than is commonly known*

The RFDS provides an emergency evacuation service, 24 hours a day and 7 days per week, with an average response for the highest priority patients of two hours.

While the RFDS is well-known for its primary evacuation services, less is known about the vital role it plays in delivering primary healthcare to remote Australia.

The RFDS provides around-the-clock access to telephone and radio consultations with medical and other health professionals, access to pharmaceuticals and first aid provisions through a ‘medical chests’ program, and primary health medical and nursing clinics.

In fact, most of what the RFDS provides is direct access to primary healthcare.

Based on Australian Bureau of Statistics data, approximately 168 700 people live within rural and remote jurisdictions where the RFDS rural health clinics operate.<sup>21</sup> Within this catchment, the RFDS estimates that around 65 000 people have direct access to its regular rural health clinics.

In the past year alone:

- 38 533 patients living in rural and remote areas have attended and received care from face-to-face primary healthcare clinics<sup>22</sup>
- 3 818 General Practitioner clinics have been run, seeing 29 460 patients
- 1 426 Community Health Nurse clinics have been run, seeing 9 073 patients
- around 82 000 remote consultations (GP consultation services delivered via telehealth)<sup>23</sup> have been delivered, funded by the Commonwealth Government as well as other government, private sector, and donation funding<sup>24</sup>, and
- 1 794 medical chests have been maintained and a further 527 chests introduced over the year<sup>25</sup>, providing access to pharmaceuticals in remote areas.

These services are delivered ‘far and wide’, with RFDS bases servicing large catchment areas. For instance, the Alice Springs base provides face-to-face GP consultations to communities up to 1 300 kilometres away (as the crow flies).

Cairns and Port Augusta bases service a large number of clinics spanning up to 800 kilometres away, while Jandakot services communities up to 1 100 kilometres away. Chart 1.6 shows the large catchments served by the RFDS throughout low population zones.

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<sup>21</sup> Based on Australian Bureau of Statistics data on statistical areas (Level 2). This is an estimate only, given regional and remote statistical areas can cover considerable country.

<sup>22</sup> This includes face-to-face consultations held between a patient and a clinic, and could include multiple contacts per patient in a given year.

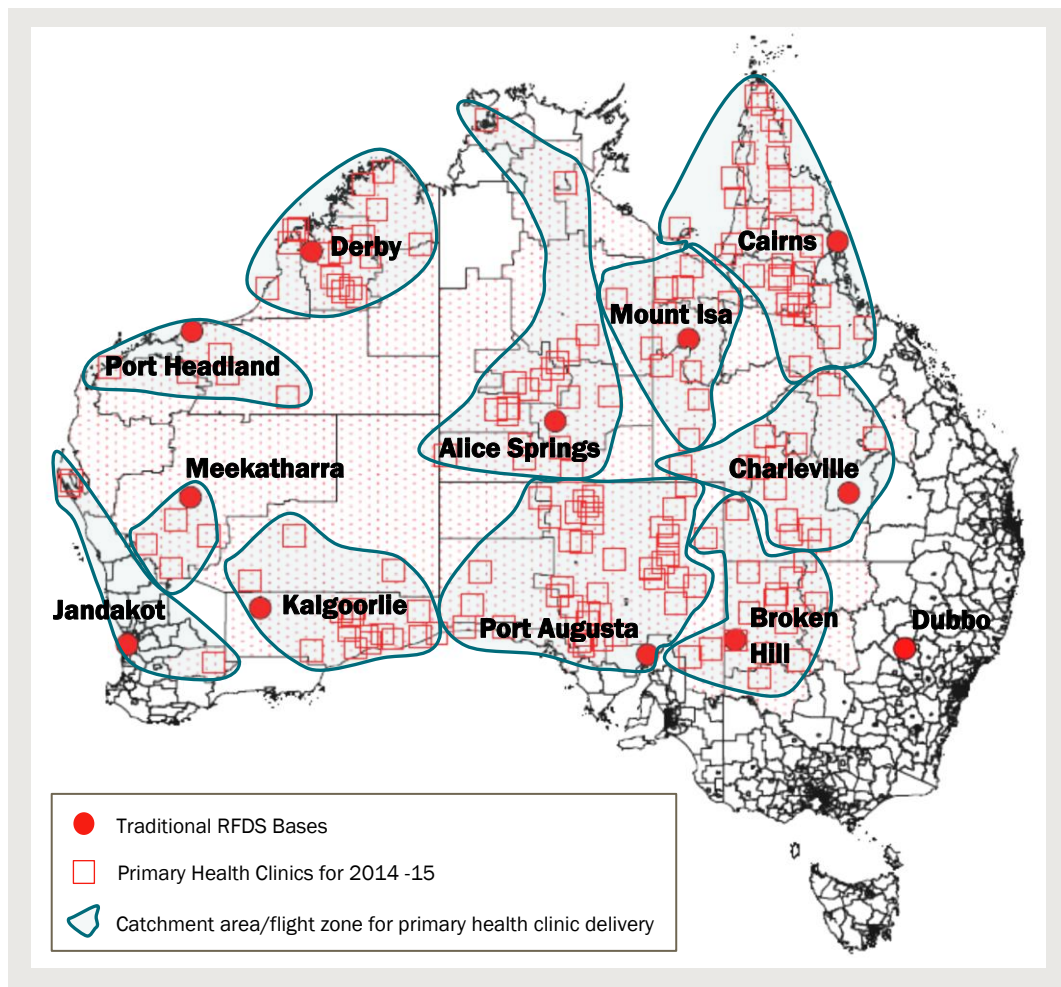
<sup>23</sup> Remote consultations are the calls received by an RFDS base from individuals or health workers in rural and remote areas seeking medical assistance or advice.

<sup>24</sup> Gale, L. 2014. *Review of Remote Consultations*. Final Report. October 2014. RFDS Federation Office. Sixty seven per cent of remote consultations are funded by the RFDS’s funding agreement with the Commonwealth Government.

<sup>25</sup> This excludes chests that were inactive (62) or cancelled (55) over the year.

Chart 1.7 shows the frequency and location of face-to-face primary healthcare services, with many of the clinics available on a weekly, fortnightly, or monthly basis. The high frequency of services provided by the RFDS make them essential to the social and economic infrastructure of the communities they serve. **Communities cannot exist without access to primary healthcare, making these clinics essential to the social and economic infrastructure of the communities they serve.**

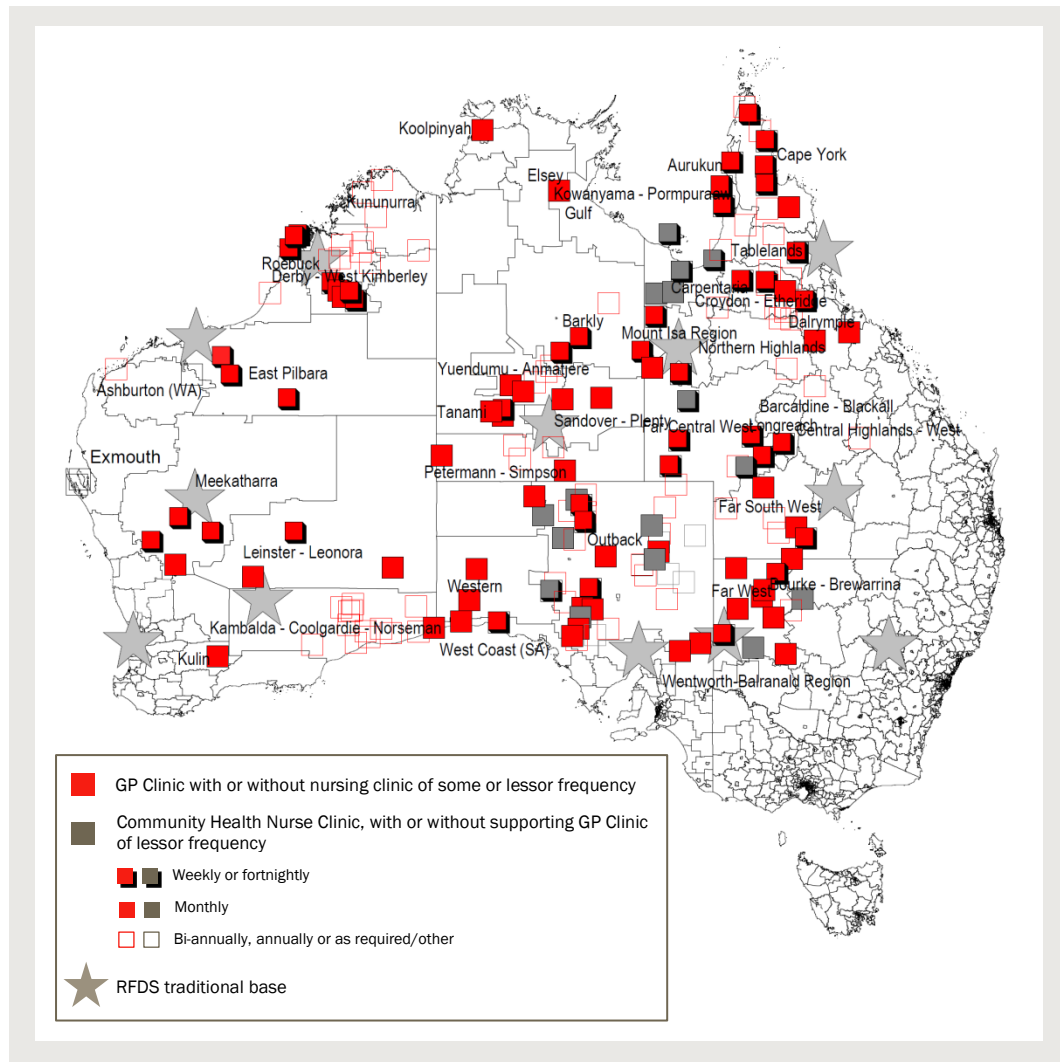
**1.6 Service locations and radius (kilometres) travelled by RFDS to deliver care**



Note: The broader federation of the RFDS includes the Victorian and Tasmanian RFDS which are not currently funded for service delivery by the Australian Government under the Traditional Services agreement. They are hence not shown in this chart.

Data source: MapInfo, 2014 and the CIE.

### 1.7 Location and frequency of Traditional Services (SA2 level), 2014-15



Data source: MapInfo, 2014 and The CIE.

### *Tailoring additional services to meet the diverse and specific health needs of rural and remote communities*

As well as providing GP-type primary healthcare services as part of its traditional services contract, RFDS infrastructure is also being used to facilitate access to specialist healthcare services and to meet the changing and specific needs of communities.

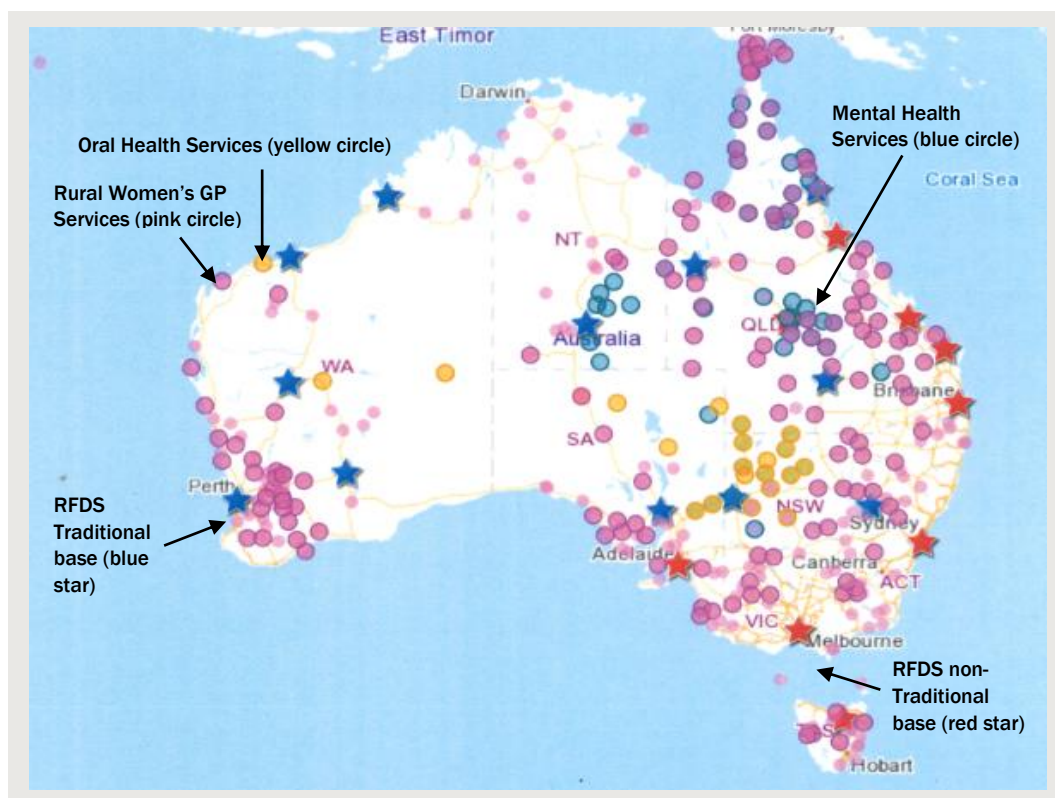
### *Programs that meet local community needs*

Funded outside of its traditional services contract, the RFDS provides a wide range of other primary healthcare services, such as (but not limited to):

- rural women’s GP services in selected areas, grant funded by the Commonwealth<sup>26</sup>
- oral healthcare services such as the Q-Coal Community Dental Service in Queensland that visits parts of remote and rural Queensland by road to deliver dental care that is free to patients, teeth and mouth checks provided free to patients at the biannual Mallee Machinery Field Days in Victoria, the TOOTH (The Outback Oral Treatments and Health) program in western NSW funded by the Gonski and Investec foundations to address poor oral health in remote communities, and state government funded oral healthcare in WA
- mental health services – grant funded through the Mental Health Services in Rural and Remote Areas program
- mobile patient transport, substituting for ambulance services in remote areas, and
- specialist services that fill gaps in care, which in rural and remote Victoria include optometry, endocrinology and others.

As shown in chart 1.8, non-traditional services delivered by the RFDS cover areas well beyond Traditional Services and RFDS Traditional Bases.

### 1.8 Location of non-traditional primary healthcare services



Note: Services shown as smaller pink circles are non-operational.

Data source: Map Data 2011, <http://www.arcgis.com/apps/OnePane/basicviewer/index.html?appid=d1bc7d67fca84bef971658bb55c5635e>

<sup>26</sup> Funding for the RFDS to continue to manage the Rural Women’s GP programme has been extended to 2014-15. From 1 July 2015, funding will be incorporated into the Rural Health Outreach Fund.

*Occasional services providing access to wide ranging health and wellbeing care*

To respond to emergent needs, the RFDS attends various field days, workshops and occasional clinics using any spare aircraft capacity to transport specialists and other service providers to remote areas, making the most of RFDS resources and health sector networks. This enables the RFDS to facilitate outreach programs to health clinics, providing clinic-like services and health promotion activities, with specialists such as physiotherapists, occupational therapists, diabetic educators, mental health workers and speech pathologists.

Recent health promotion and education activities include:

- a Healthy Living Program in South Australia to promote prevention and assist mostly Indigenous communities adopt regular exercise and reduce/manage the risk of chronic illness, including cardiovascular disease and diabetes
- preventative oral health screening on cohorts of diabetes patients in Menindee NSW with ongoing follow up to reduce Hb1c levels
- Wellbeing Centres to address drug and alcohol misuse, gambling, family violence and mental health and wellbeing in areas such as Aurukun in northern Queensland, and
- water safety initiatives such as stand-up paddle boarding workshops for children, which have been run in very remote Indigenous communities to prevent dam drownings and provide a new activity to promote self-esteem and wellbeing (box 1.9).

Other primary healthcare services on offer include:

- working with palliative care teams across Australia to enable people to stay at home longer and manage their symptoms to delay hospital admissions, and
- other support functions where required, such as providing relief for permanently stationed GPs that operate remotely<sup>27</sup> or running domestic violence helplines.<sup>28</sup>

The RFDS also supports the provision of primary and specialist ambulatory care services by health professionals employed or engaged by a range of other mechanisms, such as non-government organisations (such as McGrath Foundation breast cancer nurses), local health networks, Aboriginal Medical Services and state and territory health authorities (such as in dental and mental health services).

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<sup>27</sup> For instance, covering for annual and personal leave of GPs stationed in Collarenebri, NSW.

<sup>28</sup> Such as in Menindee, NSW.

## 1.9 Taking specialist services to rural and remote Australia

### *Water safety initiatives run by Queensland Operations*

The RFDS has offered workshops to children on stand-up paddle boarding to teach water safety. In 2014, the television series ‘The Project’ featured a story of the RFDS’s Queensland Operations paddle boarding workshops. Eight stand up paddle boards were flown by the RFDS Cairns base to Barenya Station around 800 kilometres from Cairns. The initiative has been run in other locations, such as the remote community of Aurukun in Queensland, where the RFDS partnered with the PCYC to provide a stand up paddle boarding workshop.

### *Dental tents set up at the biannual Mallee Machinery Field Days*

Victorian Operations run a regular and popular free teeth and mouth check at the Mallee Machinery Field Day, held on the first Thursday of August and preceding Wednesday every year. This is a major event on the agricultural calendar and one of the biggest in the Mallee, where the RFDS exhibit is open to the 8500 public visitors.

### ***Overrepresentation of Indigenous Australians in areas served by RFDS***

Indigenous Australians are not only over-represented in rural and remote areas relative to Australia as whole, but they are also over-represented in the client population of the RFDS. That is, the RFDS sees a higher proportion of Indigenous Australians relative to their representation in the rural and remote population.

Around a third of patients accessing face-to-face RFDS primary healthcare are of ATSI descent, compared to the proportion of Indigenous people in rural and regional areas and Australia wide of around 10 per cent and 2.5 per cent, respectively. While some statistical areas served by the RFDS have an Indigenous population of more than 90 per cent, the average proportion of Indigenous Australians in these areas is 31 per cent.

Hence, the share of Indigenous patients accessing primary healthcare from the RFDS is over-represented compared to the surrounding population, including for:

- **primary healthcare clinics**, where the share of Indigenous patients is around 45 per cent, higher than the share of the population that identifies as ATSI of one third<sup>29</sup>
- **remote consultations**, with Queensland operational data for 2013-14 showing that 37 per cent were provided to Indigenous patients and 22 per cent were provided to non-Indigenous patients.<sup>30</sup>

Aboriginality is associated with greater health needs, making it all the more important that health services are provided in remote areas.

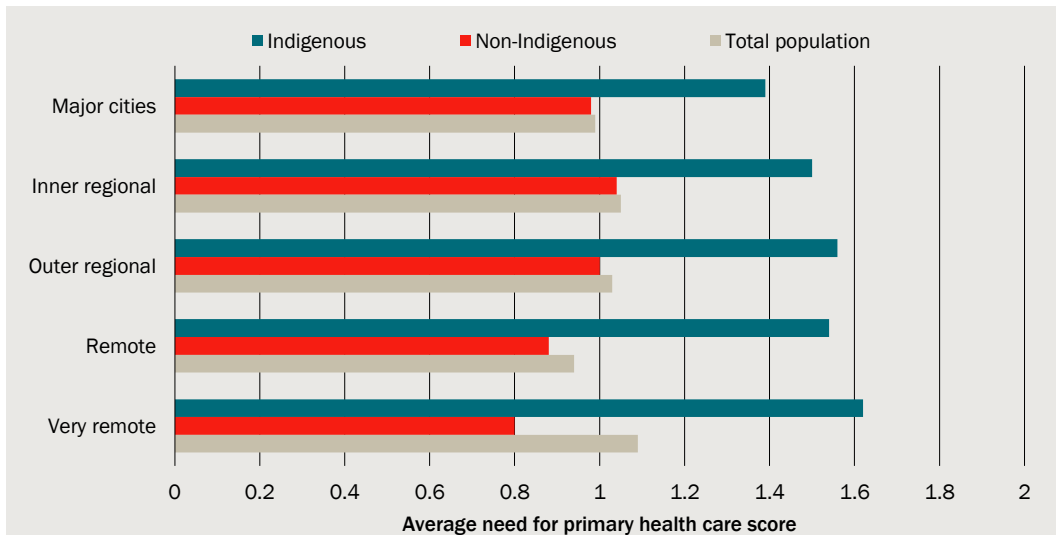
As shown in chart 1.10, the predicted health needs of the Indigenous population increases with remoteness, and is much greater than that of the non-Indigenous

<sup>29</sup> ABS, 2011. Census of Population and Housing.

<sup>30</sup> For the remaining 41 per cent of calls, ethnicity was not stated/reported.

population in all remoteness areas.<sup>31</sup> Reflecting the remote nature of the populations served by the RFDS, the Indigenous populations served by the RFDS have higher needs, on average, than the Indigenous population across Australia.

**1.10 Average need for primary healthcare score, by remoteness and Indigenous status, 2011**



Data source: AIHW, 2014. Access to primary health care relative to need for Indigenous Australians.

***Higher levels of socioeconomic disadvantage***

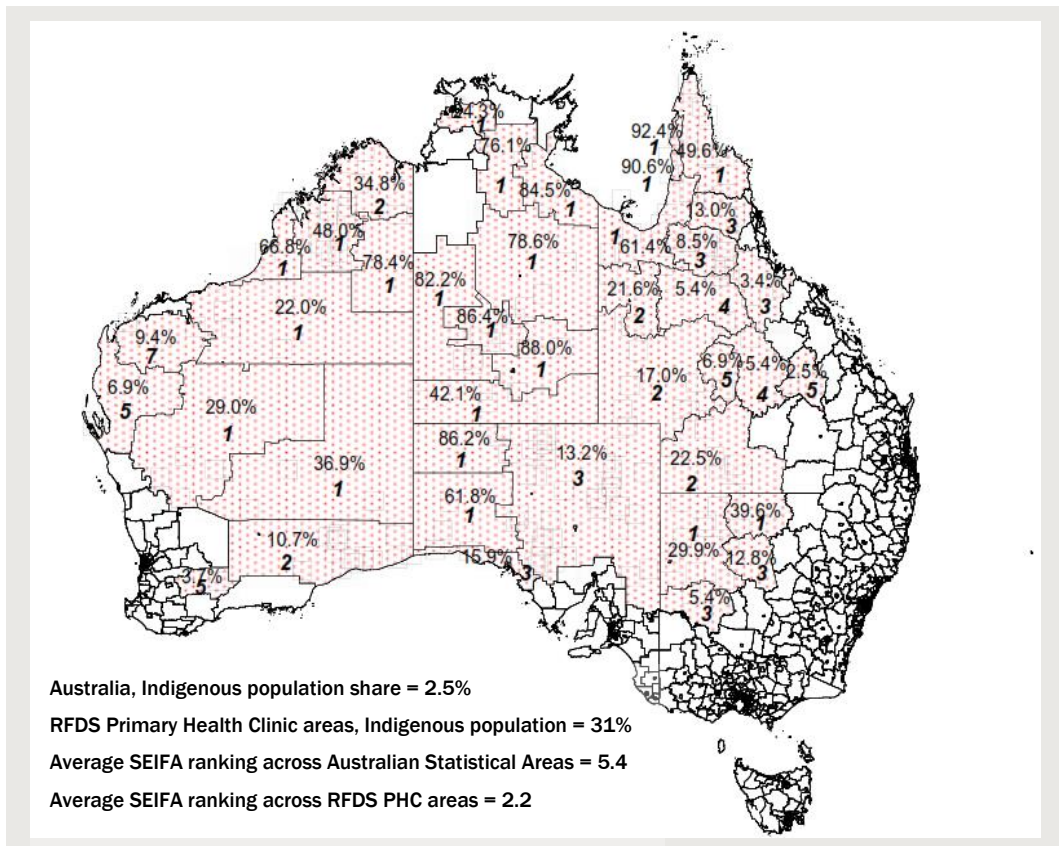
Higher remoteness and Aboriginality contribute to the relative socioeconomic disadvantage in the areas served by the RFDS.

Chart 1.11 shows the Socio-Economic Indexes for Areas (SEIFA) decile ranking, where 1 is the lowest scoring given to the 10 per cent of areas that are most disadvantaged and 10 is given to the most advantaged 10 per cent. Areas served by RFDS rural health clinics are, on average, ranked 2 out of 10 or are therefore more disadvantaged than other Australian jurisdictions, on average.

<sup>31</sup> AIHW, 2014. ‘Access to primary health care relative to need for Indigenous Australians’. Catalogue no. IHW 128. Canberra.



**1.11 ATSI population share and SEIFA decile ranking, 2011, Traditional Service areas**



Data source: ABS, 2013. ABS 2033.0.550.001 Socioeconomic Indexes for Areas (SEIFA), Data Cube only, 2011. ABS Census of Population and Housing, 2011.

## 2 *Unique model of care and value to those living remotely*

**As well as providing care that is otherwise unavailable to many communities and families, the RFDS model of care is unique.**

RFDS primary healthcare services provide:

- a unique capacity to **resolve** rather than refer for treatment — over 98 per cent of remote telehealth consultations are provided by fully qualified GPs who have vast experience in servicing the health needs of remote communities and can determine a course of action without referring to another service<sup>32</sup>
- the **continuity of care** for patients over time (often over generations), which builds trust and community relationships that improve the uptake of care services
- a responsiveness to **all care needs**, providing services from prevention, ongoing management of healthcare needs, critical intervention strategies, and emergency evacuation when hospital level care is required, and
- a **practical approach** to do what needs to be done; unlike Community Health Centres that are not resourced to treat acute issues, RFDS medical officers see and expect it all.

### *Access to face-to-face services that are otherwise unattainable*

**In many cases, the RFDS provides primary healthcare services to Australians that would otherwise not receive face-to-face primary healthcare, or telehealth services that are appropriate to the realities of living remotely.**

For Australians living in remote and regional areas, the distances to traditional healthcare are usually significant, making travel to attend regular healthcare services impractical.

For this reason, the RFDS typically provides healthcare services that would otherwise not be accessed, certainly not to the degree required for appropriate population health.

Chart 2.1 shows the location of women accessing RFDS antenatal and postnatal services run by the Port Augusta Primary Health Care Service, and distance to the nearest alternative medical service. The service allows women to remain with families and their businesses usually up to 36-37 weeks gestation.

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<sup>32</sup> Based on 2013-14 data for Central Operations where all remote consultation calls were taken by RFDS Medical Practitioner, and Queensland where 178 of 11 869 (1.5 per cent) of calls were taken by nurses while the remainder were taken by Medical Practitioners. Gale, L. 2014. *Review of Remote Consultations*. Final Report. October 2014. RFDS Federation Office. Sixty seven per cent of remote consultations are funded by the RFDS's funding agreement with the Commonwealth Government. p5.



## 2.2 Case study of impact of RFDS primary healthcare – antenatal care

- In 2014, babies born to families in rural areas received more antenatal visits from the RFDS than the recommended schedule, and 86 per cent of women returned home to their station in five to 12 days following the birth.
- The RFDS 2014 pregnancy outcome data for women living on stations rates significantly higher against key indicators of the Pregnancy Outcome Unit for SA Health. The immunisation and breast-feeding rates of these women are higher than national averages.

The RFDS Port Augusta Primary Health Care Antenatal Service provides in person and remote midwifery and Medical Practitioner services (in conjunction with the mother's nominated obstetrician) in accordance with the SA GP Obstetric Share Care Protocols. Typically, all antenatal care is provided by the RFDS midwife and Medical Practitioner, except for a visit to town at 20 weeks for a morphology ultrasound and consultation with an obstetrician, and obstetric consultation/s at the end of the pregnancy while waiting for the birth (again, in town).

The service makes it possible for women to continue to live with their families and work in the family business for most of their pregnancy (usually up to 36-37 weeks gestation), reducing the need for long trips for routine pregnancy care. In 2014, all women in the far north and west of South Australia were cared for using this service, resulting in seven births to families who work as primary producers.

In 2014, all women receiving RFDS antenatal care received more visits than the recommended schedule, and six of the seven women returned home to their station five to 12 days following the birth. In addition to the home visits, pregnant women on stations had access to midwives for phone advice and reassurance between visits and teleconsultations with the on-call RFDS Medical Practitioner. The RFDS 2014 pregnancy outcome data for women living on stations shows that immunisations and breast feeding rates are higher than national averages.

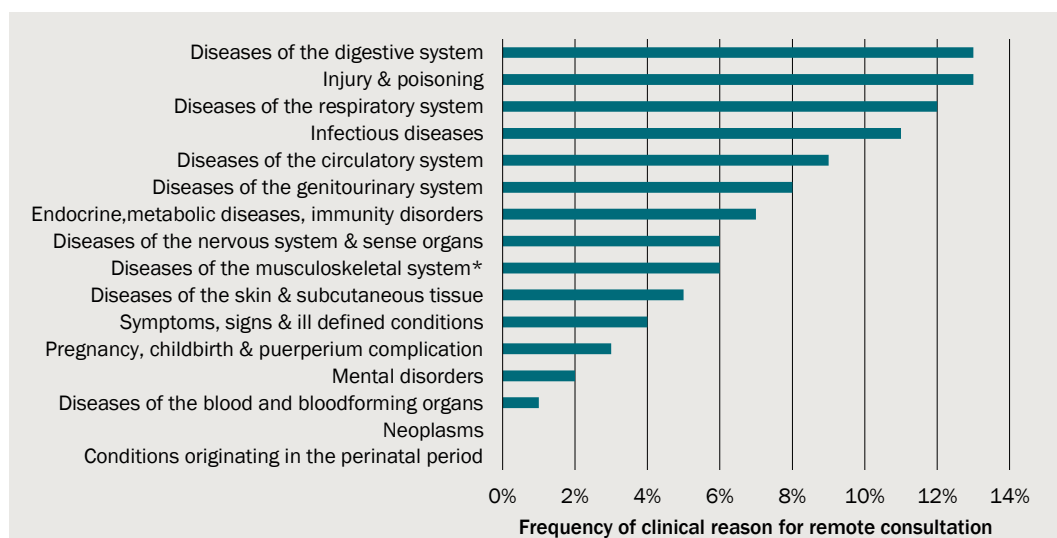
### *Remote access to advice that meets patient needs*

RFDS remote consultations are different to other telehealth services, which are often more akin to triage and referral services.

In the areas where RFDS remote consultations originate from, there is a significant absence of medical infrastructure – there are no ambulances, no emergency departments, and no pharmacies and face-to-face GP services are provided on a fly-in-fly-out basis.

RFDS remote consultations must therefore resolve issues without access to emergency departments or on-site services. The type of calls received through remote consultations range from GP services to help manage chronic conditions such as diabetes, asthma and heart conditions, to emergency work such as poisons and injuries (see chart 2.3).

### 2.3 Clinical reasons for remote consultations, frequency



\*Includes diseases of the connective tissue.

Note: Data pertains to the Central Operations in 2013-14, across around 5500 remote consultations.

Data source: RFDS Central Operations.

In most cases (over three quarters in the case of Queensland), issues discussed in remote consultations are resolved without patient transport or evaluation, with advice provided in a phone call being enough to determine treatment and care.<sup>34</sup>

A resolution via phone is required as in most cases the patient has no MBS GP in their area. This, in turn, avoids the potential requirement and cost of primary evacuation, and prevents the exacerbation of illness that could occur in the event that the condition went untreated due to the absence of an MBS GP, thereby avoiding potential hospitalisations.

Based on data from RFDS Queensland operations, only 8 per cent of remote consultations involve referral (table 2.4), in contrast to:

- *healthdirect*, in which in 2013-14 only 11.6 per cent of calls were able to be managed without referral to emergency or other medical services within 72 hours
- *the after-hours GP helpline*, in which only 14.4 per cent of calls were able to be managed without referral to emergency or other medical services within 72 hours.<sup>35</sup>

<sup>34</sup> Based on RFDS Queensland Operational data for 2011-12, 2012-13 and 2013-14.

<sup>35</sup> Gale, L. 2014 op. cit.

## 2.4 Management procedure enacted during remote consultation, 2013-14

	Management procedure used		% of cases enacting management procedure	
	No	Per cent		
Advice	9 426	89		
Investigation	542	5		
Medication	6 797	64		
Referral	877	8		
Transport/Evacuation	2713	26		
<b>Total management procedures</b>	<b>20 355</b>	<b>192</b>		
<b>Total number of episodes</b>	<b>10 616</b>			

Source: RFDS Queensland Operations.

### *Timely access to vital pharmaceuticals*

Medication or medical supplies account for over half of the management procedures enacted from remote consultations,<sup>36</sup> enabling registered RFDS medical practitioners to dispense medicines rather than, as under normal circumstances, a pharmacist. The RFDS Medical Chests is described as ‘one of the few programs across the globe that addresses dispensing medications in a timely fashion to those residing in remote areas, using telehealth consultation services’.<sup>37</sup>

The RFDS telepharmacy program can operate in isolated locations where there is minimal IT infrastructure, as well as during adverse weather when satellite-based IT systems can fail.

The top 20 medicines utilised in 2013-14 (as shown in chart 2.5) demonstrate that medical chests do both primary healthcare and hospital substitution, primarily through managing pain, wounds and infection or inflammation.

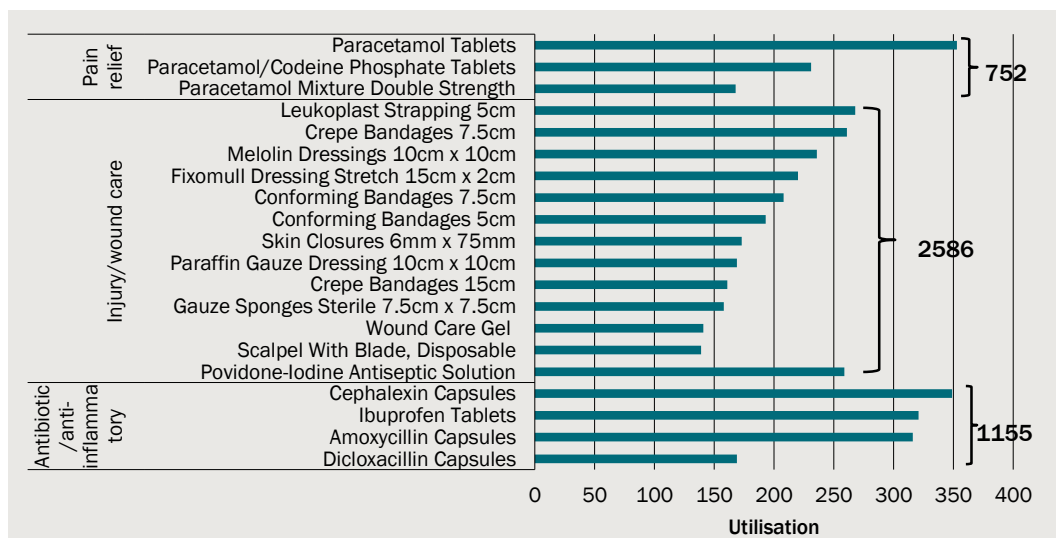
A recent study by Margolis and Ypinazar found that the RFDS Medical Chest Program provided an opportunity for definitive treatment to be delivered remotely in a timely fashion without the need for mail order pharmacy or significant patient travel, both at considerable time and dollar cost.<sup>38</sup>

<sup>36</sup> Based on data from RFDS’ Queensland operations 2013-14.

<sup>37</sup> Margolis, S.A. and Ypinazar, V.A. 2008.

<sup>38</sup> Margolis, S.A. and Ypinazar, V.A. 2008.

### 2.5 Top 20 utilised products in Medical Chests for 2013-14



Note: The data refers to subsidised medicines.

Data source: RFDS.

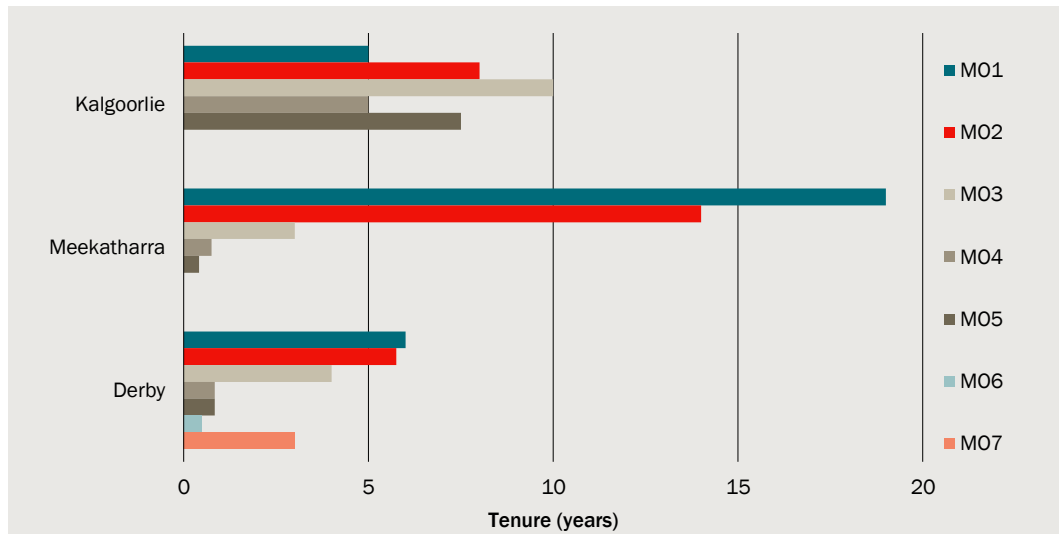
### Continuity of care

Like all patients, people living in rural and remote areas are more likely to address their health needs when they are able to access medical and healthcare from a trusted provider that understands their history and circumstance.

This is very much the model of RFDS primary healthcare, where long periods of tenure of medical staff are achieved, and rostering patterns are structured to enable relationships to be built and fostered between care providers and communities.

Chart 2.6 shows that the tenure of current medical officers supporting primary health clinics is 7.1 years at the Kalgoorlie base, 7.4 years at the Meekatharra base and 3.0 years at the Derby base, despite the difficult personal challenge for medical professionals working in travel-intensive environments.

## 2.6 Tenure of current medical officers (MO) in Western Australia



Note: Medical Officer 1 in Derby took a six-month period of leave in early 2009 and a short period of leave in 2010. Medical Officer 7 in Derby is currently on leave without pay.

Data source: RFDS Western Operations.

This compares to the otherwise poor health workforce retention in rural and remote areas which Humphreys et al suggest can be as equally important as recruitment in the problem of restricted healthcare access in such parts of Australia.<sup>39</sup>

In Queensland, for example, from December 2011 to December 2012, from an initial pool of 1 707 medical practitioners operating across regional and remote areas, 615 separations/departures were recorded (where a medical practitioner left to join another practice or leave rural and remote practices altogether), and 595 appointments were made within remote areas, indicating movement between practices or new recruitment.<sup>40</sup> This suggests that around 70 per cent of the workforce had either relocated or moved practices within regional or remote settings, or left such regions altogether.

However, the RFDS in Queensland and throughout Australia achieves strong tenure through the rotation of medical staff across primary evacuations, clinics and telehealth services, which assists in building skills and engagement.

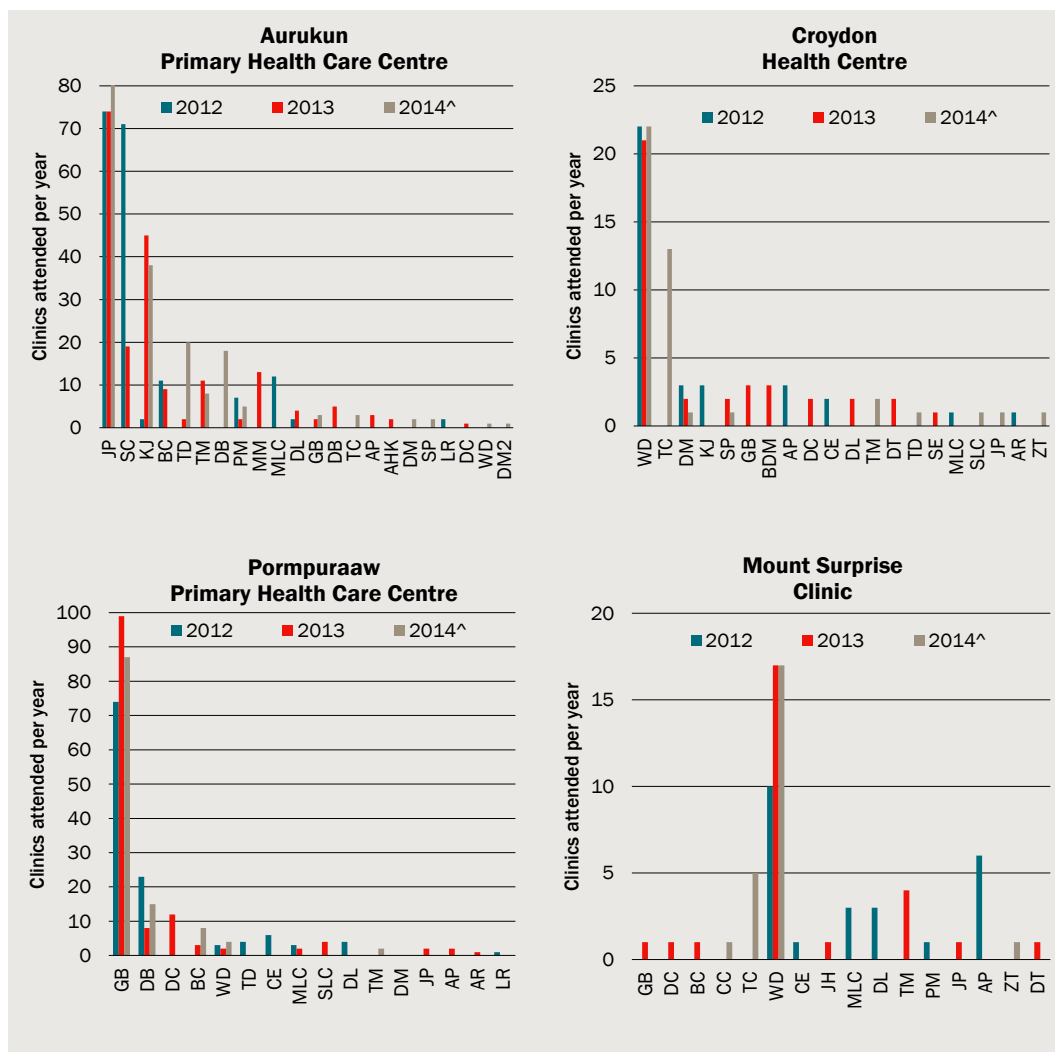
The RFDS also makes a concerted effort to schedule rostering patterns to enable ongoing repeat visits from the same medical officers to enable enduring relationships to be built between patients and health professionals. As shown in chart 2.7, rural health clinics are primarily staffed by the same medical officer over time.

<sup>39</sup> Humphreys, J., Wakerman, J., Pashen, D., and Buykx, P. 2009. *Retention strategies and incentives for health workers in rural and remote areas: What works?* Australian Primary Health Care Research Institute, Australian National University, Canberra.

<sup>40</sup> Health Workforce Queensland, 2012. *Medical practice in rural and remote Queensland: Minimum data set (MDS) report as at 30 November 2012*. Brisbane: HWQ.



## 2.7 Rostering patterns for selected RFDS rural health clinics, by medical officer



^ Includes 11 out of 12 months of rostering data.

Data source: RFDS Queensland Section.

### *Well matched to the needs of transient populations*

Populations in rural and remote areas are often transient in nature, although their health needs are comparable to local resident populations. This was the finding by the Primary Health Care Research and Information Service (PHCRIS) with respect to the needs of seasonal agricultural workers, mining sector workers and ‘grey nomad’ populations.<sup>41</sup>

Traditional healthcare models are based on permanent resident populations, for which primary healthcare demand is easier to predict and cater for. The RFDS has much greater flexibility to respond to both permanent and transient populations and fluctuating needs, making it an important enabler of economic activity generated by transient populations.

<sup>41</sup> Referred to as people over the age of 55 years, travelling for extended periods of six weeks or more around Australia, and for whom camping grounds is the main form of accommodation.

### *3 Value of the RFDS primary healthcare service*

**RFDS primary healthcare services provide direct benefits to patients, tourists, employers and communities that reside in rural and remote areas, particularly relative to the investment made.**

**Consistent with the benefits to any population from the provision of primary healthcare, the RFDS improves health outcomes for its patients including through early access to services across the care continuum, thereby avoiding utilisation of more expensive tertiary care, reducing morbidity and mortality, and enhancing quality of life.**

**The convenience and cultural appropriateness of RFDS primary healthcare promotes utilisation, and helps avoid the substantial time and travel costs required to seek alternative care.**

**Without the RFDS primary healthcare services, Australia could risk losing vibrant remote communities that are part of valuable regional economies tied to fixed natural assets, and generated among communities that have a deep connection to the land.**

**Without the RFDS, access to health services would be further compromised, expanding the 'health gap' for those living remotely.**

#### ***The scale and nature of the investment in primary healthcare***

Reflecting the value placed by Australian society on the RFDS, its primary healthcare services are funded by an array of public and private sector sources, including Commonwealth funding, private funding for specific services, and funds from donations from the community at large. The total revenue of the RFDS in 2013-14 was approximately \$305.2 million, drawn from a range of contributors shown in chart 3.1.

Spread across the population served, there are actually relatively minimal resources used to achieve the primary healthcare outcomes that rural and remote communities have come to rely on.

Australians living in the rural and remote areas served by the RFDS are estimated to receive visits by RFDS GPs and Community Health Nurses at an average rate of 0.5 per '000 head of population.<sup>42</sup> This is a fraction of the face-to-face primary healthcare

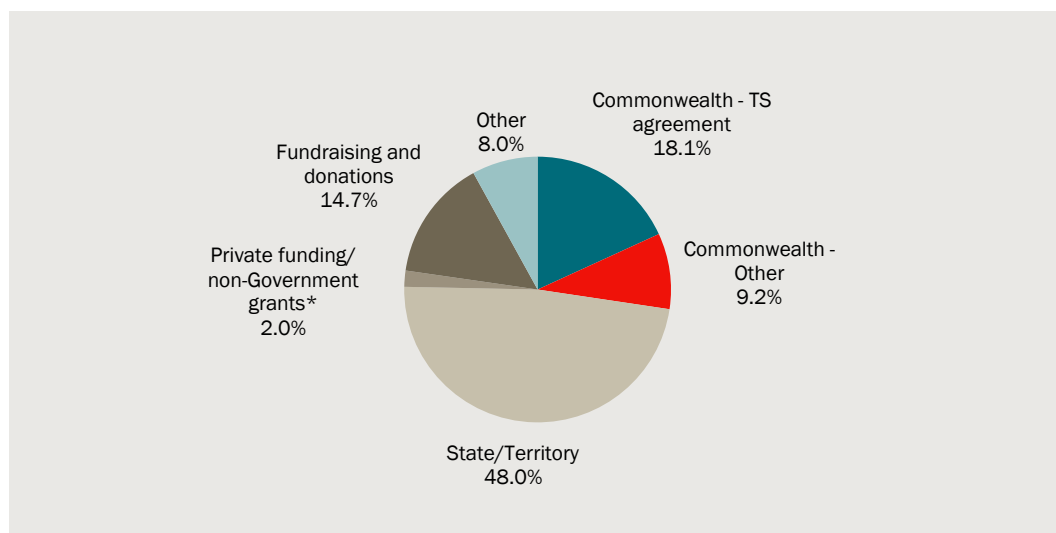
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<sup>42</sup> Based on the number of visits by RFDS GPs and Community Health Services in 2013-14, assuming each visit requires 1.5 working days, including flying time, or 12 working hours.

services available to individuals living in regional and metropolitan areas. This compares to 1.2 full time equivalent GPs per '000 head of population across Australia.<sup>43</sup>

Indeed the high needs and relatively low resources are said to have encouraged innovation in service delivery, with authors such as Humphreys and Wakerman stating that the best example of this remains the Royal Flying Doctor Service.<sup>44</sup>

### 3.1 Total operational and capital revenue, 2013-14, by contributor



\* Includes non-Government grants and commercial fee income for commercial contracts in WA.

Data source: RFDS.

### *The investment specifically in primary healthcare*

Based on a time-and-motion study undertaken by RFDS Western operations, at least 25 per cent of time of all people employed by the RFDS is dedicated to primary healthcare.<sup>45</sup>

This would be a considerable understatement of the total time spent on primary healthcare nationally as Western Operations has the least available resources to fund primary health clinics *as a share* of TS funding, with Queensland in particular directing a higher proportion of funding to primary healthcare services.

<sup>43</sup> AIHW, 2014. *Medical workforce: 2012*. Catalogue no. HWL 54. Canberra.

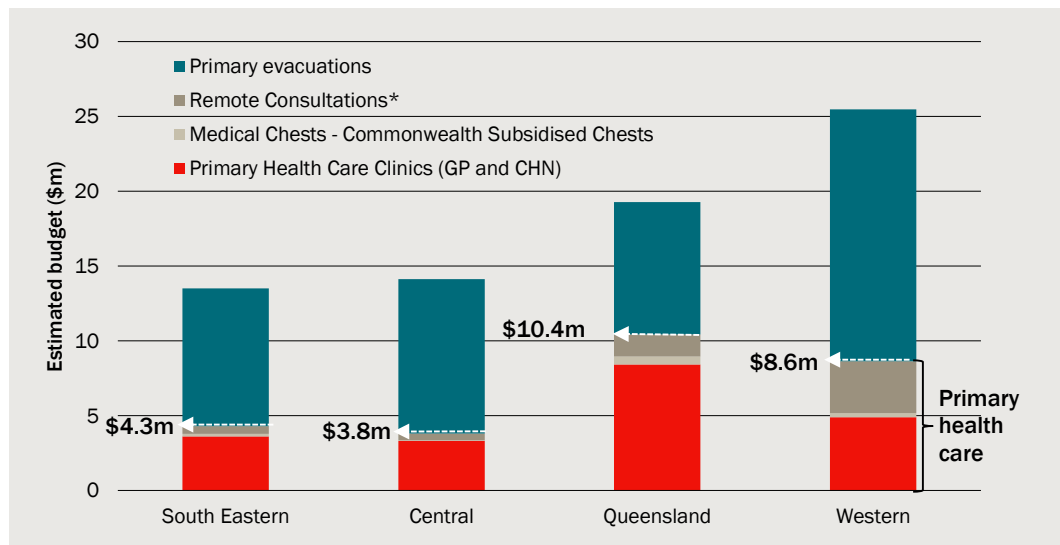
<sup>44</sup> Humphreys, J., and Wakerman, J., undated. Primary health care in rural and remote Australia: achieving equity of access and outcomes through national reform: A discussion paper. Monash University School of Rural Health, Bendigo, and the Centre for Remote Health, Alice Springs.

<sup>45</sup> For Western Operations, 5 per cent of time was spent at primary health clinics and 6 per cent on remote consultations. A further 8 per cent of time was spent on the phone on coordination activities (partially attributable to primary healthcare), 7 per cent of time on administration (partially attributable to primary healthcare) plus 7 per cent on Continuing Medical Education, training, On Duty Sleep and work-related travel (all partially attributable to primary healthcare).

Applying a more realistic estimate of **35 per cent** of human resources directed to primary healthcare for 2014-15, from 540 full time equivalent positions<sup>46</sup>, this implies that around **189 FTE** personnel nation-wide are entirely involved in the delivery of primary healthcare services.

The traditional services budget (Commonwealth funding) for 2014-15 is \$62.75 million, and the budget activity is shown in chart 3.2.

### 3.2 Budget by activity in 2014-15, \$m, by Operation



\* Estimates of aggregate cost provided by RFDS, CIE estimates of split between operations based on planned number of remote consultations by Operation for 2014-15 applied to the cost of remote consultations in 2013-14, inflated by 3 per cent.

Data source: RFDS data supplied to CIE and 2015-19 Traditional Services Funding Proposal.

Table 3.3 shows the outputs of 2013-14 and deliverables under the 2014-15 National Service Plan. Other primary healthcare services delivered outside the traditional services contract include dental and mental health services.

### 3.3 Summary of national health plan totals, Traditional Services

National Total	National Service Plan 2013-14	Actuals 2013-14	National Service Plan 2014-15	Variation between Service Plan 2014-15 and Actuals 2013-14 (%)
Primary Evacuations (number of patients)	5 133	5 022	5 152	2.6
<b>Primary healthcare</b>				
General Practice (GP) Services (number of clinics)	4 614	3 818	3 796	-0.6
Nursing Clinics (number of clinics)	1 610	1 426	1 451	1.8
Medical Chests (sum of operational medical chests)	2 452	2 367	2 404	1.6
Remote Consultations (number of consultations)	71 556	54 895	66 825	21.7

Source: RFDS.

<sup>46</sup> Contained in the National Service Plan, 2014-15.

### *Contributing to economic activity in rural and remote areas*

The RFDS primary healthcare services enable people to live in rural and remote areas, hence supporting the existence of remote/rural economies and employment.

In the statistical areas served through rural health clinics alone<sup>47</sup>, approximately 15 per cent are directly involved in rural industries which cannot be relocated to cities or regional centres where services are more available, compared to approximately 2 per cent across Australia more widely.

Many of these populations would be smaller were there no primary healthcare available due to poorer health outcomes, or reduced willingness to live remotely.

Instead, people are able to live remotely, undertake economic activities that earn sufficient income and produce positive socioeconomic outcomes including health outcomes.

For instance:

- the Medical Chest program provides pharmaceuticals, free to patients at a location greater than 80km to the nearest health service <sup>48</sup>
- remote station workers report to the RFDS that having access to remote consultations, primary health clinics, medical chests and retrieval services enables workers to feel safer about working remotely, and
- RFDS clinics allow Indigenous people to stay on country for longer, and return to country much earlier than would otherwise be the case, particularly those with moderate to severe chronic health problems, or those that are discharged from hospital with ongoing care needs.

The value of these industries is significant. Chart 3.4 compares the importance of rural industries to the regions where RFDS services are provided (referred to as '*RFDS regions*'), compared to other regions. For Western Australia alone, the estimated value added of 'rural industries' in 2014 is \$88.2 billion.<sup>49</sup> Around half of this value, \$42.9 billion, is generated in *RFDS regions*.

The *RFDS regions* contributed up to \$54.9 billion in industry value added terms (23 per cent of the total for WA), meaning that almost four fifths of regional value added is generated by rural industries (\$42.9 billion).

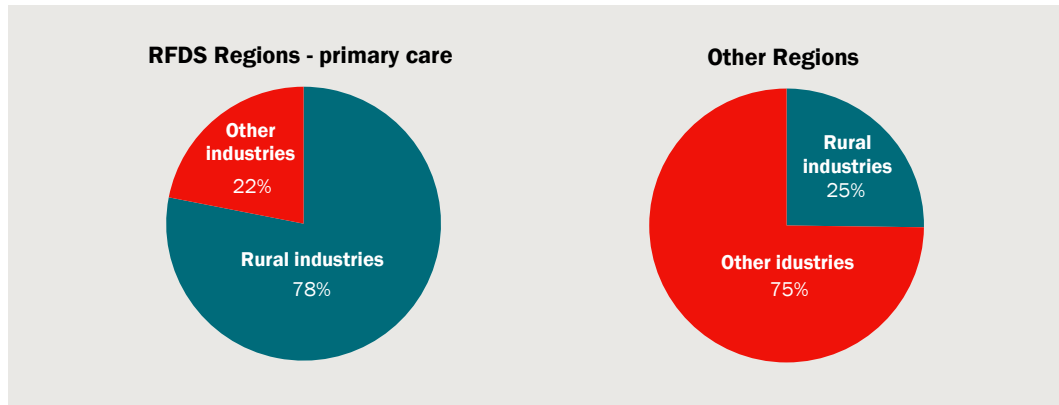
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<sup>47</sup> Refers to those funded under the Traditional Services contract only and therefore understates the total contribution.

<sup>48</sup> Margolis, S.A. and Ypinazar, V.A. 2008.

<sup>49</sup> CIE calculations using the CIE's detailed regional industry composition for Western Australia developed in 2014 for the Western Australian Department of Water (based on 2011). The CIE scaled results to 2014 by using the increase in Gross State Product adjusted for the CPI inflation rate (ABS Catalogue 6401.0) for Perth.

### 3.4 Importance of rural industries to regions that are supported, or not supported, by the RFDS, Western Australia



Note: RFDS regions include the East Kimberley, East Pilbara, Gascoyne, Goldfields, Murchison, West Kimberley, West Pilbara Ashburton, West Pilbara Roebourne, and Wheatbelt – South. Regions comprise several statistical areas, where the RFDS may serve part or all of these statistical areas. It is also acknowledged that some of the regions contain multiple statistical areas (at the SA2 level) whereby the RFDS may service some or entire statistical areas contained within the broader region  
Data source: The CIE.

### *Improving health outcomes*

There is compelling evidence of the link between access to primary healthcare services and improved health outcomes.<sup>50</sup> Humphreys and Wakerman<sup>51</sup> state that ‘primary healthcare is cost-effective and its focus on prevention and promotion is increasingly relevant in a time of rapidly rising chronic diseases and their precursors’.

A practical example of the impact of the primary healthcare service in avoiding higher morbidity and the associated strain on tertiary levels of care is highlighted in box 3.5.

<sup>50</sup> Humphreys, J., and Wakerman, J., undated. Primary health care in rural and remote Australia: achieving equity of access and outcomes through national reform: A discussion paper. Monash University School of Rural Health, Bendigo, and the Centre for Remote Health, Alice Springs.

<sup>51</sup> Ibid, undated.

### 3.5 Primary healthcare preventing more-serious, tertiary care requirements

#### *Case study #1*

The early detection of the acute post streptococcal glomerulonephritis (APSGN) outbreak associated with a new subtype of Group A Streptococcus in The Kimberley this year illustrates the importance of RFDS primary healthcare services. An RFDS Kimberley PHC nurse was the first person to spot a pattern emerging of children developing APSGN following skin sores and strep throats, which she managed to identify and commence treatment, while raising the alarm some three months before the Kimberly Population Health Unit was able to act. Aggressive early treatment of and screening for skin sores in serviced populations will undoubtedly have prevented many cases and several children were screened in the clinics and found to have early, minimally symptomatic PSGN and treated quickly. This reduced them progressing on to hypertension, renal failure, encephalopathic convulsions and longer-term damage.

#### *Case study #2*

A 57 year old pastoralist/cattle station manager seen over the dry season drove 90 km to an RFDS clinic to be seen. He would not go to town for care and had not been seen by a Medical Practitioner for a couple of years previously, but was persuaded to be seen at an RFDS clinic. The lesion on his neck seen to – excised opportunistically and found to be a squamous cell carcinoma. He had had chronic headaches for years for which he had previously had CT scan – diagnosed as likely analgesic overuse headaches and successfully treated with advice only – follow up by email and telephone. A single 30-minute consultation in a remote setting resolved two chronic problems and obviated need for further visits with associated inconvenience and expense.

Similarly, the value drivers of providing telehealth services to remote areas include:

- early access to services across the care continuum, which may lead to improved physical and psychological wellbeing for patients
- reduced waiting times, less travel and time off work, and increased convenience for patients resulting in enhanced job satisfaction (promoting utilisation)
- primary healthcare providers benefit from being present at specialist consultations to enhance understanding of complex or speciality areas and increase job satisfaction.<sup>52</sup>

Whether telehealth is supporting the patient or the healthcare provider, the result is better health outcomes for the patient.

The telehealth service delivered by the RFDS is, at present, heavily dependent on the use of phone calls, supported by occasional emailing/faxing of results, with very limited use

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<sup>52</sup> Primary Health Care Research and Information Service, 2013. *Telehealth in primary health care settings within Australia and internationally*. By Petra Bywood, Melissa Raven and Caryn Butler.

of videoconferencing.<sup>53</sup> As such, the literature from telehealth outcomes is not directly transferable to the RFDS telehealth service, as telehealth services examined in the literature usually involve video consultations. Videoconference is not used by the RFDS as much as would be preferred because the infrastructure in remote areas does not exist. More broadly, however, video consultations have been used for diagnostic purposes in areas such as dermatology, psychiatry, neurology, orthopaedics and paediatric illnesses.<sup>54</sup>

Although the unique model of the RFDS does not easily lend itself to keeping outcomes data, an example of health outcomes achieved can be taken from the Evaluation of the Cape York Wellbeing Centres, completed by Health Outcomes International on behalf of the Department of Health.<sup>55</sup>

The Cape York Wellbeing Centres (WBC) were established to meet the social and emotional wellbeing needs of people and, in particular, to provide a comprehensive range of drug and alcohol, mental health, family violence and general counselling services for the communities of Aurukun, Coen, Hope Vale and Mossman Gorge.

Health outcomes associated with the Cape York Wellbeing Centre were measured using the Kessler Psychological Distress scale (referred to as K10) and the Health of the Nation Outcome Scales (HoNoS):

- the K10 scale showed a ‘medium to large clinically significant effect on K10 scores’ of WBC clients and indicated positive improvement in anxiety and depressive symptoms
- the HoNoS results showed a medium clinically significant effect for symptoms (hallucinations and delusions, depressed mood and other mental and behavioural problems), social (relational, living and occupational problems) and total score — the largest improvements in mean score were for depressed mood, other mental and behavioural problems, problem drinking, drug taking, occupations, and relationships.

### *Providing cost effective care*

Wherever primary healthcare is able to prevent or postpone an emergency evaluation, there are immediate gains to patient health and the cost effectiveness of care.

While it is not possible to determine the extent to which well timed and delivered primary healthcare substitutes for primary evacuations, it should be expected that the primary healthcare services delivered by the RFDS should avoid what could otherwise be extensive travel time and costs to receive care from permanently placed medical services.

The value of avoided travel time can be significant, shown by the kilometres flown from a base to a clinic location. If the distance between location of a rural health clinic and an RFDS base represents the distance a patient would travel to receive medical care, the

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<sup>53</sup> Primary Health Care Research and Information Service, 2013. *Telehealth in primary health care settings within Australia and internationally*. By Petra Bywood, Melissa Raven and Caryn Butler.

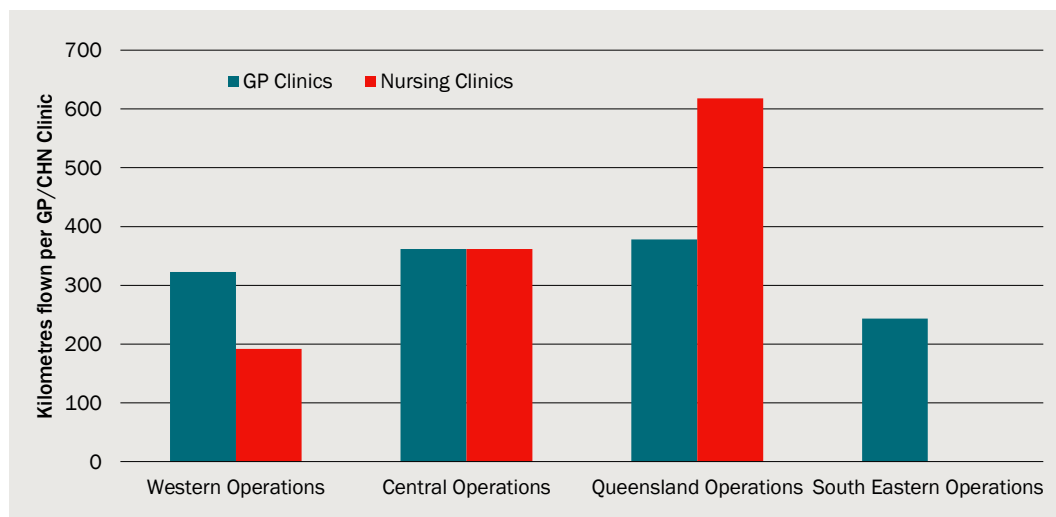
<sup>54</sup> Ibid, 2013.

<sup>55</sup> Department of Health, 2013. *Evaluation of Cape York Wellbeing Centres Phase: Two Report*. Draft Version 1. December 2013. Prepared by Health Outcomes International. South Australia.



average distance across the four operations ranges from 243 kilometres to 378 kilometres for GP clinics and 192 kilometres to 620 kilometres for CHN clinics (chart 3.6).

### 3.6 Average kilometres flown per GP/CHN Clinic, 2013-14



Note: The average kilometres flown to and from nursing clinics from the South Eastern Operations base was not available, despite there being 122 Nursing Clinics from that base in 2013-14.

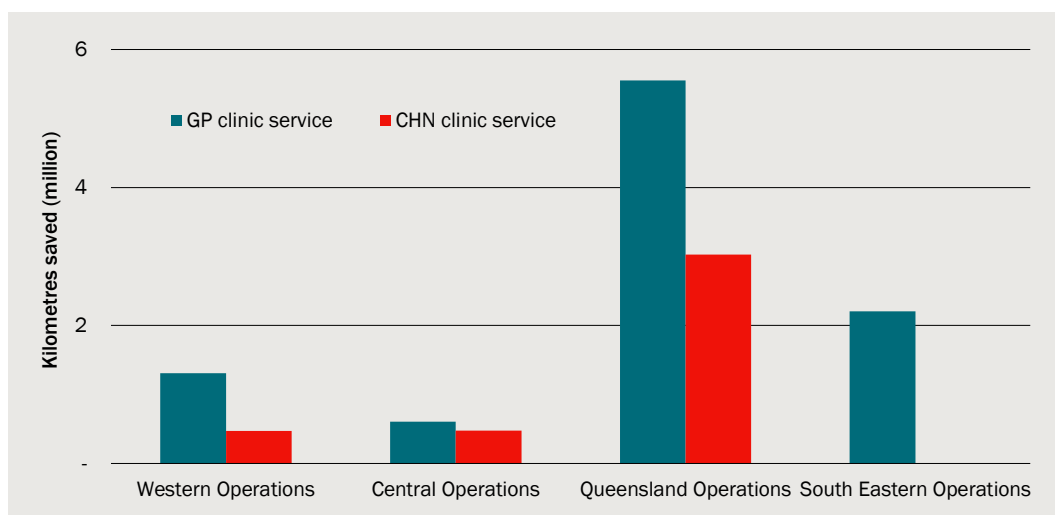
Data source: RFDS Operational Data, 2013-14, CIE calculations.

Based on the number of patient contacts and average distance between a major regional centre (likely to have medical care required) and location of the residents (clinic), potential avoided travel for 2013-14 is shown in chart 3.7.

This suggests that approximately 13.6 million kilometres of travel were potentially avoided by GP/CHN clinics which addressed the needs of 38 500 patient visits. This included over 9 million avoided patient kilometres attributed to GP clinics and 3.6 million associated with CHN clinics.<sup>56</sup>

<sup>56</sup> Given that the TS funding agreement (from which this data is based) covers only a share of the face-to-face primary healthcare services, and potentially may not cover all of the traditional services offered, the analysis is likely to considerably understate the number of patient contacts and therefore potential patient kilometres saved. It also excludes the travel avoided as a result of remote consultations for which neither the RFDS nor the patient travels to make the consultation. This estimate also excludes patient kilometres saved in travel to nursing clinics for South Eastern Operations.

### 3.7 Potential patient kilometres saved across GP and CHN clinics



Note: The avoided patient travel as a result of nursing clinics run from the South Eastern Operations base could not be calculated, as data on kilometres travelled from that base was not available.

Data source: CIE calculations using RFDS data on patients seen and kilometres travelled.

To substitute these travel distances with private vehicle travel, based on national average fuel consumption and an average fuel cost of \$1.40 per litre, avoided fuel consumption costs are valued at \$1.66 million for the year.

There are also travel time savings for patients as well as avoided fuel costs.

The notional allocation of kilometres saved across the Operations regions is outlined in table 3.8. Assuming an average land speed of 100km per hour, the 13.7 million kilometres equates to 136 400 hours of travel time saved.

### 3.8 Patient travel distance saved annually, million kilometres

Operations region	GP Service Clinic million	CHN Clinic million	Total million
Western Operations	1.3	0.5	1.8
Central Operations	0.6	0.5	1.1
Queensland Operations	5.6	3.0	8.6
South Eastern Operations	2.2	-	2.2
<b>Total</b>	<b>9.7</b>	<b>4.0</b>	<b>13.7</b>

Source: The CIE.

Based on data from the Civil Aviation Safety Authority, Standard Economic Values Guidelines on the value of passenger time<sup>57</sup> and average personal weekly earnings,

<sup>57</sup> This applies a rate of 60 per cent of the average wage rate for commuters and 54 per cent of the average wage rate for leisure travellers. For the purpose of this analysis a factor of 54 per cent of the average hourly wage rate for each operational region is used to estimate the value of patient time saved through using RFDS primary healthcare rather than travelling to an alternative source.

potential travel time savings are estimated at \$938 500 annually – just under \$1 million (see table 3.9).

### 3.9 Value of patient travel time saved per year

Operations region	Average hourly wage (\$/hr)	GP clinic service (\$)	CHN clinic service (\$)
Western Operations	19.5	138 000	49 700
Central Operations	8.7	28 400	22 400
Queensland Operations	12.3	367 200	200 400
South Eastern Operations	11.1	132 400	-
<b>Total</b>		<b>666 000</b>	<b>272 500</b>

Source: ABS 2011 Census, based on allocated SA2 data.

These estimates are notional and illustrative only. In practice, it is likely to be rare for rural health clinic visits to be substituted for travel to a more regionally based provider. More likely, patients will forego treatment or access the remote consultations service. However, it does serve to highlight the order of magnitude of value that this service might represent.

### *A service highly valued by patients*

Patient satisfaction is an important element of patient centred healthcare, which among other things focuses on the experience of care.<sup>58</sup> The RFDS seeks patient feedback surrounding key aspects of the patient experience as a part of its overall promotion of patient care.

Patient centred care under the ACSQHC National Safety and Quality Framework means:

- access to high quality care when needed
- obtaining and understanding health information, in order to inform own care and participate in ensuring own safety – including promoting health literacy, involving patients to enable them to make informed care decisions and providing culturally safe care
- healthcare is coordinated – enhanced continuity of care, minimised risks at handover, and case management for complex care
- healthcare rights are promoted and, in the event of harm, patients are supported.

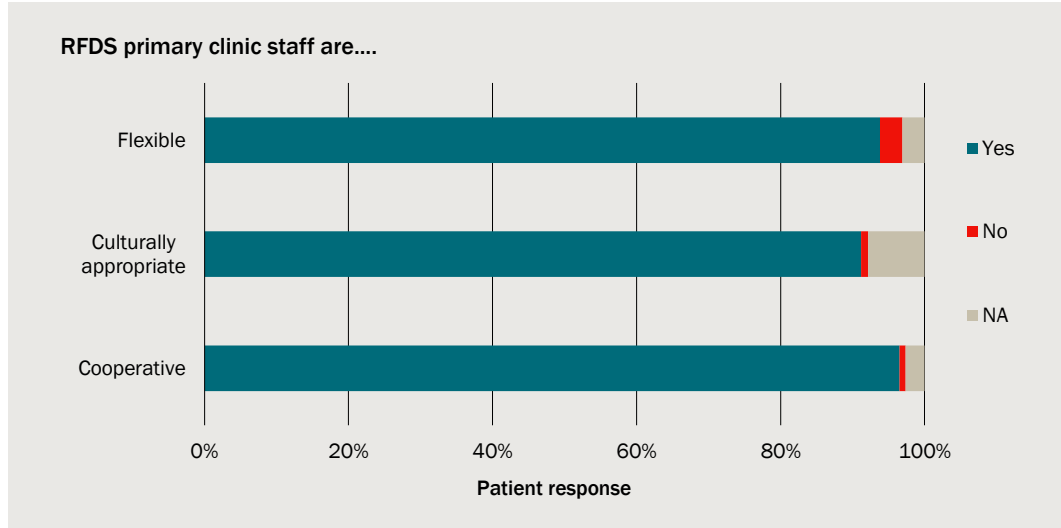
RFDS satisfaction surveys indicate high levels of support for remote consultations, underpinned by the value of early access, increased convenience and support for providers, notwithstanding the current barriers faced by the RFDS such as competing demand for bandwidth, poor quality transmission and inadequate infrastructure to establish internet connectivity.

RFDS satisfaction surveys for primary clinic services show strong performance against the characteristics of patient-centred care identified above, including being listened to, treated

<sup>58</sup> ACSQHC, 2010. *Patient-centred care: Improving quality and safety by focusing care on patients and consumers*. Discussion paper: Draft for public consultation, September 2010.

with respect and in a culturally sensitive manner, feeling able to discuss concerns with the suggested management plan and being provided with clear guidance (chart 3.10).

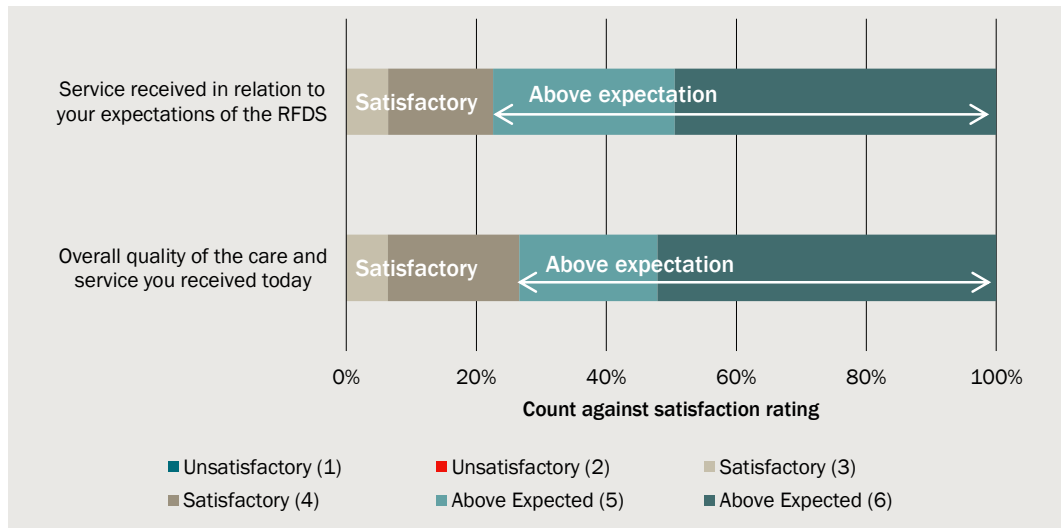
**3.10 Satisfaction with RFDS primary clinic staff <sup>a</sup>**



<sup>a</sup> Includes face-to-face clinics (GP, dental, women’s child and family health nurse, mental health nurse, practice nurse and breast care nurse), as well as through remote consultation.  
Data source: RFDS South Eastern Operations.

Surveys indicate that patients of the RFDS primary healthcare services place a high value on the standard and availability/access of care being received (see chart 3.11).<sup>59</sup>

**3.11 Overall satisfaction with primary healthcare service, remote consultations and face-to-face clinics <sup>a</sup>**



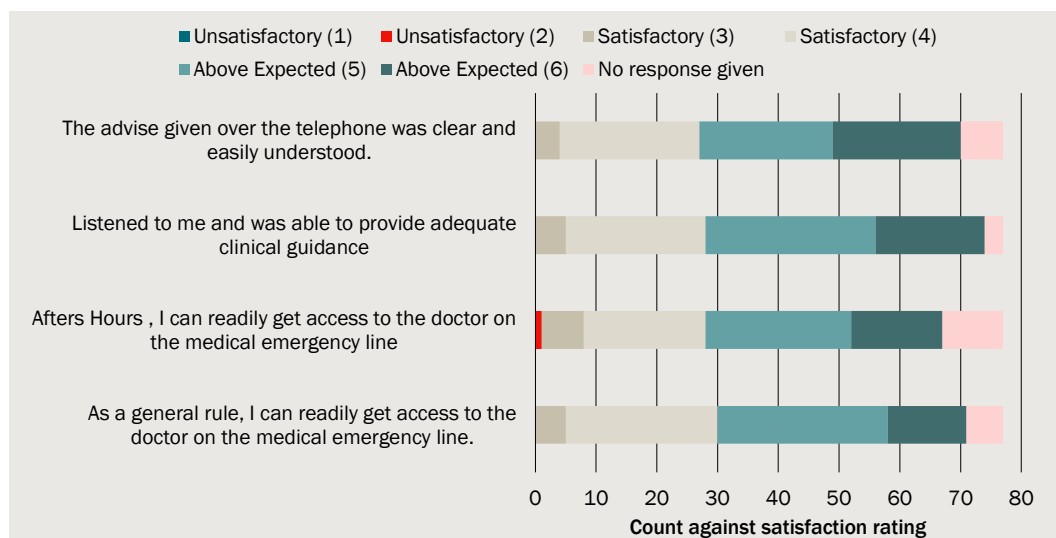
<sup>a</sup> Includes face-to-face clinics (GP, dental, women’s child and family health nurse, mental health nurse, practice nurse and breast care nurse), as well as through remote consultation.  
Data source: RFDS South Eastern Operations.

<sup>59</sup> RFDS South Eastern Section, 2013. *Royal Flying Doctor Service primary clinics customer service*. Report completed by Judy Whithead.

Patient satisfaction data for 77 remote consultations (see chart 3.12) shows a strong perception of access to a General Practitioner, and satisfaction that adequate clinical guidance could be provided and that the advice given was clear and easily understood.

- With only one exception, all patients reported that access to a Medical Practitioner via the remote consultation service was satisfactory and over half indicated that access was above their expectations.
- All patients responding to questions around adequacy of clinical guidance and clarity of communication rated that they were satisfied. In fact, over sixty per cent of respondents responded that their expectations were exceeded.

### 3.12 Satisfaction ratings for remote consultations: access to Medical Practitioner and service



Data source: RFDS South Eastern Section.

The continuity of care delivered by the RFDS to remote areas is also highly regarded. For example, the RFDS 2013/14 Annual Report illustrates this with the following testimony:

Ashlee White is the fifth generation of the Oldfield family, which has run Cowarie Station on the Birdsville Track since the 1930s. On this day, Ashlee is pregnant with her second child and receives her monthly antenatal consultation from RFDS Community Health Nurse Cheryl Boles and Dr Alistair Miller, and RFDS doctor for 25 years.

Dr Miller has been my doctor since I was four months old; it's the personal touch and the continuity of care that we appreciate the most, particularly when you are pregnant and raising young children," Ashlee says.

Postnatal and ongoing family care is delivered by the same Medical Practitioner and midwife (as antenatal care). It is also often delivered by the same RFDS Medical Practitioner that has treated the mother throughout previous years. In the first year of life, families with new babies are high users of the primary healthcare clinics and the 24/7 on call service with both the midwife and the Medical Practitioner.

### *Understanding the alternative*

Were the RFDS primary healthcare services not provided, without a replacement of services, it is likely there would be higher rates of mortality, increased morbidity, increased demand on country hospital or nursing posts, higher numbers of evacuations (such as from the RFDS evacuation service), and increased pain and suffering.

It is difficult to identify examples of where a sole provider (including the RFDS) is the only provider of any primary healthcare services in rural remote areas, reflecting the importance of collaboration in the delivery of primary healthcare. For instance, the delivery of healthcare systems in rural and remote Australia cannot be separated from the transport system that either takes services to people or brings patients to services.<sup>60</sup> Hence, ambulance services, the RFDS and Patient Assisted Travel Schemes (offering a subsidy for travel, escort and accommodation expenses) have played key roles in rural and remote Australian.<sup>61</sup>

However, there are several reasons to expect access to primary healthcare services to be so much poorer were it not for the RFDS.

For instance:

- telehealth services provided by the Commonwealth such as *healthdirect* and the *after-hours GP helpline* do not provide viable public health alternatives to the RFDS remote consultation service given their very low rate of management without referral to emergency or other medical services
- the RFDS remote consultation service cannot be supplemented by other telehealth services, which are predominantly available at the tertiary not primary healthcare level, and
- the MBS does not currently provide for patients to have remote consultations via the phone with a GP.<sup>62</sup> Rather, MBS listed telehealth services are approved to enable medical practitioners and other health professionals to provide clinical services to the patient during an MBS video consultation, with a specialist. That is, consultations between patient and a GP are not currently permitted under the MBS, and would require the patient have access to MBS video consultations, rather than at home via phone or video link.

Table 3.13 provides a typology of ‘innovative’ rural and remote models, and the main circumstances applicable to each model. Service models described in table 3.13 arise instead of traditional primary healthcare delivery because:

- communities are too small to support all of the service needs of residents
- there are huge travel and time costs of access to primary and tertiary care facilities
- acute beds are oversupplied while there are gaps in service functions such as palliative and respite care

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<sup>60</sup> Humphreys, J., and Wakerman, J., undated.

<sup>61</sup> Humphreys, J., and Wakerman, J., undated.

<sup>62</sup> Queensland Parliament, 2014. *Inquiry into telehealth services in Queensland*. Parliamentary Committee Report No. 55, Health and Community Services Committee, September 2014.

- services have limited capacity to ensure continuity of care (including staff retention issues and patient reliance on larger centres)
- traditional models cannot facilitate the effective monitoring of health outcomes
- the high fixed costs associated with permanent services necessitate change.

Alternatives to the service care model at the broader level are limited in either that they are not like-for-like services or are limited to mainstream, not remote-specific services.

Hence, the most likely alternative to the RFDS primary healthcare service is that Australia risks losing vibrant remote communities that are part of valuable regional economies that are tied to fixed natural assets, and generated among communities that have a deep connection to the land. Access to health services would be further compromised, expanding the ‘health gap’ for those living remotely.

### 3.13 Typology of ‘innovative’ rural and remote models

Context: Rural-remote continuum	PHC models and examples	Main drivers underpinning model
Rural: larger, more closely settled communities	<b>Discrete services:</b> <ul style="list-style-type: none"> <li>▪ Walk in/walk out model</li> <li>▪ Viable models of General Practice</li> <li>▪ University clinics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Population numbers are usually sufficient to meet essential service requirements</li> <li>▪ Some supports are still needed to address workforce recruitment and retention</li> </ul>
	<b>Integrated services:</b> <ul style="list-style-type: none"> <li>▪ Shared care</li> <li>▪ Coordinated Care trials</li> <li>▪ PHC teams</li> <li>▪ Multi-purpose services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Service integration from pooled funding maximises efficiencies and access to local services</li> <li>▪ Single point-of-entry to the health system helps to coordinate patient care and reduces need for travel</li> </ul>
	<b>Comprehensive PHC services</b> <ul style="list-style-type: none"> <li>▪ Aboriginal Controlled Community Health Services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Community participation, service flexibility to meet local circumstances, and access to services are critical components where few alternative ways of delivering appropriate care exist</li> </ul>
Remote: small populations dispersed over vast areas	<b>Outreach services:</b> <ul style="list-style-type: none"> <li>▪ ‘Hub-and-spoke’ models</li> <li>▪ Visiting services</li> <li>▪ ‘Fly-in, fly-out’ services</li> <li>▪ Telehealth/telemedicine</li> </ul>	<ul style="list-style-type: none"> <li>▪ Periodic outreach services (sometimes co-existing with other models) provide care to communities too small to support permanent local services</li> </ul>

Source: Humphreys, J., and Wakerman, J., undated.

## References

- ABS, 2010. 'Fuel consumption and emissions'. Canberra.  
<http://www.abs.gov.au/AUSSTATS/ABS@.NSF/2f762f95845417aeca25706c00834efa/5c9180c568d1da9cca25779e001c471a!OpenDocument>
- ABS, 2011. Census of Population and Housing.
- ABS, 2013. Catalogue 3302.0.55.003 - Life Tables for Aboriginal and Torres Strait Islander Australians, 2010-2012,  
<http://www.abs.gov.au/ausstats/abs@.nsf/Products/A80BD411719A0DEECA257C230011C6D8?opendocument>
- Australian Commission on Safety and Quality in Health Care (ACSQHC), 2010. *Patient-centred care: Improving quality and safety by focusing care on patients and consumers*. Discussion paper: Draft for public consultation, September 2010.
- Australian Institute of Health and Welfare (AIHW), 2008. Rural, regional and remote health: indicators of health status and determinants of health. Cat. no. PHE 97. Canberra: AIHW.
- AIHW, 2013. 'Admitted patient care'. Available at: <http://www.aihw.gov.au/haag12-13/admitted-patient-care/>
- AIHW 2014. *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW
- AIHW, 2014. *Access to primary health care relative to need for Indigenous Australians*. Catalogue no. IHW 128. Canberra.
- AIHW, 2013. 'Demography'. <http://www.aihw.gov.au/rural-health-demography/>
- AIHW, 2013. 'Impact of rurality on health status'. <http://www.aihw.gov.au/rural-health-impact-of-rurality/>
- AIHW, 2014. *Medical workforce: 2012*. Catalogue no. HWL 54. Canberra.
- AIHW, 2014. *Trends in coronary heart disease mortality: age groups and populations*. Cardiovascular disease series: Number 38, AIHW, Canberra.
- Centre for International Economics, 2014. *Economic projection for the New Water Demand-Supply-Model in Western Australia*. Prepared for the Western Australian Department of Water. Not publicly available.
- Commonwealth of Australia, 2012. *Clinical Practice Guidelines: Antenatal Care - Module 1*, p10,  
<http://www.health.gov.au/antenatal>
- Commonwealth of Australia, 2012. *National Strategic Framework for Rural and Remote Health*. Standing Council on Health. Canberra.
- COAG (Council of Australian Governments) Reform Council 2013. Indigenous reform 2011–12: comparing performance across Australia. Sydney: COAG Reform Council.
- Department of Health, 2013. *Evaluation of Cape York Wellbeing Centres Phase: Two Report*. Draft Version 1. December 2013. Prepared by Health Outcomes International. South Australia.
- Department of Health and Human Services, 2013. *State of Public Health 2013*. State of Tasmania, May 2013.
- Duckett, S., Breadon, P. and Ginnivan, L., 2013. *Access all areas: new solutions for GP shortages in rural Australia*. Grattan Institute, Melbourne.



- Gale, L. 2014. *Review of Remote Consultations*. Final Report. October 2014. RFDS Federation Office.
- Health Workforce Queensland, 2012. *Medical practice in rural and remote Queensland: Minimum data set (MDS) report as at 30 November 2012*. Brisbane: HWQ.
- Humphreys, J., Wakerman, J., Pashen, D., and Buykx, P. 2009. *Retention strategies and incentives for health workers in rural and remote areas: What works?* Australian Primary Health Care Research Institute, Australian National University, Canberra.
- Humphreys, J., and Wakerman, J., undated. *Primary health care in rural and remote Australia: achieving equity of access and outcomes through national reform: A discussion paper*. Monash University School of Rural Health, Bendigo, and the Centre for Remote Health, Alice Springs.
- KPH, 2015. *An update of the 2013 report "Provision of Primary Health Care Services Strategic Study"*. Draft version (not publicly available), Prepared for Tasmanian Royal Flying Doctors Service, February 2015.
- Margolis, S.A. and Ypinazar, V.A. 2008. 'Tele-pharmacy in remote medical practice: the Royal Flying Doctor Service Medical Chest Program'. *Rural and Remote Health* 8:937. Available from <http://rrh.org.au>
- National Rural Health Alliance Incorporated, 2010. 'Measuring the metropolitan-rural inequity'. Fact Sheet 23, November 2010.
- Primary Health Care Research and Information Service, 2013. *Telehealth in primary health care settings within Australia and internationally*. By Petra Bywood, Melissa Raven and Caryn Butler.
- Queensland Parliament, 2014. *Inquiry into telehealth services in Queensland*. Parliamentary Committee Report No. 55, Health and Community Services Committee, September 2014.
- RFDS South Eastern Section, 2013. *Royal Flying Doctor Service primary clinics customer service*. Report completed by Judy Whithead.
- RFDS, 2014. *2015-19 Australian Government funding proposal*. Barton, ACT.
- Turrell, G., Stanley, L., de Looper, M., and Oldenburg, B. 2006. Australia: morbidity, health behaviours, risk factors and health service use. Health Inequalities Monitoring Series. AIHW Cat. No. PHE 72. Canberra: Queensland University of Technology and the Australian Institute of Health and Welfare.
- Vimeo, 2014. 'SUPKids in Aurukun Far North QLD', <http://vimeo.com/112473307>



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