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What core primary health care services should be available to Australians living in rural and remote communities?

Susan L Thomas1,2*, John Wakerman2,3 and John S Humphreys2,4

Abstract

Background: Australians living in rural and remote areas experience poorer access to primary health care (PHC) and poorer health outcomes compared to metropolitan populations. Current health reform in Australia aims to ensure all Australians, regardless of where they live, have access to essential PHC services. However, at a national level policy makers and health planners lack an evidence-based set of core PHC services to assist in implementing this goal.

Methods: A Delphi method was used to reach consensus on an evidence-based list of core PHC services to which all Australians should have access and their necessary support functions. Experts in rural and remote and/or Indigenous PHC, including policy-makers, academics, clinicians and consumers, were invited to consider a list of core services derived from the literature.

Results: Thirty nine experts agreed to participate. After three survey rounds there was a strong consensus (≥80% agreement) on core PHC services namely; ‘care of the sick and injured’, ‘mental health’, ‘maternal/child health’, ‘allied health’, ‘sexual/reproductive health’, ‘rehabilitation’, ‘oral/dental health’ and ‘public health/illness prevention’; and on the PHC support functions of; ‘management/governance/leadership’, ‘coordination’, ‘health infrastructure’, ‘quality systems’, ‘data systems’, ‘professional development’ and ‘community participation’. Themes emerging from qualitative data included challenges in providing equitable PHC in rural and remote areas, the importance of service coordination and diverse strategies to overcome access barriers.

Conclusion: This study identifies a basket of PHC services that consumers in rural and remote communities can expect to access. It provides rigorously derived evidence that will contribute to a more systematic approach to PHC service planning and availability and will assist policy makers in the allocation of scarce resources necessary to improve the health outcomes of residents of rural and remote areas.

Keywords: Primary health care, Equity, Access, Core services, Health service planning, Health policy, Rural, Remote

Background

People living in rural and remote areas in Australia experience poorer access to health care services, exhibit a higher prevalence of health risk factors and greater rates of illness, hospitalisation and death compared to metropolitan populations. These health outcomes generally worsen with distance from capital cities [1]. Other developed countries such as Canada and the United States experience similar health disparities between rural and remote populations and those living in metropolitan areas [2]. Poorer access to primary health care (PHC) in rural and remote areas, due to a lack of necessary infrastructure and workforce, contributes to poorer health outcomes [3].

Primary health care (PHC) is an effective and efficient model for providing a range of basic health services and access to essential PHC services is a factor in improving health outcomes [4–7]. Primary Health Care refers to “… socially appropriate, universally accessible, scientifically...”
sound first level care provided by health services and systems with a suitably trained workforce comprised of multidisciplinary teams supported by integrated referral systems in a way that: gives priority to those most in need and addresses health inequalities; maximises community and individual self-reliance, participation and control; and involves collaboration and partnership with other sectors to promote public health. Comprehensive primary health care includes health promotion, illness prevention, treatment and care of the sick, community development, and advocacy and rehabilitation” [8].

Many countries, including Australia, are undertaking significant health reform with a major commitment to PHC as a means of providing equitable health care for all that is accessible, effective and sustainable [9,10]. Australia recently released its first national PHC strategy (Building a 21st Century Primary Health Care System; Australia’s First National Primary Health Care Strategy, 2010). It aims to ensure PHC services are better able to respond to local needs, and to provide a coordinated, comprehensive service that functions to promote health, prevent illness and reduce the current over-reliance on hospital services [11]. How best to provide equitable access to PHC services in rural and remote areas of Australia is therefore a central policy issue.

It follows then that a key question for policy-makers is “what are the core PHC services that should be available to all Australians, regardless of where they live”? Currently policy-makers and health service planners charged with the responsibility for allocating health resources to rural and remote communities do so in the absence of any comprehensive and agreed national listing of what constitute ‘core’ or essential PHC services. A recent systematic review found no definitive list of ‘core PHC services’. Instead there was wide variability depending on the purpose of the study, methods employed and the setting [12]. Arguably, the current absence of any conclusive national list of core PHC services in Australia contributes to the significant service gaps and inconsistencies in health service planning and is a barrier to reform policy implementation.

This study aimed to provide a template for policy makers and service planners seeking to ensure the equitable allocation of scarce resources. This first stage is to ascertain exactly what PHC services should be available to all Australians, regardless of where they live. Such a list will assist with determining resource allocation and will inform rural and remote consumers of what PHC services they might reasonably expect to access.

Method

A Delphi technique was used to reach an expert consensus on a list of core PHC services and necessary support functions. The Delphi method employs successive iterations of survey results, whereby the researchers summarise and feed back results between rounds, allowing panellists to reconsider their answers in light of the collective response of their peers. This occurs until a level of saturation or consensus is achieved. Ensuring privacy and confidentiality, the panellist’s identity was known only to the researchers. The anonymity of the Delphi process prevents dominance by some individuals and allows for less popular or less forceful opinions to be considered [13]. This method was considered the most appropriate since the subject of core PHC services and support functions is complex, there is little published literature, and opinions on the topic are diverse. In addition, being able to conduct it using interactive technology, allowed the participation of a wide range of experts from across Australia without them having to meet face-to-face [14,15].

The Delphi group included experts in rural, remote and/or Indigenous PHC. Sixty six potential panellists were identified using a comprehensive list developed in a previous study [16] and with the assistance of a national expert advisory group. Invited experts had at least five years’ experience working in the field of rural or remote health. Particular attention was paid to ensuring wide representation from the areas of policy, academe, clinical practice and consumer representation. All states and territories were represented. Members of key rural and remote health organisations were included. Potential panellists received a participant information statement with a letter of invitation. Informed consent was implied as panellists completed the first survey.

The survey instrument was developed using the references from the systematic review previously cited [12]. To develop the list of core PHC services and functions we reviewed all papers cited in the recent systematic review and selected those relevant to the Australian context (that is, for a ‘high income country’ rather than a ‘medium or low income country’). We re-read those papers and reports, extracting the PHC services and functions put forward as necessary or appropriate. The research team collated and grouped these in broad categories. We listed PHC services rather than professional categories (access to physiotherapy for example, not to physiotherapists) or service models (such as outreach or home visiting). As most relevant to the rural and remote context, we drew largely on Australian literature including but not limited to publications developed for Aboriginal and Torres Strait Islander populations. The survey was piloted.

Results from the first round were circulated in the second round. In response to panellists’ initial comments we included a list of examples (illustrative lists) of each of the core services and functions. We developed these illustrative lists by reviewing the papers form the systematic
review and selecting examples of the sorts of services and functions that may be included under the broad categories. These lists were not meant to be exhaustive nor prescriptive and panellists were advised that local services needed to be tailored to meet the needs of the community. For the purpose of this Delphi study, ‘services’ refer to prevention, detection, treatment and rehabilitation provided to patients, families and communities while ‘functions’ support the provision of those health services [17].

Using a Likert scale (‘strongly agree’, ‘agree’, ‘neither agree nor disagree’, ‘disagree’ or ‘strongly disagree’), Delphi panellists scored each of the core PHC services that all Australians should be able to access, each of the support functions necessary to ensure sustainable PHC services, and all the examples on the illustrative lists. Panellists were asked not to prioritise services or to answer according to current workforce, infrastructure or fiscal constraints, but rather to consider what PHC services they believe should be available to ensure good health based on their understanding of rural and remote health needs. A Delphi survey is usually considered complete when there is a consensus of opinion or when some point of diminishing returns is reached. In the absence of any firm rules defining consensus [18], we used the following:

- Strong consensus- ≥80% of panellists either ‘agree’ or ‘strongly agree’
- Moderate consensus- 60-79% of panellists either ‘agree’ or ‘strongly agree’
- No consensus- < 60% of panellists either ‘agree’ or ‘strongly agree’

Panellists could comment on the individual services and functions and provide any additional general comments. Comments were extracted from each survey round and grouped by the study authors into themes. Consideration was given to the number of participants who put forward similar comments and their relevance to the study aims. Analysis was done manually, initially by the lead author and then with the participation of co-authors. Agreed themes were included in successive survey iterations for consideration by the panellists. The themes reported in this paper are those that developed over all the Delphi survey rounds.

Surveys were developed and implemented using SurveyMonkey® and emailed to panellists. Three iterations were completed between August and December 2012. Results were analysed using Microsoft Excel 2010®.

Ethics approval was obtained from the Central Australian Human Research Ethics Committee (CAHREC 12–57).

**Results**

A total of 66 experts were invited to participate and 39 accepted. Table 1 shows the categories of Delphi panellists who accepted the initial invitation and the response rates for the three rounds. There was an even gender distribution and experts were located in all states and Territories. All 39 panellists were invited to complete round one and two. Only participants who completed round two were invited to complete round 3 as those who completed only round one had not contributed to the consensus process on the illustrative lists introduced in round two. There was a strong or moderate consensus for all services and functions.

After two rounds there was a strong consensus on all PHC core services and functions (Table 2).

A strong consensus was achieved for all PHC services and functions. For core PHC services the highest level of consensus (96.8%) was achieved for ‘care of the sick and injured’, ‘maternal and child health’ and ‘public health/illness prevention’. ‘Oral/dental health’ also recorded a high level of consensus (96.7%). While still a strong consensus, ‘rehabilitation’ recorded 83.9% either agreeing or strongly agreeing. For the support functions the level of consensus was consistently above 90% with ‘management/governance/leadership’ and ‘coordination’ attaining a consensus of 100%.

In the third round there was consensus on the more detailed illustrative lists of services (Table 3) and functions (Table 4).

A strong consensus was achieved for most of the services on the illustrative lists of services. There was a 100% consensus for ‘24 hour care including evacuation and emergency care’, ‘treatment of injury and poisoning’, ‘provision of essential drugs’, ‘drug and alcohol treatment’,

**Table 1 Category of Delphi panellists with response rates for three survey iterations**

| Category of panellists expertise | Accepted invitation to participate and sent round 1 survey | Responded to round 1 n (%) | Sent round 2 survey | Responded to round 2 n (%) | Sent round 3 survey | Responded to round 3 n (%) |
|----------------------------------|---------------------------------------------------------|---------------------------|-------------------|--------------------------|-------------------|--------------------------|
| Policy/management                | 16                                                      | 12 (75.0)                 | 16                | 11 (68.8)                | 11                | 11 (100)                 |
| Clinician                        | 8                                                       | 8 (100)                   | 8                 | 7 (87.5)                 | 7                 | 6 (85.7)                 |
| Academic                         | 11                                                      | 9 (81.8)                  | 11                | 9 (81.8)                 | 9                 | 7 (77.8)                 |
| Consumer representative          | 4                                                       | 4 (100)                   | 4                 | 4 (100)                  | 4                 | 4 (100)                  |
| **Total**                        | **39**                                                  | **33 (84.6)**             | **39**            | **31 (79.5)**            | **31**            | **28 (90.3)**            |
Table 2 Second iteration: Delphi consensus on core primary health care services and necessary support functions

| Core Primary Health Care Services | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | Total | Agree or strongly agree* |
|----------------------------------|---------------|-------|------------------------|---------|------------------|-------|------------------------|
| Care of the Sick and Injured     | 29 (93.5)     | 1 (3.2) | 1 (3.2) | 0 (0) | 0 (0) | 31 (100) | 30 (96.8) |
| Mental Health/Social and Emotional Well Being | 25 (80.6) | 4 (12.9) | 2 (6.5) | 0 (0) | 0 (0) | 31 (100) | 29 (93.5) |
| Maternal and Child Health        | 24 (77.4)     | 6 (19.4) | 1 (3.2) | 0 (0) | 0 (0) | 31 (100) | 30 (96.8) |
| Allied Health                    | 18 (58.1)     | 10 (32.3) | 2 (6.5) | 1 (3.2) | 0 (0) | 31 (100) | 28 (90.3) |
| Sexual and Reproductive Health   | 17 (54.8)     | 10 (32.3) | 3 (9.7) | 1 (3.2) | 0 (0) | 31 (100) | 27 (87.1) |
| Rehabilitation                   | 13 (41.9)     | 13 (41.9) | 3 (9.7) | 2 (6.5) | 0 (0) | 31 (100) | 26 (83.9) |
| Oral/Dental Health*              | 23 (76.7)     | 6 (20.0) | 1 (3.3) | 0 (0) | 0 (0) | 30 (100) | 29 (96.7) |
| Public Health/Illness Prevention | 24 (77.4)     | 6 (19.4) | 0 (0) | 1 (3.2) | 0 (0) | 31 (100) | 30 (96.8) |

| Necessary Support Functions      |               |       |                       |         |                  |       |                       |
|----------------------------------|---------------|-------|-----------------------|---------|------------------|-------|-----------------------|
| Management/Governance/Leadership | 22 (71.0)     | 9 (29.0) | 0 (0) | 0 (0) | 0 (0) | 31 (100) | 31 (100) |
| Coordination                     | 27 (87.1)     | 4 (12.9) | 0 (0) | 0 (0) | 0 (0) | 31 (100) | 31 (100) |
| Health Infrastructure            | 18 (58.0)     | 10 (32.3) | 2 (6.5) | 1 (3.2) | 0 (0) | 31 (100) | 28 (90.3) |
| Quality Systems                  | 21 (67.7)     | 9 (29.0) | 1 (3.2) | 0 (0) | 0 (0) | 31 (100) | 30 (96.8) |
| Data Systems                     | 20 (64.5)     | 9 (29.0) | 2 (6.5) | 0 (0) | 0 (0) | 31 (100) | 29 (93.5) |
| Professional Development         | 20 (64.5)     | 9 (29.0) | 2 (6.5) | 0 (0) | 0 (0) | 31 (100) | 29 (96.8) |
| Community Participation          | 23 (74.2)     | 6 (19.4) | 2 (6.5) | 0 (0) | 0 (0) | 31 (100) | 29 (93.5) |

* >80% agree or strongly agree indicates strong consensus.

There was strong agreement for all of the support functions on the illustrative lists with 100% consensus for ‘transparent systems of accountability,’ ‘hospital liaison/discharge planning,’ ‘linkages with other health and community services,’ ‘partnerships between clinical and public health services,’ ‘monitoring and evaluation’ and ‘ensuring service responsiveness.’

Themes from panellist’s comments

In addition to completing the Likert Scales, most panelists contributed at least one comment during the surveys. In round one 29/39 (88%) contributed at least one comment, in round two 23/39 (80%) and in round three 14/28 (50%) did so.

Three main themes emerged from panellists’ comments: i) the inherent challenges of providing equitable PHC in rural and remote areas; ii) the importance of service coordination; and iii) the diverse ways to overcome access barriers.

Some of the inherent challenges in service provision included difficulties in recruiting and retaining a skilled workforce, maintaining and extending health infrastructure, ensuring service quality and safety with a small population base, and ensuring affordability. Other challenges included overcoming barriers imposed by distance and time, particularly when health needs were urgent. There was a sense that even though it may be difficult to provide a full range of PHC services locally, it was important to ensure ready access to them.

‘Priorities are always an unfortunate part of providing health services in rural and remote Australia...it is the exclusion or downplaying of services that creates problems and hurts communities.’ (Consumer Representative)

Specialised services such as radiology/pathology will need a population base to provide a quality/safe service (Clinician).

Secondly, panellists commented on the importance of service coordination. Examples included follow-up care and providing more complex care for those with chronic illness. Coordination of services between small communities and
### Table 3 Third iteration; Delphi consensus on illustrative lists of core primary health care services

| Core Primary Health Care Services                     | Strongly agree n (%) | Agree n (%) | Neither agree nor disagree n (%) | Disagree n (%) | Strongly disagree n (%) | Total n | Strong consensus¹ n (%) | Moderate consensus² n (%) |
|-------------------------------------------------------|----------------------|-------------|----------------------------------|----------------|-------------------------|---------|--------------------------|--------------------------|
| **Care of the Sick and Injured**                      |                      |             |                                  |                |                         |         |                          |                          |
| 24 hour care including evacuation and emergency care  | 25 (89.3)            | 3 (10.7)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Treatment of injury and poisoning                     | 25 (89.3)            | 3 (10.7)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Pathology                                             | 11 (39.3)            | 13 (46.4)   | 4 (14.3)                         | 0              | 0                       | 28      | 24 (85.7)                | 22 (78.6)                |
| Radiology                                             | 11 (39.3)            | 11 (39.3)   | 6 (21.4)                         | 0              | 0                       | 28      | 22 (78.6)                |                          |
| Provision of essential drugs                          | 24 (85.7)            | 4 (14.3)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Patient advocacy                                      | 20 (71.4)            | 3 (10.7)    | 5 (17.9)                         | 0              | 0                       | 28      | 23 (82.1)                |                          |
| **Mental Health and Social and Emotional Well Being** |                      |             |                                  |                |                         |         |                          |                          |
| Counselling                                           | 20 (71.4)            | 6 (21.4)    | 2 (7.1)                          | 0              | 0                       | 28      | 26 (92.9)                |                          |
| Drug and alcohol treatment                            | 15 (53.6)            | 13 (46.4)   | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| **Maternal and Child Health**                         |                      |             |                                  |                |                         |         |                          |                          |
| Ante/post natal care                                  | 23 (82.1)            | 5 (17.9)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Child development checks                              | 20 (71.4)            | 7 (25.0)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                |                          |
| Immunisation                                          | 25 (89.3)            | 3 (10.7)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| **Allied Health Services**                            |                      |             |                                  |                |                         |         |                          |                          |
| Audiology                                             | 12 (42.9)            | 11 (39.3)   | 3 (10.7)                         | 2 (7.1)        | 0                       | 28      | 23 (82.1)                |                          |
| Dietetics                                             | 10 (35.7)            | 12 (42.9)   | 4 (14.3)                         | 2 (7.1)        | 0                       | 28      | 22 (78.6)                |                          |
| Occupational therapy                                  | 8 (28.6)             | 16 (57.1)   | 4 (14.3)                         | 0              | 0                       | 28      | 24 (85.7)                |                          |
| Optometry                                             | 15 (53.6)            | 11 (39.3)   | 2 (7.1)                          | 0              | 0                       | 28      | 26 (92.9)                |                          |
| Physiotherapy                                         | 17 (60.7)            | 9 (32.1)    | 1 (3.6)                          | 1 (3.6)        | 0                       | 28      | 26 (92.9)                |                          |
| Podiatry                                              | 15 (53.6)            | 6 (21.4)    | 7 (25.0)                         | 0              | 0                       | 28      | 28 (100.0)               | 21 (75.0)                |
| Psychology                                            | 17 (60.7)            | 8 (28.6)    | 2 (7.1)                          | 1 (3.6)        | 0                       | 28      | 25 (89.3)                |                          |
| Counselling/social work/family violence               | 20 (71.4)            | 7 (25.0)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                | 22 (78.6)                |
| Speech pathology                                      | 11 (39.3)            | 11 (39.3)   | 6 (21.4)                         | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Aged care and disability services                     | 18 (64.3)            | 9 (32.1)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                |                          |
| Palliative care                                       | 17 (60.7)            | 9 (32.1)    | 2 (7.1)                          | 0              | 0                       | 28      | 26 (92.9)                |                          |
| **Sexual and Reproductive Health**                    |                      |             |                                  |                |                         |         |                          |                          |
| Sexually transmitted infections and blood borne viruses| 18 (64.3)            | 9 (32.1)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                |                          |
| Family planning                                       | 22 (78.6)            | 5 (17.9)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                |                          |
| **Rehabilitation**                                    |                      |             |                                  |                |                         |         |                          |                          |
| After trauma                                          | 14 (50.0)            | 11 (39.3)   | 3 (10.7)                         | 0              | 0                       | 28      | 25 (89.3)                |                          |
| Post-CVA (stroke)                                     | 14 (50.0)            | 11 (39.3)   | 3 (10.7)                         | 0              | 0                       | 28      | 25 (89.3)                |                          |
| Alcohol and other drug rehabilitation                 | 13 (46.4)            | 12 (42.9)   | 3 (10.7)                         | 0              | 0                       | 28      | 25 (89.3)                |                          |
| **Public Health/Illness Prevention**                  |                      |             |                                  |                |                         |         |                          |                          |
| Immunisation                                          | 26 (92.9)            | 2 (7.1)     | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
| Communicable disease control                          | 23 (82.1)            | 4 (14.3)    | 1 (3.6)                          | 0              | 0                       | 28      | 27 (96.4)                |                          |
| Targeted population/health promotional programs       | 19 (67.9)            | 7 (25.0)    | 2 (7.1)                          | 0              | 0                       | 28      | 26 (92.9)                |                          |
| Screening programs                                    | 21 (75.0)            | 7 (25.0)    | 0                                | 0              | 0                       | 28      | 28 (100.0)               |                          |
larger centres was important to ensure individuals don’t ‘slip through the gap’. Other examples related to inter-sectoral collaboration with departments of housing, education and environmental services, which addressed the social determinants of health.

Table 3 Third iteration; Delphi consensus on illustrative lists of core primary health care services (Continued)

| Core primary health care services | Strongly agree n (%) | Agree n (%) | Neither agree nor disagree n (%) | Disagree n (%) | Strongly disagree n (%) | Total n | Strong consensus¹ | Moderate consensus² |
|----------------------------------|----------------------|-------------|----------------------------------|---------------|------------------------|--------|-------------------|-------------------|
| Youth programs                   | 17 (60.7)            | 8 (28.6)    | 2 (7.1)                          | 1 (3.6)       | 0                      | 28     | 25 (89.3)         |                   |
| Well men’s and women’s services  | 18 (64.3)            | 5 (17.9)    | 4 (14.3)                         | 1 (3.6)       | 0                      | 28     | 23 (82.1)         |                   |
| Advocacy                         | 15 (53.6)            | 9 (32.1)    | 4 (14.3)                         | 0             | 0                      | 28     | 24 (85.7)         |                   |

¹ ≥ 80% ‘agree’ or ‘strongly agree’ indicates a strong consensus.
² 60-79% ‘agree’ or ‘strongly agree’ indicates a moderate consensus.

‘[There is] a major issue about chronic otitis media in Aboriginal communities where even though a diagnosis is made, there is little follow-up, little attention to addressing the social determinants and as a result continued loss of hearing in children with

Table 4 Third iteration; Delphi consensus on illustrative lists of core primary health care support functions

| Core primary health care support functions | Strongly agree n (%) | Agree n (%) | Neither agree nor disagree n (%) | Disagree n (%) | Strongly disagree n (%) | Total n | Strong consensus¹ | Moderate consensus² |
|--------------------------------------------|----------------------|-------------|----------------------------------|---------------|------------------------|--------|-------------------|-------------------|
| Management/Governance/Leadership           |                      |             |                                  |               |                        |        |                   |                   |
| Human resources management                 | 17 (60.7)            | 10 (35.7)   | 1 (3.6)                          | 0             | 0                      | 28     | 27 (96.4)         |                   |
| Human resources management                 | 15 (53.6)            | 12 (42.9)   | 1 (3.6)                          | 0             | 0                      | 28     | 27 (96.4)         |                   |
| Transparent systems of accountability      | 22 (78.6)            | 6 (21.4)    | 0                                | 0             | 0                      | 28     | 28 (100.0)        |                   |
| Advocacy at an organisational, regional and potentially national level | 19 (67.9) | 5 (17.9) | 4 (14.3) | 0 | 0 | 28 | 24 (85.7) |                   |
| Formulating service policy and service planning at all levels | 17 (60.7) | 9 (32.1) | 1 (3.6) | 1 (3.6) | 0 | 28 | 26 (92.9) |                   |
| Coordination                               |                      |             |                                  |               |                        |        |                   |                   |
| Hospital liaison/discharge planning        | 26 (92.9)            | 2 (7.1)     | 0                                | 0             | 0                      | 28     | 28 (100.0)        |                   |
| Linkages with other health and community services | 24 (85.7) | 4 (14.3) | 0 | 0 | 0 | 28 | 28 (100.0) |                   |
| Coordination across related sectors        | 13 (46.4)            | 12 (42.9)   | 3 (10.7)                         | 0             | 0                      | 28     | 25 (89.3)         |                   |
| Partnership between clinical and public health services with a focus on PHC | 21 (75.0) | 7 (25.0) | 0 | 0 | 0 | 28 | 28 (100.0) |                   |
| Health Infrastructure                      |                      |             |                                  |               |                        |        |                   |                   |
| Buildings, materials, systems of maintenance | 21 (75.0) | 4 (14.3) | 3 (10.7) | 0 | 0 | 28 | 25 (89.3) |                   |
| Quality Systems                            |                      |             |                                  |               |                        |        |                   |                   |
| Evidence based practice                    | 20 (71.4)            | 7 (25.0)    | 1 (3.6)                          | 0             | 0                      | 28     | 27 (96.4)         |                   |
| Monitoring and evaluation                  | 21 (75.0)            | 7 (25.0)    | 0                                | 0             | 0                      | 28     | 28 (100.0)        |                   |
| Quality improvement systems                | 22 (78.6)            | 4 (14.3)    | 2 (7.1)                          | 0             | 0                      | 28     | 26 (92.9)         |                   |
| Data Systems                               |                      |             |                                  |               |                        |        |                   |                   |
| Health records, data collection, public health data collection, monitoring and follow up systems, health registers | 25 (89.3) | 2 (7.1) | 1 (3.6) | 0 | 0 | 28 | 27 (96.4) |                   |
| Professional Development                   |                      |             |                                  |               |                        |        |                   |                   |
| Training, support, supervision, preparing staff for rural and remote contexts and multi-disciplinary team practice | 23 (82.1) | 4 (14.3) | 0 | 1 (3.6) | 0 | 28 | 27 (96.4) |                   |
| Community Participation                    |                      |             |                                  |               |                        |        |                   |                   |
| Promoting cultural safety                  | 20 (71.4)            | 7 (25.0)    | 1 (3.6)                          | 0             | 0                      | 28     | 27 (96.4)         |                   |
| Ensuring service responsiveness            | 21 (75.0)            | 7 (25.0)    | 0                                | 0             | 0                      | 28     | 28 (100.0)        |                   |
| Contributing to good governance            | 20 (71.4)            | 6 (21.4)    | 2 (7.1)                          | 0             | 0                      | 28     | 26 (92.9)         |                   |

¹ ≥ 80% ‘agree’ or ‘strongly agree’ indicates a strong consensus.
² 60-79% ‘agree’ or ‘strongly agree’ indicates a moderate consensus.
consequent learning difficulties and other sequelae.' (Academic)

‘Addressing the upstream determinants of health seems essential if health and wellbeing [is] the ultimate goal.’ (Consumer Representative)

Finally, panellists noted the many different ways in which PHC services can be provided to overcome access barriers, including the use of tele-health and tele-radiology strategies. Others focused on local health workers with multiple generalist skills, supported by regular visiting specialists. This included ‘fly-in, fly-out’, ‘hub-and-spoke’, periodic outreach and other similar regional approaches. It was important to support patients with access to 24 hour transport assistance and to ensure that the frequency of visiting services and support was commensurate with community needs.

‘My answers do not imply that such services should be located in every community but there should be reasonable and convenient access (including electronic access where appropriate) depending on the seriousness and urgency of the situation.’ (Policy/Management)

‘...expansion of some allied health services through tele-health/up skilling of PHC professionals based in communities should increase access.’ (Policy/Management)

Discussion
In considering what core PHC services should be available to all Australians regardless of where they live, there was a particularly strong consensus for ‘care of the sick and injured’, ‘maternal and child health’, ‘oral/dental health’ and ‘public health/illness prevention’ services. This may reflect the urgent care needs of many underserviced rural and remote communities, the persistent gaps in accessibility, and possibly the vulnerability of those in need. Support of ‘public health/illness prevention’ reflects recognition of the importance of services that have a whole-of-population effect, that focus on prevention and early detection of health problems and can address the social determinants of health. The moderate consensus for ‘radiology’ and for some of the ‘allied health services’ ('dietetics', 'podiatry' and 'speech pathology') may reflect assumptions that these services required more technical skills or that identified current workforce constraints discriminate against equitable access. While a small number indicated that they ‘neither agreed nor disagree’ and an even smaller number chose to ‘disagree’, consensus was still ≥75%.

In relation to the support functions, a strong consensus was reached on all the broad categories and all the illustrative lists, particularly ‘management/governance/leadership’, ‘co-ordination’, and the illustrative examples that described ‘transparent systems of accountability’, liaison, linkages and partnerships with other health agencies, ‘monitoring, evaluation’ and ‘ensuring service responsiveness’. Panellists commented on the important role these functions play in the integration and co-ordination of services, and that the core services without underlying support functions are insufficient in responding to the health needs of communities. This is consistent with previous research demonstrating the essential requirements for sustaining PHC services in rural and remote areas [19].

For consumers, this study has identified a set of core PHC services which experts considered they should be able to access regardless of where they live. Many residents of rural and remote communities do not currently have ready access to these PHC services, and have come to accept this poor access, characterising the status quo, as normal. Indeed, many rural and remote residents may not even be aware of the range and type of basic PHC services that are necessary for and available to those living in metropolitan areas.

For policy makers and health planners, this list of core PHC services can be used as a guide to identify service gaps and inconsistencies, and to plan appropriate, consistent and effective health workforce and infrastructure strategies necessary to address the health needs of rural and remote Australians. Without a defined and agreed set of core PHC services, resource allocation is likely to be ‘ad hoc’ or based on ‘historical’ expenditure, with access to core PHC services remaining ‘patchy’ and inconsistent across similar communities. For health service planners, this ‘basket of services’ can be used to systematically identify health service gaps, take into account community diversity, felt needs and reliable prevalence data, in order to tailor a specific ‘package’ of core PHC services that meets the needs of the community [20]. The results of this study may be generalisable to other developed countries such as Canada and the United States, where similar health disparities exist between rural and remote populations and those living in urban areas.

This study also provides essential information for developing health service models to provide comprehensive PHC. While outside the scope of this study, panellists offered suggestions of how to improve access to these services, including use of new technologies and by supporting generalist health workers with visiting specialists.

Arguably most important of all, an evidence-based list of core PHC services and support functions provides a vital template to guide the equitable allocation and distribution of scarce resources towards PHC service provision. For policymakers, this list makes possible the
development of resource allocation benchmarks for underserviced communities. This investment in PHC services, particularly illness prevention and health promotion, will reduce national health expenditure by reducing avoidable hospitalisation costs and increasing system sustainability [6,11,21]. The authors are currently investigating the role of population thresholds characterising rural and remote communities in order to ascertain which particular core PHC services can be feasibly located in situ and which may need to be provided either on a visiting basis or via the patient travelling to that service in a larger community.

This study is not without limitations. Delphi group limitations may include selection bias, a small number of iterations and a decline in response rates [15]. There are no set rules determining how many panellists should be included, although 8–10 has been suggested as sufficient to ensure validity [22], with time and cost factors considered [18]. The methodological process adopted in this study was rigorous. We made a particular effort to ensure panellists selected were representative of the diverse rural and remote and/or Indigenous PHC field. Many were well-placed to implement findings or advocate for consumers. Other strengths of the study included: the large size of our Delphi group, the high response rates for the three iterations and the insightful comments made by panellists, indicating their commitment and ongoing engagement with the topic.

Conclusion
In the absence of any agreed set of core PHC services that should be available to all Australians regardless of where they live, and the support functions necessary to ensure their sustainability, there will continue to be significant gaps for rural and remote residents in accessing health care. Policy responses are unlikely to accord with a systematic approach to ensuring equity of access to health services. Knowing what services should be available helps communities and policy-makers to work together to ensure that they can be delivered in a way that is ‘fit-for-purpose’, rather than some expedient ‘one-coat-fits-all’ approach. Moreover, the evidence from this core PHC study will facilitate a more equitable distribution of scarce health resources and thereby assist PHC policy-makers and service planners to achieve more equitable health outcomes.

Competing interests
The authors have no competing interests in the conduct of this study or in the preparation of the manuscript.

Authors’ contributions
JW and JSH conceptualised the research aims and methodology, guided the research process and contributed to the manuscript. JW provided overall supervision of the project. All authors were involved in the design of the questionnaires and in the interpretation of the results. SLT developed and administered the surveys and undertook initial interpretation of results. SLT prepared the first draft of the manuscript. All authors read and approved the final manuscript.

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References
1. Australian Institute of Health and Welfare (AIHW): Rural, regional and remote health: indicators of health status and determinants of health. Canberra: AIHW; 2008. Contract No. no. 9. Cat. no. PHE 97.
2. Smith K, Humphreys J, Wilson M. Addressing the health disadvantage of rural populations: How does epidemiological evidence inform rural health policies and research? Australian Journal of Rural Health 2008, 16(2):56–66.
3. Bywood P, Katter1 R, Lunney B: Disparities in primary health care utilisation: Who are the disadvantaged groups? How are they disadvantaged? What interventions work? Primary Health Care Research and Information Service (PHCRIS), Policy Issue Review. Adelaide, 2011.
4. Wakeman J, Humphreys J: Sustainable primary health care services in rural and remote areas: Innovation and evidence. Australian Journal of Rural Health 2011, 19(3):118–124.
5. Starfield B, Can Med Ass J: Toward international primary care reform. Canadian Med Ass J 2009, 180(11):1091–1092.
6. Starfield B, Shi L, Marcinko J: Contribution of primary care to health systems and health. Milbank Quarterly 2005, 83(3):457–502.
7. Kingos D, Boerma W, Hutchinson A, van der Zee J, Groenewegen P: The breadth of primary care: A systematic literature review of its core dimensions. BioMed Central Health Services Research 2010, 10(1):65. PubMed PMID: doi:10.1186/1472-6963-10-65.
8. Australian Primary Health Care Research Institute, Australian National University. updated 11 June 2013; cited 2014 8 April. Available from: http://www.phcris.org.au/guides/about_phc.php.
9. Van Lerberghe W: The world health report 2008: primary health care: now more than ever. Geneva: World Health Organization; 2008.
10. Commonwealth of Australia. National health reform; Progress and delivery. Sept 2011. Canberra: Department of Health and Ageing.
11. Commonwealth of Australia: Building a 21st century primary health care system. Canberra: Australia’s first national primary health care strategy; 2010.
12. Carey T, Wakeman J, Humphreys J, Buykx P, Lindeman M: What primary health care services should residents of rural and remote Australia be able to access? A systematic review of “core” primary health care services. BioMed Central Health Services Research 2013, 13(1):178. PubMed PMID: doi:10.1186/1472-6963-13-178.
13. Hsu C, Sandford B: The Delphi technique: making sense of consensus. Practical Assessment, Research and Evaluation. 2007, 12(10):1–8.
14. Campbell S, Braspenningen J, Hutchinson A, Marshall M: Research methods used in developing and applying quality indicators in primary care. Quality and Safety in Health Care 2002, 11(4):358–364.
15. Hasson F, Keeney S, McKenna H: Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing* 2000, 32(4):1008–1015.

16. Bourke L, Humphreys J, Wakeman J, Taylor J: Understanding rural and remote health: A framework for analysis in Australia. *Health & Place* 2012, 18(3):496–505.

17. Tilton E, Thomas D: Core functions of primary health care: A framework for the Northern Territory. Northern Territory Aboriginal Health Forum: Darwin; 2011.

18. Powell C: The Delphi technique: Myths and realities. *Journal of Advanced Nursing* 2003, 41(4):376–382.

19. Tham R, Humphreys J, Kinsman L, Buykx P, Asaid A, Tuohey K, Riley K: Evaluating the impact of sustainable comprehensive primary health care on rural health. *Australian Journal of Rural Health* 2010, 18(4):166–172.

20. Bradshaw J: A taxonomy of social need. *New Society* 1972, 30(3):72.

21. Humphreys J, Gregory G: Celebrating another decade of progress in rural health: What is the current state of play? *Australian Journal of Rural Health* 2012, 20(3):156–163.

22. Okoli C, Pawlowski S: The Delphi method as a research tool: an example, design considerations and applications. *Information and Management* 2004, 42(1):15–29.

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