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REFinE-PHC: Preferences and choice in primary care

Consumers and providers

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Part A: Consumers

Background

Identification of the general practitioner and practice attributes regarded as important by consumers can inform health care policy by contributing to the design of primary care services which reflect the priorities of the users of those services. Understanding the factors consumers regard as important when choosing a GP can also be important for ensuring the availability of relevant and useable information for consumer decision making. Primary care policies which require patients to attend a single general medical practice and not 'doctor shop' will be facilitated by providing patients with sufficient information on which to base the initial choice of doctor and practice, rather than having to 'shop around' to find a satisfactory GP. This is relevant to the current Australian context as, based on the recommendation from the Primary Health Care Advisory Group,[1] the Australian Government is about to trial a policy of 'Health Care Homes' which includes practice enrolment to enhance the care of patients with chronic health conditions.[2] Currently, the GP section of the Australian government health service finder website (**http://www.healthdirect.gov.au/australian-health-services/**) does not include information about service quality, such as that provided by the equivalent site in the UK (**http://www.nhs.uk/Service-Search/GP/**).

This research theme aimed to identify the information Australian consumers would find useful for choosing a GP and the best way of presenting that information. It investigated consumer preferences for primary care services through three projects. Project 1 aimed to identify the factors Australians consider important when choosing a GP and examined the extent to which this varies by health and demographic characteristics. Project 2 used a discrete choice experiment (DCE) to investigate consumer preferences for general practitioner services in Australia and New Zealand, and also examined whether preferences differed for different presenting health problems (routine problem through to an unknown problem). Using the findings from Project 2, Project 3 investigated how information about GP services can be presented to consumers and whether the presentation style influences consumer choice.

EXISTING LITERATURE

Through an examination of conceptual reviews and empirical studies, Cheraghi-Sohi[3] developed a 'conceptual map' of the key attributes of primary care that were important to patients. They identified seven attribute categories,

- access (to care and to preferred services)
- technical care quality
- interpersonal care (including communication and explanation)
- patient-centredness
- continuity (of information, care and provider)
- outcomes (including health status, quality of life and satisfaction), and
- hotel aspects (such as waiting room) [3].

This wide-ranging list was found to be too large to be comprehensively addressed by most patient assessment instruments.

A number of survey methods have been used for measuring preferences in relation to primary care including direct rating of the importance of a range of attributes of care and stated preference elicitation using discrete choice experiments (DCE). Direct questions rating the extent of preference for each attribute allow for the inclusion of a large number of different attributes but do not force respondents to weigh up the relative importance of different attributes. They therefore may lack sensitivity to differences between attributes, for

example where many respondents identify all or most attributes as important. DCEs offer respondents a series of choices where attribute levels vary between choice options and across choices. This approach has the advantage of being able to quantify the extent to which respondents would trade attributes of care against each other but is constrained by the number of different attributes that can be feasibly considered at one time.

DCE surveys investigating preferences for GP services have originated mainly in Europe (predominantly the UK) and have generally found technical quality of care,[4,5] doctor communication,[6-9] information provided,[6,8,10] continuity of care[4,5,11,12] and choice of provider[11-15] to be the most important attributes for GP care among those included in the relevant experiments. In the Australian context, Haas[16] found that trust in the doctor was more important than other interpersonal aspects for choosing to remain with a GP. In many of the DCE studies, respondents were willing to trade-off speed of access for a GP appointment with the preferred attributes. Not surprisingly, preferences varied according to respondent characteristics such as age, gender and health status.

Results from studies using direct questions about the respondent's preference or strength of preference for individual attributes of care have varied somewhat according to the question and attributes included. Razzouk et al[17] asked respondents to rate the usefulness of 22 different information items (including patient satisfaction ratings) for choosing a new primary care physician. They found that respondents most frequently identified ratings of patient satisfaction with care quality, access and interpersonal skills as useful information for choosing a physician. Fung et al[18] asked respondents to choose between hypothetical primary care physicians described in terms of six attributes (3 related to technical care and 3 related to interpersonal care). They found that physicians who were rated highly on technical aspects of care were selected more frequently than those rated highly on interpersonal aspects and this did not differ by age, gender or ethnicity. This study used a task similar to DCE studies but a simpler design and analytic approach. Little et al[19] asked patients attending a GP appointment what they wanted from their medical encounter and, using factor analysis identified three domains of patient preference (communication, partnership and health promotion) among the 21 questions (which were focused on patient-centred care). They found communication aspects reported more frequently than other aspects and this varied by health, employment and frequency of GP visits.[19]

There is considerably less published research about the presentation of service quality information for choosing a GP or practice, although some of the studies about presenting other types of health information may be relevant here. The use of a simplified framework and the use of plain language to describe medical practitioner quality indicators was found to improve consumers' understanding and to improve their ratings of the information's usefulness relative to the same information presented in a technical language or presented without the framework.[20] Minimising the amount of information presented was found to improve understanding of hospital quality information, particularly for those with low numeracy.[21] Many studies about presentation formats focus on presenting risk information for health decisions. Two reviews found no single visual presentation format to be consistently superior for presenting risk information but recommended the use of both numerical and graphical presentation.[22,23] Only one study considered presentation format in the context of a health related choice experiment[24] finding that words were preferred by respondents and that graphics did not improve attribute comprehension. However this study compared the use of words or graphics to depict all attribute levels including non-quantitative attributes which may have caused confusion regarding some graphical representations.

Although the important factors for choosing a GP have been examined by a number of quantitative studies using a variety of methods, many have limitations. Few DCE studies have included cost as an attribute and few studies have examined preferences for GP care in the context of the Australian health care system. The research on the presentation of service quality information appears inconclusive at this stage.

PURPOSE AND CONTRIBUTION

This section of the report presents three studies which examined different aspects of consumer preferences for primary care services in Australia. Project 1 extends the existing literature by examining a comprehensive range of attributes of GP care and by assessing the extent to which these attributes can be grouped into underlying dimensions. It also explores the extent to which preferences are associated with individual health and demographic characteristics. Project 2 uses information from paper 1 to select relevant attributes for a DCE. It adds to the DCE literature on consumer preferences in general practice by examining the extent to which preferences for GP services are shaped by the prevailing health system. It does this by directly comparing the preferences for GP services between Australia and New Zealand, two culturally similar countries with different approaches to funding and providing primary health care. Project 3 builds on the information gained in the first two projects by examining how best to present information about general practice quality to facilitate consumer choice of practice. The purpose was to produce information which would enable funders and providers to improve the presentation of general practice quality information for consumers. It will also inform the presentation of such information for future DCE studies.

Methods and Results

Each study conducted a survey of a sample of the adult population recruited from an online panel. Online panels have a large number of account holders who have registered to participate in surveys *via* the internet. Respondents are paid for each completed survey, according to the length of the survey. Information about the payment amount is included in the survey invitation and the respondent chooses which surveys to complete.

STUDY 1: CHOOSING A GP

A sample of 2,481 respondents from an Australian panel completed the survey. The survey asked respondents to rate the importance of a range of doctor and practice attributes to their choice of GP. There were 36 attributes, each with the same 5-point numeric response scale anchored at 1 = "Not at all important" and 5 = "Extremely important". Using the framework devised by Cheraghi-Sohi et al[3], the 36 questions covered access to care in general, access to preferred services, technical care, interpersonal care in terms of communication, continuity (informational and relational/interpersonal) and hotel aspects (such as waiting room and parking). The survey also asked respondents about their experiences of GP care and usage, and included questions about health and socio-demographic characteristics.

Principal components analysis (PCA) was used to identify dimensions among the 36 importance items and to facilitate reduction to a smaller number of summated scales. Items loading onto the same factor were interpreted as part of the same dimension. A five factor solution explained 58% of the variance in the 36 items. Dimension scores were estimated as the mean of items loading onto the same factor (possible range 1-5). The relative importance of the dimensions was examined by comparing the mean dimension scores and their 95% confidence intervals. Multiple regression analyses were then used to identify the respondent characteristics associated with each dimension score. Further details can be found in the published paper[25].

The PCA identified five dimensions,

- "Care quality" (10 items)
- "Types of services" (8 items)
- "Availability" (6 items)
- "Cost" (6 items including time and financial cost), and
- "Practice characteristics" (6 items).

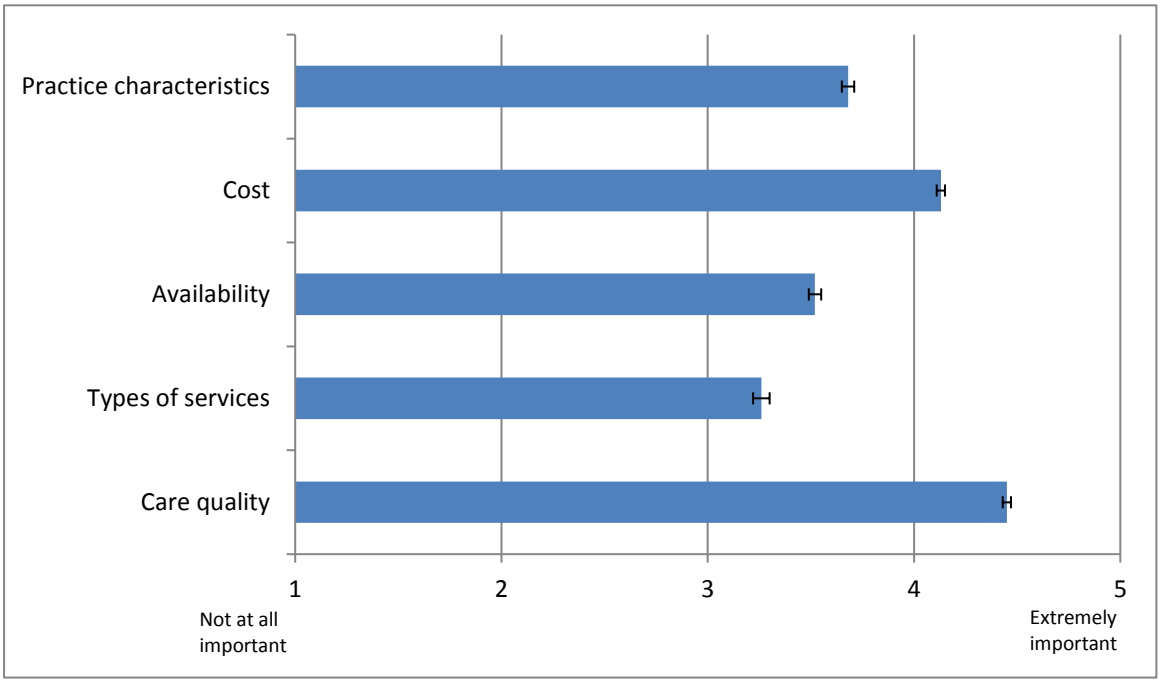
The care quality dimension included questions intended to capture three aspects of care: interpersonal care, technical care and continuity. The types of services dimension comprised a range of different services provided by or collocated with the practice (including alternatives to traditional care), capturing the preferred services component of access to care from the categories of Cheraghi-Sohi et al [3]. The availability dimension also covered components of access, including questions about the ease of access to appointments and the availability of out-of-hours care. The cost dimension covered further aspects of access to care, including access to free care, travel costs and time costs. The hotel aspects of care from the categories of Cheraghi-Sohi et al were primarily grouped under the practice characteristics dimension which combined questions about the waiting room and parking with questions about practice size and structure.

The highest mean dimension scores were for care quality (mean 4.45 (out of 5), 95% CI 4.43-4.47) and cost (mean 4.13, 95% CI 4.10-4.15), where a higher score indicates greater importance for choosing a GP. Types of services had the lowest mean score (mean 3.26, 95% CI 3.22-3.30), indicating that it was the least important dimension on average (see Figure 1). The individual items most frequently identified as important or extremely important (rated 4 or 5) were those making up the care quality dimension; the interpersonal care attributes (GP communication, information provision and length of consultation) were rated

as important by 90-92% and the technical care attributes (thorough examination and use of proven treatments) were rated as important by 89%. Within the cost dimension, the individual items most frequently identified as important were bulk billing and immediate Medicare claim submission; both were identified as important by 80% of respondents. The individual items most frequently identified as not important contributed to the types of services, availability and practice characteristics dimensions; online appointments, alternatives to face-to-face consultations and the availability of complementary/alternative health care were identified as not important by over 30% of respondents.

Regression analyses found that dimension scores did not differ significantly by residential area or health status, after adjusting for age and GP visit frequency. Frequent GP users and females had higher scores across all dimensions and the importance of care quality increased with age. On average the dimension scores of females were between 0.14 and 0.22 points higher than those of males and those with 12 or more GP visits in the previous year had dimension scores between 0.33 and 0.41 points higher than those with no visits. Types of services and practice characteristics were more important to concession cardholders. People who were born overseas and/or spoke a language other than English at home placed higher importance on availability and types of services. The individual characteristics explained 14% of the variance in the care quality dimension score but only 4-6% for the other dimension scores.

Figure 1: Dimension scores: mean and 95% confidence interval



STUDY 2: CHOOSING A GP APPOINTMENT - AUSTRALIA AND NEW ZEALAND

This study used a DCE and recruited a sample of 1,005 respondents from an Australian panel and a second sample of 1,000 respondents from a New Zealand panel. Respondents completed an online survey which included 15 choice questions, as well as health, GP utilisation and socio-demographic questions. Each choice question presented two hypothetical alternatives for a GP consultation (Appointment A and Appointment B) and respondents were asked which they would choose. Each alternative appointment was described in terms of nine attributes with the levels of the attributes varying according to an

experimental design, developed using Ngene software. The nine attributes covered service quality, availability, convenience and cost which were selected using the results from Study 1. As preferences for a GP consultation were expected to vary according to the reason for seeking a consultation, the choice sets were preceded by a vignette describing the reason for the hypothetical consultation. Three vignettes were chosen to represent: 1) a routine issue such as a vaccination, 2) a minor known problem requiring treatment and 3) an unknown problem with new symptoms. Each respondent saw five choice questions per vignette (15 choices in total) and the vignettes were randomly ordered.

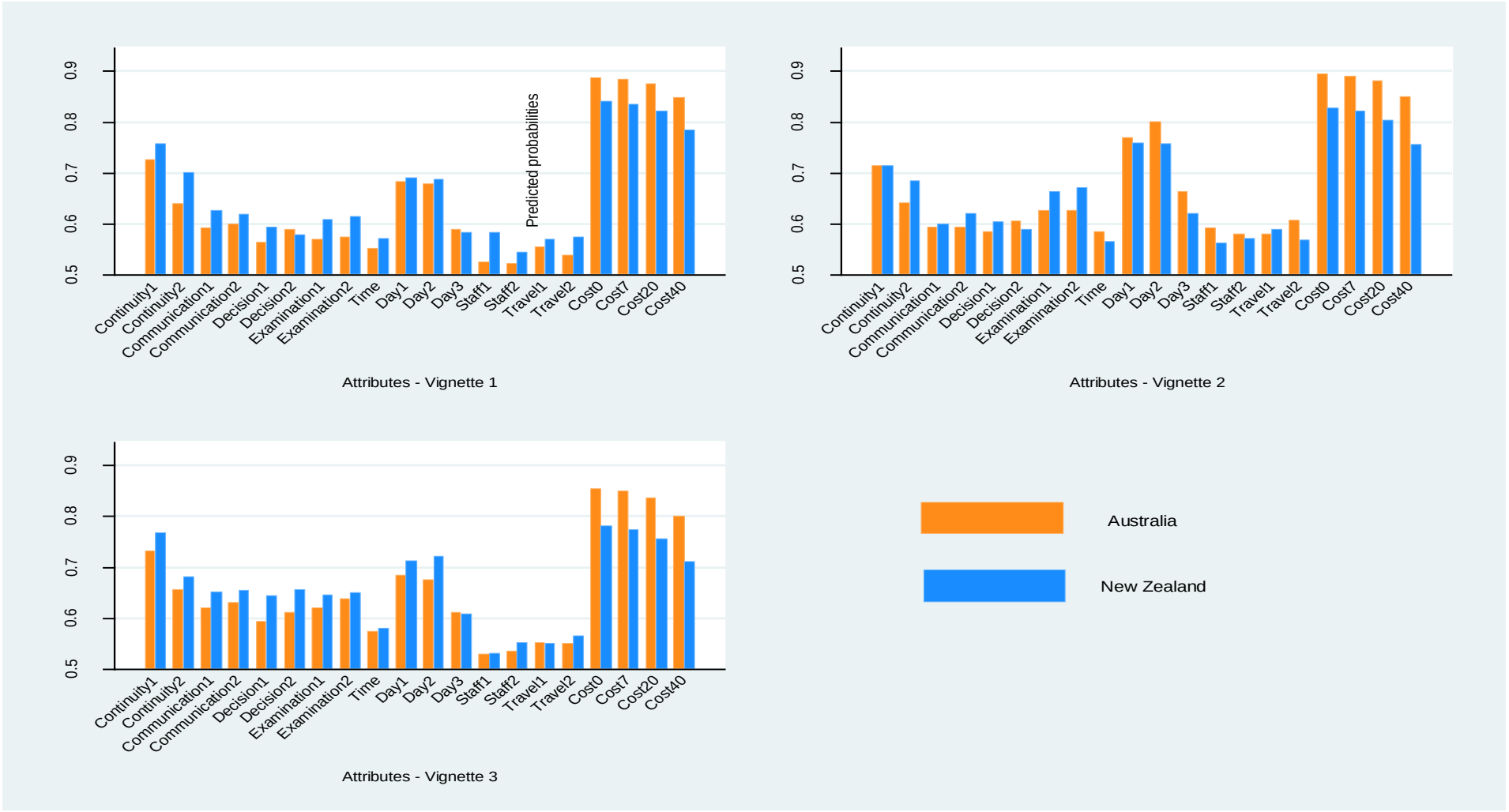
Data were analysed using generalised multinomial logit (G-MNL) models[26]. Separate models were estimated for each vignette and for each country. Data from the two countries were then combined to estimate a single model for each vignette which included an interaction between country and each attribute level, to test the significance of country differences in preferences. A similar process was used to test the significance of differences in preferences between vignettes where a single model was estimated for each country which included an interaction between vignette and attribute level. More detail of the methods including the wording of the vignettes and a sample choice question can be found in the journal paper which is currently under review (Goodall et al. What Influences the Choice of General Practitioners? Evidence from a Discrete Choice Experiment in Australia and New Zealand).

The results suggest that consumers in Australia and New Zealand have a clear preference for GP appointments with lower cost, continuity of provider (seeing a GP you know) and of care (the GP has access to your medical records), an appointment within 1-2 days and also placed emphasis on other care quality attributes. Some attributes also showed statistically significant heterogeneity across respondents, including cost, continuity of care, and day of appointment, suggesting that preferences for these factors vary across individuals. The predicted probability of choosing a GP appointment at each attribute level is shown in Figure 2, for both countries and for the three presenting conditions. The probabilities in Figure 2 should be interpreted as relative to the least favourable level (base) for that attribute and a probability of 0.5 would suggest no preference, or indifference, between the relevant attribute level and the base level on average. Cost had the biggest impact on the probability of choosing a GP appointment, particularly for Australian respondents where the probability of choosing a visit with no out-of-pocket cost ranged from 0.85 to 0.89 across the three vignettes, relative to a visit with an out-of-pocket cost of $80. An appointment on the same or the next day and continuity were the next most important attributes after cost.

There were a few statistically significant differences in preferences by presenting problem (vignette). For both Australian and NZ respondents, there was a stronger preference for a GP who conducts thorough examinations for Vignettes 2 and 3 relative to Vignette 1 and for an appointment within 1-2 days for Vignette 2 (a known problem requiring treatment). Respondents from both countries were willing to pay more for the visit for Vignette 3, an unknown problem with new symptoms. Australians also had a stronger preference for continuity of provider (seeing a GP you know) when the presenting problem was Vignette 3.

There were few statistically significant differences between the two countries, with the exception of cost where the NZ respondents clearly placed less importance on cost and were willing to pay more for continuity and some quality attributes. Across all vignettes, NZ respondents placed more importance on continuity of provider and of care relative to Australians. NZ respondents also placed more importance on communication (the GP listens and explains the diagnosis and treatment clearly) and participation in decisions (the GP involves the patient in discussions about treatment) when the presenting problem was Vignette 3.

Figure 1: Predicted probabilities of choice of GP appointment at each attribute level by country for each presenting problem vignette



Note: Vignette 1 is a routine issue such as a vaccination; Vignette 2 is a minor known problem requiring treatment; Vignette 3 is an unknown problem with new symptoms.

STUDY 3: CHOOSING A PRACTICE - PRESENTATION OF QUALITY INFORMATION

This study also used a DCE and recruited 1,208 respondents from an Australian panel. Respondents completed an online survey which included 18 choice questions as well as health, GP utilisation, subjective numeracy and socio-demographic questions. Each choice question presented two hypothetical general medical practices (Practice A and Practice B) and respondents were asked which they would choose if they had to find a new practice. The hypothetical practices were described in terms of 10 attributes of a medical practice, some of which were similar to the attributes in Study 2. The attribute levels were varied according to an experimental design as in Study 2. This study used four different formats (or styles) for presenting the levels of the five service quality attributes which are illustrated in Table 1. The formats were,

- Frequency and percentage with an icon array
- Star ratings
- Star ratings with a text benchmark (e.g. above average), and
- Percentage alone.

The levels of the other five attributes were presented as text or numbers only. Respondents saw two different presentation formats which were randomly assigned, nine choice questions for each format which were seen as a block. The order of the presentation formats was also randomised. The first choice of each block of nine was a dominated choice, meaning that one alternative was better (or equivalent) on all attributes. The five service quality attribute levels were all dominated (worse) for one alternative, while the remaining attribute levels were equal across the alternatives. The dominated choices were included for assessment of a choice error rate for each presentation format. The time taken to complete each choice question was recorded as an indicator of the ease or difficulty of completion. The survey also included questions about how easy or difficult it was to understand the information in the choice questions and which format respondents found best for choosing a practice.

Table 1: Presentation formats used in Study 3

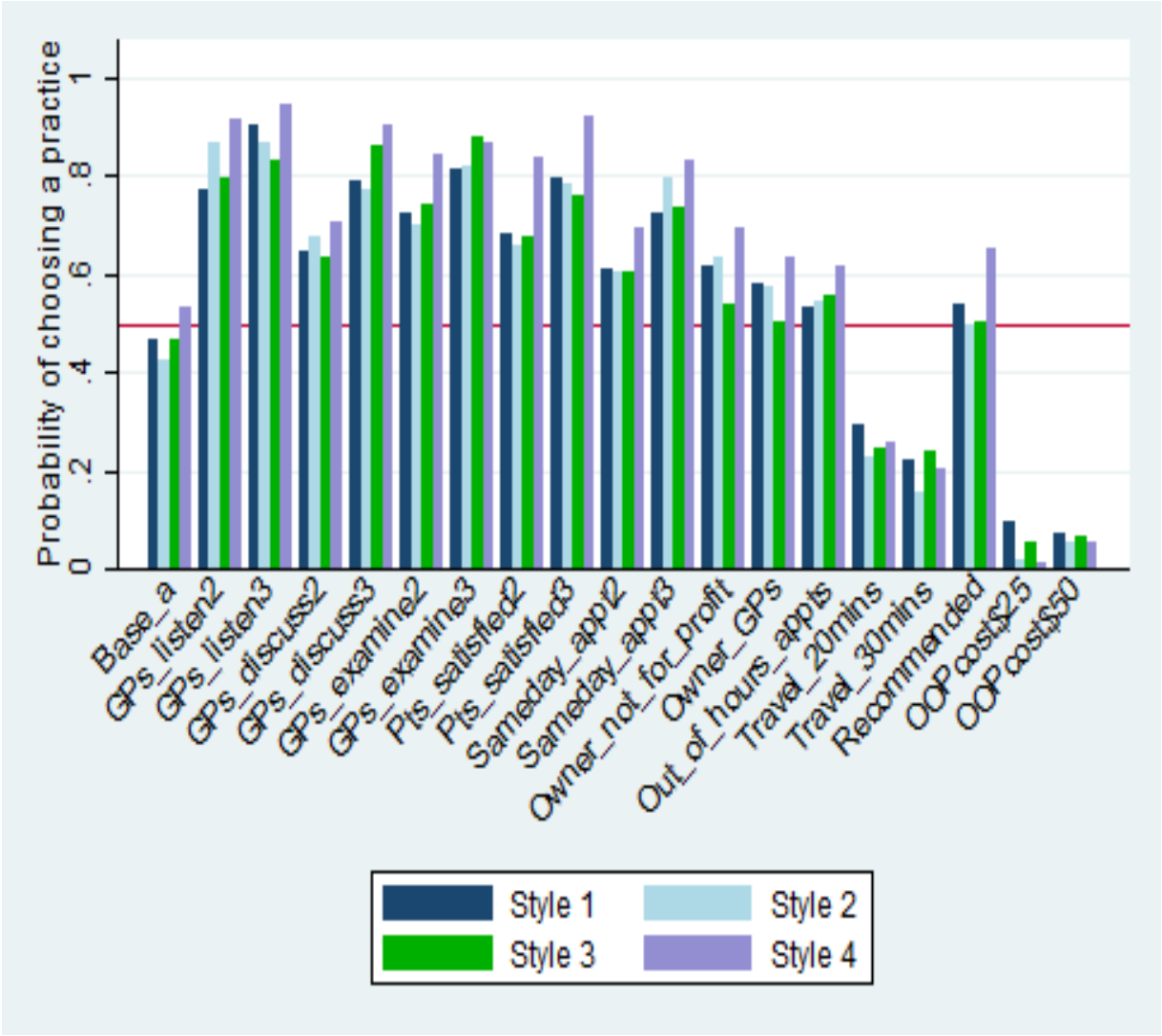
Level	Style 1	Style 2	Style 3	Style 4
1	5 in 10 (50%)		Below National average	50%
2	7 in 10 (70%)		Average	70%
3	9 in 10 (90%)		Above National average	90%

Data were analysed using generalised multinomial logit (G-MNL) models[26]. Separate models were estimated for each presentation format and a single model was also estimated with the presentation format interacted with each attribute level, to test for differences in preferences

by presentation format. Logistic regression with robust standard errors was used to analyse the impact of presentation format on the probability of choosing a dominated alternative, after accounting for numeracy level and the time spent on the choice questions overall. More detail will be available in the published journal paper (currently being prepared).

The presentation style had little impact on the preferences for a general practice. The practice attributes with the largest impact on the choice of a practice across all presentation styles were the typical out-of-pocket cost of a visit and the quality attributes, particularly having GPs who listen and explain clearly. A typical out-of-pocket cost of $25 or $50 substantially reduced the probability of choosing a practice, relative to a practice where there is typically no out-of-pocket cost (Figure 3). There was a substantial increase in the probability of choosing a practice where 90% of patients reported that they thought the doctor listened to them and explained the diagnosis and treatment clearly relative to practices where only 50% reported this (or where the doctors were rated as 4.5 out of 5 stars on listening and explaining relative to practices rated as 2.5 stars).

Figure3: Predicted probability of choosing a general practice at each attribute level by attribute level presentation style



Base levels: Cost=$0; Travel time=10 minutes; Owner=Private company; Recommended by someone you know=No; Appointments evenings or Saturdays=No; Five quality attributes=50% or 2.5 stars.

Quality: 1.GPs listen and explain, 2.GPs involve patients in discussions, 3.GPs conduct thorough examinations, 4.patients satisfied with practice, 5.urgent appointments on same day.

Style 1 (frequency and percentage with an icon array) was most frequently identified as the best presentation format for choosing between medical practices, selected as best by 65% of respondents who saw this style compared with 45% for Style 2, 41% for Style 3 and 50% for Style 4. There were no significant differences between the presentation styles for time taken to complete the choice questions or for ease of understanding; each style was rated as easy or extremely easy to understand by 60-64% of respondents. Overall, 10.4% of respondents chose the worst alternative in at least one of the two dominated choices seen. The probability of choosing a dominated option was significantly higher when the presentation style was Style 4 (percentage only) relative to Style 1 and lower for respondents with a high subjective numeracy score (scored between 1 and 6, see Table 2). Respondents who spent more time (three minutes or more) answering the 18-choice questions had a lower probability of choosing a dominated alternative, relative to those spending less than three minutes. The probability of choosing a dominated option did not differ significantly by the order of the dominated choice (whether or not it was the first choice question seen or the tenth).

Table 2: Logistic regression for the probability of choosing the worst alternative in a dominated choice (n=2416 dominated choices for 1208 respondents)[c]

	Coefficient	**95% Confidence Interval**		**p**
Style 2	-0.048	-0.580	0.483	0.858
Style 3	-0.282	-0.773	0.209	0.261
Style 4	0.549	0.070	1.029	0.025
Choice time[a]:				
3 to <9 minutes	-1.850	-2.282	-1.418	<0.001
9 minutes or more	-1.985	-2.563	-1.406	<0.001
High numeracy	-0.515	-0.904	-0.126	0.010
Choice 10 (2nd set)	0.094	-0.251	0.439	0.592
Constant	-1.544	-1.993	-1.096	<0.001

P=0.0078 for test that Style 2, Style 3 and Style 4 coefficients are all equal to zero

(a) Time spent on all 18 choice questions. (b) Above sample median numeracy score of 4.66 on scale 1 to 6. (c) robust standard errors to account for clustering by individual (2 observations per respondent).

Discussion

This research theme conducted three studies to examine different aspects of consumer preferences for GP services. Although each study focused on different aspects of the topic, the findings consistently identified cost and care quality as having the highest importance for patients.

Study 1 examined the extent to which consumers rated factors as important for choosing a GP, using a large number of attributes of GP care and of the practice. It also examined the extent to which these attributes could be grouped together and identified five underlying dimensions. For practitioners, Study 1 emphasises the importance of care quality and in particular, good communication with patients about their condition and treatment options. Furthermore, the importance of care quality for patients choosing between GPs suggests that maintaining care quality would also be important in order to preserve existing patient-GP relationships. For policy advisors, the study contributes to the evidence about consumer priorities and preferences for GP services and provides an indication of the types of information that people would find beneficial for choosing a new provider and that might potentially be made available for consumers. Information about the quality of care would be most useful to consumers, particularly reports of communication and information provision which may be derived from patient experience surveys. Study 1 also contributes information for the design of primary health care services, emphasising the importance of the availability of a free service, particularly for people who see the GP frequently. The importance of care quality to patients, particularly over aspects of access, highlights this as an area of focus for monitoring the performance of existing primary care services and when reshaping future services. Respondents varied in the importance given to some factors including types of services, suggesting the need for a range of alternative primary care services. The important attributes of GP care identified here informed the next phase of the research by contributing to the selection of attributes for the discrete choice experiments conducted in Studies 2 and 3.

Study 2 found that the preferences were similar between Australia and NZ in that the out-of-pocket cost for the consultation was the most important attribute, regardless of the presenting health problem. Continuity of care and time to appointment were the most important non-pecuniary attributes in both countries. These cross-country similarities were found despite differences in the way general practice is organised and funded in the two countries. NZ respondents were less sensitive to the out-of-pocket cost of the consultation and placed a higher value on non-pecuniary attributes relative to Australian respondents.

One key difference between the two health systems is patient enrolment with GPs where this is required for some patients in NZ but not in Australia. However, it would seem that in practice Australian respondents do tend to attend the same GP; the majority of respondents from both countries (79% of Australians and 82% of New Zealanders) reported usually seeing the same GP. This has been found in other Australian surveys, for example the Patient Experiences in Australia Survey found that 66% of adults had a preferred GP [27]. The importance given to the continuity attribute in both countries is consistent with this tendency to see the same GP. Another difference between the two health systems is that Australians are not able to privately insure against out-of-pocket costs for medical consultations while New Zealanders can. Although only a small minority (15%) of NZ respondents reported having comprehensive private health insurance, this may have contributed to the slightly lower sensitivity to the cost attribute for NZ (despite the cost attribute specifying that it was cost after refunds).

The findings in this study have policy implications, suggesting that increasing the cost of GP consultations would deter people from seeking an appointment. Policies which improve access to and that facilitate continuity of provider and accessibility of medical records would also be favoured. It also suggests that the patient enrolment component of the Australian government's new policy of Health Care Homes for patients with chronic conditions is likely

to be acceptable to most Australians. Although, the fact that patients' preferences vary according to the reason for their consultation should be taken into account.

The results of Study 3 suggest that people choosing a new medical practice would like to see information about service quality such as that collected in patient experience surveys. It also suggests that in order to be most useful for the general population, the information should be presented by combining a numeric presentation with graphical illustration. The most important attributes for choosing a medical practice were out-of-pocket costs for a visit and quality measures, particularly patient ratings of the practice GPs with regard to communication and information provision. There were few differences by presentation style, with the majority of respondents preferring a numeric rating combined with a graphic display over a star rating system. However the error rate (choosing the worst alternative) was highest for a numeric presentation style without a graphical illustration and not significantly different between a numeric with graphics and a star rating system.

In the context of recent interest in primary care policies which include patient enrolment with a general medical practice, facilitating better informed choice of practice becomes more important. The findings from this research contribute to understanding the nature of the information which, if made publicly available, would be most useful to consumers choosing a medical practice for enrolment. It also contributes to the knowledge on how best to present this information.

Conclusion

The three studies of consumer preferences contribute to the evidence about consumer priorities and preferences for GP services. These have implications for primary health care policies and provide an indication of the types of information that people would find beneficial for choosing a new provider, if publicly available. The importance of cost in all three studies indicates the need for policies which minimise out-of-pocket cost and suggests that increasing the cost of GP consultations could deter people from seeking care. Aspects of care quality were also identified as important, including GP-patient communication and continuity of care, the latter suggests that policies which include patient enrolment would be acceptable to many Australians.

Part B: Providers

Background

The supply of health care provided by general practitioners (GPs) is largely dependent on the decisions of individual GPs regarding both the location in which they practice and the number of hours of care they are willing to provide. Therefore, understanding the factors influencing these choices can inform health workforce policy for managing the supply of GPs and ensuring the appropriate availability of primary health care services. This section of the preferences and choices research theme investigates the decision making of GPs through three studies. Study 1 examined the individual and work characteristics which predict whether or not a GP would prefer to reduce his or her work hours and the extent to which this was subsequently achieved.[28] Study 2 considers the same issues but focuses on doctors who work in hospitals.[29] The two studies permit consideration of similarities and differences between doctors working primarily in general practice and those working in other settings. Study 3 focused on the location of general practice and examines the characteristics of GPs who practice in a rural location and the factors predicting migration from rural to urban areas.[30] This study has the potential to inform policies aimed at addressing GP shortages in rural areas, a significant issue for the Australian health care system.

EXISTING LITERATURE

Although the number of GPs practicing in Australia has risen significantly since 2000, the average hours per week worked by GPs has decreased.[31] In the context of an ageing population, the demand for GP services is likely to continue to rise over time while the effects of increasing GP numbers on the availability of GP services will be reduced if working hours continue to decline. Preferences for reducing the numbers of hours worked, or for changing the type of work undertaken, are likely to depend on a range of characteristics of the doctor, such as age, job satisfaction, and family circumstances. The job satisfaction of doctors has been found to be correlated with a number of factors including good support networks, realistic expectations, self-assessed health and income[32,33] and dissatisfaction with a medical career was found to be a strong predictor of reducing work hours and of retiring altogether[34]. Thus, a better understanding of doctors' work-participation intentions and how they change their labour supply decisions is important for developing workforce policy.

Another key feature of Australia's primary health care workforce policy is addressing the imbalance of GP numbers between rural and urban settings. A number of factors have been associated with the location choices of GPs. Female GPs have been found to be less likely to go to rural and remote areas[35-37] as were older GPs.[35] Having a rural background[38-40] or family members located in rural and remote areas [37] was found to increase the likelihood of a physician choosing rural practice. Training location was also found to be important.[41] Overseas trained physicians were found to be more likely to work in rural and remote areas, and to have higher rates of movement than locally trained physicians.[42,43] Age was also found to be a major determinant of physicians' movements characterised by younger cohorts being more prone to migrate across regions than older generations.[42,44,45] Further investigation of these issues in a large sample of Australian GPs could inform policies to improve the geographical distribution of Australia's GP services.

PURPOSE AND CONTRIBUTION

This section of the report presents three studies which examine GP preferences and decisions about work hours and location of practice. The first two studies contribute to the empirical basis for primary health care work force policy through investigation of the preferences and work hours of doctors working in general practice and those working in other settings. Study 1 examined demographic and work characteristics associated with preferences of GPs to reduce their work hours and the factors associated with the subsequent changes made to their working hours. Study 2 examined the same issues for specialist and non-specialist doctors working in hospitals. Study 3 focused on an important issue for Australian health workforce policy, the supply of GPs in rural areas. It examined the factors that influence the location decisions of GPs, identifying demographic and geographical attachment factors which predict the choice of location and migration.

Methods and Results

All three studies used data from the Medicine in Australia - Balancing Employment and Life (MABEL) survey. The survey is funded by the National Health and Medical Research Council and the Department of Health and Ageing. It is a longitudinal survey of Australian doctors which commenced in 2008. All doctors from the Australasian Medical Publishing Company's (AMPCo) Medical Directory[46] were invited to complete the Wave 1 survey with a response rate of 19.36% producing a sample of 10,498 doctors. The sample was found to be nationally representative in terms of age, gender, geographic location, and hours worked.[47] In subsequent waves, those who had responded to previous waves or doctors new to the AMPCo Medical Directory were invited to participate.

STUDIES 1 AND 2: DOCTORS' WORKING HOURS

Both studies used Waves 3 and 4 of the MABEL survey which were collected in 2010 and 2011[48] and included 9,949 and 9,773 responses respectively. The two studies used different sub-samples from these data waves. Study 1 analysed the responses for doctors who reported working in general practice (30-40%) and Study 2 analysed responses for doctors who reported working as Specialists, Hospital Non-specialists and Specialist Registrars. The two studies used the same analytical approach. Two logistic regression models were estimated. The first model used the Wave 3 data to identify the factors predicting a preference to reduce work hours. The second model used the data for those respondents with complete work hour's data at both Waves 3 and 4 and who had expressed a preference to reduce work hours at Wave 3. This model analysed the factors predicting a reduction in work hours by 5 or more hours between Waves 3 and 4. Further detail about the study methods can be found in the published papers.[28,29]

Of the 3,377 GPs from Wave 3 included in the Study 1 analysis, 43% stated a preference to reduce their working hours. Characteristics that predicted this preference were being middle-aged, being female, working 40 or more hours per week (all $P< 0.01$), and being on call ($P=0.03$). Factors associated with not wanting to reduce working hours were being in excellent health, being satisfied or very satisfied with work (both $P< 0.01$), and not being a partner in a practice ($P< 0.01$). Of those who wanted to reduce working hours, 27% successfully managed to do so in the subsequent year by 5 or more hours per week. Being younger, female and working 40 or more hours per week were significant predictors of successfully reducing hours (all $P<0.01$), after accounting for family circumstances, health, income and practice ownership.

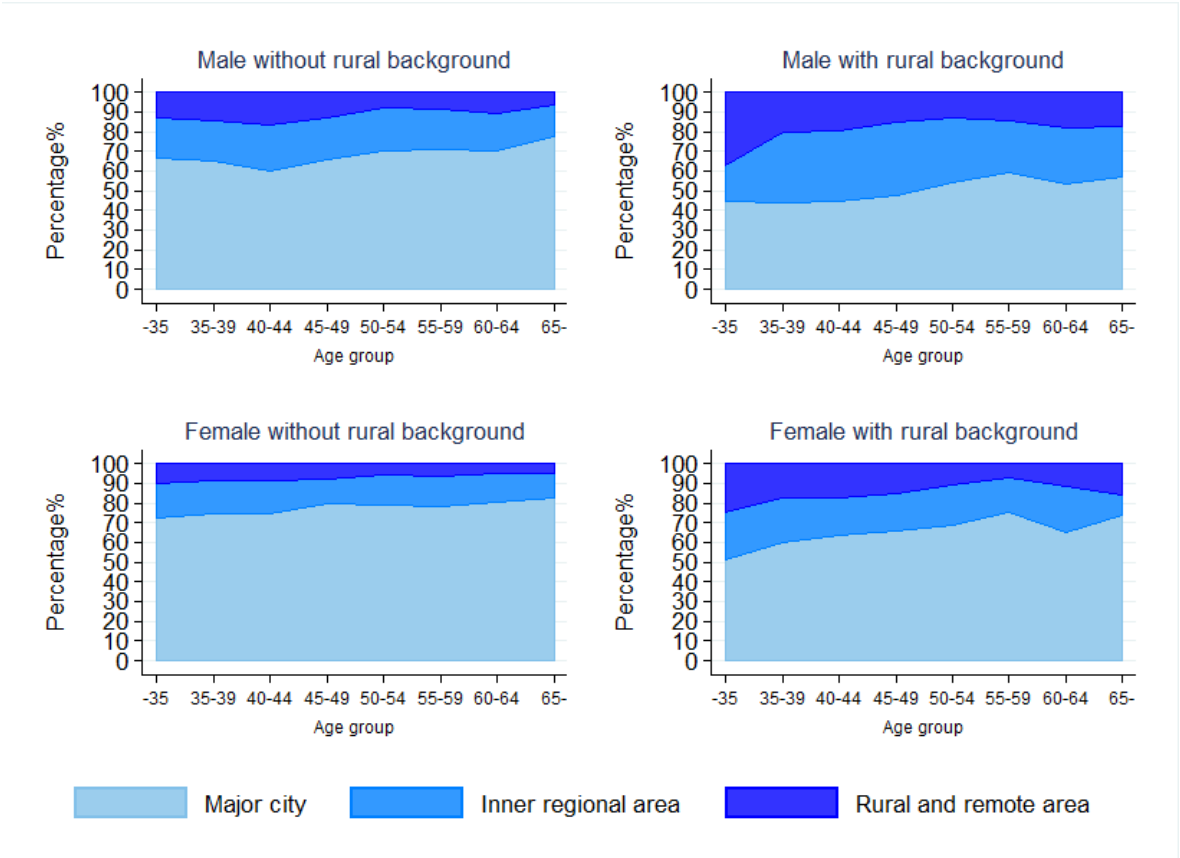
The Study 2 sample included 3,708 Specialists, 1,133 Hospital non-specialists and 856 Specialist Registrars. Of the 5,698 pooled sample of doctors, 48% stated a preference to reduce hours; this figure was higher for Specialists and Specialist Registrars (both 50%), and lower for Hospital Non-specialists (39%).Predictive characteristics were being female and working more than 40 hours per week (both $P < 0.01$). An inverted *U*-shaped relationship was observed for age, with younger and older doctors less likely to state a preference to reduce work hours. Factors associated with not wanting to reduce working hours were being in excellent health and being satisfied with work (both $P < 0.01$). Of those who wanted to reduce working hours, only 32% successfully managed to do so in the subsequent year by 5 or more hours per week; this figure ranged from 27% for Specialists to 44% for Specialist Registrars and 47% for Hospital non-specialists. Predictors of successfully reducing hours were being older, female and working more than 40 hours per week (all $P < 0.01$), after accounting for family circumstances, health and income.

STUDY 3: PRACTICE LOCATION CHOICES

Study 3 used the first five waves of the MABEL survey, collected between 2008 and 2012 and included only those identifying as GPs. GPs who are mandated to practice in District of Workforce Shortage or Area of Need were excluded. The sample included 5,810 males and 5,797 females. An individual GPs propensity to choose one of three location alternatives (major cities, inner regional or rural and remote) at a given time-point was modelled using a mixed logit model. The model included random Alternative Specific Constants for inner regional location and rural/remote location which were allowed to be correlated. The location decisions of males and females were modelled separately. A second analysis was used to examine location transitions. This used binary models focusing on decisions to relocate from major cities to non-metropolitan areas and decisions to relocate from non-metropolitan areas to major cities. See the published paper[30] for more details about the methods.

The study found that younger GPs were more likely to go to rural and remote areas but they tended to migrate back to urban areas as they aged. Coming from a rural background increased the likelihood of choosing to locate in a rural area, but with heterogeneity. While male GPs from a rural background tended to stay in rural and remote areas regardless of age, female GPs from a rural background tended to migrate to urban areas as they aged. This is illustrated in Figure 4. GPs who obtained their basic medical degrees overseas were likely to move to urban areas in the later stages of their careers. Completing a basic medical degree at an older age increased the likelihood of working outside of major cities. The factors influencing the location transition patterns of GPs further confirmed the association of individual characteristics and GPs' location-age profile.

Figure 4: The age profile of GPs' location decisions by gender and rural background



Published in Mu C. 2015. The age profile of the location decision of australian general practitioners. *Social Science & Medicine* 142: 183-193.

Discussion

A substantial minority of GPs expressed a preference to reduce their working hours, however only a small proportion were able to achieve this within the next year. Relative to Specialists, a slightly lower proportion of GPs expressed a preference to reduce work hours (43% vs 50%). There were a number of similarities between GPs and hospital doctors for factors predicting a preference to reduce work hours including age, gender, current work hours, health status and level of job satisfaction. The probability of wanting to reduce work hours was higher among GPs who did on-call work and lower among GPs who were not a principal or partner in the practice, while for specialists the probability increased with the proportion of private work. Among GPs and Specialists who expressed a preference to reduce their work hours, there were no differences in the proportion who achieved this in the subsequent year (27% for both groups). Being female and working longer hours predicted successfully reducing work hours in the next year for both GPs and specialists.

Many of the predictors of the desire of GPs to reduce their working hours were either working hours themselves or demographic characteristics which cannot be changed by health workforce policy. This was also the case for the predictors of successfully reducing hours. The exceptions were work satisfaction and on-call work which predicted a preference to reduce work hours. Thus, policies seeking to expand after-hours availability and requiring more GPs to be on-call may lead to more GPs wanting to reduce their work hours and therefore reduce the overall supply of GP services. Further investigation of policies that can improve GP job satisfaction may well ensure improvements in the supply of GPs.

The findings of Study 3 have implications for health workforce policy. First, given the significant effect of a rural background on location decisions and movement of GPs, policies aimed at influencing GPs who grow up in rural areas, particularly males, could be effective to redress the unbalanced distribution of GPs between rural and urban areas. Second, the results show that, in general, younger GPs are more prepared to go to rural and remote areas but they tend to migrate back to urban areas as they age, implying that initiatives are required to retain experienced GPs in rural areas. Additionally, this ageing effect is found to be more notable among GPs who completed basic medical degrees overseas. This may signal that overseas-trained GPs have a high probability of moving out of rural areas after they fulfil the required length of rural practice; thus relevant retention incentives are needed.

Conclusion

These three studies together identified demographic characteristics associated with GP labour supply and location of practice. They also identified potential avenues for further development of health workforce polices in order to ensure the adequate supply and geographical distribution of GPs needed to meet the growing demand for Australia's primary care services into the future. Policies focusing on improving job satisfaction are likely be most successful for improving the supply of GPs, while incentives which target GPs with a rural background will be most successful at improving the supply of GPs in rural areas.

References

1. Primary Health Care Advisory Group. *Better outcomes for people with chronic and complex health conditions.* Final report. Canberra: Commonwealth of Australia; 2015.
2. Australian Government. *A healthier medicare for chronically-ill patients* [Media release] Canberra 2016 [updated 31st March 2016; cited 5th May 2016]. Available from: http://www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2016-ley021.htm.
3. Cheraghi-Sohi S, Bower P, Mead N, McDonald R, Whalley D, Roland M. What are the key attributes of primary care for patients? Building a conceptual 'map' of patient preferences. *Health Expectations.* 2006;9(3):275-84.
4. Cheraghi-Sohi S, Hole AR, Mead N, McDonald R, Whalley D, Bower P, Roland M. What patients want from primary care consultations: A discrete choice experiment to identify patients' priorities. *Annals of Family Medicine*. 2008 March 1, 2008;6(2):107-15.
5. Hole AR. Modelling heterogeneity in patients' preferences for the attributes of a general practitioner appointment. *Journal of Health Economics.* 2008;27(4):1078-94.
6. Longo MF, Cohen DR, Hood K, Edwards A, Robling M, Elwyn G, Russell IT. Involving patients in primary care consultations: Assessing preferences using discrete choice experiments. *British Journal of General Practice.* 2006 Jan;56(522):35-42.
7. Philips H, Mahr D, Remmen R, Weverbergh M, De Graeve D, Van Royen P. Predicting the place of out-of-hours care--a market simulation based on discrete choice analysis. *Health Policy.* 2012 Aug;106(3):284-90.
8. Scott A, Vick S. Patients, doctors and contracts: An application of principal-agent theory to the doctor-patient relationship. *Scottish Journal of Political Economy.* 1999;46(2):111-34.
9. Scott A, Watson MS, Ross S. Eliciting preferences of the community for out of hours care provided by general practitioners: A stated preference discrete choice experiment. *Social Science and Medicine*. 2003 Feb;56(4):803-14.
10. Mengoni A, Seghieri C, Nuti S. Heterogeneity in preferences for primary care consultations: Results from a discrete choice experiment. *International Journal of Statistics in Medical Research*. 2013;2:67-75.
11. Gerard K, Salisbury C, Street D, Pope C, Baxter H. Is fast access to general practice all that should matter? A discrete choice experiment of patients' preferences. *Journal of Health Services Research and Policy.* 2008 Apr;13 Suppl 2:3-10.
12. Turner D, Tarrant C, Windridge K, Bryan S, Boulton M, Freeman G, Baker R. Do patients value continuity of care in general practice? An investigation using stated preference discrete choice experiments. *Journal of Health Services Research and Policy*. 2007 Jul;12(3):132-7.
13. Gerard K, Lattimer V, Surridge H, George S, Turnbull J, Burgess A, Lathlean J, Smith H. The introduction of integrated out-of-hours arrangements in england: A discrete choice experiment of public preferences for alternative models of care. *Health Expectations. 2006*;9(1):60-9.
14. Hjelmgren J, Anell A. Population preferences and choice of primary care models: A discrete choice experiment in sweden. *Health Policy. 2007*;83(2-3):314-22.
15. Rubin G, Bate A, George A, Shackley P, Hall N. Preferences for access to the gp: A discrete choice experiment. *British Journal of General Practice*. 2006 Oct;56(531):743-8.
16. Haas M. The impact of non-health attributes of care on patients' choice of gp. *Australian Journal of Primary Health*. 2005;11(1):40-6.
17. Razzouk N, Seitz V, Webb JM. What's important in choosing a primary care physician: An analysis of consumer response. *International Journal of Health Care Quality Assururance*. 2004;17(4):205-11.
18. Fung CH, Elliott MN, Hays RD, Kahn KL, Kanouse DE, McGlynn EA, Spranca MD, Shekelle PG. Patients' preferences for technical versus interpersonal quality when selecting a primary care physician. *Health Services Research*. 2005;40(4):957-77.

19. Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, Ferrier K, Payne S. Preferences of patients for patient centred approach to consultation in primary care: Observational study. *British Medical Journal*. 2001 2001-02-24 00:00:00;322(7284):468.
20. Hibbard JH, Greene J, Daniel D. What is quality anyway? Performance reports that clearly communicate to consumers the meaning of quality of care. *Medical Care Research Reviews.* 2010 June 1, 2010;67(3):275-93.
21. Peters E, Dieckmann N, Dixon A, Hibbard JH, Mertz CK. Less is more in presenting quality information to consumers. *Medical Care Research Reviews*. 2007 April 1, 2007;64(2):169-90.
22. Trevena LJ, Zikmund-Fisher BJ, Edwards A, Gaissmaier W, Galesic M, Han PK, King J, Lawson ML, Linder SK, Lipkus I, Ozanne E, Peters E, Timmermans D, Woloshin S. Presenting quantitative information about decision outcomes: A risk communication primer for patient decision aid developers. *BMC Medical Informatics and Decision Making*. 2013;13(2):1-15.
23. West SL, Squiers LB, McCormack L, Southwell BG, Brouwer ES, Ashok M, Lux L, Boudewyns V, O'Donoghue A, Sullivan HW. Communicating quantitative risks and benefits in promotional prescription drug labeling or print advertising. *Pharmacoepidemiology and Drug Safety*. 2013;22(5):447-58.
24. Veldwijk J, Lambooij MS, van Til JA, Groothuis-Oudshoorn CGM, Smit HA, de Wit GA. Words or graphics to present a discrete choice experiment: Does it matter? *Patient Education and Counselling*. 2015 11//;98(11):1376-84.
25. Kenny P, De Abreu Lourenco R, Wong CY, Haas M, Goodall S. Community preferences in general practice: Important factors for choosing a general practitioner. *Health Expectations*. 2016;19(1):26-38.
26. Fiebig D, Keane M, Louviere J, J., Wasi N. The generalized multinomial logit model: Accounting for scale and coefficient heterogeneity. *Marketing Science*. 2010;29:393-421.
27. Australian Bureau of Statistics. *Patient experiences in Australia: Summary of findings, 2013-14*. Published online at http://www.abs.gov.au: Australian Bureau of Statistics; 2014.
28. Norman R, Hall JP. The desire and capability of australian general practitioners to change their working hours. *Medical Journal of Australia*. 2014;200(7):399-402.
29. Norman R, Hall J. Can hospital-based doctors change their working hours? Evidence from Australia. *Internal Medicine Journal*. 2014;44(7):658-64.
30. Mu C. The age profile of the location decision of australian general practitioners. Soc Sci Med. 2015 10//;142:183-93.
31. Australian Institute of Health and Welfare. *Medical labour force 2009*. Canberra: AIHW; 2011.
32. Joyce CM, Schurer S, Scott A, Humphreys J, Kalb G. Australian doctors' satisfaction with their work: Results from the mabel longitudinal survey of doctors. *Medical Journal of Australia*. 2011;194(1):30-3.
33. Van Ham I, Verhoeven AAH, Groenier KH, Groothoff JW, De Haan J. Job satisfaction among general practitioners: A systematic literature review. *European Journal of General Practice.* 2006 2006/01/01;12(4):174-80.
34. Landon BE, Reschovsky JD, Pham HH, Blumenthal D. Leaving medicine: The consequences of physician dissatisfaction. *Medical Care*. 2006;44(3):234-42.
35. Bolduc D, Fortin B, Fournier M-A. The effect of incentive policies on the practice location of doctors: A multinomial probit analysis. *Journal of Labor Economics.* 1996;14(4):703-32.
36. Doescher MP, Ellsbury KE, Hart LG. The distribution of rural female generalist physicians in the united states. *The Journal of Rural Health*. 2000;16(2):111-8.
37. Dussault G, Franceschini MC. Not enough there, too many here: Understanding geographical imbalances in the distribution of the health workforce. *Human Resources for Health.* 2006;4(1):1-16.
38. Laven G, Wilkinson D. Rural doctors and rural backgrounds: How strong is the evidence? A systematic review. *Australian Journal of Rural Health.* 2003;11(6):277-84.

39. Matsumoto M, Okayama M, Inoue K, Kajii E. Factors associated with rural doctors' intention to continue a rural career: A survey of 3072 doctors in Japan. *Australian Journal of Rural Health*. 2005;13(4):219-25.
40. McGrail MR, Humphreys JS, Joyce CM. Nature of association between rural background and practice location: A comparison of general practitioners and specialists. *BMC Health Services Research*. 2011;11(1):1-8.
41. Kristiansen ISn, Førde OH. Medical specialists' choice of location: The role of geographical attachment in Norway. *Social Science and Medicine*. 1992 1992/01/01;34(1):57-62.
42. Basu K, Rajbhandary S. Interprovincial migration of physicians in canada: What are the determinants? *Health Policy*. 2006 4//;76(2):186-93.
43. McDonald JT, Worswick C. The migration decisions of physicians in canada: The roles of immigrant status and spousal characteristics. *Social Science and Medicine.* 2012 11//;75(9):1581-8.
44. Dostie B, Léger PT. Self-selection in migration and returns to unobservables. *Journal of Population Economics*. 2009;22(4):1005-24.
45. Vanasse A, Ricketts TC, Courteau J, Orzanco MG, Randolph R, Asghari S. Long term regional migration patterns of physicians over the course of their active practice careers. *Rural and Remote Health*. 2007;7(4):812.
46. Yan W, Cheng TC, Scott A, Joyce CM, Humphreys J, Kalb G, Leahy A. Medicine in australia: Balancing employment and life (mabel). *Australian Economic Review*. 2011;44(1):102-12.
47. Joyce CM, Scott A, Jeon S-H, Humphreys J, Kalb G, Witt J, Leahy A. The "medicine in Australia: Balancing employment and life (mabel)" longitudinal survey - protocol and baseline data for a prospective cohort study of australian doctors' workforce participation. *BMC Health Services Research*. 2010;10(1):1-10.
48. Yan W, Li J, Scott A, et al. *Mabel user manual: Wave 4 release.* Melbourne: Melbourne Institute of Applied Economic and Social Research, University of Melbourne; 2013.