

2015

General practice registrars' intentions for future practice: Implications for rural medical workforce planning

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This article was originally published as:

Harding, C., Seal, A., McGirr, J., & Caton, T. (2015). General practice registrars' intentions for future practice: Implications for rural medical workforce planning. *Australian Journal of Primary Health*, 22 (5), 440-444.

Original article available here:

<http://www.publish.csiro.au/py/PY15049>

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This is the author's post-print copy of the article published as: -

Harding, C., Seal, A., McGirr, J., & Caton, T. (2015). General practice registrars' intentions for future practice: Implications for rural medical workforce planning. *Australian Journal of Primary Health*, 22(5), 440-444. doi: [10.1071/PY15049](https://doi.org/10.1071/PY15049)

10 **Abstract**

11 The models of practice general practice registrars (GPRs) envisage undertaking will affect
12 workforce supply. The aim of this research was to determine practice intentions of current general
13 practice (GP) registrars in a regional GP training program (CoastCityCountry General Practice
14 Training). Questionnaires were circulated to 220 GPRs undertaking general practice placements to
15 determine characteristics of ideal practice models and intentions for future practice. Responses
16 were received for 99 participants (45%). Current GPRs intend to work an average of less than 8
17 half-day sessions/week, with male participants intending to work more hours [$t(91)=3.528, p=0.001$].
18 More than one-third of this regional cohort intends to practice in metropolitan centres. Proximity to
19 family and friends was the most important factor influencing the choice of practice location. Men
20 ranked remuneration for work as more important [$t(88)=-4.280, p<0.001$] and women ranked the
21 ability to work part-time higher [$t(94)=3.697, p<0.001$]. Fee for service payment alone, or in
22 combination with capitation, was the preferred payment system. Only 22% of Australian medical
23 graduates intend to own their own practice compared to 52% of international medical graduates
24 [$X^2(1)=8.498, p=0.004$]. Future GPs intend to work fewer hours than current GPs. Assumptions
25 about lifestyle factors, practice models and possible professional roles should be carefully evaluated
26 when developing strategies to recruit GPs into rural practice.

27

28 **Keywords:** health workforce, international medical graduates, practice intentions, work-life balance

29

30

31 1: What is already known on this subject?

32 •There is a continuing workforce shortage of GPs in regional and rural areas when compared to
33 metropolitan areas despite recruitment and retention strategies developed to address the shortage.

34

35 2: What does this study add?

36 •This study adds information about life style factors and preferred practice models that have the
37 potential to impact on workforce recruitment and the generational change in expectations of work-
38 life balance.

39

40 **Introduction**

41 A range of strategies have been used to address ongoing rural medical workforce shortages
42 including the implementation of Rural Clinical Schools (RCSs), practice incentives and bonded
43 medical school places. Despite this, nearly 80% of medical practitioners work in major cities and
44 provide services for two-thirds of the Australian population while outer regional, remote and very
45 remote regions have 6.6% of the practitioner workforce for about 12% of the population (Australian
46 Institute of Health and Welfare 2008). The increased prioritisation of work-life balance (Shrestha
47 and Joyce 2011, Australian Medical Association 2007, Skinner 2006) and the increased tendency
48 for medical graduates of both sexes towards shorter working hours (McGrail *et al.* 2012; Harrison
49 and Britt 2011; Australian Institute of Health and Welfare 2010; Weeks and Wallace 2008) will
50 influence decisions about practice models and location.

51 Research on the models of practice that GP registrars (GPRs) envisage undertaking might
52 assist in the development of strategies to address rural workforce supply. McDonald and Joyce
53 (2014) interviewed GPs about practice ownership, career intentions and work-life balance, however,
54 the interviewee demographics were not consistent with the national GP workforce, with an under-
55 representation of international medical graduates (IMGs) and an over-representation of older GPs.
56 It is well known that IMGs make up 40% of the rural medical workforce (Australian Department of
57 Health and Ageing 2008), which is much more than the 15% (mainly IMGs from developed
58 countries like Canada, the UK and USA) included in their study (McDonald and Joyce 2014). The
59 aim of this research was to determine GPRs' future practice intentions and to explore the influences
60 of work-life balance and GP characteristics on preferred practice models in a regional area.

61

62 **Methods**

63 A questionnaire was developed following a literature review and consultations with registrars and
64 medical educators within CoastCityCountry General Practice Training (CCCGPT), the regional GP
65 training provider in southern NSW and the ACT. The questionnaire was approved by the University
66 of Notre Dame Australia Human Research Ethics Committee and then circulated to all 220
67 registrars undertaking general practice placements with CCCGPT. The anonymous questionnaires
68 were distributed at registrar training days and then mailed out to non-attenders. Responses were
69 received for 99 participants (45% response rate), with the majority (n=66) via educational events.

70 Categorical responses were analysed using Pearson's Chi Square (χ^2) test and continuous
 71 variables using Student's t-test or one-sided analysis of variance, with a significant p -value <0.05 .
 72 Where participants were asked to rank the importance of factors in determining their ideal practice
 73 model, first preferences were used to determine most influential factors. SPSS (Version 22, SPSS
 74 Inc., Chicago, IL, USA) was used. Missing data were excluded on a case by case basis.

75

76 Results

77 Characteristics of respondents

78 Approximately one-third of respondents were male and almost half were IMGs, which is similar to
 79 the eligible participants as a whole. Male participants were significantly older [$t(92)=2.393$, $p=0.019$]
 80 and approximately half reported a rural background [vs one quarter of females, $X^2(1)=5.864$,
 81 $p=0.015$]. There were no additional gender differences in participant characteristics (Table 1).

82

83 Table 1: Characteristics of participants

| Characteristic | Participants | | |
|-------------------------|---------------|----------------|----------------|
| | Males (n= 36) | Females (n=63) | All registrars |
| Age* [years(SE)] | 38.9 (1.4) | 35.3 (0.9) | 36.6 (0.8) |
| Marital Status (%) | | | |
| Single | 16.7 | 23.0 | 20.6 |
| Partnered | 83.3 | 77.0 | 79.4 |
| With dependent kids (%) | 58.3 | 66.7 | 63.5 |
| Birth Status (%) | | | |
| Australian | 30.6 | 49.2 | 42.1 |
| International | 69.4 | 50.8 | 57.9 |
| Graduate (%) | | | |
| Australian | 44.4 | 59.7 | 54.1 |
| International | 55.6 | 40.3 | 45.9 |
| Background* (%) | | | |
| Rural | 48.6 | 24.1 | 33.3 |
| Metropolitan | 51.4 | 75.9 | 66.7 |
| Rural Entry Stream (%) | 23.5 | 31.7 | 28.9 |
| Year at a RCS (%) | 30.6 | 27.0 | 28.3 |

84 *gender differences significant at $p<0.05$

85 SE – standard error, RCS – rural clinical school

86

87 Eighty-six percent (85.7%) intended to complete the Fellowship of the Royal Australian
 88 College of General Practice (FRACGP), 7% the Fellowship of Australian College of Rural and
 89 Remote Medicine (FACRRM), 2% intended to do both and 5% were undecided. Approximately 5%
 90 of this cohort undertaking regional GP training do not intend to practice in Australia after completing
 91 their fellowship.

92

93 **Workforce intentions**

94 Workforce intentions varied between genders for work hours and location. Almost two-thirds
 95 (63.8%) of registrars intended to work eight or less half-day sessions per week. One registrar
 96 indicated that he did not intend to work any half-day sessions and was excluded from the analysis
 97 of work hours. On average, men intend to work significantly more hours than women [8.8 vs 7.3
 98 half-day sessions/week respectively, $t(91)=3.528$, $p=0.001$].

99 Of the 94 (95%) registrars who indicated a distinct preference between rural and
 100 metropolitan practice, more than one-third intended to practice in major/capital cities. Around 90%
 101 of participants with a rural background intended to practice in rural areas, higher than the 54% of
 102 participants with a metropolitan background [$X^2(1)=11.067$, $p<0.001$]. Of the 73 participants who
 103 nominated only one of five practice location options as their preferred practice location, over 60%
 104 intend to work in rural/regional areas (Table 2).

105

106 Table 2: Intended practice location of 73 participants who made a discrete choice

| Practice Location | Background of Participants (%) | | |
|-------------------|--------------------------------|--------------|------|
| | Rural | Metropolitan | All* |
| remote area | 4.5 | 0.0 | 1.4 |
| rural area | 50.0 | 19.1 | 29.0 |
| regional area | 31.8 | 34.0 | 33.3 |
| large city | 13.6 | 29.8 | 24.6 |
| capital city | 0.0 | 17.0 | 11.6 |

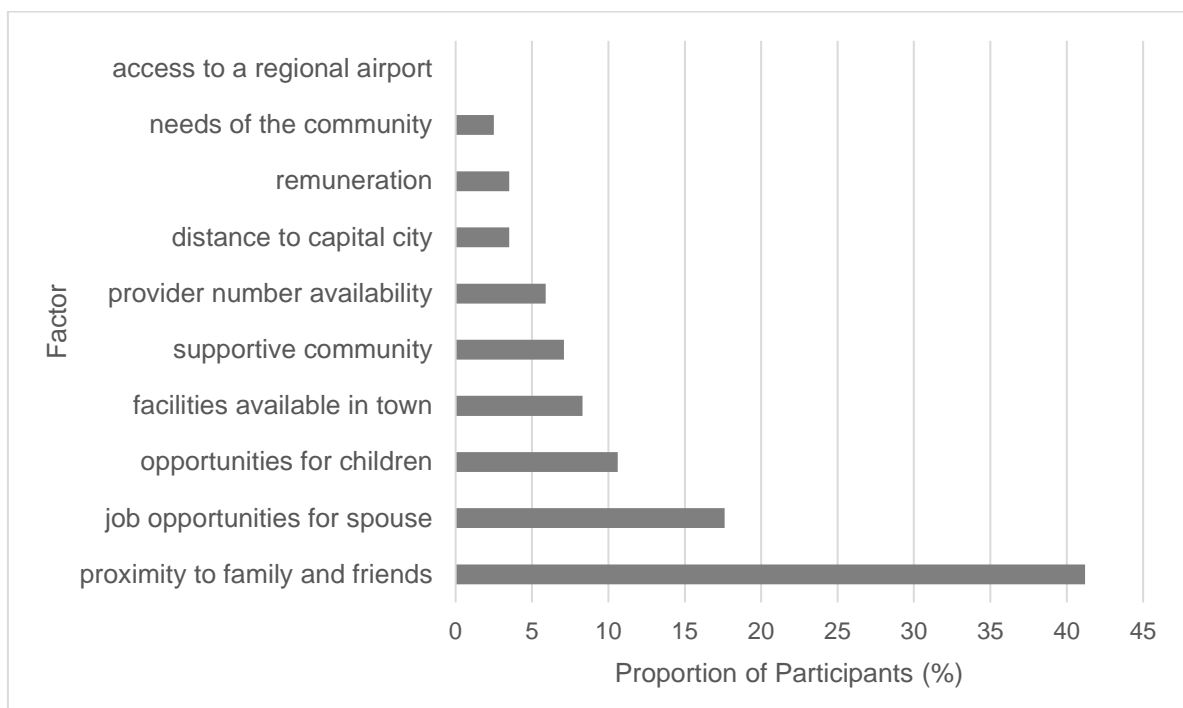
107 * Includes five participants who did not indicate their background

108

109 Almost 82% of men (compared to 56% of women) intend to practice in a rural location
110 ($p=0.013$). When the data are split according to graduate status, this gender difference holds true
111 for the Australian medical graduates (AMGs) only (93.3 vs 53.1%, $p=0.007$).

112 More (19/20, 95%) AMGs who spent at least one year at a RCS intended to go into rural
113 practice than those who did not spend a year at a RCS [12/27, 44%, $X^2(1)=13.078$, $p>0.001$]. All
114 AMGs (100%) who reported a rural background intended to go into rural practice, versus 45% of
115 AMGs who reported a metropolitan background [$X^2(1)=14.382$, $p>0.001$]. No such differences were
116 detected for IMGs. When both background status and RCS attendance were considered, all AMG
117 registrars who reported having a rural background intended to practice in rural areas, regardless of
118 whether they had attended a RCS. However, significantly more AMG registrars with a non-rural
119 background who had attended a RCS had rural practice intentions [85.7 vs 31.8%, Fisher's Exact
120 Test, $p=0.026$]. Only six IMGs had attended a RCS so comparisons could not be made. When
121 asked what factors would influence choice of practice location, 'proximity to family and friends' was
122 ranked highest (Figure 1), with 41% ranking this as the most important factor, followed by 'job
123 opportunities for spouses' (17.6%) and 'opportunities for children' (10.6%). Fewer registrars ranked
124 'remuneration' (3.5%), 'needs of the community' (2.5%) and 'access to a regional airport' (0%) as
125 the most important factor.

126



127

128 Figure 1: Importance of factors influencing practice location for GP registrars

129

130 Overall, 46.4% of participants intended to remain in a single region for their entire career.
131 Registrars with dependent children were more likely to stay in one region [55 vs 27%, $X^2(1)=6.609$,
132 $p=0.010$]. IMGs were more likely to stay in one region [59 vs 36%, $X^2(1)=4.956$, $p=0.026$].

133

134 **Preferred practice model**

135 Almost half (46%) of the registrars indicated their preference as a GP generalist, whereas 25%
136 intended to take up a procedural GP role (obstetrics, anaesthesia, surgery, emergency medicine,
137 mental health) and 29% intended to have a GP role with a specialist focus area (women’s health,
138 Aboriginal health, drug and alcohol, academic medicine) (Table 3). Women’s health and
139 emergency medicine were the highest ranking procedural/specialist foci. More men intend to work
140 in emergency medicine [30.6 v 11.5%, $X^2(1)=5.453$, $p=0.020$] and more women intend to work in
141 women’s health [23 vs 0%, $X^2(1)=9.656$, $p=0.002$]. No registrars intend to have a specialist role in
142 drug and alcohol.

143

144 Table 3: Intended role within general practice according to a participant’s intended practice location

| Intended Role | Intended Practice Location (%) | | | | | | All* |
|-------------------------|--------------------------------|--------------------|--------------------|--------------|--------|-----------|------|
| | Rural | | | Metropolitan | | | |
| | Male | Female | All Rural | Male | Female | All Metro | |
| GP Generalist | 50.0 | 30.0 ^b | 39.7 | 50.0 | 56.0 | 54.8 | 45.8 |
| Procedural GP | 35.7 | 36.7 ^{**} | 36.2 ^{**} | 33.3 | 4.0 | 9.7 | 25.0 |
| GP with Specialist Role | 14.3 | 33.3 | 34.1 | 16.7 | 40.0 | 35.5 | 29.2 |

145 ^a Includes participants (n=6) who did not discretely choose an intended practice location

146 ^b Difference is approaching significance ($p=0.052$)

147 ^{**} Difference between rural and metropolitan counterpart significant at $p<0.01$

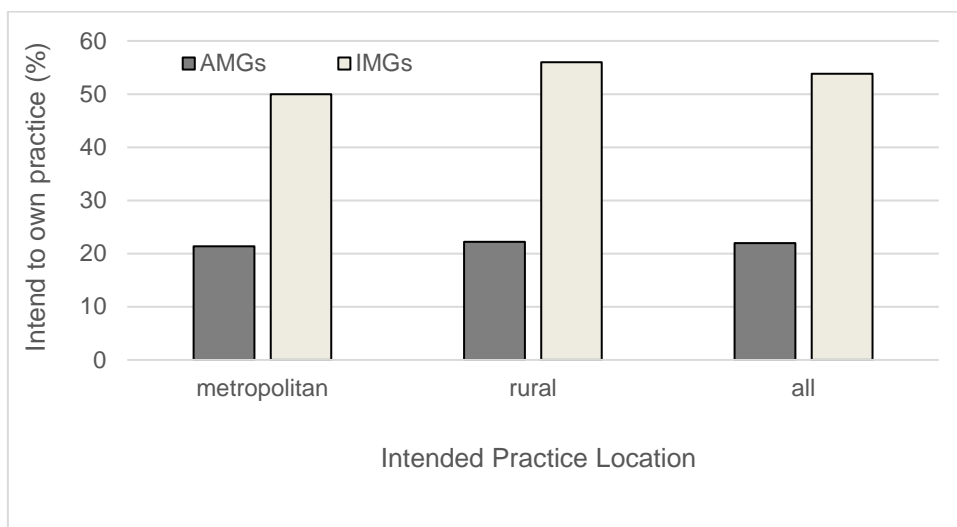
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149 **Ideal practice structure**

150 More than 80% of respondents preferred a fee for service payment model alone (36.6%) or in
151 combination with capitation (46.2%). Almost 9% preferred salaried payment and 8% chose
152 capitation. Approximately 74% of participants indicated private practice as their sole preference,

153 2% listed corporate/university practice while no participant indicated public practice as their sole
 154 preferred practice model. While 59% indicated group practice (≥ 2 GPs) as their sole preference,
 155 more than 90% of participants included private group practice (≥ 2 GPs) as one of their preferred
 156 practice models. Other preferences included public practice (12%) and corporate/university
 157 practice (13%). Men were significantly more likely to select corporate practice [8.6 vs 0%, (Fisher's
 158 Exact Test) $p=0.044$]. Two participants (2.0%) indicated solo private practice as one of their
 159 preferred practice models (both born overseas). Only 22% of AMGs intended to own their own
 160 practice compared to 52% of IMGs [$X^2(1)=8.498$, $p=0.004$] (Figure 2).

161



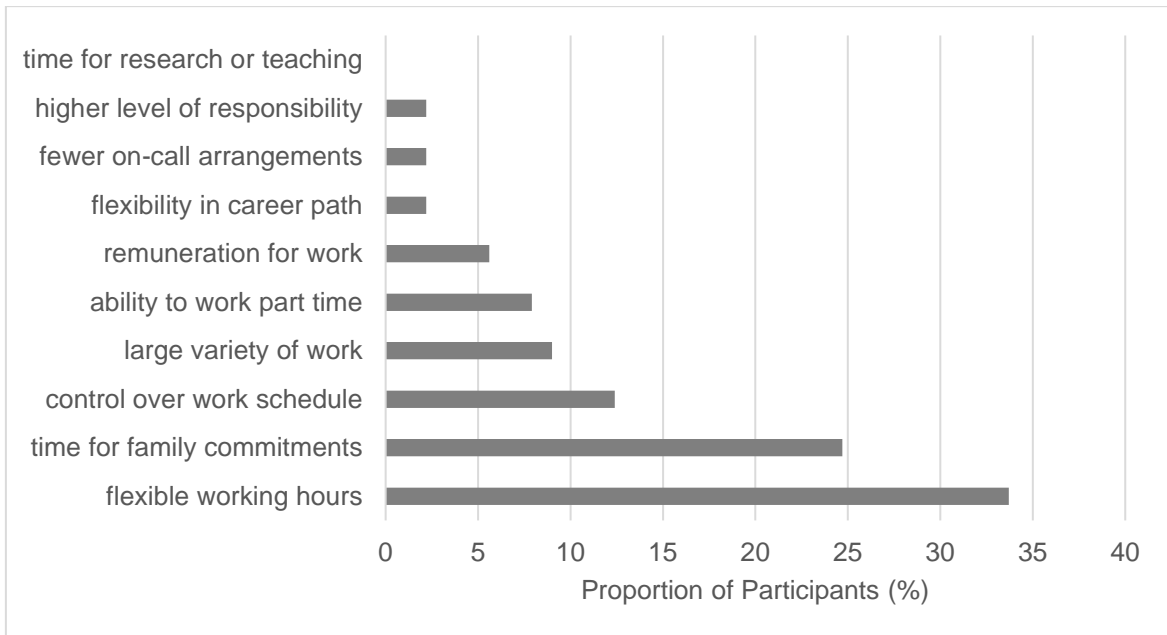
162

163 Figure 2: Proportion of participants who intend to own their own practice

164

165 Of 11 possible factors determining the ideal practice model (Figure 3), flexibility in working
 166 hours ranked highest with 33.7% ranking this as the most important factor, followed by ability to
 167 devote time to family commitments (24.7%) and control over work schedule (12.4%). Fewer
 168 registrars ranked time to be involved in research and teaching (0%) and higher level of
 169 responsibility (2.2%) as the most important factor. Men ranked remuneration for work higher than
 170 women [$t(88)=-4.280$, $p<0.001$] and women ranked the ability to work part time higher [$t(94)=3.697$,
 171 $p<0.001$].

172



173

174 Figure 3: Importance of factors influencing choice of practice model for GP registrars

175

176 Although there was no difference overall between those participants who intended to go
 177 into rural versus metropolitan practice, rural-bound AMGs placed less importance on flexibility in
 178 working hours than AMGs with metropolitan practice intentions [$t(44)=-2.060, p=0.045$].

179

180 **Discussion**

181 It is well known that students with a rural background are more likely to practice in a non-
 182 metropolitan area. The Rural Clinical Schools Program requires that 25% of all Commonwealth
 183 supported students attend a rural clinical school (RCS) for at least one year during their clinical
 184 training (Australian Government Department of Health and Ageing 2011). While it was anticipated
 185 that attendance at a RCS would increase the proportion of practitioners going into rural practice,
 186 there is some controversy over the benefit of such funded programs (Ranmuthugala *et al.* 2006,
 187 Wilkinson *et al.* 2003, Walker *et al.* 2012). In the current study, all AMG registrars who reported
 188 having a rural background intend to practice in rural areas, regardless of whether they had attended
 189 a RCS. However, significantly more AMG registrars with a non-rural background who had attended
 190 a RCS had rural practice intentions. This suggests that both rural background and attendance at a
 191 RCS positively affect the likelihood of rural practice.

192 There are several areas where the findings of the current study have implications for future
193 medical workforce strategies. Registrars intending to go into rural practice have significantly
194 different practice intentions to those intending to go into metropolitan practice. Traditionally, the
195 rural GP workforce has compensated for shortages by working longer hours. Younger rural GPs
196 may be unlikely to do this (Schofield *et al.* 2006). Our finding that registrars intended to work ≤ 8
197 half-day sessions/week supports this idea. Such results suggest that the GP workforce will face
198 continued chronic shortages despite the increase in medical graduates (Rural Health Workforce
199 Australian 2008; Joyce *et al.* 2006). They may also have more interest in a GP procedural role with
200 increased specialisation in emergency medicine than their metropolitan counterparts.

201 Published research also suggests practice styles may be subject to generational change
202 with a growing preference for group practices (Pedersen *et al.* 2012; Maiorova *et al.* 2007). In the
203 current study, 90% listed group practice as a preference; 46% preferred large group (≥ 5 GPs)
204 practice, with considerably more women ($p=0.072$) reporting this preference. Charles *et al.* (2004)
205 reported that in 1991, 25.5% of Australian GPs wanted to go into solo practice, but, by 2003 this
206 had decreased to 13.7%. In the current study, no registrar listed solo practice as their preferred
207 practice model.

208 A theme emerging from this research is the importance of work-life balance in registrar
209 decision making. The three most important factors in determining ideal practice models all related
210 to work-life balance, namely flexibility in working hours, ability to devote time to family commitments
211 and control over work schedule. Almost 50% of registrars ranked proximity to family and friends as
212 the most important factor influencing a registrar's choice of practice location. The top three factors
213 related to the importance of the family unit. Overall, remuneration ranked amongst the least
214 influential factors, suggesting that further financial incentives utilised to address the shortage of
215 rural GPs could be better spent recruiting the family unit.

216 Remuneration is only one of six essential components of an effective retention framework
217 (Humphreys *et al.* 2009). Included in this framework is the importance of ensuring social, family
218 and community support (Humphreys *et al.* 2009; Wilks *et al.* 2008) and the importance of
219 community engagement (Han and Humphreys 2005). It has been suggested that more importance
220 should be placed on multidisciplinary workforce retention strategies that are flexible in order to cater
221 for individual circumstances (Humphreys *et al.* 2009).

222 The propensity for metropolitan practice (Walker *et al.* 2012) impacts on the supply of rural
223 GPs and is an issue for workforce planning. Using simulation models, it was projected that despite
224 the increase in medical schools in Australia, there would be no increase in GP workforce and
225 Australia faces chronic shortages in workforce supply (Joyce *et al.* 2006). It is in this context that it
226 is important to clarify the expectations of new GP graduates/trainees for practice models.

227 This study is limited by only exploring intentions of one regional training provider and may
228 not be generalisable to registrars with different regional training providers. This study had a 44%
229 response rate, so it is possible that those registrars more passionate about rural practice were
230 recruited, thereby biasing the results. The proportion of IMGs (46%) in the current study is higher
231 than the 27% cited in the General Practice Registrars Australia Terms and Conditions
232 Benchmarking Report (2014). However, demographics of the CCC GP Training registrar group
233 were similar to registrars who responded to the General Practice Education and Training Limited
234 (2013) GP registrar satisfaction survey of all GP registrars training in terms of age, gender split and
235 fellowship intentions.

236 In addition, this study only examined registrars during training. Intentions may change after
237 registrars gain fellowship and are no longer in training and this is the focus of current research.
238 Another issue that warrants exploration is reported preferred payment and practice models by
239 current GPRs, as this needs to be taken into account for rural workforce recruitment. Results from
240 this study indicate that 37% prefer the traditional fee for service model and only 22% of AMGs
241 wanted to own their own practice.

242 When increased GP demand due to population ageing (Harrison and Britt 2011) is coupled
243 with the trend towards shorter working hours (as confirmed in this study), the potential for
244 inadequate general practice supply is of great concern. Current registrars may practice differently to
245 traditional medical practice and such trends in workforce participation with increased prioritisation of
246 work-life balance, will strongly influence GP supply.

247

248 **Acknowledgements**

249 The authors would like to thank the registrars who participated in this study. Sincere thanks are also
250 extended to Dr Jodi Culbert, Dr Karen Flegg and Dr Helen Toyne for their helpful suggestions
251 during questionnaire development and CCCGPT for funding this project.

252

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