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Supporting Information

Supplementary methods and results

This appendix was part of the submitted manuscript and has been peer reviewed. It is posted as supplied by the authors.

Appendix to: Welberry HJ, Jorm LR, Schaffer AL, et al. Psychotropic medicine prescribing and polypharmacy for people with dementia entering residential aged care: the influence of changing general practitioners. *Med J Aust* 2021; doi: 10.5694/mja2.51153.

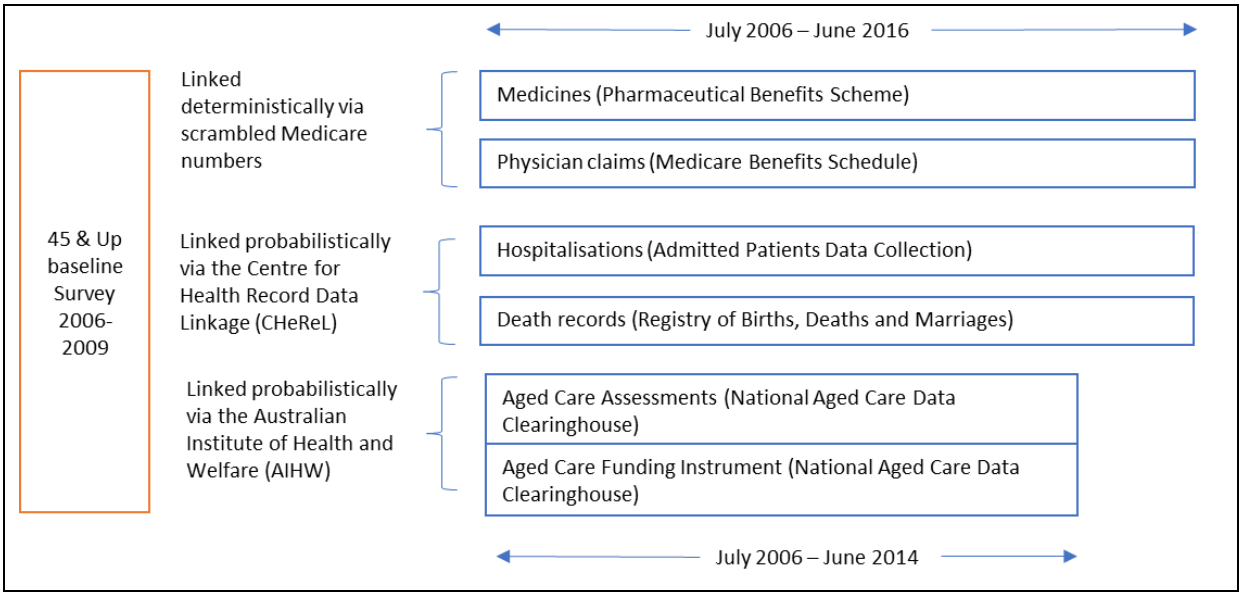
The 45 and Up Study sampling methodology

The Sax Institute's 45 and Up Study is a prospective cohort of 267,153 men and women in New South Wales, Australia. Prospective participants were randomly sampled from the Services Australia (formerly the Department of Human Services) enrolment database, which provides near complete coverage of the population.

People 80+ years of age and residents of rural and remote areas were oversampled. About 18% of those invited participated and participants included about 11% of the NSW population aged 45 years and over. Participants were recruited in the period 2006-2009, with most recruited in 2008 [1].

Participants joined the study by completing a self-administered questionnaire, including information on demographic characteristics, indicators of socioeconomic status, self-reported health, number, and type of comorbidities and behavioural risk factors. Participants also provided consent for long-term follow-up, including linkage to administrative health data sets [1].

The 45 and Up Study data linkage schema



References

45 and Up Study Collaborators; Banks E, Redman S, Jorm Let al. Cohort profile: The 45 and up study. *Int J Epidemiol* 2008; 37: 941-947.

Table 1. Medicare Benefits Schedule (MBS) item codes for included general practitioner consultations

General category	MBS item numbers included
Surgery – consultations	3, 23, 36, 44, 52,53,54,57
Home visits	4,24,37,47,58,59,60,65
Residential aged care visits	20,35, 43,51,92,93,95,96
Emergency	597,598,599,600
After hours	5000,5003,5010,5020,5023,5028,5040,5043,5049,5060, 5063,5067, 5200, 5203,5207,5208,5220,5223, 5227,5227,5260,5263,5265,5267
Health assessments	699,701,703, 705,707,715
Chronic disease management	721,723,729,731,732

Table 2. Covariates included in statistical analyses

Factor	Levels	Data source
Socio-demographic factors		
Age at entry to permanent residential aged care	Continuous	Calculated from 45 & Up Baseline reported date of birth and Aged Care entry date for PRAC
Sex	"Male", "Female"	45 & Up baseline survey
Marital status	"Single", "Married/Partner", "Divorced/Separated/Widowed", "Missing"	45 & Up baseline survey
Highest Education Level	"Did not complete High School", "High School/ Trade", "University or higher", "Missing/Invalid"	45 & Up baseline survey
Annual Household income	"<$20,000", "$20,000-$49,999", "$50,000-$69,999", "$70,000+", "Not specified", "Missing"	45 & Up baseline survey
Private Health Insurance status	"Private with Extras", "Private without Extras", "Health Care Card", "None of the above"	45 & Up baseline survey
Remoteness Area	"Major Cities", "Inner Regional", "Outer Regional/Remote/ Very Remote" (1)	45 & Up baseline survey
Country of birth	"Australian Born", "Born overseas", "Missing"	45 & Up baseline survey
Language Spoken at Home	"English", "Other"	45 & Up baseline survey
Quartile of Disadvantage	Based on the ABS Index of Relative Social Disadvantage (2) – grouped by Quartiles: "Q1 – Most disadvantaged" – "Q5 – least disadvantaged", "Missing"	45 & Up baseline survey
Number of people can depend on	Numeric – based on question: "How many people outside your house but within one hour of travel do you feel you can depend on or feel very close to?"	45 & Up baseline survey
Health risk factors at baseline		
Smoking status	"Current smoker", "Ex-smoker", "Never smoked"	45 & Up baseline survey
Body Mass Index (BMI) category	"Underweight", "Normal Weight", "Overweight", "Obese":	45 & Up baseline survey
High risk alcohol consumption	"Yes", "No":	45 & Up baseline survey
Inadequate physical activity	"Yes", "No":	45 & Up baseline survey
Health Conditions at baseline		
Number of reported chronic conditions	"Zero", "One", "Two", "Three or more"	45 & Up baseline survey
Self-reported diabetes	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Diabetes?"	45 & Up baseline survey
Self-reported cancer	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Breast/ prostate/other cancer?" (excludes melanoma and other skin cancer)	45 & Up baseline survey
Self-reported stroke	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Stroke?"	45 & Up baseline survey

Factor	Levels	Data source
Self-reported Heart disease	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Heart disease?"	45 & Up baseline survey
Self-reported Parkinson's disease	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Parkinson's Disease?"	45 & Up baseline survey
Self-reported depression or anxiety	"Yes", "No" – based on the question: "Has a doctor ever told you that you have …. Depression/anxiety?"	45 & Up baseline survey
Self-reported physical functioning	"No limitations", "Minor", "Moderate", "Severe", "Missing"	45 & Up baseline survey – Physical Functioning scale from the SF36
Self-reported Psychological distress	"Low psychological distress", "Moderate", "High", "Very high", "Missing"	45 & Up baseline survey – Psychological distress scale from the K10
Self-reported memory	"Excellent", "Very good", "Good", "Fair", "Poor", "Missing", based on the question "In general, how would you rate your memory?"	45 & Up baseline survey
Self-reported falls	Numeric – based on the question "During the past 12 months how many times have you fallen to the floor or ground?" coded to "yes" if had fallen once or more and "no" if not.	45 & Up baseline survey
Health Service Utilisation factors PRIOR to PRAC admission		
Number of prior GP visits	Numeric	Medicare claims data for the year prior to PRAC admission
Number of prior specialist visits	Numeric	Medicare claims data for the year prior to PRAC admission
Number of prior hospitalisation days	"Less than one week", "1-4 weeks", ">4 weeks"	APDC data for the year prior to PRAC admission
Number of Emergency Department visits	"Zero", "One", "Multiple"	ED data for the year prior to PRAC admission
Number of medicines	Numeric	Pharmaceutical claims for the year prior to PRAC admission – total number of different medicines claimed
Emergency Hospital Admission	"Yes", "No" – based on whether a person had been discharged from hospital in the 30 days prior to PRAC entry and if the hospital admission had been recorded as being "unplanned".	APDC data for the 30 days prior to PRAC entry
Highest level of Home-Based Care used prior to PRAC	"Home Care - High" - Extended Aged Care at Home (EACH), EACH-Dementia or from 2013 Home Care Package levels 3 or 4. "Home Care - Low" - Community Aged Care Package or from 2013 onwards a Home Care Package level 1 or 2 "Home Support" - Home and Community Care program "No services" – none of the above services accessed.	Aged Care data for the year prior to PRAC admission

Factor	Levels	Data source
Health Factors at admission to PRAC		
Diagnosed depression	"Yes" or "No" based on ACFI Mental and Behavioural Condition assessment: Code 550A	Aged Care Funding Instrument assessment at entry to PRAC
Other diagnosed Mental Health Condition – excluding depression or dementia	"Yes" or "No" based on ACFI Mental and Behavioural Condition assessment: Codes 540, 550B, 560-580	Aged Care Funding Instrument assessment at entry to PRAC
Activities of Daily Living rating	Based on the Aged Care Funding Instrument rating matrix (3) which assesses level of care need – scores are categorised as "Nil", "Low", "Moderate" or "High". The "Nil" and "Low" categories were grouped together because of small numbers in the Nil category.	Aged Care Funding Instrument assessment at entry to PRAC
Behavioural Rating	Based on the Aged Care Funding Instrument rating matrix (3) which assesses level of care need – scores are categorised as "Nil", "Low", "Moderate" or "High". The "Nil" and "Low" categories were grouped together because small numbers in the Nil category.	Aged Care Funding Instrument assessment at entry to PRAC
Complex Healthcare Rating	Based on the Aged Care Funding Instrument rating matri x(3) which assesses level of care need – scores are categorised as "Nil", "Low", "Moderate" or "High". The "Nil" and "Low" categories were grouped together because of small numbers in the Nil category.	Aged Care Funding Instrument assessment at entry to PRAC

ACFI = Aged Care Funding Instrument; K10 = Kessler 10 Psychological Distress Scale; SF36 = 36 Item Short Form Survey (measuring quality of life); PRAC = Permanent Residential Aged Care; ED = Emergency Department; APDC = Admitted Patient Data Collection; EACH = Extended Aged Care at Home.

References

1. Australian Bureau of Statistics. 1270.0.55.005. Australian Statistical Geography Standard (ASGS). Volume 5: remoteness structure, July 2011. Jan 2013. https://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/17A7A350F48DE42ACA258251000C8CA0?opendocument (viewed Dec 2020).
2. Australian Bureau of Statistics. 2033.0.55.001. Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016. Mar 2018. https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by Subject/2033.0.55.001~2016~Main Features~IRSD~19 (viewed Dec 2020).
3. Australian Department of Health. Aged Care Funding Instrument (ACFI): user guide. 2016. https://www.health.gov.au/sites/default/files/documents/2020/01/aged-care-funding-instrument-acfi-user-guide-acfi-user-guide-2017.pdf (viewed Dec 2020).

Table 3. Characteristics of participants, by general practitioner category

Characteristic	Most frequent GP seen during first six months of residential care*		
	Usual GP	Known GP	New GP
Number of residents	625	645	980
Age at entry (years), mean (SD)	84.7 (7.0)	84.1 (6.7)	83.8 (7.2)
Sex (women)	334 (53.4%)	352 (54.6%)	550 (56.1%)
Marital status (no partner)	285 (45.6%)	301 (46.7%)	479 (48.9%)
Education			
Did not complete school	314 (50.2%)	303 (47.0%)	487 (49.7%)
High school/trade qualification	210 (33.6%)	249 (38.6%)	343 (35.0%)
University	61 (9.8%)	55 (8.5%)	94 (9.6%)
Missing/invalid data	40 (6.4%)	38 (5.9%)	56 (5.7%)
Annual household income			
< $20 000	248 (39.7%)	219 (34.0%)	420 (42.9%)
≥ $20 000	147 (23.5%)	175 (27.1%)	203 (20.7%)
Missing/invalid data	230 (36.8%)	251 (38.9%)	357 (36.4%)
Remoteness area (1)			
Major cities	306 (49.0%)	405 (62.8%)	643 (65.6%)
Inner regional	242 (38.7%)	186 (28.8%)	257 (26.2%)
Outer regional/remote/very remote	71 (11.4%)	51 (7.9%)	69 (7.0%)
Index of relative disadvantage (2)			
Quartile 1 (most disadvantaged)	195 (31.2%)	185 (28.7%)	279 (28.5%)
Quartile 2	131 (21.0%)	153 (23.7%)	232 (23.7%)
Quartile 3	122 (19.5%)	123 (19.1%)	167 (17.0%)
Quartile 4	82 (13.1%)	85 (13.2%)	160 (16.3%)
Quartile 5 (least disadvantaged)	81 (13.0%)	94 (14.6%)	125 (12.8%)
Health insurance group			
None	108 (17.3%)	90 (14%)	169 (17.2%)
Private with extras	179 (28.6%)	212 (32.9%)	306 (31.2%)
Private without extras	105 (16.8%)	114 (17.7%)	128 (13.1%)
Health care card	233 (37.3%)	229 (35.5%)	377 (38.5%)
Language spoken at home (English only)	570 (91.2%)	575 (89.1%)	878 (89.6%)
People who can provide assistance			
None	37 (5.9%)	35 (5.4%)	66 (6.7%)
1–4	279 (44.6%)	297 (46.0%)	478 (48.8%)
5 or more	248 (39.7%)	256 (39.7%)	339 (34.6%)
Missing/invalid data	61 (9.8%)	57 (8.8%)	97 (9.9%)
Smoking status			
Never smoked	416 (66.6%)	393 (60.9%)	632 (64.5%)
Past smoker	176 (28.2%)	214 (33.2%)	308 (31.4%)
Current smoker	32 (5.1%)	32 (5.0%)	33 (3.4%)
Body mass index category			
Healthy weight	256 (41.0%)	269 (41.7%)	392 (40.0%)
Underweight	109 (17.4%)	102 (15.8%)	199 (20.3%)
Overweight	174 (27.8%)	190 (29.5%)	256 (26.1%)
Obese	78 (12%)	80 (12%)	125 (12.8%)
Alcohol consumption (drinks per week)			
> 14	73 (12%)	77 (12%)	106 (10.8%)
14 or fewer	518 (82.9%)	528 (81.9%)	810 (82.7%)
Missing/invalid data	34 (5.4%)	40 (6.2%)	64 (6.5%)

Characteristic	Most frequent GP seen during first six months of residential care*		
	Usual GP	Known GP	New GP
Meets physical activity guidelines	202 (32.3%)	263 (40.8%)	380 (38.8%)
Self-reported conditions			
None	153 (24.5%)	163 (25.3%)	289 (29.5%)
One	237 (37.9%)	236 (36.6%)	332 (33.9%)
Two	155 (24.8%)	181 (28.1%)	228 (23.3%)
Three or more	80 (13%)	65 (10%)	131 (13.4%)
Parkinson disease	31 (5.0%)	30 (4.7%)	40 (4.1%)
Depression/anxiety	106 (17.0%)	114 (17.7%)	151 (15.4%)
Stroke	61 (9.8%)	74 (12%)	88 (9.0%)
Cancer diagnosis	153 (24.5%)	146 (22.6%)	202 (20.6%)
Diabetes	90 (14%)	89 (14%)	154 (15.7%)
Heart disease	121 (19.4%)	137 (21.2%)	202 (20.6%)
Self-reported falls			
No	362 (57.9%)	356 (55.2%)	571 (58.3%)
Yes	215 (34.4%)	222 (34.4%)	312 (31.8%)
Missing/invalid data	48 (7.7%)	67 (10%)	97 (9.9%)
Self-reported memory			
Excellent	21 (3.4%)	33 (5.1%)	48 (4.9%)
Very good	71 (11.4%)	77 (11.9%)	123 (12.6%)
Good	180 (28.8%)	193 (29.9%)	309 (31.5%)
Fair	213 (34.1%)	211 (32.7%)	314 (32.0%)
Poor	91 (14.6%)	86 (13.3%)	104 (10.6%)
Missing/invalid data	49 (7.8%)	45 (7.0%)	82 (8.4%)
Physical limitations			
No limitations	47 (7.5%)	63 (9.8%)	88 (9.0%)
Minor limitation	73 (11.7%)	68 (10.5%)	122 (12.4%)
Moderate limitation	153 (24.5%)	164 (25.4%)	247 (25.2%)
Severe limitation	234 (37.4%)	211 (32.7%)	323 (33.0%)
Missing/invalid data	118 (18.9%)	139 (21.6%)	200 (20.4%)
Psychological distress			
Low	427 (68.3%)	445 (69.0%)	666 (68.0%)
Moderate	95 (15%)	86 (13%)	146 (14.9%)
High	34 (5.4%)	39 (6.0%)	57 (5.8%)
Very high	14 (2.2%)	18 (2.8%)	24 (2.4%)
Missing/invalid data	55 (8.8%)	57 (8.8%)	87 (8.9%)
Year preceding residential care			
GP visits			
< 10	219 (35.0%)	169 (26.2%)	398 (40.6%)
10–18	234 (37.4%)	262 (40.6%)	363 (37.0%)
19 or more	172 (27.5%)	214 (33.2%)	219 (22.3%)
Specialist visits			
None	183 (29.3%)	131 (20.3%)	232 (23.7%)
One or two	136 (21.8%)	190 (29.5%)	234 (23.9%)
Three or more	306 (49.0%)	324 (50.2%)	514 (52.4%)
Time in hospital (weeks)			
< 1	252 (40.3%)	298 (46.2%)	335 (34.2%)
1–4	178 (28.5%)	179 (27.8%)	243 (24.8%)
> 4	195 (31.2%)	168 (26.0%)	402 (41.0%)

Characteristic	Most frequent GP seen during first six months of residential care*		
	Usual GP	Known GP	New GP
Emergency department visits			
None	213 (34.1%)	205 (31.8%)	261 (26.6%)
One	169 (27.0%)	175 (27.1%)	284 (29.0%)
Two or more	243 (38.9%)	265 (41.1%)	435 (44.4%)
Highest level of home-based aged care service			
High level	55 (8.8%)	53 (8.2%)	68 (6.9%)
Low level	161 (25.8%)	161 (25.0%)	199 (20.3%)
Home support	255 (40.8%)	286 (44.3%)	428 (43.7%)
No services	154 (24.6%)	145 (22.5%)	285 (29.1%)
Emergency hospitalisation immediately before entering residential care	168 (26.9%)	114 (17.7%)	375 (38.3%)
Level of care required at entry to residential care (3)			
Activities of Daily Living			
Nil or low	255 (40.8%)	300 (46.5%)	354 (36.1%)
Moderate	199 (31.8%)	196 (30.4%)	324 (33.1%)
High	171 (27.4%)	149 (23.1%)	302 (30.8%)
Behaviour			
Nil or low	224 (35.8%)	232 (36.0%)	304 (31.0%)
Moderate	158 (25.3%)	158 (24.5%)	249 (25.4%)
High	243 (38.9%)	255 (39.5%)	427 (43.6%)
Complex health care			
Nil or Low	385 (61.6%)	412 (63.9%)	560 (57.1%)
Moderate	154 (24.6%)	148 (22.9%)	246 (25.1%)
High	86 (14%)	85 (13%)	174 (17.8%)
Aged Care Funding Instrument (ACFI) diagnosis of depression	192 (30.7%)	201 (31.2%)	303 (30.9%)
ACFI other mental health diagnosis	87 (14%)	100 (16%)	162 (16.5%)
Year of entry into residential care			
2010	104 (16.6%)	96 (15%)	155 (15.8%)
2011	133 (21.3%)	132 (20.5%)	211 (21.5%)
2012	156 (25.0%)	161 (25.0%)	231 (23.6%)
2013	159 (25.4%)	172 (26.7%)	236 (24.1%)
2014	73 (12%)	84 (13%)	147 (15.0%)
Medicines in year preceding residential care, median number (IQR)	10 (6.0–13]	10 (7.0–15)	9.0 (6.0–13)
Medicines in 6 months preceding residential care, median number (IQR)	8.0 (5.0–11)	8.0 (5.0–12)	7.0 (4.0–10)

IQR = interquartile range; SD = standard deviation; ACFI = Aged Care Funding Instrument; ABS = Australian Bureau of Statistics.

References

1. Australian Bureau of Statistics. 1270.0.55.005. Australian Statistical Geography Standard (ASGS). Volume 5: remoteness structure, July 2011. Jan 2013. https://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/17A7A350F48DE42ACA258251000C8CA0?opendocument (viewed Dec 2020).
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3. Australian Department of Health. Aged Care Funding Instrument (ACFI): user guide. 2016. https://www.health.gov.au/sites/default/files/documents/2020/01/aged-care-funding-instrument-acfi-user-guide-acfi-user-guide-2017.pdf (viewed Dec 2020).

Table 4. Inverse probability of treatment (IPT)-weighted characteristics of residents, by general practitioner category

Characteristic	Most frequent GP seen during first six months of residential care*			Maximum pairwise standardised mean difference
	Usual GP (weighted)	Known GP (weighted)	New GP (weighted)	
Age at entry (years), mean (SD)	84.3 (6.7)	84.2 (6.6)	84.1 (6.9)	0.028
Sex (women)	54.5%	55.3%	56.3%	0.036
Marital status (no partner)	46.5%	48.6%	47.2%	0.042
Education				
Did not complete school	50.5%	48.4%	49.8%	0.043
High school/trade qualification	34.5%	37.1%	35.2%	0.055
University	9.2%	8.3%	9.1%	0.032
Missing/invalid data	5.8%	6.2%	5.9%	0.017
Household income				
< $20 000	39.5%	38.0%	41.0%	0.063
≥ $20 000	23.8%	24.0%	22.2%	0.042
Missing/invalid data	36.6%	38.0%	36.7%	0.029
Remoteness area (1)				
Major cities	58.1%	60.7%	62.6%	0.094
Inner regional	32.1%	29.9%	28.9%	0.072
Outer regional/remote/very remote	9.1%	8.4%	7.6%	0.057
Index of relative disadvantage (2)				
Quartile 1 (most disadvantaged)	28.8%	29.9%	28.6%	0.029
Quartile 2	22.1%	23.8%	23.5%	0.041
Quartile 3	18.8%	18.0%	18.3%	0.022
Quartile 4	15.0%	14.0%	15.5%	0.041
Quartile 5 (least disadvantaged)	13.9%	13.1%	12.6%	0.036
Health insurance group				
None	17.6%	15.1%	16.8%	0.068
Private with extras	29.6%	32.5%	31.8%	0.062
Private without extras	15.4%	15.1%	13.5%	0.053
Health care card	37.4%	37.3%	37.9%	0.013
Language spoken at home (English only)	90.8%	89.6%	90.2%	0.040
People who can provide assistance				
None	6.0%	6.1%	6.6%	0.023
1–4	45.2%	46.3%	47.8%	0.052
5 or more	39.2%	38.4%	36.4%	0.059
Missing/invalid data	9.5%	9.1%	9.3%	0.013
Smoking status				
Never smoked	66.1%	64.3%	65.4%	0.038
Past smoker	29.8%	30.7%	30.9%	0.025
Current smoker	3.9%	4.2%	3.1%	0.056
Body mass index category				
Healthy weight	41.9%	42.4%	40.8%	0.071
Underweight	18.0%	16.0%	18.7%	0.069
Overweight	26.3%	28.6%	27.5%	0.050
Obese	12.7%	12.5%	12.2%	0.015
Alcohol consumption (drinks per week)				
> 14	11.6%	10.6%	10.6%	0.033
14 or fewer	82.9%	83.1%	83.3%	0.010
Missing/invalid data	5.4%	6.3%	6.1%	0.036
Meets physical activity guidelines	36.0%	38.5%	38.4%	0.051
Self-reported conditions				
None	24.9%	27.8%	28.0%	0.068
One	38.4%	36.6%	35.8%	0.054
Two	25.1%	26.2%	24.2%	0.045
Three or more	11.6%	9.4%	12.0%	0.080
Parkinson disease	4.6%	4.1%	3.8%	0.036

Characteristic	Most frequent GP seen during first six months of residential care*			Maximum pairwise standardised mean difference
	Usual GP (weighted)	Known GP (weighted)	New GP (weighted)	
Depression/anxiety	16.1%	16.7%	15.3%	0.038
Stroke	10.0%	9.8%	8.4%	0.052
Cancer diagnosis	22.1%	21.7%	20.7%	0.033
Diabetes	13.5%	13.4%	15.4%	0.056
Heart Disease	19.1%	20.7%	20.6%	0.04
Self-reported falls				
No	58.9%	57.0%	57.8%	0.038
Yes	33.5%	33.4%	32.6%	0.018
Missing/invalid data	7.7%	9.6%	9.6%	0.066
Self-reported memory				
Excellent	3.3%	4.4%	4.1%	0.052
Very good	11.8%	12.0%	12.1%	0.01
Good	30.1%	30.7%	31.4%	0.029
Fair	34.2%	33.0%	32.7%	0.033
Poor	13.1%	13.0%	11.5%	0.05
Missing/invalid data	7.5%	6.8%	8.2%	0.051
Physical limitations				
No limitations	8.0%	9.2%	8.8%	0.04
Minor limitation	12.0%	10.3%	12.2%	0.059
Moderate limitation	24.6%	26.3%	25.0%	0.039
Severe limitation	35.9%	32.6%	33.5%	0.071
Missing/invalid data	19.4%	21.6%	20.6%	0.054
Psychological distress				
Low	69.4%	69.0%	69.0%	0.009
Moderate	14.9%	13.9%	14.7%	0.031
High	5.1%	5.7%	5.5%	0.024
Very high	1.8%	2.6%	2.3%	0.054
Missing/invalid data	8.8%	8.9%	8.4%	0.017
Year preceding residential care				
GP visits				
< 10	33.4%	33.0%	36.3%	0.07
10–18	39.6%	39.1%	37.9%	0.035
19 or more	27.0%	28.0%	25.8%	0.05
Specialist visits				
None	25.1%	24.7%	23.9%	0.030
One or two	25.0%	26.2%	24.2	0.046
Three or more	49.8%	49.2%	51.9%	0.055
Time in hospital (weeks)				
< 1	40.4%	43.1%	39.6%	0.071
1–4	27.3%	27.2%	25.1%	0.050
> 4	32.3%	29.7%	35.2%	**0.115**
Emergency department visits				
None	31.8%	30.2%	30.1%	0.038
One	28.0%	27.5%	28.2%	0.015
Two or more	40.2%	42.3%	41.7%	0.044
Highest level of home-based aged care service				
High level	8.2%	8.9%	7.4%	0.054
Low level	24.2%	24.1%	21.8%	0.06
Home support	41.4%	43.6%	43.4%	0.045
No services	26.3%	23.5%	27.4%	0.089
Emergency hospitalisation immediately before entering residential care	27.5%	24.4%	30.9%	**0.143**
Level of care required for Activities of Daily Living (ADL) at entry to residential care (3)				
Nil or low	40.5%	43.1%	40.0%	0.062
Moderate	31.6%	31.3%	32.2%	0.036
High	27.9%	25.7%	27.7%	0.040

Characteristic	Most frequent GP seen during first six months of residential care*			Maximum pairwise standardised mean difference
	Usual GP (weighted)	Known GP (weighted)	New GP (weighted)	
Level of care required due to Behavioural factors at entry to residential care (3)				
Nil or low	35.3%	34.4%	33.2%	0.043
Moderate	24.9%	23.8%	25.3%	0.036
High	39.9%	41.8%	41.4%	0.040
Level of care required due to complex health care need at entry to residential care (3)				
Nil or Low	61.2%	62.8%	59.4%	0.070
Moderate	24.9%	23.3%	24.8%	0.035
High	14.0%	13.9%	15.8%	0.053
Aged Care Funding Instrument (ACFI) diagnosis of depression	29.6%	30.1%	30.8%	0.025
ACFI other mental health diagnosis	14.6%	15.7%	15.7%	0.032
Year of entry into residential care				
2010	16.2%	14.4%	16.1%	0.052
2011	21.2%	19.9%	21.0%	0.032
2012	23.9%	25.3%	24.6%	0.032
2013	25.5%	26.6%	24.3%	0.054
2014	13.1%	13.9%	14.0%	0.024

IQR = interquartile range; SD = standard deviation;.ACFI = Aged Care Funding Instrument; ABS = Australian Bureau of Statistics ; GP = General Practitioner

References

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3. Australian Department of Health. Aged Care Funding Instrument (ACFI): user guide. 2016. https://www.health.gov.au/sites/default/files/documents/2020/01/aged-care-funding-instrument-acfi-user-guide-acfi-user-guide-2017.pdf (viewed Dec 2020).

Table 5. Medicines most frequently initiated or discontinued after entry to residential aged care, by general practitioner category

A. Medicines initiated

For the purposes of defining initiation and discontinuation, medicine classes were based on third-level (four-digit) ATC groupings (pharmacological sub-group). Initiation of a new medicine class was defined as a new dispensing among those who were naïve in the previous two years. Discontinuation was defined as zero dispensings among those who had >=2 dispensings in the previous six months.

	Usual GP			Known GP			New GP			Total		
Rank	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**
1	N02B: Other analgesics & antipyretics	116	8.5	N02B: Other analgesics & antipyretics	106	7.7	N02B: Other analgesics & antipyretics	249	8.5	N02B: Other analgesics & antipyretics	471	8.3
2	A06A: Drugs for constipation	96	7.0	A06A: Drugs for constipation	95	6.9	A06A: Drugs for constipation	231	7.9	A06A: Drugs for constipation	422	7.4
3	N02A: Opioids	69	5.1	N05A: Antipsychotics	70	5.1	N05A: Antipsychotics	172	5.9	N05A: Antipsychotics	300	5.3
4	J01D: Other beta-lactam antibacterials	63	4.6	J01D: Other Beta-lactam antibacterials	64	4.6	N02A: Opioids	127	4.3	N02A: Opioids	257	4.5
5	N05A: antipsychotics	58	4.3	J01C: Beta-lactam antibacterials, penicillins	61	4.4	J01C: Beta-lactam antibacterials, penicillins	120	4.1	J01D: Other beta-lactam antibacterials	246	4.3
6	J01E: Beta-lactamase sensitive penicillins	56	4.1	N02A: Opioids	61	4.4	J01D: Other beta-lactam antibacterials	119	4.1	J01C: Beta-lactam antibacterials, Penicillins	230	4.1
7	B01A: Antithrombotic agents	51	3.7	N06A: Antidepressants	59	4.3	J01E: Beta-lactamase sensitive penicillins	115	3.9	J01E: Beta-lactamase sensitive penicillins	225	4.0
8	J01C: Beta-lactam antibacterials, penicillins	49	3.6	J01E: Beta-lactamase sensitive penicillins	54	3.9	N06A: Antidepressants	111	3.8	N06A: Antidepressants	214	3.8
9	D07A: Corticosteroids, plain	47	3.5	S01A: Ophthalmological anti-infectives	51	3.7	B01A: Antithrombotic agents	109	3.7	B01A: Antithrombotic agents	200	3.5
10	J01F: Beta-lactamase resistant penicillins	45	3.3	D07A: Corticosteroids, Plain	46	3.3	N05C: Hypnotics & Sedatives	90	3.1	S01A: Ophthalmological anti-infectives	180	3.2

GP= general practitioner; ATC = Anatomical Therapeutic Chemical classification; N = number

B. Medicines discontinued

	Usual GP			Known GP			New GP			Total		
Rank	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**	**ATC code - Name**	**N**	**% of total**
1	C10A: Lipid modifying agents - plain	46	6.8	J01D: Other beta-lactam antibacterials	55	7.3	C10A: Lipid modifying agents - Plain	102	8.9	C10A: Lipid modifying agents - plain	185	7.2
2	J01D: Other beta-lactam antibacterials	41	5.9	C10A: Lipid modifying agents - plain	37	4.9	J01D: Other beta-lactam antibacterials	57	5.0	J01D: Other beta-lactam antibacterials	152	5.9
3	C09C: Angiotensin II receptor blockers, plain	31	4.6	J01C: Beta-lactam antibacterials, penicillins	32	4.2	C09C: Angiotensin II receptor blockers, plain	54	4.7	C09A: ACE inhibitors, plain	105	4.1
4	J01C: Beta-lactam antibacterials, penicillins	41	4.6	C09A: ACE inhibitors, plain	30	4.0	N06D: Anti-dementia drugs	48	4.2	C09C: Angiotensin II receptor blockers, plain	104	4.0
5	C09A: ACE inhibitors, plain	29	4.3	B01A: Antithrombotic agents	29	3.8	C09A: ACE inhibitors, plain	46	4.0	J01C: Beta-lactam antibacterials, penicillins	102	4.0
6	N02A: Opioids	27	4.0	M05B: Drugs affecting bone structure and mineralization	28	3.7	B01A: Antithrombotic agents	45	3.9	B01A: Antithrombotic agents	97	3.8
7	N02B: Other analgesics & antipyretics	24	3.5	N02B: Other analgesics & antipyretics	28	3.7	M05B: Drugs affecting bone structure and mineralization	42	3.7	N06D: Anti-dementia drugs	88	3.4
8	B01A: Antithrombotic agents	23	3.4	N02A: Opioids	25	3.3	J01C: Beta-lactam antibacterials, penicillins	39	3.4	M05B: Drugs affecting bone structure and mineralization	87	3.4
9	C08C: Selective calcium channel blockers	22	3.2	C08C: Selective calcium channel blockers	24	3.2	N06A: Antidepressants	37	3.2	N02A: Opioids	87	3.4
10	C09D: Angiotensin II receptor blockers, combinations	19	2.8	J01F: Macrolides, lincosamides and streptogramins	22	2.9	M01A: Anti-inflammatory and anti-rheumatic products, non-steroids	36	3.2	C08C: Selective calcium channel blockers	78	3.0

ATC = Anatomical Therapeutic Chemical classification; N = number; ACE = Angiotensin-converting enzyme

Table 6. Sensitivity analysis: restricted to residents who remained in same geographic locality after moving to residential care

Resident location was not available at the point of entry, nor was precise location of the residential care facility available. Location changes were instead determined from the postcodes of the GPs most commonly providing services to a resident. This sensitivity analysis was limited to residents with GP services before and after RAC entry from providers within 6 km of each other. This is a distance expected to take less than 10 minutes' travel (mean 40 km/h). All statistical analyses are weighted using cohort-specific inverse probability of treatment weights to adjust for covariates, and are additionally adjusted for prior levels of medicine use and emergency hospitalisation.

		GP Category		
Measure		**Usual**	**Known**	**New**
Number in each group		581	280	308
Relative Increase in Number of Medications after entry to RAC	aRR (95% CI)	1	1.12 (0.64-1.93)	**2.92 (1.68-5.10)**
Antipsychotic dispensing after entry to RAC	aOR (95% CI)	1	1.37 (0.90-2.78)	**2.00 (1.35-2.97)**
Benzodiazepine dispensing after entry to RAC	aOR (95% CI)	1	1.10 (0.71-1.69)	**1.54 (1.01-2.33)**
Antidepressant dispensing after entry to RAC	aOR (95% CI)	1	1.19 (0.76-1.85)	1.04 (0.69-1.57)

aRR = adjusted rate ratio; aOR = adjusted odds ratio; CI = Confidence Interval

Table 7. Sensitivity analysis: stratified by whether a person had an emergency hospitalisation during the 30 days preceding entry into residential aged care

Table 7a: Residents who had emergency hospitalisations

		GP Category		
Measure		**Usual**	**Known**	**New**
Number in each group		168	114	375
Relative Increase in Number of Medications after entry to RAC	aRR (95% CI)	1	0.83 (0.28-2.48)	**2.37 (1.03-5.45)**
Antipsychotic dispensing after entry to RAC	aOR (95% CI)	1	1.35 (0.71-2.59)	**1.65 (1.01-2.68)**
Benzodiazepine dispensing after entry to RAC	aOR (95% CI)	1	1.63 (0.85-3.13)	**2.17 (1.32-3.59)**
Antidepressant dispensing after entry to RAC	aOR (95% CI)	1	0.68 (0.35-1.31)	1.16 (0.73-1.86)

aRR = adjusted rate ratio; aOR = adjusted odds ratio; CI = Confidence Interval

Table 7b: Residents who did not have emergency hospitalisations

		GP Category		
Measure		**Usual**	**Known**	**New**
Number in each group		457	531	605
Relative Increase in Number of Medications after entry to RAC	aRR (95% CI)	1	1.24 (0.77-1.99)	**2.43 (1.49-3.97)**
Antipsychotic dispensing after entry to RAC	aOR (95% CI)	1	1.11 (0.77-1.62)	**1.59 (1.10-2.29)**
Benzodiazepine dispensing after entry to RAC	aOR (95% CI)	1	1.20 (0.81-1.77)	**1.50 (1.02-2.20)**
Antidepressant dispensing after entry to RAC	aOR (95% CI)	1	**1.47 (1.01-2.12)**	1.40 (0.96-2.04)

aRR = adjusted rate ratio; aOR = adjusted odds ratio; CI = confidence interval; RAC = residential aged care

Table 8. Sensitivity analysis: analyses restricted to medicines for which there were at least two claims for a resident within six months of residential care entry

Sometimes medicines can be prescribed pro re nata (PRN) – as required – rather than for immediate use. To investigate whether the patterns of medicine dispensing observed may have been influenced by different rates of PRN prescribing, we undertook additional analyses for the psychotropic medicines imposing a cut-off of at least 2 claims within 6 months to represent 'active' use rather than potentially PRN use.

		GP category		
Measure		**Usual**	**Known**	**New**
Number in each group		625	645	980
≥ 2 Antipsychotic dispensings	Unweighted number	131 (21.0)	177 (27.4)	263 (26.8)
	aOR (95% CI)	1	1.42 (1.01-1.99)	1.71 (1.25-2.32)
≥ 2 Benzodiazepine dispensings	Unweighted number	89 (14.2)	116 (18.0)	166 (16.9)
	aOR (95% CI)	1	1.52 (1.03-2.21)	1.62 (1.13-2.32)
≥ 2 Antidepressant dispensings	Unweighted number	228 (36.5)	244 (37.8)	377 (38.5)
	aOR (95% CI)	1	1.13 (0.82-1.56)	1.32 (0.98-1.78)

aOR = adjusted odds ratio; CI = Confidence Interval

Table 9. Sensitivity analysis: recalculating the entry date to residential aged care by inclusion of prior periods of respite care

Entry dates to RAC were taken as the date that someone entered permanent residential aged care, but in the analysis presented in this section these dates were then adjusted in instances where there was a period of respite care immediately prior to entry to residential care. The revised entry date was recalculated as the entry date to respite care and all medicine use was re-calculated based on this revised entry date.

The adjustment of the entry dates to RAC result in slightly different total numbers within the cohort (2281 compared to 2250) due to the exclusion criteria applied (eg. a person may have been excluded previously as they died within six months of entry but were now in scope due to an earlier entry date to RAC). Alternatively, a person who was in scope, may have become out of scope due to a lack of GP data within the new timeframe.

The change in dates could also change the categorisation of GP with biggest effect being people moving from the "known" group to the "new" group suggesting that they had started seeing a new GP within respite care and then continued with this GP when they became a permanent resident.

In terms of change in medicine use, the overall pattern of results remained the same between groups.

		GP Category		
Measure		**Usual**	**Known**	**New**
Number in each group		588	349	1344
Relative increase in number of medications after entry to RAC	aRR (95% CI)	1	1.28 (0.69-2.35)	**2.18 (1.44-3.29)**
Antipsychotic dispensing after entry to RAC	aOR (95% CI)	1	1.22 (0.85-1.79)	**1.56 (1.09-2.06)**
Benzodiazepine dispensing after entry to RAC	aOR (95% CI)	1	1.43 (0.96-2.13)	**1.61 (1.21-2.13)**
Antidepressant dispensing after entry to RAC	aOR (95% CI)	1	1.00 (0.67-1.50)	1.21 (0.91-1.61)

aRR = adjusted rate ratio; aOR = adjusted odds ratio; CI = confidence interval; RAC = residential aged care