

Patient demographics and practice factors in patterns of repeated non-attendance in primary care

Ross McQueenie
Department of General practice and Primary Care
Institute of Health and Wellbeing
University of Glasgow
SSPC Conference, May 2017

Background

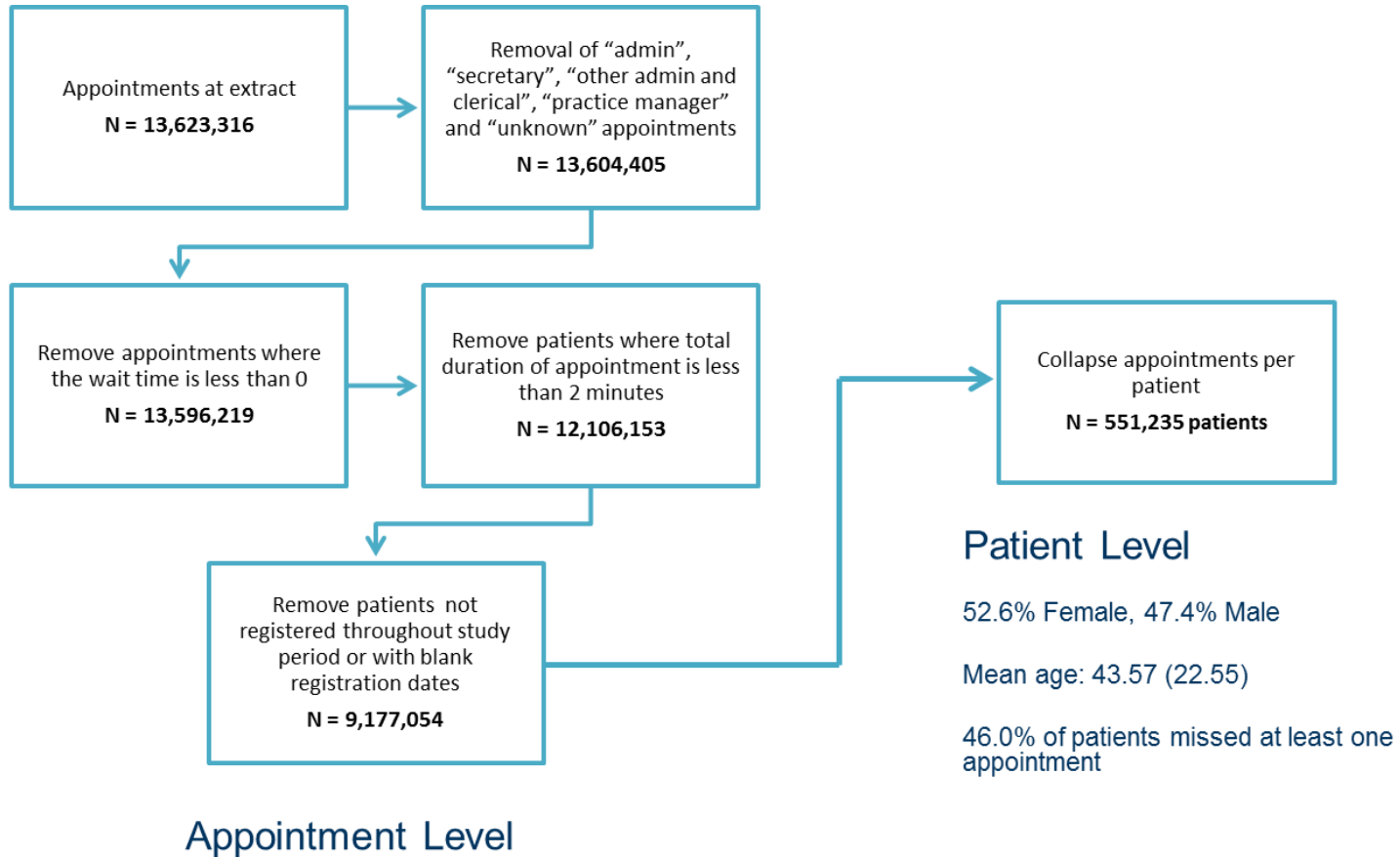
- To tackle health inequalities, it is essential that we understand the needs associated with patients who do not effectively engage with healthcare
 - This includes repeated missed appointments
- Retrospective cohort study of routinely collected general practice data from practices across Scotland.
 - Data was extracted by Albasoft, an NHS trusted third party
- **Hypothesis: Serially missing general practice appointments act as a risk marker for vulnerability and poor health outcomes**

Participating Practices

- Data was collected for 13,623,316 appointments across 155 practices in Scotland

Board	Practice Count	Deep End
Argyll and Bute	2	0
Borders	1	0
Fife	8	0
Forth Valley	16	0
Greater Glasgow & Clyde	40	13
Grampian	2	0
Highland	28	0
Lanarkshire	2	0
Lothian	52	5
Shetlands	1	0
Tayside	3	3

Data workflow



Designating missed appointment groupings

Never missed appointments: 0 over 3 year period

Low missed appointments: <1 per year average over 3 year period

Medium missed appointments: 1-2 per year average over 3 year period

High missed appointments: >2 per year average over 3 year period

Demographic Factors

Age	Missed Appointment Category				Total
	zero	low	medium	high	
0-15	56612 64.4 %	22320 25.4 %	6819 7.8 %	2113 2.4 %	87864 100 %
16-30	44974 50.9 %	26076 29.5 %	11750 13.3 %	5618 6.4 %	88418 100 %
31-45	59582 54.8 %	28803 26.5 %	12306 11.3 %	8018 7.4 %	108709 100 %
46-60	73962 55.7 %	34166 25.7 %	14431 10.9 %	10283 7.7 %	132842 100 %
61-75	47619 51.1 %	25871 27.8 %	11410 12.3 %	8209 8.8 %	93109 100 %
76-90	13522 37.3 %	10595 29.3 %	6229 17.2 %	5873 16.2 %	36219 100 %
90 plus	731 25 %	789 27 %	590 20.2 %	812 27.8 %	2922 100 %
Total	297002 54 %	148620 26.9 %	63535 11.4 %	40926 7.5 %	550083 100 %

$$\chi^2=16314.354 \cdot df=18 \cdot \Phi_c=.099 \cdot p<.001$$

SIMD	Appointment Category				Total
	zero	low	medium	high	
Most deprived { 1.00	19724 40.3 %	14380 29.3 %	8232 16.8 %	6664 13.6 %	49000 100 %
2.00	19253 43.4 %	13044 29.4 %	7080 15.9 %	5018 11.3 %	44395 100 %
3.00	22354 48 %	13398 28.8 %	6524 14 %	4250 9.1 %	46526 100 %
4.00	24083 50.2 %	13522 28.2 %	6166 12.8 %	4245 8.8 %	48016 100 %
5.00	23772 50 %	13069 27.5 %	6307 13.3 %	4376 9.2 %	47524 100 %
6.00	31806 58.4 %	14562 26.7 %	5438 10 %	2678 4.9 %	54484 100 %
7.00	38270 59.2 %	17067 26.4 %	5985 9.3 %	3273 5.1 %	64595 100 %
8.00	29952 58.6 %	13573 26.5 %	4908 9.6 %	2715 5.3 %	51148 100 %
9.00	29918 62.9 %	11569 24.3 %	3869 8.1 %	2231 4.7 %	47587 100 %
10.00	34571 69.1 %	11627 23.3 %	2896 5.8 %	908 1.8 %	50002 100 %
Total	273703 54.3 %	135811 27.1 %	57405 11.5 %	36358 7.1 %	503277 100 %

$$\chi^2=20242.547 \cdot df=27 \cdot \Phi_c=.116 \cdot p<.001$$

Sex	Appointment Category				Total
	zero	low	medium	high	
Female	147440 51 %	79268 27.4 %	36722 12.7 %	25939 9 %	289369 100 %
Male	149562 57.4 %	69352 26.6 %	26813 10.3 %	14987 5.7 %	260714 100 %
Total	297002 54 %	148620 27 %	63535 11.6 %	40926 7.4 %	550083 100 %

$$\chi^2=3670.251 \cdot df=3 \cdot \Phi_c=.082 \cdot p<.001$$

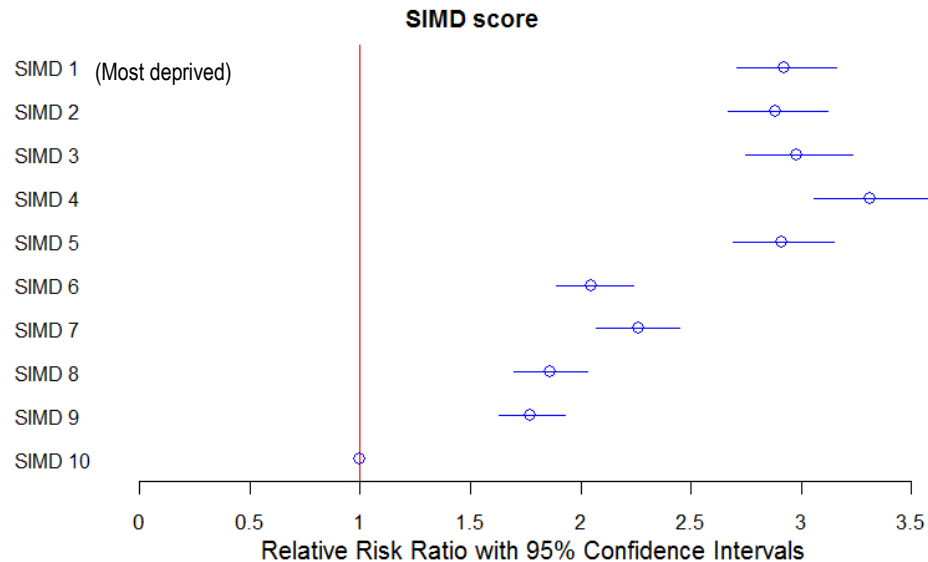
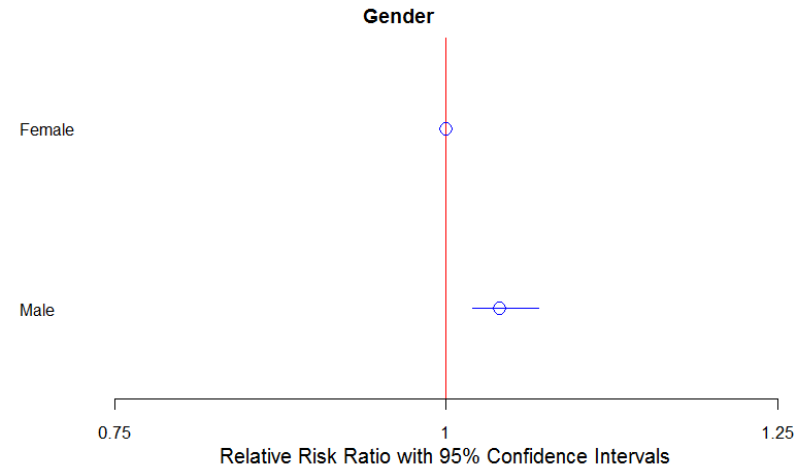
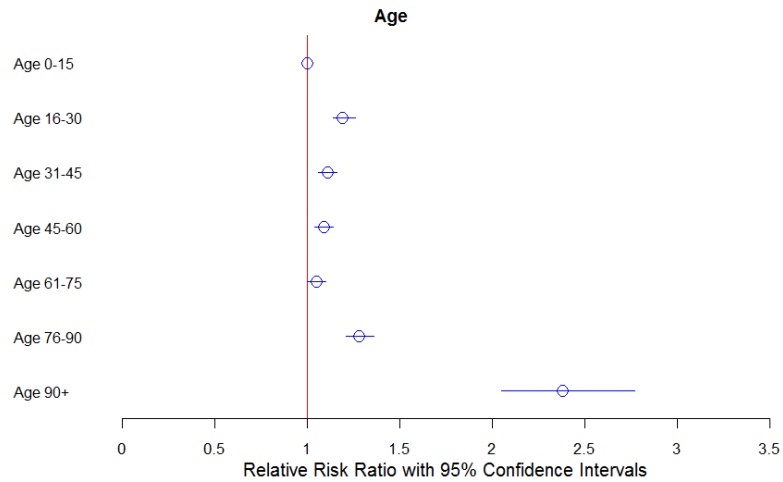
Practice and Patient Factors

Variable Overview

Patient Variables	Patients	Practices	Patients + Practices
Age	✓		✓
Gender	✓		✓
SIMD	✓		✓
Distance to practice	✓		✓
Ethnicity			
<hr/>			
Practice Variables			
Appointment Delay		✓	✓
Number of appointments per patient		✓	✓
Average appointment length per patient		✓	✓
Practice distance to A&E		✓	✓

Regression modelling of any missed GP appointments

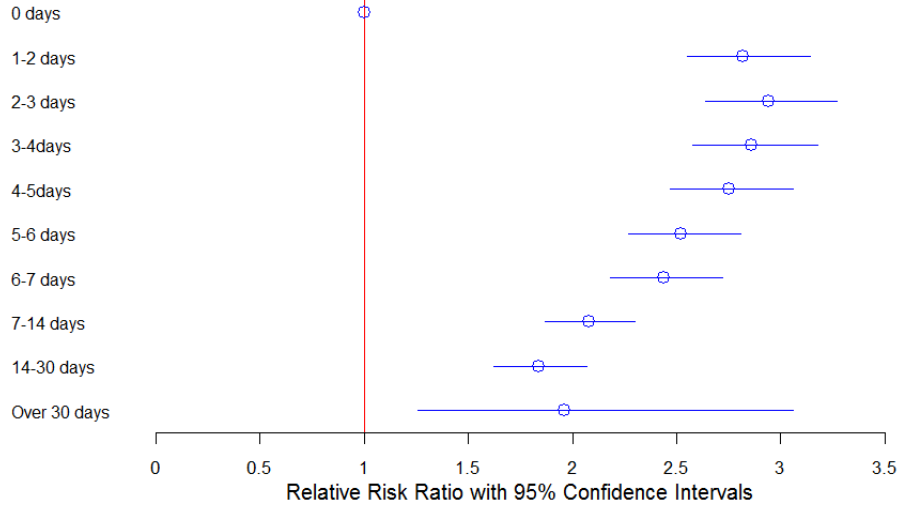
(adjusted for age, gender, deprivation (SIMD), distance to practice, appointment delay, average appointment time per patient, number of appointments per patient and distance to A&E)



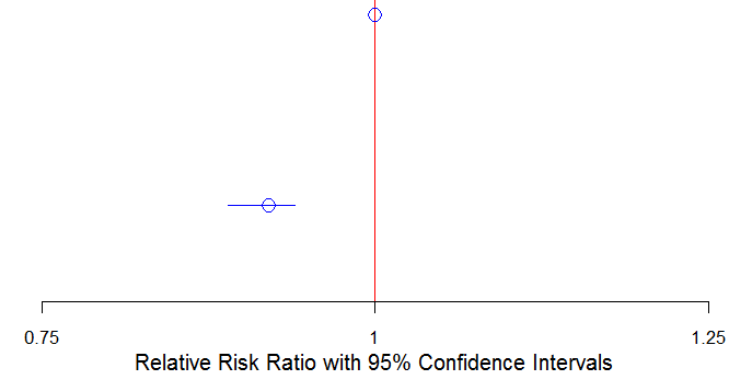
Regression modelling of any missed GP appointments

(adjusted for age, gender, deprivation (SIMD), distance to practice, appointment delay, average appointment time per patient, number of appointments per patient and distance to A&E)

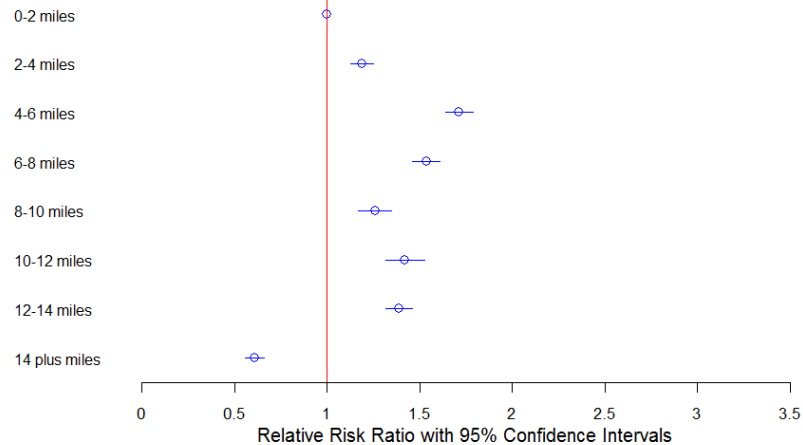
Appointment Delay



Distance to practice



Distance from practice to A&E



Conclusions

- We have analysed GP appointment data from 297,954 patients from 155 practices across Scotland.
- Analysis shows both patient and practice factors affect non attendance.
- Socioeconomic deprivation (patient) and short appointment delays (practice) are the factors most strongly associated with non attendance.
 - Appointments on the day appear to reduce the risk of non-attendance

Future Work

Social Vulnerability	Health conditions	Health utilisation	(Low) Engagement in healthcare	Exit Coding
Adverse Childhood Events (ACE) descriptors	Multimorbidities	Screening	Practice exception reporting	De-registration
Severe and multiple disadvantage (SMD)	BNF psychoactive medications	Practice nurse and other healthcare activities	Did not attend	Death
Priority 1 diagnoses	Secondary care diagnoses (data linkage)	Secondary care referral	Inappropriate service usage	
SMR04- mental health admissions (data linkage)		SMR00 –hospital outpatients (data linkage)		
		SMR02 –maternity services including a family index		

Acknowledgements

- Andrea Williamson (PI)
- Philip Wilson – University of Aberdeen
- David Ellis – Lancaster University
- Alex McConnachie – Robertson Centre at Glasgow University
- Dave Kelly – Albasoft
- electronic Data Research and Innovation Service (eDRIS)
- Ellen Lynch – Health & Social Care Analysis Division at Scottish Government
- Chief Scientists Office – Grant CZH/4/1118

