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Patient demographics in patterns of repeated non- attendance in primary care

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**INSPIRING
PEOPLE**

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 may act as a risk marker for vulnerability and poor health outcomes**

Research Aims

- 1. What is a useful definition of **never, occasionally and serially** missing GP appointments?
- 2. Differences in **illness profile**, including **multimorbidity** across patients' life course
- 3. What are the differences in **health service utilization** across the primary, secondary, scheduled and unscheduled health services?
- 4. Differences in **health outcomes** across the whole health system
- 5. **Social vulnerability**
- 6. Missing appointments - a proxy for **unmet health need**?
- 7. Can we inform rational resource allocation?
- 8. Can we develop **targeted interventions** to reduce missed appointments?

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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

Appointment validation

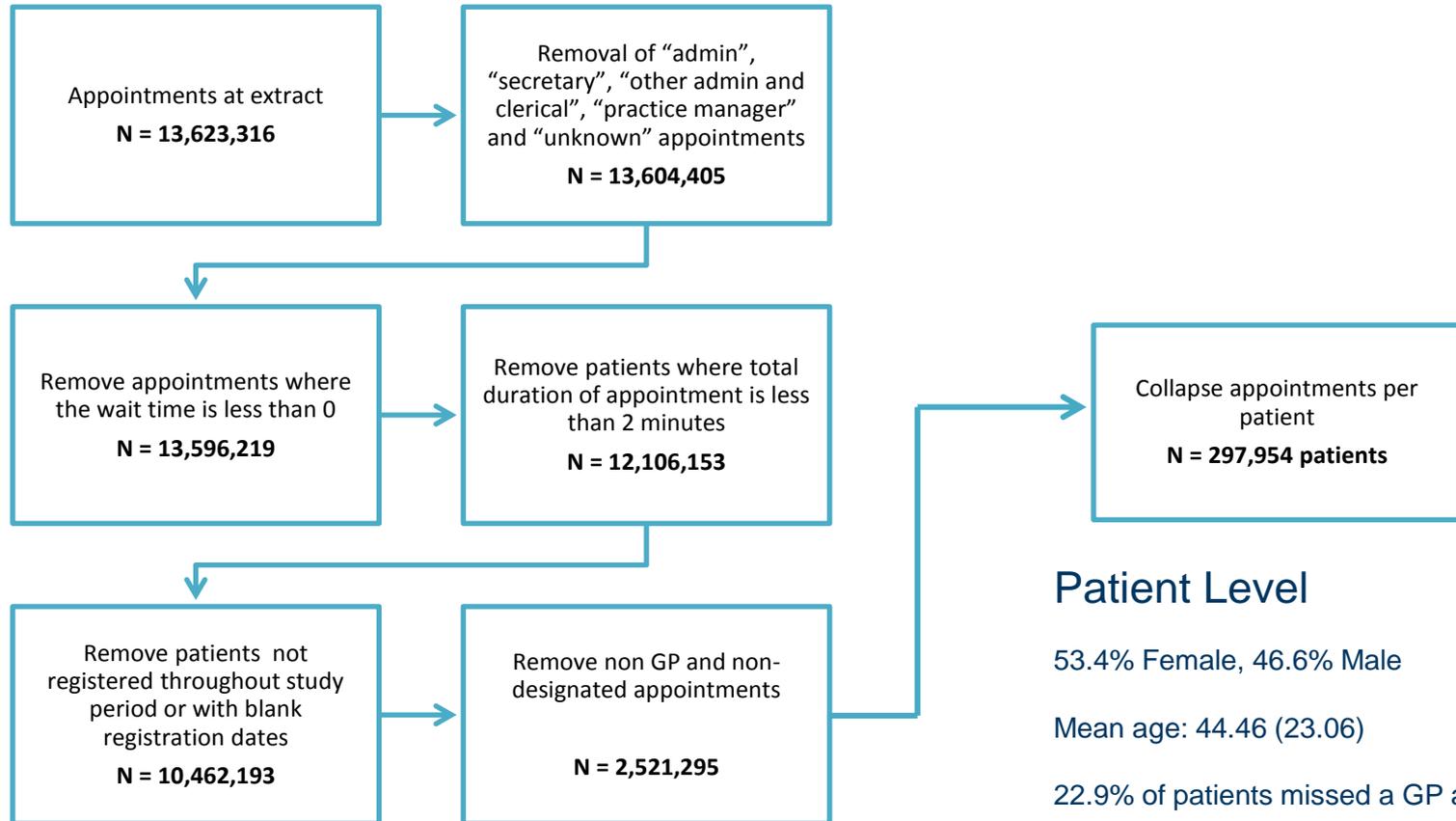
To determine a **minimum appointment duration** for face-to-face consultations, we randomly selected appointments of varying length to evaluate their attendance status.

Number of appointments tested	Length of appointment criteria
100	More than 4 minutes
200	Less than 4
200	Less than 3
200	Less than 2 excluding 0 times
200	Less than 2 Including 0 times
100	Did Not Attend

Result of sensitivity analysis:

1. Appointments of duration greater than 2 minutes were found to be valid
2. 99/100 appointments designated as “did not attend” were not attended

Data workflow



Appointment Level

Patient Level

53.4% Female, 46.6% Male

Mean age: 44.46 (23.06)

22.9% of patients missed a GP appointment

Designating missed appointment groupings

Never missed appointments: 0 per year average 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	Attendance Category				Total
	zero	low	medium	high	
0-15	37180 85 %	6090 13.9 %	461 1.1 %	25 0.1 %	43756 100 %
16-30	34815 70 %	11772 23.7 %	2628 5.3 %	523 1.1 %	49738 100 %
31-45	45879 76.2 %	11488 19.1 %	2303 3.8 %	540 0.9 %	60210 100 %
46-60	53391 79 %	12019 17.8 %	1879 2.8 %	308 0.5 %	67597 100 %
61-75	39794 79.9 %	8824 17.7 %	1075 2.2 %	135 0.3 %	49828 100 %
76-90	16620 70.8 %	5609 23.9 %	1029 4.4 %	205 0.9 %	23463 100 %
90 plus	2064 61.4 %	957 28.5 %	251 7.5 %	90 2.7 %	3362 100 %
Total	229743 77.2 %	56759 19.1 %	9626 3.3 %	1826 0.6 %	297954 100 %

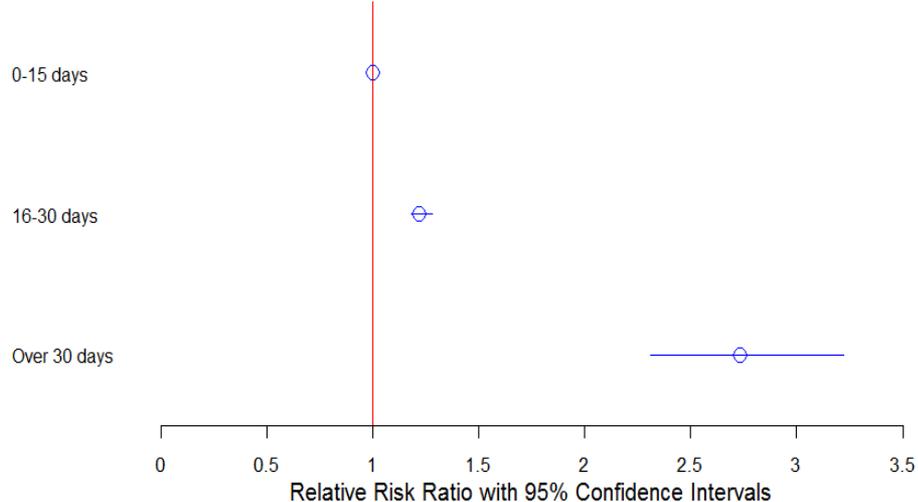
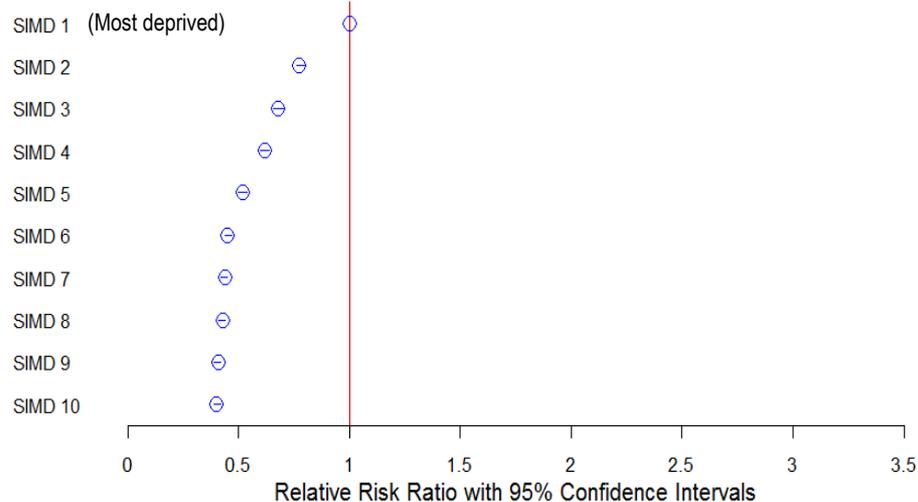
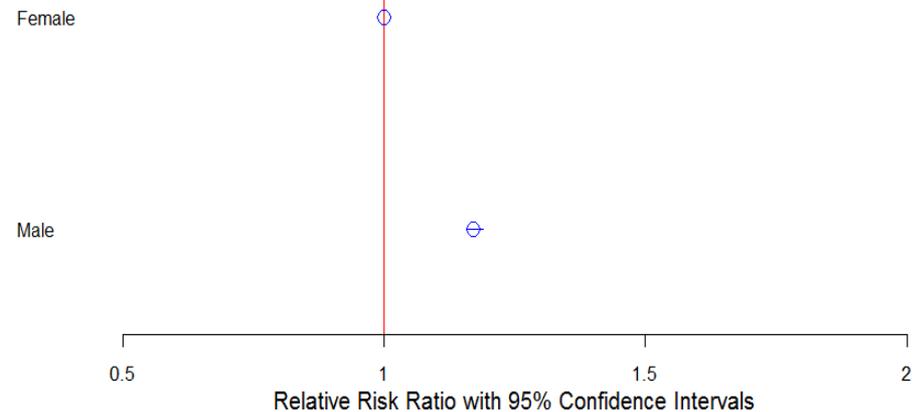
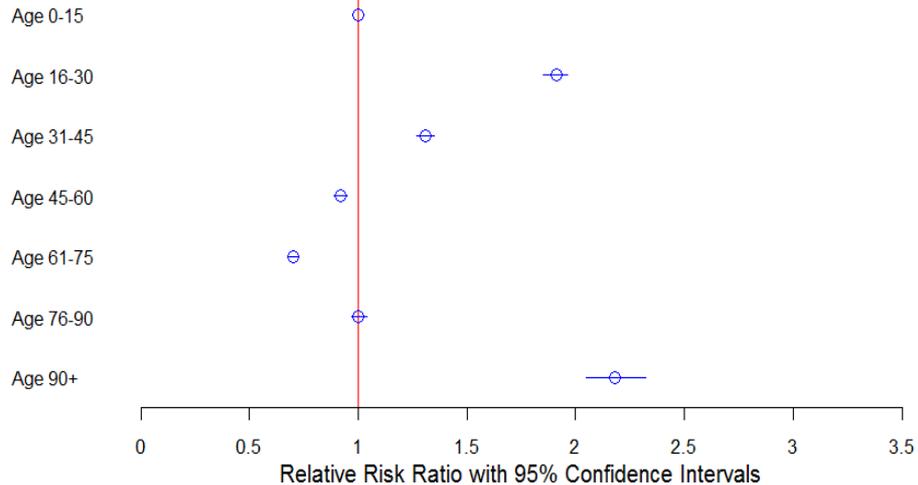
$\chi^2=5402.151 \cdot df=18 \cdot \Phi_c=.078 \cdot p<.001$

SIMD	Attendance Category				Total	
	zero	low	medium	high		
Most deprived {	1.00	12535 65.6 %	4910 25.7 %	1306 6.8 %	350 1.8 %	19101 100 %
	2.00	12183 68.1 %	4380 24.5 %	1099 6.1 %	232 1.3 %	17894 100 %
	3.00	18418 70.4 %	6221 23.8 %	1281 4.9 %	250 1 %	26170 100 %
	4.00	17250 73.3 %	5089 21.6 %	974 4.1 %	214 0.9 %	23527 100 %
	5.00	18544 75.9 %	4895 20 %	841 3.4 %	138 0.6 %	24418 100 %
	6.00	27034 78.8 %	6198 18.1 %	934 2.7 %	136 0.4 %	34302 100 %
	7.00	36345 79.5 %	8062 17.6 %	1142 2.5 %	159 0.3 %	45708 100 %
	8.00	22671 80.1 %	4873 17.2 %	665 2.3 %	97 0.3 %	28306 100 %
	9.00	18658 82.1 %	3625 15.9 %	400 1.8 %	48 0.2 %	22731 100 %
	10.00	31700 84.3 %	5277 14 %	525 1.4 %	120 0.3 %	37622 100 %

Sex	Attendance Category				Total
	zero	low	medium	high	
Female	121317 76.1 %	31270 19.6 %	5636 3.5 %	1123 0.7 %	159346 100 %
Male	108426 78.2 %	25489 18.4 %	3990 2.9 %	703 0.5 %	138608 100 %
Total	229743 77.1 %	56759 19.1 %	9626 3.2 %	1826 0.6 %	297954 100 %

$\chi^2=247.997 \cdot df=3 \cdot \Phi_c=.029 \cdot p<.001$

Regression modelling of any missed GP appointments (adjusted for age, gender, deprivation (SIMD) and appointment delay)



Conclusions

- We have analysed GP appointment data from 297,954 patients from 155 practices across Scotland.
- Overall number of appointments analysed was most affected by unlabelled appointments
- Appointment validation revealed appointments of 2 minutes or longer could be considered within the dataset.
- Age, gender, SIMD and appointment delay affect risk of missing appointments, with deprivation particularly associated.

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		

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