



Serial missed attendance in primary care – data linkage study


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The team

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- Participating GP practices
 - Albasoft (TTP)
 - Ellen Lynch, Scottish Government Health Dept
 - Data Sharing and Linkage Service

Outline

- Background and rationale
 - Definition
 - Patient demographics
 - Practice demographics
 - Health outcomes
 - Social vulnerability
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Serial (Repeated) Missed Appointments

- New area for research
 - Proxy for low/dysfunctional engagement in care
 - A 'health harming behaviour'?
 - Reflects poor health and social vulnerability?

 - Novel patient level data
 - GP 'Read codes'
 - Large data set & linkage potential
 - Secure extract and analysis facilities
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Missed appointments results

- 136 Scottish representative GP practices
- 550 083 patient records
- 9 177 054 consultations

- 54.0% missed no appointments over 3 years
- 46.0% missed one or more appointments over 3 years
- 19.0% missed more than two appointments over three years

(Ellis, McQueenie, Wilson, Williamson, Lancet Public Health 2017)

Definition & analysis

- Average of primary care face to face appointments over previous three years
 - Never missed appointments: 0 per year
 - Low missed appointments: <1 per year
 - Medium missed appointments: 1-2 per year
 - High missed appointments: 2 or more per year
 - Frequency counts
 - Negative Binomial Regression Modelling across 4 appointment groups
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Patient demographic factors

- Most socio-economically deprived (SIMD 1) patients most likely to miss appointments (RRR 2.27, 95% CI 2.22–2.31)
- Most remotely located patients least likely to miss appointments (RRR 0.37 (0.36–0.38))
- Patients aged 16–30 years (1.21, 1.19–1.23), patients older than 90 years (2.20, 2.09–2.29) more likely to miss
- Effect of gender relatively small
- Ethnicity poorly recorded (2.69% all records)

(Ellis et al Lancet Public Health 2017)

GP Practice demographic factors

- Appointment delay 2–3 days (RRR 2.54, 95% CI 2.46–2.62) most strongly associated with non-attendance
- Urban GP practices more strongly associated with missed appointments
- More deprived patients registered with GP practices in more affluent settings have the highest risk of missing appointments
- Practice factors have a larger effect than patient factors but a model combining both patient and practice factors gave a higher Cox-Snell pseudo R^2 value (0.66) than models using either group of factors separately (patients only $R^2=0.54$; practice only $R^2=0.63$)

(Ellis et al Lancet Public Health 2017)

Multimorbidity (from major Read codes)

Missed Appointment Category	Number of Multimorbidities			Total
	None	One to three	Four plus	
zero	254748 85.8 % 58.7 %	38160 12.8 % 39.5 %	4094 1.4 % 20.6 %	297002 100 % 53.9 %
low	114766 77.2 % 26.5 %	29249 19.7 % 30.3 %	4605 3.1 % 23.2 %	148620 100 % 27 %
medium	42195 66.4 % 9.7 %	17155 27 % 17.8 %	4185 6.6 % 21.1 %	63535 100 % 11.6 %
high	22001 53.8 % 5.1 %	11935 29.2 % 12.4 %	6990 17.1 % 35.2 %	40926 100 % 7.5 %
Total	433710 78.9 % 100 %	96499 17.5 % 100 %	19874 3.6 % 100 %	550083 100 % 100 %

$\chi^2=43189.688 \cdot df=6 \cdot \Phi_c=.198 \cdot p<.001$

Adverse Childhood Experiences

Missed appointment category	Yes/No Any ACE		Total
	no	yes	
zero	189708 99.3 % 51.8 %	1403 0.7 % 33.9 %	191111 100 % 51.6 %
low	102761 98.9 % 28.1 %	1170 1.1 % 28.3 %	103931 100 % 28 %
medium	45055 98.2 % 12.3 %	818 1.8 % 19.8 %	45873 100 % 12.4 %
high	28782 97.5 % 7.9 %	748 2.5 % 18.1 %	29530 100 % 8 %
Total	366306 98.9 % 100 %	4139 1.1 % 100 %	370445 100 % 100 %

Summary

- Patients who serially miss GP appointments tend to:
 - Experience socio-economic disadvantage
 - Have multiple health conditions
 - Are more likely to have experienced adversity in childhood
 - GP Practice factors play a role
 - Next steps - data linkage:
 - Hospital ICD10 codes,
 - Unscheduled care service use etc.
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