Serial Missed Appointments in the NHS

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29th November 2019

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Outline

- Aim and context of SMA project
- Patient and practice demographics
- Morbidity and mortality
- Further work

Serial Missed Appointments

- **Proxy for low engagement** in care
- As a **'health harming behaviour'**
- Is it a **proxy for poor health and social vulnerability?**
- Importance of the **patients**' journey through healthcare (whole systems approach)

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Scottish General Practice

- (almost all) **population coverage**
- **Universal access** & **free** at point of care
- Unique **patient record from birth to death**
- Major advances in electronic records recording & retrieval

Definition & analysis

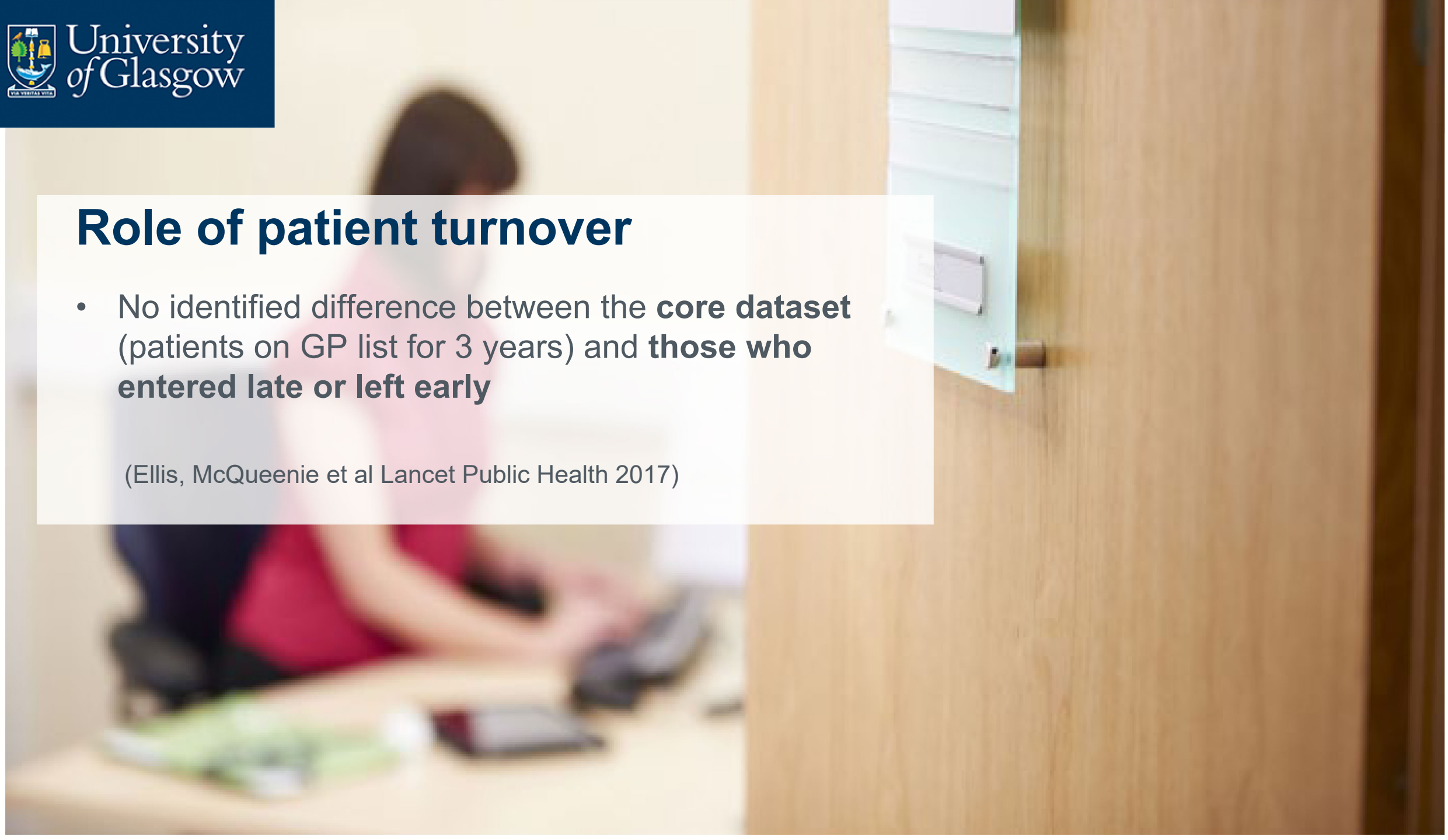
Average of primary care face to face appointments over previous **three years**

- **Never missed appointments per year, 0**
- **Low missed appointments per year, <1**
- **Medium missed appointments per year, 1-2**
- **High missed appointments per year, 2 or more**

Frequency counts

Negative Binomial Regression Modelling across 4 appointment groups

(Williamson et al BMJ Open 2017)



Role of patient turnover

- No identified difference between the **core dataset** (patients on GP list for 3 years) and **those who entered late or left early**

(Ellis, McQueenie et al Lancet Public Health 2017)

Missed appointments results

136 Scottish representative GP practices

550 083 patient records

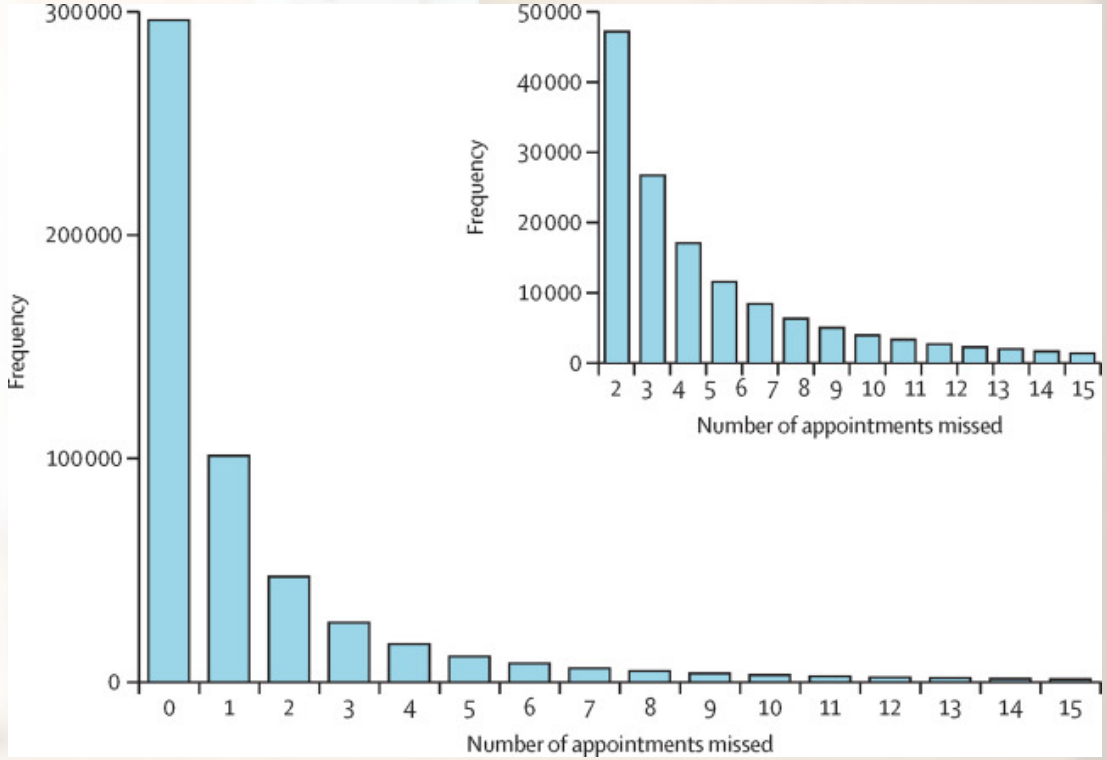
9 177 054 consultations

54·0% (297,002) missed no appointments

46·0% (212,155) missed one or more appointments

19·0% (40,926) missed more than two appointments

(Ellis, McQueenie et al Lancet Public Health 2017)



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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 (RR 0.37, 0.36–0.38)
- Patients aged **16–30 years** (1·21, 1·19–1·23) & **older than 90 years** (2·20, 2·09–2·29) more likely to miss appointments
- Effect of gender small
- Ethnicity poorly recorded (2.69% all records)

(Ellis, McQueenie et al Lancet Public Health 2017)

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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**

(Ellis, McQueenie et al Lancet Public Health 2017)

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Patient and practice demographics

- **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, McQueenie et al Lancet Public Health 2017)

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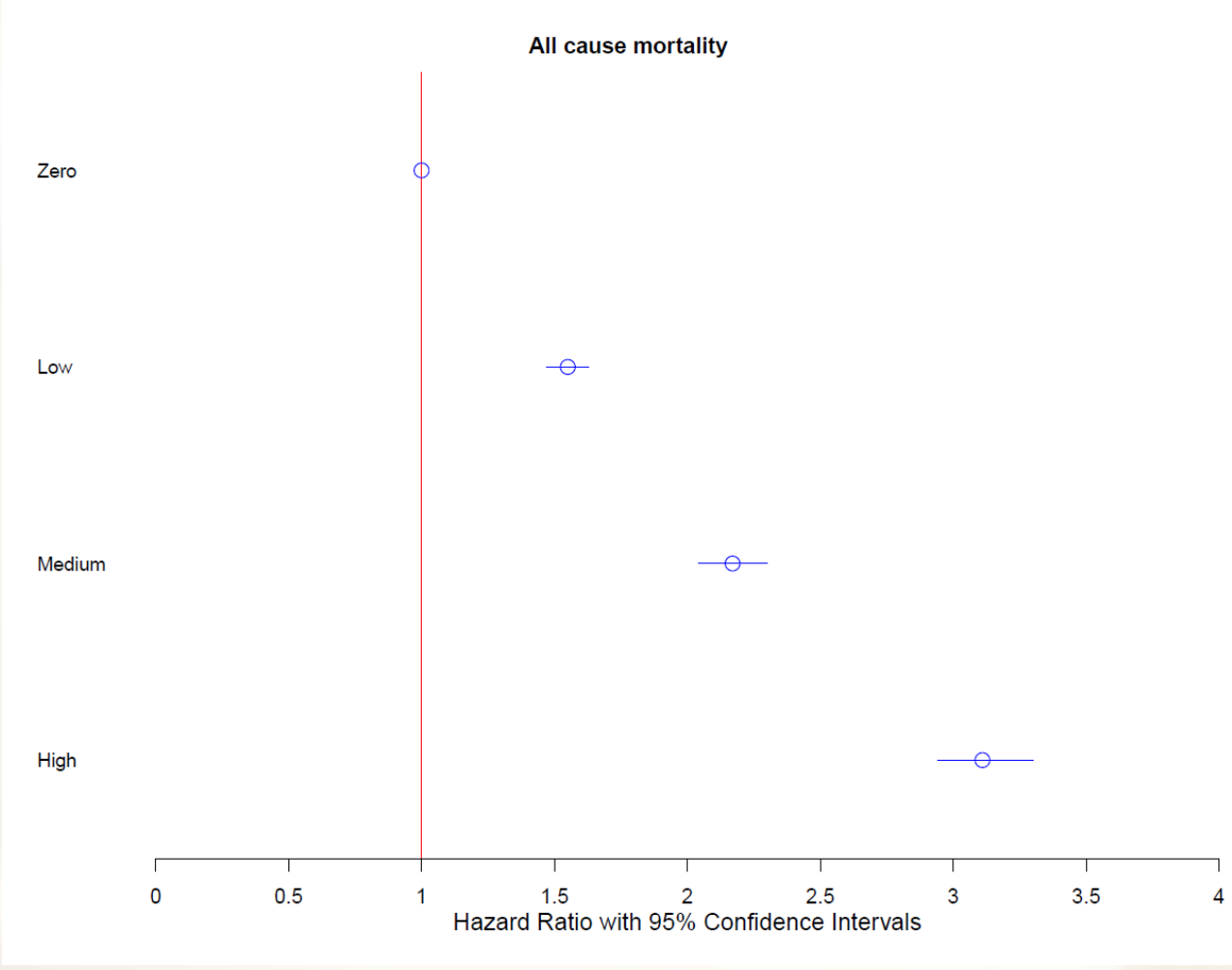
Multi-morbidity (Read code categories)

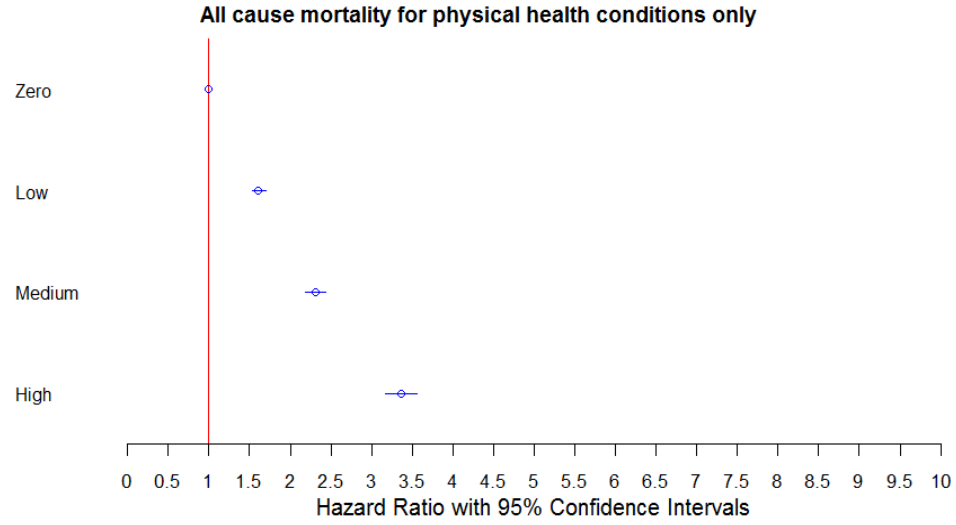
(McQueenie et al BMC Medicine, 2019)

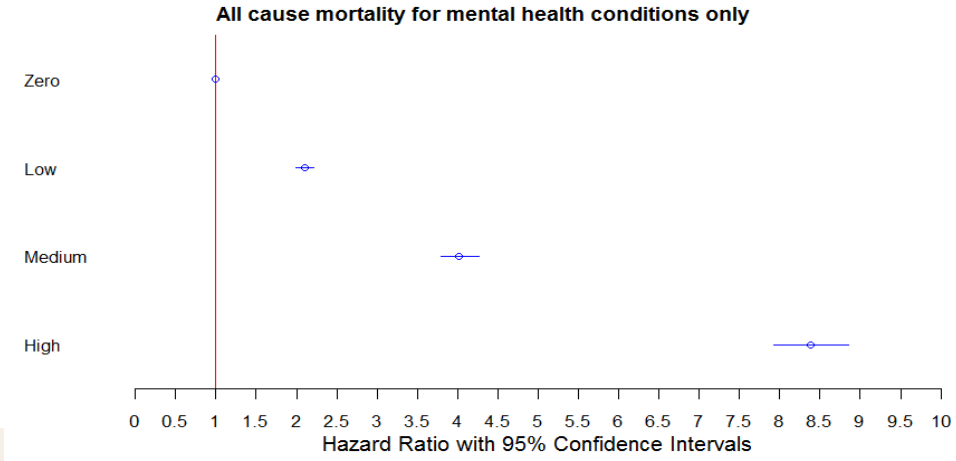
Missed Appointment Category	No long term conditions	One to three long term conditions	Four plus long term conditions	Total
zero	226190 (51%)	182682 (42%)	30720 (7%)	439592 (100%)
low	84556 (37%)	111928 (49%)	31881 (14%)	228365 (100%)
medium	22157 (23%)	51569 (53%)	23351 (24%)	97077 (100%)
high	5819 (10%)	29714 (50%)	23807 (40%)	59340 (100%)

Risk of death Cox regression: adjusted for age, sex, demographics, practice factors and number of long-term conditions

(McQueenie et al BMC Medicine, 2019)







Causes of death (McQueenie et al BMC Medicine, 2019)

Only mental health-related long-term conditions

Missed appointment category	Number of deaths (% of group dead)	Mean age at death (SD)	Most common primary causes of death
Zero	69 (0.2%)	55.72 (20)	R99 (11.6), X70 (10.1), I219 (8.7)
Low	83 (0.4%)	54.68 (18.79)	R99 (21.6), X70 (12), I219 (6)
Medium	58 (0.6%)	53.1 (20.18)	R99 (19), X42 (6.9), Y14 (6.9)
High	53 (1.7%)	49.3 (20)	R99 (32), G309 (9.4), Y14 (5.6)

Key messages- morbidity and mortality

- Patients with **more long-term conditions** have increased risk of missing GP appointments (controlling for number of apts made)
- Patients missing appointments were at much greater risk of **all-cause mortality, the risk increasing with number of missed appointments** (independent of morbidities)

(McQueenie et al BMC Medicine, 2019)

Key messages – morbidity and mortality

- Patients with **long-term mental-health conditions missing >2 appointments per year had >8x** risk of all-cause mortality compared with those who missed no appointments
- These patients died at a **younger age**, and commonly from **non-natural external factors**
- **Missing appointments repeatedly seems to be a powerful marker for greatly increased risk of mortality, particularly among those without physical long-term conditions** (after adjustment for all other mortality risks)

(McQueenie et al BMC Medicine, 2019)

Further SMA papers

- ACEs and recording rates
- Health care utilization
- Educational attainment and exclusions
- ADHD cohort
- Modelling unmet need

Further SMA work

- Current evidence base:
  - Complete the patient journey through health care-outcomes & utilisation
    - **diagnosis codes for A&E, OP and admissions**
    - **GP OOH, NHS24 and ambulance data**
- Current practice developments:
  - Develop an SMA predictive model
    - **practices target existing SMA patients for care**
- Future interventions development:
  - GP practice whole system predictive template
  - Systematic review of whole system interventions
  - Qualitative study work with stakeholders and SMA experts by experience

Acknowledgements

- Participating GP practices
- Dave Kelly, Albasoft (TTP)
- Ellen Lynch, H&SCAD Scot Gov
- Chief Scientist Office
- DLDS Scot Gov
- EDRIS team – Dionysis Vragkos

Further information

http://www.gla.ac.uk/serialmissedappointments

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