

Marked differences in MI secondary prevention treatment adherence across UK countries



Variation in adherence to preventative medicines following myocardial infarction: a UK cohort study

Background: In the UK, around 100,000 hospital admissions each year are due to myocardial infarctions (MI). Following initial management, secondary prevention treatments are initiated to reduce risk of further cardiovascular events, however there are significant concerns regarding insufficient long-term adherence. Additionally, differences in prescribing policies across the UK's devolved health systems and their impact on drug treatment and adherence remain under researched.

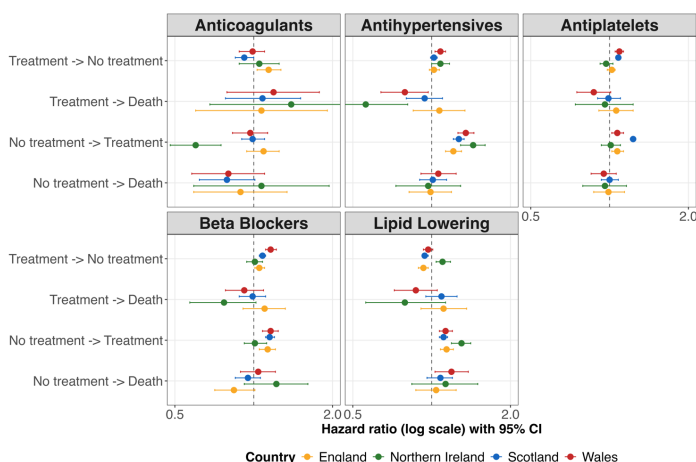
Methods: Analysis was performed using primary care data from the United Kingdom (CPRD GOLD) from 2012 to 2025. Patients aged 18+ prescribed a drug of interest in the 30 days after their first MI were included.

Drug groups of interest included anticoagulants, antihypertensives, antiplatelets, beta blockers, and lipid-lowering drugs.

We measured treatment adherence in the five years following MI using a Cox based multi-state model with three states: treatment, no treatment, death. Additionally, transition-specific hazard ratios (HR) were estimated for each age group, sex and socio-economic status. Results were stratified by UK country (England, Northern Ireland, Scotland and Wales).



Figure 2: Transition-specific hazard ratios by sex (male relative to female)



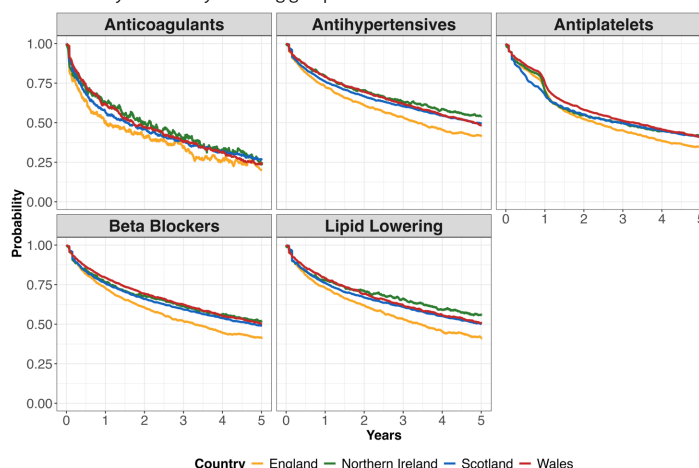
Conclusion: Our results show that adherence to secondary prevention treatment following MI fell by at least 50% in the 5 years after initiation, and found significant differences between UK countries, as well as sex, age and socio-economic status. These findings underscore the need for further research to better understand barriers to adherence, and to improving long-term adherence across demographic groups and UK regions.

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<https://www.hdruk.ac.uk/about-us/funders/>



Figure 1: Predicted daily probability of remaining on treatment over five years following initiation, by UK country and drug group



Results: England consistently had the lowest adherence at 5 years across all drug groups (Figure 1), with the probability of adherence varying from 0.20 for anticoagulants to 0.41 for antiplatelets and beta blockers.

Northern Ireland had the highest 5-year adherence for beta blockers, antihypertensives, antiplatelets, and lipid lowering drugs (0.52, 0.54, 0.42, and 0.56 respectively), while Scotland had highest adherence for anticoagulants (0.27).

For antiplatelets, Scotland showed a notable decline in adherence after 6 months, whereas in the other UK countries this decline occurred after 12 months. This likely reflects differences in prescribing guidance, with P2Y12 inhibitors recommended for 6 months in Scotland compared with 12 months elsewhere.

Overall, males had higher hazards of transitioning from treatment to no treatment for antihypertensives, antiplatelets, and beta blockers compared with females (HR: 1.04 [95% CI: 1.02 – 1.06], 1.06 [1.04 – 1.08] and 1.09 [1.07 – 1.11], respectively). However, this varied substantially by country (Figure 2), with Wales and Scotland largely mirroring this trend, while no association was observed in England and Northern Ireland.

Similarly, although overall results indicated lower hazards of transitioning from treatment to death for antihypertensives, antiplatelets, beta blockers, and lipid-lowering drugs among the least deprived (Townsend Index 1) compared with the most deprived (Townsend Index 5) (HR: 0.71 [95% CI: 0.59 – 0.86], 0.75 [0.66 – 0.85], 0.72 [0.62 – 0.83], and 0.74 [0.63 – 0.88], respectively) there was substantial regional variation.

Scotland mirrored the overall trend, whereas in England only beta blockers showed this association, and in Wales this was observed for antiplatelets and beta blockers.



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