

# Use of systemic fluoroquinolones in primary care and hospital settings in the UK: A population-level cohort study

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## Introduction

- Fluoroquinolones are antibiotics that have been associated with an increased risk of serious adverse events
- Risk minimisation measures (RMMs) were issued by the UK's Medicines and Healthcare products Regulatory Agency in March 2019
- They aimed to restrict Fluoroquinolone use in some mild or moderate infections as well as in people aged  $\geq 60$ .

## Objectives

This study aimed to assess the impact of the RMM by:

- Estimating the incidence rates (IRs) of Fluoroquinolone use for the period 2012-2022.
- Describing the patient characteristics and indications for Fluoroquinolone use in the study population before and after the publication of RMM.

## Methods

### Databases

- Primary care
  - CPRD GOLD and Aurum
- Secondary care
  - Barts Health
  - Lancashire Teaching Hospital Trust (LTHTR)
- Primary and secondary care
  - HIC Dundee

**Index date** Prescription/dispensation date of fluoroquinolone with no prior use in the previous 30 days

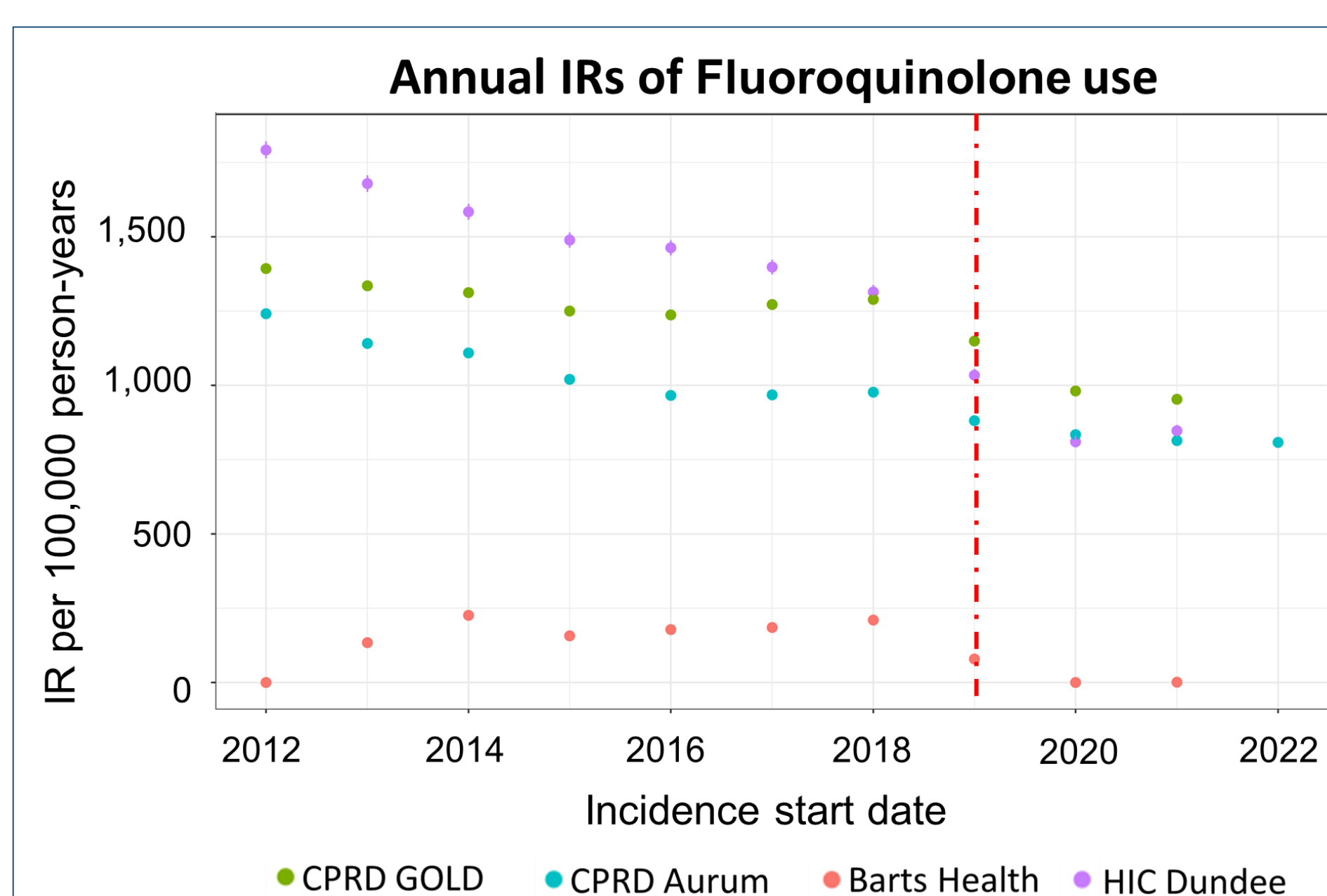
### Statistical methods

- Annual IRs of fluoroquinolone per 100,000 person-years
- Compare IRs before vs. after RMM using segmented regression analysis with a step and slope change using interrupted time series, stratified by age 18-59 vs.  $\geq 60$  years
- New user characterisation
- Potential indications: conditions recorded 7 days prior to index date

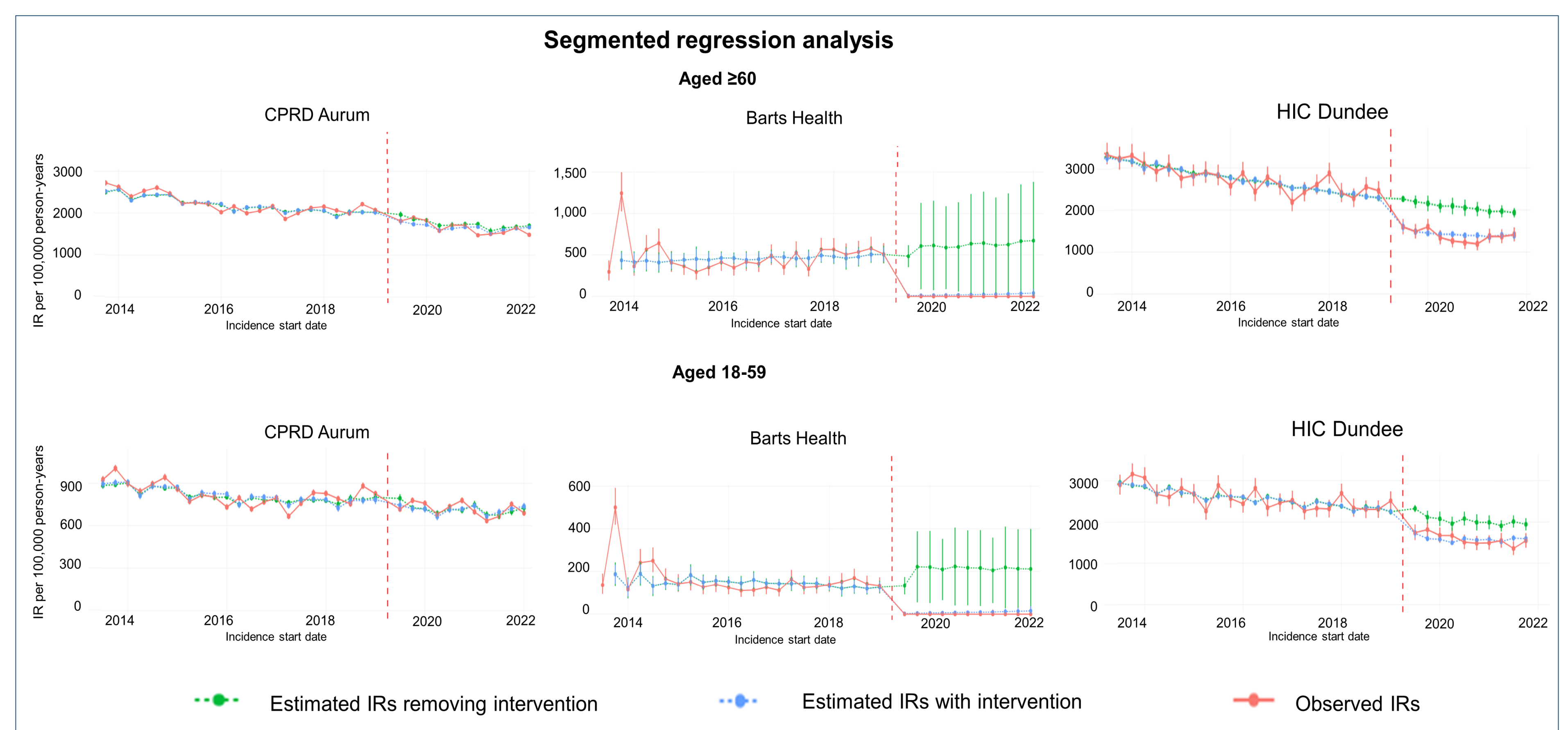
**Population** All adult subjects included in any of the databases between 01/01/2012 and 31/12/2022

**Exposure** Fluoroquinolone use

## Results



**Significant step changes after RMMs in CPRD Aurum, Barts Health and HIC Dundee**



### Characteristics and indications for new users before vs. after RMM

		Before RMM					After RMM				
		CPRD GOLD	CPRD Aurum	Barts Health	LTHTR	HIC Dundee	CPRD GOLD	CPRD Aurum	Barts Health	LTHTR	HIC Dundee
<b>N</b>	Subjects	324,570	726,249	6,878	113	56,683	80,670	391,454	176	2,186	15,393
	Fluoroquinolone prescriptions/dispensations	496,192	1,091,008	8,500	120	92,778	110,491	530,098	180	2,407	20,962
<b>Characteristics</b>	Age (median [IQR])	59 [42, 73]	59 [41, 74]	57 [37, 71]	64 [49.5, 74]	58 [41, 72]	57 [38, 72]	56 [36, 72]	57 [37.5, 69]	71 [55, 80]	57 [39, 71]
	Chronic kidney disease diagnosis	62,950 (12.7%)	137,142 (12.6%)	1,582 (18.6%)	NA	NA	10,498 (9.5%)	53,802 (10.1%)	50 (27.8%)	NA	NA
	Prior glucocorticoid use	84,817 (17.1%)	184,495 (16.9%)	0 (0)	NA	NA	15,803 (14.3%)	72,250 (13.6%)	0 (0)	NA	NA
<b>Indications</b>	Respiratory infection	30,211 (6.4%)	72,327 (7.0%)	2,035 (26.3%)	29 (24.4%)	201 (0.2%)	2,482 (2.4%)	21,076 (4.3%)	39 (23.8%)	857 (35.8%)	33 (0.2%)
	Urinary tract infection	45,041 (9.5%)	185,072 (17.9%)	1,370 (17.7%)	8 (6.7%)	67 (0.1%)	5,995 (5.8%)	67,961 (13.9%)	30 (18.3%)	77 (3.2%)	10 (0.1%)

## Conclusion

**The study results support the conclusion that RMM introduction contributed to lower Fluoroquinolone prescriptions, especially for those at an increased risk of adverse events.**

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