# The Scale And Variation Of The Impact Of COVID-19 On Prescribing Of Medicines In Primary Care In Wales

## Description

The disruption of prescribing due to COVID-19 and associated restrictions are likely to have deleterious effects on patients. This study identified changes in General Practice prescribing across Wales and variation of these changes. We used a novel combination of time series analysis and machine learning classification techniques and examined both health and socio-demographic factors related to the variation of changes.

## Introduction

Prescribing of medicines in primary care in Wales has been exceptional in 2020 due to COVID-19 and the associated changes to the delivery of health services. The changes are likely to have harmful, albeit unintended, consequences, including disruption of pharmacy stock management; unpredictable changes in prescribing; and interruption to patients’ supply of medicines and reduced medication adherence. Changes in prescribing are unlikely to be distributed evenly across the country or population. Therefore, this study aimed to identify changes in GP prescribing compared with previous years, the variation of these changes, and factors related to the variation in changes, to identify patient subgroups for whom the impact is disproportionate.

## Methods

We identified medicines of interest where concerns around prescribing have been raised and, for each of these medicines, retrieved monthly prescribing data for each GP practice in Wales (N = 492). We then linked these data with other publicly available data (e.g., practice size, indices of multiple deprivation, disease prevalence).

## We developed a novel approach to measure the impact of COVID-19 on GP prescribing. We compared observed with expected prescribing volume projected via time series modelling and differences were related to patient and practice characteristics using machine-learning classification techniques.

## Results

There was evidence of stockpiling of medicines during March 2020 (e.g., oral-contraceptives and oral-anticoagulants with 11.6 and 18.5 percent increases from March 2019), followed by a short-term reduction in prescribing for oral-contraceptives (a reduction of 12.9 percent), but not oral-anticoagulants (an increase of 6.5 percent). However, GP level data show considerable deviation from the national trend for several GPs, which may be due to health and socio-demographic factors.

## Conclusions

COVID-19 has had a major impact on primary care prescribing in Wales.

The distribution of changes in prescribing will not be even across the country or the population. Identification of systematic variation in impacts on prescribing could identify geographical areas or patients in need of additional support to ensure uninterrupted and appropriate access to medicines.

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