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| Project Title: |
| Investigating the safety of opioid and antidepressant co-prescribing in primary care |
| Proposed supervisory team: |
| Prof Carol Coupland, Professor of Medical Statistics in Primary Care  Dr Ruth Jack, Senior Research Fellow  Dr Roger Knaggs, Associate Professor in Clinical Pharmacy Practice  Prof Richard Morriss, Professor of Psychiatry and Community Mental Health |
| Potential for cross consortium networking and educational opportunities: |
| This PhD is based within the Precision Health & Drug Safety (PRISM) research group within the Centre for Academic Primary Care at the University of Nottingham. The supervisory team are from the Schools of Medicine and Pharmacy within the University and the Institute of Mental Health, a partnership between Nottinghamshire Healthcare NHS Foundation Trust and the University of Nottingham. There is potential for collaboration with the University of Adelaide.  You will have the opportunity to join a range of groups to support your studies, including various research network groups, attending and presenting at research meetings and conferences. |
| Project description:  Background  Antidepressants and opioids are both widely prescribed in England. Prescribing rates for these medicines vary by patient characteristics, for example people living in more deprived areas are more likely to be prescribed antidepressants and opioids than those living in more affluent areas. While there are safety concerns for both types of medication when taken separately, there is a lack of robust information on risks of adverse health outcomes when they are taken concurrently (co-prescribed). There is potential for drug-drug interactions, which can occur when drugs taken in combination exhibit synergism which can result in toxicity. The risks of these adverse outcomes need to be quantified along with an examination of potential inequalities in adverse outcomes and co-prescribing.  Aims and objectives  This research will identify the adverse effects associated with being co-prescribed opioids and antidepressants using primary care data. Trends over time, and variation between groups will be assessed.  Method(s)  Routinely collected electronic health records from primary care linked to secondary care data will be used to assess the adverse effects associated with being co-prescribed opioids for non-cancer pain and antidepressants, compared with being prescribed these medications individually. A study cohort will be selected comprising adults prescribed opioids for non-cancer pain or antidepressants between 2015 and 2024 in England. Periods where people have active prescriptions for opioids and antidepressants in combination will be determined using established algorithms. Existing literature will be examined to determine possible adverse events to investigate, as well as consulting with healthcare providers and experts by experience. Code lists to identify adverse outcomes will be developed and validated to enable the correct data to be extracted.  Statistical models will be used to assess the risk of adverse events, examining the periods while people are co-prescribed opioids and antidepressants, as well as short and long term periods after co-prescribing episodes compared with periods of antidepressants or opioids alone. The effect of the length of time someone is co-prescribed for will also be investigated. Analyses will account for potential confounding variables including demographic and clinical factors.  Impact  Public contributors who are part of our research team have expressed concern about the possible adverse effects of being co-prescribed these medicines, particularly if they have long-term prescriptions. The findings of this research will be useful for patients, prescribers and policymakers. The results have potential to inform prescribing policy and could be implemented in clinical prescribing tools. As a result of this work, patient safety will be improved, as riskier drug combinations in more vulnerable patients can be avoided, and better monitoring could be implemented to reduce risks of adverse events happening. |

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| Training and development provision by host: |
| Formal training:  You will create a training plan with your supervisors at the start of the PhD. As well as developing skills specific to the project, you will benefit from additional courses on a broad range of transferable skills. The University of Nottingham Researcher Academy has a variety of training courses including topics such as researcher fundamentals, research communication and methods. |
| Informal training:  As part of the Precision Health & Drug Safety (PRISM) research group within the Centre for Academic Primary Care, you will be working alongside researchers with a wide range of skills and expertise. The collaborative nature of the project also means you will learn from researchers across a variety of disciplines, including pharmacists, clinicians, statisticians, public contributors and epidemiologists. Mentorship and support schemes are available as part of the School of Medicine. |
| PPIE:  You will be working closely with public contributors aligned to this work from the Nottingham Biomedical Research Centre’s Mental Health and Technology theme. As well as an introduction to the role PPIE plays in the research, the project’s PPIE team will help guide you and the project into ensuring there is a meaningful collaboration in the project. |