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| Host department: Nottingham |
| Project Title: |
| Infant and child primary and secondary health care costs associated with mode of childbirth and prematurity |
| Proposed supervisory team: Names and areas of expertise to be included |
| Nottingham Prof Tim Coleman  Dr Laila Tata  Dr Linda Fiaschi  Oxford  Prof Stavros Petrou |
| Potential for cross consortium networking and educational opportunities: |
| Supervisors are based in two NIHR School for Primary Care Research (SPCR) groupings; this will, facilitate your networking with Oxford and Nottingham colleagues. You will also be strongly encouraged to engage with conferences, working group meetings and similar events which could help you develop a robust research support network comprised of colleagues from across the whole SPCR. |
| Project description: |
| Background  Childbirth which requires more intensive intervention (e.g. instrumental delivery) and preterm birth may be associated with poorer health outcomes in children, and this is very likely to lead to increased healthcare costs. However, there is currently scant evidence on the magnitude of any such healthcare costs, and where, within the UK NHS these might be incurred. In this project, a student will investigate whether mode of birth or gestational age at birth are associated with greater healthcare costs and, if so, how additional costs are distributed across primary and secondary health care services.  Methods  You will use Hospital Episode Statistics (HES) with linked Clinical Practice Research Datalink (CPRD) data from children born in the UK in to investigate whether infants’ mode of delivery or their gestational age at birth are associated with increased healthcare utilisation and costs. You will become proficient in the manipulation of ‘Big Data’ to answer important epidemiological questions using multivariable analyses, such as Poisson regression. You will also become conversant with challenges encountered and solutions employed when routine health data is used for research.  Potential impact  You will comprehensively quantify the economic impact of mode of birth and gestational age on primary and secondary health care costs; these potentially impactful findings will inform future economic research into the effects of adverse childhood health outcomes, and will inform future clinical and budgetary service planning. The supervisory team anticipate that, from analyses undertaken, a successful student will secure at least three multiple publications in impactful journals. |

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| Training and development provision by host: |
| **Training plan:** At the outset of your studentship, supervisors will help you identify your learning needs and formulate a bespoke plan for meeting these.  **Formal training:**  Your supervisory team has a broad range of expertise. Dr Tata is an epidemiologist with particular skills in using routine health data for complex analyses; Dr Fiaschi is a computer scientist, experienced in large-scale longitudinal analyses of electronic health records; Prof Petrou is a Chair in Health Economics at Oxford University and has led many high-quality economic studies and Prof Coleman is a GP and applied health researcher / trialist with an interest in women’s preventive health. Nottingham has an enviable reputation for epidemiological studies using routine data, and so is an ideal place to undertake this work; here you will be able to access appropriate masters-level courses in data management, analysis and epidemiological methods. |
| **Informal training:**  Nottingham has a large cohort of researchers which is highly-skilled in techniques you will need to learn. We will ensure that there are substantial opportunities for you to meet and learn from this group. |
| **PPIE:**  The student will consult a Patient and Public Involvement (PPI) group to gather opinions on how this research should be disseminated to pregnant women and other stakeholders and on its interpretation. |