Dear Lancet Public Health Science team,

Please find our abstract submission, “A review of the evidence behind interventions to mitigate premature births”, for Lancet’s Public Health Science National Conference to be held in Belfast, UK, on Nov 23, 2018. We are delighted to submit our abstract under the theme of “impact and implementation of public health science in policy and practice”. Our submission details work carried out by University College London (UCL) and the London Borough of Southwark, one of London’s most deprived and diverse boroughs, and seeks to present findings of a narrative review of the evidence from high-income countries to reduce premature births.

Roeann Osman, Logan Manikam and Kirsten Watters conceived the study aims and designed this review. Roeann undertook data collection, analysis and preparation of this manuscript. Logan Manikam and Kirsten Watters contributed to the final analysis by providing senior expertise, as well contributing to the final manuscript by providing quality control.

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Best,

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Title: A review of the evidence behind interventions to mitigate premature births

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Background: Risk-factors for preterm births include sociodemographic factors and obstetric history. Consequently, they can be mitigated on various fronts through antenatal surveillance, implementation of interventions for mothers before and/or during pregnancy and interventions targeted at preterm infants following birth. Following the identification of a persistent number of preterm births in our London borough (Southwark), we aimed to review the evidence from high-income countries for interventions to reduce premature births.

Method: A narrative review approach was employed and data were synthesised according to the intervention category and strength of effect, then stratified into primary, secondary and tertiary-level. Key search terms included preterm/premature birth and intervention. Sources were searched systematically and included: National Institute of Clinical Excellence, NHS Choices, Tommy's charity, Royal College of Obstetricians and Gynaecologists, World Health Organization, Centers for Disease Control and Prevention, Cochrane, MEDLINE, grey literature, then supplemented with expert opinion. Searches were between 02/02/18-06/02/18 and were restricted to articles in English published between 01/01/90-31/01/18. Strength of evidence was classified using the hierarchy of evidence provided by the National Health and Medical Research Council, with randomised control trial (RCT) findings given the most weight.

Findings: Sixteen articles were included, of which thirteen different interventions were identified for alleviating preterm births. The evidence reviewed was mixed in quality and reliability; most interventions did not exhibit consistent benefit in RCTs. Identified interventions with strong-evidence of benefit were; smoking cessation, progesterone supplementation, cervical cerclage, preterm surveillance clinics and screening, diagnosis and preparation, corticosteroids, magnesium sulphate and tocolysis; moderate-level of evidence was cervical pessaries; weak-evidence of benefit was weight management services, and mixed-evidence included nutritional supplementation and artificial reproduction treatments.

Interpretation: The interventions identified have the propensity to radically reduce the health and economic burdens associated with preterm births, deaths and disability. This review therefore provides recommendations for the implementation of interventions at the local level, within our own borough, but also at the regional and national level. Recommendations include; targeting determinants of preterm birth, effective mapping and surveillance of at-risk women ensuring service provision matches demand and provision of healthy start vitamins and vitamin D to all pregnant women.

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Contributors: RO, LM and KW conceived of and designed the review. RO undertook data collection, analysis and writing. LM and KW contributed to the final analysis and write-up.

Conflicts of interest: Authors have nothing to disclose

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