1 INTRODUCTION

Preterm birth is the delivery before 37 weeks of gestation. It affects 8% of births in the UK and the target from the Department of Health is to reduce rates to 6% by 2025.

The vaginal microbial composition can influence pregnancy outcome. Lactobacillus are associated with protection. Whereas the absence of Lactobacillus and high diversity has been linked to adverse pregnancy outcomes such as preterm birth.

WHAT IS THE PROBLEM?
To reduce preterm birth rates, new preventive strategies are required. Currently, there is no treatment to target microbial-driven (infection) phenotype.

HOW ARE WE GOING TO DO IT?
This study seeks to determine the role of the mother's immune response in microbial-driven preterm birth in order to discover potential new therapeutical targets.

2 MATERIALS AND METHODS

Cervicovaginal fluid was collected using swabs from pregnant women at high-risk of preterm birth attending preterm birth prevention clinics across four different London hospitals.

Samples were used to perform the experiments:

3 RESULTS

Women who experienced preterm birth and had adverse bacteria developed an exaggerated immune response, with activation of complement proteins. All the highlighted markers could be used as a predictive test or therapeutic targets.

Bacterial opsonisation (recognition of bacteria via antibodies) is decreased in women with adverse vaginal microbial composition and in those who delivered preterm.

4 CONCLUSION

Microbial-driven preterm birth is associated with activation of the complement system immune response, and lack of specific recognition by antibodies.

These findings support the development of new therapeutic strategies for preterm birth prevention:

- live biotherapeutics (giving healthy bacteria into the vagina),
- repurposing complement therapeutics (currently in use for other health issues),
- vaccines