University of BRISTOL

Elizabeth Blackwell Institute for Health Research

Research for Health Scheme

Stage 1 - Call for Challenges Application Form

- **This call is open to doctors, nurses and allied health professionals employed by the NHS.**
- **Please use this form to describe a specific issue or challenge which you are currently facing in your area of healthcare delivery.**
- **The deadline for submission is 25 Feb 2014. Please email this application form to Lisa.Wheatley@Bristol.ac.uk**
- **If your challenge is selected, University of Bristol researchers have the opportunity to bid for funds to help them develop a solution. They will work in partnership with you to make sure the new technology, device or innovation will really work for you, your colleagues and your patients.**

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Challenge Title (max 20 Words)
Can we diagnose pelvic inflammatory disease(PID) more accurately in an out patient setting

Please describe the specific problem which needs addressing
The clinical diagnosis of Pelvic inflammatory disease (PID) is inaccurate. Symptoms can be mild or atypical and even when symptoms and signs are present they lack sensitivity and specificity (the positive predictive value (PPV) of a clinical diagnosis is 65-90% compared to laparoscopic diagnosis). The principle differential diagnoses which are difficult to distinguish clinically are irritable bowel syndrome (IBS) and endometriosis.

Clinical algorithms are available for diagnosing IBS and endometriosis and there are potential biomarkers for PID which could be developed as point of care tests (POCTs). These include neutrophil defensins and/or increased polymorphonuclear cells and/or lack of lactobacilli/presence of bacterial vaginosis in the vaginal secretions. Past exposure to chlamydia may also be a predisposing factor similar to trachoma. POCTs for chlamydia and gonorrhoea are available which would increase the PPV, when present, but these infections only account for ~20% of PID, being identified more frequently in younger age groups.(HTA report under review – see below) There is no POCT for bacterial vaginosis but we have a patent for using sialidase activity as a POCT which we are exploring commercially and we have recently developed a specific antibody test for *Chlamydia trachomatis* in collaboration with Imperial College London which performs significantly better than commercially available assays. This offers the opportunity for a bio-informatic solution to this problem

How does this issue impact on you, your colleagues and your patients?

- The earlier PID is treated the less likely the woman will develop long term serious sequelae such as ectopic pregnancy, tubal factor infertility and chronic pelvic pain
- In practice for experienced clinicians this results in over treatment of many women as it is difficult to exclude the diagnosis.
    - This can cause anxiety in the patient not only because she has been diagnosed with a potential sexually transmitted infection but also because she will have been told she is now at risk of serious sequelae for which there is no diagnostic test unless they try to conceive
    - This is poor antimicrobial stewardship which increases risk of anti-microbial resistance developing
- For clinicians not familiar with how PID presents it can result in delayed treatment increasing risk of chronic sequelae in those with PID

Can you estimate how many patients or staff are affected by this problem?
Can you describe any associated financial implications for the NHS or patients?
(Don't worry if you are not able to answer this question at this stage – it is not compulsory)

From our recent multi-parameter evidence synthesis study of the natural history of Chlamydia (Prof A Ades PI) we concluded that pelvic inflammatory disease (PID) affects 1-2% of women aged 16-44yrs with 30% of women by age 30-44yrs having had at least one episode. (HTA report under review)

Tubal factor infertility (TFI) effects 1.1% of women by the age of 44yrs and 1-2 % of pregnancies are ectopic pregnancies (EP). Nearly all TFI and 30% of EPs are as a consequence of infection of the fallopian tubes which has spread from the lower genital tract – which presents as pelvic inflammatory disease.(HTA report under review)