UK National Screening Committee

UK National Screening Committee (UK NSC)

Antenatal Screening for Asymptomatic Bacteriuria

Date: 28 October 2020

Contents

Aim

1. To ask the UK National Screening Committee (UK NSC) to make a recommendation, based on the evidence presented in this document, whether or not antenatal screening for asymptomatic bacteriuria meets the UK NSC criteria for a systematic population screening programme.

Current Recommendation

2. The UK National Screening Committee (NSC) does not currently recommend systematic population antenatal screening for asymptomatic bacteriuria (ASB). This recommendation was made on the basis of the last evidence review on the topic, published in 2017.

3. The 2017 evidence summary concluded that there was insufficient information to recommend a population screening programme because several uncertainties remain across key criteria, including:

    a. There was no new evidence available to provide up to date information on how many pregnant women have asymptomatic bacteriuria in the UK.

    b. There was no new evidence on the optimal timing or methodology of testing for asymptomatic bacteriuria during pregnancy, or the frequency of testing. Therefore, the most effective way of screening pregnant women for asymptomatic bacteriuria remains uncertain.

c. Evidence from a RCT set in the Netherlands, found no difference between treated and untreated women with asymptomatic bacteriuria for risk of pyelonephritis and delivery of the baby before 34 weeks. There was also no difference between treated and untreated women for a range of other maternal and neonatal outcomes. This contrasts with the evidence reported in the 2012 UK NSC review, which suggested that the risk of pyelonephritis is reduced with antibiotics compared to placebo or no treatment (by approximately 75%). Because of the different results and limitations with both studies, the use of antibiotics for asymptomatic bacteriuria in pregnant women to prevent adverse outcomes is uncertain.

d. A systematic review on the length of treatment for asymptomatic bacteriuria found no difference in cure rates, recurrence of asymptomatic bacteriuria, pyelonephritis or preterm birth rates between a short course or single dose of antibiotics. However, when only good quality studies were included in the analysis they suggested that a short course of antibiotics may lead to a better outcome (based on limited data). A single dose of antibiotics was associated with fewer side effects.

4. Based on this evidence the UK NSC re-confirmed the 2012 UK NSC's recommendation. The committee acknowledged that while testing for ASB in early pregnancy is currently an established part of antenatal care packages (as recommended by the NICE CG 62), a systematic population screening programme should not be recommended. It also noted that current practice overlaps with guidance in other areas and the consequences of recommending withdrawal of screening are uncertain at this point.

Evidence Summary

5. The 2020 evidence summary was undertaken by Kleijnen Systematic Reviews Ltd, in accordance with the triennial review process.

6. The 2020 evidence summary addresses questions relating to:

   a. What is the disease burden associated with ASB? (criterion 1)

   b. What is the performance of screening tests for detecting ASB infection in pregnancy? (criteria 4 and 7)

   c. What are the benefits and harms of screening compared with no screening for ASB in pregnancy? (criterion 11)

d. What are the benefits and harms of antibiotic treatment compared with no treatment for ASB in pregnancy? (criterion 9)

e. How benefits and harms of screening and treatment inform womens' decisions to undergo screening for bacterial infections during pregnancy? (criterion 12)

Searches for systematic reviews and targeted searches for questions 1 and 5 and for interventions were limited by date range to 1990-2019. Searches developed to identify evidence for questions 2, 3 and 4 were limited by date to 2003-2019.

7. The conclusion of the 2020 evidence summary is that the volume, quality and direction of evidence published since 1990 for question 1 and 5 and 2003 for questions 2,3 and 4 is not sufficient to change the current UK NSC recommendation on antenatal screening for ASB. This recommendation is made for the following reasons:

    a. *Disease burden associated with ASB in the UK.* Three non-UK primary studies were identified to address question 1 (burden of disease associated with ASB in pregnancy). There was inconsistent evidence across two studies that ASB was associated with an increase in the incidence of pyelonephritis. Evidence from one study suggested an association between ASB and incidence of symptomatic UTI requiring antibiotic treatment during pregnancy. When considering data from all three studies, there was no evidence of an association between ASB and increased risk of perinatal mortality, neonatal sepsis, preterm birth, mean gestational age at delivery, frequency of neonates being small for gestational age, neonatal morbidity or admission to the neonatal intensive care unit. These studies were at high risk of bias and had limited applicability to the UK. No data were available for the following outcomes: maternal mortality, maternal sepsis, recurrence of ASB and low birth weight and this makes for an important gap in the evidence base.

        - **Criterion 1 is not met.**

    b. *Screening tests to detect ASB in pregnancy.* One systematic review (including 27 studies) plus one primary study (not included in the systematic review) were identified. A wide range of index tests was evaluated in the primary studies, urine dipstick being the most frequently evaluated. None of the studies assessed urine culture as an index (as currently recommended by NICE antenatal care guidance). The timing and national settings of studies varied considerably, and most were not relevant to current practice in the UK. The results overall suggested that whilst the index tests often had acceptable specificity

(92% or above in most studies), sensitivity was much more variable (15% to 100%) meaning that a substantial proportion of true positive cases could be missed. The systematic review and the primary study were at high risk of bias. There is currently no evidence to support the use of onsite tests within a screening programme for ASB in pregnancy in the UK. Further research is required of adequate methodological quality and of clear relevance to the UK setting.

- **Criteria 4 and 7 are not met.**

c. *Benefits and harms of screening compared with no screening.* There is a lack of available data to inform population screening strategies for AS B in pregnancy in the UK. Three systematic reviews were identified that included four unique cohort studies between them. All four studies were of low quality, involving non-concurrent control groups. Three studies comparing screening with no screening had limited relevance to current practice in the UK. They reported that screening may reduce the risk of pyelonephritis by 72% when compared with no screening with an absolute risk reduction 1.3%. However, no between-group difference was seen for perinatal mortality, spontaneous abortion earlier than 28 weeks or preterm birth. There was no difference between one-time screening and frequent screening for incidence of pyelonephritis. More women in the frequently screened group experienced preterm birth compared with one-time screening; this may have been explained by differential risk profiles between groups. Maternal mortality, maternal sepsis, neonatal sepsis and low birth weight were not reported in any study. The effectiveness of a one-time screening strategy would need to be confirmed by means of a good-quality RCT conducted in the UK.

- **Criterion 11 is not met.**

d. *Benefits and harms of antibiotic treatment in pregnancy for ASB compared with no treatment.* Seven systematic reviews were identified that included 15 unique RCTs between them. Whilst the majority of RC Ts (14/15) were conducted in the UK or countries similar to the UK, all were published during the 1980s or earlier with one exception published in 2015. Older studies generally suggested that antibiotics reduced the incidence of pyelonephritis, preterm birth, and low birth weight whilst the most recent RCT did not detect between-group differences for any outcome. However, the older studies have serious methodological problems and there are concerns about the applicability of their findings to current health care settings. The more recent evidence from the RCT comprised one very small, statistically underpowered RCT.

- **Criterion 9 is not met.**

e. *Women's decisions to undergo antenatal screening programme for ASB to health professionals and the public.* One systematic review including six studies including five surveys and one cross-sectional study (which was also identified as a primary study) were included. No evidence was found on the benefits and harms of screening and treatment to inform women's decisions to undergo screening for bacterial infections during pregnancy; or how women weigh the benefits and harms of a screening and treatment for bacterial infections during pregnancy. Low-level evidence (from surveys) was available from the systematic review and some cohort data which appeared to suggest that women may be reluctant to undergo antibiotic treatment for ASB during pregnancy. These findings should be treated with caution because of the low quality of the studies and unclear quality of the systematic review. In addition, there are difficulties in applying most findings to current practice in the UK because of locations and timings of most of the available evidence.

- **Criterion 12 is not met.**

Consultation

8. A three month consultation was hosted on the UK NSC website. Direct emails were sent to nine stakeholder organisations. *See Annex A*

9. The full set of responses to the consultation will be added to this document after the closure of the public consultation on the 22 October 2020 and presented at the UK NSC meeting on the 28 October 2020.

10. So far only one comment was received by the National Guideline Alliance, on behalf of the NICE Antenatal care guideline committee to indicate that it had noted the UK NSC's recommendations and reviews and had no comments. *See Annex B*

Recommendation

11. The Committee is asked to approve the following recommendation:

A systematic population antenatal screening programme for asymptomatic bacteriuria is not recommended in the UK.

12. The following statement was added following discussion at the meeting:

Currently, the UK NSC does not recommend a centrally managed, systematically organised, population screening programme in the UK for ASB. However, the recommendation acknowledges that screening is recommended in the clinical practice guideline covered by NICE (clinical guideline 62: antenatal care for uncomplicated pregnancies).

As of August 2021, NICE will no longer include recommendations on ASB in the update of their guidance. Consequently, the UK NSC recommendation will be the only national recommendation on antenatal screening for ASB in the UK.

This, 2020, UK NSC review concluded that the evidence base remains insufficiently robust to recommend a UK systematic population antenatal screening programme for ASB. Indeed, the more recent studies in the review place a question mark over the value of screening. However, it is acknowledged that screening for ASB is a longstanding part of antenatal care packages in some areas and that, recently, delivering this service has become a requirement in some areas for Clinical Negligence Scheme for Trusts cover.

In this context the UK NSC agreed that further work to clarify and explore the issues relating to screening for ASB should be undertaken. This is to ensure that an updated recommendation can be made on the basis of sound evidence. Until the UK NSC has sufficient evidence to make a recommendation on screening of ASB in a nationally managed screening programme, units where ASB screening is an established practice are asked to be open to participation in evaluation and research.

Criteria (only include criteria included in the review)	Met/Not Met
Section 1 - Criteria for appraising the viability, effectiveness and appropriateness of a screening programme	
The condition	
1. 'The condition should be an important health problem as judged by its frequency and/or severity. The epidemiology, incidence, prevalence and natural history of the condition should be understood, including development from latent to declared disease and/or there should be robust evidence about the association between the risk or disease marker and serious or treatable disease.'	**Not Met**
The Test	
4. There should be a simple, safe, precise and validated screening test.	**Not Met**
7. There should be an agreed policy on the further diagnostic investigation of individuals with a positive test result and on the choices available to those individuals.	**Not Met**
The Intervention	
9. There should be an effective intervention for patients identified through screening, with evidence that intervention at a pre-symptomatic phase leads to better outcomes for the screened individual compared with usual care. Evidence relating to wider benefits of screening, for example those relating to family members, should be taken into account where available. However, where there is no prospect of benefit for the individual screened then the screening programme shouldn't be further considered.	**Not Met**
The screening programme	
11. There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality or morbidity. Where screening is aimed solely at providing information to allow the person being screened to make an "informed choice" (such as in Down's syndrome or cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk. The information that is provided about the test and its outcome must be of value and readily understood by the individual being screened	**Not Met**
12. There should be evidence that the complete screening programme (test, diagnostic procedures, treatment/ intervention) is clinically, socially and ethically acceptable to health professionals and the public	**Not Met**

Annex A

List of organisations contacted:

1) Faculty of Public Health
2) Group B Strep Support
3) PHE ANNB Screening Programmes
4) Royal College of General Practitioners
5) Royal College of Obstetricians and Gynaecologists
6) Royal College of Physicians
7) Royal College of Physicians and Surgeons of Glasgow
8) Royal College of Physicians of Edinburgh
9) UCL Elizabeth Garrett Anderson Institute for Women's Health

UK National Screening Committee

Annex B

Stakeholder comments:

UK National Screening Committee / Asymptomatic Bacteriuria in Pregnancy / Consultation comments pro-forma

Name:	(Maija Kallioinen on behalf of) NICE Antenatal care guideline committee	**Email address:**	xxxx xxxx
Organisation (if appropriate):	National Guideline Alliance, part of RCOG (guideline developer)		
Role:	Guideline lead		

Do you consent to your name being published on the UK NSC website alongside your response?

Yes ~~**No**~~

Section and / or page number	**Text or issue to which comments relate**	**Comment** *Please use a new row for each comment and add extra rows as required*.
General	General	The NICE Antenatal care guideline committee has noted these recommendations and reviews and have no comments.