

UK National Screening Committee

Newborn screening for Biliary Atresia

25th October 2017

Aim

1. To ask the UK National Screening Committee (UK NSC) to make a recommendation, based on the evidence presented in this document, as to whether or not newborn screening for biliary atresia meets the UK NSC criteria to support the introduction of a population screening programme.

Current recommendation

2. The last UK NSC review on newborn screening for biliary atresia was published in 2012 and the current UK NSC recommendation is that systematic population screening for biliary atresia is not recommended.
3. A key conclusion of the 2012 review was that a simple, safe, precise and validated screening test for biliary atresia had not been identified when examining dried blood spots. This was due to an absence of an agreed cut off value. Studies measuring conjugated bilirubin in liquid blood samples to identify liver disease had been found but the predictive value for biliary atresia had not been explored and the sampling procedure limited its value for population screening in the neonatal population.
4. Although screening using stool colour cards had been introduced in some countries there was a lack of evidence as to whether this approach would result in an earlier median age of surgical intervention or lead to better treatment outcomes than currently seen in the UK.

Evidence Summary

5. The current review was undertaken by Solutions for Public Health in accordance with the triennial review process <https://legacyscreening.phe.org.uk/biliaryatresia>.
6. The review looked for studies on screening for biliary atresia using newborn dried bloodspots and the mean age of surgery for biliary atresia in the UK. Previous UK NSC reviews had identified that dried bloodspot screening as potentially the best approach as it had the potential to detect disease very early, could fit with current screening practice and allow for earlier treatment.
7. The main conclusion of the current review is that universal antenatal screening for biliary atresia should not be recommended in the UK. This is because:
 - a. no new evidence was identified about screening for biliary atresia using newborn dried bloodspots in the general population. A small number of early stage studies of potential bloodspot markers were identified suggesting that interest in this area remains. **Criterion 4 not met.**
 - b. no new evidence was identified about the mean age at surgery for biliary atresia in the UK. The latest available information on age at surgery in the UK, discussed in the previous review, suggested that this is comparable to the age at surgery in countries that screen for biliary atresia using stool colour cards. **Criterion 9 met.**

Consultation

8. A three month consultation was hosted on the UK NSC website. Direct emails were sent to 8 organisations. **Annex A**
9. Two responses were received, one from the Royal College of Midwives and the other from the Royal College of Paediatrics and Child Health. See **Annex B** below.

Both responses agreed with the conclusion of the review, that the current recommendation not to screen for biliary atresia in newborns should be maintained, given that no new evidence to support newborn bloodspot screening for biliary atresia had been identified.

The Royal College of Midwives acknowledged the need for health professional to play their part in contributing to the current referral pathway.



The Royal College of Paediatrics and Child Health advise that, although currently unpublished, data on age at Kasai in the UK since 2010 suggests that England and Wales have the lowest median time to the Kasai portoenterostomy procedure of any published data. A publication was being prepared at the time of the submission of the comments.

Recommendation

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

A systematic population screening programme for newborn screening for biliary atresia is not recommended.

Based on the 20 UK NSC criteria set to recommend a population screening programme, evidence was appraised against the following criteria:

Criteria		Met / Not met
The condition		
The Test		
4	There should be a simple, safe, precise and validated screening test.	Not met 
The intervention		
15	Clinical management of the condition and patient outcomes should be optimised in all health care providers prior to participation in a screening programme.	Met 

List of organisations\individuals contacted:

1. British Association for Study of the Liver
2. British Association of Perinatal Medicine
3. The British Liver Trust
4. Children's Liver Disease Foundation
5. Royal College of General Practitioners
6. Royal College of Midwives
7. Royal College of Paediatrics and Child Health
8. Royal Society for Public Health



**UK National Screening Committee
Newborn Screening for Biliary Atresia –an evidence review**

Consultation comments pro-forma

Name:	Mervi Jokinen	Email address:	xxxx xxxx
Organisation (if appropriate):	The Royal College of Midwives (RCM)		
Role:	Professional Advisor		
<p>Do you consent to your name being published on the UK NSC website alongside your response?</p> <p style="text-align: center;">Yes x<input type="checkbox"/> No <input type="checkbox"/></p>			
Section and / or page number	Text or issue to which comments relate	Comment	
		<i>Please use a new row for each comment and add extra rows as required.</i>	
General		RCM acknowledges the severity of this condition which has life-threatening outcomes if not treated early or successfully. Therefore RCM welcomes this expert review of evidence that may highlight new screening technologies and assessment of the treatment schedules.	

		<p>The lack of new evidence is both disappointing and striking, therefore RCM agrees with the conclusions that no new studies were identified that establish a suitable method for screening for biliary atresia using newborn dried bloodspots. The absence of any significant changes in the evidence base since the previous review supports the recommendation of not introducing bloodspot screening for biliary atresia.</p> <p>It remains a responsibility of health care professionals to be vigilant for clinical signs of the condition when examining and assessing a newborn and appropriate early referral pathway. Information to the parents on normal stool and urine colour as well as baby's general well-being should be included. Midwives commonly refer to the 'Yellow Alerts Campaign leaflets'.</p> <p>RCM has recognised the need for educational material regarding jaundice and other related observations including early detection of biliary atresia through our ilearn resource practical guide to neonatal jaundice.</p>

Please return to the Evidence Team at screening.evidence@nhs.net by Thursday 28th September 2017.



NSC UK National
Screening Committee

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Newborn Screening for Biliary Atresia –an evidence review**

Consultation comments pro-forma

Organisation:	Royal College of Paediatrics and Child Health (RCPCH)	Email address:	xxxx xxxx
Name:	Submitted by Clinical Standards at RCPCH. With thanks to the following for commenting: <ul style="list-style-type: none"> • Dr Surendran Chandrasekaran – Consultant Paediatrician • Dr Oliver Rackham – Consultant • Dr Helen Mactier – Consultant Neonatologist • Prof Mark Davenport – Consultant Paediatric Surgeon (Biliary Atresia Surgical Group) • Dr Indra van Mourik - Consultant Paediatric Hepatologist 		
<p>Do you consent to your name being published on the UK NSC website alongside your response?</p> <p align="center">Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>			
Section and / or page number	Text or issue to which comments relate	Comment	
		<i>Please use a new row for each comment and add extra rows as required.</i>	

General	General	<ul style="list-style-type: none"> We agree with the review decision, and that there is no evidence to support newborn blood spot screening for biliary atresia. With no new evidence it is appropriate to stick to the review recommendations. Sadly not enough progress has been made on the screening front with conjugated - Bilirubin as it has been difficult to develop a stable way of measuring conjugated bilirubin in dry blood spots. No work has been done on blood spots.
General	General	<p>There is a lack of suitable test on Guthrie Spot Cards.</p> <p>Our commenter notes that no UK centre has even tried to identify any candidate since the original work from Birmingham Childrens Hospital.</p>
General	General	<p>Are there any areas excluded from the original scope that you feel need to be addressed in any update decision?</p> <ul style="list-style-type: none"> You have failed to capture data on age at Kasai since 2010. This exists but is not in the published record as yet. <p>You will note that this does suggest that the median time to Kasai in England and Wales is the lowest of any published national data series to date. This is without the aid of a formal screening programme and I believe attributable to the existence of a centralised programme omitting the “middle man”.</p> <p>If you want to put a P value on this we are happy to</p>

		<p>release the raw data.</p> <ul style="list-style-type: none"> • Of note: Prof Mark Davenport, paediatric hepatobiliary surgeon at King's College Hospital, holds the national/UK biliary atresia database on behalf of all 3 liver centres and will be able to provide up-to-date data re age of Kasai, etc. <p>More recent biliary atresia data will be published once the Lancet Report work is published.</p>

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