Pulse oximetry screening for critical congenital heart defects:
Mikrou, Paraskevi; Singh, Anju; Ewer, Andrew

DOI:
10.1136/archdischild-2017-313378

License:
None: All rights reserved

Document Version
Peer reviewed version

Citation for published version (Harvard):

Link to publication on Research at Birmingham portal

Publisher Rights Statement:
Eligibility for repository: Checked on 27/6/2017

General rights
Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- Users may use extracts from the document in line with the concept of ‘fair dealing’ under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy
While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.
Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey
Ewer, Andrew

Citation for published version (Harvard):
Ewer, A 2017, 'Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey'
Archives of disease in childhood. Fetal and neonatal edition.

Link to publication on Research at Birmingham portal

General rights
When referring to this publication, please cite the published version. Copyright and associated moral rights for publications accessible in the public portal are retained by the authors and/or other copyright owners. It is a condition of accessing this publication that users abide by the legal requirements associated with these rights.

• You may freely distribute the URL that is used to identify this publication.
• Users may download and print one copy of the publication from the public portal for the purpose of private study or non-commercial research.
• If a Creative Commons licence is associated with this publication, please consult the terms and conditions cited therein.
• Unless otherwise stated, you may not further distribute the material nor use it for the purposes of commercial gain.

Take down policy
If you believe that this document infringes copyright please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Download date: 27. Jun. 2017
### Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey

<table>
<thead>
<tr>
<th>Journal</th>
<th>Archives of Disease in Childhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuscript ID</td>
<td>fetalneonatal-2017-313378.R1</td>
</tr>
<tr>
<td>Article Type</td>
<td>Letter (original)</td>
</tr>
<tr>
<td>Edition</td>
<td>not in use</td>
</tr>
<tr>
<td>Date Submitted by the Author</td>
<td>n/a</td>
</tr>
<tr>
<td>Complete List of Authors</td>
<td>Mikrou, Paraskevi; Good Hope Hospital, Paediatrics Singh, Anju; Birmingham Womens Hospital, Neonatal Unit Ewer, Andrew; Birmingham Womens Hospital, Neonatal Unit</td>
</tr>
<tr>
<td>Keywords</td>
<td>Neonatology, Cardiology</td>
</tr>
</tbody>
</table>

https://mc.manuscriptcentral.com/adc
Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey

P. Mikrou, A. Singh, A. K. Ewer
1. Neonatal Unit, Birmingham Women’s Hospital, Birmingham Women’s and Children’s NHS Foundation Trust, Birmingham, UK.
2. Institute of Metabolism and Systems Research, University of Birmingham, Birmingham UK.

Corresponding author: Professor Andrew K. Ewer, a.k ewer@bham.ac.uk

There is increasing evidence that newborn pulse oximetry screening (POS) improves the identification of those critical congenital heart defects (CCHD) undetected by existing screening methods (1-4). POS is routine in some countries including the USA, Norway and Poland and more are considering its introduction. In 2013, the UK National Screening Committee (NSC) undertook a public consultation and a pilot study in 15 maternity units in England in 2015. The NSC is still considering the evidence.

In 2012, we published a national survey of all UK neonatal units and reported that 18% were performing routine POS (up from 7% in 2010)(5). Of the non-screening units, 71% were considering its introduction.

Four years later, we repeated the survey in order to assess changes in practice following the publication of further evidence (4) and the NSC engagement. Between September 2016 and February 2017, lead Consultants from all 193 UK neonatal units were contacted via email and asked to complete a short online survey (telephone follow-up for non-responders).

We received responses from all 193 units. POS was routinely performed in 78 (40%; more than double the number since 2012). POS was more likely in Neonatal Intensive Care Units (50%) compared to Local Neonatal and Special Care units (38% and 34% respectively). Uptake in Wales was 75%, England 41%, Scotland and Northern Ireland 25% and 14% respectively. There was regional variation in England: POS was adopted in 73% of units in the North West whilst in the South East uptake was only 11% (fig 1).

POS practice was also variable. Pre- and post-ductal saturations were checked in 72% with the rest using only post-ductal. A third of units used the ‘PulseOx’ algorithm limits (1) (Fig 2; oxygen saturations <95% and saturation difference 3% or more) and 63% of units performed POS within 24 hours of birth.

Of the 115 neonatal units that did not perform POS, 12 were about to start and 75 (73%) were considering adopting the practice. Commonly perceived obstacles were similar to the previous survey (5) i.e. resource concerns [51%], cost [28%], availability of echocardiography [23%] and concerns regarding false positives [12%]. 19% are awaiting a national recommendation but 6% of units...
felt that PO screening was unnecessary due to the quality of antenatal detection of congenital heart defects.

It is evident that practice is changing with increasing number of neonatal units adopting or willing to adopt PO as a routine screening tool although some concerns remain and there is still considerable variability of practice. A national recommendation may reduce concerns and align screening practices.

(Words 419)

No conflicts of interest to declare.


**Figure 1:** Pulse oximetry screening in different regions of England
Figure 2: Cut-off limits indicating a positive result