

## Pulse oximetry screening for critical congenital heart defects:

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# Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey

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**Pulse oximetry screening for critical congenital heart  
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## Pulse oximetry screening for critical congenital heart defects: a repeat UK national survey

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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<sup>(1-4)</sup>. 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)<sup>(5)</sup>. 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<sup>(4)</sup> 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<sup>(1)</sup> (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<sup>(5)</sup> 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

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3 felt that PO screening was unnecessary due to the quality of antenatal detection  
4 of congenital heart defects.  
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7 It is evident that practice is changing with increasing number of neonatal units  
8 adopting or willing to adopt PO as a routine screening tool although some  
9 concerns remain and there is still considerable variability of practice. A national  
10 recommendation may reduce concerns and align screening practices.  
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12 *(Words 419)*  
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14 *No conflicts of interest to declare.*  
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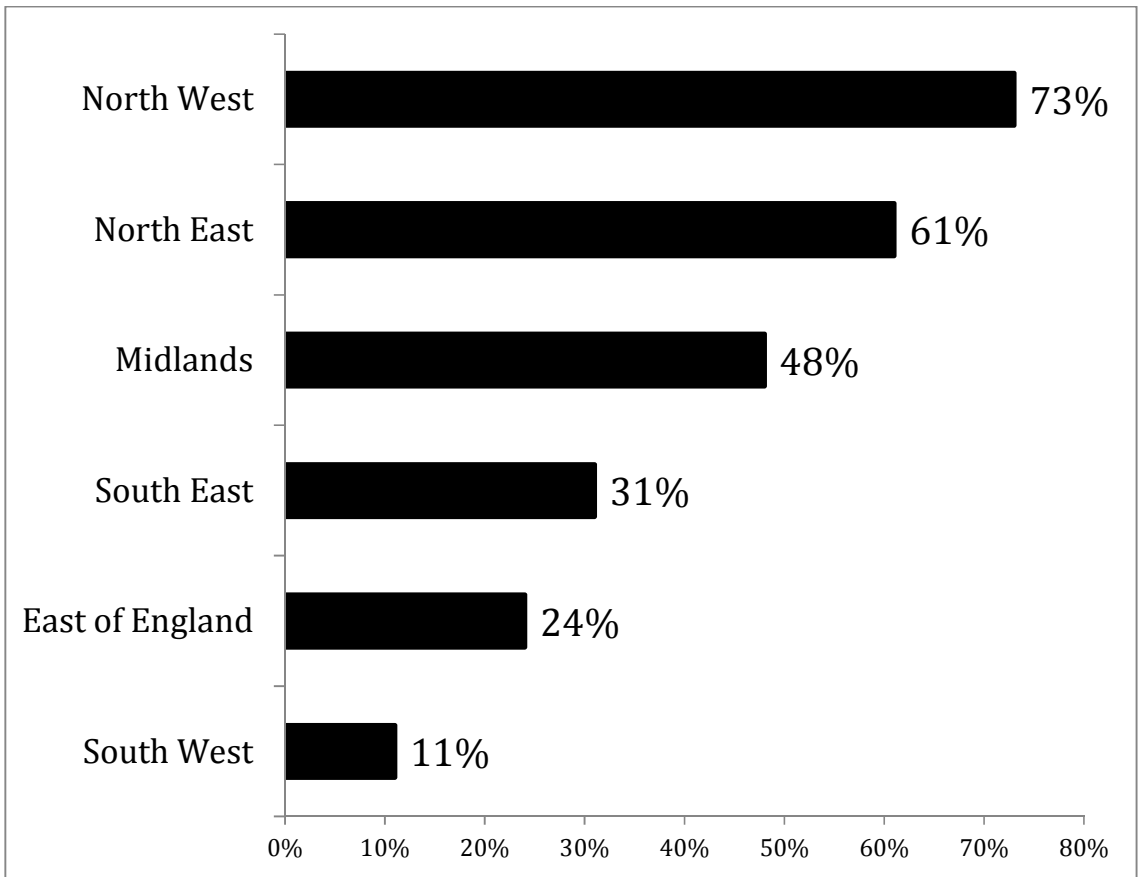
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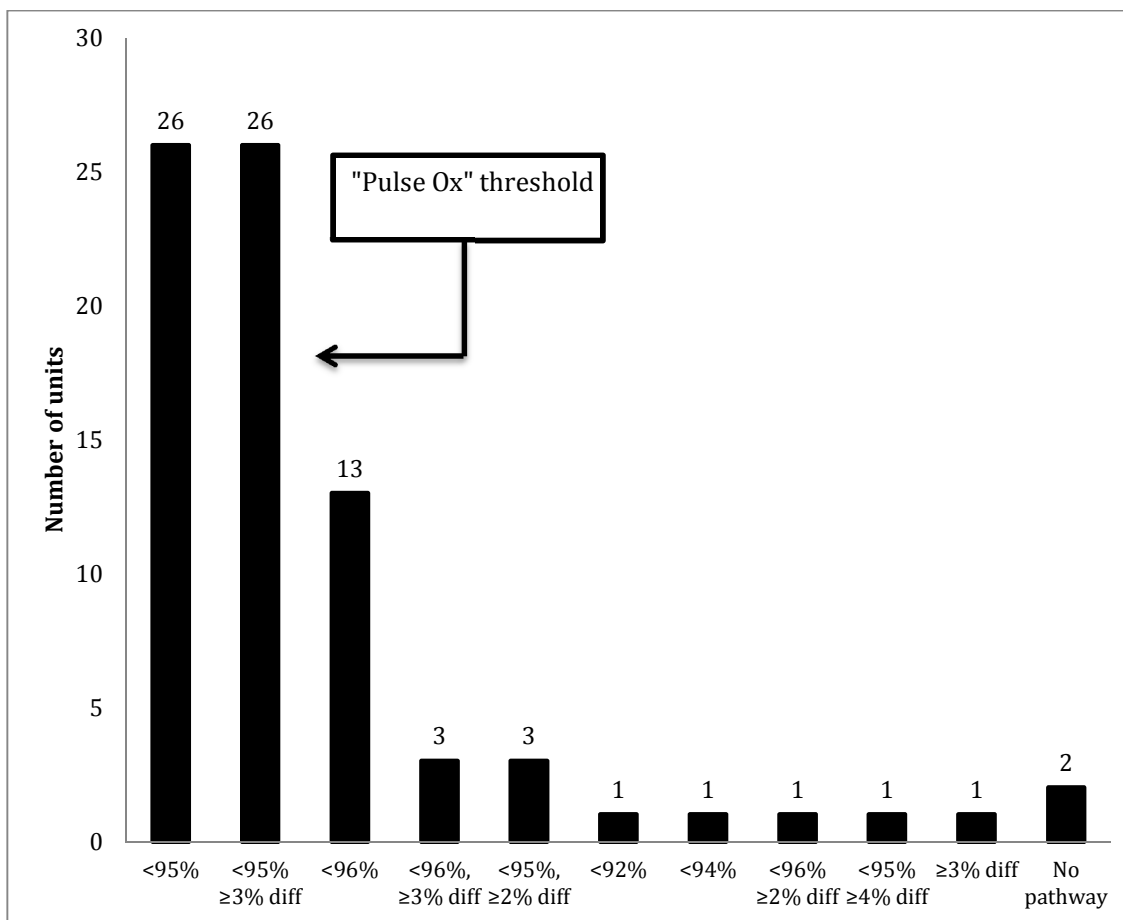
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**Figure 1:** Pulse oximetry screening in different regions of England



**Figure 2:** Cut-off limits indicating a positive result