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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 [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.

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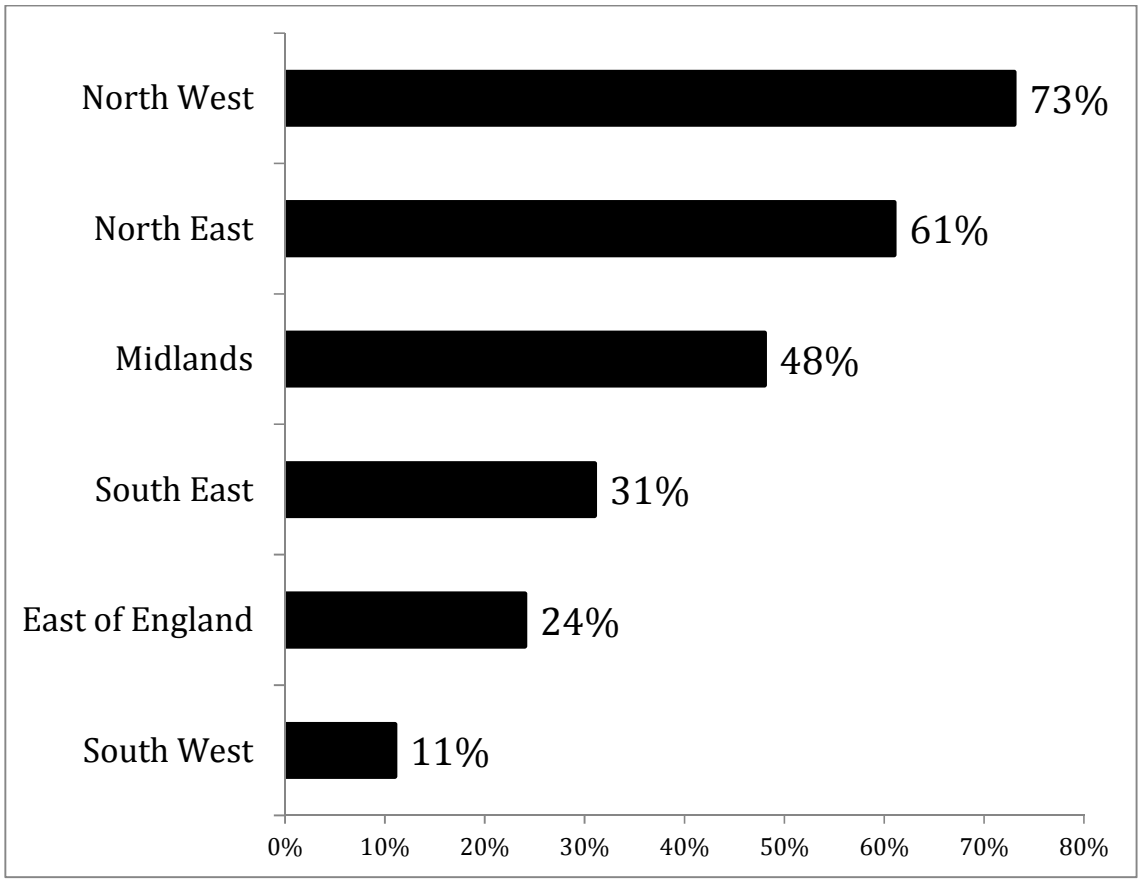

Figure 1: Pulse oximetry screening in different regions of England

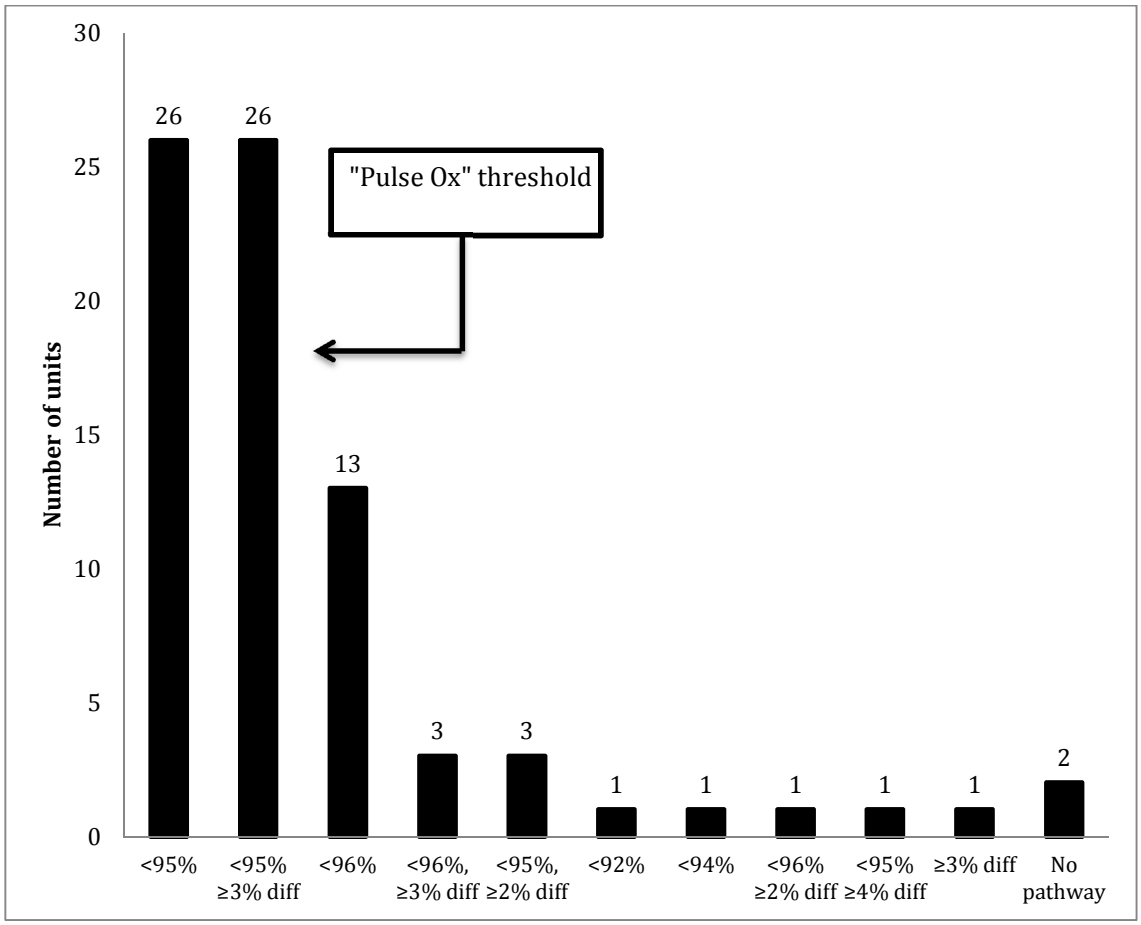

Figure 2: Cut-off limits indicating a positive result