National survey: Long term oxygen therapy (LTOT) in neonates with chronic lung disease of prematurity

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Background

- Limited evidence base: BTS guidance >10 years old and mainly based on consensus
- Variable thresholds for LTOT
- Variable pace of weaning leads to variable duration of LTOT
- Significant treatment burden to patients and families. Significant cost to NHS.

Aims

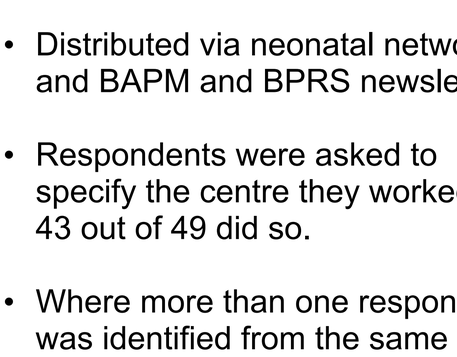
- Understand current spectrum of practice nationally, particularly around initiation and weaning of home oxygen.
- Highlight key areas for further research to improve consistency and outcomes

Methods

- 10 question SurveyMonkey survey
- Distributed via neonatal networks, and BAPM and BPRS newsletters
- Respondents were asked to specify the centre they worked at, 43 out of 49 did so.
- Where more than one response was identified from the same centre, the most complete response was used.
- 49 responses were received in total. 5 duplicate responses were removed.

Importance

Please rate how important you feel this topic is (1 = very important, to 5 = not important at all).



29 respondents rated the importance of the survey topic - 24 rated it as very important

Results

Responses

44 responses:
- Level 3 neonatal units: 13
- Level 2 neonatal units: 16
- Level 1 neonatal units: 6
- Community neonatal teams: 3
- Unspecified: 6

Map: Approximate geographical spread of survey respondents.

Guidance used

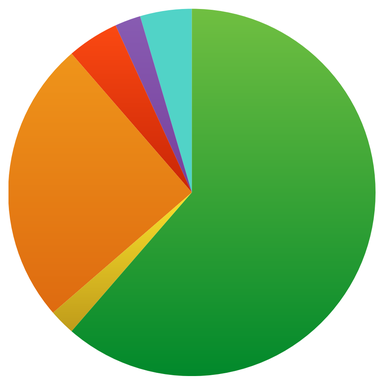
- 2009 BTS guidance 45%
- Regional guideline 11%
- Local guideline 32%
- No guideline 14%

Professionals involved

- Initiating and weaning LTOT mostly led by Neonatologists (66% of units).
- Respiratory Paediatricians involved in 18% of units.
- Specialist nurses also key professionals - involved in 26% of centres.

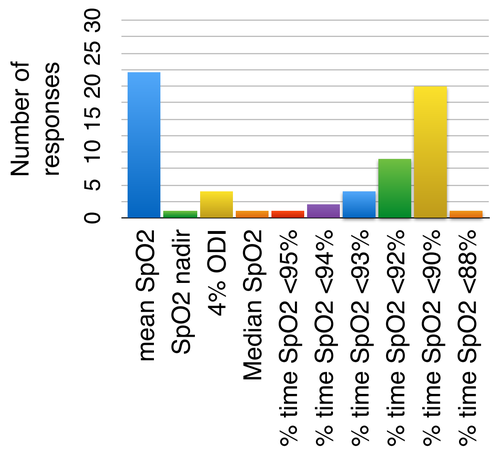
Determining oxygen requirement

What type of oximetry monitoring is used to determine the need for LTOT?



Most units (61%) reported using overnight continuous oximetry traces to determine oxygen dependency.

Which oximetry criteria are used to determine the need for LTOT?

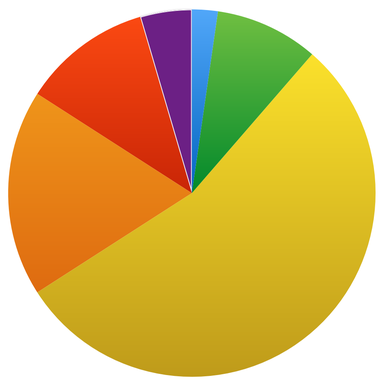


Wide variation in criteria.

Mean SpO2 most commonly used criterion. Even here, threshold value varied depending on centre: mode 95% (range 92-97%)

Next most used criterion was % time SpO2 <90% - most centres used 5% as threshold (range 4-20%).

What is the minimum duration of artefact free recording that you deem an acceptable quality continuous monitoring study?



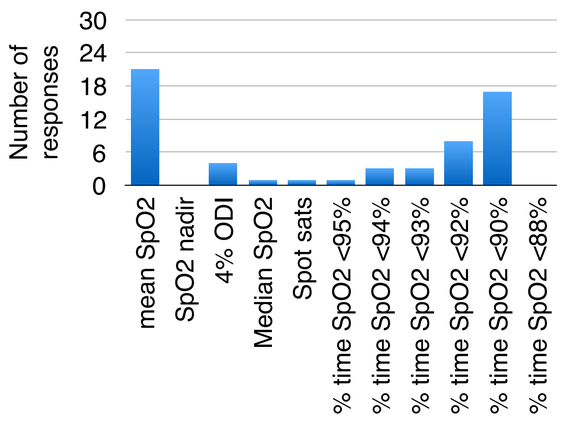
Minimum artefact-free duration deemed an acceptable oximetry study varied from 2-12h.

For continuous monitoring, what averaging time for detection of events is set by the oximeter?

Reported oximeter averaging time used varied widely. The most frequent response was 'Don't know' (55% of units).

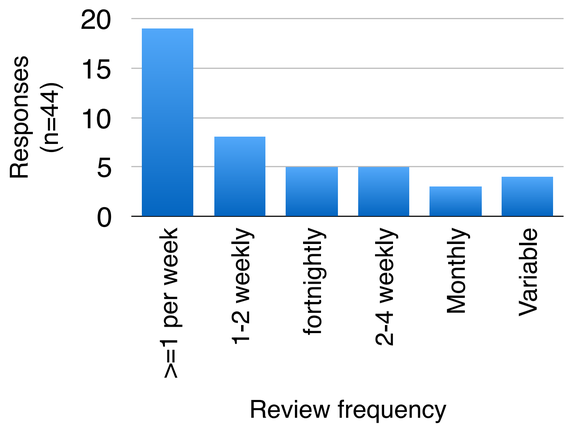
Weaning home oxygen

Which oximetry criteria are used to decide potential for weaning of LTOT?



Highly similar criteria reported as used to initiate and wean LTOT - therefore here too we see wide variation.

Post-discharge, how frequently would you review oxygen saturations with a view to weaning LTOT?



Frequency of review varied from monthly to multiple times per week.

Oxygen flow was weaned in increments of anything from 1L/min to 0.01L/min depending on the centre.

Likely to lead to highly variable duration of wean, with no clear clinical justification and significant treatment burden and cost.

References

BTS guidelines for home oxygen in children
Balfour-Lynn IM, Field DJ, Gringras P, et al.
Thorax 2009;64(Suppl II):ii1–ii26

Home Oxygen Therapy for Children. An Official American Thoracic Society Clinical Practice Guideline
Hayes D Jr, Wilson KC, Krivchenia K, et al.
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Acknowledgements

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Conclusions

- Heterogeneity in key areas of practice across the country.
- Likely related to lack of an evidence base and limited understanding of key factors affecting data output e.g. oximeter averaging times.
- Clear need for research to determine optimal oximetry thresholds for initiation and weaning of LTOT using modern oximeters.
- Research outcomes should be widely disseminated alongside oximetry education programmes.

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