### Summary of evidence found
I found 18 papers which looked at neonatal ventilation, comparing different methods of monitoring. The majority of these were older studies. 3 of these were specifically about the transportation of neonates. There were 5 which compared end tidal (ET) v. transcutaneous (TC) monitoring. The other studies compared TC and/or ET with arterial monitoring.

### Most useful information
Of the three papers specifically about the transportation of neonates, I found one paper (10) which assessed the accuracy of measurements of ET carbon dioxide during neonatal transport compared with arterial and TC measurements. It concluded that ET had an unacceptable under-recording bias and that TC monitoring should currently be considered the preferred method of non-invasive CO2 monitoring for neonatal transport. In the other paper (3), neonates with and without TC carbon dioxide (TcCO2) monitoring were compared but the authors concluded that no clinical benefit was seen with TcCO2 monitoring. Neonatal transport services were surveyed (15) and ET was the most common method of monitoring (85%).

### Additional information
In the papers comparing ET and TC, 4 papers (6, 12, 13, 14) found that TC outperforms ET monitoring in neonates. One study (9) did not look at neonates (instead 1 month-48 months) but also found that TC was better than ET.

### This may also interest you
Generally, monitoring CO2 levels during transport was thought to be beneficial (17, 18). TC monitoring was thought to be cumbersome compared with ET (16). Another study (1) concluded that TC compared with arterial is not found to be accurate, whereas other studies (2, 4, 5, 7, 8, 11, 19) assert that TC and/or ET are an acceptable alternative to frequent arterial monitoring, although probably not as good.

### Search strategy
("neonat* transport" OR "neonat* retrieval" OR "patient transport" OR "transportation of patient*" OR "specialized transport team") AND (infant OR newborn OR neonate OR neonatal OR "low birth weight" OR VLBW OR lbw OR infants OR neonat*) AND ("carbon dioxide" OR CO2*)

### Enclosed
Below are the HDAS results which I have sewn links to full text where available. Please use your NHS OpenAthens to get access. Contact me if you need any help finding the full text. If you would like all...
1. Monitoring of end tidal carbon dioxide and transcutaneous carbon dioxide during neonatal transport.

2. End tidal carbon dioxide is as reliable as transcutaneous monitoring in ventilated postsurgical neonates.


7. Agreement of carbon dioxide levels measured by arterial, transcutaneous and end tidal methods in preterm infants < or = 28 weeks gestation.


10. Accuracy of Transcutaneous Carbon Dioxide Measurement in Premature Infants.

11. Are carbon dioxide detectors useful in neonates?


13. Discrepancies between transcutaneous and end-tidal carbon dioxide monitoring in the critically ill neonate with respiratory distress syndrome.


15. Monitoring respiratory function parameters in ventilated infants during inter-hospital emergency neonatal transport

16. Mainstream capnography in neonatal retrievals

17. Respiratory function monitoring during neonatal emergency transport

18. Transcutaneous measurement of carbon dioxide tension during long-distance transport of neonates receiving mechanical ventilation


Full strategy