



Extended Research Article

Optimising neonatal services for very preterm births between 27⁺⁰ and 31⁺⁶ weeks gestation in England: the OPTI-PREM mixed-methods study

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Dedicated to all babies born preterm, their families and their healthcare teams.

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Plain language summary

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Plain language summary

Preterm babies are at risk of death and serious long-term problems. For babies born at ≤ 26 weeks, we know outcomes are better with birth and care in tertiary maternity and neonatal units. We do not know whether this is true for the next most vulnerable group, born between 27 and 31 weeks. In England, these babies are born and cared for in either neonatal intensive care units (tertiary) or local neonatal units (non-tertiary).

We did

OPTI-PREM explored whether outcomes for babies born between 27 and 31 weeks differed based on where they were born and cared for. We studied national neonatal data, costs of care, staff and parents' perspectives, quality of care and outcomes. A parent panel guided us.

We found

Outcomes were similar for babies born between 28 and 31 weeks. Severe brain injury was identified more in babies born in local neonatal units. A higher proportion was in babies born at 27 weeks and babies who were transferred within 72 hours after birth. To prevent one baby from developing severe brain injury, 25 babies would need to be cared for in neonatal intensive care units as opposed to local neonatal units at 27 weeks gestation. There was no difference in National Health Service neonatal costs for babies born at 27 weeks (~£76,000) between neonatal intensive care units and local neonatal units. £0.26 billion per year was spent on National Health Service neonatal care for babies born between 27 and 31 weeks in England.

Staff managed decision-making, to ensure space for babies. Parents valued their baby's development, homecoming, continuity of care, being included, and having their emotional and physical well-being supported.

Our findings suggest babies between 28 and 31 weeks can safely be born and cared for in either local neonatal units or neonatal intensive care units. However, to minimise risk of brain injury, births at 27 weeks should be in maternity units colocated with neonatal intensive care units. Transfers of babies after birth should be avoided where possible.

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