

Right cot, right place, right time: improving the design and organisation of neonatal care networks – a computer simulation study

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Plain English summary

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Neonatal care is offered in different types of units, from intensive care (IC) units looking after the sickest infants, through to special care units looking after infants who are not at any significant risk of death and who need less IC. Deciding how many types of each unit are needed, how many cots and nurses are needed to cope with varying demands, and where they should be located is not a simple task. Having fewer units (especially of the most IC kind) allows 'centres of excellence' to develop. Larger units also suffer less from large swings in demand. Having fewer units, however, will mean that parents may have to travel further, and more parents may not be within a reasonable daily travel distance.

We created a computer model that would allow those who plan neonatal services to understand how different plans might affect both hospitals and parents. The model helps to answer questions such as 'how many nurses do I need?' alongside 'how far will the parents have to travel?' and 'how many parents will possibly need accommodation close to the hospital?'

Using the model we could see how reducing the number of units we have, or changing the type of units (either upgrading or downgrading), could alter the predicted costs of running the neonatal service, along with the effect on travel distance. We would now like to extend this model, from Devon and Cornwall, to all of England.

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