

# Intravenous antibiotics treatment for children at home as effective as hospital treatment, study finds

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Credit: Murdoch Children's Research Institute

A Melbourne study has found intravenously administering antibiotics to children at home is as effective and safe as hospital treatment and better for their quality of life when treating a bacterial skin infection.

The research, 'Efficacy and safety of intravenous ceftriaxone at home versus intravenous flucloxacillin in [hospital](#) for [children](#) with cellulitis (CHOICE): a single-centre, open-label, randomised, controlled, non-inferiority trial', is published in the latest edition of *The Lancet Infectious*

*Diseases.*

The study led by the Murdoch Children's Research Institute found [treatment](#) for cellulitis – a bacterial skin infection – in children should be done at home or in outpatient care where possible.

Lead author and MCRI Ph.D. student Dr. Laila Ibrahim said having intravenous antibiotics therapy at home is becoming increasingly common but there was no evidence of its benefits from [clinical trials](#) until now. The research team says this is the first trial worldwide in children that has compared IV antibiotic treatment at home to hospital.

Her study focused on cellulitis, when bacteria gets under the skin and causes redness, pain and swelling.

Dr. Ibrahim said 95 per cent of parents reported high satisfaction rates of having their child treated at home, much higher than in hospital.

"Being in hospital negatively impacts a child's mental and emotional health and disrupts family routine," she said. "We keep admitting children to hospital because there have been no good studies showing that treatment at home is as good as [hospital treatment](#)."

The trial involved 188 children, aged 6 months to 18 years, who presented to the [emergency department](#) at The Royal Children's Hospital Melbourne with moderate to severe cellulitis.

Participants were randomly assigned either intravenous ceftriaxone at home with a nurse and doctor visiting the home or intravenous flucloxacillin at hospital.

Treatment failure occurred in 2 per cent of children in the home group

and in 7 per cent of children in the hospital group. Adverse reactions such as diarrhea and vomiting happened less frequently at home and there was no difference in complication rates which were very low.

Repeat insertions of IV cannulas or drips was 3 per cent in the home whereas it was 18 per cent for children in hospital.

The trial came together through a collaboration between the supervisors of the study, Associate Professor Penelope Bryant, head of the RCH Hospital-in-the-Home program and Professor Franz Babl, Professor of Paediatric Emergency Medicine at the University of Melbourne.

"What makes this trial even more ground-breaking is that the children in the home group were never even admitted to hospital," A/Prof Bryant said.

"Doctors need to be confident that sending a child home for IV antibiotics directly from emergency is efficacious and safe.

"For the first time we have truly shown that, and by avoiding hospital admission altogether, children also avoid risks such as hospital-acquired resistant infections. Just as importantly, families preferred it and children were more able to get on with day-to-day family life."

The cost of treating a patient with [cellulitis](#) at home is \$530 per day compared to \$1297 per day at hospital. It cost over \$100,000 more in total to care for the 95 children in hospital during the study than the 93 at home.

**More information:** Laila F Ibrahim et al. Efficacy and safety of intravenous ceftriaxone at home versus intravenous flucloxacillin in hospital for children with cellulitis (CHOICE): a single-centre, open-label, randomised, controlled, non-inferiority trial, *The Lancet Infectious*

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