

Giving intravenous therapy to children at home is costly, lowers parents' quality of life

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When treating patients, doctors sometimes overlook how their decisions impact a world they never see: a patient's home life. In the case of some serious infections in children, oral antimicrobial drugs are just as good at treating these ailments at home as the standard, intravenous medications. But according to new research led by investigators at University of Utah Health, by-mouth medications excel in the important measure of preserving parents' quality of life.

Not only are costs for oral therapy significantly lower than intravenous therapy (\$7 vs \$65 each day) but parents and caregivers spend significantly less time administering it (6 vs 90 minutes). Further, children on oral therapy miss eight fewer days of school or daycare (5 vs 13.5 days) and parents take less time off of work (30 vs 60 hours). The results published recently online in [Hospital Pediatrics](#).

"The advantages of using oral therapy instead of OPAT (outpatient parenteral antimicrobial therapy) are obvious when you think about what's involved for patients and caregivers," says Adam Hersh, MD, senior author and associate professor of Pediatrics at U of U Health and a pediatrician at Primary Children's Hospital. "But many clinicians have stuck with using intravenous therapy without recognizing that the overall burden on a child's caregivers is extremely high."

When children are hospitalized with serious infections—such as pneumonia, bone infections, meningitis or bloodstream infections—[standard care](#) has usually called for the invasive procedure

of placing a catheter so that parents can administer medications intravenously (OPAT) once they return home. Because the catheters require meticulous care and carry risks for infection and clotting, parents must double as home nurses as they infuse medications, change dressings and flush IV lines. By comparison, giving children antimicrobial medication by pill or liquid is simpler.

There is increasing evidence that for some conditions traditionally treated with OPAT, cure rates are just as high with oral therapy. U of U Health investigators designed this study with the idea that understanding the differences in cost and burden of the two therapies on caregivers could influence health care providers' recommendations.

First author Nathan Krah, Ph.D., Hersh and colleagues surveyed caregivers over a nearly three-year period. Two hundred and twelve participants answered questions about their comfort with administering the child's therapy and out-of-pocket costs. Of these participants, 42 percent gave patients oral therapy at home and 58 percent administered OPAT. From the [survey data](#), the investigators calculated a [quality of life](#) score using a standard measure called the Pediatric Quality of Life Inventory.

The difference in scores between the two groups yielded new insight into the lives of patients and their families. Caregivers who administered medications intravenously scored nine points lower on quality of life measures than those who gave children oral medication (77.8 vs 68.9).

"When patients are at home, time that caregivers need to invest in the OPAT therapy regimen takes away from other things," says Hersh.

"They lose the equivalent of an entire work week over the course of an average treatment course. Learning that was a real eye-opener for me."

Krah's research is the first to demonstrate the financial and quality-of-

life toll of this therapy on parents and caregivers.

Because this study was carried out in a single infectious disease clinic, it remains to be determined whether the same findings hold true for parents in similar situations across the country. Further, it is not yet understood how differences in a [caregiver](#)'s education, medical background or social support networks may influence their experience.

Regardless of which therapy is easier, there are situations where intravenous [therapy](#) at home will still be necessary. With the new information, parents will have a better idea of what lies ahead. "Now, physicians can set expectations," says Krah. "If the patient goes home with OPAT, clinicians can help them anticipate what will be involved in terms of costs and time required, including missed days of work or school. We can tell them that this can be a really big undertaking."

"Economic Burden of Home Antimicrobial Therapy: OPAT Versus Oral Therapy" was published in *Hospital Pediatrics*.

More information: Economic Burden of Home Antimicrobial Therapy: OPAT Versus Oral Therapy, *Hosp Pediatr*. 2019 Mar 18. pii: hpeds.2018-0193. [DOI: 10.1542/hpeds.2018-0193](https://doi.org/10.1542/hpeds.2018-0193) , www.ncbi.nlm.nih.gov/pubmed/30885919

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