

Reducing Invasive Care for Febrile Infants

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It was so easy when I started internship in 1995. Any infant with a fever over 38 degrees C under 90 days of age automatically got the "full sepsis workup" - blood culture, CBC, urine culture, urinalysis, and an LP for gram stain, cell count and culture. All the infants were admitted for 48 hours and received empiric antibiotics. But then, in those three years of training, people started paying attention to the "fever guideline" published by Baraff et. al. in 1993¹ (yes, it takes a few years for articles to enter practice). So the 30-90 day infant evaluation strategy became not-so-straightforward. Further work over the subsequent 15 years has validated the clinical benefit and safety of only doing a limited evaluation on low risk febrile infants over 30 days old². Using a limited approach provides benefits to the child and the health system: shorter or no hospital stay, less or no exposure to antibiotics, no lumbar puncture (LP), and decreased costs overall. But how can we get doctors and hospitals to follow this approach?

Fortunately, in this week's *Pediatrics*, Kasmire et. al. ([10.1542/peds.2018-1610](#)) from Connecticut Children's Hospital shows us the way. In an elegantly done quality improvement project the authors describe their journey from a "high utilization" baseline for low-risk febrile infants to a significant reduction in LPs, antibiotics, and admission to the hospital. Their work demonstrates that just producing a clinical pathway or guideline isn't enough. It's necessary, but not sufficient. In order for it to be successful, you need to assure engagement by key stakeholders (in their case the physicians in the emergency department) and surround it with "continuous quality improvement." By providing weekly feedback and repeated Plan-Do-Study-Act cycles, the hospital dropped the percent of low-risk infants receiving LPs from 32% to 0, the antibiotic rate from 30% to 1%, and the admission rate from 17% to 1%. The low rates continued after the official intervention time period showing sustainability and no cases of "missed" infants with serious bacterial infections occurred.

This study highlights an important lesson for all pediatricians working in complex hospital systems. It takes more than just knowledge to make a practice change. We need to create improved systems and processes that are coupled with feedback and ongoing reflection to make sure we are doing what we think we are doing. You can start by reading how the Connecticut group made a difference in their hospital.

References

1. Baraff LJ, Bass JW, Fleisher GR, Klein JO, McCracken GH, Powell KR, et al. Practice guideline for the management of infants and children 0 to 36 months of age with fever without source. *Pediatrics* 1993;92:1-12.

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2. Huppler AR, Eickoff JC, Wald ER. Performance of Low-Risk Criteria in the Evaluation of Young Infants With Fever: Review of the Literature. Pediatrics Feb 2010, 125 (2) 228-233; DOI: 10.1542/peds.2009-1070

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