

Rapid blood test can rule out serious infections in children

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The point-of-care CRP test works just like the finger prick used to determine diabetics' blood sugar level. Credit: KU Leuven

Using a simple decision rule and a finger prick to test blood, general practitioners can now detect serious infections in children very quickly.

This ensures that seriously ill children don't have to wait for a diagnosis until they're hospitalized - a delay that may have fatal consequences. The procedure also prevents unnecessary hospital referrals for less serious cases. That is the conclusion of a study conducted by a clinical team at KU Leuven (University of Leuven, Belgium) in collaboration with Ghent University and University of Oxford.

In the early stages, serious infections such as meningitis, pneumonia, kidney or bone infections, or dangerous inflammations of the skin have symptoms that resemble those of more common viral infections. They are also very rare. "As a result, serious infections tend to stay off the general practitioner's radar for too long. We asked ourselves how rapid [diagnostic tests](#) might help solve this problem," says Jan Verbakel, general practitioner and postdoctoral researcher at the KU Leuven Faculty of Medicine.

Testing is not a very common practice among [general practitioners](#) yet. "Testing is often complex, expensive, and most of all time-consuming: it usually takes a few days for the lab results to come in. But recently, various so-called point-of-care tests have become available. These simple diagnostic tests can be performed in the general practitioner's office and provide results within minutes. For the detection of serious infections, point-of-care CRP testing by means of a finger prick holds potential. The test measures the level of the C-reactive protein (CRP) in a drop of blood. The concentration of this protein increases in response to a pathogen."

A one-year study involving over 3,100 ill children from across Flanders showed that 5 mg of CRP per litre of blood is a good threshold value to rule out serious infections, but only after the GP has performed a clinical evaluation of the patient's symptoms and vital functions. "Point-of-care CRP testing cannot replace a general practitioner. Does the GP sense that something is off? Is the child short of breath, or running a fever of

more than 40°C? If the answer to any of these questions is yes, it's useful to perform a point-of-care CRP test. Our study showed that with this procedure, all serious infections were detected during the first visit to the general practitioner. But there's no need to test all ill children."

"Thanks to the combination of a clinical examination of the patient, possibly followed by a point-of-care CRP test, general practitioners can detect serious infections more quickly and more objectively. And for children who are less seriously ill, the procedure prevents unnecessary hospital referrals and anxiety. The point-of-care CRP test is a valuable tool for general practitioners, but it has to be used responsibly," Verbakel concludes.

More information: Jan Y. Verbakel et al, Should all acutely ill children in primary care be tested with point-of-care CRP: a cluster randomised trial, *BMC Medicine* (2016). [DOI: 10.1186/s12916-016-0679-2](https://doi.org/10.1186/s12916-016-0679-2)

Provided by KU Leuven

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