Decision-making tool may help doctors cut unnecessary antibiotic prescribing

September 1 2016

Respiratory tract infections (RTI) with cough are the most common reason children are prescribed antibiotics by their doctors, but up to a third of prescriptions may be unnecessary. A new study of over 8000 children has identified seven key predictors which could help general practitioners (GPs) and nurses in primary care identify low risk children who are less likely to need antibiotics, according to new research published in *The Lancet Respiratory Medicine*.

The authors estimate that if antibiotic prescribing in this low risk group was halved, and even if it increased to 90% in high risk patients, the new tool could reduce antibiotic prescribing to children with RTI and coughs by 10% overall, similar to other interventions used to combat antibiotic resistance.

The proposed tool called STARWAVe uses seven predictors of future hospitalisation that can be easily identified by doctors and nurses during a patient visit—short illness (less than 3 days), high temperature (?37.8°C on examination or parent reported severe fever in the previous 24 hours), aged under 2 years, respiratory distress, wheeze, asthma, and moderate/severe vomiting in the previous 24 hours. Children presenting with no more than one of these items are deemed at very low risk of future complications. The authors say that the rule now needs externally validating in a randomised trial, but could be a useful tool to improve the targeting of antibiotics to reduce the growing threat of antibiotic resistance.

Respiratory infections with [cough](#) is the most common reason people go to the doctor and the most frequent reason given for [primary care](#) antibiotic prescribing in children. Yet it is challenging for GPs and primary care nurses to easily identify serious respiratory infections, and up to a third of antibiotics prescribed in primary care are considered unnecessary.

"Excessive antibiotic use has contributed to the development of resistance to these drugs", explains lead author Professor Alastair Hay from the University of Bristol, Bristol, UK. "The aim of our study was to develop a simple, usable prediction tool based on symptoms and signs to help GPs and nurses identify children presenting in primary care at the lowest and highest risk of future complications and hospitalisation, so that antibiotics can be targeted accordingly."

To create the tool, Hay and colleagues analysed data collected between July 2011 and May 2013 from almost 8400 children aged between 3 months and 16 years with acute (less than 28 days) cough and respiratory tract infection symptoms (eg, fever) who were seen at 247 GP practices across England. They used modelling to determine which of the 50 demographic characteristics, parent-reported symptoms and physical examination signs measured might be most useful and accurate in distinguishing good from poor prognosis illnesses, defined as those resulting in hospitalisation for respiratory infection in the month following a visit to primary care (table 1).

Modelling showed that seven characteristics were independently linked with hospitalisation— short (?3 days) illness; temperature; age (