

Using STARWAVE in practice to predict hospitalisation

STARWAVE is a tool to predict future hospitalisation among children who have presented to in-hours primary care with acute (≤ 28 days) cough and respiratory tract infection (RTI). It was developed in response to primary care clinicians saying they prescribe antibiotics “just in case” children’s illnesses deteriorate.

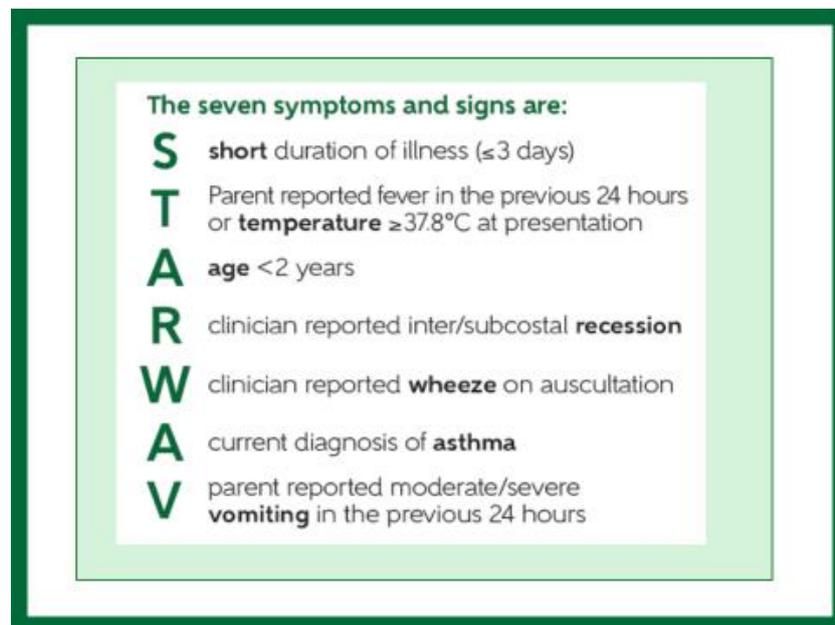
It is an exciting development in the antimicrobial stewardship field, and the tool has good prognostic properties. However, no clinical test or decision aid tool is perfect, and its effects on antibiotic use have yet to be tested in clinical practice. Where used, we believe it should support, not replace, clinical judgement.

It was developed from 8394 children aged between 3 months and 16 years.

- Children with stable or infected asthma exacerbation were included.
- Children at high risk of complications (e.g. immunocompromised and cystic fibrosis) were excluded.

78 (0.9%) of children were admitted for their RTI in the following 30 days. Hospital discharge diagnoses were: lower respiratory tract infection (19%); bronchiolitis (18%); viral wheeze (15%); upper respiratory tract infection (13%); croup (8%); infected exacerbation of asthma (8%); tonsillitis (6%); viral illness (5%); febrile illness (3%); and pneumonia (1%). 27% of discharge diagnoses were suggestive of a bacterial cause.

We found seven symptoms and signs (STARWAVE measurable in routine clinical practice,) all increasing the probability of future hospital admission for children with respiratory infection.



We showed that the STARWAVE symptoms and signs can be used and distinguish children who have presented to general practice into **very low**, **normal** and **high risk** of future hospital admission.

We believe STARWAVE’s main value is to reduce clinical uncertainty

Children with 0-1 STARWAVE symptoms and signs (67% of all children): are at very low risk (around 1:320) of future admission and we believe a ‘no’ antibiotic strategy should be considered for this group.

Children with 2-3 STARWAVE symptoms and signs (30% all children) who are at ‘normal’ risk of future admission (around 1:70). In keeping with NICE guidelines, we believe a ‘no’ or ‘delayed’ antibiotic prescribing strategy should be considered

Children with 4 or more STARWAVE symptoms and signs (3% of all children) should be closely monitored for signs of deterioration, with consideration given to proactively arranging same-day or next-day follow-up and prescribing an immediate antibiotic.

STARWAVE development details are [here](#). When used with a [parent leaflet](#), STARWAVE reduced antibiotics for respiratory infections in children by 3% ($p=0.003$). For more details click [here](#).