Handshake antimicrobial stewardship as a model to recognize and prevent diagnostic errors

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The handshake antimicrobial stewardship program (HS-ASP) was developed and implemented at Children's Hospital Colorado (CHCO) in 2013. The program involves physicians and pharmacists reviewing relevant clinical electronic health record (EHR) data for all hospitalized patients receiving any antimicrobial at 24- and 72-hours after treatment to ensure appropriate treatment and intervene as needed (e.g., correct antimicrobial choice or dosage). In 2014, the CHOC HS-ASP team began labeling specific interventions as "Great Catches" which were considered to have altered, or had the potential to alter, the patient's trajectory of care.

CHOC researchers hypothesized that these "Great Catches" could indicate potential diagnostic errors. Using the Safer Dx instrument, the research team retrospectively reviewed patient electronic health record (EHR) data for HS-ASP "Great Catches" from October 2014 through May 2018 to identify potential diagnostic errors among hospitalized children. The Safer Dx Instrument is designed to retrospectively determine whether a clinical scenario involved missed opportunities to make a correct or timely diagnosis based on available clinical information. After primary review by one non-ASP pediatric infectious disease physician, 12% of "Good Catch" cases were found to involve diagnostic error. A second reviewer evaluated a subset of the "Good Catch" cases and there was 80% agreement between the two reviewers as to whether the case involved a diagnostic error. Researchers found that nearly all "Good Catches" associated with diagnostic error included a diagnostic recommendation from the HS-ASP team (e.g., recommendations to consider alternative diagnoses, request additional testing, or additional interpretation of laboratory results), which suggests that the HS-ASP model can be leveraged to identify and intervene on diagnostic errors.