

Important New Evidence Service In Partnership with The Centre for Medicines Optimisation at Keele University

ScriptSwitch[™] Rapid Update 2 – March 2017

Patient safety incidents involving sick children in primary care

An analysis of patient safety incidents submitted to the National Reporting and Learning System (NRLS) in England and Wales that occurred in primary care settings and involved children, has highlighted a number of areas for quality improvement initiatives. Many were related to medicines, with medication errors and medication dispensing systems often cited, as well as out-of-hours telephone triage systems.

Reference: [Rees P, Edwards A, Powell C et al. Patient safety incidents involving sick children in primary care in England and Wales: A mixed methods analysis PLOS Medicine 14\(1\): e1002217. doi:10.1371/journal.pmed.1002217](#)

What do we know already?

- Primary care is responsible for the majority of healthcare encounters. Incident reporting systems can provide detailed narrative of patient safety incidents and highlight contributory factors. However, identifying potential areas for improvement and avoidable causative factors based on evidence from reporting systems is lacking.
- [Patient safety incidents](#) are defined as “any unintended or unexpected incidents that could have, or did, lead to harm for one or more patients receiving NHS-funded healthcare”. A [previous analysis](#) of patient safety incident reports from GP practices in England and Wales found a range of incident types, including medication errors, communication, treatment and equipment, diagnosis and assessment.
- [In 2014 NHS England and MHRA](#) announced that they were working together to simplify and increase reporting, improve data report quality, maximise learning and guide practice to minimise harm from medication errors.
- The [Patient Safety Resource Centre](#) hosted by The Health Foundation contains a number of resources relating to patient safety. Their report, [The Continuous Improvement of Patient Safety](#), makes the case for changing the way this is approached in the NHS and includes [a checklist for Safety Improvement](#).
- [Implementing Human Factors in Healthcare. How to Guide](#) provides suggestions on how the concept of human factors in healthcare can be applied by individuals and teams working to improve patient safety.
- [The Patient Safety 2030](#) report produced by NIHR Patient Safety Translational Research Centre highlights four pillars of a safety strategy, which include a systems approach, culture counts, patients as true partners and bias towards action.
- Some commentators have suggested that primary care is struggling to meet the demands and changing needs of the paediatric population.

What does this evidence add?

- This new study found that of the patient safety incidents involving sick children included in the study, 30% were reported as harmful. The study identified eleven categories of incident types, flagging the following as priority areas for focused improvement efforts:
 - **The unsafe provision of medication** - medication errors, particularly in the community pharmacy setting, were commonly reported.
 - **Inadequate diagnosis and assessment** - incidents that involved diagnosis, assessment, or referral of sick children were the most harmful of those reported: there were ten deaths, 15 reports of severe harm, and 69 reports of moderate harm.
 - **Failure of communication with and about the patient** - poor communication underpinned many of the safety incidents.
- The authors call for:
 - Safer and more reliable medication dispensing systems.
 - Improvement in out-of-hours telephone triage systems suggesting they are not fit for paediatric purpose.
 - Mandatory paediatrics training for all GP trainees.
- The accompanying editorial makes a call for healthcare teams to listen carefully to the incidents and to show the parents and children involved that through meaningful follow-up, learning, feedback, sharing and quality improvement the chances of such events happening again is less likely. The editorial highlights the value of this study on a number of levels, including:
 - The specific findings and rich free-text examples of key incidents.
 - A vision of what patient safety incident analysis should look like.
 - Potential lessons and opportunities for learning in order to prevent avoidable harm in the future.
 - The identification of two new arenas for collecting error and adverse events reports – community pharmacies and telephone triage call centres.

- Both these two settings exposed issues for a paediatric population in dosing and dispensing considerations and delays in recognising septicaemia.

Study details

Participants:

- Incident reports submitted to the NRLS between 1 January 2005 and 1 December 2013 from primary care in England and Wales, involving sick children (less than 18 years old) were included. From a primary care dataset of 272,884 reports, 2,191 patient safety incidents were identified and analysed.
- 646 (30%) incident reports involved care from the UK national telephone triage service, NHS 111 (formerly NHS Direct), 604 (28%) reports from out-of-hours health centres, 401 (18%) reports from community pharmacies and 218 (10%) reports from general practices.

Intervention:

- The researchers systematically coded data using frameworks to describe the incident and to identify patterns.

Outcomes and results:

- Of 3,636 incident reports potentially involving sick children, 2,178 were included, which involved 2,191 patient safety incidents. These incidents involved infants between 28 days and 1 year old (n=491; 22%) and preschool children less than 5 years old (n=542; 25%).
- The most frequently described conditions included respiratory conditions (n=387; 18%), injuries (n=289; 13%), nonspecific signs and symptoms such as fever (n=281; 13%), and gastrointestinal or genitourinary conditions (n=268; 12%).
- Harm was described in 30% (n=658) of children, including 12 deaths, 41 reports of severe harm, 218 reports of moderate harm, and 387 reports of low harm.
- Eleven categories of incident types were evident from included reports. Priority areas for improvement that were identified include the unsafe provision of medication, inadequate diagnosis and assessment, and failure of communication with and about the patient.

Treatment of Sick Children with Medication

- 674 medication-related incidents were described in the home (e.g., from NHS 111 service calls), general practice, and community pharmacy settings.
- 57% (n=386) were related to dispensing errors in community pharmacies; other medication incidents were administration errors (n=123; 18%) typically in the home setting, prescribing errors (n=68; 10%) in the general practice setting, and clinical treatment decision-making incidents (n=66; 10%) in the general practice or out-of-hours setting.
- Children less than 1 year old were most frequently (n=131; 19%) involved in reported medication-related incidents, and these children were largely being treated for epilepsy, asthma, and infections.
- Inhalers for asthma treatment were frequently involved in medication-related incidents: for example, children were dispensed the wrong dose inhaler (n=27), the wrong brand (n=18), or the wrong inhaler medication (n=16).
- Harm resulted from about one-third (n=215; 32%) of medication-related incidents, including two deaths, six reports of severe harm, 64 reports of moderate harm, and 143 reports of low harm.

Diagnosis, Assessment, and Referral of Sick Children

- 659 incidents related to diagnosis, assessment, and referral typically occurred in combination and as a result of each other. 400 (61%) incidents occurred via NHS 111, 158 (24%) during telephone assessments provided by out-of-hours general practice care and 55 (8%) in the general practice setting.
- The children involved were typically young, under 3 years old, and presented acutely with the following: nonspecific signs and symptoms (n=150), particularly fever (n=67) and altered consciousness (n=51); injuries (n=146), particularly head injuries (n=84); and skin or musculoskeletal conditions (n=87), such as rashes (n=34) and skin discoloration (n=33).
- Incidents associated with diagnosis, assessment, and referral were the most harmful reported in terms of severity, involving 10 deaths, 15 reports of severe harm, and 69 reports of moderate harm.
- Inadequate triaging was implicated in 232 (52%) of acutely unwell children with delayed assessment being implicated in 88 (20%) of children.
- Key contributory factors underlying diagnosis, assessment, and referral incidents, particularly those involving inadequate telephone assessments, were related to "protocolised" medicine. For example, staff failing to follow protocols (n=196; 30%). For telephone assessments, this included non-clinically trained health advisors choosing the wrong protocol, e.g., selecting a "head wound" protocol rather than "head injury", or incorrect use of a protocol.

Communication Failures with and about the Patient

- 177 communication-related incidents reported, 19% (n=33) were harmful, including two reports of severe harm, 11 reports of moderate harm, and 20 reports of low harm.
- Communication failures with patients, parents, and caregivers were described in a range of primary care settings; however, most communication-related incidents occurred either via NHS 111 (n=103; 58%) or in out-of-hours settings (n=39; 22%), and half involved children less than 3 years old (n=90; 51%).
- For sick children in primary care, communication failures (n=207) were more commonly reported as contributory rather than as primary incidents.
- Communication failures frequently underpinned medication incidents, particularly administration errors in the home setting, where parents and caregivers are typically responsible for medication administration, which is influenced by prior communication and instructions from healthcare professionals.
- Study funding: National Institute for Health Services and Delivery Research Program

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