

events and reactions following blood transfusion since 1996. These include reports of transfusion-related deaths and major morbidity.

**Objectives** Where systematic risks and issues are identified, SHOT produces recommendations to improve patient safety.

**Methods** SHOT publishes an Annual Report; since 2008 this has included a paediatric chapter, analysing reports from those aged < 18 years and deriving key lessons for paediatric practice.

**Results** In the 2019 Annual SHOT Report (SHOT, 2020), 7.1% (132/1867) cases were in infants and children, in line with previous years. There was one possible transfusion-related paediatric death: a neonate with transfusion-associated necrotising enterocolitis. The 14 cases of major morbidity were nearly all (12) the result of febrile, allergic and hypotensive reactions (FAHR). For paediatrics, platelet reactions predominate for FAHR, often severe allergic. Almost two thirds (86/132) paediatric reports were error-related rather than reactions, similar for SHOT as a whole. Common themes for transfusion errors remain consistent over time. Paediatrics continue to be particularly over-represented in several sub-categories, particularly in 'under' and 'over-transfusion', with 31.4% (11/35) of total reports to SHOT in 2019. Neonates are disproportionately represented in the 'incorrect blood component transfused' category. As for many years there were no neonatal FAHR reports, either due to reduced reaction rates or lack of recognition.

**Conclusions** Key themes emerging from the reports submitted to SHOT and actions needed to improve transfusion safety include:

- Paediatric teams should have access to local paediatric transfusion guidelines.
- Errors in calculation of blood transfusion volumes and prescribing specific requirements (eg irradiation). Induction training of paediatric staff should include specific requirements and weight-based prescribing.
- Gaps in staff knowledge regarding significance of test results and interpretation. Unexpected results should be challenged or repeated to avoid acting on erroneous results. Staff must understand the significance of abnormal coagulation in children and when to seek specialist advice.
- Communication gaps between clinical teams and transfusion laboratories – good communication is vital for patient safety. This is especially important in patients undergoing haemopoietic stem cell transplant as transfusion requirements can be complex.
- Acute transfusion reactions in children can take place in a variety of clinical settings. Paediatricians and neonatologists should be able to recognise these and initiate appropriate management.
- Staff should be aware of recent changes to blood components: following the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) review (2019), recipients born after 1995 can now receive UK plasma (non-pathogen inactivated); children can receive either apheresis or pooled platelets.

**Several useful resources are available** British Society for Haematology (BSH) guidelines (<https://b-s-h.org.uk/>); 'Blood Components' mobile application (NHS 2018); SHOT educational materials (<https://www.shotuk.org/>). The SHOT paediatric video presents key educational messages from the last 10 years

of paediatric SHOT reports (<https://www.shotuk.org/resources-current-resources/videos/>).

Paediatric haemovigilance is not just collecting data - it must contribute to improved patient safety. It is the responsibility of all health care professionals transfusing patients to ensure that the key learning points are incorporated into clinical practice.

## British Paediatric Allergy Immunity and Infection Group

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### ORIENTIA TSUTSUGAMUSHI: AN EMERGING MAJOR CAUSE OF ACUTE ENCEPHALITIS SYNDROME IN SOUTH ASIAN CHILDREN

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**Background** Acute Encephalitis Syndrome (AES) is a major seasonal public health problem in several states of India. The National Vector-borne Disease Control Program (NVBDCP, India) reported >75,000 cases of AES in India during 2014–2020 along with 6,912 deaths due to AES. Burden and mortality of AES cases continues to be high, and definitive etiologies for the illness have yet to be identified.

**Objectives** The study was undertaken to identify the specific etiology of AES among children in a tertiary care hospital in India and to determine the contribution of *Orientia tsutsugamushi*, the agent of scrub typhus, as a cause of AES.

**Methods** This hospital-based observational study was conducted over a 18-month period (1st July, 2019 to 31st December, 2020) among children between 1 month to 12 years of age. Cerebro-spinal fluid and/or serum samples were collected from a total of 552 consecutive hospitalized patients of AES and tested for various pathogens by Gram stain, culture and antibody testing by ELISA.

**Results** Out of 552 enrolled patients, 251 (45.5%) were positive for at least one pathogen and 3 were co-positive for more than one pathogen. Maximum number of samples were positive for Scrub typhus IgM (24.6%, n=136). 10.5% of AES cases were due to pyogenic meningitis. Positivity for *M. tuberculosis*, HSV-1, Dengue virus and Mumps virus was found in 2.9%, 2.17%, 1.45% and 1.1% cases respectively. Occasional presence of Japanese encephalitis B virus, Varicella zoster virus, *Corynebacterium diphtheriae* and *Salmonella typhi* was also noted. Neuro-imaging and antibody testing were suggestive of acute disseminated encephalomyelitis in 9 (1.6%) and autoimmune encephalitis in 2 patients.

The main clinical features of the 136 scrub typhus positive patients were fever(100%), altered sensorium(100%), headache (61.7%), seizures(51.5%), nausea(32.35%), neck rigidity (7.35%), limb weakness(6.6%) and cranial nerve palsy(4.4%). Eschar could be located in only 12.5% patients. Case fatality rate was 2.9%.

**Conclusions** Our findings suggest emergence of *Orientia tsutsugamushi* as a notable causative agent of AES in this South Asian country. Similar results were obtained in several other

studies from different parts of the country in recent years. As most of the clinical and laboratory features of scrub typhus are non-specific, clinicians need a high index of suspicion for detecting this neglected but easily treatable disease in cases with AES, at least in endemic areas.

## Down Syndrome Medical Interest Group

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### MEDICAL SURVEILLANCE OF CHILDREN WITH DOWN SYNDROME UNDER THE AGE OF 5: AN AUDIT OF COMPLIANCE WITH RECENT LOCAL GUIDELINES BASED ON DSMIG RECOMMENDATIONS

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**Background** The Down Syndrome Medical Interest Group (DSMIG) publishes guidance concerning the minimum safe standard of medical surveillance for children with Down syndrome. In 2019, local guidance was created to collate the current DSMIG guidance, which is spread across multiple documents, into a single place and summarise the complex surveillance for children with Down syndrome under the age of 5. Our local guidance also makes additional recommendations for surveillance, including electronically coding the diagnosis of Down syndrome; a previous 2015 audit at our centre found that 93% of children with Down syndrome who were lost to follow up had no electronic record diagnosis recorded.

**Objectives** To identify whether children under the age of 5 with Down syndrome known to our local community paediatric team are managed in line with the minimum safe standard of medical surveillance recommend by the DSMIG and our local guidelines.

**Methods** We identified 12 recommendations for audit: 7 recommendations concerning the timing and content of appointments with a community paediatrician, 4 concerning investigations (See table 1) and 1 recommendation to electronically code the diagnosis of Down syndrome. We reviewed the notes of each child with Down syndrome under 5 and recorded whether local care had met these standards.

**Results** We identified 20 children under the age of 5 with a known diagnosis of Down syndrome currently under the care of our team. The proportion of children whose management was in line with each guideline is shown in table 1.

**Conclusions** Management was not 100% compliant with local guidance in any of the audited domains. Several

guidelines represent a minimum safe standard so 100% compliance should be targeted. Discussion of warning signs for C-spine instability and testing for coeliac antibodies were least frequently completed. We observed that local guidance concerning thyroid function testing and audiology were not consistent with current DSMIG guidelines. Height was not recorded 25% of the time. To improve the quality of our service, the findings have been presented locally. We will create an appointment proforma for local community paediatricians, and we will update our local guidance to bring all domains inline with the minimum safe standard set out by the DSMIG. DSMIG guidelines are detailed and useful, but are spread across multiple documents and some community paediatricians may not be aware of every recommendation: creating local guidance concerning surveillance in young children with Down syndrome and increasing awareness of the guidelines for this age group may help improve the standard of medical surveillance in the first years of life.

## Association of Paediatric Emergency Medicine

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### PILOT STUDY TO EVALUATE THE ACCEPTABILITY AND FEASIBILITY OF LEARNING FROM EXCELLENCE IN A PAEDIATRIC EMERGENCY DEPARTMENT

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**Background** Learning from Excellence (LFE) is an initiative for recognising, appreciating and learning from positive episodes of good clinical practice which began in Birmingham Children's Hospital. It seeks to attribute equal importance to learning from episodes of positive practice as too often emphasis is placed on negative incident reporting and the prevention of harm in healthcare through national frameworks. This has previously been implemented in other Paediatric Emergency Departments (PED) in the UK and in a maternity hospital in Ireland.

**Objectives** To evaluate the acceptability and feasibility of introducing the LFE initiative to an Irish PED and evaluate staff attitudes to the initiative.

**Methods** An online anonymous questionnaire was devised to assess existing feedback mechanisms and staff morale in Children's Health Ireland (CHI) at Tallaght PED. Quantitative questions including Likert scales were used to evaluate staff

**Abstract 991 Table 1** Percentage compliance with the standards audited

Category	Diagnosis	Appointment Timing	Last Appointment	Content			Biochemical/Specialist Tests					
Criteria Audited	Diagnosis of Down syndrome on electronic notes	Within Last 6 Months	Height Recorded	Weight Recorded	Height And Weight Plotted On correct Growth Chart	Sleep Apnoea Symptoms Discussed	Bowel Habit Discussed	C-Spine Instability Warning Signs Discussed	TFTs Within 2 Years	Coeliac Antibody Test If >3 Years	Audiology Within 9 Months	Vision Tested Within 1 Year
Compliance (%)	65%	55%	75%	95%	75%	70%	85%	40%	90%	40%	65%	60%