Methods In PMH, all thyroid scintigraphy for the assessment of congenital hypothyroidism was performed with Tc-99m per technetate. Clinical data from neonates and infants who attended for thyroid scintigraphy over 10 years' period from 1 January 2008 to 31 December 2017 inclusively was gathered: demographics, biochemical parameters, thyroid scintigraphy results, associated complications including developmental delay, and permanence of CH as assessed at the age of 3 years. Scintigraphy was classified as gland-in-situ (GIS), ectopic, agenesis and reduced tracer uptake. Data from all patients referred from CGS for assessment of suspected CH were also collected, including patients who were replaced with thyroxine without thyroid scintigraphy performed.

Positive CH screen is defined when patients required thyroxine replacement, usually during infancy period. Permanent CH refers to patients who required ongoing thyroxine treatment from age 3 onwards. Transient CH is classified if thyroxine was discontinued following a trial off treatment.

Results The retrospective cohort study included 89 patients who had thyroid scintigraphy done within the study period. 68 of them (34 boys, 50%) had positive CH screen, of which a vast majority (66 patients, 97%) of patients were of Chinese ethnicity. One patient had parental consanguinity.

Thyroid scintigraphy displays the following subgroups: GIS (n=53, 78%), absent (n=2, 3%), reduced tracer uptake (n=6, 10%) and ectopic (n=7, 12%). Of the 53 patients with GIS by thyroid scintigraphy, permanence of CH is evident in 19 patients (36%).

32 (47%) of them were classified as permanent CH when they required recommencement of thyroxine following a trial off treatment or when their treating endocrinologists decided that continuation of therapy was deemed necessary.

Of all patients classified as permanent CH, there are 19 (59%) GIS, 8 (25%) thyroid dysgenesis, i.e., 1 (3%) thyroid agenesis and 7 (22%) ectopic thyroid, and 5 (16%) scintigraphs with reduced tracer uptake.

Conclusions Instead of thyroid dysgenesis, our data suggests that GIS is the main subtype of CH taking into consideration of all positive CH screens or permanent CH. Less than 30% is permanent CH in those with GIS.

British Association of Perinatal Medicine and Neonatal Society

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HOW LOW IS TOO LOW? DETERMINING THE INCIDENCE OF SYMPTOMATIC NEONATAL HYPONATRAEMIA SECONDARY TO MATERNAL PERIPARTUM HYPONATRAEMIA- AN UNSOLVED PROBLEM

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Background In Northern Ireland the Guidelines and Audit implementation network produced guidance in 2017 advising that paediatricians should be informed when infants are born to mothers with a peripartum serum sodium ≤ 129 mmol/L. However, there is no current guidance on management of these infants. Regional practice is variable with infant sodium checked between 12–24 hours old, or not at all.

A literature review found 9 case reports of neonatal seizures secondary to isolated maternal hyponatraemia. All

occurred within 6 hours of delivery, with maternal sodium range 107–124mmol/L, and neonatal sodium range 108–126mmol/L.

Objectives Firstly, to ascertain the incidence of neonatal hyponatraemia secondary to maternal peripartum hyponatraemia through a regional audit. Secondly to determine the incidence of neonatal seizures secondary to hyponatraemia and thereby gain insight into the serum sodium, (both maternal and neonatal,) that requires observation and/or intervention in order to reduce NICU admissions and adverse outcomes for infants.

Methods In two neonatal units we used retrospective case analysis to review the data of infants >35 weeks' gestation born to mothers with Sodium ≤ 129 mmol/L (18hrs pre delivery, until 8hrs post-partum.) From March 2018- March 2020 96 cases were identified in the tertiary neonatal unit and from May 2020-November 2020 10 cases were identified in a district general unit. Data was collected for each infant including symptoms of hyponatraemia, clinical features, investigations, results and management.

Results A total of 106 cases of maternal peripartum hyponatraemia ≤ 129 mmol/L were identified. In 45 of these cases, infant serum sodium was checked. 10 had serum sodium ≤ 129 mmol. 11 infants were treated for hyponatraemia; 10 (Na 123–131mmol/L) received oral supplementation and 4 (Na 123–129mmol/L) were admitted to NICU and received intravenous fluids. 2 of these cases presented clinically (prior to blood sampling) with hyponatraemic seizures with no other cause identified. Both were ≤ 8 hrs of life with maternal sodium of 123mmol/L and 127mmol/L. Standard investigations (including lumbar puncture and MRI brain) to consider other causes for symptoms, were performed and seizures treated with anticonvulsants; both infants recovered well.

Conclusions Neonatal hyponatraemia secondary to maternal hyponatraemia does occur and can cause neonatal seizures. However, these events are rare, occur early (<12hours) and are associated with a very low maternal sodium. These infants would not be identified by current practice of testing at 12–24 hours of life. We have used our data as part of a quality improvement project to develop a guideline identifying infants at risk of symptomatic hyponatraemia whilst reducing unnecessary investigations in asymptomatic, low risk infants of mother's with mild hyponatraemia. This guideline is currently being trialled with plans to review and implement regionally.

Association of Paediatric Emergency Medicine

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PREHOSPITAL PAEDIATRIC BURN CARE: A RE-AUDIT. THE ADEQUACY OF COOL RUNNING WATER FIRST AID

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Background Appropriate initial management of paediatric thermal burns is key to the prevention of complications and improvement in patient outcomes. Interestingly, research revealed significantly poorer knowledge of burns first aid (FA) management among healthcare workers, when compared with non-healthcare workers. Guidelines recommend all patients receive twenty minutes of cool running water up to three

hours following injury. The administration of cool running water not only serves an analgesic function but is also associated with significantly reduced odds of skin grafting. The present re-audit evaluates the FA care of paediatric burn patients with a focus on the adequacy of cool running water.

Objectives Our aim is to determine the adequacy of cool running water FA provided in the management of children with thermal burns. The FA treatment of paediatric burns was specifically examined in the context of pre-hospital and emergency department (ED) care. A target of 100% compliance with current guidelines was set.

Methods Retrospective study of patients presenting to ED with thermal burns in a three-month period between 2019 and 2020. Electronic records were identified by coded diagnosis of 'burn' or 'scald' to evaluate the practice of cool running water FA in pre-hospital & ED settings as recorded by nursing and medical staff. Demographics, mechanism of burn, percentage (%) body surface area, nature and duration of prehospital & ED FA were recorded and compared with the baseline data from the first cycle.

Results Twenty-seven (27) patients were identified with an average age of 2.9 years. Upon reaudit, contact burns from the oven door remained the most commonly cited mechanism of burn injury (37%). Compared to the first cycle, adequate documentation of cooling time was significantly improved (28% vs. 8%). In the prehospital setting, the rate of adequate cooling completed among children doubled upon reaudit from 12% to 24% respectively. In contrast to the first cycle where only 29% of children with inadequate prehospital FA went on to complete adequate cooling in ED, this figure rose by over 100% in the second cycle to 66%. Among children presenting to the ED with suboptimal prehospital FA, the completion of adequate cooling was lowest among those under 2 years of age and those who has previously completed between 10 to 20 minutes of cooling prior to attending.

Conclusions The initial care provided in prehospital and ED setting continues to fall short of current guidelines calling for twenty minutes of cooling with running water. Despite emphasising the need for ongoing education on the importance of adequate cooling in both healthcare and public domains, the reaudit represents a substantial improvement in FA practice and documentation from the first cycle. Re-education combined with multidisciplinary team (MDT) engagement may have contributed to the improved results. Our findings call for continued education on burns management among medical staff and the introduction of campaigns to increase public awareness of appropriate FA, to include time parameters for appropriate treatment and its association with improved outcomes.

Paediatric Educators' Special Interest Group

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EXPLORING THE IMPACT OF HUMAN FACTORS AND HIERARCHY IN COMMUNICATION AND FOLLOWERSHIP DURING PAEDIATRIC AND NEONATAL EMERGENCY SITUATIONS: A QUALITATIVE STUDY

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Background Paediatric and neonatal emergencies are rare but may be associated with high morbidity and mortality, and require skilled leadership, good communication including ability to call-out critical information, active followership and teamwork. Hierarchy may also impact on those factors and affect the outcome.

Objectives Our study explores human factors and hierarchical structures that impact communication, call out and followership during paediatric and neonatal emergencies.

Methods A semi-structured audio recorded interview study was carried out across multiple UK hospitals. Health professionals from different backgrounds (doctors, nurses, nurse practitioners and midwives) involved in neonatal and paediatric emergencies were invited to reflect on their experience of resuscitation scenarios. Their views on human factors and hierarchy were also explored. Demographic data and self-reported confidence during certain aspects of resuscitation were also collected. These interviews were transcribed and analysed using an inductive approach according to grounded theory framework.

Results 25 people were interviewed, describing 60 scenarios:

Participants Male: Female	4:21
Neonates:Paediatrics	22:38
Secondary hospital: Tertiary Hospital	41:19

Within the scenarios discussed, communication issues occurred in 44%, followership and teamwork issues occurred in 24%, and hierarchy had a negative impact in 40% of cases.

Barriers to communication included lack of experience or familiarity of team members, unfamiliar environments or being within a big team.

Ability of members to do a call-out depended on fear of undermining colleagues, having had a prior negative experience and a steep, rigid hierarchy.

Parents had a significant negative impact on effective communication, particularly discussions regarding stopping resuscitation and on the ability to call-out.

Followers were likely to act passively based on their personality, experience, exposure and reflection to previous scenarios, but more likely to follow actively if there in a smaller group, supported by other team members, with good role allocation and having a clear leadership encouraging a shared mental model during the resuscitation.

There were different expectations and perceptions of leadership from different team members within the hierarchies experienced, with leadership unclear in 21% of scenarios. Leadership varied depending on the case, team composition, type of scenario and hospital. Flattened hierarchical structures were seen in paediatrics and neonates, but expression and experience of an innate 'chain of command' persisted across all professional participants.

Team members in tertiary hospitals were more exposed to complex cases, had more regular resuscitation training and felt more confident with intensive care unit support on-site. They therefore were more active followers during resuscitation scenarios.

Conclusions Human factors impact on communication, call-out, teamwork, leadership, followership and hierarchy during paediatric and neonatal emergencies. These seemed to improve