Results Prior to the pandemic, parents met weekly for 1.5 hours over 16 weeks. 63 recorded visits: 34 parents on NICU and 29 from home. The majority were mothers - three with triplets/twins; three fathers joined. Prematurity, surgery, breast-feeding, milk, sleep, siblings, medication, equipment, jobs, income and illness were the main topics of discussion. Anxiety, separation and loss of normality were all shared feelings with empathy, reassurance and coping strategies expressed. Psychotherapy was offered to several parents.

Senior staff presence enabled parents' problems to be raised with confidence and suggestions promptly implemented. Eight underwent practical resuscitation, choking, breastfeeding and cot death prevention training with great feedback. During lockdown, meetings continued virtually. Parents use WhatsApp and set up a closed Instagram group.

Conclusions Community outreach, peer support and meeting thriving NICU babies can offer unparalleled hope and inspiration to families thrust on a challenging journey.

Support groups can easily complement the formal psychological therapy that NICU parents receive and are an inexpensive way of providing truly family-centred care. Listening to parents and walking in their shoes, inspired us to build upon our ambitions for parent education. Engaging parent advocates has helped sustain peer support and strengthened our service improving the confidence and mental-wellbeing of future NICU families.

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Quality Improvement and Patient Safety

1555

TARGETED LEARNING THROUGH PAEDIATRIC SIMULATION

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10.1136/archdischild-2021-rcpch.716

Background Simulation is regularly run with the paediatric multi-disciplinary team at a district general hospital. This facilitates learning on an individual and team level, while improving processes of patient care in a safe environment. In this quality improvement project themes were noted in simulation involving paediatric resuscitation, therefore targeted interventions were put in place to make improvements.

Objectives Intervention One:

Covid-19 has altered healthcare professionals approach to patient contact through the use of personal protective equipment (PPE) to ensure infection control. The Advanced Life Support Group endorsed guidance that in emergencies the patient should be assumed to have Covid-19 and full PPE should be used by responders. In paediatrics breathing support is essential; therefore unplanned simulation was run with staff to practice this skill while maintaining the safe use of PPE.

Intervention Two:

In simulated cardiac arrest the time taken to administer the first Adrenaline dose was over 13 minutes. Delays in administering Adrenaline in paediatric, in-hospital cardiac arrest with a non-shockable rhythm is associated with decreased survival, ROSC and survival with a favourable neurological outcome.

'The Arrest to Adrenaline Race' was launched with the aim to decrease the time taken to administer Adrenaline; so that in a real life scenario the patient would have the best chance of survival.

Methods

Intervention One:

In simulation it took 156 seconds until the patient was first bagged after responders correctly donned PPE, which would have a detrimental impact to successful resuscitation. 'The Amber Bagging Race' was launched where teams of healthcare professionals practiced the procedure in a race scenario; from recognition of a deteriorated patient, to the correct use of PPE and then successful bagging.

Intervention Two:

Healthcare professionals engaged in race scenarios with a manikin, where they timed the process taken from recognition of an arrested patient, initiating resuscitation, obtaining interosseous access and administering Adrenaline at the correct prescribed dose for weight.

Results Intervention One:

Over two weeks thirteen teams participated and the average time to bag was reduced to 56 seconds in week one and 41 seconds in week two. In a second unplanned paediatric resuscitation following 'The Amber Bagging Race' the time taken to bag the patient was 46 seconds; a significant improvement in clinical practice.

Intervention Two:

Over two weeks fourteen teams participated and the average time taken to administer Adrenaline reduced to 324 seconds in week one and 138 seconds in week two. In further simulation scenarios following 'The Arrest to Adrenaline Race' the time taken to administer Adrenaline averaged 5 minutes and 23 seconds.

Conclusions Conclusion:

Simulation identified key areas for improvement in paediatric resuscitation and targeted interventions enabled specific practice of skills, with the aim to improve patient care in a real life scenario. Learning was disseminated to the wider team and processes were altered to further improvements in patient safety. The races brought an atmosphere of fun to the ward, improving engagement and morale. People are often fearful of simulation; an environment of fun rather than fear is conducive to more effective learning.

British Society for Paediatric Dermatology

1559

ROLES OF EARLY-LIFE SKIN MICROBIOTA ON NATURAL COURSE OF INFANTILE ECZEMA

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10.1136/archdischild-2021-rcpch.717

Background Eczema is a common skin inflammatory disease during infancy. Most paediatric patients develop eczema within 6 months of age, but the severity and persistence vary. While infantile eczema in most cases could improve or get resolved with age, some children may follow a relapsing and persistent

course. The underlying decisive early-life factor is not yet known. An increasing number of studies have shown an association between eczema and skin microbiome fluctuations. Evidence has revealed an association between gut microbiome and persistence of eczema, but currently limited data are available in terms of skin microbiome.

Objectives This prospective study aimed to investigate whether skin microbiome profiles differ between patients with transient eczema and those with persistent eczema.

Methods We followed up 120 Chinese infants living in Hong Kong from childbirth to 2 years old. At 6, 12 and 24 months, participants attended clinic visits in our hospital and eczema was diagnosed based on Hanifin and Rajka criteria by paediatricians. Based on physician diagnoses, participants were further classified into transient eczema group, persistent eczema group and never eczema group. Skin microbes at left antecubital fossa (LAF) were serially sampled by flocked swabs at 1, 6 and 12 months. Skin microbiome data was later generated by 16S rRNA sequencing. A recently developed statistical method for microbiome called Analysis of Compositions of Microbiomes with Bias Correction (ANCOM-BC) was used to assess differentially abundant taxa among groups.

Results In our birth cohort, 60/119 (50%) participants are male, and 28/119 (24%) were born by caesarean section. Forty-three out of 120 (36%) participants' mothers have history of allergies. Forty-six out of 101 (46%) participants developed eczema within 6 months, and 33/97 (34%) presented with active eczema at 12 months. At 24 months, 18/100 (18%) participants still had active eczema. During the study period in total 297 skin swab samples from LAF were collected. Alpha diversity represented by Shannon and Simpson indices significantly increased from 1 month to 6 months ($p=0.001$ and $p=0.004$ respectively). Relative abundance of *Staphylococcus* and *Corynebacterium* progressively decreased from 1 month to 6 months ($\beta = -1.95$, $p<0.001$; and $\beta = -1.72$, $p<0.001$, respectively) and further to 12 months ($\beta = -1.14$, $p=0.04$; and $\beta = -1.59$, $p<0.001$, respectively). Alpha diversity did not significantly differ among groups of children with persistent eczema, transient eczema and without eczema. Besides, this study failed to detect significantly differentially abundant bacterial taxa associated with eczema persistence.

Conclusions Establishment of skin microbiome is highly dynamic in early life. Our results do not support that early-life microbiota at left antecubital fossa is associated with eczema persistence during infancy. (Funding: Health and Medical Research Fund 06170466)

Paediatric Critical Care Society

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AUDITING REGIONAL HDU ACTIVITY AND MONITORING

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10.1136/archdischild-2021-rcpch.718

Background In 2014 the RCPCH Report 'High Dependency Care in Children: Time to Move On' highlighted that inequity existed across the UK in how a child requiring critical care is managed.

There is evidence that not all PICU admissions are necessary. Differences in staff training, resources, funding and lack of defined Critical Care pathways contribute to regional differences in care. Safer delivery of high dependency care, outside of PICU, would benefit the patient and reduce strain on PICU capacity.

One of the reports key recommendations was to create a 'robust audit process to record how much critical care activity is being delivered, to which patients, and where'. It states that audit should include all critical care activity that occurs within the Operational Network ensuring the right patient, receives the right care, in the right place.

Objectives We aimed to collect a snapshot of critical care activity being delivered outside of our Regional PICU over a one-week period. It is hoped this would be the beginning of regular auditing.

Methods Prospective audit of Critical Care monitoring/intervention requirements over a one-week period 9/11/2020 – 15/11/2020.

Our audit used the Paediatric Critical Care Minimum Data Set (PCCMDS) to collect daily data and determine if it was level 1 or 2 critical care (CC). Total inpatient numbers were recorded (or obtained retrospectively using ward records).

Data was collected for every paediatric inpatient ward in the region, excluding PICU, and recorded by Patient Bed days for each intervention.

Results

Location	Patient bed days requiring Level 1 CC (%)	Patients bed days requiring Level 2 CC	Total receiving any CC (%)
District General Hospitals	Ulster	16/73 (22%)	1/73 ((1%)
	Antrim	3/53 (5%)	0/53
	SWAH	4/40 (10%)	0%
	Daisy Hill	13/40 (32%)	0%
	Altnagelvin	20/47 (43%)	0%
	Causeway	1/15 (7%)	1/15 (7%)
Tertiary Hospital	Craigavon	12/36 (33%)	0/36
	Regional Short Stay	6/32 (19%)	0/32
	Regional Neuro/NeuroSx	34/76 (45%)	6/76 (8%)
	Regional Cardiology	16/37 (43%)	8/37 (22%)
	Regional ID	5/28 (18%)	0/28
	Surgical Ward	45/100 (45%)	0/100
	Regional General	28/84 (33%)	2/84 (2%)
	Regional Haematology	0	0
	Totals	203/706 (29%)	18/706 (3%)
			221/706 (31%)

Conclusions Level 1 and 2 CC is being delivered outside PICU on a frequent basis with the Regional Speciality wards delivering a higher frequency of Level 2 care. Across the region, 31% of all patient bed days involved either Level 1 or 2 CC. All of the DGHs delivered Level 1 CC. Level 2 Care (3%) included – non-invasive ventilation (CPAP/BiPAP), NP airway, tracheostomy care, infusion of vasoactive agents, and care of EVD.