the ability to 'access, understand, appraise and use information/services to make decisions about health'. Typically, those of lower health literacy are less likely to seek healthcare professional advice, have difficulty communicating health concerns, and demonstrate poor health knowledge and self-management skills.

Objectives 1. Design and pilot a questionnaire capturing the views of healthcare professionals with an interest in paediatric healthcare

2. Determine healthcare professional views on best management of eight common minor ailments

3. Collate health literacy support approaches that may be used to communicate information to carers with low health literacy

Methods Ethical approval was obtained (Newcastle University Ethics Committee (14083/2018. V1. 15/06/19)). A questionnaire using JISC Online Questionnaires, was designed exploring professional experiences, national and international references and specialist children's hospital guidelines. It captured: demographics, treatment/management of common childhood minor ailments, health literacy supports and education in paediatric healthcare. Participants were recruited via email to professional networks with follow up emails followed by snowball sampling. Open and closed questions were used, including a 7 point Likert scale. Free text responses were also collected. Descriptive statistics using Microsoft excel determined quantitative conclusions e.g. percentages, mode for Likert scale responses, and qualitative responses explored via thematic analysis.

Results Participants included: five community pharmacists, two hospital pharmacists, two primary care pharmacists and one general practitioner. Responses to management of minor ailments were categorised based on ranking (1–3=would not recommend, 4=ambivalent, and 5–7=would recommend). In many cases non-pharmacological interventions were selected for management of colic, common cold, constipation, croup, fever, measles, nappy-rash and teething. Health literacy supports had been employed by 8/10 participants, with written and digital forms most reported. Written and verbal forms of support were considered useful to communicate health-related information to those with low health literacy. Only 2/10 had used tailored, interpreted information to assist carers who's first language was not English. Paediatric educational experience varied between undergraduate and postgraduate exposure. All agreed that undergraduate healthcare students should competently recognise and treat common childhood conditions as part of their initial academic qualification.

Conclusions The study identified the preference for non-pharmacological interventions for common childhood conditions as per Glascoe et al. It provides insight into health literacy supports utilised by healthcare professionals. Participants recognised the importance of improving carer health literacy to improve child health. Written and verbal communication methods were preferred, and a combination has proven more effective than single forms when communicating with low health literacy individuals. Future work will involve recruitment of further healthcare professions to obtain a clearer management consensus. In addition, to determine whether there is a need for improved training at undergraduate level, a study to explore healthcare students' understanding of minor ailments, and identify areas for improvement in paediatric undergraduate teaching.

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QUALITY IMPROVEMENT PROJECT – PAEDIATRIC ELECTROCARDIOGRAM (ECG) INTERPRETATION IN PAEDIATRIC EMERGENCY DEPARTMENT

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Background Paediatric ECG differs significantly from the adult ECG and changes with age. Clinicians' confidence in ECG knowledge varies with experience. Major differences in accuracy of paediatric ECG interpretation are reported in literature with scores ranging from 41% to 69.7% in various settings. Studies also raise worries regarding ECG documentation, with up to 92% of important parameters not recorded.

Aim To improve paediatric ECG interpretation and documentation in Paediatric Emergency Department by introduction of an 'ECG interpretation checklist'.

Objectives

1. To establish current practice and deficiencies in interpretation and documentation.
2. To design an ECG Interpretation checklist that balances expediency and thoroughness.
3. To improve adherence to indications when recording paediatric ECGs.
4. To improve quality of paediatric ECG interpretation
5. To improve the documentation of ECGs.
6. To improve the rate that abnormal ECGs are discussed with senior clinicians.

Methods A retrospective service evaluation for the month of August 2020 was conducted. The case notes and ECGs of 34 patients were analysed for appropriate indications, completeness of interpretation, identification of abnormalities, quality of documentation, discussion with senior clinician.

Following the audit and using small focus groups at teaching sessions, common areas of poor confidence were identified to assist design the checklist. The checklist was further refined using teaching sessions for PED and inpatient teams at various seniority levels.

Documentation quality and thoroughness of ECG interpretation were assessed after implementation of checklist and electronic questionnaire was sent to clinicians to assess confidence and collect feedback.

Results

1. Appropriate indications for recording paediatric ECGs were identified in 100% ECGs.
2. No ECGs had all important parameters documented neither on ECG sheet nor in Electronic Patient Record (EPR).
3. 30% of ECGs were not documented.
4. 44% of all ECGs were discussed with a senior clinician. 91% of abnormal ECGs were discussed with senior clinician and 71% were discussed with a paediatric cardiologist.
5. Development of the interpretation checklist:
 - o Appropriate indications for recording Initially the checklist was designed to give guidance on all parameters.
 - o Following focus group iterations, it was simplified, and an easily accessible accompanying intranet guide was produced to assist in specific areas of interpretation.
6. Use of the checklist significantly improved documentation quality and thoroughness.

7. Focus group feedback was positive that it also improved confidence.

Conclusions Discussion:

1. Important ECG parameter interpretation and documentation could be improved by implementing a checklist.
2. ECGs recorded with appropriate indications in 100% could suggest ECGs are not recorded enough. The checklist may also serve as a prompt to remind staff of the reasons to get a paediatric ECG.
3. Most abnormal and some normal ECGs get discussed with senior clinician. It may be that the checklist empowers junior staff to conduct a comprehensive evaluation prior to escalation to senior or cardiologist.
4. As with any checklist, thoroughness must be balanced against how user-friendly it is. A detailed comprehensive form may not get used because it takes too long. We believe we have struck the correct balance to assist clinicians in interpretation.

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ETHNIC AND SEASONAL VARIATION IN BLOODSPOT VITAMIN D AT BIRTH

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Background Vitamin D deficiency in infancy can have devastating health consequences such as hypocalcaemic seizures and dilated cardiomyopathy. It is therefore imperative to ensure adherence to national antenatal and infant supplementation policies. The effectiveness of antenatal supplementation in preventing newborn vitamin D deficiency in the UK has not been studied to date. Measuring 25 hydroxyvitamin D (25OHD) on dried blood spots (DBS) has recently emerged as a reliable method to assess population vitamin D status.

Objectives To determine the prevalence of vitamin D deficiency on DBS obtained at newborn blood spot screening (NBS) and thereby test the efficacy of the UK antenatal supplementation programme in an increasingly ethnically diverse population. To evaluate the seasonal and ethnic variation in neonatal plasma 25OHD and its determinants.

Methods 3000 random DBS samples at a single regional newborn screening laboratory (52° N) over two one-week periods, one in winter (February 2019) and one in summer (August 2019), were collected. Data was collected from NBS cards on

birth weight, gestational age, maternal age, ethnicity, and post code which was replaced with index of multiple deprivation (IMD). 25OHD concentrations were measured on 6 mm sub-punch from DBS using quantitative liquid chromatography tandem mass spectrometry adjusted to equivalent plasma values. 25OHD variation with season was assessed using Mann-Whitney U test and ethnic groups compared using Kruskal-Wallis test. Linear regression was used to assess the determinants of 25OHD concentrations.

Results 25OHD measurements were available in 2999 (1580 males) subjects [1499 winter-born and 1500 summer-born]. The majority were white British (59.1%) and born at term (mean $\pm$ SD gestational age of 38.8 ± 1.8 weeks) with a mean ($\pm$ SD) birth weight of 3306 ($\pm$ 565) grams. The overall prevalence of vitamin D deficiency [25OHD < 30 nmol/L (12 μ g/L)] was 35.7% (n = 1070) and insufficiency [30–50 nmol/L (12–20 μ g/L)] 33.7% (n = 1010). The median (IQR) 25OHD concentration was significantly lower in the winter-born compared to summer-born [29.1 (19.8, 40.6) vs 49.2 (34.3, 64.8) nmol/L respectively; p < 0.001]. Across both seasons, when compared to white British babies (41.6 nmol/L), the median 25OHD concentrations were significantly lower in babies of black (30.3 nmol/L; p < 0.001), Asian (31.3 nmol/L; p < 0.001), any other mixed (32.9 nmol/L; p < 0.001), mixed white and black (33.7 nmol/L; p < 0.05) and any other white (37.7 nmol/L; p < 0.05) ethnicity. The proportion of deficiency was also higher in babies of Asian (48%), black (47%) and mixed ethnicity (38–44%) compared to any other white (34%) or white British (30%) ethnicity.

Conclusions The current UK antenatal supplementation programme fails to protect newborns from vitamin D deficiency, especially those from minority ethnic groups. Nearly 70% of all newborns and 85% of winter-borns had 25OHD concentrations below 50 nmol/L (20 μ g/L). Almost 50% of babies of Black or Asian origin were deficient at birth. Our findings call for an immediate review of the delivery of antenatal and infant vitamin D supplementation programmes and implementation of food fortification in the long term.

Quality Improvement and Patient Safety

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WETFLAG-HDU: HOW A SIMPLE QI PROJECT CAN HAVE HIGH IMPACT

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Background Paediatric emergencies in inpatient settings can be more challenging to clinical teams than anticipated emergencies in emergency departments (EDs) or intensive care units (ICUs). In unanticipated emergencies, rapid correct calculations and good team communication are crucial. This can be a challenge as emergency drugs and defibrillation are not used commonly within inpatient practice. Use of a clinical aid memoire for medication doses has been shown to decrease the risk of errors for bolus medication significantly (G Larose et al., 2017). The WETFLAG ('Weight, Energy, Tube size, Fluid, Lorazepam, Adrenaline and Glucose') mnemonic is an aid to emergency calculations, used extensively in EDs and ICUs worldwide and taught as part of the EPALS course.