from recruitment visit (early-mid pregnancy) until child turns two years of age. Intention-to-treat and per-protocol analyses will be performed using general linear models to test the effects of interventions across three arms.

Results The trial was launched on 1 July 2020. As of 21 December 2020, a total of 60 participants were recruited with 2 of them withdrawn due to miscarriage. Currently, 14 participants have reached the postnatal stages. Participants' baseline socio-demographic characteristics were similar across three arms, with the mean age of 31 years old, and the mean gestation of 18.1 weeks, at the time of recruitment. In terms of ethnicity, majority of recruited patients were Chinese (71.7%), followed by Malay (8.3%), Others (11.7%) and Indian (8.3%). 90% of the participants were employed, and over 70% of the participants attained tertiary education qualifications.

Conclusions Despite recruitment delay of a few months due to COVID-19, the team was able to recruit 60 participants over 5 months with strict safe distancing measures. Multiple strategies have been established to facilitate the recruitment including extending publicity of the programme within and outside of KKH. The team will initiate preliminary data once 100 participants have been recruited. To engage existing participants, CRADLE will hold its first health education webinar in January 2021. This study may identify a sustainable strategy in the community by helping first-time parents to have a positive experience during the pregnancy, childbirth and parenthood, leading to enhanced PSE and health outcomes for both mother and child.

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PERCEPTION OF HONG KONG UNDERGRADUATES ON PERSONALIZED MEDICINE, PHARMACOGENOMICS AND GENETIC TESTING

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Background The global development and advancement of genomic medicine in the recent decade has accelerated the implementation of Personalized Medicine (PM), Pharmacogenomics (PG) and Genetic Testing (GT) into clinical practice. The rapid emergence of diverse genetic services has marked the global transition to the genomic era. Our study aims at investigating the perception of Hong Kong (HK) undergraduates on PM, PG and GT.

Objectives To investigate the perception of Hong Kong undergraduates on Personalized Medicine, Pharmacogenomics and Genetic Testing

Methods By utilizing an online questionnaire based on a study published by Mahmutovic et al., this cross-sectional study was performed on 202 undergraduates of different study curriculum in the University of Hong Kong. Undergraduates' perception on three aspects were investigated – general perception on PM, PG and GT; PM and PG education; and ethical, legal and social implications (ELSI) of GT. The primary outcome was the evaluation of undergraduates' perception on the above three aspects; and the secondary outcome was comparison of perception after stratification of undergraduates into medically and non-medically-related curriculum. Fisher's exact test and Chi Square Test were performed for comparison of categorical

responses, where the level of significance was set at $p < 0.05$.

Results Our results showed that 80% of undergraduates valued PM as a promising healthcare model with 66% indicating awareness of personal genome testing companies. Despite this high awareness and interest, 60% of undergraduates rated their genetic knowledge as 'School Biology' level or below and only 33% would consider ordering a PG test for themselves. In contrast, 76% of undergraduates considered undergoing a genetic test, with 77% willing to have lifestyle modifications upon knowing their genetic risk of a disease. In terms of PM and PG education, slightly more than half of medically-related curriculum undergraduates perceived that their curriculum was well-designed for learning PG (52%) and PG was important in their study (56%); and only 16% of these undergraduates would consider embarking on future education on PM. Regarding ELSI, 75% of undergraduates were aware of ethical issues of GT in general and they were more concerned about 'Patient Privacy' (80%) and 'Data Confidentiality' (68%). Upon receiving an unfavorable result from genetic testing, majority of undergraduates perceived to feel 'helpless or pessimistic' (56%), 'inadequate or different' (59%) and 'disadvantaged at job seeking' (59%), indifferent between medically and non-medically-related curriculum ($p = 0.24, 1, 0.24$).

Conclusions Hong Kong undergraduates showed a high awareness of PM but in contrast there was insufficient knowledge and low interest in pursuing a career towards PM. They were generally aware of ethical issues of genetic testing and especially concerned about patient privacy and data confidentiality; and there appears to be a predominance of pessimistic views towards unfavourable genetic testing results. While this study may not be a representative of the general population, it calls for the attention to evaluate genomic education in Hong Kong.

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NEONATAL THROMBOCYTOPENIA — INCIDENCE, RISK FACTORS, CAUSES AND OUTCOMES FOLLOWING PLATELET TRANSFUSIONS

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Background Neonatal thrombocytopenia (NT) is defined as platelet counts less than 150,000/microL, is most common haematological abnormality in the neonatal periods particularly in preterm infants and VLBW.

Objectives We evaluated the maternal-neonatal risk factors, causes, day of onset, duration of NT and the indications of platelet transfusions by means of a retrospective cohort study over a 3-years period.

Methods We conducted a retrospective analysis of prospectively collected data of all neonates born at Singapore General Hospital from year 2017 to 2019. Maternal characteristics like (age, number of pregnancies, medical conditions including maternal thrombocytopenia, pre-eclampsia, pregnancy induced hypertension, maternal age, intrauterine growth retardation, placental Doppler, mode of delivery and multiple births.

Neonatal data included gestational age, birth weight, gender, mode of delivery, Apgar scores at 1 and 5 minutes of life, early or late onset sepsis, necrotizing enterocolitis (NEC), intraventricular haemorrhage (IVH), TORCH infections, asphyxia, bleeding site, were collected. The likely cause of NT, Day of life (DOL) of onset of NT, resolution >150 000, Nadir of platelet count (mean) and severity of NT were collected. Early onset NT is onset <72 hours and late onset NT as onset >72 hours.

Results Total of 5196 live-born neonates were studied, 73 (0.014%) were found to have NT. The incidence was higher among Very Low Birth Weight (VLBW, <1500 g) (29.1%) and preterm <32 weeks (27.7%). Significant maternal factors for NT included higher maternal age (33.3 years vs 31.6, $p=0.02$) and pre-eclampsia (9.1% vs 3.9%, $p=0.02$). Significant neonatal factors included being prematurity <32 weeks (58.9% vs 2.6%, $p=0.000$), birthweight <1500 g (57.5% vs 19.9%, $p=0.000$) and lower mean Apgar scores at birth ($p=0.000$). Total of 41/73 (56.1%) infants required platelet transfusions. NT that were transfused versus not transfused, other than maternal pre-eclampsia (24.4% vs 12.5%, $p=0.242$), the rest of the factors listed above were found to be statistically significant.

For the first onset of NT, majority of transfused infants had early onset thrombocytopenia (53.6% versus 62.5% in the non-transfused population, $p=0.448$). The mean day of onset of NT was 3.9 days in the transfused population and 2.9 days in the non-transfused population.

Majority had mild thrombocytopenia, not transfused, resolved in the first week of life. the predominant causes were mostly maternal factors pre-eclampsia, maternal Idiopathic Thrombocytopenia or IUGR secondary to placental factors. In infants whom were transfused, predominant factors included severe sepsis, especially gram-negative sepsis, Pulmonary Haemorrhage and NEC, Cytomegalovirus (CMV) infection, clinical sepsis and unknown cause. There were higher morbidities like IVH, BPD and ROP, death in transfused NT, but was not statistically significant difference. Only one infant required IVIG due to neonatal alloimmune thrombocytopenia.

Conclusions The incidence of NT was 0.014%, is higher at 29% in VLBW cohort and 28% of preterm born with GA of <32 Weeks. The significant maternal risk were pre-eclampsia and maternal thrombocytopenia. The significant Neonatal risk factors were asphyxia, lower GA, birth weight, SGA. In infants with thrombocytopenia that were severe and transfused, additional causes included severe sepsis, especially gram-negative sepsis, NEC and CMV infection

243 TWELVE YEAR REVIEW OF GRADE 4 IVH (EXTENSIVE AND LOCALISED) WITH OUTCOMES

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Background Intraventricular Haemorrhage (IVH) is bleeding into the ventricles and is common in preterm neonates. An increasing grade of IVH is associated with poorer neurological outcomes. Bilateral Grade 4 IVH is associated with the poor prognosis and high rate of cerebral palsy. However recent research has shown that infants with unilateral grade 4 lesions had improved cognitive scores and better overall neurodevelopment outcomes.

Objectives To retrospectively assess outcomes at 2 years according to degree of severity of Grade 4 IVH in preterm infants.

Methods Design: Single-centre tertiary neonatal unit. 64 infants admitted between 2006 and 2019 confirmed to have IVH with parenchymal infarction (Grade 4 IVH).

Method: Extent of infarction (PVHI) was further graded into 'localised' or 'extensive' (Volpe 2017). Two-year follow up for the inborn infants - Health Status Questionnaire, Schedule of Growing Skills, CP classified by site and GMFCS. **Results** Overall mortality 40/64 (63%) - localised group 10/21 (48%); extensive 30/43 (70%).

Mortality was significantly higher in the extensive infarction group ($p<0.05$).

No infants with bilateral parenchymal infarction survived to discharge ($n=8$).

Shunt placement in 4 (all extensive). 17/47 inborn survivors (8 extensive, 9 localised).

Two-year outcome data cognitive assessment was available for 10/17. Further information available on 4 others (not yet 24 months).

All infants with extensive infarction had CP (5/5). Localised infarction CP in 3/9 (33%) ($p<0.05$). Cognitive outcomes ($n=10$): Normal in 1/3 of extensive group, 6/7 localised group.

Overall disability ($n=14$): Free of disability in localised group 5/9 (55%), extensive: 0/5 (0%).

Severe disability in localised group 0/9 (0%), extensive 2/5 (40%)

Conclusions Although having a Grade 4 IVH still carries a high mortality rate, significantly better outcomes were seen with a localised Grade 4 IVH, important information in making critical care decisions.

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IMPLEMENTING A TELEPHONE TRIAGE SERVICE FOR ACUTE GENERAL PAEDIATRIC REFERRALS FROM PRIMARY CARE IN A TERTIARY PAEDIATRIC HOSPITAL

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Background The General Paediatric Service at our Hospital is extremely busy, often with more than 70 inpatients under the team each day during months of peak activity and over 40 new acute telephone referrals from Primary Care daily. The number of children attending acute services at the hospital has been increasing annually and the Emergency Department will often have more than 300 attendances in 24 hours in winter months. This activity level means there is a significant pressure on inpatient beds and effective patient flow through the hospital is essential. During the ongoing COVID19 pandemic, there has been pressure on acute NHS services, which has driven the need for new innovative ways of working.

Objectives We aimed to ensure that all acute referrals to the General Paediatric Service were triaged via telephone by a senior paediatric clinician (registrar or consultant). The primary aim of this service was to ensure that children were streamed to the appropriate location, to be seen by the appropriate team at the appropriate time. Secondary aims included improving the interface with primary care and instigating pre-hospital management for patients streamed into outpatient services.