South-East Asia Network for Newborn & Birth Defects

Monthly E-blast

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Collaborating Centre for Training in Clinical Laboratory Genetics in Developing Countries Department of Pediatrics
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This Month...

Media centre

#HealthyAtHome - Healthy parenting

Across the world, due to the spread of coronavirus disease (COVID-19), children are affected by physical distancing, quarantines and nationwide school closures.
Some children and young people may be feeling more isolated, anxious, bored and uncertain. They may feel fear, and grief, over the impact of the virus on their families.

Read full information

Birth Defects

A 2019 global update on folic acid-preventable spina bifida and anencephaly

Vijaya Kancherla, Kaustubh Wagh, Helena Pachón, Godfrey P Oakley Jr

Wiley online Library: October 2020

BACKGROUND
Mandatory folic acid fortification of staples is a proven intervention to prevent spina bifida and anencephaly, two life-threatening and disabling neural tube defects. We estimated the global proportion of folic acid-preventable spina bifida and anencephaly (FAP SBA) prevented through mandatory folic acid fortification of wheat and/or maize flour in 2019.

METHODS
Using data from the Global Fortification Data Exchange, we identified countries with mandatory fortification policies that required at least 1.0 ppm folic acid be added to wheat and/or maize flour and had information on percentage of industrially milled flour that is fortified. We built FAP SBA prevention models assuming mandatory folic acid fortification at 200 µg/day of folic acid fully protects against FAP SBA and would lower the prevalence neural tube defects to 0.5 per 1,000 live births.

RESULTS
In 2019, 56 countries met our criteria for mandatory folic acid fortification of wheat (n = 56 countries) and/or maize (n = 15 countries) flour and with complete data for our modeling. Overall, our prevention model estimated that 65,380 FAP SBA cases were prevented in 2019 through folic acid fortification of wheat and/or maize flour. We estimated the current global prevention proportion of all preventable FAP SBA cases worldwide to be at 23% of total possible prevention.

CONCLUSION
Global prevention efforts for FAP SBA are slow and have stalled. Mandatory fortification should be urgently implemented in all countries to prevent epidemics of FAP SBA, and to achieve health-related Sustainable Development Goals for year 2030 by reducing child mortality due to preventable FAP SBA.

Population-based surveillance of severe microcephaly and congenital Zika syndrome in Canada

Shaun K Morris, Daniel S Farrar, Steven P Miller, Marianna Ofner, Ari Bitnun, Chantal R M Nelson, Michael Shevell, Aideen M Moore, Joanne Tataryn, Jane A Evans, Amy R Zipursky, Charlotte Moore Hepburn

PubMed: January 2021

Abstract
PURPOSE
To estimate the minimum incidence of congenital Zika syndrome (CZS) and severe microcephaly in Canada and describe key clinical, epidemiological, aetiological and outcome features of these conditions.

METHODS
Two separate national surveillance studies were conducted on CZS and severe microcephaly using the well-established Canadian Paediatric Surveillance Program from 2016 to 2019. Over 2700

paediatricians across Canada were surveyed monthly and asked to report demographic details, pregnancy and travel history, infant anthropometry, clinical features and laboratory findings of newly identified cases. Reports were reviewed to assign an underlying aetiology of severe microcephaly. Incidence rates were estimated using monthly live birth denominators.

RESULTS

Thirty-four infants met the case definition for severe microcephaly and <5 met the case definition for CZS. The associated minimum incidence rates were 4.5 per 100 000 live births for severe microcephaly and 0.1-0.5 per 100 000 live births for CZS. Of severe microcephaly cases, 53% were attributed to genetic causes, 15% to infectious or ischaemic causes and 32% to unknown causes. The median head circumference-for-age Z-score at birth was -3.2 (IQR -3.8 to -2.6), and catch-up growth was often not achieved. Common clinical features included intracranial abnormalities (n=23), dysmorphology (n=19) and developmental delays (n=14). Mothers of infants with non-genetic aetiologies travelled during pregnancy more often (10/16) than mothers of infants with genetic aetiologies (<5/18; p<0.01).

CONCLUSION

Severe microcephaly and CZS are both rare in Canada. Minimum incidence rates can be used as a baseline against which novel or re-emergent causes of severe microcephaly or CZS can be compared.

Stillbirth

Can risk prediction models help us individualise stillbirth prevention? A systematic review and critical appraisal of published risk models

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Bjog: September 2020

Abstract

BACKGROUND

Stillbirth prevention is an international priority – risk prediction models could individualise care and reduce unnecessary intervention, but their use requires evaluation.

OBJECTIVES

To identify risk prediction models for stillbirth, and assess their potential accuracy and clinical benefit in practice.

SEARCH STRATEGY

MEDLINE, Embase, DH-DATA and AMED databases were searched from inception to June 2019 using terms relevant to stillbirth, perinatal mortality and prediction models. The search was compliant with Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines.

SELECTION CRITERIA

Studies developing and/or validating prediction models for risk of stillbirth developed for application during pregnancy.

DATA COLLECTION AND ANALYSIS

Study screening and data extraction were conducted in duplicate, using the CHARMS checklist. Risk of bias was appraised using the PROBAST tool.

RESULTS

The search identified 2751 citations. Fourteen studies reporting development of 69 models were included. Variables consistently included were: ethnicity, body mass index, uterine artery Doppler, pregnancy-associated plasma protein and placental growth factor. For almost all models there were significant concerns about risk of bias. Apparent model performance (i.e. in the development dataset) was highest in models developed for use later in pregnancy and including maternal characteristics, and ultrasound and biochemical variables, but few were internally validated and none were externally validated.

CONCLUSIONS

Almost all models identified were at high risk of bias. There are first-trimester models of possible clinical benefit in early risk stratification; these require validation and clinical evaluation. There were few later pregnancy models but, if validated, these could be most relevant to individualised discussions around timing of birth.

Changes in Preterm Birth Phenotypes and Stillbirth at 2 Philadelphia Hospitals During the SARS-CoV-2 Pandemic, March-June 2020

Sara C. Handley, MD, MSCE1; Anne M. Mullin, BS2; Michal A. Elovitz, MD2; et al

Jama: December 2020

Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has had far-reaching implications, including changes in societal stressors and health care delivery, which may alter preterm birth risk. Previous studies in the US regarding SARS-CoV-2 in pregnancy focused on associations of SARS-CoV-2 infection with cesarean delivery, neonatal transmission, preterm birth, and stillbirth.[1] In a relatively homogeneous Danish population, Hedermann et al[2] reported a decrease in preterm birth during the pandemic among uninfected patients. Given differences in preterm birth across populations,[3] we examined a diverse urban cohort in the US to determine if preterm birth, spontaneous preterm birth, medically indicated preterm birth, and stillbirth rates have changed during the SARS-CoV-2 pandemic.

METHODS

GeoBirth is a curated pregnancy cohort of all births in 2 Penn Medicine hospitals in Philadelphia ongoing since 2008 (approximately 9000 births per year), in which each preterm birth (<37 weeks' gestation) is manually classified by 2 independent blinded reviewers, with further adjudication by a third reviewer when there is nonconcordance. Preterm birth phenotypes are categorized as spontaneous preterm birth (eg, preterm labor, spontaneous rupture of membranes) or medically indicated preterm birth (eg, clinician initiated due to a maternal or fetal health condition, such as preeclampsia or intrauterine growth restriction). Stillbirth is defined as intrauterine fetal demise at 20 weeks' gestation or greater. We compared preterm birth, spontaneous preterm birth, medically indicated preterm birth, and stillbirth rates among singleton pregnancies during the pandemic period (March-June 2020) with the same months in 2018 and 2019 (prepandemic) to account for seasonality using a 2-tailed Fisher exact test with a significance threshold of $P < .05$ using R, version 4.0.2. We

used marginal effects models to calculate absolute risk differences between the 2 epochs adjusting for birth month, age, parity, body mass index, race/ethnicity, marital status, smoking, and insurance status. We also performed analyses stratified by race/ethnicity because of persistent preterm birth disparities. This study was approved by the University of Pennsylvania Institutional Review Board with a waiver of informed consent.

RESULTS

There were a total of 8867 singleton, live-born deliveries in March through June of 2018, 2019, and 2020 (42% non-Hispanic Black, 37% non-Hispanic White, and 21% other race/ethnicity); 2992 deliveries occurred during the pandemic period, including 283 preterm births (135 spontaneous and 148 medically indicated) and 15 stillbirths. Prepandemic and pandemic birth outcomes were as follows: 10.5% vs 9.5% of deliveries were preterm births (adjusted difference, −1.1% [95% CI, −2.4% to 0.2%]), 5.7% vs 4.7% were spontaneous preterm births (adjusted difference, −0.8% [95% CI, −1.8% to 0.2%]), 5.4% vs 5.2% were medically indicated preterm births (adjusted difference, −0.3% [95% CI, −1.4% to 0.6%]), and 5.4 per 1000 births vs 5.0 per 1000 births were stillbirths (adjusted difference, −0.03 per 1000 births [95% CI, −0.34 to 0.29]). Spontaneous preterm birth among non-Hispanic White patients declined during the pandemic (4.5% vs 2.9%; adjusted difference, −1.4% [95% CI, −2.8% to −0.1%]); no other racial/ethnic groups had significant changes in outcomes. However, no significant interaction was detected between race/ethnicity and epoch with spontaneous preterm birth (P = .09 for interaction).

In the 2 hospitals, universal SARS-CoV-2 testing began on April 1, 2020, and April 13, 2020. Among 86 patients with test results positive for SARS-CoV-2, the preterm birth rate was 11.6% (n = 10; 6 spontaneous and 4 medically indicated preterm births) and there was 1 stillbirth.

Newborn

Management of infants born to mothers with SARS-CoV2 infection: a prospective observational study

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BMJ: September 2020

Abstract

OBJECTIVES

To assess the clinical risk of mother-to-infant transmission of SARS-CoV2 and transmission during rooming in and breast feeding in infants born to mothers with COVID-19.

DESIGN

Prospective observational study.

SETTING

A large tertiary maternal and neonatal care centre based in the UAE.

PARTICIPANTS

Infants born to mothers diagnosed to have COVID-19 at the time of delivery, born between 1 April and 15 June 2020.

MAIN OUTCOME MEASURES

Rate of transmission of SARS-CoV2 from mother to infant (vertical or horizontal) while rooming in and breast feeding in hospital and post discharge and associated morbidity and mortality in the neonatal period.

RESULTS

73 infants were born to mothers with COVID-19 at the time of delivery. Two infants tested positive for SARS-CoV2 after birth—one had respiratory symptoms related to other causes and the other infant remained well. 57 of mother–infant dyads who were well enough, roomed in while in hospital and all were breast fed. All surviving infants were followed up by telephone at 2 weeks and 4 weeks (or from the patient record review if still on the Neonatal Intensive Care Unit. Majority of the discharged infants were still rooming in with mothers (95% at 2 weeks, 99% at 4 weeks) and still breast fed (99% at 2 weeks, 99% at 4 weeks). None of the infants developed any significant health issues or developed symptoms attributable to SARS-CoV2.

CONCLUSIONS

The risk of mother-to-infant transmission of SARS-CoV2, vertically or horizontally, in the perinatal period is very low. Breast feeding and rooming in can be practised safely with adequate infection control precautions with negligible clinical risk to the infant.

A Randomized Controlled Trial: The Effect of Own Mother's Breast Milk Odor and Another Mother's Breast Milk Odor on Pain Level of Newborn Infants

Merve Cakirli, Ayfer Acikgoz

PubMed: January 2021

Abstract

OBJECTIVE

Our research was conducted empirically to determine whether another mother's breast milk could be used to reduce the pain of newborns who were not able to access their own mother's milk for any reason.

MATERIALS AND METHODS

The sample group of the research included 90 newborns [smell of own mother's milk (30), smell of another mother's milk (30), and the control group (30)] hospitalized in the unit. A neonatal information form was used as the data collection tool, the Neonatal Pain, Agitation, and Sedation Scale (N-PASS) was used to assess the newborn's pain, and an evaluation form prepared by the researcher was used to record the findings.

RESULTS

The group which was exposed to their own mother's milk had a significantly lower N-PASS mean score compared to other groups and the group which was exposed to another mother's milk was observed to have a significantly lower N-PASS mean score compared to the control group ($p < 0.05$). While the median values for the total time spent crying of the "own mother's milk" group and the

"another mother's milk" group were similar; the total time spent crying of the control group had a significantly higher median value.

CONCLUSION

Our research determined that, while the most effective method for reducing pain in newborns was the smell of their own mother's breast milk, for newborns who were not able to access their own mother's breast milk, the smell of breast milk from a different mother could also be used.

Quality Improvement

Developmentally Supportive Positioning Policy for Preterm Low Birth Weight Infants in a Tertiary Care Neonatal Unit: A Quality Improvement Initiative

Jaya Upadhyay, Poonam Singh, Kanhu Charan Digal, Shantanu Shubham, Rajat Grover, Sriparna Basu

PubMed: January 2021

Abstract

Objectives

To improve developmentally supportive positioning practices by 50% in neonates weighing <1800 g, admitted in a neonatal intensive care unit over 6 months.

Method

Infant Position Assessment Tool (IPAT) scores were used for assessment of the ideal position. Proportion of neonates with IPAT score ≥8 and improvement of average IPAT score were the process and the outcome measures, respectively. At baseline, 16.6% of infants had optimum position. After root cause analysis, interventions were done in multiple Plan-Do-Study-Act (PDSA) cycles of educational sessions, positioning audits, use of low-cost nesting aids, and training of mothers.

Results

Over 21 weeks, 74 neonates were observed at 714 opportunities. Over 6 months, mean (SD) IPAT score improved from 3.4 (1.4) to 9.2 (2.8). Optimum positioning was maintained in 83.3% neonates during sustenance phase.

Conclusion

Low-cost interventions, awareness regarding standards of optimum positioning and involvement of primary caregiver can effectively improve infant positioning practices.

Using rising tides to lift all boats: Equity-focused quality improvement as a tool to reduce neonatal health disparities

Vicky Reichman, Sandhya S.Brachio, Chinonyerem R. Madu, Diana Montoya-Williams, Michelle-MariePeñaWiley Online Library: August 2020

Science Direct: January 2021

Abstract

Evidence of health disparities affecting newborns abounds. Although quality improvement (QI) methodology is often suggested as a tool to advance health equity, the impact of QI initiatives on disparities is variable. QI work may mitigate, worsen, or perpetuate existing disparities. QI projects designed without an intentional focus on equity promotion may foster intervention-generated inequalities that further disadvantage vulnerable groups. This article reviews disparities in perinatal

and neonatal care, the impact of QI on health disparities, and the concept of “Equity-Focused Quality Improvement” (EF-QI). EF-QI differs from QI with an equity lens in that it is action-oriented and centered around equity. EF-QI initiatives purposely integrate equity throughout the fabric of the project and are inclusive, collaborative efforts that foreground and address the needs of disadvantaged populations. EF-QI principles are applicable at every stage of project conception, execution, analysis, and dissemination, and may provide opportunities for reducing disparities in neonatal care.

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Please share this with colleagues who would find it of interest.

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