This Month's Headlines

Birth Defects
- Sociodemographic and hispanic acculturation factors and isolated anotia/microtia
- A new model for providing cell-free DNA and risk assessment for chromosome abnormalities in a public hospital setting.

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- Global, regional, and national causes of child mortality in 2000-13, with projections to inform post-2015 priorities: an updated systematic analysis.
- Safety and efficacy of filtered sunlight in treatment of jaundice in African neonates.

Publications

Birth Defects in South-East Asia - A Public Health Challenge

The World Health Assembly has expressed concern about the high number of stillbirths and neonatal deaths occurring worldwide, and the large contribution of neonatal mortality to under-five mortality. The Assembly recognized the importance of birth defects as a cause of stillbirths and neonatal mortality, and that the attainment of MDG 4 on reduction of child mortality will require accelerated progress in reducing neonatal mortality, including prevention and management of birth defects.

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Birth Defects

Sociodemographic and hispanic acculturation factors and isolated anotia/microtia.

Hoyt AT, Canfield MA, Shaw GM, Waller DK, Polen KN, Ramadhani T, Anderka MT, Scheuerle AE; the National Birth Defects Prevention Study.

Author information

Abstract

Background

It has been observed in several studies that infants with anotia/microtia are more common among Hispanics compared with other racial/ethnic groups. We examined the association between selected Hispanic ethnicity and acculturation factors and anotia/microtia in the National Birth Defects Prevention Study.

Methods

It has been observed in several studies that infants with anotia/microtia are more common among Hispanics compared with other racial/ethnic groups. We examined the association between selected Hispanic ethnicity and acculturation factors and anotia/microtia in the National Birth Defects Prevention Study.
Results
It has been observed in several studies that infants with anotia/microtia are more common among Hispanics compared with other racial/ethnic groups. We examined the association between selected Hispanic ethnicity and acculturation factors and anotia/microtia in the National Birth Defects Prevention Study.

Conclusion
We observed that certain sociodemographic and acculturation factors are associated with higher risks of anotia/microtia among offspring of Hispanic mothers. Birth Defects Research (Part A), 2014.


A new model for providing cell-free DNA and risk assessment for chromosome abnormalities in a public hospital setting.

Wallerstein R 1, Jelks A 2, Garabedian MJ 2.

Author information

Abstract
Objective: Cell-free DNA (cfDNA) offers highly accurate noninvasive screening for Down syndrome. Incorporating it into routine care is complicated. We present our experience implementing a novel program for cfDNA screening, emphasizing patient education, genetic counseling, and resource management. Study Design. Beginning in January 2013, we initiated a new patient care model in which high-risk patients for aneuploidy received genetic counseling at 12 weeks of gestation. Patients were presented with four pathways for aneuploidy risk assessment and diagnosis: (1) cfDNA; (2) integrated screening; (3) direct-to-invasive testing (chorionic villus sampling or amniocentesis); or (4) no first trimester diagnostic testing/screening. Patients underwent follow-up genetic counseling and detailed ultrasound at 18-20 weeks to review first trimester testing and finalize decision for amniocentesis. Results. Counseling and second trimester detailed ultrasound were provided to 163 women. Most selected cfDNA screening (69%) over integrated screening (0.6%), direct-to-invasive testing (14.1%), or no screening (16.6%). Amniocentesis rates decreased following implementation of cfDNA screening (19.0% versus 13.0%, P < 0.05). Conclusion. When counseled about screening options, women often chose cfDNA over integrated screening. This program is a model for patient-directed, efficient delivery of a newly available high-level technology in a public health setting. Genetic counseling is an integral part of patient education and determination of plan of care.

Newborn

Global, regional, and national causes of child mortality in 2000-13, with projections to inform post-2015 priorities: an updated systematic analysis.


Abstract
Background: Trend data for causes of child death are crucial to inform priorities for improving child survival by and beyond 2015. We report child mortality by cause estimates in 2000-13, and cause-specific mortality scenarios to 2030 and 2035.

Methods: We estimated the distributions of causes of child mortality separately for neonates and children aged 1-59 months. To generate cause-specific mortality fractions, we included new vital registration and verbal autopsy data. We used vital registration data in countries with adequate registration systems. We applied vital registration-based multicause models for countries with low under-5 mortality but inadequate vital registration, and updated verbal autopsy-based multicause models for high mortality countries. We used updated numbers of child deaths to derive numbers of deaths by causes. We applied two scenarios to derive cause-specific mortality in 2030 and 2035.
Findings:
Of the 6.3 million children who died before age 5 years in 2013, 51.8% (3.257 million) died of infectious causes and 44% (2.761 million) died in the neonatal period. The three leading causes are preterm birth complications (0.965 million [15.4%, uncertainty range (UR) 9.8-24.5]; UR 0.615-1.537 million), pneumonia (0.935 million [14.9%, 13.0-16.8]; 0.817-1.057 million), and intrapartum-related complications (0.662 million [10.5%, 6.7-16.8]; 0.421-1.054 million). Reductions in pneumonia, diarrhoea, and measles collectively were responsible for half of the 3.6 million fewer deaths recorded in 2013 versus 2000. Causes with the slowest progress were congenital, preterm, neonatal sepsis, injury, and other causes. If present trends continue, 4.4 million children younger than 5 years will still die in 2030. Furthermore, sub-Saharan Africa will have 33% of the births and 60% of the deaths in 2030, compared with 25% and 50% in 2013, respectively.

Interpretation:
Our projection results provide concrete examples of how the distribution of child causes of deaths could look in 15-20 years to inform priority setting in the post-2015 era. More evidence is needed about shifts in timing, causes, and places of under-5 deaths to inform child survival agendas by and beyond 2015, to end preventable child deaths in a generation, and to count and account for every newborn and every child. FUNDING: Bill & Melinda Gates Foundation.

Safety and efficacy of filtered sunlight in treatment of jaundice in African neonates.

Slusher TM, Vreman HJ, Olusanya BO, Wong RJ, Brearley AM, Vaucher YE, Stevenson DK.

Abstract

Objective:
Evaluate safety and efficacy of filtered-sunlight phototherapy (FS-PT).

Methods:
Term/late preterm infants #14 days old with clinically significant jaundice, assessed by total bilirubin (TB) levels, were recruited from a maternity hospital in Lagos, Nigeria. Sunlight was filtered with commercial window-tinting films that remove most UV and significant levels of infrared light and transmit effective levels of therapeutic blue light. After placing infants under an FS-PT canopy, hourly measurements of axillary temperatures, monitoring for sunburn, dehydration, and irradiances of filtered sunlight were performed. Treatment was deemed safe and efficacious if infants were able to stay in FS-PT for $5 hours and rate of rise of TB was ,0.2 mg/dL/h for infants #72 hours of age or TB decreased for infants .72 hours of age.

Results:
A total of 227 infants received 258 days of FS-PT. No infant developed sunburn or dehydration. On 85 (33%) of 258 treatment days, infants were removed briefly from FS-PT due to minor temperature-related adverse events. No infant met study exit criteria. FS-PT was efficacious in 92% (181/197) of evaluable treatment days. Mean 6 SD TB change was –0.06 6 0.19 mg/dL/h. The mean 6 SD (range) irradiance of FS-PT was 38 6 22 (2–115) mW/cm2/nm, measured by the BiliBlanket Meter II.

Conclusions:
With appropriate monitoring, filtered sunlight is a novel, practical, and inexpensive method of PT that potentially offers safe and efficacious treatment strategy for management of neonatal jaundice in tropical countries where conventional PT treatment is not available.