This Month...

**Birth Defects**
- Microcephaly in Brazil: how to interpret reported numbers
- Maternal exposures in the National Birth Defects Prevention Study: Time trends of selected exposures.

**Newborn**
- Perinatal Microbiomes Influence on Preterm Birth and Preterms' Health: Influencing Factors and Modulation Strategies.
- Between-Hospital Variation in Treatment and Outcomes in Extremely Preterm Infants.

Publications

**Zika Outbreak: WHO’s Global Emergency Response Plan**

WHO has launched a global Strategic Response Framework and Joint Operations Plan to guide the international response to the spread of Zika virus infection and the neonatal malformations and neurological conditions associated with it.

The strategy focuses on mobilizing and coordinating partners, experts and resources to help countries enhance surveillance of the Zika virus and disorders that could be linked to it, improve vector control, effectively communicate risks, guidance and protection measures, provide medical care to those affected and fast-track research and development of vaccines, diagnostics and therapeutics.

Download the infographic
Read the full Strategic Response Framework

**Birth Defects**

**Microcephaly in Brazil: how to interpret reported numbers**

Cesar Gomes Victora, Lavinia Schuler-Faccini, Alicia Matijasevich, Erlane Ribeiro, André Pessoa, Fernando Celso Barros.

**Abstract**

**OBJECTIVE**

Recommended use of a consistent set of diagnostic criteria for suspected microcephaly that take into account gestational age for term and preterm newborn babies; such criteria are provided by the InterGrowth standards. These preliminary recommendations that can be revised once a larger case series is accrued.
STUDY DESIGN
In this prospective, multi-centre study, women had a reliable ultrasound estimate of gestational age using crown–rump length before 14 weeks of gestation or biparietal diameter if antenatal care started between 14 weeks and 24 weeks or less of gestation. Newborn anthropometric measures were obtained by identically trained anthropometric teams using the same equipment at all sites, which included Brazil.

RESULTS
Table: Preliminary estimates of the specificity, sensitivity, and number of suspected cases of microcephaly in Brazil according to different screening criteria

<table>
<thead>
<tr>
<th>Cutoffs</th>
<th>Specificity*</th>
<th>Sensitivity†</th>
<th>Estimated annual number of suspected cases (thousands) Brazil‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil’s Ministry of Health (after Dec 8, 2015)</td>
<td>93·8%</td>
<td>86%</td>
<td>178</td>
</tr>
<tr>
<td>≤32 cm for term newborn babies of both sexes;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤−2 SD of Fenton reference by gestational age and sex for preterm babies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pan American Health Organization</td>
<td>96·1%</td>
<td>80%</td>
<td>114</td>
</tr>
<tr>
<td>&lt;3rd percentile (WHO child growth standards10) for term newborn babies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(&lt;31·6 cm for girls and 32·0 cm for boys) and of the Fenton or InterGrowth reference for preterm babies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below –2 SD, InterGrowth standards</td>
<td>97·8%</td>
<td>85%</td>
<td>63</td>
</tr>
<tr>
<td>≤−2 SD (InterGrowth standards) for gestational age and sex, all newborns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below –3 SD, InterGrowth standards</td>
<td>99·9%</td>
<td>57%</td>
<td>3</td>
</tr>
<tr>
<td>≤−3 SD (InterGrowth standards) for gestational age and sex, all newborns</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Based on applying the InterGrowth standards to the distribution of live births by gestational age in Brazil.
†Preliminary results based on a case series of 31 newborn babies with radiological evidence of brain abnormalities.
‡Calculated on the basis of sensitivity and the gestational age distribution of Brazilian newborn babies.

CONCLUSION
Measurement of newborn head circumference is useful as a screening tool for detecting microcephaly, independently of its cause. The present situation in Brazil is certainly a severe public health challenge. Better measurement and use of the appropriate growth standards are essential for the continued surveillance of microcephaly cases that are potentially associated with the Zika virus infection.

Maternal exposures in the National Birth Defects Prevention Study: Time trends of selected exposures.
Dawson AL, Razzaghi H, Arth A, Canfield MA, Parker SE, Reefhuis J

Abstract
BACKGROUND
Our objective was to describe time trends in selected pregnancy exposures in the National Birth Defects Prevention Study (NBDPS).

METHODS
We analyzed data from the NBDPS, a multi-site case-control study of major birth defects, for mothers of live-born infants without birth defects (controls), with an expected date of delivery (EDD) from 1998 to 2011. Mothers from the 10 participating centers across the United States were interviewed by phone between 6 weeks and 2 years after the EDD. We focused on maternal race/ethnicity and five maternal risk factors: obesity, use of folic acid-containing multivitamins, opioid analgesics, selective serotonin reuptake inhibitors, and loratadine because of their prevalence of use and some reports of associations with major birth defects. Prevalence time trends were examined using the Kendall's τ test statistic.

RESULTS
The exposure trend analysis included 11,724 control mothers with EDDs from 1998 to 2011. We observed a significant increase in obesity prevalence among control mothers, as well as use of selective serotonin reuptake inhibitors and loratadine because of their prevalence of use and some reports of associations with major birth defects. Prevalence time trends were examined using the Kendall's τ test statistic.
rational/ethnic distribution of mothers changed slightly during the study period.

**CONCLUSION**

Long-term, population-based case-control studies continue to be an effective way to assess exposure-birth defects associations and provide guidance to health care providers. However, investigators examining rare outcomes covering many years of data collection need to be cognizant of time trends in exposures.

**Newborn**

*Perinatal Microbiomes Influence on Preterm Birth and Preterms' Health: Influencing Factors and Modulation Strategies.*

Ruiz L, Moles L, Gueimonde M, Rodriguez JM.

**Abstract**

Microbial communities inhabiting the human host play important roles in maintaining health status, including reproduction and early life programming which is particularly important in the context of preterm neonates' health. Preterm birth (PTB) is often the result of a microbial dysbiosis or infection. In addition, preterm neonates suffer from different levels of organ immaturity and an abnormal gut microbiota establishment, as compared to full term neonates. This exacerbates their developmental problems and can have negative consequences at systemic level. In addition, preterm babies are commonly exposed to delayed enteral feeding and hospital environments, which increases the risk of short- and long-term health problems. Some of these clinical conditions, such as necrotizing enterocolitis (NEC) or sepsis, may be life-threatening while others may translate into life-long conditions, including cognitive problems. Increasing scientific interest has focused on understanding developmental problems in preterm neonates related to abnormalities in the settlement of their microbial communities, with the final goal of selecting appropriate microbiome-targeted strategies (e.g. probiotics), to reduce preterm health risks and improve overall quality of life. This review aims to summarize current knowledge on microbiological factors influencing PTB initiation and gastrointestinal development, and on the health consequences to the preterm neonate. Scientific evidences on dietary strategies reducing PTB incidence and minimizing sequelae in this particularly sensitive human group subpopulation are also discussed.

*Between-hospital variation in treatment and outcomes in extremely preterm infants.*


**Abstract**

**BACKGROUND**

Between-hospital variation in outcomes among extremely preterm infants is largely unexplained and may reflect differences in hospital practices regarding the initiation of active lifesaving treatment as compared with comfort care after birth.

**METHODS**

We studied infants born between April 2006 and March 2011 at 24 hospitals included in the Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Data were collected for 4987 infants born before 27 weeks of gestation without congenital anomalies. Active treatment was defined as any potentially lifesaving intervention administered after birth. Survival and neurodevelopmental impairment at 18 to 22 months of corrected age were assessed in 4704 children (94.3%).

**RESULTS**

Overall rates of active treatment ranged from 22.1% (interquartile range [IQR], 7.7 to 100) among infants born at 22 weeks of gestation to 99.8% (IQR, 100 to 100) among those born at 26 weeks of gestation. Overall rates of survival and survival without severe impairment ranged from 5.1% (IQR, 0 to 10.6) and 3.4% (IQR, 0 to 6.9), respectively, among children born at 22 weeks of gestation to 81.4% (IQR, 78.2 to 84.0) and 75.6% (IQR, 69.5 to 80.0), respectively, among those born at 26 weeks of gestation. Hospital rates of active treatment accounted for 78% and 75% of the between-hospital variation in survival and survival without severe impairment, respectively, among children.
born at 22 or 23 weeks of gestation, and accounted for 22% and 16%, respectively, among those born at 24 weeks of gestation, but the rates did not account for any of the variation in outcomes among those born at 25 or 26 weeks of gestation.

CONCLUSIONS
Differences in hospital practices regarding the initiation of active treatment in infants born at 22, 23, or 24 weeks of gestation explain some of the between-hospital variation in survival and survival without impairment among such patients. (Funded by the National Institutes of Health.)