

# South-East Asia Networks for Newborn & Birth Defect



WHO Collaborating Centre for Training and Research in Newborn Care  
Collaborating Centre for Training in Clinical Laboratory Genetics in Developing Countries Department of Pediatrics  
AIIMS, New Delhi, India

January 2015

## This Month...

### Birth Defects

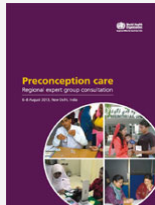
- [Spatial analysis of gastroschisis in Massachusetts and Texas.](#)
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### Newborn

- [Effectiveness of folic acid supplementation in pregnancy on reducing the risk of small-for-gestational age neonates: a population study, systematic review and meta-analysis.](#)
- [Association of Antenatal Depression with Adverse Consequences for the Mother and Newborn in Rural Ghana: Findings from the DON Population-Based Cohort Study.](#)

## Publications

### Preconception care



#### Report of a regional expert group consultation, 6–8 August 2013, New Delhi, India

Preconception care is a set of interventions that are to be provided before pregnancy, to promote the health and well-being of women and couples, as well as to improve the pregnancy and child-health outcomes. Adolescence is a natural extension of the pre-pregnancy phase of the life-course continuum. During adolescence, in addition to initiation of sexual behaviour, it is recognized that several health-risk behaviours related to noncommunicable diseases, substance use, injuries, etc. are also initiated and may have lifelong implications. This phase of human life offers an excellent opportunity to promote adoption of healthy behaviours, to ensure health during adolescence, adulthood and later life. Evidence-based interventions can be provided as a package in primary health-care settings during the periods of adolescence (for healthy transition to adulthood), pre-pregnancy and inter-pregnancy care, and could be offered to adolescents in an age-appropriate manner.

[Read full publication](#)

## Birth Defects

[Spatial analysis of gastroschisis in Massachusetts and Texas.](#)

#### [Author information](#)

#### **Abstract**

##### **PURPOSE:**

Previous research has suggested gastroschisis, a congenital malformation, may be linked to environmental or infectious factors and cases can occur in clusters. The objective of this study was to identify geographic areas of elevated gastroschisis risk.

##### **METHODS :**

Cases of gastroschisis were identified from birth defect registries in Massachusetts and Texas. Random samples of live births were selected as controls. Generalized additive models were used to create a continuous map surface of odds ratios (ORs) by smoothing over latitude and longitude. Maternal age, race/ethnicity, education, cigarette smoking, and insurance status (MA only) were assessed for confounding factors. We used permutation tests to identify statistically significant areas of increased risk.

##### **RESULTS :**

An area of increased risk was identified in North Central Massachusetts but was not significant after adjustment (P value = .07; OR = 2.0). In Texas, two statistically significant areas of increased risk were identified after adjustment (P value = .02; OR = 1.3 and 1.2). Texas had sufficient data to assess the combination of space and time, which identified an increased risk in 2003 and 2004.

##### **CONCLUSIONS :**

This study suggests there were areas of elevated gastroschisis risk in Massachusetts and Texas, which cannot be explained by the risk factors we assessed. Additional exploration of underlying artifactual, environmental, infectious, or behavioral factors may further our understanding of gastroschisis.

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### **Prenatal management of the fetus with isolated congenital diaphragmatic hernia in the era of the TOTAL trial.**

[Semin Fetal Neonatal Med](#). 2014 Dec;19(6):338-348. doi: 10.1016/j.siny.2014.09.006. Epub 2014 Nov 11.

[Deprest J](#) 1, [Brady P](#) 2, [Nicolaides K](#) 3, [Benachi A](#) 4, [Berg C](#) 5, [Vermeesch J](#) 2, [Gardener G](#) 6, [Gratacos E](#) 7

#### [Author information](#)

#### **Abstract:**

Congenital diaphragmatic hernia (CDH) may be isolated or associated with other structural anomalies, the latter with poor prognosis. The defect allows viscera to herniate through the defect into the chest, competing for space with the developing lungs. At birth, pulmonary hypoplasia leads to respiratory insufficiency and persistent pulmonary hypertension that is lethal in up to 30% of patients. When isolated, survival chances can be predicted by antenatal measurement of lung size and liver herniation. Chromosomal microarrays and exome sequencing contribute to understanding genetic factors underlying isolated CDH. Prenatal intervention aims at stimulating lung development, clinically achieved by percutaneous fetal endoscopic tracheal occlusion (FETO) under local anesthesia. The Tracheal Occlusion To Accelerate Lung growth trial ([www.totaltrial.eu](http://www.totaltrial.eu)) is an international randomized trial investigating the role of fetal therapy for severe and moderate pulmonary hypoplasia. Despite an apparent increase in survival following FETO, the search for lesser invasive and more potent prenatal interventions must continue.

## **Newborn**

## Effectiveness of folic acid supplementation in pregnancy on reducing the risk of small-for-gestational age neonates: a population study, systematic review and meta-analysis.

BJOG. 2014 Nov 26. doi: 10.1111/1471-0528.13202. [Epub ahead of print]

[Hodgetts V.](#), [Morris R.](#), [Francis A.](#), [Gardosi J.](#), [Ismail K.](#)

### OBJECTIVES:

To assess the effect of timing of folic acid (FA) supplementation during pregnancy on the risk of the neonate being small for gestational age (SGA).

### DESIGN:

A population database study and a systematic review with meta-analysis including the results of this population study.

### SETTING AND DATA SOURCES:

A UK regional database was used for the population study and an electronic literature search (from inception until August 2013) for the systematic review. Participants and included studies: Singleton live births with no known congenital anomalies; 111 736 in population study and 188 796 in systematic review. Outcome measures, data extraction and analysis: The main outcome was SGA based on customised birthweight centile. Associations are presented as odds ratios (OR) and adjusted odds ratios (aOR), adjusted for maternal and pregnancy-related characteristics.

### RESULTS:

Of 108 525 pregnancies with information about FA supplementation, 92133 (84.9%) had taken FA during pregnancy. Time of commencement of supplementation was recorded in 39416 pregnancies, of which FA was commenced before conception in 10036, (25.5%) cases. Preconception commencement of FA supplementation was associated with reduced risk of SGA <10th centile (aOR 0.80, 95% CI 0.71-0.90,  $P < 0.01$ ) and SGA <5th centile (aOR 0.78, 95% CI 0.66-0.91,  $P < 0.01$ ). This result was reproduced when the data were pooled with other studies in the systematic review, showing a significant reduction in SGA (<5th centile) births with preconception commencement of FA (aOR 0.75, 95% CI 0.61-0.92,  $P < 0.006$ ). In contrast, postconception folate had no significant effect on SGA rates.

### CONCLUSION:

Supplementation with FA significantly reduces the risk of SGA at birth but only if commenced preconceptually independent of other risk factors.

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## Association of Antenatal Depression with Adverse Consequences for the Mother and Newborn in Rural Ghana: Findings from the DON Population-Based Cohort Study.

PLoS One. 2014 Dec 30;9(12):e116333. doi: 10.1371/journal.pone.0116333.

[Weobong B.](#), [Ten Asbroek AH.](#), [Soremekun S.](#), [Manu AA.](#), [Owusu-Agyei S.](#), [Prince M.](#), [Kirkwood BR.](#)

### BACKGROUND

Whilst there is compelling evidence of an almost 2-fold increased risk of still births, and suggestive evidence of increased mortality among offspring of mothers with psychotic disorders, only three studies have addressed the role of antenatal depression (AND) on survival of the baby. We examined these associations in a large cohort of pregnant women in Ghana.

### METHODS:

A Cohort study nested within 4-weekly surveillance of all women of reproductive age to identify pregnancies and collect data on births and deaths in the Kintampo Health Research Centre study area of Ghana. Women were screened for AND using the Patient Health Questionnaire (PHQ-9) to ascertain DSM-IV major or minor depression. Outcomes were adverse birth outcomes, maternal/infant morbidity, and uptake of key newborn care practices, examined using logistic regression; effect sizes reported as relative risks with 95% confidence intervals.

## RESULTS:

20679 (89.6%) pregnant women completed the PHQ-9. The prevalence of AND was 9.9% (n=2032) (95% confidence interval 9.4%-10.2%). AND was associated with: prolonged labour (RR 1.25, 95% CI 1.02-1.53); peripartum complications (RR 1.11, 95% CI 1.07-1.15); postpartum complications (RR 1.27, 96% CI 1.21-1.34); non-vaginal delivery (RR 1.19, 95% CI 1.02-1.40); newborn illness (RR 1.52, 95% CI 1.16-1.99); and bed net use during pregnancy (RR 0.93, 95% CI 0.89-0.98), but not neonatal deaths, still births, low birth weight, immediate breast feeding initiation, or exclusive breastfeeding. AND was marginally associated with preterm births (RR 1.32, 95% CI 0.98-1.76).

## CONCLUSION:

This paper has contributed important evidence on the role of antenatal depression as a potential contributor to maternal and infant morbidity. Non-pharmacological treatments anchored on primary care delivery structures are recommended as an immediate step. We further recommend that trials are designed to assess if treating antenatal depression in conjunction with improving the quality of obstetric care results in improved maternal and newborn outcomes.

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Supported by World Health Organization, Regional Office for South East Asia &  
National Center on Birth Defects & Developmental Disabilities, CDC, Atlanta

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