This Month...

**Birth Defects**

- Folic acid fortification and prevalences of neural tube defects, orofacial clefts, and gastroschisis in California, 1989 to 2010.

- Association between IRF6 and 8q24 polymorphisms and nonsyndromic cleft lip with or without cleft palate: Systematic review and meta-analysis.

**Newborn**

- Reducing Perinatal Mortality in Nepal Using Helping Babies Breathe

- Improvements in newborn care and newborn resuscitation following a quality improvement program at scale: results from a before and after study in Tanzania

Feedback Survey -- NBBD e-Blast/e-Newsletter

As a member of SEAR-NBBD (South East Asia Region-New-born and Birth Defects) surveillance initiative, you have been receiving monthly emails (e-blast) and quarterly newsletters (e-newsletter) from WHO Collaborating Center for Training and Research in Newborn Care, AllIMS, New-Delhi (supported by WHO-SEARO and CDC-USA).

The purpose of these communications is to share recent publications on newborn health and birth defects as well as provide information on significant events and alerts on birth defects. The objective of this survey is to:-

a. confirm that you are receiving the material regularly
b. assess the usefulness/relevance of the material to you

Click here to complete this online Survey. it only takes 5 minutes. You must complete the survey by 31st October 2016.

Your honest feedback is crucial to the progress of NBBD.

Thank you for your time and consideration.

**Birth Defects**

Folic acid fortification and prevalences of neural tube defects, orofacial clefts, and gastroschisis in California, 1989 to 2010.
Abstract

**BACKGROUND**
We examined whether prevalences of neural tube defects (NTDs), orofacial clefts, and gastroschisis changed more rapidly after than before folic acid fortification in California.

**METHODS**
This population-based study used vital statistics and birth defects registry data. The study population included all live births and stillbirths delivered in central California counties from 1989 to 2010. Cases included deliveries with NTDs, orofacial clefts, and gastroschisis. Weighted least squares regression was used to estimate slopes during prefortification (before 1997) and postfortification (after 1998), respectively. The difference of the two slopes with the 95% confidence interval (CI) was calculated.

**RESULTS**
For all NTDs combined, slopes indicated that NTD prevalence was decreasing by 8.7 (slope: -8.7; 95% CI, -13.5-3.9) cases per 100,000 deliveries per year before fortification and by 1.7 (slope: -1.7; 95% CI, -3.7-0.3) after fortification; thus the decline had slowed by 7.0 (95% CI, 2.7-11.3) cases per 100,000 deliveries per year. For orofacial clefts, slopes for cleft lip with/without palate as well as for cleft palate alone indicated that the postfortification slope was lower than the prefortification slope suggesting a more accelerated decrease in the postfortification time period. For gastroschisis, the slope after fortification was lower compared with prefortification, indicating a less accelerated prevalence increase in the postfortification time period. Stratification by race/ethnicity did not substantially alter results.

**CONCLUSION**
We observed a slower decline in prevalence of NTDs, an emergence of a decline in orofacial clefts, and a slower increase in gastroschisis, during the postfortification period in central California, relative to the prefortification period.

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**Association between IRF6 and 8q24 polymorphisms and nonsyndromic cleft lip with or without cleft palate: Systematic review and meta-analysis.**


Wattanawong K, Rattanasiri S, McEvoy M, Attia J, Thakkinstian A.

Abstract

**BACKGROUND**
We conducted a systematic review and meta-analysis of interferon regulatory factor 6 and 8q24 polymorphisms with nonsyndromic cleft lip with/without cleft palate (NSCL/P).

**METHODS**
Data extraction was independently performed by two reviewers. Genotypic effects of four polymorphisms from 31 studies were pooled separately by ethnicity using a mixed-effect logit model with accounting for heterogeneity.

**RESULTS**
For rs2235371, AA and GA carried, respectively, 51% (95% confidence interval [CI], 37%-61%) and 42% (95% CI, 32%-50%) lower risks of NSCL/P than GG genotypes in Asians, but these genotypes were not significant in Caucasians. For rs2013162, only AA was significant, that is, carried 0.65 (95% CI, 0.52-0.82) times lower odds than CC in Caucasians but not for Asians. For rs642961, AA and GA genotypes, respectively, carried 2.47 (95% CI, 1.41-4.35) and 1.40 (95% CI, 1.12-1.75) times higher odds in Asian, and 2.03 (95% CI, 1.52-2.71) and 1.58 (95% CI, 1.37-1.82) times higher odds in Caucasians compared with GG genotypes. For rs987525, AA and CA genotypes carried 2.27 (95% CI, 1.43-3.60) and 1.34 (95% CI, 1.02-1.77) times higher odds in Asian, and 5.25 (95% CI, 3.98-6.91) and 2.13 (95% CI, 1.82, 2.49) times higher odds in Caucasians, and 1.42 (95% CI, 1.10-1.82) and 1.28 (95% CI, 1.09-1.50) times higher odds in mixed ethnicities compared with CC genotypes. These variant effects remained significant based on applying Bonferroni corrected-thresholds, except in the mixed ethnicity.
**CONCLUSION**

We show robust variant effects in NSCL/P. Considering them with other genes and risk factors might be useful to improve prediction of NSCL/P occurrence.

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**Reducing Perinatal Mortality in Nepal Using Helping Babies Breathe**

May 2016

Ashish KC, Johan Wrammert, Robert B. Clark, Uwe Ewald, Ravi Vitrakoti, Pushpa Chaudhary, Asha Pun, Hendrikus Raaijmakers, Mats Målqvist

Abstract

**BACKGROUND AND OBJECTIVE**

Newborns are at the highest risk of dying around the time of birth, due to intrapartum-related complications. Our study’s objective was to improve adherence to the Helping Babies Breathe (HBB) neonatal resuscitation protocol and reduce perinatal mortality by using a quality improvement cycle (QIC) in a tertiary hospital in Nepal.

**METHODS**

The HBB QIC was implemented through a multifaceted approach, including the formation of quality improvement teams; development of quality improvement goals, objectives, and standards; HBB protocol training; weekly review meetings; daily skill checks; use of self-evaluation checklists; and refresher training. A cohort design, including a nested case-control study was used to measure changes in clinical outcomes and adherence to the resuscitation protocol through video recording, before and after implementation of the QIC.

**RESULTS**

The intrapartum stillbirth rate decreased from 9.0 to 3.2 per thousand deliveries, and first-day mortality from 5.2 to 1.9 per thousand live births after intervention, demonstrating a reduction of approximately half in the odds of intrapartum stillbirth (adjusted odds ratio [OR] 0.46, 95% confidence interval [CI] 0.32–0.66) and first-day mortality (adjusted OR 0.51, 95% CI 0.31–0.83). After intervention, the odds of inappropriate use of suction and stimulation decreased by 87% (OR 0.13, 95% CI 0.09–0.17) and 62% (OR 0.38, 95% CI 0.29–0.49), respectively. Before intervention, none of the infants received bag-and-mask ventilation within 1 minute of birth, compared with 83.9% of infants after.

**CONCLUSIONS**

The HBB QIC reduced intrapartum stillbirth and first-day neonatal mortality and led to use of suctioning and stimulation more frequently. The HBB QIC requires further testing in primary settings across Nepal.

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**Improvements in newborn care and newborn resuscitation following a quality improvement program at scale: results from a before and after study in Tanzania**

Christina Lulu Makene, Marya Plotkin, corresponding author Sheena Currie, Dunstan Bishanga, Patience Ugwi, Henry Louis, Kiholet Winani, and Brett D Nelson

Abstract

**BACKGROUND**

Every year, more than a million of the world’s newborns die on their first day of life; as many as two-thirds of these deaths could be saved with essential care at birth and the early newborn period. Simple interventions to improve the quality of essential newborn care in health facilities – for example, improving steps to help newborns breathe at birth – have demonstrated up to 47% reduction in newborn mortality in health facilities in Tanzania. We conducted an evaluation of the effects of a large-scale maternal-newborn quality improvement intervention in Tanzania that assessed the quality of provision of essential newborn care and newborn resuscitation.

**METHODS**

Cross-sectional health facility surveys were conducted pre-intervention (2010) and post intervention (2012) in 52 health facilities in the program implementation area. Essential newborn care provided by health care providers immediately following birth was observed for 489 newborns in 2010 and 560 in
2012; actual management of newborns with trouble breathing were observed in 2010 (n=18) and 2012 (n=40). Assessments of health worker knowledge were conducted with case studies (2010, n=206; 2012, n=217) and a simulated resuscitation using a newborn mannequin (2010, n=299; 2012, n=213). Facility audits assessed facility readiness for essential newborn care.

RESULTS
Index scores for quality of observed essential newborn care showed significant overall improvement following the quality-of-care intervention, from 39% to 73% (p <0.0001). Health worker knowledge using a case study significantly improved as well, from 23% to 41% (p <0.0001) but skills in resuscitation using a newborn mannequin were persistently low. Availability of essential newborn care supplies, which was high at baseline in the regional hospitals, improved at the lower-level health facilities.

CONCLUSION
Within two years, the quality improvement program was successful in raising the quality of essential newborn care services in the program facilities. Some gaps in newborn care were persistent, notably practical skills in newborn resuscitation. Continued investment in life-saving improvements to newborn care through the health services is a priority for reduction of newborn mortality in Tanzania.

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