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FACTORS ASSOCIATED WITH ABNORMAL PAP SMEARS IN A HEALTH CENTER – COSTA RICA, 2009

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BACKGROUND: Cervical cancer is among the leading causes of cancer in women globally; in Costa Rica it is among the top three causes. Although the PAP smears are part of the national screening guidelines the coverage in some areas of health is low.

STUDY QUESTIONS: The objective of our study was to identify demographic and clinical factors associated with abnormal Pap Smears to improve prevention and control strategies

METHODS: We conducted a health center-based case-control study. A case was defined as any woman seeking care in a health center during 2009, having a Pap test positive for either cells of undetermined significance (ASCUS), mild, moderate or severe dysplasia. Controls were selected by simple random sampling using records of women seen at the same health centers in 2009 and having normal PAP smears. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated for associations between potential risk factors and abnormal PAP smears.

RESULTS: We identified 62 cases and 137 controls. The average age of cases was 43 and in the controls was 42 (p = 0.90). ASCUS was the most frequent abnormal cytology result (39%). Factors found to be significantly associated with abnormal cytology were: tobacco use (OR=2.35; 95% CI=1.26-4.31), onset of sexual activity before age 18 (OR=2.0; 95% CI=1.06-3.64) and having a history of > 3 sexual partners (OR=2.0; 95% CI=1.11-3.97).

CONCLUSIONS: There was similarity between risk factors we identified as described in the literature, like onset of sexual activity before age 18 and have history of 3 or more sexual partners. These are common risk factors associated with Human Papilloma Virus (HPV) acquiring infection. Our study may have been limited as we didn’t collect HPV status, as this is not typically used.

PUBLIC HEALTH IMPLICATIONS: Considering these risk factors represent modifiable health behaviors, we recommended dissemination of our findings to local health authorities in order to generate intervention strategies to promote responsible, healthy sexual behaviors as how to reduce tobacco consumption.
PERFORMANCE AND PREDICTORS OF HOSPITAL-BASED HEALTHCARE RESPONSE TO INTIMATE PARTNER VIOLENCE

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BACKGROUND: IPV screening and intervention tools suggested in the literature include 3 best-informed models with 9 essential components. Examining the gap between actual and suggested practice is necessary to better understand how to implement evidence-based practices.

STUDY QUESTIONS: What factors are associated with increased match to best-informed model IPV response in a healthcare setting? How well do provider-reported practices match best-informed model response?

METHODS: Our study design compares self-reported provider practice to best-informed model IPV response practices and assesses predictors associated with a higher degree of match to model practice. We used an existing data set collected by the Medical Subcommittee of the San Diego Domestic Violence Council. Nine essential components of best-informed IPV response were used to create an unweighted scoring system in which respondents received 1 point for matching a given component. Analysis employed bivariate and multivariate logistic regression methods. The main study limitation is that the survey was not specifically designed for this study.

RESULTS: Overall, the mean model agreement score was quite high among all responders (n=150, 7.07 out of a possible score of 9). Institution 1 had a lower mean model agreement score (5.83, n=36) than Institution 2 (7.59, n=61). In all demographic areas, persons at Institution 2 had significantly higher match scores than counterparts at Institution 1; nurses (p=0.0191), ER (p=0.0424), Age 31-40yrs (0.0153), Non-Hispanic White Ethnicity (p=0.0174), Female gender (p= 0.0125), and having IPV awareness in professional training (p=0.0001). Provider reported barriers were highly consistent with the literature but had no significant association, neither by specific barrier nor total number of reported barriers, with the degree of match to best-informed practice.

CONCLUSIONS: Nursing and social work professions, professional education in IPV, institution, and Non-Hispanic White ethnicity were associated with higher degree of matching to best-informed model IPV response.

PUBLIC HEALTH IMPLICATIONS: Institutional settings with a culture of IPV awareness and providers with IPV training in their educations may help improve IPV response. Examining the training of the social work and nursing professions for translations to other roles could further contribute. Further research should expand beyond overcoming provider reported barriers as they were not associated with match to best-informed practice.
SEXUAL ACTIVITY AND THE HPV VACCINE: A PILOT STUDY ON THE INFLUENCE OF THE HPV VACCINE ON SEXUAL BEHAVIOUR AMONG ADOLESCENT GIRLS AGES 13-18

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BACKGROUND: In North America, the human papillomavirus (HPV) quadrivalent recombinant vaccine (Gardasil) is currently indicated for young women 9-26 years of age for the prevention of cervical cancer, vulvar and vaginal precancers and cancers, and genital warts associated with HPV types 6, 11, 16 or 18 infection. Despite compelling evidence in its utility in preventing HPV related cancers and genital warts, only 50% of girls eligible for the free vaccine program agree to receiving it in some areas. One of the most controversial issues surrounding vaccine administration is whether the vaccine would encourage more sexual activity and unsafe sex practices among young adolescent females.

STUDY QUESTIONS: Is there evidence of an association between receiving the HPV vaccination as part of the vaccination program for grade eight girls and sexual activity?

METHODS: This is a cross-sectional retrospective observational study. The charts for eligible participants were identified in a family physician’s office. Letters of information were sent to potential participants and their guardians via mail. Data was collected using standardized abstraction forms. Results were analyzed using a chi-square test. Study limitations include missing data from charts, a much lower than expected event rate, and a potential response bias.

RESULTS: There was no significant difference in sexual activity between girls who received the vaccine and those who did not. Due to the small sample size, the study is underpowered. However this is a pilot study; results are primarily exploratory.

CONCLUSIONS: Initial results suggest that there is no difference between the sexual activity of vaccinated and unvaccinated adolescent females. More research is needed to determine whether sexual activity and vaccine status are correlated.

PUBLIC HEALTH IMPLICATIONS: One of the reasons that vaccine uptake has been quite low is because parents have been hesitant to give their daughters the vaccine out of fear that it would encourage sexual promiscuity at a young age. The results of this study and future studies like it would help better inform the public debate over the HPV vaccination; guide the development of better educational tools; and hopefully lead to higher vaccine uptake and subsequent reduction in the prevalence of HPV related diseases.
PERINATAL OUTCOMES OF TEXAS TEENS AND THEIR INFANTS: COMPARING FAMILY PLANNING CLIENTS TO THE GENERAL TEXAS POPULATION

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BACKGROUND: Texas has the third-highest adolescent birth rate in the U.S. Many studies have determined that adolescent mothers are at increased risk for inadequate prenatal care and adverse birth outcomes such as preterm delivery and low birth weight.

STUDY QUESTIONS: Do adolescent mothers who receive family planning services have improved perinatal maternal and infant outcomes when compared to adolescent mothers who do not receive family planning services?

METHODS: Data on women receiving government-funded family planning services in 2007 was collected and linked with birth certificate data from 2007-2008. The linked data set yielded a sample of 2,101 adolescent mothers aged 13-17 years who gave birth in 2007 or 2008. Prenatal care, gestational age at delivery, birth weight, birth spacing, and live birth order were examined. These birth outcomes were compared between the population of adolescent family planning clients and the general population of adolescent mothers who gave birth in 2007-2008 and did not receive government-funded family planning services (n=37,502).

RESULTS: A larger proportion of adolescent family planning clients were Hispanic (80.6%) in comparison to the general population (68.6%). Chi-squared analyses revealed significant differences between the two populations with regard to prenatal care, birth spacing, and birth weight. Nearly 20% of adolescents who did not receive family planning services had no or late prenatal care compared to only 16.7% of family planning clients. Although the two populations did not differ significantly in the proportion of adolescents who have had a previous live birth (~11%), a smaller proportion of adolescents in family planning had births spaced less than 18 months apart (4.0% vs. 5.2%). Additionally, adolescent mothers who received family planning services had a lower proportion of low birth weight infants (8.3% vs. 10.2%). No significant difference in the proportion of preterm infants (~15%) was observed.

CONCLUSIONS: Adolescent mothers who received government-funded family planning services demonstrated improved prenatal care, birth spacing, and low birth weight outcomes compared to adolescent mothers who did not receive family planning services.

PUBLIC HEALTH IMPLICATIONS: Continuing to provide family planning services will ensure that adolescent mothers are exposed to education and healthcare services that help to improve their and their infants' pre-, peri-, and postnatal outcomes.
BACKGROUND: Although prevalence of certain chronic conditions has been assessed among all adult American Indian and Alaska Native (AI/AN) women, the prevalence of multiple chronic diseases/risk factors among a nationally representative sample of AI/AN women of reproductive age has not previously been reported.

STUDY QUESTIONS: What is the prevalence of chronic conditions/risk factors among AI/AN women and non-Hispanic whites of reproductive age, and does it vary between AI/AN and non-Hispanic white women?

METHODS: We conducted a national cross-sectional analysis of 2,821 AI/AN and 105,664 white women aged 18-44 years from the Behavioral Risk Factor Surveillance System in years 2005 and 2007, survey years that included questions on cholesterol and blood pressure. We examined prevalence of high cholesterol, high blood pressure, diabetes, body mass index, physical inactivity, smoking, excessive alcohol consumption, frequent mental distress and cumulative number of chronic conditions and risk factors (>3, 2, 1, 0) comparing AI/AN women to white women. In a multivariable, multinomial logistic regression model, we examined whether AI/AN status was associated with cumulative number of chronic conditions and risk factors.

RESULTS: AI/AN women, compared to whites, respectively, self-reported higher rates of high blood pressure (12.0% vs. 8.2%), diabetes (5.4% vs. 2.2%), obesity (25.8% vs. 19.2%), smoking (38.2% vs. 25.2%), and frequent mental distress (19.6% vs. 13.1%) (p<0.01 for all). Of AI/AN women, 41.4% had >3 chronic conditions or risk factors compared to 26.7% of whites (p<0.0001). After adjusting for income, education and other demographic variables, AI/AN status was not associated with having >3 (adjusted odds ratio (aOR)=1.3, 95% confidence interval (CI): 0.8-2.0); 2 (aOR=0.9, 95% CI: 0.6-1.4), or 1 (aOR=0.8, 95% CI: 0.5-1.2) chronic conditions or risk factors.

CONCLUSIONS: AI/AN women are disproportionately burdened by chronic conditions and risk factors compared to white women, possibly due to lower income and educational status.

PUBLIC HEALTH IMPLICATIONS: The findings in this study highlight the need for screening and interventions to prevent adverse pregnancy outcomes and chronic disease among young AI/AN women of reproductive age.
USING A FIMMRR TO STUDY THE ASSOCIATION BETWEEN SMOKING AND OUTCOMES OF PREGNANCY

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BACKGROUND: Despite medical advances, reproductive loss remains a critical problem in Central New York (CNY), as well as in the United States. Often there are inadequate details regarding the cause of death or contributing factors and for this reason it is difficult to develop appropriate interventions to reduce poor pregnancy outcomes. We established the Fetal-Infant Mortality/Morbidity Review/Registry (FIMMRR) in 2006 to shed light on the root causes of poor pregnancy outcomes, contributing factors, and areas for targeted inventions.

STUDY QUESTIONS: Can a FIMMRR be effectively utilized to study the association between smoking and pregnancy outcomes?

METHODS: The FIMMRR captures detailed data on perinatal/infant mortalities in the CNY region. Data were abstracted from maternal and infant records for all spontaneous fetal deaths (? 300 grams) and all infant deaths (? 300 grams) in CNY affiliate birth hospitals during the years 2006-2009. We used the FIMMRR together with the Statewide Perinatal Data System, a population-based birth registry, to compare smoking rates and other contributing factors with the general population.

RESULTS: We registered 455 fetal deaths, 291 neonatal deaths, and 71 post-neonatal deaths for a total of 817. In 35.9% of these cases, the women smoked during pregnancy, compared with only 21.9% of women in the general population (p<.001). Smoking was significantly associated with placental abruption. Placental abruption occurred in 27.3% of the deaths, compared with 0.6% in the general population (p<.001). In the general population, smoking was significantly associated with low birthweight and preterm delivery. More than three-fourths of all deaths were low birthweight and preterm. Smoking was significantly associated with post-neonatal death, where it was identified as a contributing factor in 47.9% of the cases.

CONCLUSIONS: We used a FIMMRR to study factors related to poor pregnancy outcomes. Smoking was associated with placental abruptions, fetal and infant deaths.

PUBLIC HEALTH IMPLICATIONS: These results have been shared with our local MCH community, and have resulted in targeted interventions. These interventions include medical, as well as, community and public health initiatives.
INTENT TO BREASTFEED AMONG RURAL WOMEN: A POPULATION-BASED PERSPECTIVE

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BACKGROUND: Prenatal maternal intent to breastfeed can indicate postnatal breastfeeding practices and identify potential barriers to breastfeeding. Breastfeeding rates in West Virginia, a primarily rural state, are among the lowest in the nation. By examining factors associated with maternal intent to breastfeed, barriers to breastfeeding may be identified, providing insight into potential strategies to promote breastfeeding among rural women. Minimal research has been published on population-based prenatal intent to breastfeed among rural women.

STUDY QUESTIONS: What are the characteristics of pregnant women in West Virginia who report intent to breastfeed?

METHODS: Secondary data analysis of population-based data was conducted using state-linked databases for all live singleton births from 20 weeks gestation in West Virginia from 2004-6, for a total of 52,899 births.

RESULTS: Statistically significant variables of the logistic regression analysis predicting maternal prenatal intent to breastfeed include insurance (OR=1.40), education (OR=1.94), age (OR=1.02), parity (OR=0.54), marital status (OR=1.43), timing of prenatal care initiation (OR=1.25), and smoking status (OR=0.57) (P<0.001 for all variables).

CONCLUSIONS: Prenatal identification of characteristics associated with lack of intent to breastfeed can serve to inform providers of women at risk for not breastfeeding for directed breastfeeding promotion and intervention, complementing education of modifiable healthy lifestyle choices such as breastfeeding promotion with smoking cessation.

PUBLIC HEALTH IMPLICATIONS: Breastfeeding is a modifiable risk factor that can serve to promote maternal and infant health. Considering the influence of prenatal lifestyle choices on postpartum health behaviors, maternal report of feeding intent is an indicator for public health specialists of needed areas of breastfeeding education and referral to breastfeeding support resources. Policy makers can use the study findings to help promote breastfeeding in the state, where breastfeeding rates are among the lowest in the nation. Currently, the West Virginia Healthy People 2010 contains no objective for breastfeeding, although there are federal objectives aimed at increasing breastfeeding rates in the nation's Healthy People 2010 and 2020.
CHANGE IN ATTITUDE REGARDING INITIATION OF BREAST FEEDING PRACTICES AMONG FEMALES DELIVERING SECOND CHILD ONWARDS

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BACKGROUND: Despite recommendations for early initiation of breastfeeding, it is common practice in India that females discard the colostrum and do not start breastfeed till the clear milk starts. Till then the neonate is given sweet water only. This is a major public health problem because the infant suffers from the benefits of colostrum.

STUDY QUESTIONS: To study the effect of counseling for initiation of early breast feeding.

METHODS: The study was conducted at a field training center for Interns of a Medical College in Delhi, India. Semi structured pilot tested proforma was used to collect the information from the females attending Antenatal clinic from Jan 2010 to April 2010 and they delivered between July to Dec. 2010. All the females who were coming for second pregnancy onwards and she did not breastfeed her first baby within four hours of delivery was included in the study. Extensive breast feeding counseling was done on each visit to the clinic. Information regarding breast feeding in the first baby, whether she received any information regarding benefits of early initiation of breast feeding, place and mode of delivery and all the details regarding breast feeding practices in the first delivery were recorded. Data collected was analyzed by entering data in Epi info software. Study had its limitations of small sample size due to budgetary constraints.

RESULTS: A total of 178 females were included in the study. After delivery 162 could be contacted for information a response rate of 91%. Of these 162 (0%) none had breast fed the baby during the first delivery as per WHO norms. This time after counseling majority delivered in the hospital and 148 (91.3%) initiated the breast feeding during the first hour of the delivery.

CONCLUSIONS: It is thus concluded that breast feeding advice during ante natal period must be given during each visit and the female should be made aware of the early initiation of breast feeding. Her myths and misconceptions must taken seriously and all the doubts cleared and advised accordingly.

PUBLIC HEALTH IMPLICATIONS: Colostrum is first immunization for baby and those not fed suffer from various diseases.
LABOR INDUCTION IN UTAH, 2009 UTAH PRAMS

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BACKGROUND: Elective inductions may be contributing to the rise in cesarean sections and preterm birth. The rate of induction has more than doubled since 1990. The American College of Obstetricians and Gynecologists issued a practice bulletin on labor induction in 2009, but did not provide any recommendations for limiting elective inductions. Two of Utah’s largest hospital networks have passed policies limiting inductions before 39 weeks without medical reason, however little is known about statewide rates of elective induction and reasons for these inductions.

STUDY QUESTIONS: To describe the characteristics of women with labor induction and their reasons for induction.

METHODS: We performed Chi-squared analyses using SAS callable SUDAAN on PRAMS data (2009) to assess induced women’s demographic characteristics and their reasons for induction.

RESULTS: Overall, 46.6% of women indicated that their labors were induced. Of these 4.7% were preterm, 21.5% were 37-38 weeks, and the remaining 73.8% were 39 weeks or greater. Reasons for the induction were wanting to schedule their delivery (32.8%), post dates (18.4%), concern for baby’s size (12.4%), wanting to deliver with a specific provider (12.3%), water broke (11.2%) and fetal distress (6.7%). Significantly higher rates of induction were noted among women who were of white race, were rural residents, insured, and who smoked in the last trimester. Significant differences were also noted by day of the week the baby was born, with the highest rates of induction resulting in deliveries during midweek. Among induced women, 9.7% went on to deliver via cesarean section, the majority of which were 39 weeks or greater. The top reasons cited for the cesarean section were labor taking too long (46.1%) and failed induction (40.7%).

CONCLUSIONS: Our analysis shows that the most cited reason for induction was women wanting to schedule their delivery. Among women who went on to delivery via cesarean, long labor and failed inductions were contributing factors.

PUBLIC HEALTH IMPLICATIONS: As nearly 10% of women who were induced went on to deliver via cesarean section, the practices of elective labor induction need to be examined further for the potential to reduce unnecessary cesareans.
PREGNANT WOMEN’S INFLUENZA VACCINATION LEVELS AND ASSOCIATED KNOWLEDGE, ATTITUDES AND BELIEFS - 2010-11 INFLUENZA SEASON, UNITED STATES

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BACKGROUND: Pregnant women are recommended to receive influenza vaccination to prevent influenza associated diseases and complications during pregnancy, and for protection of their newborns. Prior to the 2009-10 influenza season, approximately only 15% of pregnant women reported vaccination. Understanding associations between pregnant women’s knowledge, attitudes and beliefs (KABs) and vaccination levels may allow development and distribution of more focused/effective public health messages for this population.

STUDY QUESTIONS: What were influenza vaccination levels and associated KABs among pregnant women using data collected from a rapid internet panel survey?

METHODS: An internet panel survey was launched from November 11th -22nd and December 14-17th 2010 (for additional sample), to estimate influenza vaccination coverage and KABs among women who were pregnant during August through mid-November. Weighted percentages and 95% confidence intervals were calculated. T-tests were used for statistical difference. (Data collected from April 4th -25th 2011 will be included in the final presentation.)

RESULTS: Of all eligible pregnant women who started the survey, 1,502 completed the survey (91.9% completion rate). Influenza vaccination coverage by mid-November 2010 was 43.9%. The top reasons for not receiving the vaccination were “concerned about possible safety risks to baby” (23.6%), “concerned that the vaccination would give me flu” (18.1%), and “don’t think I would get very sick if got flu or I can treat it” (13.4%). Those who received doctors’ recommendations for vaccination had significantly higher coverage compared to those who didn’t receive recommendations (66.4% vs. 11.3%, p<0.05). Those who believed vaccination was somewhat or very effective had significantly higher coverage compared to those believing it was not too or not at all effective (58.3% vs. 12.9%, p<0.05). Pregnant women who believed flu vaccination was unsafe had significantly lower vaccination coverage compared to those who believed it safe (for themselves: 11.2% vs. 58.7%, p<0.05; for babies: 12.9 vs. 61.3%, p<0.05).

CONCLUSIONS: Among those pregnant women who completed the survey, vaccination coverage varied by KABs.

PUBLIC HEALTH IMPLICATIONS: To improve coverage, public health agencies and providers, particularly prenatal care practitioners, should focus public health messages on reinforcing the benefits and safety of influenza vaccination during pregnancy, especially for mother and baby.
PRENATAL CARE, SOCIAL SUPPORT AND MENTAL HEALTH IN PREGNANT LATINA WOMEN IN A DISASTER RECOVERY ENVIRONMENT

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BACKGROUND: Changing demographics in New Orleans present unique challenges for the provision of prenatal care. Some research suggests that Latina women have less pregnancy-related anxiety, and that Latinas with lower acculturation have higher prenatal care entry and better birth outcomes. This has not been studied in a post-disaster environment, where Latina women may have different challenges than Black or White women.

STUDY QUESTIONS: How does the mental health and prenatal care of pregnant Latina women in Post-Katrina New Orleans compare to women of other races/ethnicities?

METHODS: We interviewed pregnant women using a cross-sectional study design (n=128, 24-41 weeks’ gestation). The interview included previous disaster exposure, depression (Edinburgh Depression Scale), post-traumatic stress disorder (Post-Traumatic Checklist), pregnancy-related distress (Lobel scale), and women's perception of disaster recovery. We modeled mental health outcomes using linear regression, adjusting for marital status, education, employment, age and smoking. Study limitations include the exclusion of women with no prenatal care, and low numbers, as the study is ongoing.

RESULTS: Women interviewed were African American (72%), White (14%), or Hispanic (9.5%). Most have never been married (71.1%), are between the ages of 20-25 years (29.6%), and have an annual income of less than $15,000 (54.6%). Latinas (N=12) were more likely to have less than a high school education (p<0.01) and to have arrived to New Orleans less than one year after the storm. They were less likely to have Medicaid (p<0.01) and WIC, and also less likely to have pregnancy-related anxiety (p<0.01). Latinas reported more support from family than other groups (p<0.01), but we found no difference between scores of depression and PTSD between women of different racial groups.

CONCLUSIONS: Although pregnant Latina women report less pregnancy-related anxiety, and more family support, they are particularly vulnerable due to lower levels of education, potential language barriers and less utilization of social services than other racial/ethnic groups.

PUBLIC HEALTH IMPLICATIONS: Prenatal care for women living in a disaster recovery area should address the unique needs of Latina women. Such care should be culturally appropriate, address mental health risk factors and may need to include social intervention.
ORAL HEALTH NEED AND ACCESS TO DENTAL SERVICES: EVIDENCE FROM THE NATIONAL SURVEY OF CHILDREN’S HEALTH, 2007

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BACKGROUND: Dental services such as including topical fluoride varnish and sealants can reduce the incidence of dental caries yet children and youth do not receive such services at recommended levels. The role of perceived need for preventive services in parents’ decision to seek oral health care for their children is not well understood.

STUDY QUESTIONS: Is parental report of oral health need associated with receipt of preventive dental services among US children and youth?

METHODS: We conducted a cross-sectional analysis of oral health need and preventive dental service use among children and youth, ages 1 - 17 years, using data from the 2007 National Survey of Children’s Health (n= 86,764). Oral health need included: 1) Parents’ report of their child’s teeth as excellent (reference), very good, good, or fair/poor; and 2) acute dental care needs (i.e., toothache, decayed teeth or cavities, broken teeth or bleeding gums in past six months). Preventive dental services were measured as seeing a dentist for “preventive dental care, such as check-ups and dental cleanings” at least once in the past 12 months. Survey-weighted logistic regression estimated associations of oral health need and receipt of preventive dental services, controlling for demographics, health insurance, and socioeconomic status. Study limitations include cross-sectional data and potential sample selection bias.

RESULTS: Overall, 74% of children and youth received at least one preventive dental health visit. Acute needs were associated with two-fold increased odds of preventive dental service use. Fair/poor oral health status was associated with greater odds of preventive dental service use (OR = 2.32; 95% CI: 1.54, 3.53) among the youngest children and with lower odds of preventive dental service use among the oldest children (OR = 0.32; 95% CI: 0.22, 0.46).

CONCLUSIONS: Preventive dental service use remains below Healthy People 2020 targets. Associations of need and preventive dental health service use differ by age. Younger children with lower oral health status were more likely, and older youth less likely, to receive preventive dental services.

PUBLIC HEALTH IMPLICATIONS: Public health efforts to educate parents about the importance of early preventive dental services may yield oral health benefits later in childhood.
BACKGROUND: Childhood mental health (MH) conditions affect 10-20% of children and include a wide variety of emotional, behavioral, developmental, and neurological disorders. Children with MH disorders have poorer health outcomes and are less likely to succeed educationally than healthy children. It is known that both genetic and environmental factors are involved in the development of childhood MH disorders, but how parent MH influences child mental in the face of other parent, family, and community factors remains unclear.

STUDY QUESTIONS: What is the association between parents’ self-reported mental health status and the presence of mental health conditions in children? What factors modify this relationship?

METHODS: This study used data from the 2007 National Survey of Children’s Health on 80,982 children ages 2-17. A child MH condition was defined as parent-reported diagnosis of any of the following: ADD/ADHD, anxiety, autism, behavioral/conduct disorders, developmental delay, depression, or Tourette syndrome. Parent MH was assessed via a 5-point scale. Logistic regression was used to assess the association of child MH conditions and parent MH status (as an ordinal variable), while examining socioeconomic, parent, family, and community factors as potential effect modifiers and confounders of the association.

RESULTS: 11.1% of children had a MH condition (95% CI= 10.5-11.6). The prevalence of child MH conditions increased as parent MH status worsened. Race/ethnicity was the only significant effect modifier of the child-parent MH association. After adjustment for confounders, the stratum-specific adjusted odds ratios (95% CI) of child MH conditions related to a one-level decline in parent MH were: 1.44 (1.35-1.55) for non-Hispanic whites, 1.24 (1.06-1.46) for non-Hispanic blacks, 1.04 (0.81-1.32) for Hispanics from non-immigrant families, 1.21 (0.96-1.93) for Hispanics from immigrant families, and 1.43 (1.21-1.70) for other/multi-race children.

CONCLUSIONS: After controlling for confounding, poorer parent MH was significantly associated with increased odds of a child MH condition among non-Hispanic white, non-Hispanic black, and other/multi race children.

PUBLIC HEALTH IMPLICATIONS: The results of our analysis are important for understanding the clustering of MH problems in family units. Parent-focused interventions to prevent or improve child MH conditions may be best targeted to the sub-populations for whom parent and child MH are most strongly associated.
INDICATORS OF SOCIAL COMPETENCE AMONG YOUTH WITH TOURETTE SYNDROME, NATIONAL SURVEY OF CHILDREN’S HEALTH, 2007

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BACKGROUND: Children with Tourette Syndrome (TS) may have behavioral and social difficulties which may be associated with co-occurring mental, emotional or behavioral (MEB) conditions. Indicators of social competence among youth with TS have not been documented with a population based sample.

STUDY QUESTIONS: Are youth with TS more likely to have lower social competence relative to youth without TS using a nationally representative sample? What is the role of co-occurring MEB conditions?

METHODS: Parent reported data on youth 6-17 years of age from the 2007 National Survey of Children’s Health were analyzed (n = 64,034) using logistic regression controlling for child age, sex, race (white, non-white) and ethnicity (Hispanic, non-Hispanic), and accounting for the complex sampling design. Parent report was used to determine presence of TS, MEBs, and social competence. Social competence was measured using two indicators: behavior problems (argues too much, bullies or is cruel or mean to others, is disobedient, is stubborn, sullen or irritable) and positive social skills (shows respect for teachers and neighbors, gets along well with other children, tries to understand other people’s feelings, tries to resolve conflicts with classmates, family or friends). Co-occurring MEBs included: attention-deficit/hyperactivity disorder, behavioral or conduct problems, depression, anxiety problems or an autism spectrum disorder. Adjusted prevalence ratios (aPR) and 95% confidence intervals (CI) are presented.

RESULTS: Among children with TS, 79% had a co-occurring MEB. Compared to children without TS, parents of children with TS were 4 times (aPR=4.2, CI: 2.7, 6.5) more likely to report child behavioral problems, and had 4 times (aPR=4.2, CI: 2.6, 6.9) the risk of having fewer positive social skills. When controlling for any MEB, the association between TS and behavior problems remained significant (aPR = 2.3, CI: 1.4, 3.8), while the association between TS and fewer positive social skills did not (aPR = 1.8, CI: 1.0, 3.0).

CONCLUSIONS: Children with TS have significant behavioral problems, and fewer positive social skills; the social skills deficit can be accounted for by co-existing MEBs.

PUBLIC HEALTH IMPLICATIONS: To better promote the health and wellbeing of children with TS, health and school professionals need to address behavioral problems and co-occurring conditions.
SICKLE CELL DISEASE IN PREGNANCY: MATERNAL AND FETAL OUTCOMES IN A MEDICAID-ENROLLED POPULATION

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BACKGROUND: Higher frequencies of adverse perinatal outcomes have been reported among women with SCD compared with those without SCD; however, past studies are limited by small sample size, narrow geographic area, and use of unlinked hospital discharge data.

STUDY QUESTIONS: Is the probability of adverse maternal and fetal outcomes higher among women with SCD compared with those without SCD?

METHODS: Data from the 2004-2009 Thomson Reuters MarketScan® Multi-State Medicaid databases were used to assess the prevalence of adverse maternal outcomes among intrapartum and postpartum women with SCD. The analysis was restricted to women 15-44 years of age whose race was reported as black. Delivery hospitalizations were identified using ICD-9-CM codes for pregnancy-related diagnoses or procedures; records associated with hydatidiform mole, ectopic pregnancy, other abnormal products of conception, or abortion were excluded. The postpartum period included the first 12 weeks after the index delivery hospitalization. SCD diagnoses were identified by ICD-9-CM codes (282.6x, 282.41, 282.42) recorded in an inpatient claim or 2 outpatient claims =30 days apart. Multivariable log-binomial regression models were used to calculate adjusted prevalence ratios for a range of perinatal outcomes for women with SCD compared with women without SCD and a delivery hospitalization lasting =2 days and women without SCD who were hospitalized for >2 days or were transferred to another facility.

RESULTS: Of the 295,554 deliveries to black Medicaid-enrolled women during 2004-2009, 1,305 had a diagnosis of SCD (4.4 per 1,000). After adjusting for age, the prevalence of heart disease, lung disease, renal disease, sepsis, pneumonia, urinary tract infection, venous thromboembolism, cerebrovascular disorders, eclampsia, seizure disorders, anemia, and fetal growth restriction was higher among women with SCD than among women in both comparison groups. Compared with women without SCD and a hospital stay =2 days, women with SCD were more likely to have hypertension, pyelonephritis, placental abruption, and preterm labor.

CONCLUSIONS: The present findings suggest that SCD in pregnancy is associated with an increased risk of adverse maternal and fetal outcomes.

PUBLIC HEALTH IMPLICATIONS: Further research is needed to determine whether targeted preconception health interventions reduce the risk of pregnancy complications for women with SCD.
ASSESSING USE OF THE PERINATAL INFORMATION SYSTEM FOR MONITORING SYMPHILITIC STILLBIRTH IN PERU

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BACKGROUND: Congenital syphilis (CS) due to intrauterine transmission of Treponema pallidum is an important cause of preventable stillbirth, associated with 20-45% of stillbirths in some studies. CS is targeted for elimination through both global (WHO) and regional (PAHO) initiatives. One proposed indicator for measuring elimination progress is the proportion of stillbirths attributable to CS, but the feasibility of measuring this indicator has not been assessed. The Perinatal Information System (SIP), a standardized perinatal clinical record used in 11 Latin American countries, may include data needed for measurement.

STUDY QUESTIONS: Can SIP be used to monitor the proportion of stillbirths that are attributable to CS over time in Peru?

METHODS: We reviewed data from 8 Peruvian public hospitals that used SIP continuously from 2000-2010 and had maternal syphilis prevalence of at least 0.5% during this time period. We evaluated SIP as a surveillance system using standard criteria such as utility, simplicity, timeliness, and data quality.

RESULTS: The data under review contain information on approximately 166,000 pregnancies, 1,300 cases of syphilis in pregnancy, and 2,400 stillbirths. Data include maternal demographic characteristics, syphilis test results, and other risk factors for stillbirth. Information on maternal syphilis treatment is not included but could be abstracted from medical records. Maternal data is linked to newborn outcomes. Data collection is standardized across hospitals but is complex and time-consuming for clinicians, who spent approximately 40 minutes abstracting information from each woman’s medical record post-delivery. Data are unlinked across hospitals and are not routinely aggregated or quality-checked.

CONCLUSIONS: The large number of syphilis infections and the ability to link maternal characteristics to newborn outcomes make SIP a potentially useful system for monitoring the proportion of stillbirths attributable to CS in Peru. However, the system lacks simplicity and there are no routine quality assurance measures or analytic plans in place. A quality assessment is in progress, and findings are forthcoming.

PUBLIC HEALTH IMPLICATIONS: SIP data may be used to estimate the proportion of stillbirths attributable to syphilis in Peru. To ensure data quality and sustainability of SIP, data collection should be simplified, and information should be continually quality-checked and used for the benefit of participating facilities.
MENTAL HEALTH STATUS AMONG REPRODUCTIVE-AGE WOMEN AND ITS RELATIONSHIP WITH OTHER INDICATORS OF PRECONCEPTION HEALTH: RESULTS FROM THE LOUISIANA BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM, 2006-2009

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BACKGROUND: Self-reported frequent mental distress (FMD), a Behavioral Risk Factor Surveillance System (BRFSS)-derived measure, is recommended as a preconception health surveillance indicator of poor mental health among reproductive-age women. Since poor mental health can adversely affect health behaviors, physical health, and social well-being, it is plausible that FMD may be associated with other indicators of preconception wellness.

STUDY QUESTIONS: Is FMD among Black and White reproductive-age women associated with other indicators of preconception health? Do these associations differ by race?

METHODS: We analyzed data for 5,067 non-pregnant, non-Hispanic Black and White women aged 18-44 years with and without FMD (=14 mentally unhealthy days in the past 30 days) from the 2006-2009 waves of the Louisiana BRFSS. We used weighted multiple logistic regression analyses to identify those BRFSS-derived preconception health surveillance measures associated with FMD and to detect any racial differences in the associations.

RESULTS: FMD was reported by 12.2% of Black women and 11.9% of White women. Consistent with previous studies, lower socioeconomic status (SES) women, regardless of race, were more likely to report FMD than higher SES women. After adjusting for SES factors, poor self-rated health (OR, 3.93; 90% CI, 3.08-5.02), inadequate emotional/social support (OR, 2.76; 90% CI, 2.20-3.46), current smoking (OR, 2.02; 90% CI, 1.63-2.50), having a chronic health condition (OR, 2.01; 90% CI, 1.62-2.49), and no pap smear in the past 3 years (OR, 1.73; 90% CI, 1.11-2.69) were associated with FMD. No exercise or physical activity in the past 30 days and high body mass index (BMI) were associated with FMD among White women only.

CONCLUSIONS: Louisiana women of reproductive age with poor mental health also have other risk factors that compromise preconception wellness. Some of these factors differ by race.

PUBLIC HEALTH IMPLICATIONS: Results highlight the importance of routine mental health assessment among reproductive-age women to optimize health at conception. Those with mental health issues may need support to adopt healthier lifestyles, require help coping with chronic conditions, and benefit from strategies to increase social support. Addressing mental health issues among reproductive-age women could potentially impact trends for other markers of preconception wellness although the effect may not be consistent across racial groups.
DETERMINANTS OF INFANT MORTALITY IN MEXICO: ANALYSIS OF INTERACTIONS BETWEEN EDUCATION AND SOCIOECONOMIC STATUS

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BACKGROUND: In the last 25 years, mortality and morbidity in Mexico has been significantly reduced. However, this reduction hasn't been evenly distributed across regions and this could be explained by marked regional differences (north-south) on key indicators such as literacy, family income and access to health care.

STUDY QUESTIONS: What is the relationship between infant mortality and indicators of socio-economic status, education and access to health services?

METHODS: The study design is ecological, descriptive and transversal. Data published by the National institute of statistics (INEGI) was used. Descriptive analysis and a logistic regression model were applied. The region's best and worst scores, from the 2005 Deprivation Index, were used in selecting municipalities. Limitations - It was difficult to construct the variable of socio-economic status with the data available and the absence of specific data to reflect the impact of education on infant mortality.

RESULTS: The results show that infant mortality decreased during 2000-2005. Throughout this period, the selected indicators improved, especially in the most deprived region. However, when stratified municipalities by socio-economic level, the improvement was minimal in extremely poor municipalities with a decrease of 18.9% compared with the richest municipalities in which decreased 38.4%. The regression model in the first breakpoint (2000) showed that in rich municipalities infant mortality was associated with socioeconomic status (Beta= 0,502 p= 0,001) and the literacy rate (Beta= 0,440 p= 0,001); by other site in the most deprived municipalities only socioeconomic status (Beta = 0,565 p= 0,001). Later in 2005, the model showed similar results in rich municipalities, but in the poorest municipalities appears socioeconomic status (Beta = 0.587 p = 0.0001) and literacy rate (Beta=-0.704 p = 0.0001) suggesting that education became to be important only after other indicators of welfare improve.

CONCLUSIONS: It shows disparity between rich and poor municipalities. In absence of best data sources these results are an approximation of the variables involved in the determinants of infant mortality.

PUBLIC HEALTH IMPLICATIONS: It is necessary to implement public health programs, education improvements mainly in reproductive female age, health care access and poverty reduction in municipalities with high poverty, in order to reduce health inequities.
FACTORS ASSOCIATED WITH TIME AND DISTANCE TRAVELED TO CLEFT AND CRANIOFACIAL CARE

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BACKGROUND: While access to care is a known problem for children with special needs, information on travel distance and time to cleft and craniofacial care for families of children with orofacial clefts (OFC) is lacking.

STUDY QUESTIONS: What factors are associated with travel distance and time to cleft care among children with OFC?

METHODS: In 2006, a mail/phone survey was administered in English and Spanish to all mothers of North Carolina resident children with OFC born 2001-2004 previously identified by the North Carolina birth defects registry. The survey included 76 closed- and open-ended questions, 39 of which were from a validated questionnaire on ‘barriers to care’ faced by parents of children with chronic health conditions. Our study examined one-way travel time and distance and the extent to which taking a child to cleft and craniofacial care was a problem. Multivariable logistic regression analyses examined selected sociodemographic factors associated with travel distance (<=60 miles and >60 miles) and time (<=60 minutes and >60 minutes) to cleft and craniofacial care.

RESULTS: Of 478 eligible participants, 51.9% responded, 4.4% refused to participate, and 43.7% were unable to be located. Most respondents (97.1%) were the child’s biological mother. Thirty-three percent of participants were college educated; 70.0% married; and 50.0% had private health insurance for their child. One-way mean and median travel distances were 80 and 50 miles, respectively, ranging from <1–1,058 miles. One-way mean and median travel times were 92 and 60 minutes, respectively, and ranged from 5 minutes – 8 hours. After adjusting for sociodemographics, travel distance varied significantly by maternal education, child's age, and cleft type, and travel time varied significantly by child’s age. About 67% of respondents indicated taking their child to receive care was ‘not a problem’. Non-respondents of the survey were not statistically different from respondents.

CONCLUSIONS: Almost half of the respondents traveled >1 hour to receive cleft and craniofacial care for their child. Decreasing travel time and distance for families affected by OFC could improve access to care.

PUBLIC HEALTH IMPLICATIONS: Better access to cleft and craniofacial care is important for improving health outcomes among this population.
MATERNAL MEDICAL CONDITIONS DURING THE PRECONCEPTION PERIOD: INSIGHT INTO THE LIFE COURSE PERSPECTIVE FROM THE 2007 LOS ANGELES MOMMY AND BABY (LAMB) PROJECT

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BACKGROUND: A healthy preconception period, at the heart of the Life Course Perspective, is critical for maintaining a healthy pregnancy. An entire spectrum of care beginning from preconception onwards can help prevent undesirable maternal medical conditions and unfavorable birth outcomes, but little is known about the impact of preconception health upon maternal medical conditions during pregnancy.

STUDY QUESTIONS: What is the impact of maternal medical conditions during the preconception period upon the presence of maternal medical conditions during pregnancy?

METHODS: We analyzed data from LAMB, a population-based survey with multi-level clustered sampling (n=6,264; 55% response rate), using SAS 9.2 and sampling weights to account for the complex sampling scheme. Mothers were asked if they had experienced any medical conditions in the six months prior to their pregnancy including anxiety, anemia, and asthma and if they experienced any medical conditions during their pregnancy including diabetes and depression. These medical conditions were assessed individually by chi-square tests and in aggregate by logistic regression.

RESULTS: In Los Angeles County, 41.3% of mothers experienced one or more medical conditions in the six months before they became pregnant. Mothers who had one or more medical conditions during the preconception period were at significantly higher odds of having one or more medical conditions during their pregnancy (OR: 2.565, 95% CI: 2.266-2.903). After adjusting for maternal race, age, marital status, educational attainment, and household income, mothers who had prior medical conditions remained at higher odds of medical conditions during pregnancy (adjOR: 2.344, 95% CI: 2.06-2.666).

CONCLUSIONS: The presence of medical conditions during the preconception period predicates higher odds of experiencing additional medical conditions during pregnancy. Even in consideration of varying sociodemographic characteristics, these medical conditions still led to higher odds of future medical conditions. Future investigation of the preconception period should look into specific correlates of these medical conditions.

PUBLIC HEALTH IMPLICATIONS: Health care and public health professionals must address the medical conditions experienced by mothers during the preconception period in order to promote a healthy pregnancy. Looking at the Life Course Perspective, insight into the preconception period can lead to better maternal and infant health outcomes.
RACIAL DISPARITIES IN MATERNAL MEDICAL CONDITIONS DURING THE PRECONCEPTION PERIOD: INVESTIGATING THE LIFE COURSE PERSPECTIVE THROUGH THE 2007 LOS ANGELES MOMMY AND BABY (LAMB) PROJECT

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BACKGROUND: Maternal health during the preconception period is critical to both a healthy pregnancy and favorable birth outcomes. Although risk and protective factors for maternal medical conditions are well known, little research is available on the disparities among mothers with these conditions.

STUDY QUESTIONS: Are there significant racial disparities in the prevalence of maternal medical conditions during the preconception period?

METHODS: We analyzed data from LAMB, a population-based survey with multi-level clustered sampling (n=6,264; 55% response rate), using SAS 9.2 and sampling weights to account for the complex sampling scheme. Mothers were asked if they had experienced anemia, anxiety, asthma, diabetes, depression, heart problems, high blood pressure, or teeth and gum problems in the six months prior to their pregnancy. These medical conditions were then assessed by maternal race using chi-square tests.

RESULTS: In Los Angeles County, 41.3% of mothers experienced one or more medical conditions in the six months before they became pregnant. Significant racial differences were noted among African American, Hispanic, Asian, and White mothers. African American mothers had the highest rates of asthma, 12.4% compared to 6.4% in Whites; anemia, 20.9% compared to 6.9%; and high blood pressure, 6.2% to 1.8%. Hispanic and African American mothers had the highest rates of teeth and gum problems, 14% and 14.3% compared to 8.4% in Whites, as well as the highest rates of depression, 15.1% and 18.1% compared to 11.8%. Diabetes was highest in Asian mothers at 4.3% with 3.7% of Hispanic mothers having diabetes compared to 1.5% of White mothers.

CONCLUSIONS: The racial groups with the highest prevalence of maternal medical conditions in the preconception period, including African Americans, Hispanics, and Asians, should be continually monitored and assessed in order to provide targeted care and interventions to encourage healthy pregnancies and favorable birth outcomes.

PUBLIC HEALTH IMPLICATIONS: Future research, evaluation, and planning should focus on the needs of high-risk populations. Awareness and knowledge of the disparities within maternal medical conditions during the preconception period will aid professionals in addressing the health needs of mothers through the Life Course Perspective.
MATERNAL FACTORS ASSOCIATED WITH PACIFIER USE: FLORIDA, 2009

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BACKGROUND: Based on national Sudden Infant Death Syndrome (SIDS) prevention recommendations, Florida’s 2009 Pregnancy Risk Assessment Monitoring Survey (FL PRAMS) included a question about pacifier use and frequency to learn about mothers not using pacifiers and to focus prevention efforts.

STUDY QUESTIONS: What are the maternal characteristics associated with pacifier use? As with other SIDS risk and protective behaviors, do these characteristics vary by race?

METHODS: 2009 PRAMS responses were linked to Florida birth records and used to conduct descriptive, chi square and multivariate analyses. The analysis file was limited to mothers who identified themselves as non-Hispanic Black or non-Hispanic White. Pacifier use was defined as the baby always or often going to sleep with a pacifier. Multivariate binomial regression models were conducted to estimate adjusted prevalence ratios (aPR) for not using a pacifier adjusting for maternal characteristics, breastfeeding initiation, infant sleep position and bed-sharing practices. Analyses were weighted accounting for sampling and response using STATA (v. 10.1).

RESULTS: Approximately half (51.2%) of PRAMS respondents reported using pacifiers all or most of the time and 44.3% reported rare or no use. Multivariate regression results showed that mothers with the following characteristics were likely not to use a pacifier: mothers aged 35 years or older (aPR=1.27, CI = 1.01-1.61), mothers with one or more prior births (aPR = 1.34, 95% CI=1.07 - 1.68), mothers who had experienced abuse (aPR=1.53, CI=1.11-2.12) and mothers who had no insurance (aPR=1.56, CI=1.00 – 2.43). Regression models with Black maternal race interactions showed significantly higher likelihood of using a pacifier for Black mothers who reported depression (p-value=0.037) or bed-sharing their infants (p-value=0.046).

CONCLUSIONS: Overall, increased parity, older maternal age, interpersonal abuse and no insurance status were associated with a reduced likelihood of pacifier use. As with other SIDS prevention behaviors, significant differences in maternal risk factors were identified by race. No associations were found with breastfeeding initiation, sleep position, or among white infants only, bed-sharing.

PUBLIC HEALTH IMPLICATIONS: To reduce SIDS risk through increased use of pacifiers, Florida’s health promotion strategies may need to be tailored specifically for pacifier use and racial and ethnic subpopulations.
THE ASSOCIATION BETWEEN ANTIRETROVIRAL USE AND PRENATAL CARE IN PREGNANT WOMEN WITH HIV IN LOUISIANA 2005-2009

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BACKGROUND: Mother to child transmission of HIV (perinatal HIV transmission) is a highly preventable mode of transmission. Three indicators for perinatal transmission are detectable viral loads, low CD4 count, and lack of prenatal care.

STUDY QUESTIONS: Is there an association between prenatal care and ARV use during pregnancy in women with HIV? Will a mother who receives prenatal care be more likely to adhere to ARV and have better overall HIV health?

METHODS: Retrospective cohort study. Enhanced Perinatal Surveillance (EPS) data was used for all known HIV + mothers who gave birth in Louisiana from 1/1/2005-12/31/2009.

RESULTS: Women who had greater than five prenatal care visits were more likely to receive ARV’s and have a lower viral load, however there was no association with CD4 count. For ARV use the unadjusted RR=17.8 (95% CI [10.5,30.4]); For viral load >400 RR= 3.1 (95% CI, [2.2,4.3]); For CD4 RR=0.97 (95% CI [0.6,1.5]). After adjusting for confounders, ARV use RR=8.5 (95% CI [4.4,16.5]); viral load >400 RR= 2.5 (95% CI, [1.8,3.5]).

CONCLUSIONS: Frequency of prenatal care (having greater than 5 visits) is associated with greater ARV use and lower viral loads. There is no association between prenatal care and CD4 counts. After adjustment for possible confounding, there were still strong associations between ARV usage and viral loads and frequency of prenatal care. These findings suggest that prenatal care is a strong indicator for maternal HIV health during pregnancy. Prenatal care should be a priority for interventions aiming to prevent perinatal HIV transmission.

PUBLIC HEALTH IMPLICATIONS: HIV providers should collaborate with OB’s for pregnant patients and vice versa to ensure optimal health for pregnant patients. Programs need to be developed to create better communication between providers and provide a one-stop shop for HIV pregnant patients to ensure comprehensive care.
DISPARITIES IN RISK FOR PREGNANCY OUTCOMES AMONG OVERWEIGHT AND OBESE AMERICAN INDIAN/ALASKA NATIVE WOMEN IN OKLAHOMA

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BACKGROUND: Classification as being overweight or obese prior to pregnancy has been linked to adverse outcomes for mother and child, including gestational diabetes, preeclampsia, fetal macrosomia, and increased risk of cesarean section delivery. Studies on the impact of maternal weight on American Indian/Alaska Native (AI/AN) pregnancies and how that may differ from that of the white population have typically concentrated on a specific tribe, or used a small dataset. This study will examine the pregnancy and birth outcomes for overweight and obese AI/AN women in Oklahoma.

STUDY QUESTIONS: Do disparities exist between overweight or obese white and AI/AN women on select pregnancy and birth outcomes?

METHODS: Oklahoma Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2004-2008 were used (n=7,321). Descriptive statistics and a logistic regression were run to determine associations at a significance level of p <0.05.

RESULTS: 42.6% of AI/AN women in Oklahoma were overweight (Body Mass Index (BMI) = 26.0-29.0) or obese (BMI > 29) prior to pregnancy, compared to 36.8% of white women. When controlling for select maternal demographics and characteristics, AI/AN women who were overweight/obese were more likely to experience a high birth weight (= 4,000 grams) infant compared to white women (AOR=1.59, 95% CI=1.22-2.06). Overweight/Obese AI/AN mothers were more likely to report high blood pressure (AOR=1.24, 95% CI=0.69-2.22) and high blood sugar or diabetes during pregnancy (AOR=1.81, 95% CI= 0.91-3.57) compared to white mothers but the differences were not statistically significant. The primary limitation of the study was the maternal self-report of key morbidities.

CONCLUSIONS: The difference between AI/AN and white mothers in prevalence of pre-pregnancy overweight or obesity was not statistically significant. However, some significant differences were found in risk for select adverse outcomes between overweight/obese AI/AN and white mothers in Oklahoma, specifically the increased risk for a high birth weight infant.

PUBLIC HEALTH IMPLICATIONS: Adverse outcomes due to pre-existing conditions may differ for AI/AN women, in Oklahoma and the rest of the United States, compared to the general population or other racial groups. More large scale studies on health outcomes and American Indian women need to be conducted, to determine disparities in behaviors, risk factors, and the subsequent implications.
PRENATAL STRESSFUL LIFE EVENTS ASSOCIATED WITH BED-SHARING, MISSOURI PRAMS, 2007-2009

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BACKGROUND: Bed-sharing is not recommended by the Task Force on Sudden Infant Death Syndrome but is still common because of perceived benefits such as bonding, ease of breastfeeding, better sleep, and stress reduction for the mother and infant. Prenatal stress is related to infant behaviors, such as crying and sleep patterns, and prenatal life events may result in postpartum stress; each may influence bed-sharing behavior. No studies have examined the association between prenatal stressful life events and bed-sharing.

STUDY QUESTIONS: What types of prenatal stressful life events are associated with bed-sharing?

METHODS: Missouri PRAMS surveyed 4,114 women with a recent live birth in 2007-2009. PRAMS asks about 13 stressful life events experienced in the 12 months before delivery, which were categorized as types including emotional (e.g., sickness of a family member), partner-related (e.g., divorce), financial (e.g., loss of job), and traumatic (e.g., in jail). Bed-sharing was defined as the infant often or always sleeping in the same bed with someone else. Multivariate binomial regression analysis was used to estimate adjusted prevalence ratios (aPR) and 95% confidence intervals (CIs) of bed-sharing for each type of stressful event while adjusting for age, race, pregnancy intention, breastfeeding, infant sleep position, and the other types of stressful events. A separate model was used to determine a dose-response relationship between the number of stressful events within each type (no events of that type, 1, 2+) and bed-sharing. SUDAAN was used to account for complex sampling design.

RESULTS: Overall, 21% of women reported bed-sharing, and 74.3% experienced at least one stressful life event in the 12 months before delivery. Bed-sharing was significantly associated with experiencing financial (aPR: 1.34, 95% CI: 1.13-1.58) or traumatic events (aPR: 1.35, 95% CI: 1.12-1.63) but not for emotional or partner-related events. No dose-response pattern was observed for any type of stressful event.

CONCLUSIONS: Experiencing certain types of prenatal stressful life events, specifically financial or traumatic events, is associated with an increased prevalence of bed-sharing.

PUBLIC HEALTH IMPLICATIONS: Practitioners should consider screening women for prenatal stressful life events to identify need for stress management resources and to tailor bed-sharing prevention messages.
INFLUENCE OF RACIAL/ETHNIC DISCRIMINATION ON ADVERSE
OBSTETRIC OUTCOMES—COLORADO, 2004–2008

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BACKGROUND: Some racial/ethnic minority women have worse obstetric outcomes than do Whites. The determinants of these persisting disparities remain unexplained. This study examines whether independent associations exist between self-reported experiences of racial/ethnic discrimination and diabetes before and after pregnancy, vaginal bleeding, urinary tract infection, nausea, an incompetent cervix, high blood pressure, problems with the placenta, preterm labor, and premature rupture of the membrane.

STUDY QUESTIONS: Was there an association between racial/ethnic discrimination and adverse obstetric outcomes among women with a recent live birth?

METHODS: Population-based data from the 2004-2008 Colorado Pregnancy Risk Assessment Monitoring System (PRAMS) were analyzed. Population-weighted prevalence estimates of self-reported experiences of racial/ethnic discrimination were calculated and a Cox proportional hazards model with constant follow-up time was used to estimate the adjusted prevalence ratios (APRs) for having an adverse obstetric outcome, comparing women that self-reported experiences of racial/ethnic discrimination during the 12 months before their new baby was born. Primary multivariable models included race/ethnicity, age, marital status, educational attainment, employment status, and parity. Secondary models included sociodemographic factors and prepregnancy body mass index, alcohol intake, and smoking during pregnancy. SAS survey procedures were used to analyze data.

RESULTS: Nearly two thirds of the sample (62.4%) were White, 31.8% were Hispanic, 3.7% were Black, and 2.1% were classified as other races/ethnicities. Racial/ethnic discrimination was reported by 4.2% of women. In separate multivariable models, racial/ethnic discrimination was associated with reports of urinary tract infection (APR=1.51; 95% confidence interval [CI]: 1.14-1.99), nausea (APR=1.52; 95% CI: 1.25-1.85), high blood pressure (APR=1.53; 95% CI: 1.05-2.23), and preterm labor (APR=1.29; 95% CI: 1.01-1.64).

CONCLUSIONS: Racial/ethnic discrimination is associated with several adverse obstetric outcomes. The association remained statistically significant for urinary tract infection, nausea, and high blood pressure even after controlling for sociodemographic and behavioral factors. Our findings suggest that discrimination contributes to racial/ethnic disparities in obstetric outcomes. Future studies should be conducted to better understand the processes and mechanisms through which discrimination influences obstetric outcomes.

PUBLIC HEALTH IMPLICATIONS: Because racial/ethnic discrimination might influence adverse obstetric and subsequent infant outcomes, interventions and preventative strategies should be developed to eliminate racial/ethnic discrimination and its effects.
HEALTH INSURANCE IN THE POSTPARTUM PERIOD: AN OPPORTUNITY FOR TREATMENT AND PREVENTIVE SERVICES

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BACKGROUND: Young, minority, and low-income women of reproductive age are likely to lack health insurance, and to face economic and social challenges that put them at risk for poor emotional or physical health. While most women have access to health care and insurance during pregnancy, women with Medicaid at the time of delivery lose this coverage in the early postpartum period.

STUDY QUESTIONS: What are the socio-demographic characteristics of women who recently delivered a live infant by health insurance status at the time of delivery? Is there an unmet need for mental health, behavioral, or social services in the postpartum period among women with Medicaid-paid deliveries?

METHODS: We used 2008 Pregnancy Risk Assessment Monitoring System (PRAMS) data from 27 states (n=39,465). We calculated prevalence of maternal characteristics including age, race, parity, education, pre-pregnancy body mass index (BMI), and experiences including physical abuse during pregnancy, excessive stress (6 or more stressors), smoking and alcohol use during pregnancy, and postpartum depressive symptoms by private/public/other health insurance status at the time of delivery. We used logistic regression to assess the association between maternal characteristics and insurance status. Private and public insurance were compared. Women in the other insurance category were excluded from this analysis.

RESULTS: Women with Medicaid-paid deliveries were more likely than those with private health insurance at delivery to experience physical abuse during pregnancy (Adjusted Odds Ratio[AOR]: 1.73, 95% Confidence Interval [CI]: 1.24-2.40), six or more stressors during pregnancy (AOR: 2.48, 95% CI:1.93-3.18), to smoke during pregnancy (AOR: 1.85, 95% CI:1.56-2.18), and to experience postpartum depressive symptoms (AOR: 1.23, 95% CI: 1.03-1.47). There were no differences by insurance status at delivery in pre-pregnancy BMI or alcohol consumption during pregnancy.

CONCLUSIONS: There is a need for women with Medicaid-paid deliveries to have access to counseling or treatment in the postpartum period for intimate partner violence, smoking cessation, and postpartum depressive symptoms.

PUBLIC HEALTH IMPLICATIONS: Coverage of treatment and preventive health care services in the postpartum period for women with Medicaid-paid deliveries and identified health risks could be an efficient strategy to improve the health of low income women and their families.
EPIDEMIOLOGY OF TWINNING IN A POPULATION-BASED SAMPLE OF LIVE BIRTHS, 1997-2007

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BACKGROUND: Twin birth rates in the United States have increased 70% over the last three decades. Twinning is associated with significantly increased risk of infant and maternal morbidity and mortality. Although previous studies have examined risk factors for twinning, most are in populations that pre-date the widespread use of fertility treatments.

STUDY QUESTIONS: Are selected maternal demographic characteristics and periconceptional exposures associated with an increased risk of twinning in a contemporary, population-based sample?

METHODS: We analyzed data from the National Birth Defects Prevention Study (NBDPS), an ongoing multi-center case-control study of major birth defects in the United States. The study population included mothers of live-born infants without major birth defects (controls), who delivered between October 1997 and December 2007. We compared demographic characteristics and periconceptional exposures of women reporting twin or singleton gestation. Logistic regression models were used to estimate odds ratios and 95% confidence intervals for each exposure; we stratified by fertility treatment use. As a partial proxy of zygosity, we also assessed factors associated with twinning among mothers of like-sex and unlike-sex twin controls, as compared to mothers of singletons.

RESULTS: Overall, 227 (2.7%) of 8317 control mothers reported gestation of twins. Among mothers who did not report use of fertility treatments, statistically significant predictors of twinning were black maternal race, >1 previous live births, and tobacco smoking. Among mothers who reported any use of fertility treatments, significant predictors of twinning were higher maternal age, and higher education and income. We identified 112 like-sex twin pairs and 64 unlike-sex pairs. Associations were generally stronger among mothers of unlike-sex twins than mothers of like-sex twins.

CONCLUSIONS: Maternal race, parity, and tobacco smoking were associated with the frequency of twinning among women who do not use fertility treatments. Among women who receive fertility treatments, we identified characteristics associated with an increased risk of a twin pregnancy, above that of the fertility treatments alone.

PUBLIC HEALTH IMPLICATIONS: It is important to identify factors associated with twinning among women who do and do not use fertility treatments in order to develop strategies for minimizing the risk of having a twin pregnancy.
OPTIMIZING SCHOOL-BASED SURVEY PARTICIPATION: AN ANALYSIS OF PARTICIPATION RATES FROM THE 2009-10 ORAL HEALTH AND BMI SURVEY OF OHIO THIRD GRADERS

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Ohio Dept. of Health

BACKGROUND: During the 2009-10 school year, the Bureau of Community Health Services, Ohio Department of Health (ODH) conducted an oral health and body mass index (BMI) screening survey among 3rd grade children. This marked the fifth school-based survey regarding the oral health of Ohio children since 1987. At 50%, the participation rate of the 2009-10 oral health and BMI survey was at the lowest levels ever experienced by ODH. While previous literature has shown that community-level factors influence telephone-survey participation, very little is known regarding the influences on school-based survey participation.

STUDY QUESTIONS: This study aimed to identify the factors associated with participation rates in a school-based survey.

METHODS: A stratified, random sample of 377 schools was drawn from the list of Ohio's public elementary schools with third grade students. All third grade children in the sampled schools with parent or guardian consent received an oral health screening by a trained dentist or dental hygienist and a height/weight measurement by a trained health professional. Predictors of school form return, participation, and refusal rates were assessed by generalized linear modeling (GLM). Limitations include lack of information for students without returned consent forms and on school-level methods for encouraging form return.

RESULTS: High student mobility and larger school size were associated with lower form return (p=0.000 and p=0.001, respectively) and participation rates (p=0.000 and p=0.005, respectively). Being surveyed in the fall or spring significantly decreased form return (p=0.001 and p=0.016, respectively) and participation rates (p=0.008 and p=0.002, respectively), while being surveyed by internal staff (versus external volunteers) significantly increased form return (p=0.003) and participation rates (p=0.001).

CONCLUSIONS: Schools with greater student mobility and larger size were associated with lower participation, so efforts to increase participation should focus more on schools with higher student mobility and larger size. Additionally, participation could be improved by using internal staff and surveying during winter.

PUBLIC HEALTH IMPLICATIONS: Participation in school-based surveys has been decreasing over time. By identifying factors that lead to low participation, efforts can be targeted to more effectively increase participation and ultimately lead to greater quality of epidemiological data for public health programs.
THE ORAL HEALTH OF OHIO’S SCHOOLCHILDREN: FINDINGS FROM THE 2009-10 ORAL HEALTH AND BMI SURVEY OF OHIO THIRD GRADERS

Amber Detty, MA
Ohio Dept. of Health

BACKGROUND: During the 2009-10 school year, the Bureau of Community Health Services, Ohio Department of Health conducted an oral health and height/weight screening among third grade children. This marks the fifth such survey regarding the oral health of Ohio schoolchildren since 1987.

STUDY QUESTIONS: This study aims to determine the prevalence of oral disease at the county-level among Ohio’s schoolchildren.

METHODS: A stratified, random sample of 377 schools was drawn from the list of Ohio’s public elementary schools with third grade students. All third grade children in the sampled schools with parent or guardian consent received an oral health screening by a trained dentist or dental hygienist. Almost 15,000 third graders were screened for the dental portion of the survey (46.7% response). The data were weighted and adjusted for non-response and against income and race data to reflect the underlying population. Differences among groups were calculated using the chi-square significance test at the p<.05 level.

RESULTS: Overall, 18.7% of third grader children in Ohio had untreated caries in 2009-10. This is a significant decrease from 25.7% in 2004-05. Third grader children in Appalachian counties were significantly more likely to have untreated caries than children in any other region (27.4% versus 17.4%) as were low-income third-grade children (25.6% versus 12.6% for middle-upper income children). Overall, more than half (50.4%) of Ohio’s third grade children had one or more dental sealants in 2009-10. Third grade children in rural, non-Appalachian counties were significant less likely to have dental sealants on their teeth than children in any other region (41.7% versus 51.91%) as were third grade children uninsured for dental care (44.1% versus 51.5% of insured children).

CONCLUSIONS: While the overall oral health of Ohio’s schoolchildren has improved statewide, disparities still exist for low-income, uninsured, rural and Appalachian children. Disparities among the most vulnerable populations of Ohio’s schoolchildren remain significant.

PUBLIC HEALTH IMPLICATIONS: These data are part of an online, county-level oral health surveillance system. Furthermore, these results are driving programmatic changes to the current Ohio Department of Health oral health programs and leading to discussions of new methods to better serve and reach vulnerable populations of Ohio’s children.
INFLUENZA VACCINATION RATES AMONG PREGNANT WOMEN DURING AND AFTER THE H1N1 INFLUENZA SEASON

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BACKGROUND: Historically pregnant women have the lowest uptake of influenza vaccine among priority groups in the US. The vaccination campaign mounted during the 2009-2010 H1N1 pandemic targeted pregnant women and engaged obstetricians. This led to significantly higher rates of vaccination among pregnant women for both pandemic and seasonal strains. Whether the increased rates achieved will be sustainable is unknown.

STUDY QUESTIONS: Were the high vaccination rates achieved during the 2009-2010 influenza season maintained during the 2010-2011 season?

METHODS: We administered brief surveys on postpartum day 1 or 2 to women delivering at our regional obstetrical hospital during Feb 1-Apr 15, 2010, and again Feb 1–Mar 8, 2011. We estimated vaccination rates and used logistic regression to determine factors that were associated with vaccination during pregnancy. The main limitation of this study is self-reported receipt of vaccination.

RESULTS: During the 2009-10 pandemic season, 148 (48%) of 307 women surveyed had received both seasonal and H1N1 vaccines during pregnancy, 43 (14%) only H1N1, and 38 (12%) only seasonal vaccine. In 2010-11, 165 (55%) of 300 women surveyed had received the new combined influenza vaccine. A majority of women received their vaccine from an obstetrician (71% and 60% respectively) each season. In 2009-2010 lack of vaccine availability was reported by 17 (15%) of the 116 unvaccinated for H1N1 and 28 (25%) of the 111 unvaccinated for seasonal influenza. In 2010-11 lack of vaccine availability was reported by 26 (19%) of the 135 unvaccinated women. Predictors of influenza vaccination in 2010-11 included having private insurance (OR 2.6, 95% CI 1.2 – 6.1), having been vaccinated during a prior pregnancy (OR 6.4, 95% CI 2.5 – 16.5), having received 2009 H1N1 vaccine (OR 3.0, 95% CI 1.4 – 6.5), and doctor recommendation (OR 18.4, 95% CI 7.5 – 45.0).

CONCLUSIONS: Despite significantly less public health and media focus, pregnant women in our region continued to receive flu vaccine at substantially higher rates than has been historically reported. Vaccine availability may have remained a barrier to achieving even better rates.

PUBLIC HEALTH IMPLICATIONS: Changes in preventive care initiated by a public health emergency can lead to sustained improvements in subsequent years.
BREASTFEEDING PRACTICES AMONG WOMEN WITH MEDICAL RISK FACTORS

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BACKGROUND: Evidence suggests breastfeeding leads to health benefits for a women and her child, including decreased risk of obesity and cardiovascular disease later in life.

STUDY QUESTIONS: Do breastfeeding practices differ for women with preconception obesity, chronic medical problems, or after a pregnancy complicated by hypertension or diabetes, when compared to women without those health risks?

METHODS: We used data from the electronic perinatal records of women delivering a singleton live birth 32 or more completed weeks at a large obstetrical hospital. Breastfeeding method, entered into the medical record by the postpartum nurse prior to discharge, was used to identify plans for exclusive breastfeeding, exclusive bottle feeding, or a combination of breast and bottle. Summary statistics, cross tabulation and binary logistic regression were used to examine relationships between the predictor variables and exclusive bottle feeding. The main limitations of the analysis are potential misclassification of feeding method and lack of data on maternal education.

RESULTS: We identified 19,792 women: 51.5% Caucasian, 19.4% Black/African American, 10.3% Hispanic, 18.8% other race/ethnicity. Of the women identified, 20.6% were obese, 7.3% had hypertension during pregnancy, 3.1% chronic hypertension, 7% gestational diabetes, 1.2% pre-pregnancy diabetes, and 6.5% asthma. Overall, 41.9% planned exclusive breastfeeding, 25.2% both breast and bottle, and 28.4% exclusive bottle feeding. After adjusting for demographic, obstetrical and other medical characteristics, we found women who were obese (OR 1.35; 95%CI 1.24-1.48), had hypertension during pregnancy (OR 1.16; 95%CI: 1.01-1.32), or chronic hypertension (OR 1.58; 95%CI:1.30-1.91) were significantly more likely to exclusively bottle feed than women without those diagnoses. Bottle feeding was also more likely among women with asthma (OR 1.15; 95%CI 1.00-1.31). There were no significant differences for women with gestational or pre-pregnancy diabetes.

CONCLUSIONS: After adjusting for other factors, women with preconception obesity, chronic hypertension, and hypertension during pregnancy, were more likely to exclusively bottle feed than women without those medical risk factors.

PUBLIC HEALTH IMPLICATIONS: Targeted efforts for breastfeeding support and promotion should focus on women with obesity and hypertensive disorders.
MATERNAL MORTALITY IN TEXAS: 2001-2006

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BACKGROUND: Maternal mortality is often used as a measure of health and well being of women. Improved surveillance at the state level can improve maternal mortality estimates and facilitate the development of strategies to address the needs of maternal and child health populations. It is unclear whether current surveillance efforts in Texas accurately estimate maternal mortality.

STUDY QUESTIONS: Do current surveillance methods in Texas underestimate maternal mortality?

METHODS: Using Texas Department of State Health Services (DSHS) vital records, live birth and fetal death records were linked to pregnancy-related (ICD-10 Chapter O) and women of childbearing age 15-44 years (irrespective of ICD-10 code) death records in Texas from 2001-2006 to confirm pregnancy-related deaths and identify new cases of possibly pregnancy-associated deaths within one-year of the end of pregnancy. Pregnancy-related and -associated mortality ratios were calculated and compared over time and to DSHS based ratios. Frequency distributions for each variable and Chi2 – statistics for cross tabulations of demographic and prenatal care variables were also calculated.

RESULTS: Enhanced surveillance methods identified almost 3.5 times more deaths that may be associated with pregnancy than current surveillance methods. The leading cause of pregnancy-associated death from 2001-2006 among all causes, was accidents. Enhanced surveillance confirmed a persistent race/ethnicity trend in maternal mortality. Race and ethnicity variables demonstrated statistically significant associations (p < 0.05) when crossed with the enhanced surveillance variable. Study limitations include the variance of disciplines and perspectives of medical certifiers assigning the ICD-10 cause of death code on the death certificate and the use of incomplete and possibly incorrect vital records as the primary source of data for analysis.

CONCLUSIONS: Enhanced surveillance casts a wider net to identify additional maternal deaths. Current surveillance methods in Texas may underestimate maternal mortality and place policymakers and practitioners at a disadvantage to appropriately address maternal mortality.

PUBLIC HEALTH IMPLICATIONS: This study suggests that improved surveillance methods can improve maternal mortality estimates and inform public health policy, practice, and resource allocation. Results from this study will inform future public health policy in Texas to address maternal mortality surveillance, including the creation of a statewide maternal mortality review board.
LINKING BIRTH CERTIFICATE AND SPECIALTY CLINIC DATA TO DETERMINE THE PREVALENCE OF CLEFT LIP AND/OR PALATE IN MONTANA

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BACKGROUND: Cleft lip with or without cleft palate is one of the most common birth defects reported in the US. Early identification is important in order to address the effects of cleft on eating, speech, and other issues related to health and development. Ideally, children with cleft are identified at the time of birth and immediately referred to specialty services for treatment. Birth certificates are often the earliest source of data on cleft diagnoses, but clefts are known to be under-reported on birth certificates.

STUDY QUESTIONS: What is the actual prevalence of cleft lip and/or palate among infants born in Montana? What proportion of children born in Montana with a cleft lip and/or palate do not have the condition reported on their birth certificate?

METHODS: Our study linked Montana birth certificate data for 2004-2008 to data from Montana’s Child Health Referral Information System (CHRIS). CHRIS includes information from multiple data sources on children with special conditions, including participants in the statewide cleft/craniofacial program. Deterministic record linkage was used for the majority of records and the remainder were linked manually. Confidence intervals were used to compare the prevalence of cleft lip and/or palate as reported on the birth certificate to the prevalence reported on birth certificates and CHRIS.

RESULTS: Forty percent of clefts in infants born in Montana in 2004-2008 were not reported on the birth certificate. The prevalence of cleft lip and/or palate as reported on birth certificates alone was 11.7 per 10,000 live births (95% confidence interval 9.2-14.7), compared to a cleft prevalence of 19.6 per 10,000 live births (95% confidence interval 16.2-23.4) using birth certificate and CHRIS data.

CONCLUSIONS: Linking birth certificate data with administrative record data results in a more accurate perspective on the prevalence of cleft lip and/or palate in Montana. The results indicate additional research is necessary to determine whether the lack of reporting on birth certificates corresponds with a delay in accessing services.

PUBLIC HEALTH IMPLICATIONS: The study suggests the level of under-reporting of cleft on birth certificates and underlines the importance of using other sources of data to estimate the prevalence of birth defects when planning programs and services.
POSTPARTUM DEPRESSION, INFANT FEEDING PRACTICES, AND WEIGHT GAIN THROUGH 12 MONTHS OF AGE

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BACKGROUND: The Life Course Model posits that factors, such as postpartum depression (PPD), that occur during the critical early months of infancy may have long-term health consequences. The associations between PPD and adherence to WHO and AAP practice guidelines for infant feeding and subsequent infant weight gain have not been fully explored.

STUDY QUESTIONS: To what extent is PPD associated with infant feeding practices and subsequent infant weight gain?

METHODS: Data were obtained from the Infant Feeding Practices Study-II, a longitudinal survey administered by FDA and CDC, that followed US mother-infant dyads from pregnancy through one year postpartum. Descriptive statistics, t-tests and Chi-square and logistical regression analyses were conducted to examine the associations between PPD and both infant feeding practices and weight gain through 12 months. A recognized limitation was self-reported data.

RESULTS: Of 2473 mothers who responded to the Edinburgh Postnatal Depression Scale at 2 months infant age, 24.7% (n = 611) were classified as having minor to moderate depression (cut-off score = 10). Compared to mothers without PPD, mothers with PPD were significantly more likely to add cereal to the bottle; give juice = 6 months infant age; start solids = 4 months infant age and breastfeed at low intensity during the first 2 months. These practices are contrary to current clinical guidelines for infant feeding. Further, infants of mothers with PPD demonstrated significantly higher weight gain at 5, 7, and 12 months infant age. A limitation to generalizability of these findings was a disproportionately low representation of low SES and minority groups in the sample.

CONCLUSIONS: PPD was associated with infant feeding practices and subsequent weight gain through infancy. Using the Life Course Model as a framework, future research should test whether interventions that reduce PPD have a positive impact on infant feeding practices and subsequent weight gain through infancy.

PUBLIC HEALTH IMPLICATIONS: To reduce the risk for excessive weight gain that may lead to childhood overweight/obesity, routine screening for PPD in conjunction with assessments of infant feeding practices during early pediatric health maintenance visits is recommended.
INCOME DISPARITIES IN PREVENTIVE DENTAL CARE AMONG CHILDREN WITH SPECIAL HEALTH CARE NEEDS

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BACKGROUND: Unmet dental care is a challenge among children with special health care needs (CSHCN). This challenge may be more exaggerated in CSHCN at or below 200% of the federal poverty level (FPL).

STUDY QUESTIONS: Among CSHCN are unmet dental needs greatest among those at or below 200% FPL?

METHODS: We conducted a cross-sectional study to explore income disparities in preventive dental care among CSHCN. The 2007 National Survey of Children's Health was analyzed and restricted to CSHCN aged 1-17 (N=18,025 nationally weighted N=13,831,698). Complex sampling procedures were used to generate population level estimates. We created a propensity score to capture household and parental characteristics to adjust for confounders.

RESULTS: Among CSHCN at or below 200% FPL, 22% did not receive preventive dental care in the previous 12 months compared to 11% of CSHCN above 200% FPL. After adjustment, factors associated with CSHCN receiving preventive dental care were oral health status (excellent/very good) odds ratio (OR)=2.38, 95% confidence interval (CI) 1.55-3.66; good OR=1.73, 95% CI 1.12-2.67), oral health problems (1 OR=1.82, 95% CI 1.34-2.46; =2 OR=2.76, 95% CI 1.73-4.42), and insurance type (private OR=2.55, 95% CI 1.50-4.30; public OR=3.03, 95% CI 1.79-5.10). CSHCN at or below 200% FPL who were US-born (OR=2.62, 95% CI 1.52-3.71) or school-aged (OR=3.36, 95% CI 2.79-3.99) were more likely to receive preventive dental care.

CONCLUSIONS: The proportion of CSHCN at or below 200% FPL not receiving preventive dental care is 2 times greater than those above 200% FPL. Older age and US nativity are protective factors for receiving preventive dental care among CSHCN at or below 200% FPL. While income disparity may be a major determinant to receiving preventive dental care in CSHCN, other social attributes play important roles in their access to dental care.

PUBLIC HEALTH IMPLICATIONS: This study's findings support the American Academy of Pediatric Dentistry's recommendation for a dental home. Such a recommendation would increase the likelihood of receiving preventive dental care and ensuring awareness of age-specific oral health problems among all children including CSHCN at or below 200% FPL.
SMOKE-FREE HOME RULES AMONG WOMEN WITH INFANTS

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BACKGROUND: Risk of respiratory infections and SIDS is higher among infants exposed to secondhand smoke (SHS). Rules that ban smoking in homes reduce infants' SHS exposure, but smoke-free home rules have not been explored in a population-based sample of women with infants.

STUDY QUESTIONS: What percentage of postpartum women report complete (no smoking allowed in the house) smoke-free home rules and does the percentage vary by maternal characteristics, state, or delivery year?

METHODS: We analyzed self-reported 2004-2008 Pregnancy Risk Assessment Monitoring System data from 41,535 postpartum women who delivered a live birth in Arkansas, Maine, New Jersey, Washington, or Oregon (states that included questions on smoke-free home rules). We calculated prevalence and 95% confidence intervals (CI) of women reporting complete smoke-free home rules. We examined prevalence of complete rules by maternal smoking status during pregnancy and postpartum, demographic characteristics, delivery year, and state of residence. We calculated adjusted relative risks (aRR) estimating the associations of complete rules versus partial/no rule and potential correlates.

RESULTS: The overall prevalence (2004-2008, all five states) of complete smoke-free home rules was 94.6% (95% CI: 94.3, 94.9) and varied by state, ranging from 80.1% (Arkansas) to 98.8% (Oregon). The prevalence significantly increased from 92.6% in 2004 to 95.7% in 2008; the trend was statistically significant (test for trend P<.05) in three of the five states. Mothers who smoked during and after pregnancy (aRR=0.90, CI: 0.89, 0.92) were less likely than non-smoking mothers to have complete rules. Our findings may not be generalizable outside our study population.

CONCLUSIONS: The overall prevalence of mothers reporting complete smoke-free rules was high in 2004; still, it continued to increase significantly from 2004-2008. Mothers who smoked during and after pregnancy were less likely than their counterparts to have complete rules.

PUBLIC HEALTH IMPLICATIONS: Public health and clinical efforts appear to have been successful in promoting complete smoke-free rules in homes with infants. Efforts to discuss health effects of SHS exposure and encourage adoption of complete smoke-free home rules should continue. Further research is needed to elucidate reasons for state variation and identify practices that promote smoke-free home rules.
TEMPORAL TRENDS IN SUDDEN INFANT DEATH SYNDROME IN CANADA FROM 1991 TO 2005

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BACKGROUND: The rate of sudden infant death syndrome (SIDS) decreased significantly in North America between the late 1980s and the early 2000s. In the United States, this decline was shown to be due in part to a shift in diagnosis, as deaths from accidental suffocation and strangulation in bed and from other ill-defined and unspecified cause increased concurrently.

STUDY QUESTIONS: This study was undertaken to determine whether there was such a shift in diagnosis from SIDS to other causes of death in Canada, and to quantify the true temporal decrease in SIDS.

METHODS: Cause-specific infant death rates were compared between 1991-1995, 1996-2000 and 2001-2005 using the Canadian linked live birth-infant death file. The temporal decline in SIDS was estimated after adjustment for maternal and infant characteristics such as maternal age and small-for-gestational-age using logistic regression.

RESULTS: Deaths from SIDS decreased from 78.4 per 100,000 live births in 1991-95, to 48.5 in 1996-00 and to 34.6 in 2001-05. Rates of deaths from other ill-defined and unspecified cause (13.5, 15.2 and 13.5 per 100,000 live births in 1991-95, 1996-00 and 2001-05, respectively) and accidental suffocation and strangulation in bed (2.0, 1.6 and 1.9, respectively) remained stable. The temporal decline in SIDS between 1991-95 and 2001-05 did not change substantially after adjustment for maternal and infant factors.

CONCLUSIONS: The significant decline of SIDS in Canada was neither due to changes in cause-of-death assignment practices nor to changes in maternal and infant characteristics.

PUBLIC HEALTH IMPLICATIONS: Health promotion programs aiming at reducing the rates of SIDS appear to have been successful.
THE EFFECT OF PARENTS’ PREGNANCY INTENTION ON MATERNAL PREGNANCY AND POSTPARTUM BEHAVIORS

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BACKGROUND: Relatively little research has investigated the effect of parents' pregnancy intention on maternal behaviors. The Pregnancy Risk Assessment Monitoring System (PRAMS) is routinely used to obtain state-based estimates of maternal pregnancy intentions. However, PRAMS also identifies women whose partner did not want them to become pregnant.

STUDY QUESTIONS: What is the effect of parents' pregnancy intention on maternal pregnancy and postpartum behaviors?

METHODS: Using 2007-2009 Virginia PRAMS data, we investigated the combined effect of maternal and paternal (according to the mother, whether a woman's partner stated he did not want her to become pregnant during the year before her pregnancy) pregnancy intention on maternal pregnancy and postpartum behaviors. Multivariate logistic regression models estimated the effect of parents' pregnancy intention while controlling for maternal confounders (age, race/ethnicity, education, income, and method of delivery payment).

RESULTS: The analysis yielded four groups: both parents intended the pregnancy (55.9%); pregnancy was intended by the mother, but her partner said he did not want her to become pregnant (2.8%); mother did not intend the pregnancy (34.2%); and neither parent intended the pregnancy (7.1%). Women with unintended pregnancies or discordant pregnancy intentions were younger and more likely to report < high school education, income <$20,000, and Black race than women whose pregnancies were intended. Women whose pregnancies were intended, but whose partner said he did not want her to become pregnant were at a greater risk of not having adequate prenatal care (aOR=3.2; 95% CI: 1.33,7.67). Women whose pregnancies were unintended and had a partner who said he did not want her to become pregnant were more likely to smoke in the last 3 months of pregnancy (aOR=3.7; 95% CI: 1.53,8.78) and have infants who experience bed sharing (aOR=2.5; 95% CI: 1.13,5.54) and smoke exposure (aOR=2.9; 95% CI: 1.39,6.00).

CONCLUSIONS: Paternal pregnancy intentions have an effect on women's health behaviors, even among women who intended their pregnancies.

PUBLIC HEALTH IMPLICATIONS: Pregnant women with partners who didn't want them to become pregnant are a high risk group in need of additional program support.
INFANT SLEEP PRACTICE AND CHARACTERISTICS AMONG WOMEN GIVING LIVE BIRTH IN NEW MEXICO, 2009

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BACKGROUND: Bed sharing is associated with some SUID, SIDS or suffocation deaths. The PRAMS survey provides a context to learn about maternal populations with risky infant sleep behaviors.

STUDY QUESTIONS: Which maternal characteristics are associated with bed sharing, crib use and bumper pad use for infants in New Mexico?

METHODS: We used the Surveyfreq procedure (SAS 9.2) to generate weighted percentages of bed sharing, crib use (and bumper pads) among women giving live birth in New Mexico. We cross-tabulated these estimates with maternal race-ethnicity, age, parity, marital status, Medicaid or WIC participation, and postpartum smoking or breastfeeding. We included a Wald Chi-square to measure significant associations.

RESULTS: Crib use and bed sharing were each associated with postpartum WIC participation, breastfeeding duration, maternal alcohol use, and ethnicity. Women receiving WIC were more likely than non-WIC clients to have an infant who usually shared a sleeping surface (35.7% v. 28.3% \( p=.008 \)) and less likely to have an infant usually sleeping in a crib (76.0% v. 82.6% \( p=.007 \)). Medicaid delivery payment was associated with infant bed sharing (35.7% v. 28.9% \( p=.012 \)). Women who breastfed at least nine weeks were less likely to use a crib (75.4% v. 83.7% \( p<.0001 \)) and more likely to have a bed-sharing baby (38.5% v. 24.5% \( p<.0001 \)) than women who stopped breastfeeding. Native American moms were less likely to use a crib (68.8% v. 78.4% and 83.3% \( p=.004 \)) and marginally more likely to have a bed-sharing infant compared to Hispanic or non-Hispanic white moms (40.5% v. 32.8% or 29.3% \( p=.068 \)). Among crib users, there was no significant difference in bumper pad use.

CONCLUSIONS: Several populations were identified for risky infant sleep practices. WIC, Medicaid and breastfeeding mothers had a relatively high prevalence of bed sharing. Native American moms and those who used alcohol prior to pregnancy were also likely to employ risky sleep practices.

PUBLIC HEALTH IMPLICATIONS: The authors and injury prevention staff are using these data to inform WIC and breastfeeding programs about the risks of bed sharing and importance of crib use.
A COMPREHENSIVE HEMOGLOBINOPATHY SURVEILLANCE SYSTEM AS STATEWIDE LONG-TERM FOLLOW-UP ACROSS THE LIFE SPAN - MICHIGAN EXPERIENCE

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BACKGROUND: Newborn screening (NBS) for hemoglobinopathies (HGB) has substantially improved survival during childhood; less is known about cases detected by NBS beyond age five. We use the surveillance system process for obtaining, analyzing, interpreting and disseminating information about HGB cases as statewide long-term follow-up across the life span.

STUDY QUESTIONS: How a surveillance process can be used to develop follow up strategies for Newborn Screening program?

METHODS: Multiple databases and other state resources are being used to meet the goal of expanding HGB follow-up across the lifespan through surveillance. The two-dimensional concept of lifespan is applied, recognizing that health and well-being along with other exposures and risks occur over a continuum from conception to death (horizontal dimension) but also have an impact on offspring (vertical dimension). Case identification is based on NBS data supplemented with physician reports and information from other statewide systems. While following the cohort of newborns may take longer, cross sectional information can be used to assess the burden of HGB including healthcare utilization and costs from data sources such as hospital discharge, Medicaid, Women, Infants and Children) and linkages performed. Death certificate data are used to evaluate mortality pre- and post-newborn screening.

RESULTS: From 1987 to 2009, 1,504 newborns were diagnosed with sickle cell disease (SCD) through NBS, leading to a cumulative incidence rate of 1:2,057. Through the linkages, approximately 97% of newborns delivered in 2004-2008 were matched with live births and immunization data were available for 90%. For children with sickle cell the completion rate for all vaccines listed above was 66.0% among those 19-35 months and 71.3% among those 3-6 years of age. According to hospital discharge data, 4,570 hospital stays occurred in 2007 where sickle cell disease was recorded as a diagnosis. In 2007 sickle cell disease or trait was a primary or contributing cause of death for 21 individuals (1 - 89 years old).

CONCLUSIONS: Multiple data sources and continued efforts are needed to sustain a surveillance process that could provide the evidence for program follow up strategies.

PUBLIC HEALTH IMPLICATIONS: A surveillance system across the lifespan can further public health knowledge and inform policy makers.
EXPLORING SHORT CERVIX AS A PREDICTOR OF PRETERM BIRTHS – 2002-2008 MICHIGAN PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (MI PRAMS)

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BACKGROUND: Preterm birth is a major complication of pregnancy and remains a leading cause of neonatal morbidity and mortality. Women with a short cervical length (short cervix) on transvaginal ultrasonography at mid-gestation are at increased risk for spontaneous preterm delivery. There are no population based studies related to the prevalence of short cervix.

STUDY QUESTIONS: What is the prevalence of short cervix and its impact on preterm births in women who participated in MI PRAMS?

METHODS: Linked data from live birth certificates and MI PRAMS for years 2002-08 were used. There is no information on short cervix on PRAMS so cerclage was used as a proxy. PRAMS was also the source for gestational hypertension (pre-eclampsia, eclampsia), placenta problems (abruptio placenta, placenta previa), premature rupture of membranes (PROM), premature labor, plurality, and previous preterm birth as other known predictors of preterm births. Preterm births data were obtained from live birth records. Multivariate logistic regression was used to assess the association of cerclage with preterm births while controlling for the above mentioned predictors of preterm births.

RESULTS: Of the 864,955 MI PRAMS respondents 1.66% had cerclage with 1.93% delivering before 32 weeks gestation, 7.84% at 32-36 weeks and 90.23% at 37 weeks or more. Cerclage was a significant predictor of preterm birth, with an odds ratio of 2.11 (95% CI: 1.06-4.19). Hypertension (OR 2.13, 95% CI: 1.73-2.63), placenta problems (OR 2.30, 95% CI: 1.69-3.13), premature labor (OR 2.62, 95% CI: 2.19-3.13), plurality (OR 15.71, 95% CI: 11.45-21.56), and PROM (OR 22.70, 95% CI: 17.57-29.32) were other significant predictors of preterm births found in MI PRAMS population. Two interactions were also found significant: premature labor * PROM = 4.00 (2.44-6.25) and cerclage * PROM = 5.56

CONCLUSIONS: A small percent of women who delivered live infant(s) had cerclage so likely a short cervix. However, it is proved to be a significant predictor of preterm births although of less magnitude than PROM and plurality for instance.

PUBLIC HEALTH IMPLICATIONS: Collecting information on different predictors of preterm births that could be used to assess the magnitude of their impact is important for developing more effective prevention strategies.
SOCIOECONOMIC DEPRIVATION AND RISKS OF ANTEPARTUM AND INTRAPARTUM STILLBIRTH: AN ANALYSIS OF POPULATION-BASED COHORT DATA FROM RURAL GHANA

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BACKGROUND: While studies from developed countries have generally reported higher risks of stillbirth in lower socioeconomic groups, the relationship between socioeconomic status and risk of stillbirth remains largely unexplored in sub-Saharan Africa. This study seeks to determine whether wealth quintile is associated with risks of antepartum and intrapartum stillbirth.

STUDY QUESTIONS: Is wealth quintile associated with risks of antepartum and intrapartum stillbirth in rural Ghana?

METHODS: Our study uses data from ObaapaVitA, a cluster-randomized, double-blind, placebo-controlled trial undertaken in the Brong Ahafo region of Ghana to assess the effect of vitamin A supplementation on maternal survival. As part of the trial, fieldworkers visited women on a 4-weekly basis and collected data on variables such as assets owned, morbidity, mortality, and pregnancy outcomes. Verbal autopsies were performed for stillbirths. We used principal components analysis to construct an asset index and divide the study population into wealth quintiles. Bivariate and multivariate logistic regression were used to examine the association between wealth quintile and risks of antepartum and intrapartum stillbirth. We controlled for demographic, health, and obstetric variables.

RESULTS: From 1 July 2003 to 30 September 2008 there were 80,267 deliveries, of which 2,601 were stillbirths (stillbirth rate=32.4/1,000 total births). Timing of death was known for 2,397 stillbirths (92.2%) or 1,408 antepartum stillbirths and 989 intrapartum stillbirths. Asset data were available for 1,360 antepartum stillbirths (96.6%) and 962 intrapartum stillbirths (97.3%). Multivariate logistic regression analysis revealed risk of antepartum stillbirth was not associated with wealth quintile (adjOR=0.96 95% CI 0.91-1.02). Compared to women in the richest quintile, women in the second poorest and poorest quintiles were 32.0% (adjOR=1.32 95% CI 1.00-1.74) and 34.6% (adjOR=1.35 95% CI 1.01-1.79) more likely to have a stillbirth, respectively. There was an increasing gradient in risk of intrapartum stillbirth from the richest to poorest quintiles (p=0.007).

CONCLUSIONS: Wealth quintile was not associated with risk of antepartum stillbirth. However, poor women had a higher risk of intrapartum stillbirth relative to rich women. Future studies should explore reasons for inequalities.

PUBLIC HEALTH IMPLICATIONS: To reduce the stillbirth burden and address inequalities in intrapartum stillbirths in rural Ghana, evidence-based interventions should be targeted at socioeconomically deprived women.
DECREASING INFANT DEATHS DUE TO PREMATURITY IN PRACTICE:
ELIGIBILITY AND RECEIPT OF ANTENATAL CORTICOSTEROIDS,
MASSACHUSETTS 2000-2008

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BACKGROUND: Prematurity is a leading cause of infant death. Administration of antenatal corticosteroids (ANC) is recommended to women at risk of preterm delivery between 24 and 34 weeks gestation for its association with decreased respiratory distress syndrome, intraventricular hemorrhage, and mortality. Understanding the patterns of ANC administration among preterm infants who died will inform infant mortality reduction and perinatal quality improvement initiatives.

STUDY QUESTIONS: Are there differences in ANC administration among infants who died in Massachusetts (MA) and were eligible for treatment?

METHODS: We examined the linked birth-infant death data in MA from 2000-2008. As birth defects are another leading cause of infant death, cases identified by the MA Birth Defects Monitoring Program were excluded from this analysis. A gestational age variable combining the calculated and clinical gestational age was applied to the recommendation adopted by the American College of Obstetricians and Gynecologists (ACOG) to identify infants eligible to receive ANC. This study examined variations of ANC administration among eligible infant deaths by both individual and hospital factors. This study lacks clinical data which may potentially lead to misclassification of ANC administration.

RESULTS: Excluding birth defects (N=484), 66.3% of infant deaths were due to disorders relating to short gestation (N=2808). About 77.8% of infant deaths were <37 weeks gestation and 29.0% met the eligibility criteria for ANC administration. Of those eligible, 18.2% received ANC. Factors associated with eligible infants not receiving ANC included: white race (P<0.005), maternal age <20 years (P<0.05), inadequate prenatal care (PNC) (P<0.01), and singleton births (P<0.01). Examining the ten hospitals with the highest number of ANC eligible infants, there was variation in ANC administration ranging from 0.0% to 50.0%.

CONCLUSIONS: More than 4 out of every 5 MA infant deaths were eligible to receive ANC but did not, indicating potential missed opportunities for evidence-based interventions. Among ANC eligible infant deaths, those born to women who were white, younger, with singletons, or who received inadequate PNC were more vulnerable for not receiving ANC.

PUBLIC HEALTH IMPLICATIONS: As most infant deaths are due to causes of prematurity, adherence to ACOG guidelines for ANC administration to promote lung maturity may aid in decreasing infant mortality throughout the Commonwealth.
HIGH RATES OF NON-EXCLUSIVE BREASTFEEDING FOR AT LEAST 2 MONTHS AMONG ASIAN AND PACIFIC ISLANDER RACE SUBGROUPS, HAWAII PRAMS, 2004-2008

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BACKGROUND: Breastfeeding is nurturing, prevents childhood illnesses and infections, decreases childhood obesity, is cost-effective, decreases sick visits to the doctor, and is beneficial for the health of mother and child. The World Health Organization recommends exclusive breastfeeding for 6 months.

STUDY QUESTIONS: What is the prevalence of not exclusively breastfeeding =2 months among women having a term live birth; and does it vary by maternal race/ethnicity in Hawaii?

METHODS: Data from the 2004-2008 Hawaii Pregnancy Risk Assessment and Monitoring System (PRAMS), a population-based surveillance system on maternal behaviors and experiences before, during, and after a live birth were analyzed for 7,101 mothers who had term deliveries and initiated breastfeeding. Breastfeeding data are collected through PRAMS surveys mailed 2 months after birth; thus, we examined whether mothers did not exclusively breastfeed =2 months, using data on infant's age when anything other than breast milk was introduced. We used multivariable logistic regression analysis to examine the association between non-exclusive breastfeeding and maternal race/ethnicity while controlling for other maternal and sociodemographic characteristics.

RESULTS: The overall estimate of not exclusively breastfeeding =2 months among term infants was 59.4% and was highest among Filipino (68.2%), Japanese (68.1%), Hawaiian (63.8%), and Chinese (63.1%) mothers. Black (56.3%) and white (43.4%) mothers had the lowest prevalence of not exclusively breastfeeding = 2 months. After controlling for prepregnancy BMI, maternal education, self-reported postpartum depressive symptoms, and return to work/school, the racial/ethnic differences in non-exclusive breastfeeding persisted in Japanese (aOR=2.7; 95% CI=2.2-3.2), Filipino (aOR=2.5; 95% CI=2.2-2.9), Chinese (aOR=2.3; 95% CI=1.9-2.7), and Hawaiian (aOR=1.9; 95% CI=1.7-2.3) mothers compared to white mothers.

CONCLUSIONS: Less than half of mothers who had a term infant that initiated breastfeeding did so exclusively for = 2 months. Asian and Pacific Islander mothers were about twice as likely to not exclusively breastfeed for = 2 months after controlling for several maternal and sociodemographic characteristics.

PUBLIC HEALTH IMPLICATIONS: Providers and community groups should be aware of the high estimates of women not exclusively breastfeeding for recommended durations, particularly among Asian and Pacific Islander mothers. Culturally appropriate efforts to promote exclusive breastfeeding to 6 months of age are needed.
DEPRESSED CHILDREN ARE LESS LIKELY TO BE ENGAGED IN SCHOOL,
NATIONAL SURVEY OF CHILDREN’S HEALTH, 2007

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BACKGROUND: Healthy child development may be influenced by factors at school including attendance, interaction with teachers, participation in activities, and being in a safe learning environment. School engagement may be affected by the home and school environments, but also the occurrence of child health conditions, such as depression.

STUDY QUESTIONS: Is there an association between school engagement and depression among children 6-17 years of age?

METHODS: The National Survey of Children's Health (NSCH) is a population-based telephone survey that collects parent/guardian-reported information on children throughout the US. Data from the 2007 NSCH were examined to evaluate associations between school engagement and depression among 64,076 children aged 6-17 years. Lack of school engagement was based on responses to two questions asking whether the child cares about school and does all required homework. A child whose parent answered never/rarely/sometimes on both questions was considered to lack school engagement; a child was considered school-engaged if the parent answered usually/always to both questions. Depression was based on parental report of ever being told by a health provider that the child had depression. Descriptive analysis and multivariate logistic regression assessed school engagement by depression status, controlling for individual- (child age, sex, and race/ethnicity; and parental education) and community-level (safe neighborhoods, safe school) factors.

RESULTS: An estimated 19.5% of children in the US lacked school engagement, and 4.8% of children were reported to have depression. Additionally, 50.0% of children with depression lacked school engagement, compared to 18.0% of those without depression. After adjustment for individual and community factors, children with depression had a higher odds of lack of school engagement compared to those without depression (AOR=3.72, 95% CI=2.93-4.73). Other individual and community factors associated with lack of school engagement included child age, child sex, child race/ethnicity, parental education, safe neighborhoods, and safety in schools.

CONCLUSIONS: Lack of school engagement affects nearly one in five children in the US. Those with reported depression are at greater risk even after accounting for individual- and community-level factors.

PUBLIC HEALTH IMPLICATIONS: Parents, teachers, and health providers should ensure that children with depression receive appropriate services to promote their engagement in school.
BACKGROUND: The U.S. pregnancy-related mortality ratio (PRMR) increased to 14.5 per 100,000 live births in 1998-2005, the highest ratio in 20 years. Since 1999, Florida has performed systematic review of pregnancy-related deaths (PRDs) to identify potential areas for PRD prevention.

STUDY QUESTIONS: What is the PRMR trend in Florida? What are the risk factors associated with PRDs?

METHODS: Florida identifies pregnancy-associated deaths beyond death certificate causes through linkage of these certificates of women of reproductive age to birth and fetal death certificates as well as Healthy Start prenatal screens. After detailed death certificate review, health records of possible PRDs are abstracted, reviewed and assessed by a multi-disciplinary team. We used PRD assessment data and vital records from 1999-2009 to examine PRMR trend and risk factors using Excel and SPSS version 17.

RESULTS: In 1999-2009, Florida experienced 426 PRDs and 2,397,974 live births. Florida's PRMR fluctuated from a high of 20.3 per 100,000 live births in 1999, to 13.3 in 2005; no clear trend was identified through 2008. In 2009, the PRMR increased from 14.3 in 2008 to 26.2 per 100,000 live births (p=0.004). For the period 1999-2009, five causes of death accounted for 65% of PRDs: hypertensive disorders (16%), hemorrhage (15%), infection (13%), cardiomyopathy (11%), and thrombotic embolism (10%). Risk factors associated with PRD were class III obesity (RR 8.5), no prenatal care (RR 5.7), cesarean delivery (RR 4.2), age 35 or older (RR 3.8), less than a high school education (RR 3.6), and black non-Hispanic race (RR 3.1). Hemorrhage and infection accounted for 68% of the PRMR 2008 to 2009 increase.

CONCLUSIONS: Florida did not exhibit a clear PRMR trend until 2009. Hypertensive disorders, hemorrhage and infection were leading causes of PRDs. Obesity and no prenatal care were leading risk factors. Flu-like infections and hemorrhage from ectopic pregnancies accounted for majority of 2009 increase; causes and risk factors are currently under investigation.

PUBLIC HEALTH IMPLICATIONS: Florida's PRD review committee identified hemorrhage and hypertension as prevention priorities including further epidemiologic study and development of practice recommendations. Review team continues to monitor and review deaths from flu-like illnesses and ectopic pregnancies.
CHILD BULLIES: CHARACTERISTICS OF CHILDREN WHO BULLY DURING MIDDLE CHILDHOOD

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BACKGROUND: Bullying is intentional, repeated aggression reflecting a power disparity between victim and perpetrator. Bullying causes physical and mental harm upon victims and youth bullies are at higher risk of life-long problematic behaviors. The goal for many youth anti-bully efforts is to stop bullying before it starts, but national data have not been used to examine bullying in young school-aged children.

STUDY QUESTIONS: What factors are associated with bullying among young school-aged children in the U.S.?

METHODS: Parent-reported data were analyzed for 33,047 children 6-12 years old from the 2007 National Survey of Children's Health, a nationally representative random-digit-dial telephone survey. Bivariate analyses and logistic regression models were used to examine associations between child behaviors (positive social skills and problematic behaviors), parental stress, neighborhood characteristics and bully perpetration, after adjusting for socio-economic and demographic characteristics. Children were categorized as bullies if they often acted cruel/mean to others. Parental stress was defined as often feeling aggravated by their child. Neighborhood characteristics were defined by perceived neighborhood safety and support, and school safety.

RESULTS: Approximately 15% of young school-aged children were bully perpetrators. Compared to children who do not bully, bullies were more likely to be non-Hispanic black or Hispanic, live in poor households, seldom exhibit positive social skills, and often exhibit problem behaviors. Children who bully compared to non-bullies were also more likely to live in areas that are unsafe and lack neighborhood support. Parents of bullies were more likely to usually/always feel parental stress compared to parents of non-bullies. After adjustment, bullying was associated with living in unsafe neighborhoods (Odds ratio [OR]=1.29; Confidence Interval [CI]=1.03-1.61) and with parental stress (OR=3.72; CI=2.99-4.63).

CONCLUSIONS: This study found racial/ethnic differences as well as differences by poverty status between bullies and children who do not bully. This study also found that bullying was associated with a lack of neighborhood safety and parental stress.

PUBLIC HEALTH IMPLICATIONS: Understanding the characteristics of middle childhood bullies may help in developing bullying prevention programs. These findings may be helpful to health professionals, educators, and program providers that work with elementary and middle school children and their families.

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BACKGROUND: Dental caries affects more U.S. children than does any other chronic health condition. Population-based estimates of preventive dental service use are lacking, yet needed to evaluate progress toward national primary prevention goals and to identify disparities.

STUDY QUESTIONS: Does use of preventive dental care in the U.S. differ by individual, family, community-level factors or health status need within three age groups: young children, school-age children and adolescents?

METHODS: Data from the 2005 – 2008 Medical Expenditures Panel Surveys (MEPS) were used to examine use of preventive dental care in a nationally representative sample of US children ages 6 months through 17 years (n = 18,218). Preventive services were defined to include receipt of oral health-promoting services including diagnostic (e.g., general exam, checkup) or preventive treatment (e.g., fluoride treatment or sealant application) in the prior 12 months. Survey-weighted logistic regression was used to examine preventive service use in three age groups (6 months through 5 years, 6 through 11 years, 12 through 17 years), controlling for important demographic and socioeconomic characteristics. Study limitations include possible under-reporting of dental service use in MEPS, cross-sectional analysis and possible selection bias.

RESULTS: Only 20% of the youngest children, 23% of school-age children, and 20% of youth ages 12 years and older received preventive dental services. As age in months increased, so did the odds of receiving preventive oral health care (AOR = 1.38; 95% CI = 1.31, 1.44; p < 0.01). Among school-age children, as age increased, children in the school-age category were less likely to receive preventive care (AOR = .95; 95% CI = 0.90, 0.99; p = .02). This was true of youth, ages 12 through 17, also (AOR = .93; 95% CI = 0.87, 1.00; p = .04). In all age groups, year of the MEPS survey showed a positive and significant association with the odds of receiving preventive oral health care.

CONCLUSIONS: Use of preventive dental services has increased over time but remains far below national goals.

PUBLIC HEALTH IMPLICATIONS: Continued outreach and education efforts are required to increase the use of preventive oral health care.
PHYSICAL, PSYCHOLOGICAL, AND SEXUAL ABUSE BY AN INTIMATE PARTNER BEFORE AND DURING PREGNANCY IN WASHINGTON STATE, 2004-2008

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BACKGROUND: Physical abuse around the time of pregnancy is associated with adverse maternal and child health outcomes. Approximately 10% of women in Washington experience some type of abuse by an intimate partner, yet little is understood about women experiencing abuse in Washington.

STUDY QUESTIONS: What factors are associated with abuse by an intimate partner, and what is the association of abuse with post-partum behaviors and outcomes (well baby check-up, symptoms of depression, not using birth control, and initiating breastfeeding)?

METHODS: We utilized 2004 to 2008 Washington Pregnancy Risk Assessment Monitoring System data (n=7414) to evaluate abuse before and during pregnancy. Abuse was defined as experiencing physical, psychological (feeling threatened or controlled), and/or sexual abuse by an intimate partner. We used logistic regression to evaluate factors associated with abuse, as well as the association between abuse and post-partum behaviors/outcomes. Limitations included small sample sizes to evaluate associations.

RESULTS: 5.4%, 7.0%, and 1.7% of women experienced any physical, any psychological, or any sexual abuse, respectively, before or during pregnancy. 10.2% of women experienced any type of abuse. Characteristics mostly strongly associated with any abuse were 5+ stressful life events, prior pregnancy, unintended pregnancy, being unmarried, and food insecurity. Any abuse was associated with not using post-partum birth control (OR=1.82; 95% CI 1.39, 2.39) and symptoms of post-partum depression (OR=3.32; 95% CI 2.50, 4.40). Abuse was not associated with getting a well baby check-up or initiating breastfeeding. Type of abuse did not change associations.

CONCLUSIONS: Abuse around the time of pregnancy was associated with risk factors for poor MCH outcomes, as well as with lack of post-partum birth control use and symptoms of post-partum depression.

PUBLIC HEALTH IMPLICATIONS: Results will be used to inform the activities of Washington’s Support for Pregnant and Parenting Teens and Women grant, including the development of practice guidelines to improve the response of services to pregnant victims of abuse.
MEASURING MATERNAL MORTALITY IN RESOURCE-POOR SETTING: NATIONAL MATERNAL MORTALITY SURVEILLANCE SYSTEM IN SRI LANKA

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BACKGROUND: Accurate measurement of maternal mortality is a challenge in developing countries with poor health and vital event registration information systems. Sharing the success story of Sri Lankan maternal mortality surveillance will be beneficial for advancement of maternal health metrics.

STUDY QUESTIONS: Can accurately measure maternal deaths, analyze determinants and circumstances of such deaths assuring utilization and dissemination of data at different healthcare administrative levels for effective usage in resource-poor contexts?

METHODS: Capturing maternal deaths: A death of a woman in reproductive age during pregnancy or one year after its termination is a gazetted notifiable event. Notifications are received from public and private healthcare institutions and from island-wide domiciliary surveillance executed by public health midwives designated to each household. Deaths are also captured from registrar general department, field health returns, institutional mortality returns and media surveillance. Maternal mortality data from different sources are triangulated at a national level database. Coverage, timeliness and completeness of data are ensured by a database custodian. A postmortem examination is mandatory for a maternal death. Investigation: Detailed institutional and field investigations are conducted with participation of all healthcare workers involved in management of mother. Different review levels have been introduced at field, institutional, district and national levels to analyze data and formulate preventive strategies.

RESULTS: Sri Lanka captures almost all maternal deaths to tally with WHO estimates with narrow confidence intervals. Maternal mortality data are utilized effectively at different levels and they are translated in to practice by dissemination to all stakeholders of maternal care both at peripheral and central level. These efforts helped in reduction of Maternal Mortality Ratio to a 33.4 per 100,000 live births (2008) in par with developed countries.

CONCLUSIONS: Robustness of maternal mortality surveillance systems and transformation of data into effective policies could be achieved with simple and cost-effectiveness strategies even in resource-poor settings.

PUBLIC HEALTH IMPLICATIONS: Sri Lankan experience can be translated in similar settings to accurately measure maternal deaths in local and global settings.
ERGONOMICS IN SCHOOL EDUCATIONAL ENVIRONMENTS: THE SRI LANKAN SITUATION

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BACKGROUND: Incompatible ergonomics impart negative impacts on schoolchildren. Ergonomics in schools is still a strange concept even in the industrially developed contexta. Sri Lanka, being a country with better health indices comparable to industrially developed countries, pioneered in the introduction of ergonomics in school health promotion. A situational analysis was carried out to delineate possible ergonomic strategies.

STUDY QUESTIONS: What is the distribution of selected ergonomic factors related to school-going early adolescents?

METHODS: A descriptive cross-sectional study was conducted in Gampaha, a district representing wider spectrum of school children and facilities in Sri Lanka. A representative sample of 1607 schoolchildren of 11–13 years selected using stratified multistage cluster sampling. A classroom was considered as a cluster and there were 55 clusters. Selected anthropometric dimensions of the children were measured. Measurements related to schoolbag, chair, desk and location of seating were taken and compared for ergonomic compatibility with anthropometric dimensions.

RESULTS: There were 52% male and 48% female students from urban (31.7%) and rural (68.3%) schools. They carried books in backpacks (79.6%), shoulder bags (17.9%) and suitcases (2.3%). Mean weight of schoolbag was 3.72 Kg. Mean schoolbag weight/body weight was 11.04% (SD=3.88). A bag weighing >10% of bodyweight was carried by 57.9%. Children were seated with a mean angle of 30.71 degrees (SD=19.67) and 398.04cm (SD=132.09) mean distance to blackboard. 23.3% had to turn >45 degrees to see the blackboard. A standard chair with backrest without hand-rests was used by 95.6%. Regular use of backrest was reported by 12%. For 78.3% an individual desk was provided. Desk surface was horizontal in 84.9%. A foot-rest was present in 82% desks. Sitting area length of chairs did not match with buttock-popliteal length of child in 87.3%. A mismatch in seat height and popliteal height was observed in 79.8% while legroom height of desk did not comply with popliteal height in 76.3%.

CONCLUSIONS: Although a majority of children carried a healthy bag model, backpack, there was widespread prevalence of mismatched furniture. Ergonomics related to school-going adolescents was unsatisfactory.

PUBLIC HEALTH IMPLICATIONS: The findings can be utilized to formulate feasible ergonomic solutions to ensure school a safe environment for children and adolescents.
PERINATAL MORTALITY AND ASSOCIATED FACTORS AMONG WOMEN DELIVERING IN THE MUNICIPAL HOSPITALS OF DAR ES SALAAM, TANZANIA, 2011

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BACKGROUND: In low income countries, the majority of neonatal deaths occur during the perinatal period. In Tanzania, it is estimated that about 1.6 million babies are born every year and of these 51,000 die within the first 28 days of life. Achieving the fourth millennium development goal of reducing child mortality can only be met by substantial reduction of the perinatal death.

STUDY QUESTIONS: What are the causes and factors associated with perinatal deaths among women delivering at three municipal hospitals of Dar es Salaam Tanzania?

METHODS: We conducted an unmatched case-control study in three municipal hospitals in Dar es Salaam. We defined a case as a baby who was born after 28 weeks of gestation as a stillbirth or was born alive but died within the first 24 hours post delivery and controls were the next two live babies born after 28 weeks of gestation and survived the first 24 hours. We collected information from the admission books, labor ward registries and the antenatal cards of the mothers and assessed the knowledge of 40 nurses working in the labour wards. Data was analyzed using Epilinfo.

RESULTS: A total of 200 cases of perinatal deaths and 400 controls were included in the study. The leading causes of perinatal death were pre-eclampsia/eclampsia 46(23%), prolonged/obstructed labour 44(22%) and prematurity 37(18.5%). Increased risk of perinatal death was found among cases with a history of previous adverse pregnancy outcome (AOR 2.35, 95%CI=1.15-4.79), hypertensive disorder (AOR 5.04, 95%CI=2.11-12.04), or having premature delivery (AOR 21.18, 95%CI=6.60-67.95). Of 40 nurses, 31(77.5%) had high knowledge on intrapartum care however 25(62.5%) had low knowledge on antenatal care. Twenty five (62.5%) had more than five years of practice in the labour wards, five (12.5%) had received in-service training on focused antenatal care.

CONCLUSIONS: The causes and risk factors identified are related to low quality of health care services and can be identified during the antenatal period and the intrapartum period by early identification of complication and appropriate timely intervention.

PUBLIC HEALTH IMPLICATIONS: Antenatal screening needs to be strengthened as well as provision of skills to health care providers during the perinatal and intrapartum period.
RISK FACTORS FOR POSTPARTUM DEPRESSION IN TENNESSEE WOMEN

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BACKGROUND: Studies have identified various risk factors that are associated with postpartum depression (PPD). In recent years, Tennessee mothers have self-reported the highest percentage of PPD symptoms within 22 reporting Pregnancy Risk Assessment Monitoring System (PRAMS) states.

STUDY QUESTIONS: What maternal demographic characteristics and risk factors are associated with PPD symptoms in Tennessee mothers?

METHODS: Analysis was conducted using data from Tennessee's PRAMS, a randomized population based mail/phone survey of women at 2-6 months postpartum. PPD ascertainment was based on the self-report of any depressive symptoms. Risk factors related to socioeconomic status, physical health and life event stressors were included in this analysis. Multiple logistic regression was conducted to determine statistical significance of risk factors that are associated with PPD symptoms.

RESULTS: 1,092 respondents had complete information on the variables of interest, among them 20% reported PPD symptoms. Of the risk factors tested in the full logistic regression model, life event stressors were the only statistically significant risk factors. Compared to mothers without any stressors, mothers that had 1-2 stressors had lower odds of exhibiting PPD (Odds Ratio [OR]:0.59, 95% Confidence Interval [CI]:0.41-0.84) whereas mothers who had 6+ stressors had higher odds of exhibiting PPD (OR:3.17, CI:1.97-5.10). There were no statistically significant effects on PPD for mothers with 3-5 stressors (OR:1.20, CI:0.86-1.70). These results were consistent regardless of the covariates included in the model. Simple logistic regression results for individual life stressors revealed that 12 of the 13 stressors were significantly associated with increased odds of PPD. Individually, there were no single stressors found to be protective for PPD. The most common life stressors were: Moving (OR:1.27, CI:1.03-1.56), and Arguing with husband/partner more than usual (OR:2.02, CI:1.63-2.49).

CONCLUSIONS: Individually, stressors are a significant risk factor for PPD symptoms. However when grouped, 1-2 stressors are protective, 3-5 show no association, and 6+ increase the odds of PPD. These results warrant further studies to examine interactions among stressors and other risk factors.

PUBLIC HEALTH IMPLICATIONS: Identification of at risk groups has implications for targeted screening and intervention.
PREVALENCE OF CHILDHOOD OBESITY AMONG SCHOOLCHILDREN IN MOROCCO, 2006-2007

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BACKGROUND: Morocco is undergoing a demographic, epidemiological, social, and nutritional transition. With an emerging economy, Moroccan is subject to changes in nutritional behavior, which has led us to suggest a hypothesis that the prevalence of overweight and obesity in children may be increasing. However, there is limited information on the prevalence of childhood obesity among schoolchildren in Morocco.

STUDY QUESTIONS: What is the prevalence of overweight and obesity among schoolchildren in the city of Rabat? What are the factors associated with childhood obesity?

METHODS: This cross-sectional study included 778 children aged 7-10 years (339 girls and 379 boys) randomly selected from 16 primary schools (9 government and 7 private schools). Body Mass Index was calculated using measured height and weight. Overweight and obesity were defined according to the International Obesity Task Force Reference. Questionnaires were completed by child's parents. Multivariable logistic regression analyses were used to calculate adjusted odds ratio (OR) and 95% confidence intervals (CI) for overweight or obesity.

RESULTS: Overall, 18.3% of children were overweight and 5.3% were obese. Children who attended private schools were more likely to be overweight compared with those who attended public school (OR=2.01, 95% CI [1.07-3.77]) after adjusting for sex, age, breastfeeding and birth weight. Boys were more likely to be obese compared with girls (OR=2.64, 95% CI [1.28-4.68]), and children with a mother who had a higher level of education were more likely to be obese compared with those with a mother who had a primary education (OR=1.98, 95% CI [1.03-3.80]) after adjusting for sex, age, breastfeeding, and birth weight.

CONCLUSIONS: Almost 1 in 4 children were overweight and obese in Rabat. Significant factors associated with overweight and obesity were attending private schools, being male, and higher maternal educational level. Further studies in different cities of Morocco are needed to identify national characteristics.

PUBLIC HEALTH IMPLICATIONS: These results could assist the Ministries of Education and Health to develop appropriate strategies to reduce the prevalence of childhood obesity especially among high risk population.
IMPROVING AND SUSTAINING PERINATAL CARE IN A RURAL DISTRICT IN NORTHERN GHANA USING QUALITY IMPROVEMENT METHODS: THE EXPERIENCE OF LAMBUSSIE KARNI DISTRICT

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BACKGROUND: Skilled delivery coverage in rural resource-constrained settings is low due to insufficient awareness of obstetric and neonatal risks, limited geographical and financial access, inadequate health services and human resources, and hostile attitudes of some health staff. Lambussie-Karni district in northern Ghana, typical of this context with a population of 50,836, six midwives and no doctor, sought to improve perinatal care using quality improvement (QI) methods.

STUDY QUESTIONS: Can the application of QI methods improve perinatal care in a rural resource-constrained setting?

METHODS: Fifteen health facilities, organized into six sub-district QI teams, started the QI work by analyzing their local data using diagnostic and analytic tools such as process mapping, root cause analysis and Pareto analysis, and to develop and test changes to address process failures and root causes of low skilled delivery. The aim was to improve skilled delivery coverage from a baseline median of 54% to ≥75% in 16 months by leveraging existing resources. Data were reviewed and analyzed monthly as a time-series.

RESULTS: Six change ideas were tested on a small scale; three of which were associated with improvement – (i) re-designing services to be more client-friendly; (ii) community engagement on the risk of unskilled deliveries; and (iii) birth preparedness planning for antenatal clients from 32 weeks gestation. These three were rapidly spread across the district. The median skilled delivery coverage improved from a baseline (January 2008 to July 2008) of 54% to ≥75% during the innovation and testing phase (August 2008 to December 2009) and further to 92% during the spread phase (January 2010 – March 2011). There were two fresh stillbirths per 1000 skilled deliveries and one maternal death during the 32-month intervention period compared to none of either at baseline.

CONCLUSIONS: Skilled delivery coverage improved with constant review of locally-generated data by frontline health providers and process re-designs within existing resources that address bottlenecks to care-seeking behavior.

PUBLIC HEALTH IMPLICATIONS: With QI methods, improvement in perinatal care is possible in rural resource-constrained settings if frontline health staff are empowered to use their own data to develop and test changes for their context, and partner with communities.
ASSOCIATION OF COMMUNITY SETTING AND NEIGHBORHOOD CHARACTERISTICS WITH REPORTED ATTAINMENT OF MINIMUM RECOMMENDED PHYSICAL ACTIVITY AMONG YOUTH

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BACKGROUND: The benefits of physical activity (PA) among youth are well-documented. Although physical environment plays a role in PA, study results of the association among environmental factors, neighborhood characteristics, and youth PA are inconsistent.

STUDY QUESTIONS: Are neighborhood characteristics and community setting associated with youth attainment of recommended PA levels?

METHODS: Data from the 2007 National Survey of Children’s Health (NSCH), restricted to non-obese youth aged 10-17 years (unweighted n=39,408), were examined for an association between youth PA and community setting and neighborhood characteristics. Community setting was determined by Rural-Urban Commuting Area (RUCA) codes to classify residential community setting. Neighborhood characteristics were defined as amenities, detracting elements, and cohesive elements as detailed in the NSCH. PA levels that ‘met minimum recommendations’ were determined using parentally reported moderate-to-vigorous physical activity (MVPA) lasting for at least 20 minutes/day on at least five days in the past week. Multivariable logistic regression models were used to examine the association of community setting and neighborhood characteristics with attainment of MVPA after adjusting for potential confounders. Analyses were carried out using SAS-callable SUDAAN to appropriately weight estimates and adjust for the complex sampling design.

RESULTS: After adjusting for youth demographics, physical health, extracurricular activities, and family/household characteristics, neighborhood characteristics significantly associated with youth attaining minimum MVPA included: absence of litter (AOR 1.22; 95% confidence interval [CI]: 1.01, 1.48), trustworthy neighbors (AOR 1.55; 95% CI: 1.17, 2.06), and residing in rural areas (AOR 1.44; 95% CI: 1.06, 1.97) or isolated rural areas (AOR 1.40; 95% CI: 1.13, 1.75). When each community setting was independently investigated by its specific RUCA code, the absence of litter in urban core areas (AOR 2.03; 95% CI: 1.52, 2.70) and the presence of parks in other urban areas (AOR 1.63; 95% CI: 1.12, 2.37) were important neighborhood attributes.

CONCLUSIONS: These cross-sectional data suggest that both community setting and neighborhood attributes play a role in PA. Litter-free neighborhoods and park amenities are most important in urban settings.

PUBLIC HEALTH IMPLICATIONS: The design of effective PA programs and policies for youth need to take into account both neighborhood characteristics as well as the residential community setting.
CRAFTING BETTER TEXT MESSAGES: THE TEXT4BABYSM PROGRAM

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Background: Over 96% of Americans have mobile phones and in 2010, 2.1 trillion text messages were sent. Text4babySM is a free text messaging service that provides timely information about pregnancy and infant health in English or Spanish. Subscribers receive three evidence-informed messages per week starting in pregnancy and extending through their babies’ first year. Topics include the importance of prenatal and infant care, immunization, nutrition, mental health, breastfeeding, oral health, smoking cessation, infant feeding, child passenger safety, and safe sleep. The primary target audience is low-income, medically underserved women. The program was launched nationwide in February 2010; to date, over 220,000 persons have enrolled in the service.

Study Question: How can we best ensure that text4babySM messages are clear, understandable, and actionable for mothers of all literacy levels?

Methods: Before launch, the National Healthy Mothers, Healthy Babies Coalition (HMHB) held informal discussion groups in 6 states with pregnant women and new mothers to inquire about topics of interest, preferred frequency, and type of messages. In the summer 2010, HMHB and CDC worked with Emory University to perform one-on-one cognitive testing of a subset of messages with the target audience. Working with The Partida Group, HMHB recently completed testing of Spanish text4babySM messages to evaluate translation quality and cultural relevance across diverse, Spanish-speaking audiences.

Results: Most of the messages were well-received and easy to comprehend. Messages that avoided technical jargon, those with only one recommended action, and those without abstract concepts were most acceptable. Some Spanish messages require revision for word confusion (because of formatting constraints) and regional variations.

Conclusions: Health literacy is important in a text messaging program; testing with the target audience can uncover unexpected concerns. The text4babySM English messages have been revised based on these results; the Spanish revisions are underway.

Public Health Implications: Text4babySM is a program developed by a public-private partnership to show the potential of using text messages to deliver health information to under-served women. It has been widely adopted across the US. Six additional evaluation studies are currently underway; the results will be used to improve the service and guide future mobile health interventions.
QUANTIFYING INFANT MORTALITY UNDER-REPORTING

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BACKGROUND: Louisiana’s 2006 infant mortality rate (IMR) was 10.0 deaths per 1,000 births, exceeding the US rate by 33%. Annual assessment of vital records data quality is necessary to assure meaningful interpretation. From 1998-2005, underreported deaths resulted in crude IMRs being underestimated by 0.2-1.1 deaths per 1,000 births.

STUDY QUESTIONS: Are Louisiana 2006 infant deaths underreported? What is the 2006 Louisiana IMR after adjustment for underreporting?

METHODS: Louisiana 2006 period linked birth-death certificates (n=596 deaths/63,186 births) were used to calculate race (non-Hispanic white [NHW], n=204 deaths/34,486 births; non-Hispanic black [NHB], n=356 deaths/24,135 births) and birth weight (<500, 500-749, 750-999, 1,000-1,249, and 1,250-1,499 grams) specific IMRs in SAS 9.2. US race/birth weight specific IMRs reported in National Vital Statistics Reports represented true IMRs in this study. Louisiana IMRs were considered meaningfully different if the US IMR 95% confidence interval (CI) did not contain the corresponding Louisiana IMR; Louisiana rates lower than US rates were considered underreported. Underreporting impact was calculated as [(true IMR-observed IMR)*(percentage of births in that birth weight group)*(10)]. Limitations include potential underreporting of US IMRs and lower Louisiana linkage rates (Louisiana=94.2%; US=98.7%).

RESULTS: Louisiana 2006 IMR was 6.5/1,000 for NHW and 15.8/1,000 for NHB. IMRs were lower in Louisiana than the US for three birth weight groups for NHW (<500g [Louisiana=799.3; US=865.6, 95% CI=852.2, 878.2]; 750-999g [Louisiana=105.0; US=154.8, 95% CI=145.3, 164.6]; 1,000-1,250g [Louisiana=48.4; US=65.7, 95% CI=60.0, 71.8]) and two groups for NHB (<500g [Louisiana=791.8; US=843.5, 95% CI=829.5, 856.7]; 1,000-1,249g [Louisiana=44.3; US=71.6, 95% CI=64.0, 79.7]). Underreporting among <500g infants was estimated at 0.1/1,000 for NHW and 0.3/1,000 for NHB. The largest underreporting occurred among the <500g group for NHB but among the 750-999g group among NHW. Louisiana 2006 IMRs adjusted for underreporting were 6.8/1,000 for NHW and 16.3/1,000 for NHB.

CONCLUSIONS: Louisiana infant deaths were underreported in 2006, especially among infants weighing <1,000g. 2006 deaths were less underreported than in earlier years.

PUBLIC HEALTH IMPLICATIONS: Annual monitoring is required to quantify limitations of data used to guide programs and policy. MCH epidemiologists must promote methods for working with vital records to better understand limitations and correct for missing records.
ASSOCIATION BETWEEN RACE/ETHNICITY AND MULTIVITAMIN USE PRIOR TO PREGNANCY: IS THE ASSOCIATION MODIFIED BY NATIVITY?

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BACKGROUND: CDC recommends that all women of childbearing age take a daily multivitamin supplement that contains folic acid at a dose of 400-800 mcg, beginning one month before pregnancy, to prevent neural tube defects. Although many studies have examined the association between race/ethnicity and multivitamin use among childbearing age women, few studies have examined this association by nativity as an effect modifier.

STUDY QUESTIONS: Is the association between race/ethnicity and multivitamin use prior to pregnancy modified by nativity of the mother?

METHODS: We analyzed 2004-2008 Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS) data. For race/ethnicity, we included only White Non-Hispanic, Black Non-Hispanic, and Hispanic in the analyses. Nativity was categorized as U.S. born and foreign born. Multivitamin use was examined by race/ethnicity and nativity of the mother. Bivariate and multivariate logistic regression models were employed for U.S. born mothers and foreign born mothers separately. The confounders included in multivariate models were maternal age, education, marital status, insurance, and pregnancy intention. The total analytic sample was 6,463. One of the limitations was that the sample size for Black Non-Hispanics was not big enough when analyzed by nativity.

RESULTS: Overall, 52.9% of White Non-Hispanic mothers, 39.4% of Black Non-Hispanic mothers, and 35.7% of Hispanic mothers used at least some multivitamin prior to pregnancy (p <0.0001). Multivitamin use rate was higher for U.S. born mothers (50.2%) than foreign born mothers (41.1%) (p <0.0001). In logistic regression analyses, the association between race/ethnicity and multivitamin use was modified by mother’s nativity. Among U.S. born mothers, there were no associations between race/ethnicity and multivitamin use. However, among foreign born mothers, Hispanics were significantly less likely to use a multivitamin (aOR=0.49; 95% CI=0.33-0.72) compared to White Non-Hispanics, but Black Non-Hispanics had no significant difference (aOR=0.84; 95% CI=0.53-1.31) compared to White Non-Hispanics.

CONCLUSIONS: The association between Hispanic ethnicity and multivitamin use prior to pregnancy was modified when mother’s nativity was taken into account.

PUBLIC HEALTH IMPLICATIONS: Results of this study can be used by the Rhode Island Birth Defects Program to target its prevention activities, including multivitamin distribution, to populations less likely to take multivitamins.
UNDER FIVE MORTALITY PATTERNS IN AN URBAN AREA: A HOSPITAL BASED STUDY IN DAR ES SALAAM TANZANIA (2008-2010)

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BACKGROUND: Children < 5 share a disproportionate burden of preventable diseases, with wide geographical variations. In Tanzania, very little information is available on cause-specific mortality among hospitalized children. This information is essential for planning public health program activities. We reviewed data on causes of mortality among children <5 years admitted to an urban hospital, serving 121,767 under-fives.

STUDY QUESTIONS: What is the urban hospital-based mortality pattern among under-fives; are the leading cause of death different between children <1 and 1-4 years?

METHODS: We reviewed pediatric in-patient death registers at Amana hospital for the period of 2008-2010. Information abstracted from the death registers included age, sex, place of domicile, year of death, and primary cause of death. Proportionate mortalities were calculated, and overall and age-group specific differences of proportions between 2008 and 2010 tested. Data were analyzed using Epi info 2000 and Stata version 11.

RESULTS: Between 2008-2010, there were 21,085 under-five admissions and 1,397 under-five deaths. The overall <5 mortality rate was 6.6%. Of 1,397 under-five deaths, pneumonia contributed the highest proportion (46%), followed by malaria (14.2%), acute watery diarrhea (9.8%), anemia (7.9%), HIV/AIDS (6.6%), malnutrition (5.2%), and septicemia (4.2%). Pneumonia deaths remained close to 50% for all study years, with no significant change; however, acute watery diarrhea for under-fives decreased from 15.5% in 2008 to 4.1% in 2010 (p=0.0000) and HIV/AIDS increased from 3.3% in 2008 to 8.4% in 2010 (p=0.0006). Unique to infants, there was a significant increase of Malaria deaths, from 7% in 2008 to 13.7% in 2010 (p=0.006).

CONCLUSIONS: Pneumonia contributes to half of the deaths occurring among under-fives. While there is a decreased trend of mortality attributed to Acute Watery Diarrhea, the mortality due to HIV/AIDS appears to be increasing as well as mortality attributed to Malaria among infants.

PUBLIC HEALTH IMPLICATIONS: The high prevalence of deaths attributed to pneumonia calls for an evaluation of the newly established Pentavalent (DPTHB-Hib) vaccine program. Ongoing strategies for malaria management for infants may require revision. Causes for the increase in HIV/AIDS mortality among under-fives needs to be explored within the context of changes in infant diagnosis.
CHARACTERISTICS ASSOCIATED WITH FAILURE TO COMPLETE THE PNEUMOCOCCAL VACCINE SERIES AMONG CHILDREN WITH SICKLE CELL DISEASE

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BACKGROUND: Children with sickle cell disease (SCD) are at increased risk of acquiring invasive infections. Timely completion of the pneumococcal vaccine series (PVS) could reduce the number and burden of these invasive infections.

STUDY QUESTIONS: What characteristics are associated with failure to complete the PVS among those with SCD?

METHODS: Newborn screening (NBS) records for children born from 2004-2008 in Michigan with SCD were linked with live birth certificate records. Through live births, NBS data were linked with the Michigan Care Improvement Registry, a statewide web-based system where immunizations are reported. Age at time of vaccination was calculated using birth and vaccine dates. Maternal and infant characteristics (gestational age, sex, neonatal intensive care unit [NICU] admission, region of residence, maternal education and age) came from birth certificate records. PVS completion was defined as receiving 4 vaccines by 16 months of age. Bivariate and multivariable logistic regression models were constructed to assess characteristics associated with failure to complete the PVS.

RESULTS: In total, 291 newborns were diagnosed with SCD. Immunization data were retrieved for 260 children (89.3%). Overall, 81% of the study population completed the PVS, but only 45% completed the series by 16 months of age. NICU admission was associated with increased odds of failing to complete the series in bivariate (OR=1.6, 95% CI 0.7, 3.7) and multivariable (OR=1.5, 95% CI 0.5, 4.1) models, but the association did not reach statistical significance. No characteristics examined were significantly associated with failure to complete the PVS in crude or adjusted analyses.

CONCLUSIONS: No associations were found between select characteristics and decreased likelihood of vaccine receipt among children with SCD, possibly due to low heterogeneity in the study population. The lack of associations could also be due to widespread educational efforts geared toward informing children with SCD about the importance of vaccinations.

PUBLIC HEALTH IMPLICATIONS: Particular emphasis should be placed on increasing timely immunizations among children with SCD since fewer than half completed the PVS following the recommended time schedule. Linkages between NBS, live births, and immunization data provide up-to-date information on immunization status that can be used to monitor specific high-risk populations.
BACKGROUND: The use of existing resources for research is increasingly important. Thus, Michigan formed the BioTrust for Health, an initiative aimed at making leftover newborn screening (NBS) samples more useful and available for medical or public health research. While historical samples received approval for inclusion in the BioTrust, a statewide opt-in consent process was implemented in October 2010.

STUDY QUESTIONS: How do the characteristics of newborns with parental consent for the BioTrust compare to those of: 1) newborns with parental refusal; and 2) newborns with a blank or no returned consent form?

METHODS: All screened infants born in Michigan from October 1, 2010-March 31, 2011 were included. Consent information was retrieved from a database maintained by the NBS Follow-up Program. Characteristics obtained from the NBS cards were compared between newborns with signed consent forms and the other two groups using chi-square tests. Polytomous logistic regression was used to determine the associations between the characteristics and each outcome (parental refusal or no consent information compared to consent obtained). Adjusted models included birth weight, race, ethnicity, multiple birth, neonatal intensive care unit (NICU) admission, and birth place (hospital/non-hospital).

RESULTS: Of 54,914 infants, 58% had a signed consent form, 13% had a refused consent form, and 29% had no consent information. In the adjusted model, newborns admitted to the NICU (OR=0.7) were significantly less likely while those of Arab descent (OR=3.1), Blacks (OR=2.1), Asians (OR=1.9), Hispanics (OR=1.5), and non-hospital births (OR=2.5) were significantly more likely to have a parental refusal. Newborns who were black (OR=1.7), of Arab descent (OR=1.7), admitted to the NICU (OR=2.1), and non-hospital births (OR=7.2) were significantly more likely to have no consent information.

CONCLUSIONS: Parental consent for the BioTrust was granted for nearly 60% of screened newborns in the first 6 months following implementation, though particular groups were more likely to refuse or have no consent information.

PUBLIC HEALTH IMPLICATIONS: The Michigan BioTrust for Health is a valuable resource for obtaining population-based NBS samples. Although medical circumstances may affect the ability to obtain consent, many parents may benefit from ongoing educational efforts to increase understanding of the BioTrust.
IMMUNIZATION RATES AMONG MICHIGAN CHILDREN WITH SICKLE CELL DISEASE COMPARED TO DISEASE-FREE CONTROLS

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BACKGROUND: Since children with sickle cell disease (SCD) are at increased risk of acquiring invasive infections compared to the general population, complete immunization coverage could reduce the number and burden of these infections. Little is known about the immunization rates of children with SCD compared to the rates among disease-free children.

STUDY QUESTIONS: How do immunization rates among children with SCD compare to those of controls?

METHODS: Children born from 2004-2008 in Michigan confirmed with SCD through newborn screening (NBS) were included as cases. Disease-free controls were matched 3:1 with cases on birth month, year and race. Cases and controls were linked to live birth records and then with the Michigan Care Improvement Registry (MCIR), a statewide system for reporting immunizations. Characteristics were compared between cases and controls using chi-square tests. The recommended immunization schedule through 18 months was used to determine the appropriate number of vaccines and age of series completion. Conditional logistic regression was used to assess the association between having SCD and series completion for each vaccine examined in unadjusted models and controlling for confounding (birth weight and neonatal intensive care unit [NICU] admission).

RESULTS: Immunization records were available for 262 children with SCD and 758 controls. Cases were significantly more likely than controls to be low birth weight (13% compared to 8%) and admitted to the NICU (11.5% compared to 7%). The pneumococcal vaccine series had the lowest completion rates (52% of cases and 48% of controls), and the Hepatitis B series had the highest (92% of cases and controls). Cases and controls had similar odds of series completion for all vaccines except for the Measles, Mumps, Rubella (MMR) and Diphtheria, Tetanus, Pertussis (DTaP) vaccines. Children with SCD were 1.4 times more likely to have received those vaccines compared to their disease-free counterparts. After adjustment, the associations remained significant.

CONCLUSIONS: The immunization rates for children with SCD are similar to those of controls, with significantly higher rates for the MMR and DTaP vaccines.

PUBLIC HEALTH IMPLICATIONS: Continued attention should be directed towards improving immunization rates for children with SCD, particularly for vaccines that reduce risk for infections or have low completion rates.
DEPRESSION AND MENTAL HEALTH TREATMENT AMONG WOMEN OF REPRODUCTIVE AGE—UNITED STATES, 2004–2009

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BACKGROUND: Depression limits a woman’s quality of life, stresses relationships, and impairs parenting. Untreated depression during pregnancy may increase the risk of delivering early or having a low birth weight infant. Additionally, antidepressants may pose risks to the fetus. National prevalence estimates of major depressive episode (MDE) and treatment, including prescription medication use, among pregnant and non-pregnant women, are lacking.

STUDY QUESTIONS: Among pregnant and non-pregnant women of reproductive age, what is the national prevalence of past year MDE and past year mental health treatment?

METHODS: Self-reported data from the National Survey for Drug Use and Health from 2004-2009 included 4,701 pregnant and 79,938 non-pregnant women aged 18–44 years. MDE was defined as meeting Diagnostic and Statistical Manual-IV criteria for major depression at any point during the past year. Mental health treatment was defined as reporting any mental health treatment (counseling, prescription medication, or inpatient care) during the past year. Any mental health treatment and treatment with prescription medication in the past year does not necessarily represent current treatment. Chi-square statistics were used to examine differences in the prevalence of past year MDE, mental health treatment, and prescription medication use, by current pregnancy status. Analyses accounted for complex sampling design and data were weighted to represent U.S. women.

RESULTS: Overall, 7.7% of pregnant women and 11.4% of non-pregnant women met criteria for past year MDE (P <0.001), together representing 1.2 million U.S. women annually. Among women with depression in the past year, reported prescription medication use was lower among pregnant (40.0%) women than non-pregnant (47.0%) women (P = 0.06). However, reported mental health treatment in the past year was similar for pregnant (49.5%) women and non-pregnant (54.0%) women (P = 0.21).

CONCLUSIONS: Prevalence of past year MDE is high among pregnant and non-pregnant women, a large proportion of whom are untreated. A considerable proportion of depressed women take prescription medications, though side effects during pregnancy are not fully understood.

PUBLIC HEALTH IMPLICATIONS: Obstetric and gynecologic visits may be opportunities to assess depressive symptoms and refer depressed women to care.
MATERNAL CHARACTERISTICS ASSOCIATED WITH DENTAL CLEANING BEFORE AND DURING PREGNANCY — MASSACHUSETTS PRAMS, 2007–2009

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BACKGROUND: Despite the availability of preventive and treatment options for oral care, poor oral health still remains prevalent, especially among women of reproductive age. Additionally, significant racial and ethnic disparities exist in the perinatal period. Little is known, however, about other characteristics associated with lower rates of dental cleaning among new mothers. Understanding specific maternal characteristics pertaining to oral care before and during pregnancy can provide an opportunity for more effective oral care.

STUDY QUESTIONS: What maternal characteristics and health behaviors are associated with dental cleaning before and during pregnancy among new mothers in Massachusetts (MA)?

METHODS: We analyzed the 2007–2009 data from the MA Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey of new mothers who delivered a live born infant. The weighted response rate for 2007-2009 was 70%. We examined maternal characteristics of 4,385 respondents associated with dental cleaning 12 months before and during pregnancy using Chi-square and multivariate analyses. Our study limitations are related to the retrospective cross-sectional study design, and include recall bias and lack of clinical data from medical records.

RESULTS: The prevalence of dental cleaning was 65% before pregnancy and 44% during pregnancy. Race, age, education, insurance status, and specific health indicators were significantly associated with lower rates of dental cleaning. Women who reported good health were 24% (95% CI=0.76-0.98) less likely to have their teeth cleaned before pregnancy. Women with more than 6 life stressors were 29% (95% CI=0.51-0.97) less likely to get their teeth cleaned during pregnancy. Women taking prenatal vitamins every day were 15% (95% CI=1.04-1.27) more likely to get their teeth cleaned before pregnancy.

CONCLUSIONS: Our analyses revealed lower rates of dental cleaning before and during pregnancy for a number of maternal characteristics and health behaviors including race, age, reported general health, and prenatal vitamin use. These findings suggest that oral care should be a focus both during preconception and prenatal care.

PUBLIC HEALTH IMPLICATIONS: Understanding the characteristics of women who are less likely to obtain dental care before and during pregnancy can help improve rates of dental cleaning through more targeted interventions and patient and provider education efforts.
USING THE LOUISIANA SIDS RISK REDUCTION PROGRAM AS A MODEL FOR EVALUATION OF PROGRAMS THAT AIM TO IMPROVE THE ACCURACY OF VITAL RECORDS

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BACKGROUND: The Office of Public Health (LAOPH) has worked to reduce the rate of Sudden Infant Death Syndrome (SIDS) and sudden unexplained infant deaths (SUID) by improving the accuracy and consistency of SIDS/SUID diagnoses. Nationally, collecting complete and accurate records on SIDS/SUID deaths has been hindered by a lack of standardized training, diagnostic criteria, and system for reclassification. The LAOPH aims to develop a more consistent system for reporting SIDS/SUID, to both improve accuracy and potentially decrease the overall rate of SIDS/SUID. The Louisiana Sudden Infant Death Syndrome Risk Reduction Program (SIDSRRP) aims to improve the accuracy of SIDS/SUID reporting through standardized coroner and death scene investigator training, incentive programs for data collection, and legislation compliance.

STUDY QUESTIONS: How can a public health program that aims to improve the accuracy of SIDS/SUID diagnoses and reporting be evaluated?

METHODS: A mixed-method approach using both quantitative and qualitative data was utilized. Four key informant interviews (SIDSRRP program coordinator, Child Death Review Medical Director, facilitator, and state-wide coordinator) were conducted. Three investigative forms (SUIDI investigation form, coroner's invoice, and SUID home visit form), two pieces of legislation (Coroner's Law, Child Death Investigation statute), and the Title Five Maternal and Child Health Block Grant were reviewed. This information was used to design a programmatic logic model and an evaluation method for assessing the arm of the SIDSRRP that aims to improve the accuracy of SIDS/SUID reporting.

RESULTS: A time-series evaluation design and suggested measurable process indicators (number/percent of complete SIDS records and number/percent of reclassified records) are proposed.

CONCLUSIONS: By improving the accuracy of reporting, SIDS rate in Louisiana may be decreased, in itself fulfilling the program aims. The proposed evaluation of Louisiana's SIDSRRP aim of improving accurate SIDS/SUID reporting can be beneficial for their program planning and resource allocation.

PUBLIC HEALTH IMPLICATIONS: The proposed evaluation of Louisiana's SIDSRRP can be used as a model for other state programs that aim to improve the accuracy of SIDS/SUID reporting in vital records. A public health program that aims to decrease national and local rates of SIDS/SUID should have a system of accurately documenting the incidence of SIDS/SUID.
ASSOCIATIONS BETWEEN SLEEP INFORMATION SOURCE AND INFANT SAFE SLEEP PRACTICES, MICHIGAN PRAMS 2007-08

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BACKGROUND: The prevalence of infant back sleeping position and never bedsharing have remained constant in Michigan since 2001, at around 72% and 40%, respectively. Interventions targeted at educating nurses and other hospital staff about safe sleep practices are underway in the state, with the goal of influencing mothers to place infants on supine position and not to practice bedsharing.

STUDY QUESTIONS: Is safe sleep information from health care providers a stronger predictor of infant safe sleep practices than information from family members?

METHODS: Michigan PRAMS survey data from 2007-08 was used for this study. Based on PRAMS questions and answers, we measured whether or not mothers received infant safe sleep information from a health care provider and/or from family members, as well as whether or not mothers most often laid their infants in the supine position and whether their infants ever bedshared. Multivariate logistic regression models were constructed to analyze the effect of information from providers and information from family on supine position and bedsharing, while controlling for each other and other confounding variables such as maternal age, race, education, and pre-pregnancy insurance status.

RESULTS: Of the 217,533 births represented by the weighted PRAMS sample, 86.0% of mothers received safe sleep information from providers and 44.2% received information from family members. After adjustment for confounding, mothers who received information from family members were 26% less likely to place their infants supine (OR 0.74, 95% CI: 0.60-0.91), but their infants were no more or less likely to bedshare than those of mothers who didn't receive information from family members (OR 0.97, 95% CI: 0.88-1.20). Conversely, mothers who received safe sleep information from providers were 42% more likely to place their infants on supine position (OR 1.42, 95% CI: 1.05-1.91) and 25% less likely to bedshare (OR 0.75, 95% CI: 0.80-1.00) than mothers who did not receive information from providers.

CONCLUSIONS: Health care providers demonstrated a positive influence on mothers' safe sleep behaviors, while family members had a smaller, negative impact on supine sleeping position and no effect on bedsharing.

PUBLIC HEALTH IMPLICATIONS: These results support the education of nurses on safe sleep practices.
URBAN-RURAL DISPARITIES IN BREASTFEEDING BEHAVIORS IN GEORGIA

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BACKGROUND: Previous national studies have shown urban-rural disparities in breastfeeding initiation. It is important to see if this holds true at the state level and for other breastfeeding behaviors.

STUDY QUESTIONS: Is there any disparity in breastfeeding initiation, duration and exclusivity among mothers living in urban vs. in rural areas in Georgia?

METHODS: We used data from the 2004-2008 Georgia Pregnancy Risk Assessment Monitoring System (PRAMS). For breastfeeding initiation, women were asked, “Did you ever breastfeed or pump breast milk to feed your new baby after delivery?” Duration of any breastfeeding was categorized as < 2 months and >= 2 months; 2 months exclusive breastfeeding rate was estimated for mothers who breastfed at 2 months and had not fed their babies anything except for breast milk during this time. All analyses were conducted using SUDAAN to account for the complex sampling design.

RESULTS: The prevalence of breastfeeding initiation was 74.6% in urban vs. 58.2% in rural areas (p <0.001) and breastfeeding duration >= 2 months was 50.8% in urban vs. 34.1% in rural areas (p <0.001). Among mothers breastfeeding >= 2 months, the 2 months exclusive breastfeeding rate was 51.2% in the urban areas and 63.0% in the rural areas (p = 0.001). In multivariate analysis controlling for demographic and pregnancy related variables, among all mothers, mothers living in urban areas were significantly more likely to initiate breastfeeding (AOR =1.74, 95% C.I. =1.41-2.15), and breastfeed 2 or more months (AOR =1.45, 95% C.I. =1.17-1.79) compared to those living in the rural areas. However, among mothers who breastfed >= 2 months, urban mothers were less likely to exclusively breastfeed compared to rural mothers (AOR =0.62, 95% C.I. =0.45-0.86).

CONCLUSIONS: In Georgia, there were rural/urban disparities in both initiation and duration of breastfeeding that are not explained by socio-demographic characteristics; however, the rates of exclusive breastfeeding were lower in urban areas compared to rural areas.

PUBLIC HEALTH IMPLICATIONS: Identifying specific geographic locations that had lower breastfeeding rates and factors associated with these lower levels may be valuable for designing targeted breastfeeding interventions.
BACKGROUND: Approximately 3,500 Missouri infants a year do not receive or pass the initial newborn hearing screening. Similar to other states, nearly half of these do not receive appropriate follow-up screening and potentially needed services.

STUDY QUESTIONS: This study aims to identify risk factors for loss to follow-up (LFU) among Missouri infants who did not receive or pass the initial newborn hearing screening.

METHODS: Our study linked the 2006-07 Missouri birth certificate data with the data of infants who did not receive or pass the initial screening in Missouri’s Newborn Hearing Screening Program (NHSP). Separate analyses were conducted for 1,876 infants not receiving initial screening, and 5,242 infants not passing initial screening. There is follow-up for both groups to help ensure that screening, rescreening, and/or audiological evaluation occurs. Infants were LFU if they did not receive screening, rescreening, and/or audiological evaluation. Multivariate binomial regression was used to estimate the adjusted prevalence ratios (APRs) and 95% confidence intervals (CIs) for LFU for maternal and infant characteristics, residence area, and delivery facility type.

RESULTS: In 2006-07, 71% of infants not receiving initial screening were LFU; 31% of infants not passing initial screening were LFU. Delivery at a Level I or II neonatal care facility was consistently associated with LFU among those not receiving initial screening (APR=1.09, 95% CI: 1.03-1.15) and those not passing initial screening (APR=1.26, 95% CI: 1.14-1.38). Among infants not receiving initial screening, home birth (APR=1.21, 95% CI: 1.11-1.30) was associated with LFU. For infants who did not pass initial screening, other risk factors associated with LFU: Medicaid, young, black, single, less education, and prenatal care.

CONCLUSIONS: Risk factors associated with LFU among infants not receiving initial screening were birth related: facility level and home birth. Beyond facility level, LFU risk factors among infants not passing initial screening were maternal factors.

PUBLIC HEALTH IMPLICATIONS: Missouri NHSP has provided trainings and loaned screening equipment to midwives to improve screening and follow-up services among home births. Further assessment of screening and follow-up practices, especially among high risk mothers, in high and low performing hospitals/facilities could help identify potential service gaps and barriers.
RATES AND PREDICTORS OF POSTPARTUM DEPRESSION BY RACE AND ETHNICITY: RESULTS FROM THE 2004-2007 NEW YORK CITY PRAMS SURVEY (PREGNANCY RISK ASSESSMENT MONITORING SYSTEM)

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BACKGROUND: There has been an increased focus on identifying the risk factors for postpartum depression (PPD). However, the extent to which these proposed risk factors differ by race/ethnicity is unknown, despite the known effects of race/ethnicity on the manifestations of depression.

STUDY QUESTIONS: What factors account for racial/ethnic prevalence differences in PPD and do PPD risk factors differ by race/ethnicity?

METHODS: Our study included 3,732 White, African American, Hispanic, and Asian/Pacific Islander (A/PI) women from the New York City area that completed the Pregnancy Risk Assessment Monitoring System (PRAMS) from 2004-2007, a population-based survey that assessed sociodemographic risk factors, maternal stressors, psycho-education regarding mood, and prenatal and postpartum depression diagnoses. A series of four logistic regression models were employed where variables were sequentially added to incrementally examine the reduction effects of predictors. To understand associated predictors of postpartum depression within each group, race-stratified logistic regressions incorporated all predictors, producing unadjusted and adjusted odds ratios for each predictor by race/ethnicity.

RESULTS: Sociodemographic and maternal stressors accounted for increased rates in PPD among Blacks and Hispanics compared to Whites, whereas A/PI women were 2.7 times more likely to receive a diagnosis after controlling for these variables and were 3.2 more likely to receive a diagnosis after provider-patient conversations about mood. Prenatal depression diagnoses increased the likelihood for PPD diagnoses for women across groups. Gestational diabetes decreased the likelihood for a PPD diagnosis for African Americans; a trend was observed in the association between having given birth to a female infant and increased rates of diagnosis for A/PI and Whites.

CONCLUSIONS: Conversations about mood may have an impact on PPD diagnoses for A/PI, relative to other racial/ethnic groups. Prenatal depression is confirmed to be a major predictor for PPD diagnosis for all groups studied. Associations between other proposed risk factors and PPD diagnosis appear to vary by group. Studies that do not stratify by race may provide inaccurate estimates of PPD risk across race/ethnicity.

PUBLIC HEALTH IMPLICATIONS: Given increased PPD screening across the U.S., providers should be aware of potential differences in the impact of risk factors on PPD according to racial/ethnic backgrounds.
WEIGHT AND MENTAL HEALTH STATUS IN MASSACHUSETTS,
NATIONAL SURVEY OF CHILDREN’S HEALTH, 2007

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BACKGROUND: The prevalence of childhood overweight and obesity in the United States has increased in the last three decades, emerging as an important public health issue that can have adverse effects on both physical and mental health. As part of the Title V Needs Assessment, Massachusetts prioritizes identification of risk factors associated with adverse childhood weight and mental health.

STUDY QUESTIONS: What is the association between weight status and mental health among Massachusetts children aged 10-17 years?

METHODS: Univariate, bivariate, and multivariate analyses (controlling for age, race, maternal education, neighborhood safety, etc.) were conducted using National Survey of Children’s Health, 2007 data. Mental health was measured based on survey questions addressing behavioral, emotional and social issues.

RESULTS: Among Massachusetts children, 32.4% were overweight/obese. Stratified by gender, weight status was significantly associated with negative emotions (boys: prevalence ratio [PR]=1.7, 95% confidence interval [CI]: 1.1-2.6; girls: PR=2.2, 95% CI: 1.4-3.2). After controlling for confounding factors, overweight/obese girls were 1.7 times more likely to demonstrate at least one negative emotion as girls of normal weight (95% CI: 1.2-2.5). In the overall population, weight status was significantly associated with fewer social skills (PR=1.4, 95% CI: 1.0-1.8) but not with negative behaviors. Children who did not exercise any day of the week were significantly more likely to have negative behaviors (adjusted prevalence ratio [aPR]=1.3, 95% CI: 1.1-1.7), negative emotions for boys (aPR=3.6, 95% CI: 1.7-7.5) and girls (aPR=2.9, 95% CI: 1.6-5.1), and fewer social skills (aPR=2.1, 95% CI: 1.4-3.1) than children who exercised. The study was limited by reliance on secondhand reporting and the relatively small sample size.

CONCLUSIONS: Overweight/obese girls were more likely than normal weight girls to have parent-identified negative emotions. Lack of physical activity was associated with negative behaviors, negative emotions and fewer social skills among both genders.

PUBLIC HEALTH IMPLICATIONS: Our study supports the need for adequate funding of essential school programs that promote mental health, healthy weight, and active lifestyles for Massachusetts youth. This study can be replicated in other states to inform policies and interventions aimed at promoting healthy weight and mental health among youth.
OUTCOMES OF TEENAGE PREGNANCY AMONG ARAB-AMERICAN MOTHERS

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BACKGROUND: The incidence of adverse birth outcomes including pre-term birth (PTB), low birth weight (LBW) and very low birth weight (VLBW) are higher among teenage mothers than mothers aged 20-35, and vary between ethnic groups. Moreover, Arab-American (AA) mothers have been shown to have lower risk for adverse birth outcomes relative to non-Arab Whites, despite higher-risk maternal demographic profiles. Little is known about teenage pregnancy rates or their outcomes among AAs.

STUDY QUESTIONS: How does ethnicity influence risk of teenage pregnancy and outcomes thereof among AA mothers relative to non-Arab White mothers?

METHODS: Data about 1,293,568 live singleton births to mothers under the age of 35 between 1989-2006 were compiled in Michigan, the state with the largest per capita AA population in the US. Mothers were stratified by age (<20 vs. 20-35) and ethnicity (AA vs non-Arab White). We calculated univariate statistics and used bivariate chi-square tests to assess relationships between explanatory covariates and PTB, LBW and VLBW by ethnicity. We fit adjusted multivariable logistic regression models of each outcome by age stratified by ethnicity, as well as models of each outcome by ethnicity stratified by age.

RESULTS: AAs had a significantly lower proportion of births to teenage mothers relative to those aged 20-35 years (7.1% of all Arab-American births vs 9.2% of non-Arab white births (p<0.05)). In models adjusted for potential confounders, teenage Arab-American mothers had significantly higher odds of PTB compared to their AA counterparts aged 20-35 years (PTB AOR=1.25, 95% CI 1.06 – 1.47; LBW AOR=1.31, 95% CI 1.10-1.56), and no significant difference in odds of PTB compared to teenage white mothers.

CONCLUSIONS: Although they may have lower rates of teenage pregnancy, Arab ethnicity does not confer a protective advantage against PTB relative to non-Arab Whites among teenage pregnancies as it does among the general population.

PUBLIC HEALTH IMPLICATIONS: Although a small ethnic minority group, studying the health outcomes of AAs may allow for a better understanding of the roles of health exposures common to ethnic minorities in the US. These findings add to our knowledge about the role of teenage pregnancy in the aetiology of adverse birth outcomes among ethnic minorities.
PREVALENCE AND ASSOCIATED FACTORS OF INTIMATE PARTNER VIOLENCE AMONG PREGNANT WOMEN ATTENDING KISUMU DISTRICT HOSPITAL, KENYA-2010

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BACKGROUND: Intimate Partner Violence (IPV) during pregnancy is a serious global public health problem associated with higher rates of unintended or adverse pregnancies, abortions, neonatal and infant outcomes and mental disorders. Almost half of women in Kenya suffer IPV in their lifetime; however, little is known about the prevalence and correlates of IPV during pregnancy.

STUDY QUESTIONS: What is the prevalence and associated factors of IPV (physical, sexual or psychological) among pregnant women seeking antenatal care (ANC) at Kisumu District Hospital (KDH)?

METHODS: This was a cross-sectional study, carried out from 26th July to 29th of October 2010. Women were randomly selected and interviewed using a structured questionnaire. Main issues included: socio-demographics, HIV status, IPV experience (during lifetime, current pregnancy and 12 months prior) and alcohol use by male partner. Univariate, bivariate, and multivariate analyses were conducted using Epi-info. There was potential for information bias as data was obtained through self-reporting.

RESULTS: Mean age of the 300 participants was 24 years. One hundred and ten (37%) experienced at least one form of IPV during pregnancy. Psychological violence was the most common (29%), followed by sexual (12%) then physical (10%). Lifetime physical abuse was experienced by 78 (26%) women of whom 24 (31%) reported moderate to severe injuries. Women who experienced IPV during pregnancy were more likely to have witnessed maternal abuse in childhood (aOR 2.51; 95% CI [1.13, 5.59], been in a polygamous union (aOR 2.48; 95% CI [1.06, 5.8], been multi-parous (aOR 1.94; 95% CI [1.01, 3.32] or had a partner who drank alcohol (aOR 2.35; 95% CI [1.21-4.45]. Having a partner who attained tertiary education was protective against IPV (aOR 0.37; 95% CI [0.16-0.83]. We found no association between HIV and IPV.

CONCLUSIONS: We established that IPV during pregnancy is common among women seeking ANC at KDH.

PUBLIC HEALTH IMPLICATIONS: There is need to screen for IPV as part of routine ANC, train health workers on identifying, managing and referral of survivors, raise public awareness on violence against women and carry out additional research to inform effective interventions to reduce the rates of pregnancy IPV and resultant outcomes.
THE EFFECT OF MATERNAL PRENATAL BMI ON CHILD OVERWEIGHT, OBESITY AND MORBID OBESITY AMONG MICHIGAN WIC PARTICIPANTS

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BACKGROUND: As for adults, obesity in children has become an epidemic. In addition to both immediate and long term effects on health, research has found that obesity in childhood may lead to adult obesity. Although somewhat controversial, the concept that events in utero can increase the risk of childhood and adult obesity has been proposed. One such modifiable factor is maternal prenatal body mass index (BMI).

STUDY QUESTIONS: Is there an association between maternal prenatal BMI and child overweight, obesity or morbid obesity (BMI > 97th percentile) among children ages 2 to 5 years?

METHODS: Michigan Pregnancy Surveillance System 2003-2007 linked to the Michigan Pediatric Surveillance System 2000-2007 data were used for this study. Analysis was limited to children ages 2-5 years of age in 2007. Results of bivariate analysis were used to build logistic regression models to estimate the odds of a child being overweight, obese, or morbidly obese. Models took into account maternal effects (i.e. gestational weight gain, education level and smoking during pregnancy) and child effects (i.e. race/ethnicity, birthweight and breastfeeding).

RESULTS: The prevalence of child overweight, obese or morbid obese was 30.1%, 13.8% and 10.9%, respectively. Children whose mothers were obese had increased odds of being overweight (AOR 1.60; 1.50-1.70), compared to children whose mothers were normal weight. The effect of maternal obesity on child BMI was significantly higher for obese children (AOR 1.80; 1.64-1.95) and for morbidly obese children (AOR 1.91; 1.74-2.1). Maternal characteristics significantly associated with an increased risk of child overweight, obesity or morbid obesity were: maternal education less than high school, overweight maternal prenatal weight, more than ideal maternal gestational weight gain and smoking during pregnancy. Hispanic ethnicity and high birthweight (>4,000g) were associated with child overweight, obesity and morbid obesity while breastfeeding to 6 months was protective.

CONCLUSIONS: Maternal prenatal BMI was found to be positively associated with child BMI at ages 2-5 years, after adjusting for significant covariates.

PUBLIC HEALTH IMPLICATIONS: Maternal prenatal weight, pregnancy weight gain, smoking during pregnancy and breastfeeding duration are modifiable characteristics that should be addressed by public health programs targeted to decreasing the prevalence of child’s obesity.
AGE-5 SPECIAL EDUCATION OUTCOMES OF CHILDREN REFERRED TO THE NEW YORK CITY EARLY INTERVENTION PROGRAM

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BACKGROUND: States are mandated to provide early intervention (EI) and special education (SE) services. Population-level data are lacking on the special education outcomes of children referred to EI.

STUDY QUESTIONS: What are the prevalence and odds of SE recommendation among children referred to EI?

METHODS: Linked EI and education data on New York City (NYC) children born in 2001 were obtained from the Longitudinal Study of Early Development (LSED). We estimated the prevalence and adjusted odds of SE recommendation in preschool or kindergarten among EI-referred children enrolled in public school at age 5. Findings are limited by public school enrollment rates.

RESULTS: Of 158,367 children in the LSED 2001 birth cohort, 13.7% were referred to EI. Of these, 64.2% enrolled in public school, and 47.9% of those enrolled were recommended for SE. Adjusted odds of SE were at least 50% higher among children with severe physical (aOR = 1.8 95% CI 1.6-2.0) or cognitive delays (aOR = 1.5 95% CI 1.4-1.7) or who were referred to EI after 26 months of age (aOR = 1.6 95% CI 1.4-1.8). Adjusted SE odds were low among female (aOR = 0.6 95% CI 0.6-0.7) and Asian (aOR = 0.6 95% CI 0.5-0.7) children, and did not vary among white, black and Hispanic children.

CONCLUSIONS: Almost 50% of EI-referred children with known outcomes were recommended for special education in preschool or kindergarten. Higher odds in males and lower odds among Asians are consistent with EI and SE literature. High SE odds in late-referred children suggest this group might have benefitted from earlier referral to EI. More work is needed to understand the influence of public school enrollment, EI efficacy, EI overutilization and the structural overlap between EI and SE service populations on SE prevalence among EI-referred children.

PUBLIC HEALTH IMPLICATIONS: Population-level data on special education outcomes of children referred to EI provide important benchmarks that may assist early childhood development practices in assessing the efficacy of their work relative to demonstrated expectations. NYC estimates provide an initial point of reference, but may be unique. EI-education linkages in other jurisdictions are needed so that benchmark norms can be established.
TRANSFER OF NEWBORNS TO NEONATAL CARE UNIT: A REGISTRY BASED STUDY IN NORTHERN TANZANIA

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BACKGROUND: Reduction in neonatal mortality has been slower than anticipated in many low income countries including Tanzania. Adequate neonatal care may contribute to reduced mortality.

STUDY QUESTIONS: What are the risk factors associated with transfer of babies to a neonatal care unit (NCU)?

METHODS: Our study used data from a birth registry at Kilimanjaro Christian Medical Centre (KCMC) in Tanzania to study factors associated with transfer of babies to NCU. We studied a total of 21206 singletons live births registered from 2000 to 2008. Our analysis employs three steps multivariable models to study neonatal transfer to NCU by socio-demographic factors, pregnancy complications and measures of the condition of the newborn baby.

RESULTS: A total of 3190 (15%) newborn singleton were transferred to the NCU. As expected, neonatal transfer was strongly associated with specific conditions of the baby including birth weight above 4000 gm (relative risk (RR) = 7.2; 95% confidence interval (CI) 6.5-8.0) or below 1500 gm (RR=3.0; 95% CI: 2.3-4.0), five minutes Apgar score less than 7 (RR=4.0; 95% CI: 3.4-4.6), and preterm birth before 34 weeks of gestation (RR=1.8; 95%CI: 1.5-2.1). However, pregnancy- and delivery related conditions like premature rupture of membrane (RR=2.3; 95% CI: 1.9-2.7), preeclampsia (RR=1.3; 95% CI: 1.1-1.5), other vaginal delivery (RR=2.2; 95% CI: 1.7-2.9) and caesarean section (RR=1.9; 95% CI: 1.8-2.1) were also significantly associated with transfer. Birth to a first born child was associated with increased likelihood of transfer (RR 1.4; 95% CI: 1.2-1.5), while the likelihood was reduced (RR=0.5; 95% CI: 0.3-0.9) when the father had no education.

CONCLUSIONS: In addition to strong associations between neonatal transfer and classical neonatal risk factors for morbidity and mortality, some pregnancy-related and demographic factors were predictors of neonatal transfer. Overall, transfer was more likely for babies with signs of poor health status or a complicated pregnancy. Except for reduced use of transfer for babies of non-educated fathers and a high transfer rate for first born babies, there were no signs that transfer was based on non-medical indications.

PUBLIC HEALTH IMPLICATIONS: Knowledge of risk factors associated with newborn transfer will help identify women at risk for appropriate intervention and preventive measures.
CAUSE SPECIFIC NEONATAL MORTALITY IN A NEONATAL CARE UNIT IN NORTHERN TANZANIA: A REGISTRY BASED COHORT STUDY

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BACKGROUND: The current decline in under five mortality shows an increase in share of neonatal deaths. In order to address neonatal mortality and possibly identify areas of prevention and intervention aiming at increased survival, identification of causes leading to neonatal mortality is needed.

STUDY QUESTIONS: What are the major causes of admissions and cause specific of neonatal deaths in a neonatal care unit in Tanzania?

METHODS: Our study used data from medical birth registry and neonatal registry at Kilimanjaro Christian Medical Centre (KCMC) in Tanzania to study causes of admission and causes specific of neonatal deaths in a neonatal care unit. We studied a total of 5033 neonates admitted to a neonatal care unit (NCU) from 2000 to 2010. The registry included clinical diagnosis, gestational age, birth weight, Apgar score and age at discharge. We classified cause specific of neonatal deaths by the modified Wigglesworth classification.

RESULTS: Leading causes of admission were birth asphyxia (26.8%), prematurity (18.4%), risk of infection (16.9%), neonatal infection (15.4%), and birth weight above 4000gm (10.7%). In our study the overall case fatality was 10.7% (536 deaths). Leading single causes of death were birth asphyxia (n=245, 45.7%), prematurity and related complications (n=188, 35%), congenital malformations (n=49, 9.1%), and infections (n=46, 8.6%). Babies with birth weight below 2500gm constituted 29% of all admissions and 53% of all deaths. Birth asphyxia was the most frequent cause of death in normal birth weight babies (n=179, 73.1%) and prematurity in low birth weight babies (n=178, 94.7%). The majority of deaths (n=304, 56.7%) occurred within 24hrs, and 490 (91.4%) within the first week. Deaths after the first week were dominated by neonates with infections.

CONCLUSIONS: Birth asphyxia in normal birth weight babies and prematurity in low birth weight babies each accounted for one third of all deaths in this population.

PUBLIC HEALTH IMPLICATIONS: Possible preventive measures to reduce mortality are proper antenatal care screening; timely referral and interventions for mothers at risk, monitoring of signs of fetal distress during labour, proper resuscitation skills, prevention of hypothermia, hypoglycaemia, hypoxia, nutritional and feeding support.
CHILD GENDER, TRADITIONAL CONFINEMENT PRACTICES, POVERTY AND POSTNATAL DEPRESSION IN CENTRAL VIETNAM

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BACKGROUND: Whilst 14% of global morbidity is attributed to neuropsychiatric disorders, less than 10% of low and middle income countries have community-based mental health data available. To date, no studies of postnatal depression (PND) and its social and cultural correlates have been undertaken in Central Vietnam.

STUDY QUESTIONS: What is the prevalence of postnatal depression in Central Vietnam, and how is this influenced by infant gender, maternal social factors, socio-economic status and traditional confinement practices?

METHODS: A Cross-sectional survey of 431 women 4 weeks to 6 months postpartum from randomly selected commune health stations in Thua Thien Hue Province, Central Vietnam. PND was measured using the Edinburgh Postnatal Depression Scale (EPDS) with a cut off of = 13. Bivariate analysis and multiple linear regression were used to examine associations.

RESULTS: Overall, the prevalence of PND was 18.1% (n = 78) (EPDS score = 13), which is within the middle of the range in developing countries. Depression was more prevalent among urban (20.4%) than rural (15.8%) women. Common somatic symptoms including gastrointestinal disturbances, waking not related to the baby, difficulty falling asleep and fatigue were significantly associated with EPDS scores = 13 (p = 0.00). 89.6% of the women followed at least one cultural confinement practice, however only one (not washing hair for a month or more) was significantly related to depression (p = 0.05). PND was linked with intimate partner violence (Chi Square 41.31, p = 0.00), being unmarried (Chi Square, 8.47, p = 0.00), being classified as ‘poor’ (Chi Square 11.65, p = 0.00) and food insecurity (Chi Square 21.95, p = 0.00), amongst other factors. Parity, child gender (female) and perceived reactions of relatives to child gender were not strongly linked with depression among single or multiparous women.

CONCLUSIONS: Almost one fifth of women surveyed may experience PND. This was more strongly associated with social and economic variables than cultural factors (confinement practices). Negative effects of an apparently prevailing male gender preference on mothers’ mental health were not strongly evident.

PUBLIC HEALTH IMPLICATIONS: Health programs focused on maternal and child health in Central Vietnam should include screening and treatment for postnatal depression.
CORRELATES OF PHYSICAL INACTIVITY IN OVERWEIGHT/OBESE PREGNANT WOMEN

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BACKGROUND: Maternal obesity has been linked to adverse fetal and maternal outcomes. The purpose of this study was to investigate the correlates of physical inactivity and compliance with IOM recommendations for physical activity among overweight and obese pregnant women.

STUDY QUESTIONS: What physical activity correlates is associated with physical inactivity and compliance with IOM recommendations among overweight and obese pregnant women?

METHODS: Data was obtained for 2297 overweight and obese pregnant women, aged 18-44, from the 2007 and 2009 Behavioral Risk Factor Surveillance System (BRFSS). Multivariate analysis using binary logistic regression was used to determine the odds ratios and confidence intervals. Further analysis was done to evaluate the difference in the correlates of physical inactivity by ethnicity.

RESULTS: The proportion of participants who were physically inactive or met physical activity recommendations were 11.93% and 56.94%, respectively. We found significant associations between physical inactivity and several covariates, including income, physical, mental, or emotional limitations, possession of health care coverage, and presence of emotional and social support. After stratifying for ethnicity, physical inactivity and meeting physical activity recommendations were significantly associated with several factors that differed by ethnicity. Hispanics with a higher income were more likely to be physically inactive (OR=4.263, 95%CI 1.223-14.858) and Hispanics with health care coverage were less likely to be physically inactive (OR=0.376, 95%CI 0.181-0.780). However, these associations were not seen among non-Hispanics. Non-Hispanics were more likely to be physically inactive if they had physical, mental, or emotional limitations (OR=1.457, 95%CI 1.036-2.049) and if they consumed 5 or more servings of fruits and vegetables per day (OR=1.631, 95%CI 1.196-2.225), but less likely to be physically inactive if they had emotional or social support (OR=0.506, 95%CI 0.308 -0.830).

CONCLUSIONS: Several correlates are associated with physical inactivity and compliance with IOM physical activity guidelines among pregnant overweight/obese women. These associations differed by ethnicity.

PUBLIC HEALTH IMPLICATIONS: Because there are differences in the associations of correlates of physical inactivity by ethnicity, interventions for physical inactivity that are targeted specifically at Hispanics would be more effective to increase physical activity and reduce maternal obesity in this population.
RACE/ETHNICITY, PHYSICAL AND LEISURE TIME ACTIVITY AMONG OVERWEIGHT AND OBESE YOUTH IN GEORGIA: RESULTS FROM THE YOUTH RISK BEHAVIOR SURVEILLANCE SYSTEM

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BACKGROUND: Current research on Physical and Leisure Time Activity (PLTA) have focused on identifying correlates of PLTA. Race/ethnicity factors in affecting PLTA in Georgia youth have rarely been investigated.

STUDY QUESTIONS: Does race/ethnicity predict PLTA behaviors among overweight and obese middle school (MS) students in Georgia?

METHODS: Cross-sectional study, secondary data analysis of 2005, 2007 and 2009 Georgia Youth Risk Behavior Survey (YRBS). PLTA were measured as: daily/weekly participation in physical education (PE) class, television viewing, video game usage and participation on sports teams. Participants were classified as overweight (≥ 85th to < 95th percentile) and obese (≥ 95th percentile) using Centers for Disease Control (CDC) Body Mass Index (BMI)-for-age growth charts. Bivariate analyses (alpha =0.05) compared PLTA among Non-Hispanic White (NH-White), Non-Hispanic Black (NH-Black) and other races. Multivariable logistic regression analyses (Adjusted Odds Ratios (AOR), 95% Confidence Intervals (CI)) were used to determine race/ethnicity as a predictor of PLTA behaviors. Limitations: self reported data.

RESULTS: Our combined MS study sample (n=4,801) consisted of (48%) NH-Whites, (40%) NH-Blacks and (12%) other races. Overall, 18.2% (n=860) MS students were overweight and 15% (n=701) were obese. Slightly more than half of overweight and obese MS students played on a sports team (55%), attended PE five days a week (57%) and watched ≥3 hours of television per school night (53%). Bivariate analyses showed race/ethnicity as a significant factor of PLTA behaviors. After adjusting for demographic factors, NH-Whites were twice more likely to engage in physical activity (AOR: 1.6, 95%CI 1.2-2.0) and participate on a sports team (AOR: 2.0, 95%CI 1.5-2.8) than NH-Blacks and other races respectively. NH-Blacks were 3 times more likely (AOR: 2.9, 95%CI 2.3-3.8) and 1.5 times more likely (AOR: 1.5, 95%CI 1.1-2.0) than NH-Whites to engage in TV viewing and play video games ≥3 hours per day respectively.

CONCLUSIONS: Over 30% of Georgia MS students were overweight or obese. Significant racial differences in PLTA were found among overweight and obese MS students in Georgia.

PUBLIC HEALTH IMPLICATIONS: Study results will be useful in designing interventions and promoting PLTA to reduce racial disparities in overweight and obesity burden among Georgia’s youth.
USE AND KNOWLEDGE OF PROPHYLACTIC UTEROTONIC AS PART OF ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR AMONG HEALTHCARE PROVIDERS IN NORTHEAST ARG

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BACKGROUND: Postpartum hemorrhage (PPH) is the second leading cause of maternal deaths in Latin America. To reduce PPH rates, active management of the third stage of labor (AMTSL), has been widely recommended as standard care. In many Latin countries, birth attendants do not routinely practice AMTSL.

STUDY QUESTIONS: How familiar are birth attendants in Argentina with AMTSL, particularly prophylactic uterotonics, and what can be done to increase this knowledge?

METHODS: This was a prospective study without a control group. We evaluated the efficacy of an intervention through pre and post surveys distributed among medical workers in five maternity hospitals in Corrientes Province. During the baseline period, thirty birth attendants participated in the survey. During the follow-up period, thirty-two providers participated. We performed an intervention that consisted of training birth attendants on AMTSL, distributing oxytocin-filled vials of Uniject, and employing hospital reminders to reinforce the practice of AMTSL. During the intervention period, 1-ml Uniject devices containing 10 IU of oxytocin were distributed to the participating hospitals. Limitations include a small sample size and the absence of a few participants from the baseline survey.

RESULTS: In general, Providers’ knowledge and positive attitude about AMTSL increased after the intervention. The follow-up questionnaire contains questions regarding Uniject that are not included in the baseline survey. For these questions, nearly 97% of providers responded that they have used Uniject to administer uterotonic. 96% answered that Uniject facilitates the use of prophylactics as part of AMTSL. When asked to compare Uniject to ampoules and syringes, all contested that Uniject was easier to use. 44% replied that if Uniject was not available, the administration of oxytocin would be reduced.

CONCLUSIONS: The results from our study indicate an overall increase in the use of AMTSL. The area with the greatest increase was the administration of prophylactic oxytocin. In conclusion, the intervention yielded mostly positive results. More healthcare workers in Corrientes Province are aware of AMTSL and how to administer each component.

PUBLIC HEALTH IMPLICATIONS: Besides educating healthcare providers in rural Argentina on reducing rates of PPH, findings may also prompt policymakers to increase education and training programs for birth attendants in developing countries.
THE PERIOD OF PURPLE CRYING® PROGRAM AS A MEANS TO IMPROVE PHYSICIAN FUND OF KNOWLEDGE

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BACKGROUND: Crying/colic in infants is a potential trigger for caregiver shaking, resulting in shaken baby syndrome (SBS). The Period of PURPLE Crying® program (PURPLE) was launched throughout North Carolina in 2009 to educate parents and health care professionals about normal infant crying in an attempt to reduce the incidence of SBS.

STUDY QUESTIONS: How does exposure to PURPLE relate to knowledge about normal infant crying patterns?

METHODS: Prior to statewide launch, a random sample of 350 pediatricians and 150 family physicians with active North Carolina medical licenses received a mailed 4-page written questionnaire covering demographics, practice characteristics, anticipatory guidance, and knowledge about infant crying. Crying knowledge was assessed on a 0-4 point scale based on knowing (1) potential daily duration, (2) age of peak incidence, (3) it can be part of normal development, and (4) SBS as a potential consequence.

RESULTS: Adjusted response rate was 52%. Of 222 eligible respondents, most were pediatricians (83%) and white (80%), with a preponderance of women (53%). Mean crying knowledge score was 2.74 (95% confidence interval (CI), 2.61-2.88; perfect knowledge=4). Most (63%) knew potential daily duration, 79% correctly identified age of peak incidence, 74% understood it as often part of normal development, and 58% recognized SBS as a potential consequence. Familiarity with PURPLE was reported by 38%. Those who were had a mean knowledge score of 3.13 (95% CI, 2.94-3.31), compared with 2.50 (95% CI, 2.33-2.68) for those not familiar (p<0.01). There was a 25% between-group difference in recognizing normal duration and understanding this as part of normal development.

CONCLUSIONS: North Carolina pediatricians and family physicians are generally knowledgeable about normal infant crying, but some knowledge gaps remain. Respondents familiar with PURPLE had significantly more crying knowledge compared with those who were not. Greatest differences were seen for knowing potential daily duration of crying and recognizing it as part of normal development.

PUBLIC HEALTH IMPLICATIONS: Gaps exist in physician fund of knowledge concerning normal infant crying. The Period of PURPLE Crying® program may be an effective means to address these. A repeat assessment post-statewide implementation may provide further insight on program effectiveness.
IS INCREASED KNOWLEDGE OF NORMAL INFANT CRYING PATTERNS ASSOCIATED WITH MORE ANTICIPATORY GUIDANCE REGARDING CRYING DELIVERED TO PARENTS OF INFANTS?

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BACKGROUND: Crying/colic in infants is a potential trigger for caregiver shaking, resulting in shaken baby syndrome (SBS). The Period of PURPLE Crying® program was launched throughout North Carolina in 2009 to educate parents and health care professionals about normal infant crying in an attempt to reduce the incidence of SBS.

STUDY QUESTIONS: Is increased knowledge of normal infant crying patterns associated with more anticipatory guidance regarding crying delivered to parents of infants?

METHODS: Prior to statewide launch, a random sample of 350 pediatricians and 150 family physicians with active North Carolina medical licenses received a mailed 4-page written questionnaire covering demographics, practice characteristics, anticipatory guidance, and knowledge about infant crying. Crying knowledge was assessed on a 0-4 point scale based on knowing (1) potential daily duration, (2) age of peak incidence, (3) it can be part of normal development, and (4) SBS as a potential consequence.

RESULTS: Adjusted response rate was 52%. Of 222 eligible respondents, most were pediatricians (83%), white (80%), and women (53%). Mean crying knowledge score was 2.74 (95% confidence interval (CI), 2.61-2.88; perfect knowledge=4). Most (63%) knew potential daily duration, 79% correctly identified age of peak incidence, 74% understood it as often part of normal development, and 58% recognized SBS as a potential consequence. Most discussed crying during infant visits often (41%) or sometimes (37%). The most common recommendations were acknowledging sometimes nothing helps (88%) and swaddling (80%). Respondents who discussed crying "often" or "almost always" had a mean knowledge score of 2.61 (95% CI, 2.40-2.82), while those discussing less frequently had a mean score of 2.88 (95% CI, 2.70-3.05).

CONCLUSIONS: North Carolina pediatricians and family physicians are generally knowledgeable about normal infant crying, but some knowledge gaps remain. Knowledge of normal infant crying is not associated with an increase in related anticipatory guidance delivered to parents.

PUBLIC HEALTH IMPLICATIONS: Improving the amount and quality of information on infant crying as delivered by physicians to parents will require distinct interventions to improve physician fund of knowledge and to increase anticipatory guidance delivery related to crying. Knowledge alone is unlikely to improve anticipatory guidance delivery.
SENSITIVITY AND POSITIVE PREDICTIVE VALUE OF HOSPITAL DISCHARGE DATA BY FACILITY CHARACTERISTIC FOR BIRTH DEFECTS SURVEILLANCE IN GEORGIA

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BACKGROUND: The validity of hospital discharge data (HD) to correctly identify birth defects in Georgia has not been adequately assessed.

STUDY QUESTIONS: How do the sensitivity and positive predictive value (PPV) for spina bifida (SB) and Down syndrome (DS) reported through HD vary by facility characteristics?

METHODS: HD for live births in 2003 to 2007 that contained ICD-9-CM codes for SB (741) and for DS (758.0) with or without a heart defect (745-746) were compared with SB and DS cases from the Metropolitan Atlanta Congenital Defects Program (MACDP), a birth defect surveillance system with near complete ascertainment. Sensitivity and PPV of each defect and the PPV of DS relative to facility size, perinatal level, and frequency of reported defects were estimated.

RESULTS: HD identified 13 infants with SB and 397 with DS; MACDP identified 32 infants with SB and 391 with DS. The sensitivity of HD was 13/32 (40.6%) for SB and 333/391 (85.2%) for DS. The PPV was 13/13 (100.0%) for SB and 333/397 (83.9%) for DS. The sensitivity and PPV of DS cases with a heart condition were higher than for those without (sensitivity: 95.1% vs. 64.3%, PPV: 92.6% vs. 64.8%). Facilities with <250 beds had a higher PPV for DS than facilities with over 500 beds (92.6% vs. 85.7%). Perinatal level 3 facilities had lower PPV for DS than perinatal level 2 facilities (93.3% vs. 78.8%). Facilities reporting over 10% of all DS cases had a higher PPV than those reporting less than 5% of cases (93.5% vs. 66.4%).

CONCLUSIONS: The prevalence of SB and DS from HD likely underestimate the true prevalences. It is unclear why the estimated PPV from HD was lower for DS than for SB. The increased sensitivity and PPV of DS cases with a heart condition suggest that reports of more serious birth defects are more likely to be accurate. Selecting facilities according to their size and perinatal level could maximize the PPV of HD.

PUBLIC HEALTH IMPLICATIONS: The utility of HD for surveillance of birth defects is likely to depend on the type and severity of defects, and associated facility characteristics.
PROVIDER ACCESS AND SOCIO-DEMOGRAPHIC FACTORS RELATED TO LATE IDENTIFIED HEARING LOSS IN GEORGIA

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BACKGROUND: It is important for hearing loss to be identified early to avoid delays in the development of language, cognitive, and social skills. Risk factors for late identified hearing loss (LIHL) have never been assessed in Georgia.

STUDY QUESTIONS: How are families of children with LIHL different from those identified on-time?

METHODS: We linked descriptive hearing loss program data in Georgians born between 2008-2010 to birth certificate data. The number of local audiologists and urbanicity was obtained from the census area resource file. Joint Commission on Infant Hearing (JCIH) risk factors present in the birth certificate was identified, where available. We performed chi square tests and logistic regression to model the odds of late identified hearing loss (identified after 3 months of age).

RESULTS: Significant factors that increased the crude odds of LIHL included: absence of an audiologist in residence county, living outside of a large metropolitan area, mother with less than college education, being Hispanic, and presence of a JCIH risk factor in the child. Significant factors in the final model that increased the odds of LIHL were less than high school education (OR 2.4, 1.3-4.5 95% CI), absence of an audiologist (OR 1.6, 1.1-2.4 95% CI), and presence of a JCIH risk factor (OR 1.5, 1.1-2.4 95% CI). Interaction between JCIH risk factor and audiologist revealed that, if risk factors were present but audiologists were not, a child was at 4.5-7.3 significantly increased odds of LIHL.

CONCLUSIONS: Parents of children with LIHL have greater odds of being less educated, farther from audiologists, and have children with JCIH risk factors. JCIH risk factors present at birth should help identify children at risk for hearing loss early. In this study, JCIH risk factors were not associated with increased odds of on-time identification. Children with risk factors and no audiologist nearby are at the highest risk of LIHL. Families in this situation may need other healthcare support to improve on-time identification.

PUBLIC HEALTH IMPLICATIONS: Using JCIH risk factors as a tool to identify children that are at risk for hearing loss may need to increase, especially in areas with few audiologists.
RACIAL DISPARITIES IN MATERNAL HEALTH BASED ON ATTITUDE TOWARD PREGNANCY: AN APPLICATION OF THE PRAMS SURVEY

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BACKGROUND: The design of the Pregnancy Risk Assessment Monitoring System (PRAMS) affords public health officials the ability to report racial disparities in maternal risks and behaviors. Scant research is available, however, on the use of PRAMS to document racial disparities in maternal attitudes at the initiation of pregnancy.

STUDY QUESTIONS: Are there differences in PRAMS results between and within racial groups when accounting for maternal attitude toward pregnancy (“MATP”)?

METHODS: We used data from the State of Delaware’s 2008 PRAMS. We stratified White (n=640) and African American (n=303) respondents based on MATP (defined as “positive” if reporting “happy” or “very happy” to have become pregnant and “negative” if reporting “unhappy” or “very unhappy” to have become pregnant). We employed a weighted average scheme to interpret how the entire PRAMS-eligible population in Delaware would respond. We then examined whether any significant differences exist in the responses to 96 PRAMS questions based on racial group and MATP. Differences between the racial groups in maternal age, education, marital status, and pregnancy history were also assessed.

RESULTS: The responses to 80 (83.33%) questions were significantly different (p < 0.05) between the racial groups when stratified by MATP. Only 42.8% of African American women had a positive MATP compared to 70.0% of White women. For both racial groups, women with a negative MATP were significantly more likely to report having had poor access to prenatal care, not breastfeeding, experiencing intimate partner violence, and smoking as compared to women with a positive MATP. Moreover, African American women with a negative MATP were significantly less likely to report their baby as alive at the time of PRAMS (90.3%, 95% CI: 87.6%-93.0%) compared to African American women with a positive MATP (96.9%, 95% CI: 96.0%-97.9%).

CONCLUSIONS: When MATP was investigated, significant differences in PRAMS responses were found between and within racial categories for the majority of PRAMS questions. Although causality cannot be established, this study suggests that MATP may be strongly related to several behaviors and risks reported in PRAMS.

PUBLIC HEALTH IMPLICATIONS: Maternal attitude toward pregnancy should be considered when addressing racial disparities in maternal wellbeing.
USE OF ANNUAL SELF-REPORTED HEALTH STATUS ASSESSMENTS TO MEASURE CHARACTERISTICS AMONG CASES OF SICKLE CELL DISEASE: THE MICHIGAN EXPERIENCE

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BACKGROUND: Self-reported data can provide comprehensive, useful information about individuals with sickle cell disease (SCD). Recently, Michigan developed an annual health status assessment as part of the statewide surveillance system for sickle cell disease. However, little research has been done to examine the accuracy of health status assessment data compared to more established sources.

STUDY QUESTIONS: How accurate is Michigan's health status assessment for individuals with SCD when compared to other data sources?

METHODS: Parents of 89 children born 2006-2010 diagnosed with SCD through Michigan's Newborn Screening Program were asked questions from the health status assessment in person or over the phone by Sickle Cell Disease coordinating center staff. Pregnancy and birth related hospitalization records from the Michigan Inpatient Database and live birth certificates were used as the gold standards in evaluating responses. Sensitivity, specificity, and positive predictive value (PPV) were calculated for the following variables: intensive care unit (ICU) admission, Medicaid enrollment, and mother's education.

RESULTS: Live birth certificates and hospitalization records were available for 100% and 96% of the study population, respectively. Medicaid enrollment (59% of cases) was identified in the health status assessment with a sensitivity of 89%, specificity of 25%, and PPV of 63%. The assessment identified mothers with less than a high school diploma (19% of cases) with a sensitivity of 67%, specificity of 92% and PPV of 67%. The sensitivity of ICU admission (8% of cases) was 14%, but yielded 100% specificity and 100% PPV.

CONCLUSIONS: Michigan's health status assessment is a valid source of medical and socio-demographic information for young children with sickle cell disease, but results cannot be generalized to the adult population. Differences in time of data collection may have been a limitation since the hospitalization and birth records were created at time of birth and the health status assessment information was collected at ages 6mo-6yrs. Further validation studies are needed once this assessment is completed for older individuals.

PUBLIC HEALTH IMPLICATIONS: Annual health status assessments may be a useful tool for statewide surveillance of sickle cell disease, revealing important information not available in secondary data sources.
TO WHAT EXTENT DOES PLACENTAL WEIGHT MEDIATE THE EFFECTS OF PRENATAL FACTORS ON FETAL GROWTH?

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BACKGROUND: Elevated pre-pregnancy body mass index (BMI), excessive gestational weight gain (GWG), and gestational diabetes (GDM) are known determinants of offspring weight. The mechanism for this relationship and the role of placental weight are unclear.

STUDY QUESTIONS: To what extent does placental weight mediate the associations of pre-pregnancy BMI, GWG, and GDM with birth weight-for-gestational age (fetal growth)? Do the relationships differ between preterm and term births?

METHODS: We examined 1035 mother-infant pairs at birth from the Boston Birth Cohort. Data were collected by questionnaire and clinical measures. Placentas were weighed without membranes and umbilical cord. We performed sequential models excluding and including placental weight, stratified by preterm status.

RESULTS: 21% mothers were obese (pre-pregnancy BMI>=30.0 kg/m2), 42% had excessive GWG, and 5% had GDM. 41% were preterm (<37 weeks' gestation). Among term births, after adjustment for infant sex, gestational age, maternal age, race, parity, education, smoking and stress status during pregnancy, birth weight z-score was 0.55 higher for pre-pregnancy obesity vs. normal weight (95% CI 0.30, 0.80). Adjusted also for pre-pregnancy BMI, birth weight z-score was 0.34 (0.13, 0.55) higher for excessive vs. adequate GWG, 0.67 (0.24, 1.10) for GDM vs. no DM. Adding placental weight to the models attenuated the estimates for pre-pregnancy obesity by 20%, excessive GWG by 32%, and GDM by 21%. Among preterm infants, GDM \[\beta=0.67, 95\% \text{ CI } 0.34, 1.00\] and high placental weight \[0.57, 0.42-0.71\] were associated with higher birth weight z-score, but pre-pregnancy obesity \[0.05, -0.15 to 0.24\] and excessive GWG \[0.06, -0.13 to 0.25\] were not; attenuation by placental weight was 36 % for GDM.

CONCLUSIONS: Higher placental weight appears to partially mediate the effects of pre-pregnancy obesity, GDM and excessive GWG on fetal growth among term infants, and mediate the effects of GDM on fetal growth among preterm infants.

PUBLIC HEALTH IMPLICATIONS: Placenta in part serves as intermediary between maternal over-nutrition and fetal growth, and therefore may serve a critical role in fetal programming of subsequent metabolic diseases.
PRENATAL CARE IN BOTUCATU, SÃO PAULO STATE, BRAZIL, CONSIDERING DIFFERENT PRIMARY CARE MODELS

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BACKGROUND: In Brazil, despite the wide prenatal care coverage, maternal and perinatal morbimortality coefficients remain high, thus raising questions about the quality of the care provided.

STUDY QUESTIONS: There is difference in the quality of low-risk prenatal care when comparing two primary care models: conventional primary care units and family health units?

METHODS: Epidemiological study to evaluate the health care service. The sample of pregnant women (n=282) was established by considering maximum prevalence of 50%, confidence of 96% and a margin of error of 5%. The number of pregnant women studied in eight primary units and 12 family health teams was proportionally established, and cases were randomly selected. For statistical analysis, the Chi-square test was used.

RESULTS: In both care models, approximately 90% of the women had six or more consultations in the prenatal period. As regards the tests recommended for the first trimester, coverage was high for both care models (over 95%). However, for the tests performed in the third trimester, the situation in the family health units, where coverage accounted for approximately 90%, was better than in the conventional units, whose coverage ranged from 60 to 80% (p<0.0000). No difference was found when the coverage for antitetanus vaccination and delivery review were considered. 34% of the women assisted at family health units and 9.6% of those followed up at conventional units completed prenatal care as recommended by the Brazilian Ministry of Health (performance of six consultations and of all tests in the first and third trimesters, antitetanus vaccination and puerperal consultation (p<0.0000).

CONCLUSIONS: The best result obtained by the family health units basically resulted from the best coverage of tests performed in the third pregnancy trimester. A critical situation was shown for both care models, however, when all the recommended procedures were considered.

PUBLIC HEALTH IMPLICATIONS: Regardless of the care model adopted, it is necessary to implement measures for qualification of the care provided so as to effectively produce better maternal-child health indicators.
THE INFLUENCE OF SCHOOL EATING ENVIRONMENT ON CHILDREN’S EATING BEHAVIORS: AN EXAMINATION OF THE SNDA-III

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BACKGROUND: The prevalence of childhood obesity in the United States has prompted researchers to examine factors contributing to children’s food choices. Schools provide opportunities to teach children healthy eating habits, as well as create eating environments that are conducive to healthy eating behaviors.

STUDY QUESTIONS: The purpose of this study was to assess the National School Lunch Program (NSLP) to examine the school-eating environment and its relationship to children's eating behaviors.

METHODS: This is a secondary analysis of the School Nutrition Dietary Assessment (SNDA-III), the USDA assessment of the NSLP. Hierarchical and logistic modeling of the SNDA-III was conducted to determine relationships between environmental factors and children's consumption of fruits, vegetables, and dessert.

RESULTS: Results suggest that children’s consumption of fruits and vegetables is significantly related to cleanliness of cafeteria floors, whether a food service staff member spoke to a parent group, and whether the child purchased a sweet food item to accompany the meal. Children's dessert consumption was significantly related to the school's nutrition policies in food purchasing and whether the child brought lunch from home or acquired it at school.

CONCLUSIONS: The challenges of the SNDA-III dataset limited a comprehensive analysis of the relationship between school-eating environment factors and children’s food consumption, and findings did not support commonly accepted theories of influential environmental factors. More research is needed to better understand the comprehensiveness and inter-relationships between factors in the school eating environment and children’s food choices.

PUBLIC HEALTH IMPLICATIONS: There appears to be a disconnect between factors researchers postulate as being influential to children's food consumption, what is measured by the SNDA, and in reality, what does influence children's consumption. This disconnect prompts a call for a re-evaluation of the SNDA. An assessment of the school food environment should accurately measure the appropriate factors in the school environment, as well as provide data that can be used to test relationships between environmental factors and children's food choices. At the present time, the SNDA does not provide an effective means by which to do this.
DETERMINATION OF HEALTHCARE UTILIZATION USING LINKED ADMINISTRATIVE DATA AMONG A COHORT OF NEWBORNS WITH THALASSEMIA DISORDERS

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BACKGROUND: There are no large-scale systems in place for monitoring population health for hemoglobinopathies. The California RuSH Project (Registry and Surveillance System in Hemoglobinopathies), funded by the National Heart, Lung and Blood Institute through a cooperative agreement with the CDC, has collected a wide range of administrative data and has begun to develop methodologies for public health surveillance in thalassemia and sickle cell disease.

STUDY QUESTIONS: What morbidity and utilization information for newborns identified with thalassemias can be derived by linking multiple administrative data sets?

METHODS: A cohort of 502 California children with thalassemia was identified (2000-2007) through the state's Newborn Screening Program (NBS). Social security numbers (SSNs) were identified for 199 of the cohort (40%) using a probabilistic process validated by clinical records. The SSNs were used to perform deterministic linkages among statewide inpatient hospital discharge (IP), emergency department (ED), Medi-Cal (Medicaid, MC) and vital records data, enabling us to determine health care utilization and outcomes for this group.

RESULTS: Among 199 children, 157 (78.9%) had alpha thalassemia disorders (alpha thalassemia major, Hb H disease, Hb H/Constant Spring) and 42 (21.1%) had beta disorders (Hb C/beta0, C/beta+, D/beta0, E/beta0, E/beta+). Fifty three (26.6%) had IP records after birth (36 alpha and 17 beta). Mean number of hospitalizations per year of age for alpha and beta thalassemias were 0.16 and 0.20, respectively. The most frequent complication and procedure among inpatients were pneumonia and transfusion, respectively. Fifty six (35.7%) of the alpha group and 15 (also 35.7%) of the beta group had ED visits (0.22 and 0.14 visits per year of age, respectively). The majority (88% of the alpha and 90% of the beta group) were enrolled in MC or other state insurance programs.

CONCLUSIONS: Linking NBS case data with population-level administrative data can provide information on morbidities, utilization and outcomes. The cases in this analysis may represent children with more severe disease (more likely to present in a hospital setting). Work to increase the number of cases linked is under way.

PUBLIC HEALTH IMPLICATIONS: Public health surveillance of thalassemia patients is improved with the inclusion of multiple administrative data sources.
USING THE 2006–2008 NATIONAL SURVEY OF FAMILY GROWTH (NSFG) TO IDENTIFY FACTORS ASSOCIATED WITH PATERNAL INVOLVEMENT IN CHILDRearing

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BACKGROUND: There is an increasing focus on the role that fathers play in promoting child health and development. A life course perspective of paternal involvement provides insights into males’ own life experiences of being fathered and effects of these experiences on their own roles as fathers.

STUDY QUESTIONS: Is there an association between the presence of a father figure during childhood and later paternal involvement in childrearing?

METHODS: We analyzed the male sample of fathers living with children aged <5 from the 2006–2008 NSFG (n=913). Composite scores of paternal involvement were computed by summing responses from four questions [scored 0 to 4] examining the frequency of four childrearing activities: participate in meals; bathe, diaper or dress; read to; and play with child. Summed scores, ranging from 0-16, were categorized as low (0-8), medium(9-12) or high(13-16). We used multinomial logistic regression to calculate adjusted odd ratios (AOR) to assess the associations between presence of a father figure during childhood and other sociodemographic predictors (age, race, education, number of children) with paternal involvement in childrearing.

RESULTS: Among fathers living with children, 88% had a father figure during childhood and 65% reported high (=13) involvement in childrearing. Presence of a father figure during childhood was not significantly associated with paternal involvement in childrearing of own children (AOR=2.12, 95% CI=0.62-7.25) [high vs. low], AOR=1.58, 95% CI=0.47-5.33) [med vs. low]). Significantly decreased odds of involvement were found for Hispanic (high vs low: AOR=0.22, 95%CI=0.06-0.79) compared with non-Hispanic White fathers, and fathers with high school education or less (AOR=0.33, 95% CI=0.14-0.81) compared with fathers with some college education or higher. Fathers with one child had decreased odds of involvement [high versus low (AOR=0.09, 95%CI=0.03-0.28); medium versus low (AOR=0.18, 95% CI=0.05-0.61)] than fathers with ≥2 children.

CONCLUSIONS: Presence of a father figure during childhood was not associated with higher levels of paternal involvement in rearing their own cohabiting children, although Hispanic ethnicity, lower education and having only one child were associated with lower paternal involvement.

PUBLIC HEALTH IMPLICATIONS: Understanding racial/ethnic patterns and factors associated with paternal involvement in childrearing may foster greater father involvement in family life.
GEORGIA FINDINGS FROM THE SUDDEN UNEXPECTED INFANT DEATH CASE REGISTRY PILOT PROJECT - OPPORTUNITIES FOR PREVENTION

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BACKGROUND: The circumstances surrounding infant sleep-related deaths are complex, and have generated a lot of research and theories to identify a cause. Georgia is one of the pilot states participating in the CDC Sudden Unexpected Infant Death (SUID) Case Registry, designed to capture more information on these deaths by a multidisciplinary review team. Our local review teams have reported on almost 300 unexpected infant deaths since the pilot project began in 2009, and the data show areas for future research and potential prevention strategies.

STUDY QUESTIONS: The SUID Case Registry pilot project in Georgia supports our 159 county-level review teams in their work to investigate, review, and report on all unexpected infant deaths occurring in the state.

METHODS: The surveillance form is maintained by the National Center for Child Death Review, with additional variables added by the CDC specifically for the SUID pilot states. These variables are designed to capture prenatal care information, recent medical and dietary history of the deceased infant, investigation data from first responders and medical examiners, sleep-related circumstances, and probable risk factors for modification. The data are reported from the agencies that collect it (i.e., medical examiners and coroners, law enforcement, public health, emergency medical services, and court systems), and then shared with the local review team during their meeting. Georgia’s statute provides confidentiality for sharing any agency history in the review meeting. Limitations of this process are more considerable in some areas than others, including poor agency participation, poor communication and data-sharing across county lines, and insufficient scene investigation. However, the support of the Case Registry pilot project funding allows the state office staff to address and correct issues.

RESULTS: Data for sleep-related deaths show that 66% of caregivers were age 20-29, 43% lived in suburban counties, and 67% were born at 37 weeks gestation or higher.

CONCLUSIONS: Findings to date show that there are several prevention initiatives that we can support, including expanding targeted campaigns to include young, suburban parents of full-term infants.

PUBLIC HEALTH IMPLICATIONS: The SUID Case Registry will improve elements of successful case reviews and engage review team members to move from case review to action.
ASSOCIATION OF SMOKING CESSATION INTERVENTIONS DURING PRENATAL CARE AND POSTPARTUM RELAPSE, RESULTS FROM LOUISIANA PRAMS

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BACKGROUND: Smoking is a serious public health issue facing the world today, it is particularly important among the maternal and child population. Maternal smoking can lead to many adverse health outcomes not only for the mother but her child as well. Studies have shown an association between maternal smoking and a number of obstetric complications, birth outcomes, and an increased risk of sudden infant death syndrome and respiratory diseases for their newborns.

STUDY QUESTIONS: The study aimed to (1) see if there were associations of smoking counseling, treatment, and referral during pregnancy with smoking relapse in postpartum, and (2) define the trend of smoking relapse after delivery. Results of analyses may inform the development of appropriate methods and strategies to conduct interventions to prevent postpartum smoking relapse.

METHODS: Data of 2004-2008 Louisiana Pregnancy Risk Assessment Monitoring System, excluding 2005 and first three months of 2006 due to Hurricane Katrina were analyzed. Logistic regression was used to evaluate the association of smoking cessation intervention during pregnancy with smoking relapse, and the trend of smoking relapses in postpartum. Data analysis was conducted using SAS-Callable SUDAAN 10.0.

RESULTS: There were 546 women included in the analysis. Overall the rate of smoking relapse was 56%. It was 52% among those who did not receive any smoking cessation intervention, 63% among those who received only counseling, and 62% among those who received counseling with treatment and/or referral during prenatal care. By the time after delivery, the rate was 51%, 54%, and 67% among women whose infants were 2-3, 4-5, and 6 months old or greater, respectively. Adjusted logistic regression did not indicate significant association of smoking relapse with smoking cessation intervention as well as the trend of smoking relapse in postpartum (p-values > .10).

CONCLUSIONS: Smoking cessation intervention during pregnancy may not be successful to prevent smoking relapse in postpartum. Rates of smoking relapse were high and not different during the time intervals in the study.

PUBLIC HEALTH IMPLICATIONS: Aggressive smoking relapse interventions should be conducted during pregnancy, soon after delivery, and extended to later in postpartum.

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BACKGROUND: Pre-pregnancy obesity has been found to be a risk factor for pregnancy complications and adverse birth outcomes such as birth defects. Michigan explored this association in the population of women enrolled in the Special Supplemental Nutrition Program for Women, Infant and Children (WIC) through the linkage with the Michigan Birth Defects Registry (MBDR).

STUDY QUESTIONS: Is there an association between pre-pregnancy BMI and having an infant with a birth defect among those enrolled in WIC?

METHODS: WIC data (linked to Pregnancy Nutritional Surveillance System [PNSS]) and MBDR data are each routinely linked to live birth records. The birth certificate number from live birth records served as the common, unique identifier to link WIC records for mothers with a live birth from 2003 to 2007 to MBDR. Controls (mothers of those without a birth defect) were randomly selected from WIC data for a 1:4 case-control ratio. Crude associations (OR's and 95% CI’s) were estimated using SAS version 9.1.

RESULTS: In total, 23,800 (39.3%) MBDR cases diagnosed by one year of age from 2003-2007 were enrolled in WIC. Crude analysis revealed that overweight women were more likely to have an infant with a heart or integument defect (OR=1.2, 95% CI: 1.1, 1.3 and OR=1.3, 95% CI: 1.1, 1.5, respectively), compared to those with normal BMI. Those who were obese were more likely to have an infant with a CNS (OR=1.3, 95% CI: 1.1, 1.5), heart (OR=1.3, 95% CI: 1.3, 1.4), respiratory (OR=1.5, 95% CI: 1.3, 1.7), integument (OR=1.4, 95% CI: 1.2, 1.5), or chromosomal (OR=1.4, 95% CI=1.1, 1.8) defect compared to those with normal BMI.

CONCLUSIONS: Mothers who were overweight or obese before becoming pregnant had increased odds of having an infant with a birth defect compared to those with normal BMI.

PUBLIC HEALTH IMPLICATIONS: With the increasing rate of obesity in MI and in the US, efforts should be made to include in the preconception health care strategies targeted at having a healthy weight prior to becoming pregnant.
THE RELATIONSHIP BETWEEN THE MEDICAL HOME AND RECEIPT OF PEDIATRIC DEVELOPMENTAL SCREENINGS AMONG US CHILDREN 5 YEARS AND YOUNGER

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BACKGROUND: Early identification of developmental disabilities can reduce the risk for long-term sequelae, and improve lifetime educational and health outcomes. The American Academy of Pediatrics recommends for best practice use of standardized Pediatric Developmental Screenings (PDS) during well-child visits and at specific age intervals.

STUDY QUESTIONS: Is there an association between the Medical Home (MH) and PDS receipt among US children 5 years and younger.

METHODS: The 2007 National Survey of Children’s Health data were used. PDS, MH, and Special Health Care Needs (SHCN) variables were created using codes provided by the National Center for Health Statistics. Child’s race, ethnicity, age, and sex, Federal Poverty Level (FPL), language, insurance status, family structure, highest education, urban/rural, and Census Bureau Region (CBR) were selected. Simple and multiple logistic regression were conducted. Alpha was set to 0.05. SAS-Callable SUDAAN v. 9.1 was used.

RESULTS: About 81% (22,270) of the national sample had a PDS outcome, and only 19.5% received PDS. PDS by MH status (MH: 20.4% vs. No MH: 18.4%) were comparably similar resulting in an Odds Ratio (OR) and 95% Confidence Interval of 1.13, 0.96-1.33. Associated with PDS receipt was SHCN (1.35, 1.12-1.64), Black (1.40, 1.13-1.74), public insurance (1.77, 1.28-2.47), age (<=1 year: 1.41, 1.11-1.78; 2 years: 1.36, 1.05-1.77), <= high school education (1.19, 1.02-1.40), <200% FPL (1.21, 1.03-1.44), single mother (1.53, 1.02-2.29), rural (1.20, 1.01-1.42), and South (1.90, 1.52-2.36), Midwest (1.92, 1.54-2.38), or West (1.41, 1.07-1.87). Multiple logistic regression showed borderline MH significance (1.71, 0.98-1.40), controlling for age (<=1 year: 1.43, 1.12-1.82; 2 years: 1.40, 1.07-1.84), insurance (public: 1.82, 1.29-2.57), SHCN (Yes: 1.32, 1.08-1.61), and CBR (South: 1.84, 1.46-2.32; Midwest: 1.93, 1.54-2.42; West: 1.52, 1.13-

CONCLUSIONS: Most children 5 years and younger did not receive PDS. The presence of a MH was marginally associated with PDS receipt. PDS associated characteristics counter the majority of finding on the same population.

PUBLIC HEALTH IMPLICATIONS: Lack of PDS use may have deleterious effects on social-emotional, educational, and health standings for future generations, and dire implications on the US workforce and economy. Financial incentives for pediatric providers to use PDS may be a cost-effective policy to investigate.
BLOOD PRESSURE AND CHOLESTEROL SCREENING RATES AMONG U.S. WOMEN OF REPRODUCTIVE AGE

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BACKGROUND: Hypertension and dyslipidemia among women of reproductive age are associated with adverse pregnancy outcomes; these conditions can be silent risk factors for cardiovascular disease (CVD).

STUDY QUESTIONS: What percentage of women of reproductive age receives recommended blood pressure and cholesterol screening? Are sociodemographic characteristics, CVD risk factors, or health insurance status associated with blood pressure and cholesterol screening among this population?

METHODS: We used 2008 National Health Interview Survey data to estimate prevalence and adjusted odds ratios for receipt of recommended blood pressure screening (within the past 2 years) and cholesterol screening (within the past 5 years) among 4,837 women aged 20–44 years. The prevalence of sociodemographic characteristics, health insurance status, and CVD risk factors were estimated by self-reported screening history. Pearson chi-square tests were conducted to assess differences in the distributions.

RESULTS: Overall, 89.6% received recommended blood pressure screening and 63.3% received cholesterol screening. Blood pressure and cholesterol screening rates varied by race and low rates were associated with incomes <$35,000 and <12th grade education. Women who were underinsured or uninsured had the lowest screening rates for blood pressure (76.6%, 95% confidence interval [CI], 73.4–79.6) and cholesterol (47.6%, 95% CI, 43.8–51.5). Women with public health insurance had lower rates of cholesterol screening (59.5%, 95% CI, 54.9–64.0) compared with privately insured women (68.9%, 95% CI, 66.7–71.0). Variation by insurance status remained significant after adjustment for potential confounding. Suboptimal cholesterol screening rates were also found among women who currently smoke (54.5%, 95% CI, 50.8–58.2), women with obesity (69.8%, 95% CI, 66.3–73.0), CVD (70.3%, 95% CI, 63.7–76.1), pre-diabetes (73.3%, 95% CI, 64.1–80.8), and hypertension (81.4%, 95% CI, 76.6–85.4).

CONCLUSIONS: The majority of women reported receipt of recommended blood pressure screening, but fewer received recommended cholesterol screening. Health insurance status had the strongest associations with both screenings, but cholesterol screening rates among women with known CVD risk factors were particularly concerning and suboptimal.

PUBLIC HEALTH IMPLICATIONS: Universal health insurance coverage may increase the proportion of adults who receive recommended blood pressure and cholesterol screening and may prevent the consequences of unrecognized disease.
BACKGROUND: Proposed reasons for increasing rates of cesarean deliveries (c-sections) are highly controversial. Primary c-sections are of special importance due to increased risks for both current and future deliveries in women who have c-sections. The Hawaii Pregnancy Risk Assessment Monitoring System (PRAMS) provides data on minority groups not commonly represented in the literature.

STUDY QUESTIONS: Among a multiethnic population in Hawaii: 1) What are the most common maternally reported reasons for primary c-section? 2) What risk factors are associated with primary c-section? 3) Do primary c-section rates differ by ethnic population?

METHODS: Data from the 2009 Hawaii PRAMS survey was used. The most common reasons for c-section as reported by 302 mothers with primary c-section were determined via frequency distribution. A logistic regression model was applied to explore risk factors associated with primary c-section and determine differences by ethnic population. The final model controlled for maternal age, ethnicity, education level, county, income, pregnancy intendedness, BMI and parity.

RESULTS: Approximately 25.4%(95%CI:22.9-28.1) of women in Hawaii delivered via c-section. Two-thirds of these were primary c-sections, for an overall prevalence of 15.9%(95%CI:13.8-18.2). The most commonly reported reasons were labor-related danger to mother or infant (41.7%; 95%CI:34.6-49.2), malpresentation (30.2%; 95%CI:23.8-37.5) and failed induction (23.7%; 95%CI:17.5-31.2). Women who paid for their deliveries using military insurance (25.7%; 95%CI:18.3-34.8), were Caucasian (22.0%; 95%CI:17.1-27.8) and were obese prior to pregnancy (21.4%; 95%CI:15.6-28.6) had the highest estimates of primary c-section. Risk factors associated with primary c-section in the multivariate model were pre-pregnancy obesity (aOR 2.3; 95%CI:1.4-4.0), maternal age of at least 35 (aOR 2.2; 95%CI:1.3-3.7) and having an intended pregnancy (aOR 1.6; 95%CI:1.1-2.5). Prevalence differed significantly by ethnic group, with Japanese (aOR 0.34; 95%CI:0.16-0.73) and Native Hawaiian (aOR 0.53; 95%CI 0.29-0.97) women less likely to have a primary c-section compared to Caucasian women.

CONCLUSIONS: Maternally reported reasons for primary c-sections generally aligned with current medical guidelines, although the number of failed inductions warrants further investigation. The strongest risk factor for primary c-section was obesity. Prevalence differed significantly by ethnic group.

PUBLIC HEALTH IMPLICATIONS: Understanding both the reasons for and risk factors associated with primary c-section is the first step in developing effective strategies to lower c-section rates overall.
INFLUENZA VACCINATION AMONG TWO YEAR OLDS IN A POPULATION-BASED SURVEY

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BACKGROUND: Children aged 6 months through 18 years old should receive influenza vaccination every year because high levels of immunity among children can decrease influenza morbidity and mortality among the elderly and other vulnerable populations.

STUDY QUESTIONS: Using a population-based sample, we explored the proportion of two year olds who had received influenza vaccination.

METHODS: Oregon PRAMS is a stratified random sample of women who have recently had a live birth. PRAMS-2 reinterviews PRAMS respondents shortly after the child’s second birthday. This work follows children born in 2004 and 2005 whose mothers were reinterviewed (2006-2008) shortly after the child’s second birthday. Mothers were asked whether their child had received an influenza vaccination during the most recent influenza season. The weighted response rate was 56.6%.

RESULTS: 37.7% of two year olds had received an influenza vaccination during the most recent influenza season. Two year olds were significantly more likely to have received influenza vaccination if their birthday was in November, December or January than if their birthday was in July, August or September. Children who had had at least one well child visit after their first birthday were significantly more likely to have had an influenza vaccination (ORa: 7.70; 95% confidence interval 2.50, 24.3) than those with no well child care visits.

CONCLUSIONS: The children most likely to have received an influenza vaccination were probably in their provider’s office for a routine two year old well child care visit at a time when the provider had influenza vaccine available.

PUBLIC HEALTH IMPLICATIONS: Further improvement in vaccinating children will probably require office systems to vaccinate children who would not normally be in providers’ offices at the time when the vaccine is available. In the long run, there is a need to explore and develop provider-based, school-based and community-based strategies to increase childhood influenza vaccination.
POSTPARTUM AWARENESS OF DEPRESSION

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BACKGROUND: Oregon PRAMS is a population-based stratified random sample of Oregon women 3-4 months after birth. Oregon PRAMS-2

STUDY QUESTIONS: Are women equally likely to report postpartum depressive symptoms when asked a few months after birth or 2 years after birth?

METHODS: Oregon PRAMS asks women to report symptoms of depression at 2 times: T1 (PRAMS): during pregnancy T2 (PRAMS): since they baby was born Oregon PRAMS-2 asks women to report symptoms of depression at 2 times: T3 (PRAMS-2): during the first 12 months of the child's life T4 (PRAMS-2): during the second 12 months of the child's life 1911 women whose children were born in 2004 or 2005 responded to both the PRAMS and the PRAMS-2 surveys. The weighted response rate was 56.6%.

RESULTS: Respondents reported symptoms of depression: T1 (during pregnancy): 16.6% T2 (0-6 months postpartum): 11.3% T3 (0-12 months postpartum): 30.6% T4 (13-24 months postpartum): 22.1%

CONCLUSIONS: Women were almost 3 times as likely to report postpartum depression 2 years postpartum than they were to report postpartum depression 3-4 months postpartum. Possible reasons for this discrepancy: 1. The questions (and categorization of answers) asked on PRAMS are somewhat different from the questions asked on PRAMS-2. 2. The PRAMS T2 questions ask about first 3-4 months postpartum; the PRAMS-2 T3 questions ask about first the child's first 12 months. So T3 asks about a longer time period than T2. However, the onset of postpartum depression is generally in the first few postpartum months. 3. Denial: It is possible that women are less likely to report the symptoms of depression when they are in its throes 3-4 months postpartum. We encourage researchers to explore other longitudinal datasets to seek to replicate our findings and to seek to explain these findings.

PUBLIC HEALTH IMPLICATIONS: If depressed women are unable to identify depressive symptoms in the first few months after birth then the screening tests that are currently in use may be insufficient; additional detection methods may be necessary.
THE IMPACT OF GESTATIONAL WEIGHT GAIN ON LONG-TERM MATERNAL WEIGHT GAIN

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BACKGROUND: Weight gain during pregnancy is a contributing cause of long-term weight gain for women.

STUDY QUESTIONS: What is the impact of gestational weight gain (GWG) >20 pounds (the weight of the products of conception, body fluids and tissues) on long-term maternal weight gain (LTMWG)? What is the independent effect of sociodemographic factors on LTMWG?

METHODS: New York City birth certificates for women with 2+ births between 1994 and 2004 were linked. After exclusions for missing data and out-of-range values, the sample included 239,813 observations with weight change data representing 196,053 women 18+. LTMWG is based on maternal weight measured at two time points: prepregnancy weight for the index pregnancy (T1) and prepregnancy weight for the contiguous pregnancy (T2). The independent variables are GWG, time between conceptions, prepregnancy weight, parity, maternal age, education, race/ethnicity, neighborhood poverty and health insurance. Data were analyzed using multiple linear regression analysis.

RESULTS: Mean maternal age at T1 was 26.6 years; 24.8% were non-Hispanic black and 32% Hispanic. At T1, mean prepregnancy weight was 141 pounds; mean GWG was 30.7 pounds and 12.9% gained >=40 pounds. Proportion of women weighing >=175 pounds, a proxy for overweight/obesity, was 13.4% at T1 vs. 17.6% at T2. In the multivariate analysis, compared with GWG 20-24 lbs, GWG 30-34 was associated with mean LTMWG of +1.9 pounds, 40-44 lbs with +4.6 pounds and GWG 50-54 pounds with +9.0 pounds (all p<.0001). Of the sociodemographic characteristics, race/ethnicity had the largest effect on LTMWG: compared to whites, mean LTMWG was +4.6 pounds for non-Hispanic blacks (p<.0001), +2.4 pounds for Hispanics (p<.0001), and +0.3 pounds for Asian/Pacific Islander (p=.12).

CONCLUSIONS: GWG >20-24 pounds is a very strong predictor of LTMWG but at the same levels of GWG non-Hispanic black and Hispanic women retain significantly more weight.

PUBLIC HEALTH IMPLICATIONS: Helping women to moderate weight gain during pregnancy can contribute to preventing long-term overweight/obesity. It is important to understand how sociodemographic factors are translated into higher LTMWG so that programs and policies can be developed to address disparities.
RACIAL/ETHNIC DISPARITIES IN ADULTS READING TO TWO YEAR OLD CHILDREN

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BACKGROUND: Childhood reading proficiency is positively associated with educational achievement. Education is positively associated with many health outcomes. Reading to children can improve children's reading capability, improving their odds of increased education. This study examines the association between adults reading to a two year old child every day and maternal race/ethnicity.

STUDY QUESTIONS: Is there racial/ethnic disparity among adults reading to two year old children every day?

METHODS: The study was a cross-sectional analysis of Oregon's Pregnancy Risk Assessment Monitoring System (PRAMS) and PRAMS-2 data. The PRAMS-2 survey re-interviews PRAMS respondents. We studied women whose babies were born in 2004-2005 and were reinterviewed in 2006-2008. The analysis included bivariate and multivariate logistic regression. STATA was used to account for the three stage complex survey design. Limitations included self-reported data, weighted response rate of 56.6% which limited generalizability, causality could not be established from the cross-sectional design, and the racial/ethnic categorizations might not have described Hispanic, Asian/Pacific Islander and multiracial groups.

RESULTS: Maternal race/ethnicity was associated with whether a child was read to every day. The mothers most likely to report that an adult read to their child every day were non-Hispanic (NH) White (71.6%) followed by NH Asian/PI (58.4%), NH American Indian/Alaska Native (53.9%), NH Black (38.8%) and Hispanic (34.1%). Using multivariate regression, after adjusting for maternal age, education, depression, birth order and poverty status, Hispanic (aOR=0.30; 95% CI 0.20, 0.44), NH Black (aOR=0.32; 95% CI 0.21, 0.48), NH AI/AN (aOR=0.58; 95% CI 0.39, 0.87) and NH Asian/PI women (aOR=0.39; 95% CI 0.27, 0.57) were significantly less likely than NH White women to read to their children every day.

CONCLUSIONS: There are significant racial/ethnic disparities in adults reading to two year old children. Hispanic and non-Hispanic Black mothers are the least likely to report reading to their children every day. These disparities have long term consequences (education, health, life course) for the children.

PUBLIC HEALTH IMPLICATIONS: Expansion of existing interventions to increase adults reading to children, especially Black and Hispanic children, could lead to improved early learning. Improved early learning could contribute to improved academic performance and health outcomes.
INVESTIGATION OF SLEEP-RELATED SUDDEN UNEXPECTED INFANT DEATHS — FLORIDA, 2008

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BACKGROUND: Annually in the United States, 4,600 sudden unexpected infant deaths (SUID) occur with cause of death (COD) not known before investigation; the majority of SUID occur in a sleep environment.

STUDY QUESTIONS: Among 2008 Florida sleep-related SUID cases what is the mortality rate, proportion of deaths by specific causes, risk factor prevalence, and percent with public health program enrollment?

METHODS: We identified possible SUID cases occurring in Florida to residents by using ICD-10 codes from the 2008 linked Florida infant death and birth certificates. Information (e.g. death circumstances and risk factors) was abstracted from medical examiner, law enforcement, and hospital records. SUID were considered sleep-related if death occurred after an infant was placed to sleep and COD was nonmedical. Study risk factors included sleep surface, bed sharing, nonsupine sleep position, pillow use, and head covering. Data were linked with public health program records to determine family enrollment.

RESULTS: Among 1,667 2008 Florida infant deaths, 310 possible SUID cases were identified. Requested records were received for 273 (88.1%) cases; 218 (79.9%) were confirmed sleep-related SUID cases. The corresponding mortality rate was 0.95/1,000 live births. On the basis of medical examiner reports, 47.2% were classified as accidental suffocation strangulation in bed, 34.9% unknown/undetermined, 16.1% sudden infant death syndrome, and 1.8% other causes. Sleep-related SUID most frequently occurred in an adult bed (n = 108, 49.5%), crib (21.6%), sofa (8.7%), or bassinette (6.4%). At death, 117 (53.7%) infants were bed sharing, 39.9% placed nonsupine, 24.3% placed on a pillow, and 10.1% had head covering. Among the sleep-related SUID cases, 7.8% had no SUID sleep-related risk factors. SUID families were referred to Florida Healthy Start (61.0%) and enrolled in Women, Infants and Children (63.8%) and Healthy Families Florida (2.8%).

CONCLUSIONS: SUID contributes to approximately 1 in 5 Florida infant deaths. The majority of sleep-related SUID deaths had modifiable risk factors. Public health programs reach many of these families.

PUBLIC HEALTH IMPLICATIONS: Safe infant sleep messages are not reaching or not being followed by many sleep-related SUID caregivers. The large percentage of Florida families involved in public health programs provides opportunities for promoting safe sleep behavior messages.
INACCURATE WEIGHT PERCEPTIONS AMONG ELEMENTARY (4TH), MIDDLE (8TH), AND HIGH SCHOOL (11TH) STUDENTS IN TEXAS BY SEX AND RACE/ETHNICITY, SPAN 2009-2011

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BACKGROUND: Research indicates inaccurate weight perceptions may lead to unhealthy weight control practices in adolescents and to a greater risk of anorexia, adult obesity, and related morbidities. Characteristics of those who perceive themselves as underweight, and weight perceptions of elementary aged student are less well-studied.

STUDY QUESTIONS: To ascertain the overall proportion of students in 4th, 8th and 11th grade in Texas who had an inaccurate self-perception of weight compared with BMI and to assess age, sex and racial/ethnic differences in weight perception accuracy.

METHODS: A stratified, population-based school survey (SPAN) was conducted during the 2009-2011 school year among 11,751 Texas students. Students completed a validated questionnaire. Height and weight were measured using a stadiometer and digital scale, respectively, to calculate student BMI. Perceived weight was derived from a self-reported question. Healthy weight was defined as weight between 5th and 84th percentile on the CDC growth chart.

RESULTS: Nearly 47% of all 4th grade students reported an overall inaccurate weight perception compared to their BMI, while 42.4% of adolescents reported misperceptions. Among all healthy weight 4th graders, 20.7% perceived their weight as “too little”. Overweight Black and White 4th graders have a less accurate perception of their weight compared to overweight Hispanic 4th graders. Amongst overall underweight 8th graders, 29.9% perceived their weight as “too much”. Underweight 8th grade girls were more likely to perceive their weight as “too much” compared to boys. Approximately 64% of overweight 11th graders perceived their weight as “about right” compared to their BMI.

CONCLUSIONS: Between 42% and 47% of 4th, 8th, and 11th students in Texas misperceive their BMI. Misperceptions exist across all ages, sexes, race/ethnicities, and BMI gradients. While overall weight perception accuracy increases with age, this trend disappears when analyzed by BMI gradient. Weight misperceptions were more apparent in the under and overweight, as well as females and Hispanics.

PUBLIC HEALTH IMPLICATIONS: With substantial prevalence of weight misperception among students, clinicians should consider perceived weight status when counseling patients to increase compliance with the prescribed weight regime, to avert unhealthy weight control practices and to reduce the possibility of future weight issues and related morbidities.
FACTORS ASSOCIATED WITH THE UPTAKE OF VACCINATION SERVICES AMONG UNDER TWOS - BARIADI DISTRICT, SHINYANGA REGION, TANZANIA 2010

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BACKGROUND: The Expanded Program on Immunization services have been provided in Tanzania since 1975. However, between 2004 and 2007 coverage of third dose of Diphtheria-Tetanus-Pertussis-Hepatitis (DTP-HB3) dropped from 81% to 47% in Bariadi District.

STUDY QUESTIONS: What factors are associated with uptake of vaccination services among children aged 12-23 months in this district? Is uptake of vaccination services for children aged 12-23 months affected by the caretakers’ knowledge on vaccination services?

METHODS: We conducted a cross-sectional survey and selected wards, villages and households with children aged 12-24 months by multistage random sampling. We used logistic regression to identify determinants of full vaccination status, controlling for gender of the child, where the child was born, caretaker education, marital status, and economic status of the household. Analysis was done using EpiInfo 3.5.1.

RESULTS: A total of 243 caretakers of children aged between 12-23 months were interviewed. The mean age of the children was 17 months. Out of 243 caretakers, health cards were reviewed for 219 (90.1%) children. A total of 77 (35.2%) children were vaccinated for oral polio vaccine (OPV) at birth; 204 (93.2%) for DTP-HB3, and 180 (82.2%) for measles. One hundred and seventy children (70.0%) were fully vaccinated. Of 243 caretakers, 174 (71.6%) knew the purpose of vaccinations in children, 143 (58.8%) knew at least one of the immunizable diseases in Tanzania, and 13 (5.3%) knew the vaccination schedule. Logistic regression identified caretakers’ understanding of the purpose of vaccination as significantly associated with full vaccination status of the child (AOR = 2.87, 95%CI 1.38-6.00, p<0.01).

CONCLUSIONS: The proportion of fully vaccinated children was not optimum; however, uptake of individual routinely administered antigens was high with the exception of OPV. The low reported coverage of DTP-HB3 in 2007 may have been due to errors in recording and/or calculations.

PUBLIC HEALTH IMPLICATIONS: Outreach activities, village meetings or health education sessions at health facilities will increase community awareness on the importance of vaccination and may increase OPV vaccine uptake among under-twos. The reliability of vaccination coverage data at the district may be improved by ensuring health care workers have been appropriately trained on how to record and calculate coverage figures.
DOES HOME VISITING IMPROVE BIRTH OUTCOMES? FINDINGS FROM THE 2007-2008 VIRGINIA PRAMS

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BACKGROUND: Home visiting programs have gained momentum with the recent appropriation of federal funds for states to implement evidence-based maternal and child health home visiting programs. Virginia will be implementing several evidence-based models and evaluating the effectiveness of home visiting. However, currently, the effects of having a home visit by a health care worker or trained lay outreach worker are unknown at the state level.

STUDY QUESTIONS: Does participation in a home visiting program during pregnancy improve birth outcomes?

METHODS: Using cross-sectional data from the 2007-2008 Virginia Pregnancy Risk Assessment Monitoring System (PRAMS), several maternal and infant health outcomes were examined. Women who reported receiving a home visit by a healthcare worker or nurse during pregnancy on the PRAMS survey were assigned into the Home Visiting (HV) participation group. Women who did not have a home visit, but had risk factors similar to participants, were assigned to the comparison group. Multivariate logistic regression was used to measure the association between HV and the selected birth outcomes of interest. Characteristics of the HV participation and comparison groups were compared using chi-square tests and statistically significant differences were accounted for in the final adjusted models.

RESULTS: Controlling for socioeconomic status and selected maternal characteristics, women who had a home visit by a healthcare worker or nurse during pregnancy showed a 87.5% reduction in the risk of having a low birth weight infant [0.13, 95% CI: (0.02, 0.78)], a 4.5 times greater odds of initiating breastfeeding [AOR: 4.50 95% CI: (1.05, 19.54)], and a 38.6 times greater odds of using contraceptives postpartum [AOR: 38.55, 95% CI: (3.14, 473.21)] than women in the comparison group.

CONCLUSIONS: Receiving home visiting services during pregnancy increased breastfeeding initiation and postpartum contraceptive use and reduced the risk of low birth weight.

PUBLIC HEALTH IMPLICATIONS: These findings demonstrate that home visiting services have positive effects on the health and development of women and infants.
PREVALENCE OF OBESITY IN CHILDREN WITH TYPE 1 DIABETES

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BACKGROUND: The prevalence of obesity has increased significantly in the last few decades. Several studies have suggested that children with type 1 diabetes are at high risk of obesity. Based on previous publications, females and older children are more likely to become overweight. The epidemiology and relationship between obesity and type 1 diabetes remains unclear.

STUDY QUESTIONS: This study aims to further explore the relationship between type 1 diabetes and obesity with regard to age, gender and the use of insulin pumps.

METHODS: A total of 183 children aged 2-19 with type 1 diabetes were seen in a military pediatric endocrine clinic from January 2010 to May 2011. A retrospective chart review was used to gather age, gender, BMI % and insulin pump status on all patients. Chi squared analysis was used to determine the relationship between gender, age, insulin pump status and BMI percentile. The major limitation of the study is the low number of patients.

RESULTS: A total of 54 (30%) children had a BMI > 85% and 13 (7%) children had a BMI > 95%. Among children aged 2-5, 5/14 (35%) had a BMI > 85%. Children aged 6-11 were the least like to be overweight or obese (12/52 - 23%). The prevalence of overweight or obesity was similar in males and females (32% vs. 28%) and in children with and without insulin pumps (29% vs. 31%). There was a trend toward females becoming more overweight from age 6-11 to 12-19 (OR 3.56, p-value 0.13).

CONCLUSIONS: The prevalence of overweight and obesity in children with type 1 diabetes is similar to data from NHANES III and several other publications. There appears to be no relationship between insulin pump therapy and becoming overweight. The number of overweight diabetic children under age 5 was unexpected and bears further investigation. Females with diabetes appear to have a significant issue with weight gain during puberty that has not been previously described.

PUBLIC HEALTH IMPLICATIONS: Children with type 1 diabetes are at high risk of obesity and will have significant future complications if this trend continues. Educational interventions targeted at this population are essential to decrease morbidity and mortality.
RISK FACTORS FOR HIGH AND MODERATE RISK OF DEVELOPMENTAL DELAY IN U.S. CHILDREN AGED 18 MONTHS TO 5 YEARS: FINDINGS FROM THE 2007 NSCH

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BACKGROUND: Developmental delay is a common problem in childhood. Unadjusted relationships have been reported between developmental delay and some socio-demographic factors, but national data have not been used to examine adjusted associations between developmental delay and socio-demographic factors using multivariate analyses.

STUDY QUESTIONS: What are the adjusted risk factors for being at high risk and moderate risk of developmental delay among young children in the U.S.?

METHODS: Data from a nationally representative sample of children 18 months to 5 years of age (n=17,944) were analyzed from the 2007 National Survey of Children's Health. The survey included the Parent's Evaluation of Developmental Status questionnaire, which identified children's risk for developmental delay. Bivariate comparisons and multinomial logistic regressions were conducted to compare characteristics of both moderate risk and high risk vs. low/no risk groups using the following variables: age, sex, race/ethnicity, birthweight, household income (as percentage of federal poverty level), metropolitan statistical area (MSA) status, place of child care provider, health insurance coverage, and highest household parental education.

RESULTS: Twelve percent of children 18 months-5 years of age were screened as high risk and 16% screened as moderate risk for developmental delay. After controlling for all factors above, children at moderate risk are more likely to be Hispanic living in Spanish speaking households. High risk children are more likely to live in poor households, have parents with < high school education, have home-based daycare, and be non-Hispanic (NH)-black, NH-other, or Hispanic in Spanish speaking households. Both high and moderate risk children were more likely to be male, older, and to have been of low birthweight.

CONCLUSIONS: Variables including age, sex, race/ethnicity, birthweight, and household income are each associated with high and moderate risks for developmental delay in the U.S. Additional variables associated with high risk children include poverty status, home-based daycare, and low parental education.

PUBLIC HEALTH IMPLICATIONS: This is one of few national studies to identify adjusted risk factors for developmental delay in young children. These findings may be useful to health care professionals, teachers/day care providers, and program providers that work with toddlers and young children.
MEASURING DOSAGE, A KEY FACTOR WHEN ASSESSING THE RELATIONSHIP BETWEEN PRENATAL CASE MANAGEMENT AND BIRTH OUTCOMES

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BACKGROUND: Studies evaluating the effect of Prenatal Case Management (PCM) on birth outcomes, low birth weight (LBW) and preterm birth (PTB), have shown little or no positive results. Historically, these studies have only assessed the effect of PCM programs as a whole giving no consideration to the measurement of dosage. This may be one explanation as to why this research shows mixed results.

STUDY QUESTIONS: Is PCM dosage a more sensitive measure than a dichotomous participation (participation/non-participation) measure when assessing the relationship between PCM and birth outcomes?

METHODS: We constructed a birth cohort (N=12,018) encompassing Medicaid-insured women residing in Iowa who had a singleton birth between October 2005-December 2006 by linking Iowa birth, Medicaid Claims, and Women’s Health Information Systems data; 28% (4,639) of the cohort participated in PCM. A measure of dosage was created to capture duration of enrollment, the amount of time spent with a case manager, and breadth of interventions received while in PCM. Associations between PCM dosage and PTB was assessed using propensity score (PS) methods. PS methods were also used to assess associations between PCM participation as a dichotomous variable (participation/non-participation) and PTB. Results for the dichotomous measure were compared with results of the dosage measure to determine whether dosage was a more sensitive measure.

RESULTS: The effect of PCM dosage on PTB while controlling for maternal characteristics using PS methods showed the adjusted relative risk (RR) of PTB for high PCM dosage was 0.88 (0.70-1.11), medium dosage was 0.58 (0.47-0.72), and low PCM dosage was 1.43 (1.23-1.67); the reference group was no PCM. Results for the dichotomous PCM participation measure showed the adjusted RR was 0.97 (95% CI: 0.87-1.10).

CONCLUSIONS: This study showed that PCM dosage was significantly associated with the risk of having an adverse pregnancy outcome for Medicaid-insured women in Iowa. The study also showed PCM dosage to be a more sensitive measure than the dichotomous measure PCM participation.

PUBLIC HEALTH IMPLICATIONS: Measuring PCM dosage is essential to understanding the relationship between PCM and birth outcomes in order for PCM program providers to demonstrate the value of the interventions that are packaged within their programs.
THE STATE INFANT MORTALITY COLLABORATIVE: FIVE YEARS LATER

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BACKGROUND: The State Infant Mortality Collaborative (SIMC), an action learning collaborative that convened diverse groups to explore factors driving increasing infant mortality, resulted in immediate benefits in participating states, such as justifying expansion of analytic resources, strengthening broad-based partnerships, and highlighting opportunities to implement known best practices. However, the long-term impacts of such collaboratives are rarely explored due to funding limitations.

STUDY QUESTIONS: Did the SIMC, which was completed in 2006, have long-term impacts in participating states?

METHODS: In 2010 we conducted follow-up interviews with team members from all five state projects (Delaware, Hawaii, Louisiana, and Missouri, North Carolina; N=8 respondents) to assess the long-term impacts of the SIMC in each state. We used qualitative methods to identify common themes, lessons learned, and recommendations from the interview responses, and we examined responses for quantifiable impacts of the SIMC. This analysis was limited by the small number of participating states.

RESULTS: As a result of SIMC findings, four of five states (80%) initiated new programs or projects, three (60%) reported changes in legislation, and two (40%) saw changes in policies. All respondents noted difficulty with attributing outcomes occurring after SIMC completion to outcomes of the SIMC itself. However, states reported that SIMC findings contributed in part to several major efforts, such as new focus areas (late preterm birth, life course, and preconception health), improvements in surveillance (PRAMS, FIMR, and electronic birth certificates), and policy changes (Medicaid covered programs, health statistics requirements). All respondents cited the delay in follow-up as a barrier to recall, but concluded this delay was necessary to capture changes that require longer periods of time for implementation.

CONCLUSIONS: Four states implemented programs based on SIMC findings, while the fifth state has continued infant mortality investigations. Other common impacts were changes in legislation and policy.

PUBLIC HEALTH IMPLICATIONS: Despite potential funding limitations for such efforts, it is beneficial to examine projects such as the SIMC for long-term impacts on programs, legislation, and policy since lengthy implementation time precludes these from being observed in shorter-term examinations of outcomes.
USING PRAMS DATA TO MONITOR HEALTHY PEOPLE 2020 OBJECTIVES

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BACKGROUND: Healthy People (HP) objectives addressing preconception, interconception, and postpartum health were recently created or modified for HP2020. These objectives focus on improving the health and well-being of mothers and babies before, during, and after pregnancy. Population-based data on maternal and infant health indicators can be used to monitor progress toward achieving these objectives.

STUDY QUESTIONS: What are the new HP2020 objectives related to preconception, interconception, and postpartum health, and what are the prevalences of the current baseline estimates and targets for these objectives?

METHODS: Pregnancy Risk Assessment Monitoring System (PRAMS) and California's Maternal and Infant Health Assessment (MIHA) are state-based surveillance systems that use similar methodologies to assess the experiences and behaviors of women before, during, and after pregnancy. When combined, these systems represent 87% of all live births in the US. PRAMS data from 30 sites and California MIHA data, both from 2007, were used to prepare provisional HP2020 baseline prevalence estimates for new and revised indicators overall and by various demographics. Target prevalences for measuring progress toward meeting the objectives were defined as a 10% improvement over baseline. The objectives included preconception health indicators and infant sleep position.

RESULTS: Following is the prevalence (and the target prevalence) of the baseline measure for each HP2020 objective: 30.1% (target 33.1%) took multivitamins/folic acid prior to pregnancy, 77.6% (85.4%) did not smoke in the 3 months prior to pregnancy, 51.3% (56.4%) did not drink alcohol during that time, 48.5% (53.4%) had a healthy weight prior to pregnancy, and 69% (75.9%) laid their infants on their backs to sleep. Disparities were found for age, education, insurance status, and race/ethnicity. For example, 49% of African American mothers reported laying their infants on their backs to sleep while 74% of White mothers and 67% of Hispanic mothers reported doing so.

CONCLUSIONS: Current levels of new/revised MCH objectives are suboptimal and more focused effort on reaching at-risk women is needed to achieve national targets by 2020.

PUBLIC HEALTH IMPLICATIONS: Health officials can use state-based surveillance systems such as PRAMS or MIHA to monitor progress toward meeting certain maternal and child health HP2020 objectives.
TRENDS AND CHARACTERISTICS OF SELF-REPORTED HIV TESTING IN WOMEN OF CHILDBEARING AGE, IN PERU 2000, 2004-2008

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BACKGROUND: In the 26-year HIV/AIDS epidemic in Peru more than 39,682 cases of HIV and 25,533 cases of AIDS have been reported. Despite a higher concentration of the epidemic in men who have sex with men, there has been an increase in the heterosexual transmission with a decline in the male to female ratio of HIV infection. Still there are no data about the percentage of women of childbearing age (WCBA) who undergo HIV screening.

STUDY QUESTIONS: The objective of our study was to examine trends and factors associated with obtaining HIV testing for WCBA

METHODS: We used Demographic and Family Health Surveys databases of Peru from the years 2000, and 2004 to 2008 to study trends of self-reported HIV testing. The association between HIV testing and sociodemographic and reproductive health factors was assessed using bivariate analyses and logistic regression.

RESULTS: 12.4% Peruvian WCBA had never heard of HIV/AIDS and were excluded from the analysis. In the remaining 124,797 WCBA only 27.1% had undergone HIV test. There was a significant difference in the number of WCBA who reported having been tested for HIV, with more than a doubling of testing between 2000 (15.3%) and 2008 (39.6%) (p<0.001). HIV testing was associated with urban residence (OR 1.96), higher educational level (OR 5.14), speaking Spanish (OR 3.10), having a partner (OR 3.21), self-perception of high risk for HIV (OR 1.41), and having had a sexually transmitted infection (STI) the preceding year (OR 2.18).

CONCLUSIONS: There has been an increasing number of WCBA who report HIV testing since 2000, but less than half of WCBA do not seek HIV testing. Major factors associated with HIV were related to better accesses to health services and prevention activities (urban residence, higher educational level, speaking Spanish) and to self-perception of high risk.

PUBLIC HEALTH IMPLICATIONS: It is alarming the low number of WCBA reporting an HIV test. HIV diagnosis in WCBA is necessary not only to provide adequate treatment but also for the prevention of HIV mother to child transmission. Major factors associated with HIV testing should be considered when planning new initiatives to increase HIV testing of WCBA.
RACIAL AND ETHNIC DISPARITIES IN MATERNAL RESILIENCY: FINDINGS FROM THE 2007 LOS ANGELES MOMMY AND BABY (LAMB) STUDY

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BACKGROUND: In the US, significant racial and ethnic disparities in adverse pregnancy and birth outcomes exist. Maternal stress has been shown to contribute to these outcomes. As maternal resiliency, or protective resources that women can draw upon during pregnancy, is proposed as a potential buffer against this stress, racial and ethnic disparities in resiliency are thought to translate to subsequent disparities in outcomes.

STUDY QUESTIONS: What are the racial and ethnic disparities in maternal resiliency among women in Los Angeles County?

METHODS: We used data from the Los Angeles Mommy and Baby (LAMB) Survey, a mailed survey based on a multistage clustered design with telephone follow-up for non-respondents. Analyses were based on the weighted responses of 4,158 women with a live birth in Los Angeles County in 2007. The maternal resiliency index was operationalized as a multi-level construct comprised of personal resources (self-esteem and mastery) and social support (partner, social network, and neighborhood support) items. The relationships between race/ethnicity and maternal resiliency were assessed using stepwise regression, adjusting for key socio-demographic factors (i.e. maternal age, income, education, and marital status).

RESULTS: After controlling for socio-demographic factors, Asian/Pacific Islanders (API's) were 1.6 times more likely than Whites to have lower scores on the resiliency index (p<0.001). Further analyses indicated that API women reported less personal resources and neighborhood support than White women (Adjusted ORs=1.9 and 2.1, respectively; p<0.001). Income attenuated the risk of low resiliency for African-Americans (AA's) and Hispanics compared to Whites (unadjusted ORs=2.8, p<0.001; adjusted ORs=1.3, p=NS for AA's, p<0.05 for Hispanics). Marital status further decreased the risk of low resiliency for AA's (adjusted OR=0.97, p=NS), and education reduced the risk for Hispanics (adjusted OR=1.2, p=NS).

CONCLUSIONS: Racial and ethnic disparities in maternal resiliency do exist, especially for API's. These disparities appear to be mediated by socio-economic factors and marital status for AA and Hispanic women.

PUBLIC HEALTH IMPLICATIONS: Interventions to increase maternal resiliency (specifically personal resources and neighborhood support) among API's as well as disadvantaged AA's and Hispanics are warranted. Further research to determine how these disparities translate to disparities in pregnancy and birth outcomes is needed.
RACIAL/ETHNIC DISPARITIES IN THE RELATIONSHIP BETWEEN THE MATERNAL STRESS TO RESILIENCY RATIO AND PREGNANCY COMPLICATIONS: FINDINGS FROM THE 2007 LOS ANGELES MOMMY AND BABY STUDY

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BACKGROUND: Pregnancy complications have been implicated in the etiologies of adverse birth outcomes. As maternal stress has been shown to contribute to negative birth and pregnancy outcomes, maternal resiliency, or protective resources that women can draw upon during pregnancy, is proposed as a potential buffer against this stress. Racial and ethnic disparities in the stress to resiliency ratio (SRR) during pregnancy may therefore translate to disparities in pregnancy complications.

STUDY QUESTIONS: What are the racial and ethnic disparities in the relationship between the maternal SRR and pregnancy complications?

METHODS: We used data from the Los Angeles Mommy and Baby (LAMB) Survey, a mailed survey based on a multistage clustered design with telephone follow-up for non-respondents. Analyses were based on the weighted responses of 4,158 women with a live birth in Los Angeles County in 2007. The maternal resiliency index was operationalized as a multi-level construct comprised of personal resources (self-esteem and mastery) and social support (partner, social network, and neighborhood support). The stress index consisted of experiencing ≥ 1 severe life event, high perceived stress, and depression during pregnancy. The stress and resiliency indices were standardized in order to be comparable, and the stress index was divided over the resiliency index to create the SRR. Logistic regression models were used to determine the associations between the SRR and pregnancy complications among White, African-American (AA), Hispanic and Asian/Pacific Islander (API) women.

RESULTS: Among AA's, respondents with an SRR>1 (i.e. higher stress relative to resiliency) were 6.5 times more likely to experience least one pregnancy complication, even after controlling for key socio-demographic factors (p<0.001). Hispanic women with an SRR>1 were 1.3 times more likely to have at least one pregnancy complication (p<0.01). There were no statistically significant correlations between the SRR and pregnancy complications among White or API women.

CONCLUSIONS: Experiencing greater stress relative to resiliency during pregnancy is highly associated with the risk of pregnancy complications for AA's and to a smaller extent, for Hispanics.

PUBLIC HEALTH IMPLICATIONS: Interventions to improve maternal resiliency during pregnancy among high-stress AA and Hispanic women are warranted.
THE MATERNAL STRESS TO RESILIENCY RATIO AND ITS RELATIONSHIP WITH ADVERSE PREGNANCY AND BIRTH OUTCOMES: FINDINGS FROM THE 2007 LOS ANGELES MOMMY AND BABY STUDY

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BACKGROUND: Maternal stress has been shown to contribute to adverse pregnancy and birth outcomes, including low birthweight (LBW) and preterm birth (PTB). Maternal resiliency, or protective resources that women can draw upon during pregnancy, is proposed as a potential buffer against stress. Therefore, women who experience greater prenatal stress relative to resiliency may be more likely to experience negative outcomes.

STUDY QUESTIONS: How are one’s relative amounts of prenatal stress and resiliency associated with the risk of pregnancy complications, LBW and PTB?

METHODS: We used data from the Los Angeles Mommy and Baby (LAMB) Survey, a mailed survey based on a multistage clustered design with telephone follow-up for non-respondents. Analyses were based on the weighted responses of 4,158 women with a live birth in Los Angeles County in 2007. The maternal resiliency index was operationalized as a multi-level construct comprised of personal resources (self-esteem and mastery) and social support (partner, social network, and neighborhood support). The stress index consisted of experiencing ≥1 severe life event, high perceived stress, and depression during pregnancy. The stress and resiliency indices were standardized in order to be comparable, and the stress index was divided over the resiliency index to create the stress to resiliency ratio (SRR). Logistic regression models were used to assess how the SRR was associated with pregnancy complications, LBW and PTB.

RESULTS: Women with an SRR>1 (i.e. higher stress relative to resiliency) were more likely to experience at least one pregnancy complication (adjusted OR=1.5;p<0.001). An SRR>1 was specifically associated with gestational diabetes, premature labor, bacterial vaginosis and kidney/bladder infections during pregnancy (adjusted OR's=1.4-1.7;p<0.001-0.01). Women with an SRR>1 had higher risk of PTB (adjusted OR=1.3;p<0.05), but adjusting for pregnancy complications attenuated this risk (adjusted OR=1.2;p=NS).

CONCLUSIONS: Experiencing greater stress relative to resiliency during pregnancy is significantly associated with pregnancy complications. Pregnancy complications may be a mechanism by which excessive stress relative to resiliency is correlated with PTB.

PUBLIC HEALTH IMPLICATIONS: To our knowledge, this is the first MCH study that combined stress and resiliency into a summary construct which is associated with pregnancy outcomes. Further research to explore the complex inter-relationship between stress and resiliency is needed.
INCIDENCE OF SICKLE CELL DISEASE AMONG NEWBORNS IN NEW YORK BY MATERNAL RACE/ETHNICITY AND NATIVITY—A POPULATION-BASED STUDY

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BACKGROUND: Sickle cell disease (SCD) is a genetic disorder that affects the red blood cells causing lifelong anemia and other complications that contribute to premature death. It is most common among persons of African descent. The incidence of SCD among African-American births is between 1 in 300 and 1 in 400, but rates are higher in Africa and the Caribbean. The impact of immigration on the incidence of SCD in the US has not been documented previously.

STUDY QUESTIONS: Describe the characteristics and estimate the incidence of SCD and SCD category among New York State newborns identified from newborn screening (NBS). Is maternal nativity associated with the SCD incidence among newborns?

METHODS: Confirmed SCD newborns, identified from the New York State NBS Program for the years 2000-2008 were matched to their respective birth certificates. The live birth records, obtained from the NYS Department of Health and the New York City Department of Health and Mental Hygiene provided birth and maternal information on these cases. Incidence rates were computed and both univariate and multivariate analyses were conducted to examine the association between maternal nativity and SCD incidence.

RESULTS: From 2000 to 2008, 1,911 New York newborns were diagnosed with SCD. One in every 1,146 live births was diagnosed with SCD. Newborns of black mothers accounted for 85% of the cases with an estimated annual incidence of 1:229 live births. The annual incidence of SCD was 1:313 among newborns of US-born Black mothers and 1:159 among newborns of foreign-born Black mothers. The annual incidence was 1:381 for sickle cell anemia (Hb-SS) and 1:630 for SC disease (Hb-SC) among newborns of Black mothers.

CONCLUSIONS: This study provides the first estimates of NYS annual SCD incidence by maternal race/ethnicity and nativity. As expected, the newborns of foreign-born black mothers had significantly higher incidence of SCD compared to newborns of US-born black mothers.

PUBLIC HEALTH IMPLICATIONS: Such findings identify at-risk populations and inform public health education and community outreach activities that promote ongoing, high quality medical management to affected children.
VALIDITY OF BREASTFEEDING INITIATION AND DURATION ON BIRTH CERTIFICATES AND WIC PROGRAM DATA, FLORIDA, 2004-2005

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BACKGROUND: With increased breastfeeding promotion, understanding the validity of data used to monitor and evaluate breastfeeding practices is important.

STUDY QUESTIONS: How accurate is breastfeeding information on Florida birth certificates (BC), Pregnancy Nutrition Surveillance System (PNSS), and Pediatric Nutrition Surveillance System (PedNSS)?

METHODS: Using the Pregnancy Risk Assessment Monitoring System (PRAMS) data as reference, validity measures—sensitivity (sen), specificity (spec), positive and negative predictive value (PPV) and (NPV)—were calculated for 2004 and 2005 Florida birth certificate, WIC PNSS and PedNSS breastfeeding data.

RESULTS: BC and PNSS identified a majority of women reported by PRAMS as initiating breastfeeding (Sen:93%,89%) and not initiating breastfeeding (Spec:70%,83%). BC and PNSS were generally accurate in reporting breastfeeding initiation (PPV:91%,93%). Approximately three-quarters of women were accurately reported on BC and PNSS as not initiating breastfeeding (NPV:75%,73%). For sensitivity, PNSS identified 62% of women reported by PRAMS as breastfeeding at four weeks or more and 30% of women breastfeeding at eight weeks or more. PNSS identified most women who did not breastfeed for the same time periods (Spec:82%,96%). PNSS data was accurate for most women identified as breastfeeding at four/eight weeks or more (PPV: 95%,94%). PNSS underreported women who were not breastfeeding for these time periods (NPV:31%,40%). PedNSS identified most women reported by PRAMS as breastfeeding at four/eight weeks or more (Sen:88%,78%) and not breastfeeding at four/eight weeks or more (Spec:79%,78%). PedNSS data was accurate on most women identified as breastfeeding at four/eight weeks or more (PPV:95%,87%). PedNSS underreported women who were not breastfeeding at four/eight weeks or more (NPV:59%,66%).

CONCLUSIONS: Birth certificates and PNSS were fairly accurate in identifying women who initiated breastfeeding, but were less accurate at identifying women not initiating breastfeeding. PedNSS was substantially more accurate than PNSS in reporting breastfeeding duration, but underreported women who were not breastfeeding four/eight weeks or more.

PUBLIC HEALTH IMPLICATIONS: Birth certificates and PNSS are adequate for monitoring and evaluating breastfeeding initiation among Florida women. For breastfeeding duration, PedNSS is recommended over PNSS with some limitations.
COMPONENTS OF GESTATIONAL WEIGHT GAIN AND CHILD BODY MASS INDEX AT AGE 7 Y

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BACKGROUND: Gestational weight gain (GWG) is associated with childhood growth and obesity. But existing studies have not distinguished potentially differential impacts of 4 GWG components: placenta, fetus, amniotic fluid, and non-conception weight gain.

STUDY QUESTIONS: Are GWG components differentially associated with child body mass index (BMI) at age 7 y?

METHODS: We analyzed a complete-data subset of 20,845 singletons born 1959-1965 and their mothers in the Collaborative Perinatal Project. Medical staff measured maternal weight before delivery and during nursery stay; and birth and placental weights at delivery rooms. We estimated weight of amniotic and other lost fluids (“fluid weight”) as (pre-delivery weight – 1-day post-delivery weight – [birth weight + placental weight]); and non-conception GWG as (total GWG - [birth weight + placental weight +fluid weight]). Medical staff measured children’s weight and height at age 7 y. In each prepregnancy BMI group, i.e. underweight (<18.5 kg/m2;9.2% of cohort), normal weight (18.5-<25;68.5%), overweight (25-<30;15.5%), and obese (>=30;6.8%), we fit multivariable linear regression models to predict child 7-y BMI, adjusting for family socio-economic status; maternal age, race, marital status, parity, smoking, prepregnancy BMI; child sex and gestational

RESULTS: Total GWG was directly associated with 7-y BMI; for 1 kg increment in total GWG, 7-y BMI was higher by 0.07 (95% confidence interval, [0.05,0.09]), 0.02 (0.01,0.03), and 0.03 (0.01,0.05) kg/m2 for offspring of underweight, normal weight, overweight, and obese mothers, respectively. Among all 4 prepregnancy BMI groups, birth weight (0.39 [0.18,0.61], 0.28 [0.21,0.36], 0.28 [0.10,0.46], and 0.53 [0.27,0.79] per kg), as well as fluid weight (0.56 [0.13,1.00], 0.23 [0.10,0.36], 0.03 [-0.20,0.27], and 0.69 [0.45,0.92] per kg), were directly associated with 7-y BMI. Within the normal-prepregnancy-weight group only, placental weight (1.25 [0.84,1.66] per kg) and non-conception GWG (0.02 [0.01,0.03] per kg) were associated with 7-y BMI.

CONCLUSIONS: In this US cohort from 1960s, non-conception GWG predicted 7-y BMI only in offspring of normal weight mothers. However, birth and fluid weights predicted 7-y BMI in all children.

PUBLIC HEALTH IMPLICATIONS: If recent studies reproduce these findings, monitoring GWG components during pregnancy may help to better understand and intervene on long-term consequences of inappropriate GWG to childhood growth.
SIGNIFICANT INCREASE IN FLORIDA’S ECTOPIC PREGNANCY MORTALITY RATIO, 2009-2010

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BACKGROUND: Counter to national trends, Florida women experienced a 4.2 fold increase in ectopic pregnancy mortality ratios (EMRs), from 0.6 deaths per 100,000 live births in 1999-2008 to 2.5 in 2009-2010 (p=0.001). No concurrent increase occurred with ectopic hospital discharge, ambulatory surgery, or emergency department rates.

STUDY QUESTIONS: What are the risk factors and causes for Florida’s increased EMR?

METHODS: Florida’s Pregnancy-Associated Mortality Review (PAMR) identified all ectopic deaths in Florida from 1999-2010 through an enhanced surveillance system. PAMR abstracts physician, hospital, health department, prenatal screening, medical examiner, and other records for all PAMR deaths. A multidisciplinary committee reviewed these deaths for causes of death, risk factors, and prevention opportunities. EMRs were calculated using birth certificates. Only statistically significant results are presented using Mid-P Exact (P<0.05).

RESULTS: PAMR identified 11 ectopic deaths in 2009-2010 and 13 deaths in 1999-2008. Comparing time periods, EMRs increased among women who were non-Hispanic white (0.3 to 2.0 deaths per 100,000 live births), Hispanic (0.0 to 3.3), unmarried (0.7 to 4.8), self-pay (0.9 to 17.7), and less than high school education (0.8 to 6.4). In the later time period, women were more likely to present first to health care with physical collapse: 1.8 versus 0.3 deaths per 100,000 live births. In 2009-2010, six of eight women presenting with collapse tested positive for drug abuse at autopsy, mostly cocaine; less testing was performed in the earlier period. In 2009-2010, two of three women who did not collapse presented to a health care provider and experienced a delay in medical diagnosis; five of six did in the earlier period.

CONCLUSIONS: Florida experienced a substantial increase in ectopic pregnancy deaths in 2009-2010. Although a small number of deaths, the risk increased among non-Hispanic white, Hispanic, unmarried, self-pay, and less educated women. The risk increased predominantly among women who presented late in the natural history of the disorder and were using drugs. Fewer deaths were related to delays in medical treatment.

PUBLIC HEALTH IMPLICATIONS: Public awareness needs to be raised about ectopic pregnancy risk and the need for early care, especially among high risk women. Timely pregnancy-related mortality surveillance and review is needed to identify prevention opportunities.
THE PREVALENCE OF PRESCRIPTION AND ILLICIT DRUGS USE IN PREGNANCY-ASSOCIATED DEATH OF FLORIDA MOTHERS FROM 1999-2005

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BACKGROUND: Rates for opioid (painkillers) deaths, opioid sales, pain clinics, and hospital admissions for opioid abuse have been rapidly increasing. Very little is known about prescription drug abuse in the deaths of pregnant women or women who were recently pregnant. The study will look at the types and prevalence of drugs in the traumatic (accidents, homicides, and suicides) deaths of pregnant women or women who delivered a child within a year (pregnancy-associated death) compared to the same type of women who didn't use drugs.

STUDY QUESTIONS: How prevalent is opioid and other drug use in traumatic pregnancy-associated deaths of women in Florida from 1999-2005?

METHODS: A retrospective review of 384 Florida women autopsy reports from 1999-2005 was conducted. The records for these women were obtained from medical examiner’s office throughout Florida. Toxicology reports were used to identify the drugs found in the traumatic death of women, though this method only detects the drugs currently in the body and not all drug use. Depressants contain alcohol, benzodiazepines, barbiturates, GHB, and opioids/opiates. Stimulants contain cocaine, amphetamines/methamphetamine, and pseudoephedrine/ephe-drine.

RESULTS: 140 women had a positive toxicology report with 118 (84%) of them found to have a depressant in their body. Alcohol was the most common drug detected (42%) with opioids being second (36%). Women who had a positive toxicology commonly died from overdoses (36%), accidents (36%), and suicides (14%). More mothers with a negative toxicology died from accidents (71% vs. 36%) and homicides (23% vs. 12%) than mothers with a positive toxicology.

CONCLUSIONS: Depressants were prevalent in the traumatic deaths of pregnancy-associated women from 1999-2005. Accidental/suicide overdoses and accidents were the most common manner of death in women with a positive toxicology.

PUBLIC HEALTH IMPLICATIONS: The study found that alcohol and opioids were commonly detected in the toxicology reports of mother’s deaths. Pain clinics in Florida should be monitored for appropriate use of opioids and drug companies should provide educational programs on the dangers of opioid use for doctors and users. Alcohol prevention needs to be reemphasized for mothers and pregnant women.
LOUISIANA PREGNANCY-ASSOCIATED MORTALITY: DATA IMPROVEMENT THROUGH IN-DEPTH CASE REVIEW

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BACKGROUND: In order to improve the methodology and procedure of pregnancy-associated mortality reviews in the state, the Louisiana Maternal Child Health Program (MCH) began conducting pregnancy-associated mortality reviews in 2010 through a Maternal Mortality Review Committee (MMRC). This type of review allows for the assignment of causes of death using information regarding temporal and causal relationships between the pregnancy and death, instead of assigned by ICD codes.

STUDY QUESTIONS: Was there any improvement of pregnancy-associated mortality evaluation conducted by the MMRC compared to the previous procedure using only ICD code?

METHODS: The 2008 death data were used for review. Death records were provided (1) by the Louisiana Pregnancy Mortality Surveillance System, and (2) through the linkage of death with birth and fetal death records conducted by the MCH. Death records qualified with review selection criteria were retrospectively abstracted from prenatal care records, hospital records, and autopsy reports, and then presented to the MMRC for evaluation. The committee determined whether the death was or was not pregnancy-related, the cause of death, and risk factors of death and provided recommendations and strategies in both public health and clinical practices to reduce maternal morbidity and mortality.

RESULTS: Fifty-two death records were selected for review. Fifty deaths were confirmed as pregnancy-associated deaths. Of the total 50 cases, the MMRC determined that 17 (34.0% vs. 4.0% (n=2) by ICD code) deaths were related to pregnancy, and 32 (64.0% vs. 94.0% (n=47) by ICD code) non-pregnancy related. Of the 47 cases classified as pregnancy-associated by ICD Code, 15 cases were reclassified as pregnancy-related by the MMRC. The causes of death for 3 cases defined by the MMRC were not equivalent to the causes listed on the death certificates.

CONCLUSIONS: The MMRC process was crucial in helping to identify and classify pregnancy-associated deaths that were incorrectly classified using only conventional ICD code methodology.

PUBLIC HEALTH IMPLICATIONS: Results from in-depth review of pregnancy-associated deaths will help provide appropriate evidenced-based legislative and policy recommendations to the Louisiana Commission on Perinatal Care and Prevention of Infant Mortality, which can develop appropriate guidelines and strategies to reduce future pregnancy mortality in Louisiana.
THE ESTIMATED ECONOMIC BURDEN OF VULVODYNIA IN THE UNITED STATES

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Tulane University, National Vulvodynia Association

BACKGROUND: Vulvodynia is a chronic vulvar pain syndrome of unknown origin. Data on its identification, prevalence, treatment, impact on women’s quality of life and cost is limited.

STUDY QUESTIONS: What is the economic burden of vulvodynia in the United States?

METHODS: We conducted an online survey from 2009 to 2010. Patients who responded to the advertisement of National Vulvodynia Association completed the survey every month recording their own costs and their employers’ payments related to vulvodynia in the past month. A total of 302 patients entered data for at least one month and among them, 97 patients had completed data for six months. We used multiple imputation to generate values for unobserved cost components. For insurance payments, we also extracted the average insurance payments for direct health care service related to vulvodynia from a commercial insurance database. The total costs were disaggregated into direct health care costs, direct non-health care costs and indirect costs. Direct health care costs included payments for office visits, lab work or diagnostic test, surgical procedures, hospitalization, etc. Direct non-health care costs included transportation expense. Indirect costs consisted of work-related loss and cost due to inability to perform household chores because of vulvodynia.

RESULTS: The average age of all respondents was 38.9±13.3 (mean ± SD). A majority of them (90.6%) experienced 10 or more episodes of genital pain on contact and 95.0% had limitations in sexual intercourse. Common co-morbidities included irritable bowel syndrome (27.2%), migraine headache (25.2%), interstitial cystitis (13.6%), and endometriosis (11.6%). The total costs in six months were $8207.93 per patient, of which $5388.87 (65.65%) was direct health care costs, $553.81 (6.75%) was direct non-health care costs and $2265.25 (27.60%) was indirect costs. Based on the reported prevalence range of 3% to 7% in the U.S., our analysis yielded an annual national burden ranging from $29 billion to $67 billion in the United States.

CONCLUSIONS: Vulvodynia is associated with a huge economic burden to both individuals and the society.

PUBLIC HEALTH IMPLICATIONS: Vulvodynia is a costly condition for women in the United States. Future studies may explore timely and better prevention and treatment for vulvodynia.
PRE-PREGNANCY BODY MASS INDEX AND INTENTION TO BREASTFEED

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BACKGROUND: The health benefits of breastfeeding are well documented for both mothers and infants, despite persistently low U.S. rates. Recent evidence has shown that breastfeeding also lowers the BMI of both mothers and children, making it imperative to understand how women's intention to breastfeed varies by pre-pregnancy weight category.

STUDY QUESTIONS: The purpose is to examine the relationship between maternal pre-pregnancy BMI and intention to breastfeed, adjusting for other maternal and infant factors.

METHODS: From 2004 to 2009, 1,161,937 birth records were selected with complete data from Florida resident live singleton birth certificates. The birth certificate's intent to breastfeed question was the primary outcome, and descriptive and regression analyses examined the relationship of risk factors to the outcome.

RESULTS: The adjusted model indicated that underweight and obese women were 10.2% and 14.8% less likely to intend to breastfeed than normal BMI women. Race/ethnicity, education, tobacco use, marital status, and prenatal care were consistent indicators of breastfeeding intentionality. Compliance with The Institute of Medicine weight gain recommendations, gestational diabetes, and Medicaid status did not appear to be significant indicators for intention to breastfeed.

CONCLUSIONS: In Florida, both underweight and obese women had significantly lower rates of intention to breastfeed compared to women with normal BMI.

PUBLIC HEALTH IMPLICATIONS: This study reinforces the need to address the medical and psychosocial conditions that lead obese and underweight women to not breastfeed. Given that breastfeeding has been shown to be beneficial to both mother and child, healthcare professionals and policy makers should support breastfeeding promoting activities to obese and underweight women.