

Student Research Symposium

ATMCH Conference

**Sunday, March 3, 2002
Arlington, VA**

Abstract Compendium



The goal of the Student Research Symposium at the Annual ATMCH Conference is to showcase current student research and to foster discourse among students and faculty in the field of maternal and child health. Students and faculty at Johns Hopkins Bloomberg School of Public Health organized this year's call for abstracts, selection process, and logistics of the symposium. Student liaisons at other universities also participated in the selection process. The awards, travel stipends, and supplies have been provided through a grant from the Maternal and Child Health Bureau.

There were nine available presentation spots at the symposium, three oral presentations and six poster presentations. Among those selected to present, three individuals were awarded first (\$500 cash prize), second (\$250 cash prize), or third (\$125 cash prize) and their transportation and lodging was compensated. Each of the other presenters were given a daily stipend to support expenses. In total, we received 23 abstract submissions from students at seven different universities, and topics ranged from program descriptions to policy analyses and from ethnographic to survey research. The criteria for judging abstracts were: originality/innovation (25%); timeliness (20%); quality of research (15%); and quality of writing (15%).

This compendium contains all of the submitted abstracts, beginning with the three top prize winners and the other symposium presenters. We would like to congratulate all who submitted abstracts and wish you the best success in your future research and endeavors.

First Prize Winner

Maternal HIV and Child Survival in Rural Rakai, Uganda

Heena Brahmhatt, MPH, PhD Candidate
Johns Hopkins Bloomberg School of Public Health

Background: objective was to examine intrauterine/intrapartum and lactational predictors of mother to child transmission of HIV

Methods: Data are from a prospective community-randomized trial in Rakai District, Uganda. Sociodemographic characteristics, and maternal HIV serostatus were assessed at 10-month intervals and infant HIV status (determined by PCR) was evaluated at 1-6 weeks postpartum and at during breastfeeding. Multivariate logistic regression modeling was used to assess determinants of mother to child transmission of HIV.

Results: Of the 372 children who were tested for HIV around birth, 61 were HIV positive (16.4%) and of 94 children tested at a follow-up visit, 15 (16.0%) were positive. In the multivariate model, risk factors for mother to child transmission of HIV in the intrauterine/intrapartum period were: presence malaria pigment or parasite during pregnancy (OR=11.81, p=0.012), increasing log₁₀ maternal viral load (OR=7.31, p=0.005) and children born at low birth weight (OR=12.49, p=0.008). For children who escaped infection of HIV during birth, risk factors for transmission of HIV during breastfeeding in the multivariate model were: being born at low birth weight (OR=12.5, p=0.008), and presence of malaria pigment/parasite in the placenta (OR=6.52, p=0.007).

Conclusions: Reductions of maternal viral loads, antenatal care to reduce prevalence of low birth weight and provision of malaria prophylaxis during pregnancy could reduce mother to child transmission of HIV.

Second Prize Winner

Characteristics and Birth Outcomes: Women Receiving No Prenatal Care in the United States, 1992-1997

Cathy R. Taylor, Doctoral Student
University of Alabama at Birmingham School of Public Health

Although prenatal care is an established mechanism for identifying and managing medical, sociodemographic and behavioral risk factors impacting pregnancy outcomes, some U.S. women still receive no care prior to delivery. While they may be different from women who delay or receive inadequate care, women who receive no care may not be a homogenous group. It was hypothesized that women who receive no care comprise clusters (sub-groups) with distinctive sociodemographic characteristics and that differences in birth outcome measures exist among the clusters. U.S. resident women delivering live, singleton infants were identified from 1992-1997 linked birth and death certificates. Using clustering methodology, six interpretable clusters emerged:

- Cluster 1 - older, married, White, highly educated, suburban, high risks
- Cluster 2 - young, foreign-born Hispanic, no education, suburban, low risks
- Cluster 3 - very young, foreign-born Hispanic, some education, suburban, low risks
- Cluster 4 - largely young, unmarried Black, low education, very high risks
- Cluster 5 - young, White primipara, some college, high risks
- Cluster 6 - very young, urban Hispanic, some high school, high risks

Birth outcome measures varied significantly among clusters. Cluster 3 had the lowest rates of low birth weight and preterm birth, and Cluster 4 had the highest rates for these measures. These findings indicate that intervention efforts aimed at reducing the proportion of women receiving no care should be individually tailored and targeted to specific no care sub-groups with priority given to those sub-groups with the highest risk of a poor pregnancy outcome.

Third Prize Winner

High Level Of Anxiety: An Effect of War on Colombian Rural Children?

Ruby C. Castilla, MD, MPH
University of Pittsburgh School of Public Health

Objective: To examine symptoms of anxiety in children living in rural areas of Colombia SA exposed to the stress of civil war.

Methods: A total of 300 school-aged children/adolescents from a stratified, random sample of schools in a rural area in Belen, Boyacá, Colombia were ascertained. Children and their parents were assessed with the Screen for Child Anxiety Related Emotional Disorders (SCARED).

Results: The overall response rate was 97.6% consisting of 184 girls and 109 boys with a mean age of 12.3 years (range 8-18 years). Among all of children, 239 children (81.56%) reported a total score of ≥ 25 , which is the cut-off score for anxiety disorders. Of the girls, 169 (91.84%) had a total score of >25 , and 70 (64.22%) of the boys had total scores of >25 .

Conclusions: Our results suggest that these children exposed to dangerous and violent situations in their environment, are experiencing higher levels of anxiety symptoms which is particularly more true for girls. The anxiety symptom scores in our study are higher than those reported in similar studies where the SCARED has been used where the children and adolescents were not exposed to the stress and violence associated with a civil war.

Paper Presentation

Mothers Age as Babies Rage

Dan Mercer, MS, PhD Candidate
Johns Hopkins Bloomberg School of Public Health

Inevitably, maternal and child and health programs funded by the federal and state governments will be affected by the aging of the U.S. population. And there will be tremendous aging of the U.S. population over the next 25 years: The share that is 65 or older will rise from about 13 percent in 2000 to about 20 percent in 2025. To accompany their larger share of the population, the aged will likely demand a greater share of public resources and social support.

Given the success that the elderly have had in achieving their political objectives, and the success that public programs have had in reducing poverty among the elderly, those who allocate public resources are likely to find these demands compelling. Increased funding for the aged will put pressure on public resources available to other segments of the population. The impact may be especially acute for mothers and children. Maternal and child health advocates should anticipate these fiscal and population dynamics as they plan their current and future political strategies and as they assess programs serving mothers and children.

Moreover, while the *share* of population that is either young or women in childbearing ages will fall, their total numbers, or *levels*, are not expected to fall. Simulations using U.S. Census Bureau population projections, current and projected federal government spending levels, and Office of Management and Budget projections of economic growth show that per person funding for programs serving children and women of childbearing age might fall by as much as 20 percent if per person funding for programs serving the aged are held, in inflation-adjusted terms, near their current levels. However, some sets of assumptions allow for positive but slow growth in per person funding for maternal and child health programs.

Poster Presentations

Population-Level Effects of Vitamin A Supplementation on Child Mortality: Evidence From The Philippines

*Yoonjoung Choi, MPH, DrPH Candidate
Johns Hopkins Bloomberg School of Public Health*

Objective: To explore the population level impact of the vitamin A supplementation program on child mortality in the mid 1990's in the Philippines. Understanding the program effectiveness at a population level is essential for developing reliable program pathways toward achieving health goals through Vitamin A supplementation initiatives.

Methods: Province level indicators were developed based on the Philippines Demographic and Health Surveys conducted in 1993 and 1998. Vitamin A deficiency data came from two national nutritional surveys in 1993 and 1998. Both cross-sectional and longitudinal associations between independent variables and vitamin A supplementation coverage, vitamin A deficiency, and mortality risk were examined. For the cross-sectional analysis, linear regression was performed using robust estimators of variance (n=70). For the longitudinal analysis, time-series linear regression was conducted using a fixed effect model and standard errors were adjusted for clustering on the province variable (n=140). In all regressions, control variables for biodemographic, socioeconomic, and primary health care characteristics were introduced in order.

Findings: Vitamin A supplementation coverage increased by about 40 percentage points between 1993 and 1998 but we did not find a significant reduction of the childhood mortality associated with this improvement.

Conclusion: In a population with relatively low levels of both mortality and vitamin A deficiency, such as the Philippines, a universal supplementation program may not be effective in reducing child mortality.

Health Related Quality Of Life (HRQOL) of Caregivers of Very Low Birth Weight (VLBW) Infants

*Pamela Donohue, ScD Candidate
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Objective: To compare the HRQOL of caregivers of VLBW infants with caregivers of full-term (FT) infants

Methods: A cross-sectional telephone survey was conducted of caregivers of surviving VLBW infants cared for in an urban, inner city NICU. Caregivers of full-term infants, matched to VLBW infants by maternal age, parity and race, served as controls. Infants were 12-15 months of age at the time of the study. The primary outcome measures were caregiver physical and mental health and quality of life.

Results: 83(85%) VLBW and 84(88%) FT eligible caregivers were enrolled in the study. The mean maternal age was 26, 29% were white, and 50% were primagravidas in both groups. In more than 95% of cases, the infant's biological mother was the caregiver. Mean (SD) infant birth weight was 1005 (283) grams vs. 3213 (458) grams. More VLBW caregivers perceived their child had ongoing health problems, 45% vs. 23%, p <0.01. There were no differences between the groups on the primary outcome measures.

	VLBW	Full-term
Quality of Life Inventory*	2.05 (0.62)	1.85 (0.77)
Psychiatric Symptoms Index**	17.76 (14.53)	19.25 (15.0)
Poor/Fair General Health	31%	35%
*range -3 to +3; ** reference standard mean (SD), 10.5 (10.7)		

Conclusion: In this inner-city population, caregivers of young children have significant health problems, but average quality of life. Scores on the Psychiatric Symptoms Index indicate that caregivers of both VLBW and FT infants are at high risk for depression and anxiety and may benefit from mental health counseling. Having a VLBW infant does not adversely effect caregiver HRQOL.

Predictors Of Glycosylated Hemoglobin In A National Sample Of Non-Diabetic Children: The Third National Health And Nutrition Examination Survey, 1988-1994

***Kamal Eldeirawi, RN, MSN, Rebecca B Lipton, MPH, PhD Candidate
University of Illinois-Chicago School of Public Health***

Glycosylated hemoglobin has been suggested as an acceptable screening tool for diabetes in the general population. Recent increases in type 2 diabetes among young people reinforce the public health importance of screening for glucose intolerance in this age stratum. This study investigated predictors of glycosylated hemoglobin among 1700 Mexican American, 1787 African American and 1441 White non-diabetic people, aged 4 to 17 years old, who were examined in the third National Health and Nutrition Survey, 1988-1994. Glycosylated hemoglobin was positively related to age, body mass index (BMI), and BMI of the mother, $p = 0.06$, 0.008 , and 0.004 respectively; and negatively related to poverty income ratio (PIR), $p = 0.007$. The mother's BMI was significantly associated with glycosylated hemoglobin after accounting for BMI. However, after controlling for age, sex, and race/ethnicity, neither BMI nor BMI of the mother were related to glycosylated hemoglobin. African Americans and Mexican Americans had higher mean glycosylated hemoglobin levels than Whites after controlling for age, sex, BMI, BMI of the mother, and PIR. While some inconsistencies emerged, glycosylated hemoglobin was generally associated with other known risk factors for type 2 diabetes in young people, a group traditionally regarded as at low risk for the disease.

Growth During the First Year of Life and Change in Global Neurodevelopment During The Second Year of Life

***Elena Kulina, PhD Candidate
Emory University Rollins School of Public Health***

Significance: Supplementary feeding in early childhood in the communities affected by endemic malnutrition may prevent the neurodevelopmental delays, however sensitive points for interventions have not been identified.

Objective: The objective of this study was to estimate the influence of growth (length and weight) at one year on changes in global mental and motor development scores during the second year of life.

Design and methods: Multiple regression analysis applying generalized estimating equation was used to analyze data from a longitudinal study conducted in 1996-99 in 4 villages in Guatemala (N=125). The global motor and mental development were based on the Psychomotor Development Indices (PDI) and the Mental Development Indices (MDI) respectively, derived from the administration of an adapted version of the Bayley Scales of Infant Development.

Results: The difference in the MDI scores at 15 months between children in the lowest and highest length/weight quartiles was small and not statistically significant. However, the gap in the MDI means between these groups has reached 7 points by 24 months. The difference in the PDI scores at 15 months between children the lowest and highest weight quartiles was 8.6 points and it remained unchanged at 24 months. The gap in the PDI means for children in the lowest and highest length quartiles widened from 5.6 to 11.9 points by 24 months. Adjustment for maternal factors did not change these findings.

Conclusion: The results show that the child growth intervention programs as early as during the first year of life may be effective to improve child neurodevelopment.

Effectiveness of Enhanced Case Management and Hepatitis B Vaccine Universal Birth Dose Policies in the Alabama Perinatal Hepatitis B Prevention Program, 1990-2001.

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Background: In 1988 the Advisory Committee on Immunization Practices recommended that all pregnant women be screened for hepatitis B surface antigen (HBsAg) and that infants born to mothers testing positive be administered hepatitis B vaccine (HBV) and hepatitis B immune globulin (HBIG) immediately following birth. Since 1990, the CDC has given grant funds to the Alabama Public Health Department (ADPH) to support a perinatal hepatitis B education and prevention program.

Objective: To evaluate the effectiveness of enhanced case management intervention (ECM) by the ADPH to ensure prophylaxis for infants born to HBsAg-positive mothers. To evaluate the effectiveness of hospital universal birth dose policies in protecting infants not identified as being born to HBsAg-positive mothers.

Methods: A database of 1198 infants born to HBsAg positive mothers from 1990 through 2001 was examined, classifying infants as being identified to ADPH for ECM (n = 924) or identified after birth with no ECM (n = 274).

Results: For infants having ECM, 846 (91.6%) received recommended prophylaxis compared to 175 (63.9%) that had no ECM. There were 59 (4.9%) infants born to HBsAg-positive mothers given HBV because of a universal birth dose policy who would not have received vaccine without the policy. There were 72 (6.0%) at-risk infants who received no prophylaxis in hospitals without universal birth dose policies.

Conclusions: A combination of ECM and hospital universal birth dose policies appear to be the most effective intervention strategy to ensure infants born to HBsAg-positive mothers are given timely prophylaxis against hepatitis B virus transmission.

Further Submissions

Risk Factors Identifying Fathers From Whom The Expectant Mother Could Not Expect Support During Pregnancy

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Background: There are many women who bear the financial and emotional responsibility of pregnancy alone because the father chooses not to be involved. This study looks at the common risk factors among fathers from whom the pregnant mother cannot expect support.

Methods: 1996 and 1997 Georgia PRAMS data was analyzed using a nested case control design to determine possible common risk factors among unsupportive partners. For the purpose of this study, cases were defined as couples in which the woman said she could not depend on her husband for support if the need arose. Risk factors analyzed included those that addressed socio-demographic issues, type of relationship and the stress factors that the couple experienced prior to birth.

Results: Fathers who were unreliable to aid the mother during pregnancy had many similar characteristics. They tended not to reside with the mother prior to the birth, be less than 18 years old, and/ or live below poverty. In addition, in couples that faced separation or divorce in the year before the birth of the child, the mother could not depend on the father for support.

Conclusions: Pregnancy can be a very joyous as well as a very stressful time for many expectant mothers. An effective support structure has been linked with positive maternal health outcomes. In addition, stress has been linked to adverse health outcomes. Health care providers are in the unique position to survey and address this issue of social support through prenatal visits.

Parental and Adolescent Perceptions of Racial Socialization: Does Neighborhood Influence Communication?

***Shelly Atherly Trim, MPH
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Ethnic socialization is the developmental process by which children learn perceptions and values regarding their identity in a racial group. Theory suggests that ethnic socialization aids in the development of cultural identity and protects children from racial antagonism. Moreover, African American college students that were positively socialized about racial identity were better prepared and more successful than those who did not receive positive messages. Despite findings suggesting beneficial effects of ethnic socialization for adolescents, little is known about the extent to which parents and adolescents agree on racial socialization practices. This paper presents findings from a Bureau of Maternal Child Health funded study of neighborhood effects and parenting on delinquency and early sexual activity among 233 African American seventh and eighth graders from three west Baltimore neighborhoods. As part of our parenting practice measures, we collected information on parental reports and adolescent perceptions of ethnic socialization. The purpose of the proposed investigation is to explore the relationship and level of agreement between parental reports and adolescent perceptions of ethnic socialization. Analyses will include principal components analysis to assess parental and adolescent reports separately. Level of agreement between parents and adolescents on the extent of socialization around ethnicity will be analyzed using kappa and chi-square analysis. High levels of agreement between parent and child perceptions of ethnic socialization may point to greater communication surrounding racial identity.

Peer Adolescent Lactation Support Group (PALS): An Approach to Breastfeeding Promotion in African-American Adolescent Mothers

***Marsha Bakerm, DeShuna Dickens, Ebony Lynch and Nicole Miller
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Introduction: We have designed a program to address the problem of low breastfeeding rates among African-American adolescent mothers. The low rates of breastfeeding among African-American adolescent mothers have been identified as a public health challenge, according to *The Department of Health and Human Services: Blueprint for Action on Breastfeeding* (2000). The goal of the Peer Adolescent Lactation Support Group (PALS) is to utilize peer education to promote breastfeeding in African-American adolescent mothers attending an alternative school for pregnant and parenting teenagers.

Methods: The PALS program is based upon Ajzen and Fishbein's Theory of Reasoned Action. In agreement with this theory, the PALS intervention will attempt to increase the intention to breastfeed among participants by improving personal attitudes through information sharing and modifying social norms via peer modeling. The PALS educational program encompasses three phases. Phase I will entail peer educator recruitment. In Phase II peer educators will participate in training sessions on key breastfeeding topics and Phase III will involve on-site peer education sessions.

Conclusions: The proposed poster will provide a description of the evolution of the PALS program and its connection to the current, but limited research available on infant feeding decisions in African-American adolescents. The PALS program can be implemented in alternative schools as a means of improving breastfeeding initiation in this population.

“Fetal macrosomia is an important obstetric complication that is associated with adverse perinatal and maternal outcomes.”

***Sheree Boulet, MPH student
University of Alabama School of Public Health***

Fetal macrosomia is an important obstetric complication that is associated with adverse perinatal and maternal outcomes. Currently, there is no universally accepted definition of fetal macrosomia and debate continues regarding both risk factors and consequences. In this study, we describe maternal risk factors for macrosomia and assess birth weight categories to determine thresholds that are most predictive of adverse outcomes, including labor complications, infant mortality and neonatal morbidity. We analyzed U.S. 1995-1997 Linked Live Birth-Infant Death Cohort files, selecting term (37-44 week) single live births to U.S. resident mothers. We compare three groups of macrosomic infants (4000-4499, 4500-4999 and 5000+ gram infants) to a normosomic control group of 3000-3999 grams infants. Mothers of macrosomic infants (4000+ grams) were more likely to be of advanced age, married, high parity for age, diabetic, hypertensive, nonsmoker, and had a previous macrosomic infant compared to mothers of normosomic infants. Macrosomic infants were found to have significantly higher risks of: prolonged labor, dysfunctional labor, breech presentation, excessive bleeding, cesarean section, cephalopelvic disproportion, birth injuries, hyaline membrane disease, newborn assisted ventilation, meconium aspiration. Increasing birth weight, i.e., 4500+ and 5000+ grams, further increased the risks of these adverse outcomes. The risk of infant and neonatal mortality increased significantly among infants weighing >5000 grams. These findings indicate that macrosomia is associated with numerous maternal and neonatal complications and that extremely high birth weight infants (>5000g) have the highest mortality risk. While defining macrosomia as 4000+ grams may be useful for identifying increased risks of labor and newborn complications, 5000+ grams may be a better indicator of infant mortality risk, suggesting a two-step definition for macrosomia.

**Child Mortality Associated with Non-Breastfeeding and Reasons for Weaning:
Policy Implications for Breastfeeding by HIV Positive Mothers**

***Heena Brahmabhatt, MPH, PhD Candidate
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Objective: To estimate child mortality associated with reasons for non-initiation of breastfeeding and weaning due to preceding morbidity, compared with voluntary weaning due to maternal choice.

Methods: Demographic and Health Surveys were analyzed from fourteen developing countries. Women reported whether they initiated lactation or weaned, and if so, their reasons for non-initiation or stopping breastfeeding were classified as voluntary choice or due to preceding maternal/infant illness. Rates of child mortality and survival analyses were estimated, by reasons for non-breastfeeding or weaning.

Results: Mortality was highest among never-breastfed children; 221.3/1000. Child mortality among women who never initiated breastfeeding is significantly higher than among women who weaned (RR = 8.1, CI 15.6-21.0). Preceding maternal-infant morbidity was the most common reason for not breastfeeding (63.9%), and mortality of children never breastfed due to preceding morbidity was higher than children not breast fed due to maternal choice; 326.8/1000 versus 34.8/1000, respectively, (MH weighted RR=7.61, 95% CI 5.03-11.52). Mortality among breastfed children who were weaned due to preceding morbidity was higher than those weaned voluntarily; 19.2/1000 versus 9.3/1000, respectively, (MH weighted RR = 2.10, 95% CI 1.66-2.66). Failure to initiate lactation was significantly more frequent among women reporting complications of delivery and with low birth weight infants.

Conclusions: Child mortality due to voluntary non-initiation of breastfeeding or voluntary weaning is lower than previously estimated, and this should be used as a benchmark when counseling HIV-positive mothers on the risks of non-breastfeeding or weaning to prevent mother to child transmission of HIV.

Partners For Healthy Families

Lan Chi Luu, BS, MPH Candidate, John Crilly, MSW, PhD Candidate

Mothers with mental illness who have young children often identify closely with the role of "parent." Hence, treatment programs supporting them as parents may provide motivation for treatment compliance by building self-esteem and independence. At the Rochester Psychiatric Center (RPC) our experiences mirror the findings in the literature: mothers who are mentally ill with young children are less likely to take advantage of a longer-term stabilization and treatment program due to either childcare issues, lack of user-friendly aftercare designed for families, the lack of appropriate supervised or supportive housing, and lack of support in maintaining their family unit. We are developing a system of care to provide a network linkage of inpatient, outpatient, and residential services to better serve this population. Partners include outpatient clinics, the Department of Social Services (DSS), residential provider agencies, and other existing family support services in Rochester. Clients will experience a specially designed treatment approach integrating mental health treatment with a focus on maintaining the family unit. Clients will be treated in a residential setting where they will live with their children in a supportive environment. During this time they will work to develop a family life and routine, link with the appropriate community resources, and become involved in outpatient treatment. They will then transition to their own apartments.

Association of Union Status and Father's Name on Birth Certificate with Early vs. Late/No Initiation of Prenatal Care

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Objective: To examine the relationship between late (second or third trimester)/no initiation vs. early initiation (first trimester) of prenatal care with union status (married and living together, unmarried and living together, and not living together) and father's name on birth certificate (present or absent).

Methods: Data from the 1996 and 1997 Georgia Pregnancy Risk Assessment Monitoring System (PRAMS) surveys (n=2395, weighted n=189,585) were analyzed using multinomial logistic regression. Additional study variables included demographic, economic, behavioral, psychological, ecological, and obstetric risk factors.

Results: Crude odds ratios for unmarried and living together (OR=3.03, 95% CI 2.02-4.55), not living together (OR=4.53, 95% CI 3.19-6.43) and father's name on birth certificate (OR=3.65, 95% CI 2.65-5.04) were significant and elevated. In logistic regression models, union status (ORs=1.78, 95% CI 1.06-2.99; 2.55, 95% CI 1.58-4.11) and father's name on birth certificate (OR=1.77, 95% CI 1.22-2.57) remained significant when modeled separately. When modeled together, union status remained significant (ORs=1.77, 95% CI 1.04-3.01; 2.36, 95% CI 1.40, 3.97) while father's name on birth certificate did not (OR=1.41, 95% CI 0.93-2.14). Additional significant variables were maternal race, maternal education, % Federal Poverty Line, maternal work for pay, and method of prenatal care payment.

Conclusions: After controlling for additional risk factors, parental variables remain important predictors of timing of prenatal care. Where mother's union status is known, father's name on birth certificate is not significantly associated with initiation of prenatal care. Economic and demographic variables are significantly associated with initiation of prenatal care.

Serial murders of mothers and their babies in Kassena-Nankana District, Ghana

***Samule K Enos, MPH
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In Ghana, and especially in the Kassena –Nankana district of Ghana, inevitably, all deaths are believed to be caused by witches or spirits. The death of a woman in labour is blamed on the unborn child. The unborn child is said to be a “spirit child” if the mother dies in the process of delivery. The “**Chichuru**” is then murdered by being forced to drink a mixture of concoctions, which eventually lead to renal failure or liver failure, and sure death. If a woman experiences difficulties in labour, she is thought to have been unfaithful to her husband.

This belief may well be one of the reasons, besides financial and geographical access to services that women are not sent to the hospitals and clinics in the district to deliver, and which results in high infant and maternal mortality rates in the Kassena-Nankana district.

A babies home, established in the district in 1996 has taken in babies that are left to die in the woods and mountain tops of the district and taken care of them. Since the establishment of the home, more than 1,150 babies have been brought to the center, saved from sure death by passerby sympathizers who find these babies abandoned. Estimates from the district health administration shows that 250 children are thus killed in their homes by medicine men or abandoned in their forest and hill tops in the district to die every year.

Infant Mortality: The Evolution of Social Policy — from Milk Stations to the Sheppard-Towner Act

***Cynthia Kent Childs, MPH Candidate
University of Rochester***

Purpose: To learn about the first significant public health interventions in maternal and child health based on early vital statistics collection.

Methods: A variety of sources were used to research milk stations and several programs which evolved from milk stations. Some original sources were used, as well as more recent books and articles written about maternal and child health and social policy between 1850 and 1930.

Results: With improved collection of vital statistics, health officials determined that almost fifty percent of infant deaths were due to gastrointestinal illnesses. Milk stations were established to provide clean, safe milk to poor women living in the urban slums. They were one of the first public health interventions that directly affected maternal and child health. Milk stations were significant because they signaled an increased concern for the extremely high rates of infant mortality among the urban poor. They eventually evolved into more comprehensive approaches to reducing infant mortality, including extensive maternal education programs, and passage of the first ever federal social welfare program, the Sheppard-Towner Act of 1921.

Conclusion: Though milk stations themselves did not provide the ultimate solution to the problem of high infant mortality among the urban poor, they were an important step in the battle to fight it. Efforts to reduce infant mortality transformed from providing mothers with clean milk to educating mothers about appropriate infant care techniques. The comprehensive educational programs included in many of the reform efforts during this period have become the mainstay of public health efforts today.

Birth Size and Global Neurodevelopment Development During the First Two Years of Life

***Elena Kulina, PhD Candidate
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Significance: Compromised prenatal growth has been found to be associated with poor mental and motor performance during childhood and adolescence, however points when the delay starts have not been identified.

Objective: The objective of this study was to estimate the influence of birth size on global mental and motor development during the first two years of life.

Design and methods: Multiple regression analysis applying generalized estimating equation was used to analyze data from a longitudinal study conducted in 1996-99 in 4 villages in Guatemala. The global motor and mental development were based on the Psychomotor Development Indices (PDI) and the Mental Development Indices (MDI) respectively, derived from the administration of an adapted version of the Bayley Scales of Infant Development.

Results: The difference in the BSID scores at 6 months between children in the lowest and highest length quartiles was 3.3 and 7.7 points for MDI and PDI, respectively (N=271). The difference between children in the lowest and highest weight quartiles was 4.9 and 6.0 points for MDI and PDI, respectively. However, children from the lowest birth size quartiles were able to catch-up in their neurodevelopment by 15 months. Moreover, birth size was not a significant predictor of child neurodevelopment at 15 and 24 months in the second subsample (N=158). Adjustment for maternal factors and gestational age did not change these findings.

Conclusion: The results show that the adverse effects of compromised prenatal growth on child neurodevelopment during the first 6 months of life appear to diminish during the second year.

Predictors of Neonatal Survival among Pregnancies Associated with Placenta Previa.

***Qing Li, DrPH Candidate
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Background: Although placenta previa (PP) is a known risk factor for adverse perinatal outcomes, factors that influence neonatal survival among PP babies have not been previously studied.

Methods: We analyzed the 1997 national live birth cohort and infant death linked dataset, and compared neonatal survival in PP group to that of no placenta previa group (NPP) using the Kaplan-Meier product-limit estimator. The independent association between PP and neonatal mortality was obtained using Cox Proportional Hazards model, which adjusted for confounders. The same procedure was used to determine predictors of neonatal survival in the PP group.

Results Placenta previa occurred with a frequency of 2.6 per 1000 (9656 cases among 3,773,369 singleton live births). The likelihood of neonatal death was significantly higher amongst PP neonates as compared to NPP newborn (Hazard Ratio (HR) = 3.06, CI = 2.4-3.9). The two strongest predictors of neonatal death amongst PP babies were low birth weight (HR = 7.5, CI = 4.1-13.5) and the presence of congenital anomalies (HR = 7.0, CI = 4.4-11.1). Other significant predictors were preterm birth (HR = 3.9, CI = 1.9-8.1) and inadequate prenatal care (HR = 1.9, CI = 1.1-3.5).

Conclusion: Neonatal mortality rate was higher than expected among infants associated with placenta previa. Low birth weight and congenital malformations are the two strongest markers for neonatal death, and where either or both conditions co-exist with placenta previa, a more intense care, particularly in the first 28 days of life, will be needed to enhance survival of affected babies.

Infant And Child Mortality Rates From Different Estimation Techniques In A High Hiv-1 Prevalence Population, Rakai , Uganda

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Background: Childhood mortality is closely linked to the health and well being of a population. Its importance as a broad measure of health requires accurate estimates in order to formulate appropriate policies. The absence of reliable vital statistics requires alternative methods based on retrospective recall of births and deaths.

Objectives: Assess mortality rates, trends, and compare and contrast retrospective and prospective estimates.

Methods: 6895 women of childbearing age, 15-49, were enrolled and interviewed at baseline in a community based prospective study conducted in Rakai, Uganda, 1994-1998. A truncated pregnancy history covering five years prior to the interview was completed to provide data for the direct and indirect estimation of infant and child mortality. Socio-demographic, and epidemiological data and blood for HIV-1 and syphilis testing were collected. Pregnant women at the time of interview were followed up for birth outcomes and infants followed up for survival.

Findings: Female HIV-1 prevalence was 19.4%, and the age adjusted HIV-1 prevalence were 18.4% and 20.7% (RR=0.88, 95% CI:0.89 0.98) for those with and without a reported pregnancy in the prior 5 years, respectively. The overall infant mortality (IMR) were 92, 125 /1000 live births and 118 /1000 PY for the direct, indirect and prospective study estimates, respectively while as among HIV-1 infected women IMR were 134, 174 and 191.

Conclusion: Infant and child mortality are very high and rising in this population. In this data, the overall mortality estimates are consistent though the underlying assumptions of the estimation techniques are being violated.

Adolescent Smoking: The Role of Employment and Income

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Smoking is the largest preventable cause of premature morbidity and mortality in the United States. Most smoking begins in adolescence, and individuals who initiate smoking during adolescence, rather than in later years, are more likely to continue smoking. Most adolescent smokers report a desire or efforts to cease smoking. Thus, understanding the nature of adolescent smoking initiation and the patterns of smoking once initiated is an important step toward reducing smoking's toll. Using The National Longitudinal Survey on Adolescent Health, a nationally representative, school-based sample of 20,745 middle and high-school students, this study shows that adolescent employment and income are positively associated with smoking prevalence and smoking intensity for adolescents age 14 and older. Baseline employment status and work intensity are also significantly associated with nonsmokers' risk of transitioning to early stages of smoking experimentation, and the implications for smoking *initiation* are notable given the population base at risk. The role of employment characteristics in distinguishing numerous smoking stages within a trajectory is not clear as modeled in this study, and future research to link employment and income to categorical smoking stages should inform the nascent understanding of the psychological trajectory of smoking. The importance of comprehensive tobacco control strategies has been empirically illustrated by the variable success of state programs, and thus the role of adolescent employment and income in predicting smoking initiation and escalation, smoking prevalence, and smoking intensity are important inputs to policy and parenting practices.

Understanding Breastfeeding Duration among Low-Income Women

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Objectives: To understand the values and constraints to breastfeeding experienced by low-income women, to study whether they change over time, and to discuss how they impact breastfeeding duration to 6 months.

Methods: Two sources of data are used. First, a qualitative study, consisting of 44 interviews was conducted as part of a breastfeeding support intervention for low-income women in Baltimore, MD. The interviews focused on the woman's breastfeeding experience, her thoughts about breastfeeding, and information about her current daily responsibilities and well being. Second, data from an evaluation of a child development intervention were used to analyze whether constraints identified in the qualitative study were predictive of breastfeeding duration to 2-4 months.

Results: In the first few months post-partum, women valued breastfeeding for its positive impact on infant health and infant development. However, over time, the bond that developed between mother and child and the convenience of breastfeeding also became very important. Negative support was the most common constraint. In the first few weeks, problems getting breastfeeding established and lack of breastfeeding information were important. Over time, problems related to returning to work and pumping negatively impacted breastfeeding duration. Results of the empirical analysis found that negative support from health care workers and the baby's father, and working more than 20 hrs/ week negatively impacted breastfeeding duration, as found in the qualitative study.

Conclusion: Understanding why women breastfeed and the problems they experience provide policy makers and educators with information to target interventions in an effort to increase breastfeeding duration.

Thank you

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