BIOGRAPHICAL SKETCH

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NAME: May, Philip Alan

POSITION TITLE: Research Professor

eRA COMMONS USER NAME (credential, e.g., agency login): philmay

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Catawba College, Salisbury, NC	A.B.	05/1969	Sociology
Wake Forest University, Winston-Salem, NC	M.A.	05/1971	Sociology
University of Montana, Missoula, MT	Ph.D.	05/1976	Sociology (Demography, Epidemiology, and Population Studies)

A. Personal Statement

Over the past 36 years, much of it at the University of New Mexico, I have been the principal investigator overseeing the design, methodology, field clinics, and data collection for almost a dozen major epidemiological studies on the prevalence, characteristics, etiology, and prevention of fetal alcohol syndrome (FAS) and fetal alcohol spectrum disorders (FASD) in the United States, Italy, and South Africa. Currently, as a faculty member of the Gillings School of Global Public Health at UNC, I continue to work, on a daily basis, with my experienced and knowledgeable colleagues at UNC, the University of New Mexico, Stellenbosch University, and the University of South Dakota to continue our long-standing and successful collaboration on studies of FASD. One reason that I moved my affiliation to UNC, is that I am especially interested in understanding more of the etiology of FASD while we continue our studies of the prevalence and characteristics of the disorders. One area of special interest is the individual variation in maternal risk factors and child outcomes for FASD. Much evidence has emerged over the years which has raised questions about the interaction between specific patterns of maternal alcohol intake, body mass, maternal age, childbearing history and weathering, nutrition, metabolism, breastfeeding, paternal contribution, genetics in general, epigenetics, and other etiological issues. Exploring such questions and seeking partial answers from epidemiological data may lead to new insights and also lines of investigation in genetics and epigenetics that may fit, or more completely explain the pattern of outcomes that we see in our studies. Furthermore, translating research results to prevention and intervention is exciting. Over the past 20 years, project staff, colleagues, collaborators, and I have worked continuously on a number of epidemiological investigations which have added to the knowledge about many common FASD variables: dysmorphology, child and maternal physical characteristics, proximal and distal factors of maternal risk, and child neurobehavior. These studies have employed similar field methods, data collection forms, questionnaires, and interview formats. Also we have employed similar sequencing, content, and formatting styles to increase accurate and consistent reporting. In many cases we have only had time to analyze these data sets individually in order to answer the site- and task-specific aims of each study. Less time and effort has been directed towards more complex analyses and empirical questions of additional scientific importance. I believe that we must now explore, to the fullest extent possible, a variety of research questions that can be asked of the many individual and combined data sets collected across a number of populations over the last 20 years.

B. Positions and Honors

Position and Employment

1970-1973	Commissioned Officer, U.S. Public Health Service, Community Mental Health Program, P.H.S. Indian Hospital, Pine Ridge, SD.
1970-1973	Instructor of Sociology, Oglala Sioux Community College, Pine Ridge, SD.
1973-1976	NIMH Research (NRSA) Pre-doctoral Traineeship, University of Montana, Missoula, MT.
1976-1978	Director of Health Statistics and Research, Navajo Health Authority, Window Rock, AZ.

1978-1982	Assistant Professor of Sociology, The University of New Mexico.
1979-1986	Director, NIMH (NRSA) Pre-doctoral Research (T32) Training Program in Department of Sociology
1979-1985	Program Director, National Indian FAS Prevention Program and Epidemiology, I.H.S. Project on FAS.
1982-1989	Associate Professor of Sociology, The University of New Mexico.
1989-2011	Professor of Sociology, The University of New Mexico.
1989-2011	Director, NM Access to Research Careers (NIMH-COR) Training Program (T34).
1990-1996	Professor of Psychiatry, The University of New Mexico, School of Medicine.
1990-1999	Director, Center on Alcoholism, Substance Abuse and Addictions, UNM.
1996	Resident Fellow, Virginia Foundation for the Humanities, University of Virginia.
1999-Present	Senior Research Scientist, Ctr on Alcoholism, Substance Abuse and Addictions, UNM.
2004-2011	Professor of Family and Community Medicine, UNM.
2007-Present	Extraordinary Professor of Obstetrics and Gynecology, Stellenbosch University, Faculty of Health Sciences, Tygerberg (Cape Town), South Africa.
2010-Present	Adjunct Professor of Pediatrics, Sanford School of Medicine, University of South Dakota, Sioux Falls, SD.
2011-Present	Professor Emeritus, University of New Mexico.
2011-Present	Research Professor, University of North Carolina, Gillings School of Global Public Health, Department of Nutrition.

Honors (selected): 1969-70, Wake Forest Univ. Fellowship; 1982, Certificate of Appreciation, National Indian Health Board; Faculty Member of the Year, UNM Sociology Graduate Student Association Award; 1988, Member, U.S. Surgeon General's Workshop on Drunk Driving; 1992, 1993, US Indian Health Service, Special Awards of Recognition and Appreciation for Prevention of FAS among American Indians; 1994-96, Member, Institute of Medicine, Committee on FAS; 1994, United Nations Human Rights Award; 1996, Special Recognition Award, U.S. Indian Health Service, Division of Mental Health; 1998, Excellence in Education Award, Laguna Pueblo; 2000-02, Institute of Medicine, Committee on Pathophysiology and Prevention of Adolescent and Adult Suicide; 2002, Student Service Award, Faculty Category; 2007, Wayne S. Fenton Undergraduate Research Educator Award for significant achievement, NIMH, Certificate of Appreciation. (In recognition for ten years as a board member and eight years of service as President, Board of Education, Laguna Pueblo Department of Education); 2009, Geoffrey Robinson Memorial Keynote Presentation, 4th International Conference on Fetal Alcohol Spectrum Disorders, Vancouver, BC, Canada; 2011, 56th Annual UNM Research Lecture Award (the highest research award for a faculty member at UNM); 2011, Excellence Award, National Organization on Fetal Alcohol Syndrome (NOFAS); 2013, Starfish Award, Univ. of British Columbia, 5th International Conference on FASD; 2013, Henry Rosett Award, FASD Study Group, Research Society on Alcoholism; 2014, University of New Mexico, CASAA Founder's Recognition Award at the 25th Anniversary Celebration..

Professional Memberships

1991-present	Member, Research Society on Alcoholism
1985-2014	Member, American Public Health Association (Section on Alcohol and Drugs)
1990-present	Member, College on Problems of Drug Dependence
1990-2011	Member, American Sociological Association (Section on Alcohol and Drugs)
1991-2014	Member, American Association of Suicidology
1990-present	Member, Population Reference Bureau
1986-present	Research Associate, American Indian and Alaska Native Mental Health Research Center, University of Colorado Health Science Center

C. Contribution to Science

1. *Determining the Prevalence of FASD in General Populations and Devising Innovative Methods for Prevalence Studies.*

   The prevalence of fetal alcohol syndrome (FAS) and all four fetal alcohol spectrum disorders (FASD) is unknown in most populations. I served as PI on the first ever population-based study of FAS prevalence (1980-1983) and on multiple other population-based studies on the prevalence of FAS and/or FASD among American Indians, South Africans, Italians and the general population of the United States. We

published the first population-based prevalence rates for every one of the above populations, have evaluated multiple other prevalence studies that used various methods, and have pioneered the two most successful methodologies using active case ascertainment (referral clinics with extensive outreach and in-school studies). We recently published new estimates for the general population of the USA and Europe of 2 to 7 per 1,000 for FAS and 2 to 5% for total FASD.

a. **P.A. May**, A. Baete, J. Russo, A.J. Elliott, J. Blankenship, W.O. Kalberg, D. Buckley, M. Brooks, J. Hasken, O. Abdul-Rahman, M.P. Adam, L.K. Robinson, M. Manning, H.E. Hoyme. "Prevalence and Characteristics of Fetal Alcohol Spectrum Disorders." Pediatrics, 134(5):855-866, 2014.
b. **P.A. May**, D. Fiorentino, G. Coriale, W.O. Kalberg, H.E. Hoyme, A.S. Aragon, D. Buckley, C. Stellavato, J.P. Gossage, L.K. Robinson, K.L. Jones, M. Manning, and M. Ceccanti. "Prevalence of Children with Severe Fetal Alcohol Spectrum Disorders in Communities Near Rome, Italy: New Estimated Rates Are Higher than Previous Estimates." Environmental Res. and Pub. Hlth, 8, 2331-2351, 2011.
c. **P.A. May**, K.J. Hymbaugh, J.M. Aase, J.M. Samet. "Epidemiology of Fetal Alcohol Syndrome Among Indians of the Southwest." Social Biology, 30(4):374-387,1983.
d. **P.A. May**, J.P. Gossage, W.O. Kalberg, L.K. Robinson, D. Buckley, M. Manning, H.E. Hoyme. "The Prevalence and Epidemiologic Characteristics of FASD from Various Research Methods with an Emphasis on In-School Studies." Dev Disabil Res Rev, 15(3):76-192, 2009.

2. *Defining and Refining the Diagnosis of FAS, Partial Fetal Alcohol Syndrome (PFAS), Alcohol-Related Neurodevelopmental Disorder (ARND), and Alcohol-Related Birth Defects (ARBD).*

The four diagnoses within the continuum of FASD are evolving. Our clinical team has continuously collected data, analyzed it, and otherwise researched the characteristics of children with FASD and their mothers. I served on the influential IOM study committee on FAS (1994-1996), and our team has since targeted our research on defining/operationalizing the components of the IOM diagnostic guidelines. We have published multiple papers that detail the physical, cognitive, and behavioral traits of 100's of children with FASD (and normal controls) and prenatal risk factors associated with FASD.

a. H.E. Hoyme, **P.A. May**, W.O. Kalberg, P. Kodituwakku, J.P. Gossage, P.M. Trujillo, D.G. Buckley, J. Miller, N. Khaole, D.L. Viljoen, K.L. Jones, L.K. Robinson. "A Practical Clinical Approach to Diagnosis of Fetal Alcohol Spectrum Disorders: Clarification of the 1996 Institute of Medicine Criteria." Pediatrics, 115(1): 39-47, 2005. PMCID: PMC1380311.
b. **P.A. May**, J. Blankenship, A-S. Marais, J.P. Gossage, W.O. Kalberg, R. Barnard, M. de Vries, L.K. Robinson, C.M. Adnams, D. Buckley, M. Manning, K.L. Jones, C.D. Parry, H.E. Hoyme, and S. Seedat. **"**Approaching the Prevalence of the Full Spectrum of Fetal Alcohol Spectrum Disorders in a South African Population-Based Study." Alcohol Clin Exp Res., 2012. PMCID: PMC3610844.
c. **P.A. May**, J.P. Gossage, M. Smith, B.G. Tabachnick, L,K. Robinson, M. Manning, M. Cecanti, K.L. Jones, D.L. Viljoen, N. Khaole, D.G. Buckley, W.O. Kalberg, and H.E. Hoyme. "Population Differences in Dysmorphic Features among Children with Fetal Alcohol Spectrum Disorders." J Dev Behav Pediatr, 31(4): 304-316, 2010. PMCID:PMC4113014.
d. **P.A. May**, J.P. Gossage, A.S. Marais, C.M. Adnams, H.E.Hoyme, K.L. Jones, L.K. Robinson, N. Khaole, C. Snell, W.O. Kalberg, L. Hendricks, L. Brooke, C. Stellavato, D.L. Viljoen. "The Epidemiology of Fetal Alcohol Syndrome and Partial FAS in a South African Community." Drug and Alcohol Dependence, 88(1-2): 259-271, 2007. PMCID: PMC1865526

3. *Determining Proximal and Distal Maternal Risk Factors for FASD.*

Neither the proximal (prenatal alcohol use by quantity, frequency, duration, or gestational timing) nor the distal maternal risk factors (maternal health, age, nutrition, gravidity, parity, socioeconomic status, genetics or epigenetics) for FASD have been well documented over the years. Since 1997 our research team has led the way in documenting, describing, and analyzing the multiple variables that affect maternal risk for FASD and has attempted to link them to specific fetal outcomes.

a. M. Ceccanti, D. Fiorentino, G. Coriale, W. O. Kalberg, D. Buckley, H. E. Hoyme, J.P. Gossage, L.K. Robinson, M.A. Manning, M. Romeo, J. Hasken, B. Tabachnick, J. Blankenship, **P.A. May.** "Maternal Risk Factors for Fetal Alcohol Spectrum Disorders in a Province in Italy." Drug Alcohol Depend., 145:201-208, 2014.
b. **P.A. May**, J. Blankenship, A-S Marais, J.P. Gossage, W.O. Kalberg, B. Joubert, M. Cloete, R. Barnard, M. De Vries, L.K. Robinson, C.M. Adnams, D. Buckley, M. Manning, C. Parry, H.E. Hoyme, B. Tabachnick, and S. Seedat. "Maternal Alcohol Consumption Producing Fetal Alcohol

Spectrum Disorders (FASD): Quantity, Frequency, and Timing of Drinking." Drug Alcohol Depend, 133(2):502-512, 2013. PMCID: PMC3829200.

c. **P.A. May**, J.P. Gossage, A.S. Marais, L. Hendricks, C. Snell, B.G. Tabachnick, C. Stellavato, D.G. Buckley, L. Brooke, D.L. Viljoen. "Maternal Risk Factors for Fetal Alcohol Syndrome and Partial Fetal Alcohol Syndrome in South Africa: A Third Study." Alcohol Clin Exp Res, 32(5):738-753, 2008.

d. **P.A. May,** B.G. Tabachnick, L.K. Robinson, H.E. Hoyme, and J.P. Gossage. "Maternal Risk Factors Predicting Child Physical Characteristics and Dysmorphology in Fetal Alcohol Syndrome and Partial Fetal Alcohol Syndrome." Drug Alcohol. Depend., 119:18-27, 2011. PMCID: PMC3189325.

4. *Describing Cognitive, Behavioral, and Performance Traits of Children with FASD and Comparing Them to Normal Controls in the Same Population.*

For many years there has been a search for one or more neurobehavioral phenotypes or characteristic cognitive and behavioral traits for children with FAS or other FASD. In the USA, South Africa, and Italy we have tested and evaluated 1,000's of children with FASD and normal controls and collected companion child physical, dysmorphology, and maternal risk factor data.

a. **P.A. May**, B.G. Tabachnick, J.P. Gossage, W.O. Kalberg, A-S Marais, L.K. Robinson, M. Manning, J. Blankenship, D. Buckley, H.E. Hoyme, C.M. Adnams. "Maternal Factors Predicting Cognitive and Behavioral Characteristics of Children with Fetal Alcohol Spectrum Disorders." J Dev Behav Pediatr, 34(5):314-325, 2013. PMCID: PMC3731773.

b. W.O. Kalberg, **P.A. May**, J. Blankenship, D, Buckley, J.P. Gossage, C.M. Adnams, "A Practical Testing Battery to Measure Neurobehavioral Ability among Children with FASD." Int J Alcohol Drug Res, 2(3):51-60, 2013. PMCID:PMC4170949.

c. A.S. Aragón, W.O. Kalberg, D. Buckley, B.G. Tabachnick, L.M. Barela, **P.A. May**. "Neuropsychological Study of FASD in a Sample of American Indian Children: Processing Simple Versus Complex Information." Alcoholism: Clinical and Experimental Research, 32(12):2136-2148, 2008. PMCID: PMC2953860

d. S.N. Mattson, S.C. Roesch, L. Glass, B.N. Deweese, C.D. Coles, J.A. Kable, **P.A. May**, W.O. Kalberg, E.R. Sowell, C.M. Adnams, K.L. Jones, E.P. Riley, and the CIFASD. "Further development of a neurobehavioral profile of fetal alcohol spectrum disorders." Alcohol Clin Exp Res, 37(3): 517-528, 2013. PMCID:PMC3524344.

5. *Prevention, Intervention, and Management of Children with a FASD.*

Knowledge for preventing and implementing prevention programs for FASD has been a major component of our work over the years. Also defining and evaluating interventions (educational, cognitive, and nutritional) to enhance the development of children with FASD and aid in the management of daily life are contributions we have made.

a. C.M. Adnams, P. Sorour, W.O. Kalberg, P. Kodituwakku, M.D. Perold, A. Kotze, S. September, B. Castle, J.P. Gossage, **P.A. May**. "Language and literacy outcomes from a pilot intervention study for children with fetal alcohol spectrum disorders in South Africa." Alcohol, 41(6):403-414, 2007. PMCID:PMC2098695.

b. W.O. Kalberg, B. Provost, S.J. Tollison, B.G. Tabachnick, L.K. Robinson, H.E. Hoyme, P.M. Trujillo, D. Buckley, A.S. Aragon, **P.A. May**. "A Comparison of Motor Delays in Young Children with Fetal Alcohol Syndrome to those with Prenatal Alcohol Exposure, and with No Prenatal Alcohol Exposure." Alcohol Clin Exp Res, 30(12):2037-2045, 2006.

c. P.A. May, A-S Marais, J.P. Gossage, R. Barnard, B. Joubert, M. Cloete, N. Hendricks, S. Roux, A. Blom, J. Steenekamp, T. Alexander, R. Andreas, S. Human, C. Snell, S. Seedat, C.D. Parry, W.O. Kalberg, D. Buckley, and J. Blankenship. "Case Management Reduces Drinking During Pregnancy among High Risk Women." Int J Alcohol Drug Res, 2(3):61-70, 2013. PMCID: PMC3981106.

d. **P.A. May**, J.H. Miller, K.A. Goodhart, O.R. Maestas; D. Buckley, P.M. Trujillo, J.P. Gossage. "Enhanced Case Management to Prevent Fetal Alcohol Spectrum Disorders in Northern Plains Communities." Matern Child Health J, 12(6):747-759, 2008.

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/philip.may.1/bibliography/45110770/public/?sort=date&direction=ascending

D. Research Support

Ongoing Research Support

U01 AA019894 May (PI) 09/30/10 – 08/31/15

The prevalence and characteristics of fetal alcohol spectrum disorders (FASD) in the mainstream U.S. population are not known; recent estimates hold that FASD may affect 2 to 5% of all children. Innovative, active case ascertainment research on FASD in 1st grade children (and their mothers) of 3 representative U.S. populations will produce accurate measures of the magnitude, characteristics, and specific contextual etiology of FASD in mainstream populations.
Role: PI

U01 AA019894-S1 May (PI) *(supplement to above)* 10/1/14 – 8/31/2015

This supplement is to undertake specific, sophisticated statistical analyses (mainly categorical analyses) of CoFASP existing data sets to better define the essential characteristic traits of ND-PAE.
Role: PI

2R01/UO1 AA15134 May (PI) 02/05/13 – 02/04/18

The implementation of the comprehensive IOM model of FASD prevention is continued in a community in South Africa and its efficacy measured. Included are nested studies of: early diagnosis of FASD in infants and toddlers; early intervention for children with FASD via cognitive/behavioral intervention and nutritional supplementation; biomarkers of alcohol use (PEth and EtG) in the prenatal period; the nutritional status of pregnant women and genetic correlates with nutrient blood analyses and dietary intake.
Role: PI

Completed Research Support (selected)

R01/UO1 AA15134 May (PI) 09/30/06 – 02/04/13

The Comprehensive model of FASD prevention recommended by the Institute of Medicine was implemented in a community in the Western Cape Province of South Africa and its efficacy measured via multiple measures of epidemiology, program evaluation, several nested studies, and relative change in the prevention community vs. four comparison communities.
Role: PI

R01 AA15134-03S1 May (PI), L. K. Robinson (Co-I) 09/12/08 - 09/29/12

This is a study of the physical, cognitive, developmental, and behavioral characteristics and changes in three cohorts of South African children, diagnosed with FAS or PFAS when 6 to 7 years old in 1997, 1999 and 2002 and matched controls. Also their mothers are re-contacted and interviewed to determine the trajectory of their health, substance use, and lives.
Role: PI

U01 AA14834 Mattson (PI), May (Co-I) 09/30/07 – 09/29/12

As part of the Collaborative Initiative on Fetal Alcohol Spectrum Disorders (CIFASD), we worked in search for a behavioral phenotype for children with FASD. Professor May and his staff were co-investigators carrying out this neuropsychological research among South Africans, American Indians in the Plains, and in New Mexico.
Role: PI

1-2-U01 AA11685 May (PI) 6/1/1998-4/30/2004 and 05/01/04 - 04/30/10

The major goal of this project was to measure the overall effectiveness of community-wide comprehensive FASD prevention through the change in baseline prevalence rates of FASD. Epidemiology research on the diagnosis and prevalence of FASD, maternal risk factors for FASD, and the prevalence of drinking and other substance abuse is also continued.
Role: PI

R01 AA09440 May (PI) 05/1/1995-4/30/1998

A grant to initiate an extensive epidemiology survey of alcohol and drug use via random sample in four Northern Plains Indian communities. Outreach clinics for FAS diagnosis were established to establish baseline prevalence rates of FAS in individuals birth to 18.
Role: PI