

BIOGRAPHICAL SKETCH

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NAME: Nelson, Suchitra

eRA COMMONS USER NAME (agency login):

POSITION TITLE: Professor

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

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Madras, Madras	BS	05/1979	Nutrition & Dietetics
University of Madras, Madras	MS	05/1981	Nutrition & Dietetics
Case Western Reserve University, Cleveland, Ohio	MS	05/1984	Nutrition
Case Western Reserve University, Cleveland, Ohio	MS	05/1988	Epidemiology
Case Western Reserve University, Cleveland, Ohio	PHD	05/1992	Epidemiology

A. Personal Statement

My expertise is in the area of oral health disparities in poor, minority, and special needs children and adults. My research projects address the profound disparities found in these population subgroups. I have expertise conducting clinical trials testing the effectiveness of xylitol versus placebo in preventing dental caries in kindergarten children, and in developing and testing theory-based behavioral interventions in school children and their parent/caregivers. These projects have given me the experience in conducting clinical trials in the community by building community/school support, establishing mutual trust, and relationship with the school systems. Also, from these projects we learned that child-level interventions alone would not be sufficient in promoting oral health and increasing dental access among low-income children without including other socio-ecological level influences. Current projects also include the development of an illness perception measure for use in older adults. Prior projects include R01 level longitudinal studies to investigate early childhood caries among pre-term VLBW and full-term NBW infants.

1. Nelson S, Mandelaris J, Ferretti G, Heima M, Spiekerman C, Milgrom P. School screening and parental reminders in increasing dental care for children in need: a retrospective cohort study. *J Public Health Dent.* 2012 Winter;72(1):45-52. PubMed PMID: [22316214](#); PubMed Central PMCID: [PMC3737569](#).
2. Nelson S, Milgrom P. Minority participation in a school-based randomized clinical trial of tooth decay prevention in the United States. *Contemp Clin Trials.* 2012 Jan;33(1):60-6. PubMed PMID: [21986390](#); PubMed Central PMCID: [PMC3253938](#).
3. Nelson S, Lee W, Albert JM, Singer LT. Early maternal psychosocial factors are predictors for adolescent caries. *J Dent Res.* 2012 Sep;91(9):859-64. PubMed PMID: [22821239](#); PubMed Central PMCID: [PMC3420393](#).
4. Nelson S, Albert JM, Geng C, Curtan S, Lang K, Miadich S, Heima M, Malik A, Ferretti G, Eggertsson H, Slayton RL, Milgrom P. Increased enamel hypoplasia and very low birthweight

infants. J Dent Res. 2013 Sep;92(9):788-94. PubMed PMID: [23857641](#); PubMed Central PMCID: [PMC3744269](#).

B. Positions and Honors

Positions and Employment

- 1991 - 1995 Research Associate, Post Doctoral Fellow, Case Western Reserve University, Bolton-Brush Growth Study Center and Department of Orthodontics
- 1995 - 1996 Visiting Assistant Professor, Case Western Reserve University, Department of Orthodontics
- 1997 - 2006 Assistant Professor, Case Western Reserve University, Department of Community Dentistry
- 2006 - 2010 Associate Professor, Case Western Reserve University, Department of Community Dentistry
- 2010 - Professor, Case Western Reserve University, Department of Community Dentistry

Other Experience and Professional Memberships

- 2005 - Special Emphasis Panel, Grant Reviewer, National Institute of Dental and Craniofacial Research (NIDCR)
- 2006 - Grant Reviewer for R03, Agency for Healthcare Research and Quality (AHRQ)
- 2007 - Special Emphasis Panel, Grant Reviewer for R21, NIDCR
- 2007 - 2010 MCHB Research Grant Reviewer, HRSA
- 2008 - Special Emphasis Panel, Grant Reviewer for R21 and U54 (Center grants), NIDCR
- 2009 - 2015 Standing Study Section for R03, F and K grants, NIDCR

Honors

- 1994 B.F. Dewell Honorary Research Award , American Association of Orthodontists Foundation
- 2007 Presidential Early Career Award for Scientists and Engineers (PECASE), White House Office of Science and Technology Policy

C. Contribution to Science

1. The central focus of my work has been to address the profound dental caries disparities in poor, minority, and special needs children. One of these contributions is in utilizing observational longitudinal birth cohort designs in community settings to identify risk factors for caries in special needs and normal healthy children. These studies have also contributed to the development of methodologies to identify caries validly and reliably. To this end, I have contributed uniquely in understanding the extent of caries in special needs children. We also found from these studies that dental caries is a disease of poverty rather than of birth weight.
 - a. Chen Y, Lee W, Ferretti GA, Slayton RL, Nelson S. Agreement between photographic and clinical examinations in detecting developmental defects of enamel in infants. J Public Health Dent. 2013 Summer;73(3):204-9. PubMed PMID: [23560699](#); PubMed Central PMCID: [PMC3757102](#).
 - b. Nelson S, Albert JM, Geng C, Curtan S, Lang K, Miadich S, Heima M, Malik A, Ferretti G, Eggertsson H, Slayton RL, Milgrom P. Increased enamel hypoplasia and very low birthweight infants. J Dent Res. 2013 Sep;92(9):788-94. PubMed PMID: [23857641](#); PubMed Central PMCID: [PMC3744269](#).
 - c. Nelson S, Albert JM, Soderling E, Malik A, Curtan S, Geng C, Milgrom P. Increased number of teeth predict acquisition of mutans streptococci in infants. Eur J Oral Sci. 2014 Oct;122(5):346-52. PubMed PMID: [25183438](#); PubMed Central PMCID: [PMC4163102](#).

- d. Merheb R, Arumugam C, Lee W, Collin M, Nguyen C, Groh-Wargo S, Nelson S. Neonatal Serum Phosphorus Levels and Enamel Defects in Very-Low-Birth-Weight Infants. JPEN J Parenter Enteral Nutr. 2015 Mar 2;PubMed PMID: [25733338](#).
2. I have also contributed in designing and implementing clinical trials testing xylitol in community-based school settings. This trial demonstrated that child-level interventions alone are not sufficient to reduce caries, but other family-level interventions are also required. As a follow-up to this trial we were able to uniquely design a new theory-based referral (behavioral) approach for caregivers to increase dental utilization in poor and minority children. Several publications have resulted indicating the effectiveness of xylitol and school-based screening. We have also developed effective methods for recruitment of minority parent/caregivers from community-based settings.
- a. Nelson S, Eggertsson H, Powell B, Mandelaris J, Ntragatakis M, Richardson T, Ferretti G. Dental examiners consistency in applying the ICDAS criteria for a caries prevention community trial. Community Dent Health. 2011 Sep;28(3):238-42. PubMed PMID: [21916361](#).
- b. Nelson S, Milgrom P. Minority participation in a school-based randomized clinical trial of tooth decay prevention in the United States. Contemp Clin Trials. 2012 Jan;33(1):60-6. PubMed PMID: [21986390](#); PubMed Central PMCID: [PMC3253938](#).
- c. Nelson S, Mandelaris J, Ferretti G, Heima M, Spiekerman C, Milgrom P. School screening and parental reminders in increasing dental care for children in need: a retrospective cohort study. J Public Health Dent. 2012 Winter;72(1):45-52. PubMed PMID: [22316214](#); PubMed Central PMCID: [PMC3737569](#).
- d. Lee W, Spiekerman C, Heima M, Eggertsson H, Ferretti G, Milgrom P, Nelson S. The effectiveness of xylitol in a school-based cluster-randomized clinical trial. Caries Res. 2015;49(1):41-9. PubMed PMID: [25428785](#).
3. I have also contributed to the development of new statistical methodologies for causal mediation analysis.
- a. Albert JM, Nelson S. Generalized causal mediation analysis. Biometrics. 2011 Sep;67(3):1028-38. PubMed PMID: [21306353](#); PubMed Central PMCID: [PMC3139764](#).
- b. Albert JM, Wang W, Nelson S. Estimating overall exposure effects for zero-inflated regression models with application to dental caries. Stat Methods Med Res. 2011 Sep 8;23(3):257-278. PubMed PMID: [21908419](#); PubMed Central PMCID: [PMC3809340](#).
- c. Wang W, Nelson S, Albert JM. Estimation of causal mediation effects for a dichotomous outcome in multiple-mediator models using the mediation formula. Stat Med. 2013 Oct 30;32(24):4211-28. PubMed PMID: [23650048](#); PubMed Central PMCID: [PMC3789850](#).
- d. Albert JM, Geng C, Nelson S. Causal mediation analysis with a latent mediator. Biometrical journal. Biometrische Zeitschrift. Forthcoming;

Complete List of Published Work in My Bibliography:

<http://www.ncbi.nlm.nih.gov/myncbi/suchitra.nelson.1/bibliography/40445008/public/?sort=date&direction=ascending>

D. Research Support

Ongoing Research Support

U01 DE024167-01 Nelson, Suchitra S. (PI) 09/12/14-08/31/17

Family Intervention with Caregivers of Children with Dental Needs

The goal of this multi-site school-based RCT study is to test the effectiveness of a new theory-based referral letter compared to a standard referral letter to increase dental attendance among children who have restorative dental needs.

Role: PI

R21 DE025057-01 Nelson, Suchitra S. (PI) 04/01/15-03/31/17

Developing a Measure of Illness Perception for Dental Use in Older Adults

This project aims to develop a new measure of illness perception that can be used in future behavioral and intervention studies to improve older adult's oral health behavior, disease outcomes, and quality of life.

Role: PI

T32 DE019773-05 Nelson, Suchitra S. (PI) 08/01/09-05/31/16

DMD and Master's in Clinical Research Training (DMD-MCRT)

The goal of this T32 grant is to train DMD students for dual degree to increase the academic work force of qualified clinician scholars.

Role: PI

R01DE022674-04 , NIH-NIDCR Albert, Jeffrey (PI) 10/01/11-09/30/16

Generalized Causal Mediation Analysis for Social Environment and Health Research

The project will develop user-friendly computer programs to allow behavioral and other health researches to apply new methods. The new methods will allow a more refined, valid, and thorough exploration of mediating pathways for social environment effects and facilitate the formulation of effective behavioral and other interventions, utilizing knowledge about social environment mechanisms, to improve health outcomes.

Role: Co-Investigator

Completed Research Support

R01 DE017947-04 Nelson, Suchitra S. (PI) 07/01/07-12/31/13

Longitudinal Study of Dental Caries in VLBW Infants

The goal of this study is to collect saliva from parent and infants, then isolate and extract DNA for future candidate gene analysis.

Role: PI

R01 DE017947-03 Nelson, Suchitra S. (PI) 07/01/07-12/31/13

Longitudinal Study of Dental Caries in VLBW Infants

The goal of this study is to investigate the relationship between birth weight and Early Childhood Caries, and to study the relationship looking at enamel defects and socio-behavioral variables in VLBW and NBW infants.

Role: PI

R34 DE022262-01 Nelson, Suchitra S. (PI) 09/15/11-08/31/13

Family intervention with caregivers of children with urgent dental needs

The goal of this planning grant was to develop and pilot test a new theory based intervention letter, dental information guide, and the illness perception questionnaire to prepare for a U01 level study to increase dental attendance among low-income children.

Role: PI

R01 DE017947-03S2 Nelson, Suchitra S. (PI) 09/22/09-08/31/12

Longitudinal Study of Dental Caries in VLBW Infants

The goal of this study is to recruit/retain additional subjects and training of examiners for the parent study.

Role: PI