BIOGRAPHICAL SKETCH

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NAME: Lee M. Sanders

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

POSITION TITLE: Associate Professor of Pediatrics and of Health and Research Policy

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
Harvard University	A.B.	06/1990	History and Science
Stanford University School of Medicine	M.D.	06/1994	Medicine
Stanford University School of Medicine	Intern	06/1995	Pediatrics
Stanford University School of Medicine	Resident	06/1997	Pediatrics

A. Personal Statement

My roles as a health-communications scholar, co-director of a child health-services research center, chief of the General Pediatrics Division, instructor at the Stanford Design School, and medical director of the Complex Primary Care Clinic are relevant to this proposal. Since my early scholarly work funded by the RWJ Foundation and in partnership with Florida's Agency for Health Care Administration, I have gained valuable relevant experience exploring the relationship between parent factors (especially literacy and language) and child health outcomes. As senior faculty at the Stanford Center for Policy Outcomes and Prevention (CPOP), I lead a cross-disciplinary team to conduct population-wide, policy-relevant analysis of comprehensive Medicaid paid claims (2009-2017) from California's Department of Health Care Services for >400,000 children enrolled in California Children's Services, the nation's largest Title V program, which provides case management for children with serious chronic illness. Complemented by more than 20 years as a bilingual primary-care physician specializing in the care of low-income children with serious chronic illness and 6 years as regional medical director for Florida's Title V program, I have also had the front-line opportunity to confront the systemic challenges of barriers children in high-risk families face in meeting their medical, behavioral and developmental needs over the life course. Over the past 15 years, I have served as a research mentor to more than 40 post-graduate students (medical students, residents, fellows) and junior faculty, including more than ten Stanford post-graduate fellows in child health (4 in General Pediatrics). I also serve as a co-investigator on several cross-institutional and intra-institutional grants, which include across several non-medical disciplines (e.g., epidemiology, education, computer science, economics, psychology) that explore the impact of policies and clinical interventions on reducing child health disparities. With Stanford's Gardner Center for Youth and Communities (in the Education School) and the Fresno Unified School District – I have co-developed the Population Health in Schools (PHIS) Lab which aims to link school data with health data on more than 10,000 children, in order to facilitate a precision-health collaborative between K-12 schools and primary-care providers. With Stanford's Design School – I have co-developed the Design Studio for Heatlh Equity, which engages students in human-centered design of precision-health solutions to address health disparities in primary care.

B. Positions and Honors

1994 - 1997 Pediatric Residency, Stanford University Hospital
1998 - 2000 Research Fellow, General Pediatrics, Stanford University/ U.C. San Francisco

2000 - 2003 Co-Director, University of Miami Pediatric Mobile Clinic
2000 - 2005 Assistant Professor of Pediatrics, University of Miami
2006 - 2011 Associate Professor of Pediatrics, University of Miami
2008 - 2011 Director, General Pediatric Research, University of Miami School of Medicine
2008 - 2011 Regional Medical Director, Children's Medical Services (Title V), Florida Department of Health
2010 - 2011 Medical Director, Jay Weiss Center for Social Medicine and Health Equity
2011 – Associate Professor, Pediatrics, Stanford University
2012 – Fellowship Co-director, General Pediatrics, Stanford University
2013 – Co-Director, Stanford Center for Policy, Outcomes and Prevention
2014 – Chief, Division of General Pediatrics, Stanford University

Experience
2001 - 2011 Medical Director, Reach Out and Read Florida
2001 - Member, National Advisory Board, Reach Out and Read National
2006 - 2008 Member, Health Literacy Program Advisory Committee, American Academy of Pediatrics
2008 - 2011 Member, Advisory Council on Preventing Treatment Errors in Children, CDC-FDA Initiative
2008 - 2015 Co-Director, Health Literacy Special Interest Group, Academic Pediatric Association
2012 - 2015 Council Member, Society for Pediatric Research
2011 - Member, Non-Prescription Drug Advisory Committee, US Food and Drug Administration
2014 - National Consultant, AHRQ Review of Pediatric Quality Indicators
2014 - Member, Advisory Committee for the National Pediatric Clinical Trials Network
2017 - Member, Editorial Board, Journal of Pediatrics

C. Contributions to Science

1. Expertise health literacy and English-language proficiency, as it relates to adapting primary-care solutions. I have considerable expertise in clinical and epidemiologic studies of the role of parent health literacy as a social determinant and/or moderator of child health outcomes. I was granted a career development award from the Robert Wood Johnson Generalist Scholars Program to chart a research agenda in health literacy for the field of pediatrics. This resulted in the first systematic review of the relationship between health literacy and child health outcomes, the first observational study to examine the association between parent health literacy and child healthcare use patterns, seminal papers on the pediatric health literacy agenda. I was co-developer and co-author of the original validation studies first the first pediatric-specific measure of adult health literacy: the Pediatric Health Literacy Assessment Test (PHLAT). I am also co-investigator on an NICHD-funded study to develop literacy-appropriate prescription labels for pediatric liquid medications to reduce parent-discretionary dosing errors. I have also served as an advisor on parent and child health literacy to the AAP, CDC, FDA, and Institute of Medicine.

1.1 **Sanders LM,** Thompson VT, Wilkinson JD. Caregiver Health Literacy and the Use of Child Health Services. *Pediatrics* 2007; 119: 86-92.
1.2 **Sanders LM,** Federico S, Klass P, Abrams MA, Dreyer B. Health Literacy in Pediatrics: A Systematic Review. Archives of Pediatrics and Adolescent Medicine, 2009;163(2):131-40.
1.3 Kumar D, **Sanders LM**, et al. Parental understanding of infant health information: health literacy, numeracy, and the Parental Health Literacy Activities Test (PHLAT). *Academic pediatrics* 2010*; 10*(5), 309-316.
1.4 Eneriz-Wiemer M, Saynina O, Sundaram V, Lee HS, Bhattacharya J, **Sanders LM**. Parent language: a predictor for neurodevelopmental follow-up care among infants with very low birth weight. Academic Pediatrics 2016; 16 (7): 645-652.
1.5 Marcus EN, **Sanders LM**, Jones BA, Koru-Sengul T (2019). A Brochure to Improve Understanding of Incomplete Mammogram Results Among Black Women at a Public Hospital in Miami, Florida. Southern medical journal; 112 (1): 1–7. PubMedID 30608622.

2. Expertise in clinical trials and other research efforts to design and assess the efficacy of low-literacy, digital-health solutions in primary care. I am PI on several federally funded trials of primary-care-based interventions of novel, patient-centered digital health tools. I was one of the first pediatric clinician scientists to receive NICHD funding for a

clinical trial of Greenlight – a low literacy approach to early childhood obesity prevention -- as part of the cross-institutional NIH Program Announcement in Health Literacy. The latter, multi-site trial has now extended to a comparative effectiveness trial of text-message-based coaching in primary care, funded by PCORI. I am PI on an NCI-funded study (under the NSF/NIH "Smart and Connected Health" Initiative) to assess the efficacy of a digital care-coordination support for complex-chronic illness. I am also co-investigator on two other NICHD-funded studies investigating the role of child, adolescent and young adult health literacy on child health outcomes. I am PI on an FDA-funded study to redesign digital medication information for underserved adolescents with chronic illness. I serve as Medical Director of the Stanford Children's Complex Primary Care Clinic, where we rapidly deploy and test new models of precision care and care management for children with severe chronic illness.

2.1 **Sanders LM,** Perrin EM, Yin HS, Bronough A, Rothman RL. Greenlight intervention study: randomized, controlled trial of a low-literacy, early childhood obesity prevention intervention. Pediatrics 2014: 133(6): e1724-e1737.
2.2 Chisolm DJ, Sarkar M., Kelleher KJ, **Sanders LM.** Predictors of health literacy and numeracy concordance among adolescents with special health care needs and their parents. Journal of health communication 2015; *20*(sup2): 43-49.
2.3 Lin JL, Cohen E, **Sanders LM** (2018). Shared Decision Making among Children with Medical Complexity: Results from a Population-Based Survey. The Journal of pediatrics; 192: 216–22. PubMedID 29102046
2.4 Cueto V, Wang CJ, **Sanders LM** (2019). Impact of a Mobile App-Based Health Coaching and Behavior Change Program on Participant Engagement and Weight Status of Overweight and Obese Children: Retrospective Cohort Study. JMIR mHealth and uHealth. 2019; 7 (11): e14458.
2.5 Lin JL, Clark CL, Halpern-Felsher B, Bennett PN, Assis-Hassid S, Amir O, Nunez YC, Cleary NM, Gehrmann S, Grosz BJ, **Sanders LM**. Parent perspectives in shared decision-making for children with medical complexity. Academic Pediatrics. 2020 Jun 12.

3. Expertise in precision health-services research to identify chronically ill patients at greatest risk for health disparities. Since assuming co-directorship of the Stanford Center for Policy, Outcomes and Prevention, I have helped lead a team of investigators across multiple clinical and non-clinical disciplines to examine population-wide data on the nation's largest population of children with chronic condition's served by a single program, California Children's Services (CCS). In partnership with state and national advisors, we have uncovered intriguing patterns in the use of care by these vulnerable children across the life course. This includes the extraordinary skewing of system costs, with 10% of children with chronic conditions accounting for more than 70% of CCS system costs; significant regional variations in inpatient and outpatient care use, after adjusting for clinical conditions and complexity; reduced use of subspecialty care centers at birth and at transition to adulthood; a significant contribution of chronic care burden that can be attributed to neonatal onset (> 60% of children/adolescents with chronic conditions); and clinical, age- and year-associated trends, suggesting opportunities for improving care delivery by providing innovative, community-based systems of care from birth through young adulthood. I have served as advisor to the Agency for Healthcare Research and Quality (AHRQ) review of pediatric-specific quality indicators, with specific reference to children with chronic conditions.

3.1 Buu MC, **Sanders LM**, Mayo, J, Milla CE, Wise PH. Assessing differences in mortality rates and risk factors between Hispanic and non-Hispanic patients with cystic fibrosis in California. *Chest* 2016.
3.2 Crossen SS, Wilson DM, Saynina A, **Sanders LM.** Outpatient Care Preceding Hospitalization for Diabetic Ketoacidosis: A Population-Wide Analysis. Pediatrics 2016.
3.3 McKenzie RB, **Sanders LM**, Bhattacharya J, Bundorf MK (2018). Health Care System Factors Associated with Transition Preparation in Youth with Special Health Care Needs. Population health management 2018. PubMedID 29957127
3.4 Lin JL, Van Haren K, Rigdon J, Saynina O, Song H, Buu MC, Thakur Y, Srinivas N, Asch SM, **Sanders LM** (2019). Pneumonia prevention strategies for children with neurologic impairment. Pediatrics 144 (4) e20190543; DOI: https://doi.org/10.1542/peds.2019-0543.
3.5 Johnston EE, Bogetz J, Saynina O, Chamberlain LJ, Bhatia S, **Sanders LM.** Disparities in Inpatient Intensity of End-of-Life Care for Complex Chronic Conditions. Pediatrics May 2019, 143 (5). e20182228; DOI: https://doi.org/10.1542/peds.2018-2228.

D. Additional Information: Research Support and/or Scholastic Performance

ACTIVE

R01 CA204585-01 07/01/2016-06/30/2020

NCI

"Collaborative Research: Goal-Centered Information Sharing: Smart Agents for More Effective Health Care"

Major Goals: The objective of the study is to develop and evaluate a novel computer-agent system, called GoalKeeper, with the aim of enabling multi-agent, human-computer teams to execute and coordinate goal-centered care plans.

Role: PI

FDA-CERSI U01FD005978 09/15/2016-08/31/2021

"Safer Labeling of Pediatric Medications: Redesigning Medication Labels for Chronically Ill Adolescents"

Major Goals: The objectives of the study are (1) to explore the understanding of this information among children and adolescents with chronic health conditions, (2) to co-produce alternative platforms for presenting this information and (3) to assess appropriateness of these platforms for use in clinical settings.

Role: PI

Richard King Mellon Foundation 9154 07/01/2018-06/30/2021

"Digital Health for Preventing Preterm Birth"

Major Goal: Reducing preterm birth (PTB), defined as delivery prior to 37-week gestation, presents an important opportunity to decrease infant mortality (death before the first birthday). This project will design, implement and assess a community-based, digital health platform to support mothers of preterm infants and to prevent recurrence of preterm birth.

Role: Co-Investigator

R01 AG059791-01 09/01/2018-08/31/2023

NIH

"The long-term health effects of New Deal programs on child development: An 80 year follow-up study"

Major Goals: To examine the policy impact of social programs of life course health of children exposed to those programs during critical windows of early childhood.

Role: Co-Investigator

Patient Centered Outcomes Research Initiative 03/01/2019 – 2/29/2024

"Greenlight Plus Study (GPS): A Randomized Comparative Effectiveness Study of Approaches to Early Childhood Obesity Prevention"

Major Goal: To compare two different approaches to early childhood obesity prevention (including a low-literacy, digital-health enhancement) in children 0-2 years of age.

Role: Co-PI