

BIOGRAPHICAL SKETCH

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NAME: Amy G. Huebschmann, MD, MS

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

POSITION TITLE: Associate Professor, Department of Medicine, Division of General Internal Medicine, University of Colorado Denver School of Medicine

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
University of Illinois, Urbana-Champaign, IL	BS	1996	Environmental Engineer
Vanderbilt University, Nashville, TN	MD	2000	Medicine
University of Colorado, Denver, CO	----	2000-2003	Internal Med residency
University of Colorado, Denver, CO	Certificate of Public	2006-2009	Primary Care Research Fellowship (HRSA)
Colorado Clinical and Translational Sciences Institute (CCTSI) and University of Colorado, Denver, CO;	----	2009-2011	CCTSI Clinical Faculty Scholar
University of Colorado Anschutz Medical Campus Graduate School, Denver, CO	MS	2015	Master's of Science in Clinical Sciences

A. Personal Statement

I am an Associate Professor of Medicine with expertise in dissemination and implementation science (D&I) methods as they relate to chronic disease self-management. My D&I experience includes serving as PI of a large pragmatic randomized controlled trial (RCT, n = 591 patients) using population health teams to improve blood pressure management in primary care (Huebschmann, J Clin HTN, 2012), and serving as a D&I consultant for the University of Colorado School of Medicine's Adult and Child Consortium of Outcomes Research and Delivery Science (ACCORDS) in collaboration with co-investigators on this proposal: Russ Glasgow and Jodi Holtrop. I have also published several D&I-focused manuscripts and delivered invited D&I presentations in 2018 on "Designing for Dissemination" and on the "Practical Application of D&I frameworks" at the national meetings of the North American Primary Care Research Group (NAPCRG) and Society of Behavioral Medicine. In collaboration with our ACCORDS D&I team, I lead the D&I evaluation on three currently funded D&I grants that relate to using generalizable and reimbursable digital health solutions to improve chronic disease prevention and treatment in primary care — two of these grants are studying novel implementation strategies to optimize the implementation of the NCI-funded My Own Health Report tool in primary care settings. The overarching goal of My Own Health Report is to improve the prevention and treatment of cancer and other diseases by addressing high-risk behaviors and social determinants of health. The overarching goal of my independent line of research inquiry is to optimize evidence-based interventions that have been effective to improve chronic diseases in RCTs, and to adapt those interventions to be feasible for delivery in primary care settings, so this is very relevant to the proposed study. My role in this P50 Center will be to: a) be a co-lead on the Network and Outreach Unit, focusing on the certification and micro-certification activities related to D&I cancer prevention and control research, b) to coordinate and supervise outreach and dissemination activities to both cancer researchers and primary care leaders and c) to be a co-I on the lung cancer screening and other Implementation Studies, drawing upon both my research and clinical experience summarized above.

Related publications:

1. Leavitt IM, Luoma K, Marrs JC, Nederveld AL, Regensteiner JG, Dunn AL, Glasgow RE, **Huebschmann AG**. How can clinical practices pragmatically increase physical activity for patients with type 2 diabetes? A systematic review. *Translational Behavioral Medicine*. DOI:10.1007/s13142-017-0502-4, 2017.
2. **Huebschmann A.G.**, Leavitt IM, Glasgow RE. Making Health Research Matter: A Call to Increase Attention to External Validity. *Annu. Rev. Public Health*, 40: 22.1-22.19, 2019 (in press).
3. Glasgow RE, **Huebschmann AG**, Brownson RC. Expanding the CONSORT figure: increasing transparency in reporting on external validity. *Am J Prev Med*, 55(3): 422-430, 2018. PMID: 30033029.

B. Positions and Honors

Positions and Employment

2003-2006	Clinician-educator, Instructor/Assistant Professor; CU-SOM, Department of Medicine, Division of GIM, Denver, CO
2006-2013	Clinician-investigator, Assistant Professor; CU-SOM, Department of Medicine, Division of GIM, Denver, CO
2013-present	Clinician-investigator, Associate Professor, CU-SOM, Department of Medicine, Division of GIM, Denver, CO

Other Experience and Professional Memberships

2017-present	Member, Board of Directors, Society of Behavioral Medicine
2017-present	Chair, Education, Training, and Career Development (ETCD) council, Society of Behavioral Medicine
2016-2017	Chair, Diabetes Special Interest Group, Society of Behavioral Medicine
2013-present	Education, Training and Career Development (ETCD) council member, Society of Behavioral Medicine
2011-present	NIH Loan Repayment Program Ambassador
2008	Consultant, U.S. Dep't of Health and Human Services Physical Activity Guidelines Advisory Committee
2007-2008	Exercise Subcommittee member, American Diabetes Association 68th and 69th Scientific Sessions Planning Committee on Integrated Physiology
2003-present	American Board of Internal Medicine Certification

Selected Invited presentations

2018	Invited panel presentation at the North American Primary Care Research Group (NAPCRG) meeting, Holtrop JS, Kwan BM, Loskutova N, Phippasone-Brady P, Huebschmann AG , Glasgow RE. "Dissemination and Implementation (D&I) Science in Primary Care Research: An Introduction to key D&I Frameworks and how to apply them."
2018	Symposium organizer/presenter, Huebschmann AG , Phippasone-Brady P, Kwan BM, Holtrop JS, Loskutova N, Rabin BA. "Processes, Outcomes, and Products to make Designing for Dissemination POP!", Society of Behavioral medicine national meeting, 2018.
2017	Pre-Course Session Chair/Presenter, "Nuts and Bolts of Embedding Mixed Methods into Translational research and "Nuts and Bolts of Funding Mixed Methods approaches for Translational research" (2-part pre-course at the Society of Behavioral Medicine national meeting).
2016	"Potential and Challenge of integrating self-management technology data into electronic health records", Invited lecture for a symposium on "Use and Abuse of Technology: eHealth Factors that Engage or Alienate Patients and Providers" at the Society of Behavioral Medicine annual conference.
2016	"Type 2 Diabetes Mellitus alters the Perception of Effort during Exercise", Invited lecture for a symposium on the "Burden of Diabetes Symptoms" at the Society of Behavioral Medicine annual conference
2015	"Increasing Physical Activity for patients with Type 2 Diabetes: Can we? Yes we can!", Invited lecture for the Society of General Internal Medicine Mountain West regional conference (2015).

- 2014 “Women’s Health 101”, Invited lecture for the inaugural Aspen Ideas health conference on health topics — Spotlight: Health.
- 2012 Invited Speaker, American Physiological Society Intersociety Meeting, The Integrative Biology of Exercise VI. Topic: “Exercise Attenuates the Premature Cardiovascular Aging effects of Type 2 Diabetes”

Reviewer

- 2018- present Reviewer, Special Emphasis Panel for NIDDK Pragmatic research in healthcare settings to Diabetes and Obesity prevention and care (R18 and R34)
- 2017- present Annals of Behavioral Medicine
- 2017- present Diabetes Technology & Therapeutics
- 2016 Chair, Scientific Review of Diabetes-themed abstract submissions, Society of Behavioral Medicine national meeting
- 2016-present American Journal of Preventive Medicine
- 2014-present Society of Behavioral Medicine Achievement Award Review Committee, “Outstanding Dissertation Award”
- 2014 American Cancer Society Grant Review Committee, Ad Hoc Reviewer, Cancer Control and Prevention: Psychosocial and Behavioral Research (January and June reviews)
- 2014-present British Medical Journal Open journal
- 2013-present Diabetes Care
- 2013 Society of Clinical and Translational Medicine Annual Meeting “Original Research” Abstract submissions
- 2012-present Medicine & Science in Sports & Exercise
- 2010-present Annals of Internal Medicine
- 2010 Society of General Internal Medicine Annual Meeting “Clinical Vignettes” submissions
- 2009-present Diabetic Medicine journal

Memberships

Society of General Internal Medicine (2003-present); American College of Physicians (2003-present); American Diabetes Association (2006-present); Society of Behavioral Medicine (2013-present); National Institutes of Health’s Women of Color Research Network (2014-present)

Selected Honors

- 2015 Fellow, American College of Physicians (2015)
- 2014 Spotlight Scholar award, selected by the Aspen Institute as one of 100 national junior health leaders for accomplishments and leadership in translating ideas into action
- 2014 Excellence in Clinical Investigation award, Society of General Internal Medicine, Mountain West region
- 2011-2012, 2014 Annals of Internal Medicine, Outstanding Reviewer award
- 2008, 2012 University of Colorado Center for Women’s Health Research Junior Faculty Research Development Award
- 2007 Travel Award to 5th Annual Meharry-Vanderbilt Alliance National Health Disparities Conference, awarded competitively
- 2002 Outstanding Instructor Award, University of Colorado Internal Medicine Residency Program
- 2000 Dean’s Award (awarded to one graduating medical student for leadership and community service)
- 1999 Vanderbilt Medical School Class President
- 1996 Ira O. Baker Award (awarded to the top University of Illinois senior undergraduate student majoring in Environmental Engineering)

C. Contributions to Science

1. Using Implementation and Dissemination Science methods to improve cardiovascular disease risk for people with chronic diseases

My earlier areas of research into physical activity barriers and cardiovascular abnormalities for people with T2D have led to this area as my current focus. As patient-centered medical homes are emerging as the new standard in patient care, we need to develop and test innovative approaches to bring value to healthcare for patients with chronic diseases who are cared for in these settings. The overarching goal of this line of inquiry is to design for dissemination, by working with end-users and multiple stakeholders to optimize evidence-based interventions that have been effective to improve chronic diseases in RCTs to be more feasible for delivery in clinical settings. For example, I senior-authored a systematic review that used the Pragmatic Explanatory Indicator Continuum Summary-2 tool (PRECIS-2) and the RE-AIM framework dimensions to rank the feasibility of implementing physical activity interventions in health care settings. I also seek to develop methods to deliver evidence-based interventions in community health settings, and I have done pilot work with our local African American community in this regard.

- Leavitt IM, Luoma K, Marrs JC, Nederveld AL, Regensteiner JG, Dunn AL, Glasgow RE, **Huebschmann AG**. How can clinical practices pragmatically increase physical activity for patients with type 2 diabetes? A systematic review. *Translational Behavioral Medicine*. 2017 (in press)
- **Huebschmann AG**, Johnson Campbell L, Brown CS, Dunn AL, "My hair or my health": Overcoming Barriers to Physical Activity in African American women with a focus on hairstyle-related factors. *Women & Health*. 56(4): 428-47, 2016. PMID: 26495938
- **Huebschmann AG**, Mizrahi T, Soenksen A, Beaty BL, Denberg TD. Reducing Clinical Inertia in Hypertension Treatment: a Pragmatic Randomized Controlled Trial. *Journal of Clinical Hypertension*. 14(5):322-9, 2012 PMID: 22533659

2. Identifying and overcoming barriers to physical activity for people with type 2 diabetes mellitus

To date, I have identified two distinct barriers to physical activity for people with T2D, thus sparking my interest in systematically identifying barriers and facilitators of physical activity. Specifically, I found that fear of injury is greater in adults with diabetes than in adults without diabetes. Also, I published a clinical exercise study demonstrating a novel barrier to physical activity in adults with T2D – greater perceived difficulty of exercise as measured by the Borg rating of perceived exertion. An additional manuscript published in 2015 demonstrated significantly greater measures of objective exercise effort in lactate concentrations and heart rate in women with T2D as compared to nondiabetic female controls. Because greater exercise effort is associated with performing less physical activity, it is an important barrier to physical activity. Demonstrating my national reputation in physical activity behavior research, I have reviewed behavioral grants for the American Cancer Society and am serving on the Education, Training, and Career Development council of the Society of Behavioral Medicine. In my current funded and proposed research, I am pursuing additional investigations to identify both therapeutic targets that will guide tailored interventions to improve physical activity behavior, and also investigate the role of important contextual factors, health literacy and numeracy, and social determinants of health on program outcomes.

- **Huebschmann A.G.**, Kohrt, W.M., Herlache L., Wolfe P., Daugherty S., Reusch J.E.B., Bauer T.A., Regensteiner J.G. Type 2 diabetes exaggerates exercise effort and impairs exercise performance in older women. *British Medical Journal Open Diabetes Research and Care*, 2015; 3:e000124. doi:10.1136/bmjdc-2015-000124.
- **Huebschmann AG**, Reis EN, Emsermann C, Dickinson LM, Reusch JEB, Regensteiner JG. Women with Type 2 Diabetes Perceive Greater Effort during Exercise than nondiabetic women. *Applied Journal of Physiology, Nutrition, and Metabolism*. 34(5):851-857, 2009. PMID: 19935846.
- **Huebschmann AG**, Crane LA, Belansky ES, Scarbro S, Marshall JA, PhD, Regensteiner JG. Fear of Injury with Physical Activity is Greater in Adults with Diabetes Mellitus compared with Adults without Diabetes Mellitus. *Diabetes Care*. 34(8):1717-1722, 2011. PMID: 21700920

3. Assessing the cardiovascular abnormalities in the physiologic response to exercise for people with T2D

My primary mentor (Judith Regensteiner, PhD) has led a clinical research program that identified the presence of reduced peak VO_2 and impaired submaximal exercise capacity (exemplified by slowed oxygen uptake (VO_2) kinetics) in people with T2D. We have identified that the abnormal exercise capacity has been associated with insulin resistance, endothelial dysfunction, cardiac dysfunction, decreased peripheral vascular blood flow and elevated non-esterified free fatty acids (NEFA). Our group has found that this defect in the physiologic response to exercise is present in adults and adolescents with T2DM and T1DM with women being

particularly affected. I have led work to assess exercise differences in older adults, as our prior work had focused on adults aged 50 and younger, including a first-authored manuscript that describes reduced VO₂peak in older, sedentary women with T2D aged 50-75 years as compared to their equally sedentary and overweight counterparts who did not have diabetes. Exercise training, pharmaceutical medications for T2D are two treatments that we have shown can improve these abnormalities, and our laboratory continues to explore other therapeutic targets to improve exercise capacity and physical function for adults with T2D.

- Regensteiner JG, Bauer TA, **Huebschmann AG**, Herlache L, Weinberger HD, Wolfel EE, Reusch JEB. Sex differences in the effects of type 2 diabetes on exercise performance. *Med Sci. Sports Ex.* 47(1):58-65, 2015. PMID: 24811327
- **Huebschmann AG**, Regensteiner JG: Diabetes Mellitus and Exercise Physiology in the presence of diabetic co-morbidities. in: Regensteiner JG. *Diabetes and Exercise*. 2nd edition, Totowa, NJ. Humana. 2009.
- **Huebschmann AG**, Regensteiner JG, Reusch JEB, Vlassara H. Diabetes and Advanced Glycooxidation End Products. *Diabetes Care*. 29(6):1420-32, 2006. PMID: 16732039.

Complete List of Published Work

<http://www.ncbi.nlm.nih.gov/sites/myncbi/amy.huebschmann.1/bibliography/48345117/public/?sort=date&direction=descending>

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

Ongoing Research Support

K23 HL118133 Huebschmann (PI) 08/28/14-06/30/19

National Institutes of Health/National Heart Lung Blood Institute K23 award

Targeting Physical Activity to improve cardiovascular health in Type 2 Diabetes

The K23 research objective is to develop and validate a T2D-specific version of an existing, valid barriers/facilitators survey, and to pilot-test an intervention targeting primary care patients' responses to the T2D-specific survey. The rationale is twofold: first, it is important to identify the barriers and facilitators of physical activity behavior to inform intervention strategies; second, the proposed behavioral intervention is tailored to each participant's barriers/facilitators and yet brief enough to be utilized in primary care. Building on the K23 objective, the long-term goal is to improve CV health for people with T2D by developing, testing, and integrating targeted physical activity interventions into primary care practices.

N/A Huebschmann (PI) 07/01/18-06/30/19

University of Colorado Data Science to Patient Value (D2V) program

Developing processes to use actionable data to Improve Care for Medically Complex Patients with type 2 diabetes

Recently, evidence-based platforms have been developed to allow patients and primary care providers (PCPs) to share engaging and actionable displays of glucose data (Glooko® platform) and data on behavioral health risks and social/economic needs (My Own Health Report (MOHR) platform), but these are not currently integrated with health systems' primary care processes or health records. This pilot study will conduct interviews with multiple stakeholders and potential end-users of these data—patients with type 2 diabetes and PCPs/clinic staff—in order to identify the best method(s) of sharing and acting on Glooko and MOHR data. In response to end-user input, we will integrate the Glooko and MOHR data with the widely used Epic electronic health record and pilot-test the use of these data by clinic staff to improve outcomes of glycemic control, diabetes self-efficacy, and diabetes distress.

Completed Research Support

N/A Regensteiner and Reusch (MPI) 1/1/14-12/31/16

Merck

Investigator-initiated grant: Effects of sitagliptin vs. glimepiride on exercise capacity in Type 2 Diabetes

This grant is investigating whether sitagliptin vs. glimepiride improves exercise performance in type 2 diabetes and the mechanisms by which this might occur.

Role: Co-investigator