## Addressing Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Health Disparities through Translational Research

## Funded Projects

In this initiative, sponsored by the Harvard Catalyst Health Disparities Research Program, the community was invited to submit applications for pilot grants to support novel research partnerships with the potential to: (1) generate new evidence or methodologies that foster deeper understanding of LGBTQ health disparities, or (2) evaluate promising interventions to address these disparities.

The specific research priority areas represented topics covered during the program's LGBTQ Bullying Symposium, held on May 10, 2016, and included: (1) LGBTQ Youth Bullying; (2) Intersectionality; (3) Interventions; (4) Transgender & Non-Gender Binary/Gender Queer Identity. While proposals that addressed an area of particular interest were encouraged, this was an opportunity to conduct research in all areas of LGBTQ health disparities.

All Harvard University-appointed junior and senior faculty members were encouraged to apply for this funding opportunity.

Four pilot grants were awarded in amounts of up to $50,000 for each one-year project.

Funding decisions were announced in May 2017.

**Health and Economic Impacts of State Laws on Sexual Minorities of Color**

Co-Principal Investigators:    S. Bryn Austin, ScD, Boston Children's Hospital
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Co-Investigators:    Madina Agénor, MPH, ScD, Harvard School of Public Health
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Catherine Stamoulis, PhD, Boston Children's Hospital

Over the past two decades and even just the past two years, enormous changes have occurred across U.S. states in the legal climate affecting sexual minorities (e.g., lesbians, gays, bisexuals; SM). The changes have been complex – some discriminatory, some protective, but almost always tumultuous. Similarly, state legal climates affecting communities of color have changed dramatically, sometimes conferring greater protections and other times imposing high burdens on these communities. The combined influences of these state-level laws are likely to result in measurable impacts, yet to date no systematic public health or economic evaluation of these impacts has been conducted. With our interdisciplinary team of academic and community partners, we will conduct a comprehensive assessment of the effects of both discriminatory and protective laws in each U.S. state pertinent to sexual orientation and racial justice on healthcare utilization and costs and a range of non-healthcare economic impacts among SM of color. We will use data from the nationally representative and racially/ethnically diverse Medical Expenditures Panel Survey (MEPS) (N=38,321), linked with two state-specific legal databases that our team will create. This project represents a pioneering effort to rigorously quantify the impact of these laws on underserved populations and thus will be a critical step forward in understanding the potentially profound public health and economic impacts of discriminatory and protective state laws on SM people of color.

**Partnering to Apply Clinical Analytics for Reducing Gender Minority Disparities**

Principal Investigator:    Benjamin Cook, PhD, MPH, Cambridge Health Alliance/Harvard Medical School

Co-Investigator:    Ana Progovac, PhD, Cambridge Health Alliance/Harvard Medical School

Emerging evidence about gender minority persons (i.e., transgender or gender non-binary persons; GMs henceforth) show that GMs experience higher rates of poverty, unemployment, HIV, substance use, mental health disorders, suicidality, domestic violence, and discrimination in medical settings compared to the general population. Identifying and reducing GM health disparities is difficult because measures of gender identity are rarely collected in national health surveys, electronic health records (EHRs), or administrative databases. We propose using a recently validated algorithm to identify elderly and non-elderly disabled GM patients in 2009-2014 Medicare claims data, and compare their rates of (a) suicide attempt, (b) avoidable hospitalizations, and (c) domestic violence to their non-GM peers (Aim 1). Next, we propose to identify GM patients in 2009-2016 EHRs from Cambridge Health Alliance (CHA), using both the validated Medicare claims-based algorithm and key words from clinician notes, to develop and validate a natural language processing (NLP) and machine learning (ML) prediction method for (a) suicide attempts, (b) avoidable hospitalizations, and (c) domestic violence among GM patients (Aim 2). Throughout the project, we will collaborate with clinical, health system, and GM advocacy stakeholders around: study design; ethical considerations of developing an NLP/ML prediction method for negative health outcomes for GM populations; and analysis, interpretation, and dissemination of results. This grant will enable building a community research partnership to develop and refine relevant, ethical, and appropriate NLP/ML-based clinical decision-support tools embedded in the EHR clinician interface that will enable clinicians to improve healthcare delivery for GM patients.

**Increasing the Capacity of School Health Professionals to Address LGBTQ Student Bullying**

Principal Investigator:     Sari L. Reisner, ScD, Boston Children's Hospital/Harvard Medical School

Co-Investigators:     Valerie A. Earnshaw, PhD, University of Delaware
Jeff Perrotti, MA, CAS, Safe Schools Program for LGBTQ Students, an anti-bullying initiative of the Massachusetts Department of Elementary and Secondary Education and the Massachusetts Commission on LGBTQ Youth

Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) students experience significant bullying that undermines their mental and physical health. The National Academies of Sciences, Engineering, and Medicine and the American Public Health Association have called for the development of innovative strategies to address bullying of LGBTQ youth. School health professionals (i.e., school nurses, psychologists, social workers, guidance counselors, adjustment counselors) are vital to promoting safe school environments; however, few evidence-based interventions exist to increase the capacity of these school personnel to address LGBTQ bullying. The proposed project will fill this critical gap and utilize technology-infused methods to ensure transportability of findings. An academic-community partnership model will join Boston Children's Hospital and Harvard Medical School, and The Safe Schools Program for LGBTQ Students, which is an anti-bullying initiative of the Massachusetts Department of Elementary and Secondary Education and the Massachusetts Commission on LGBTQ Youth. The multi-phase project will develop and pilot test an intervention to increase the capacity of school health professionals to prevent, identify, and address bullying of LGBTQ students, particularly of multi-ethnic and transgender students. A Youth & Community Advisory will be convened to guide all aspects of the project. Formative mixed-methods research will be conducted with key stakeholders across the Commonwealth to inform the intervention, followed by developing and piloting the intervention. This community-engaged participatory project will lay the groundwork for a future grant application to scale-up the intervention, including to reach school health professionals in priority underserved schools where LGBTQ student bullying intervention efforts are urgently needed.

**Novel Electronic Health Record Phenotyping of LGBTQ Intersectional Identities and Associated Health Disparities Using Natural Language Processing and Machine Learning Approaches**

Principal Investigator:     Li Zhou, MD, PhD, Brigham and Women's Hospital/Harvard Medical School

Co-Investigator:     Harry Reyes,  Brigham and Women's Hospital/Harvard Medical School

The U.S. Department of Health and Human Services, Institute of Medicine, and Joint Commission all support gathering health data on LGBTQ populations to improve patient care, facilitate necessary research, and reduce LGBTQ health disparities. Despite the potential to improve care and advance much needed health-related research, however, few institutions currently include sexual orientation and gender identity (SO/GI) among the core set of demographics they routinely collect in the clinical setting. Starting in 2013, members of the investigative team, along with other community stakeholders, successfully led advocacy efforts for the inclusion of structured (pre-defined) fields to collect SO/GI data in eCare, a new Partners HealthCare electronic health record (EHR).

The specific aims of this study are to 1) describe and measure the extent to which SO/GI was documented in the EHR among BWH primary care patients between May 2013 and May 2017; 2) evaluate differences in healthcare utilization, morbidity (e.g., diabetes, hypertension, cancer, obesity, and substance abuse), and mortality between and among LGBTQ and non-LGBTQ-identifying primary care patients between May 2013 and May 2017; and 3) compare differences in health among LGBTQ primary care patients based on unique combinations of intersectional identities (e.g., sexual orientation, gender identity, race, ethnicity, religion, weight, socioeconomic status).

It is largely unknown whether or how healthcare organizations collect SO/GI data in EHRs. Use of structured SO/GI fields and natural language processing (NLP) of clinical notes may improve the ability of health care providers and researchers to study and address LGBTQ-related health disparities. Moreover, identification and characterization of unique combinations of LGBTQ intersectional identities may inform health disparities research and targeted delivery of more appropriate and effective interventions. This study has the potential to improve how we collect and analyze data on SO/GI, including data on patients from diverse age, racial, ethnic, religious, and economic backgrounds, as these social determinants of health interact in a significant way with people's ability to express their personal information. Identifying cohorts of LGBTQ patients has potential for further study of health outcomes, may prove helpful for future intervention-based studies, and may help increase participation of LGBTQ individuals in research.