

**Author Affiliations:** Department of Public Health, University of Turku, Turku, Finland (Pulakka); Department of Social and Behavioral Sciences, Harvard T. H. Chan School of Public Health, Boston, Massachusetts (Kawachi); Department of Epidemiology and Public Health, University College London Medical School, London, England (Kivimäki); Clinicum, Faculty of Medicine, University of Helsinki, Helsinki, Finland (Kivimäki).

**Corresponding Author:** Anna Pulakka, PhD, Department of Public Health, University of Turku, Joukahaisenkatu 3-5, 20014 Turku, Finland ([anna.pulakka@utu.fi](mailto:anna.pulakka@utu.fi)).

**Conflict of Interest Disclosures:** None reported.

1. Pulakka A, Halonen JI, Kawachi I, et al. Association between distance from home to tobacco outlet and smoking cessation and relapse. *JAMA Intern Med.* 2016;176(10):1512-1519.
2. Frank LD, Sallis JF, Saelens BE, et al. The development of a walkability index: application to the Neighborhood Quality of Life Study. *Br J Sports Med.* 2010;44(13):924-933.
3. Connor Gorber S, Schofield-Hurwitz S, Hardt J, Levasseur G, Tremblay M. The accuracy of self-reported smoking: a systematic review of the relationship between self-reported and cotinine-assessed smoking status. *Nicotine Tob Res.* 2009;11(1):12-24.

## Advancing the Health of Lesbian, Gay, and Bisexual Adults

**To the Editor** In an Original Investigation in a recent issue of *JAMA Internal Medicine*, Gonzalez et al,<sup>1</sup> using national health surveillance data, observed that lesbian, gay, and bisexual (LGB) adults experience health disparities that warrant clinician attention. These findings were described, incorrectly, as “the first to capture the disparity in a population-based sample rather than a convenience or clinic-based sample.”<sup>2(p1352)</sup> In fact, these effects have been well documented, both in the United States<sup>3</sup> and elsewhere,<sup>4</sup> in population-based studies published in the scientific literature.

It is time to use this knowledge to implement changes in clinical services and research. Although many US health surveillance systems measure sexual orientation, this is not yet integrated in our electronic health records or public health reporting systems. Furthermore, these data systems are not designed to explain why these differences exist nor how systems should be redesigned to respond to the patient-centered needs of LGB individuals. To advance the health of the LGB population, science must build on what is known and move with the proper protections to collect sexual orientation data as a necessary aspect of health care services.

Susan D. Cochran, PhD, MS

Ilan H. Meyer, PhD

Vickie M. Mays, PhD, MSPH

**Author Affiliations:** Departments of Epidemiology and Statistics, University of California, Los Angeles Fielding School of Public Health, Los Angeles (Cochran); Williams Institute, University of California School of Law, Los Angeles (Meyer); Departments of Psychology and Health Policy and Management, University of California, Los Angeles (Mays).

**Corresponding Author:** Susan D. Cochran, PhD, MS, Department of Epidemiology, University of California, Los Angeles Fielding School of Public Health, PO Box 951772, Los Angeles, CA 90095 ([cochran@ucla.edu](mailto:cochran@ucla.edu)).

**Conflict of Interest Disclosures:** None reported.

**Funding/Support:** Dr Mays is supported by a grant from the National Institute on Minority Health and Health Disparities (grant MD006923).

**Role of the Funder/Sponsor:** The funder/sponsor had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

1. Gonzales G, Przedworski J, Henning-Smith C. Comparison of health and health risk factors between lesbian, gay, and bisexual adults and heterosexual adults in the United States: results from the National Health Interview Survey. *JAMA Intern Med.* 2016;176(9):1344-1351.

2. Katz MH. Health care for lesbian, gay, and bisexual people comes out of the closet. *JAMA Intern Med.* 2016;176(9):1352.

3. Stall R, Matthews DD, Friedman MR, et al. The continuing development of health disparities research on lesbian, gay, bisexual, and transgender individuals. *Am J Public Health.* 2016;106(5):787-789.

4. Frisch M, Simonsen J. Marriage, cohabitation and mortality in Denmark: national cohort study of 6.5 million persons followed for up to three decades (1982-2011). *Int J Epidemiol.* 2013;42(2):559-578.

**In Reply** We thank Cochran et al for their insightful comments, and we agree that our study<sup>1</sup> on health disparities in the lesbian, gay, and bisexual (LGB) population adds to the mounting body of evidence that people who identify as LGB experience worse health outcomes compared with their heterosexual peers, potentially due to the stressors that LGB people face as a result of interpersonal and structural discrimination. As Cochran and Mays have previously noted, “research on LGB populations is still in its infancy,”<sup>2</sup> compared with health disparities research on racial and ethnic minority populations. Other researchers have also noted that the work to resolve health disparities in the LGB population has barely begun.<sup>3</sup> Our study helps broaden the knowledge base on LGB health disparities to the readers of *JAMA Internal Medicine*, as it is imperative for clinicians to understand, accept, and address the health needs of LGB and transgender (LGBT) patients. We encourage *JAMA Internal Medicine* to continue publishing important findings documenting LGBT health disparities and best practices for eliminating those disparities. Doing so will help health care providers implement positive changes in their practice. Meanwhile, recent developments at the National Institutes of Health will help build the research capacity for LGBT health. Specifically, the National Institute of Minority Health recently designated sexual and gender minorities as a health disparity population for research purposes.<sup>4</sup> This designation will broaden funding opportunities and research on LGBT populations, among other sexual and gender minorities. We commend these efforts and encourage high-impact journals, like *JAMA Internal Medicine*, to continue reporting new discoveries and advancements in LGBT health.

Gilbert Gonzales, PhD, MHA

Carrie Henning-Smith, PhD, MPH, MSW

Julia Przedworski, BS

**Author Affiliations:** Department of Health and Policy, Vanderbilt University School of Medicine, Nashville, Tennessee (Gonzales); Department of Health Policy and Management, University of Minnesota, Minneapolis (Henning-Smith); University of Minnesota School of Public Health, Minneapolis (Przedworski).

**Corresponding Author:** Gilbert Gonzales, PhD, MHA, Department of Health Policy, Vanderbilt University School of Medicine, 2525 W End Ave, Ste 1200, Nashville, TN 37203 ([gilbert.gonzales@vanderbilt.edu](mailto:gilbert.gonzales@vanderbilt.edu)).

**Conflict of Interest Disclosures:** None reported.

1. Gonzales G, Przedworski J, Henning-Smith C. Comparison of health and health risk factors between lesbian, gay, and bisexual adults and heterosexual adults in the United States: results from the National Health Interview Survey. *JAMA Intern Med.* 2016;176(9):1344-1351.

2. Cochran SD, Mays VM. A strategic approach to eliminating sexual orientation-related health disparities. *Am J Public Health*. 2016;106(9):e4.
3. Stall R, Matthews DD, Friedman MR, et al. The continuing development of health disparities research on lesbian, gay, bisexual, and transgender individuals. *Am J Public Health*. 2016;106(5):787-789.
4. Perez-Stable EJ. Sexual and Gender Minorities Formally Designated as a Health Disparity Population for Research Purposes. National Institute of Minority Health and Health Disparities. <http://www.nimhd.nih.gov/about/directors-corner/message.html>. Published 2016. Accessed October 24, 2016.

**In Reply** I thank Cochran and colleagues for introducing me to their excellent population-based study of health of lesbian, gay, and bisexual adults<sup>1</sup> along with the article comparing the mortality of same-sex to opposite sex married persons.<sup>2</sup> It is very gratifying to see high-quality research performed on this understudied population.

Mitchell H. Katz, MD

**Author Affiliation:** Los Angeles County Department of Health Services, Los Angeles, California.

**Corresponding Author:** Mitchell H. Katz, MD, Los Angeles County Department of Health Services, 313 N Figueroa St, Room 912, Los Angeles, CA 90012 (mkatz@dhs.lacounty.gov).

**Conflict of Interest Disclosures:** None reported.

1. Cochran SD, Björkenstam C, Mays VM. Sexual orientation and all-cause mortality among US adults age 18-59 years, 2001-2011. *Am J Public Health*. 2016;106(5):918-920.
2. Frisch M, Simonsen J. Marriage, cohabitation and mortality in Denmark: national cohort study of 6.5 million persons followed for up to three decades (1982-2011). *Int J Epidemiol*. 2013;42(2):559-578.

## Lingering Questions Concerning Intensive Care Unit Utilization

**To the Editor** The article in a recent issue of *JAMA Internal Medicine* by Drs Chang and Shapiro<sup>1</sup> asks an important question: Do hospitals' habits of costly and invasive intensive care utilization affect patient outcomes? The authors conclude that intensive care unit (ICU) utilization is not associated with hospital mortality and estimate that decreasing ICU overutilization may save millions of dollars. Before policy experts and hospital administrators sharpen their knives to trim the fat of ICU overutilization, the authors' may add perspective to some unmentioned elements of reporting that may change the above conclusions.

First, was hospital mortality for in-hospital time or over another time period? Use of in-hospital mortality results in discharge bias that would meaningfully affect comparisons across hospitals.<sup>2</sup> Similarly, were transferred patients excluded? Transfer is a marker for unmeasured disease severity and the cause of mortality shift to referral hospitals. These patients are typically excluded in such studies.<sup>2</sup>

Why were risk-adjustment models built using discharge diagnoses rather than "present on admission" comorbidities? This post facto assessment of risk undermines the goal of risk adjustment; hospitals with higher mortality rates also have higher rates of secondary complications, or complication cascades,<sup>3</sup> so using discharge morbidity rather than present on admission comorbidity for risk adjustment may warp conclusions about overutilization or underutilization of intensive care.

Lingering questions may require us to reinterpret the investigation. Intensive care is not a therapy like aspirin for acute myocardial infarction—administered in uniform doses around the nation for a specific indication. Intensive care is titrated based on each hospital's workload and capacity to achieve the result anticipated in a counterfactual group. Perhaps the lack of difference in mortality across wide rates of intensive care utilization demonstrates well-matched workload-capacity for intensive care utilization. By analogy, the dose of a vasopressor may not be associated with a patient's posttreatment blood pressure (everyone's mean arterial pressure is over 65 mm Hg). But this lack of association should not be interpreted as lack of efficacy of a vasopressor to increase blood pressure.

Joseph A. Hyder, MD, PhD

**Author Affiliation:** Robert and Patricia Kern Center for the Science of Health Care Delivery, Division of Critical Care Medicine, Department of Anesthesiology, Mayo Clinic, Rochester, Minnesota.

**Corresponding Author:** Joseph A. Hyder, MD, PhD, Robert and Patricia Kern Center for the Science of Health Care Delivery, Division of Critical Care Medicine, Department of Anesthesiology, Mayo Clinic, 200 First St SW, Rochester, MN 55905 (joseph.a.hyder@gmail.com).

**Conflict of Interest Disclosures:** None reported.

1. Chang DW, Shapiro MF. Association between intensive care unit utilization during hospitalization and costs, use of invasive procedures, and mortality. *JAMA Intern Med*. 2016;176(10):1492-1499.
2. Reineck LA, Pike F, Le TQ, Cicero BD, Iwashyna TJ, Kahn JM. Hospital factors associated with discharge bias in ICU performance measurement. *Crit Care Med*. 2014;42(5):1055-1064.
3. Wakeam E, Hyder JA, Lipsitz SR, et al. Hospital-level Variation in secondary complications after surgery. *Ann Surg*. 2016;263(3):493-501.

**In Reply** Dr Hyder raises interesting questions about the interpretation of our findings,<sup>1</sup> and we are grateful for the opportunity to clarify. In our Original Investigation, we showed that hospitals that utilize intensive care units (ICUs) more frequently during admissions for diabetic ketoacidosis (DKA), pulmonary embolism (PE), upper gastrointestinal hemorrhage (UGIB), and congestive heart failure (CHF) were more likely to perform invasive procedures and have higher costs without improvements in hospital mortality.<sup>1</sup> Dr Hyder suggests that hospital mortality may be affected by discharge bias if hospitals differentially discharge patients with high likelihoods of death to other facilities.<sup>2</sup> We agree that using time-specific end points such as 30-day mortality reduces such bias. Unfortunately, only in-hospital mortality was available in the administrative data set used in our study. It is important to note, however, that Reineck et al<sup>2</sup> showed that discharge bias generally results in lower in-hospital mortality among smaller hospitals, as they are more likely to discharge high-risk patients to other facilities.<sup>2</sup> In our study, there was a greater proportion of smaller hospitals in the higher-ICU utilization group. As such, discharge bias would disproportionately decrease in-hospital mortality in the higher-ICU utilization group. If mortality was actually greater in the higher-utilization group, this would strengthen our conclusion regarding the dangers of ICU overutilization.

We did not exclude hospitalizations resulting in transfers to other acute-care hospitals. The frequency of transfers in higher- vs lower-ICU utilization hospitals were 0.8% and 0.9%,