STATE SPOTLIGHT
Washington

This state uses BRFSS to track the prevalence of the following health issues and behaviors among employed respondents; and the state groups the following information by occupation:

√ **Obesity,**

√ **Current smoking,**

√ **Consuming adequate amounts of fruits and vegetables,**

√ **Engaging in vigorous leisure-time physical activity, and**

√ **Engaging in physically demanding activity related to occupation.**

"The Washington State Department of Labor and Industries is the exclusive provider of workers' compensation insurance for almost all employers in Washington State," says Wendy Lu, MPH, an epidemiologist working with the Department of Labor and Industries' Safety and Health Assessment and Research for Prevention (SHARP) program. "While more outcomes research is needed to evaluate the effectiveness of workplace wellness programs, we believe that these programs lead to healthier workers. And when workplaces promote good health, they help lower costs of medical insurance and workers' compensation, reduce injury rates, and help workers return to work earlier when injuries do occur."

Ms. Lu adds that the physical, mental, and social demands of work and the characteristics of one's workplace can influence worker health behaviors. In response, health officials and businesses alike are focusing more and more attention on the workplace as a means to improve public health.

State Spotlight — Washington

Some employers—encouraged by legislation such as the Affordable Care Act—support healthier workplaces and have adopted on-site wellness programs in an attempt to increase employee productivity and cut absenteeism and costs associated with health care and insurance.

Few systematic data are collected on the health behaviors of working populations, however, and state- and local-level data on the health of workers by occupational category do not exist. Identifying the occupations associated with the highest risk for poor health behaviors will allow public health officials to **prioritize** prevention resources and research while setting **benchmarks** for evaluating interventions designed for particular occupational groups.

Results of the Collaboration

Working through a cooperative agreement with CDC's National Institute for Occupational Safety and Health (NIOSH), SHARP members published what they say is the first study that provides state-level estimates of the prevalence of obesity, by occupation, and its associations with current smoking, adequate fruit and vegetable intake, leisure-time physical activity, and occupational physical activity.[1] In the study, prevalence estimates were generated for these four behaviors among employed persons, along with the following demographic characteristics:

♦ age,
♦ gender,
♦ income,
♦ education, and
♦ race/ethnicity.

In a multivariable regression model that adjusted for these demographic covariates, obesity risk was assessed for occupational groups, using "health diagnosing occupations" as the referent.

[1] Bonauto DK, Lu D, Fan ZJ. Obesity prevalence by occupation in Washington State, Behavioral Risk Factor Surveillance System. *Prev Chronic Dis.* 2014;11:130219. doi: http://dx.doi.org/10.5888/pcd11.130219.

How They Used BRFSS

"The distribution of employment by occupation varies across states, and the BRFSS is an efficient means to gather these data at the state level," Ms. Lu says. "Other national health surveys such as NHANES and NHIS do not provide state-level data, and for us, were not economical for the resources we had available."

Ms. Lu adds that SHARP members are hoping the questions currently in the Industry and Occupation optional module will one day be part of the core BRFSS questionnaire.

Since 2002, through successful collaboration with SHARP, Washington State BRFSS has been collecting industry and occupation (I/O) data on currently employed respondents. The state's BRFSS coordinators, Dr. Katrina Wynkoop Simmons and Ms. Marnie Boardman, have supported the inclusion of these state-added questions. In 2011, NIOSH started to facilitate the collection of I/O data from an expanded number of states and provided I/O coding assistance to participating states.

"I/O data is an invaluable addition to the Washington BRFSS, since there are no other data sources of this kind at the state level," Ms. Lu says. She notes that these data were collected verbatim, coded by NIOSH-certified coders into 3-digit Census Occupation Codes, and aggregated into broader groups based on the study outcome and sample distribution. In the assessment of the association between a study outcome and the risk factors, the researchers considered industry and occupation to be independent variables and adjusted for data collected through BRFSS core questions on demographics, health status, and risk behaviors.

Communications from the Branch

Recent Resources & Media Mentions

» Connection Between Knee Surgeries and Obesity Rates
http://newsroom.aaos.org/media-resources/Press-releases/knee-replacements-linked-to-obesity.htm ⬈

» Importance of Improved Public Health Data for Righting Health Inequities
http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2013.301602 ⬈

» Collecting Sexual Orientation Data for Better Understanding of Disparities
http://fenwayfocus.org/2014/03/asking-sexual-orientation-questions-on-state-risk-factor-surveys-allows-27-states-to-document-health-disparities-affecting-sexual-minorities/ ⬈

» New Considerations for Cervical Cancer Screening
http://onlinelibrary.wiley.com/doi/10.1002/cncr.28548/abstract ⬈

Recent Webinar Recordings

No passcodes are required. Audio may take several minutes to begin.

Month and link:	**May** https://www.livemeeting.com/cc/cdc/view ⬈
Recording:	Asthma Call-back Survey
Your name:	Enter a user name
Recording ID:	**CSGN82-4**
Recording key (if required):	

Month and link:	**June** https://www.livemeeting.com/cc/cdc/view ⬈
Recording:	Cancer Screening
Your name:	Enter a user name
Recording ID:	**CSGN82-5**
Recording key (if required):	

Month and link:	**June** https://www.livemeeting.com/cc/cdc/view ⬈
Recording:	Excessive Alcohol Consumption
Your name:	Enter a user name
Recording ID:	**CSGN82-6**
Recording key (if required):	

*** Have a BRFSS-related story, program, achievement, or case study for the State Spotlight section of this newsletter? Please let us know! Email the details to Dave Flegel, BRFSS technical writer, at dflegel@cdc.gov.

Communications from the Branch

BRFSS Population Health Surveillance Branch Publications

Cardozo BL, Gotway Crawford CA, Eriksson C, et al. Psychological distress, depression, anxiety, and burnout among international humanitarian aid workers: a longitudinal study. *PLoS One*. 2012:7(9):e44948. Accessed March 5, 2014. 🔗

Chen Z, Gotway Crawford CA, The role of geographic scale in testing the income inequality hypothesis as an explanation of health disparities. *Soc Sci Med*. 2012;75(6):1022-1031. doi: 10.1016/j.socscimed.2012.04.032. Epub 2012 May 24. 🔗

Chen Z., Roy K, Gotway Crawford CA. Evaluation of variance estimators for the concentration and health achievement indices: a Monte Carlo simulation. *J Health Econ*. 2012;21:1375-1381. 🔗

Chen ZA, Roy K, Gotway Crawford CA. Obesity prevention: the impact of local health departments. *Hlth Serv Res*. 2013;48(2) (Pt 1):603-627. doi: 10.1111/j.1475-6773.2012.01447.x. Epub 2012 Jul 20. 🔗

Chowdhury, PP. Balluz LS. Zhao G. Town M. Health behaviors and obesity among Hispanics with depression, United States 2006. *Ethnicity & Disease*, Volume 24, Winter 2014. 🔗

Gotway Crawford CA, Okoro CA, Akcin HM, Dhingra S. An experimental study using opt-in Internet panel surveys for behavioral health surveillance. *Online J Public Health Inform*. 2013;5(1):e24. 🔗

Eriksson C, Cardozo BL, Foy D, et al. Predeployment mental health and trauma exposure of expatriate humanitarian aid workers: Risk and Resilience Factors. *Traumatology*. 2012:19(1)41-8. Accessed March 5, 2014. 🔗

Harris CD, Watson KB, Carlson SA, Fulton JE, Dorn JM, Elam-Evans L. Adult participation in aerobic and muscle-strengthening physical activities—United States, 2011. *MMWR*. 2013;62(17);326-330.

Li C, Balluz L, Ford ES, Okoro CA, Zhao G, Pierannunzi C. A comparison of prevalence estimates for selected health indicators and chronic diseases or conditions from the Behavioral Risk Factor Surveillance System, the National Health Interview Survey and the National Health and Nutrition Examination Survey 2007-08. *Prev Med*. 2012;54(6):381-387. doi: 10.1016/j.ypmed.2012.04.003. Epub 2012 Apr 12. 🔗

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Li C, Zhao G, Okoro CA, Wen XJ, Ford ES, Balluz LS. Prevalence of diagnosed cancer according to duration of diagnosed diabetes and current insulin use among US adults with diagnosed diabetes: findings from the 2009 Behavioral Risk Factor Surveillance System. *Diabetes Care*. 2013;36(6):1569-76. doi 10.2337/dc12-1432. 🔗

* Okoro CA, Dhingra SS, Li C. A triple play: psychological distress, physical comorbidities, and access and use of health services among US adults with disabilities. *J Health Care Poor Underserved*. 2014;25(2):814-836. doi: 10.1353/hpu.2014.0103.

* Okoro CA, Dhingra SS. Severity of psychological distress among adults with and without disabilities. Part of poster presented at: 47th Annual SER Meeting; Seattle WA; June 24-27, 2014.

Okoro CA, Stoodt G, Rohrer JE, Strine TW, Li C, Balluz LS. Physical activity patterns among US adults with and without serious psychological distress. *Public Health Rep*. 2014;129(1):30-38. 🔗

Pierannunzi C, Hu SS, Balluz L. A systematic review of publications assessing reliability and validity of the Behavioral Risk Factor Surveillance System (BRFSS), 2004—2011. *BMC Med Res Methodol*. 2013;13:49 doi:10.1186/1471-2288-13-49. 🔗

Pierannunzi C, Town M, Garvin W, Shaw FE, Balluz L. Methodologic changes in the Behavioral Risk Factor Surveillance System in 2011 and potential effects on prevalence estimates. *MMWR*. 2012; 61(22):410-413.

Qayad M, Pierannunzi C, Chowdhury P, Hu S, Town G, Balluz L. Landline and cell phone response measures in Behavioral Risk Factor Surveillance System. *Survey Practice*. 2013;6(3). 🔗

Wen XJ, Balluz L, Town M. Prevalence of HIV risk behaviors between binge drinkers and non-binge drinkers aged 18- to 64-years in US, 2008. *J Community Health*. 2012;37(1):72-79. Accessed March 5, 2014. 🔗

Xu F, Town M, Balluz LS, et al. Surveillance for certain health behaviors among states and selected local areas—United States, 2010. *MMWR Surveill Summ*. 2013;62 (suppl):1-247.

Young LJ, Gotway Crawford CA, Lopiano KK. A closer look at errors in variables methods for use in regression models with spatially misaligned data. *Communication in Statistics Simulation and Computation*. 2012;41:1250-1269. 🔗

Zhang X, Akcin H, Lim HJ. A SAS macro for direct adjusted survival curves based on Aalen's Additive Model. *Comp Methods Programs Biomed*. 2012;108(1):310-317. http://www.sciencedirect.com/science/article/pii/S0169260712000168. Accessed March 5, 2014. 🔗

Zhao G, Ford ES, Li C, Croft JB. Serum 25-hydroxyvitamin D levels and all-cause and cardiovascular disease mortality among US adults with hypertension: the NHANES linked mortality study. *J Hypertens*. 2012; 30(2):284-289. doi: 10.1097/HJH.0b013e32834e1f0a. 🔗

Zhao G, Ford ES, Tsai J, et al. Trends in health-related behavioral risk factors among pregnant women in the United States: 2001-2009. 🔗 *J Womens Health* (Larchmt). 2012;21(3):255-263. doi: 10.1089/jwh.2011.2931. Epub 2011 Nov 2. 🔗

Zhao G, Ford ES, Tsai J, Li C, Croft JB. Factors associated with vitamin D deficiency and inadequacy among women of childbearing age in the United States. ISRN *Obstet Gynecol*. 2012;. doi: 10.5402/2012/691486. Epub 2012 Mar 4. 🔗

Zhao G, Li C, Ford ES, et al. Leisure-time aerobic physical activity, muscle-strengthening activity and mortality risks among US adults: the NHANES linked mortality study. *Br J Sports Med*. 2013;48(3):244-9. doi:10.1136/bjsports-2013-092731. 🔗

Zhao G, Li C, Li J, Balluz LS. Physical activity, psychological distress, and receipt of mental healthcare services among cancer survivors. *J Cancer Surviv*. 2013;7(1):131-9. doi: 10.1007/s11764-012-0254-6. Epub 2012 Nov 25. 🔗

Zhao G, Li C, Ford ES, et al. Associations between overall and abdominal obesity and suicidal ideation among US adult women. *J Obes*. 2012; 2012: 263142. doi: 10.1155/2012/263142. Epub 2012 Jun 6. 🔗

Zhao G, Li C, Okoro CA, et al. Trends in modifiable lifestyle-related risk factors following diagnosis in breast cancer survivors. *J Cancer Surviv*. 2013:7(4):563-9. Epub 2013 June. doi: 10.1007/s11764-013-0295-5. 🔗

* New Publications

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