

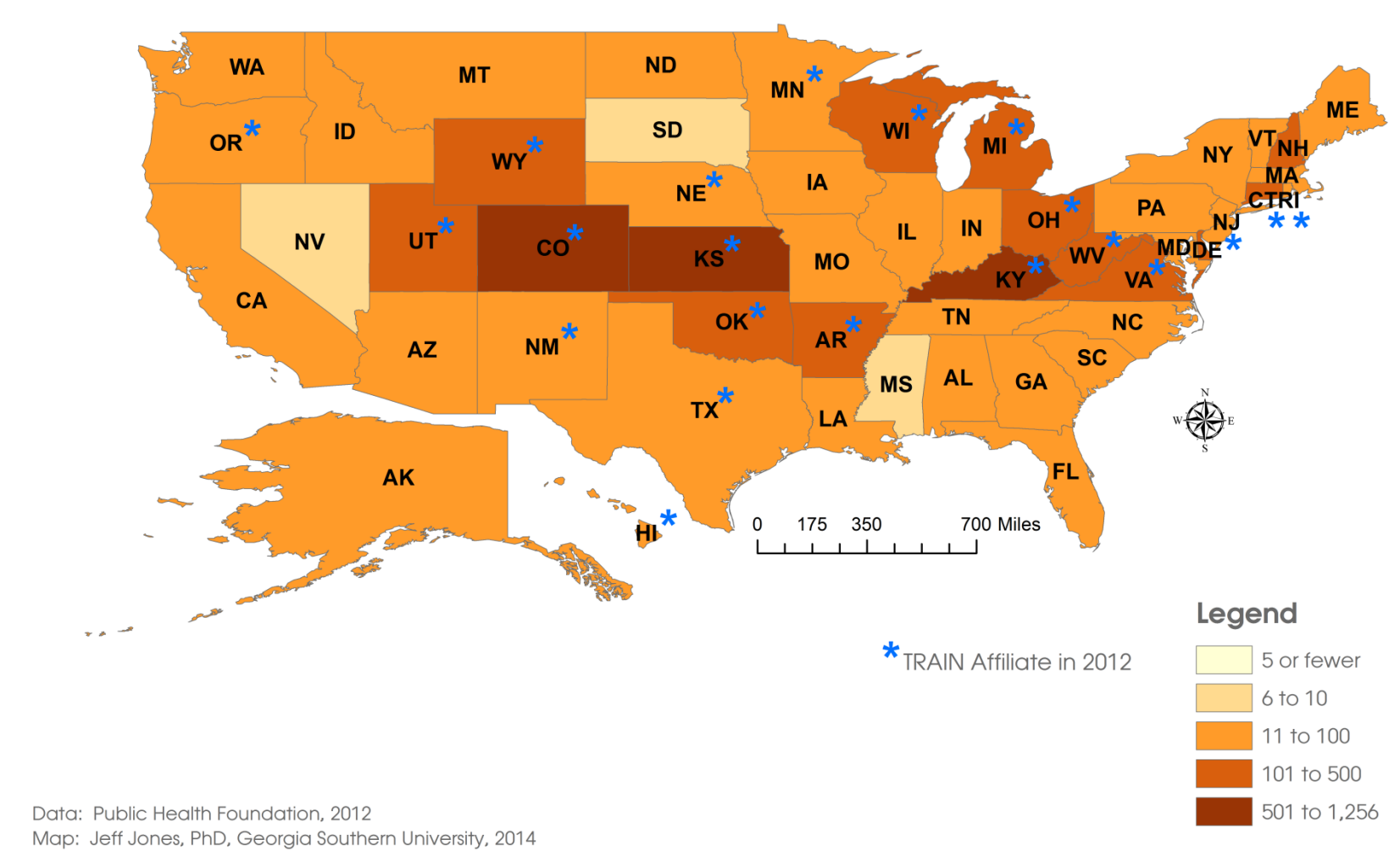
Background

To paraphrase a common dictum in management, one can only manage what one can measure, and in the arena of public health, data on workers are surprisingly sparse. In evaluating the efficacy of public health systems, researchers currently rely on three levels of data: *community, agency, and public health worker*. Vital statistics, the US Census Bureau, and disease registries provide considerable data on the demographics, socioeconomic characteristics, and health measures of *communities* at state, county, and municipal levels. Data gathered by public health professional organizations such as the National Association of County and City Health Officials (NACCHO) and the Association of State and Territorial Health Officials (ASTHO) profile individual state and local health departments at the *agency* level. In the third area of data on individual health *workers*, information remains relatively rare and challenging to collect. It is in this third area of individual health worker data that TRAIN offers some limited but unique insights.

In the aftermath of the 9/11 attacks, the US government invested heavily in expanding emergency preparedness training and public health capacity surge capabilities. These funds supplemented hiring in public health and an expansion of computer equipment and networking. Around the same time, Public Health Foundation developed TRAIN, initially as a mechanism to provide and track emergency responder trainings quickly via the internet. Today agencies use TRAIN to offer a variety of training including new employee orientation and continuing education topics spanning public health practice.

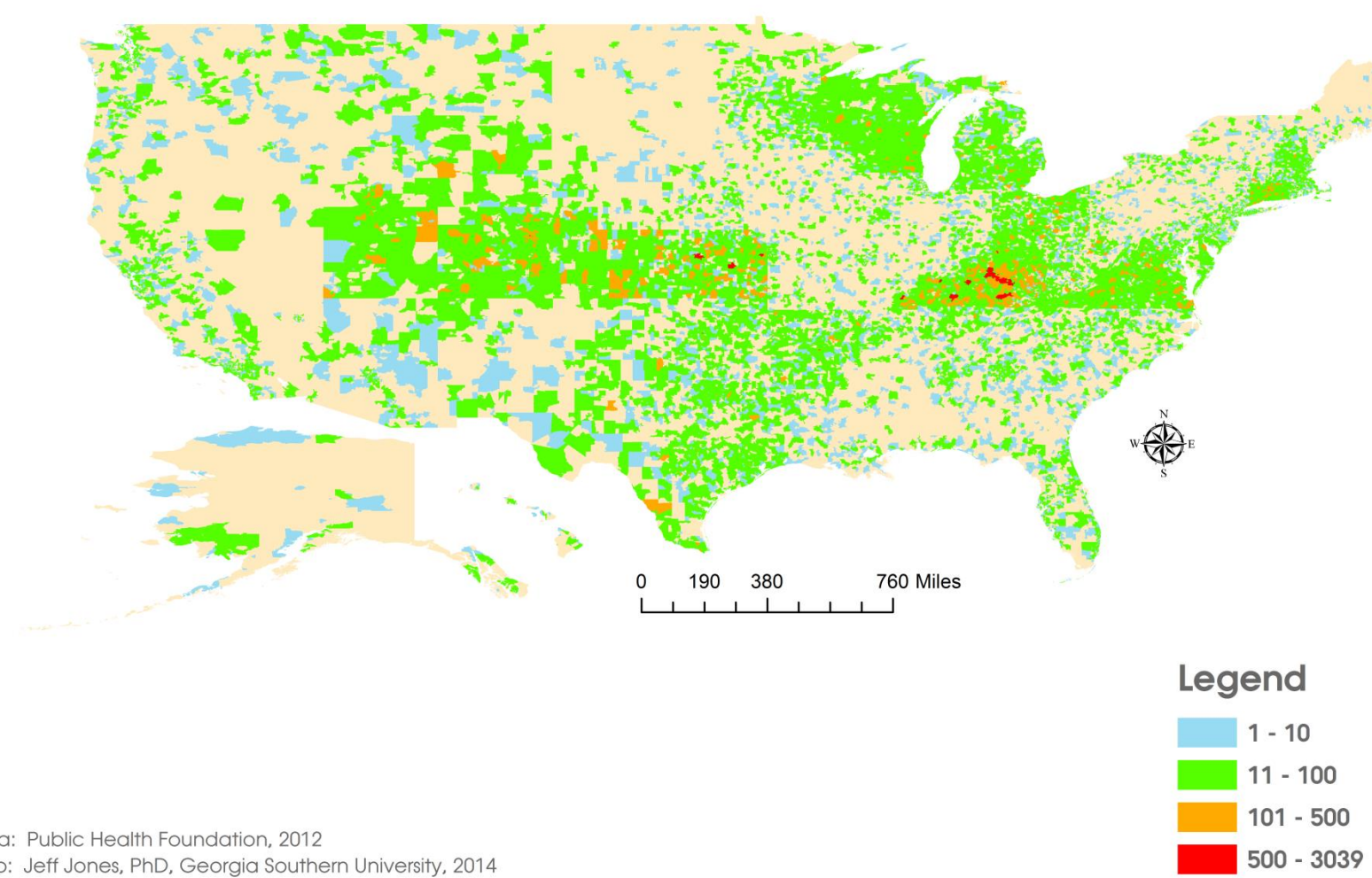
Recent Enumeration Data: Combining NACCHO, ASTHO, and CDC studies provides a figure of 280,038 public health workers employed at state and local health departments as well as at the CDC. This figure certainly does not include all public health workers (especially at the federal level, schools of public health, or working at non-governmental agencies), but it does provide an aggregation of existing enumerations.

Registered TRAIN Learners
 Per 100,000 Population, 2012



Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Registered TRAIN Learners
 By Zip Codes, 2012

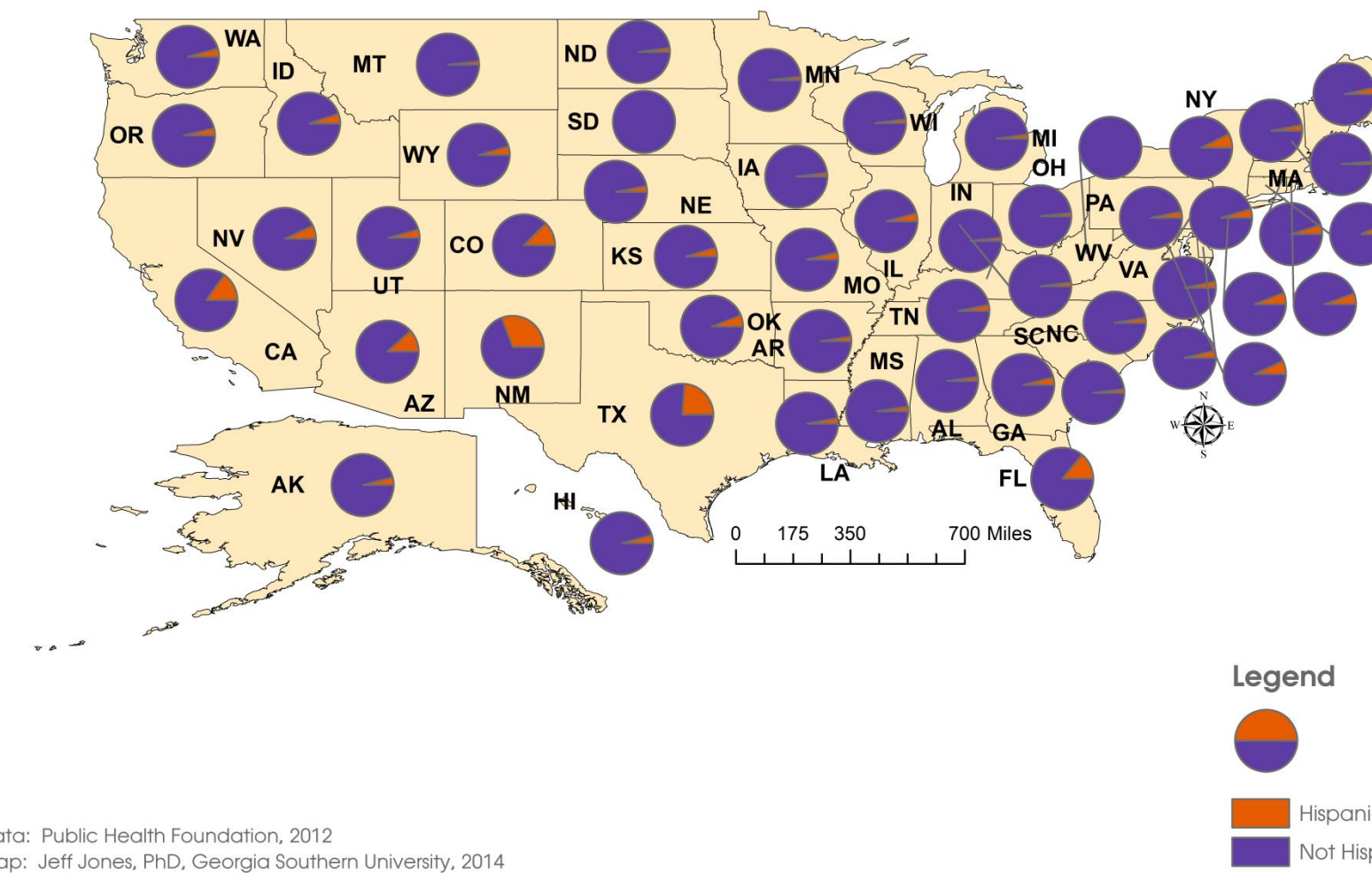


Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Methods

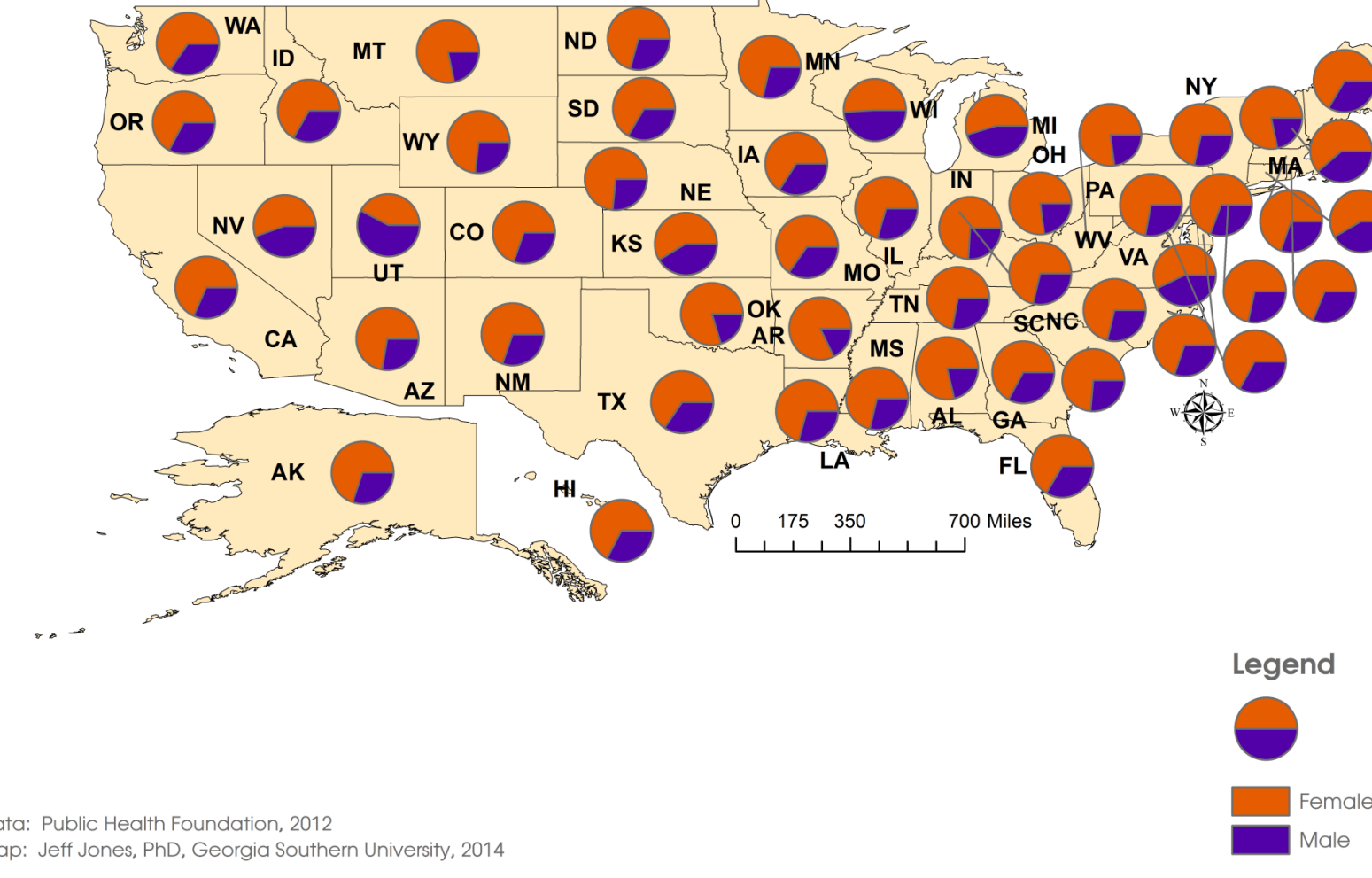
After approval by the University of Kentucky institutional review board, we extracted TRAIN learners' demographic data from the TRAIN system, using its administrator report functions. We then redacted personal identifiers from the data set. We filtered out any user who lived in a country other than the United States. The resulting analytic data set consisted of 405,095 learners. The data set included several thousand duplicate learner accounts, which were not removed. We conducted univariate and bivariate analyses of aggregate demographic data at the national, state, and zip-code levels using IBM SPSS Statistics version 20 (IBM Corporation, Armonk, NY). We then imported these statistical tables into ArcMap 10.1 (ESRI, Redlands, CA) for spatial analysis and mapping.

Registered TRAIN Learners
 Ethnic Composition, 2012



Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Registered TRAIN Learners
 Sex Composition, 2012



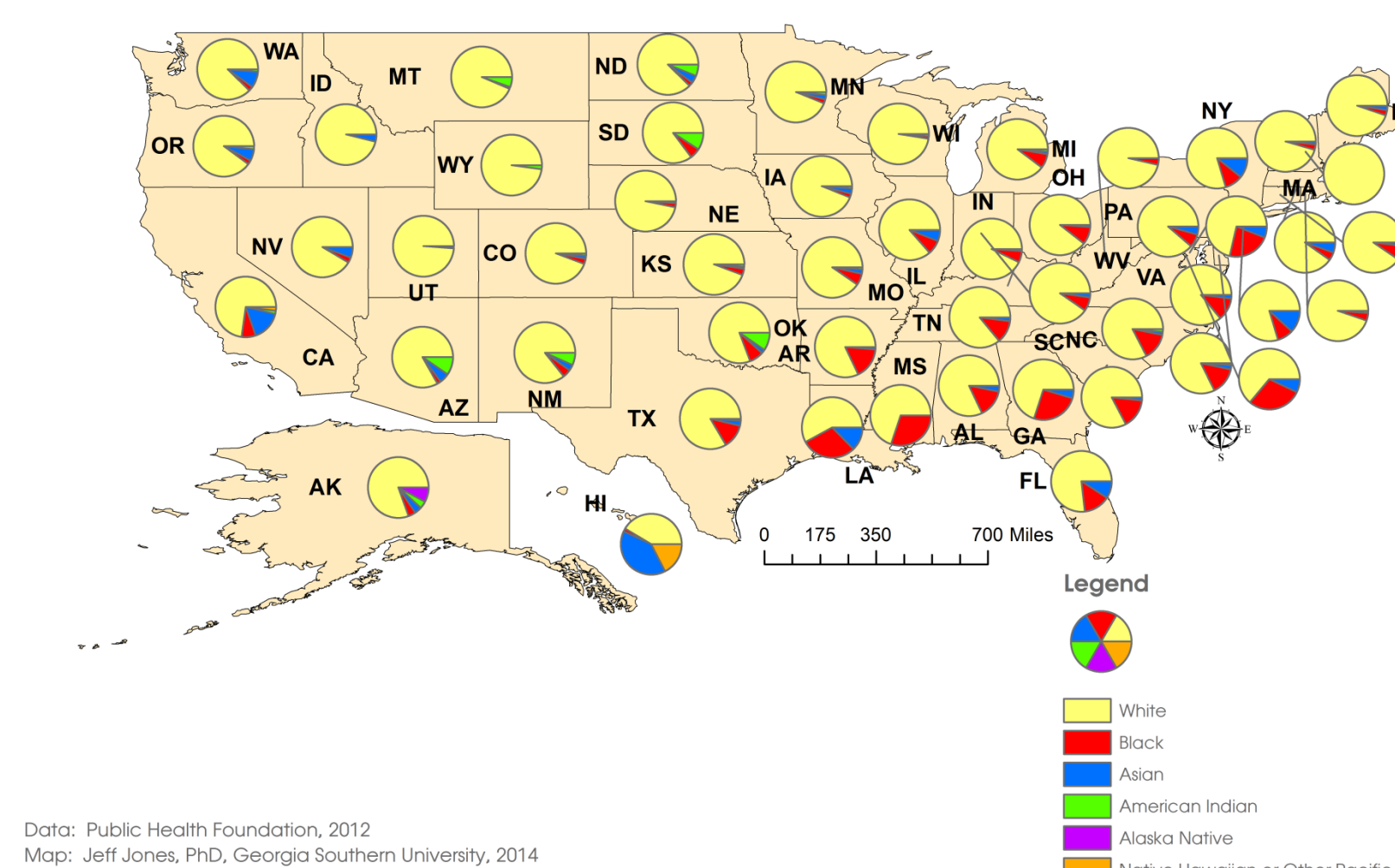
Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Discussion

The 2012 TRAIN data add to our understanding of the public health workforce and the characteristics of individual health workers. Unlike data gathered at the agency level, the TRAIN data are reported directly by the workers. These TRAIN data reinforce demographic patterns found in other studies: American public health learners report being disproportionately female and White, compared to the general population of the areas they serve. The median TRAIN-registered public health worker's age is 46, and a third of learners will have reached retirement age within the next 10 years.

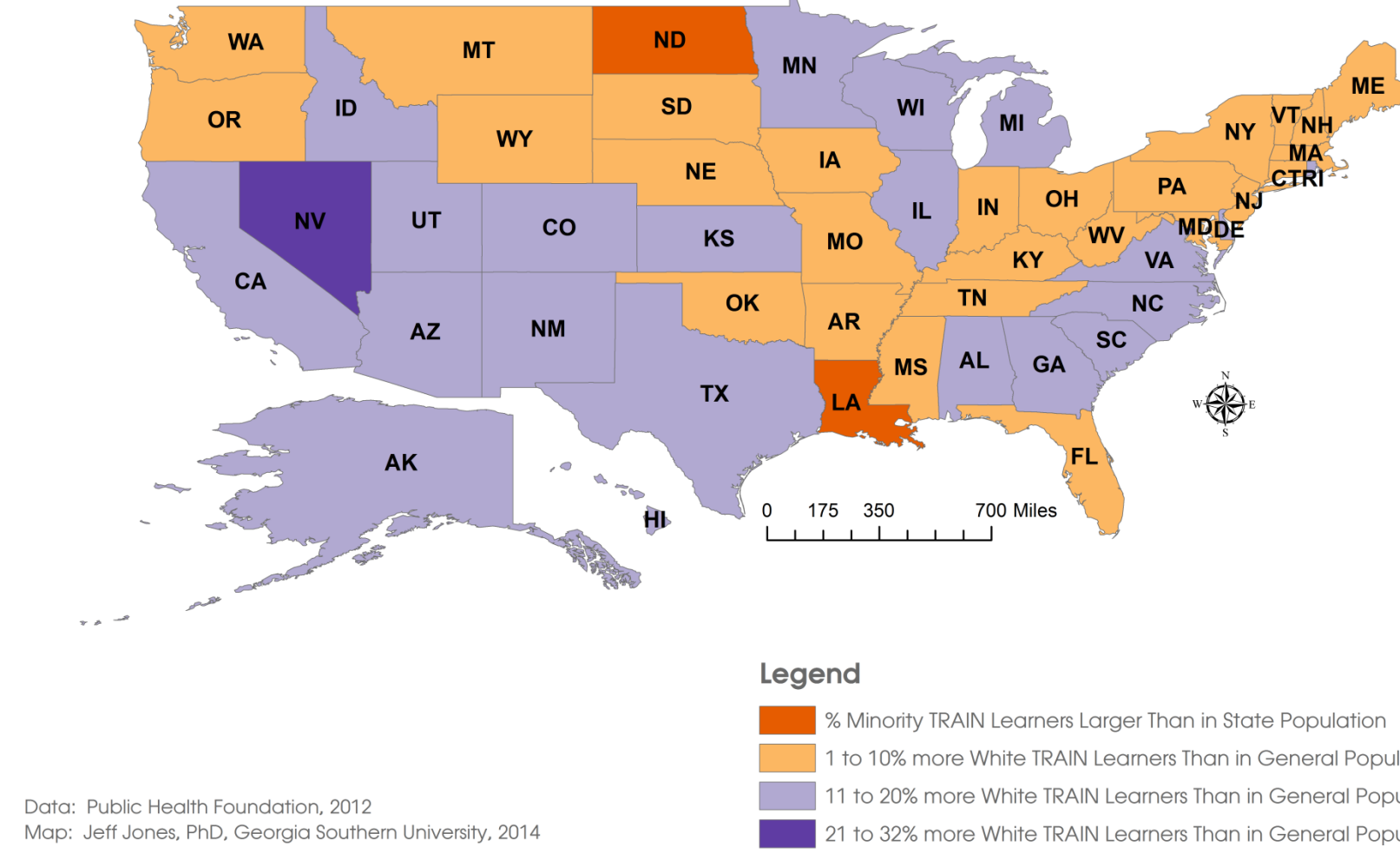
Because TRAIN was not designed as an enumeration tool, these self-reported data have a number of limitations.

Registered TRAIN Learners
 Racial Composition, 2012



Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Registered TRAIN Learners Compared to State Population
 Does the Racial Composition of TRAIN Learners Match the Racial Composition of Their States' Populations, 2012



Data: Public Health Foundation, 2012
 Map: Jeff Jones, PhD, Georgia Southern University, 2014

Results

Analysis of the 405,095 learners in the analytic dataset finds that around 3 out of 4 learners responded to the optional demographic questions. Self-reported demographics include 77% of the analytic sample for sex, 74% for race, 73% for ethnicity, and 76% for educational attainment.

Among the 77% of learners reporting their sex, two-thirds (66%) report they are female.

Learners' median age is 46 years with a mean age of 47. By 2025, 30% of learners will have reached the age of 65. Six percent of learners have already reached the age of 65.

In terms of racial composition, the learners overall are predominately White (88%), with Black or African American (7%), Asian (2%), multi-racial (2%), American Indian (1%), and Native Hawaiian/Pacific Islander (0.4%) workers comprising other significant numbers.

Regarding ethnicity, Latino workers make up 6% of TRAIN learners.

TRAIN learners also report dozens of primary languages used at home. After English and Spanish, learners list Tagalog, Armenian, Chinese, and Hindi as their most commonly spoken primary languages.

Among the 76% of learners who report their education attainment, 56% report having a four-year college degree. Twenty-eight percent report also having completed a graduate or professional degree such as a MPH, MD, JD, or Ph.D. One percent of learners report not having completed high school. Education levels among the states' TRAIN learners vary considerably. In 16 states and the District of Columbia, three out of every four learners have at least a Bachelor's degree. In five states — Utah, Kansas, Arkansas, Wisconsin, and Virginia — the majority of registered TRAIN learners report having less than a four-year college degree.