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## How many postdocs? Data to Drive Diversity

### Problem

Science benefits from diversity of opinion and membership; however diversity in science remains challenging. Minority representation among academic faculty would serve to encourage young scientists from diverse backgrounds. However faculty hiring often relies on PhD demographic data for approximating rates of minorities in available in the pool of faculty applicants. The more relevant data are demographics for postdocs since they are the actual candidate pool for faculty positions at research universities (not PhD graduate students as are currently used by Human Resource departments). These postdoctoral data are available from the NSF Graduate Study Survey that has captured ethnic demographic data since 2010. However, the current manner that the data are published is too cumbersome for the public to use. Our FOR Symposium Boston Hack Day Team would address this problem with easy to use data tables and figures.

### Method

We curated NSF GSS data for 2011-2013 postdocs by research discipline for ethnicity and gender in science, engineering, and healthcare. We curated NSF GSS data for 2013 postdocs by location (state and institution) for ethnicity and race in science and engineering. Using the location data, we processed, combined the data, and performed low-level analysis to determine rates of minority postdocs among reporting institutions in a graphical format. We used Cartodb.com to create an interactive map tool to display the number of postdocs in each state. The three deliverables, database by field and institution, Institutional graphics, and interactive map will be published on the website [MinorityPostdoc.org](http://MinorityPostdoc.org).

### Outcome

Deliverable #1: Postdoc Availability Database by discipline and location

The curated data base of postdoc availability data including ethnicity and gender, scientific search committees will easily be able to find data about their field, state, or institution. Notably, we identified that data on gender was not available broken down by location (state and institution) and will be requested from NSF. This will be added to the postdoc diversity database.

Figure: Postdoc Data by Discipline, Ethnicity, & Gender; file:

Discipline\_S&E&H\_ethnicity\_gender\_2013.xlsx.pdf

Figure: Postdoc Data by State (Sums of Institutions) & Ethnicity [NSF not include Health]; file: Institution\_S&E\_ethnicity\_2013 151024e.pdf)

Deliverable #2: Graphical Analysis

We have created graphs to summarize the Postdoc Availability Database to inform and inspire the community to think about increasing diversity in the biomedical workforce. These graphics can be easily shared and republished for discussion on the topic of diversity among postdocs.

Figure: % Postdocs who are Minority (not Asian) by Institution (Science only, not Engineering or Health; file: plot PercentMinority\_byInstitution\_Science.pdf)

Deliverable #3: Interactive Map of Postdoc information

The interactive map currently displays the number of postdocs in each state. Further updates will display the data for ethnicity for each institution with postdocs in the USA. Interactive maps allow for strong visual displays linked to hard numbers. This will highlight the disparities across the country, which will aid institutional search committees, but also would be an easy to use tool to relay diversity data to all stakeholders in the scientific enterprise.

<http://cdb.io/1kE0gn7>

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