

National AGEP Evaluation

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Today's Presentation

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- The Context for a National Evaluation
- Research Questions
- Preliminary Findings
- Evaluation Tasks and Timetable



AGEP—National Prominence

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- Persons from U.S. minority groups increasingly the workforce of the future
 - ▣ Across all fields
 - ▣ Currently underrepresented in STEM
- STEM PhDs
 - ▣ Source of future faculty
 - ▣ STEM knowledge production, innovation and invention
- First national evaluation of the program



Context for the National Evaluation

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Previous Evaluation Activities include:

- Individual alliance/institution evaluation reports
- AAAS
 - ▣ Campbell-Kibler Associates
- AIR Pilot Studies
 - ▣ 2005 study of Colorado PEAKS Alliance
 - ▣ 2008 Pilot Study of Michigan AGEP and N.C. OptEd



Approach to National Evaluation

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- Review of relevant literature on URM STEM Ph.D. production
- Analyze PhD enrollment and completion trends
- Analyze AGEP implementation at several Alliances
- Surveys of AGEP faculty, administrators and participants



Research Questions—Institutional Level

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1. Between 1990 and 2005, what are the national trends at non-AGEP and AGEP institutions in the enrollment of URM students in STEM master's and doctoral programs? How do trends in enrollment at AGEP institutions compare to the trends at similar non-AGEP institutions?
2. Between 1990 and 2005, what are the national trends at non-AGEP and AGEP institutions in URM students' graduation numbers from master's and doctoral programs in the STEM disciplines? And, how do completion trends in AGEP institutions compare to trends in similar non-AGEP institutions?

Data Source: Survey of Earned Doctorates



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Data Description and Sources

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- Sources: Survey of Earned Doctorates (SED) and agep.us
- SED is a census: does not require any sampling; weighting is not used to adjust for non-response
- SED average response rate 2002-2005: 91.5% (2006 was not reported)
- SED documentation available from <http://www.nsf.gov/statistics/srvydoctorates/>
- AGEP institutions compiled from agep.us; alliances and their participating institutions which focus on a subject area other than STEM were not included
- Underrepresented Minorities include U.S. citizens and permanent residents: Black, Non Hispanic; American Indian or Alaskan Native; Native Hawaiian or Other Pacific Islander; Hispanic
- STEM disciplines include: Engineering, Math and Statistics, Physical Sciences, Biological Sciences, and Computer Sciences



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Institutional Level Data



All Institutions Awarding PhDs

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- 322 Institutions awarded PhDs in any STEM Discipline (2002–2006)
- 269 (84%) awarded PhDs to URM students in any STEM Discipline (2002–2006)
- 53 (16%) did not award PhDs to URM students in any STEM Discipline (2002–2006)



Institutions Awarding PhDs to Underrepresented Minorities by Discipline (2002–2006)

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Discipline	Total Number of Institutions	Total Number of AGEP Institutions	% AGEP
Any STEM Discipline	269	104	39%
Engineering	158	73	46%
Math and Statistics	86	39	45%
Physical Sciences	174	81	47%

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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Student Level Data



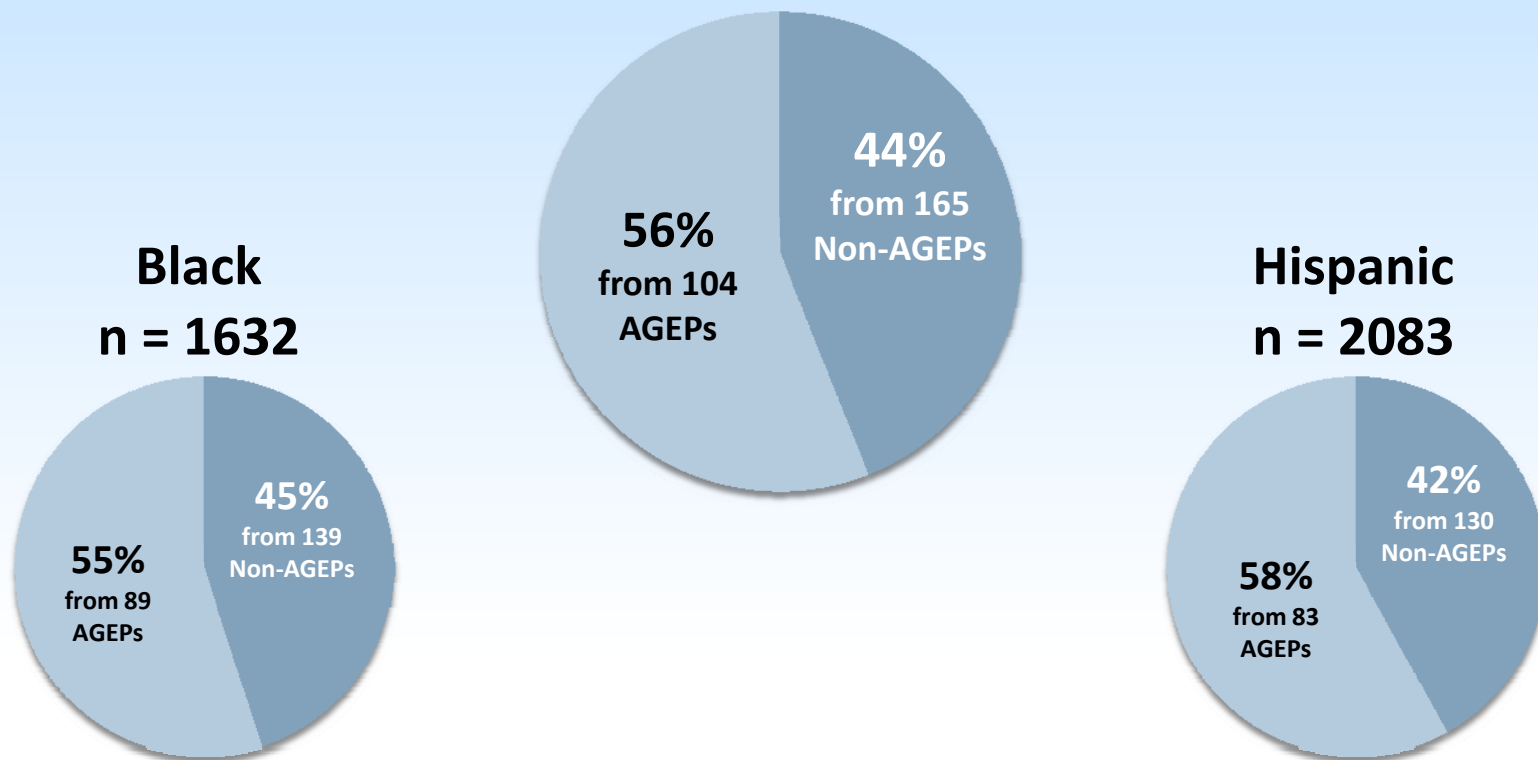
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PhDs Awarded In Any STEM Discipline (2002–2006)—All Institutions

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All Underrepresented Minorities

n = 3998



Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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PhDs Awarded in Engineering (2002–2006)—All Institutions

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All Underrepresented Minorities n = 1002



Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us

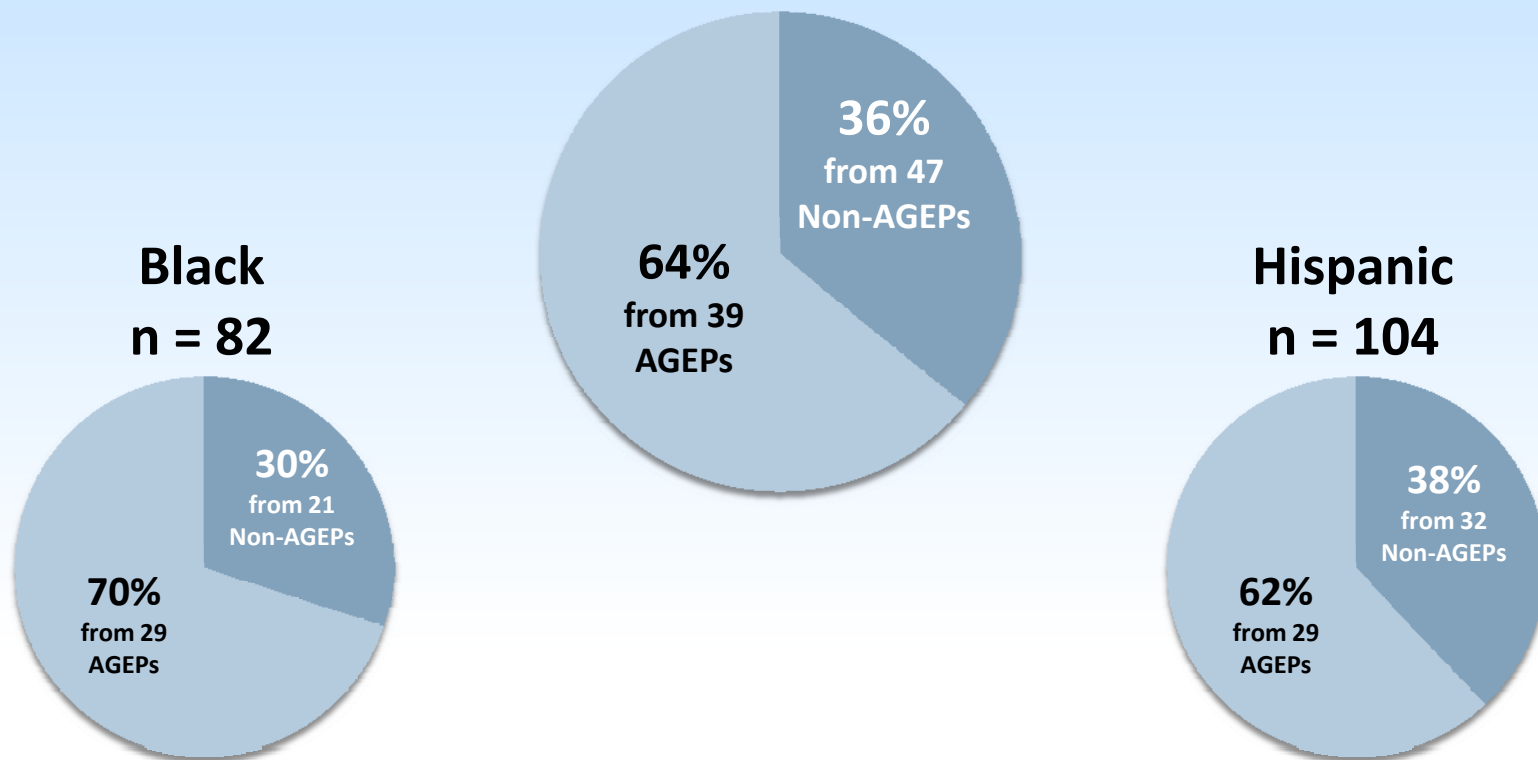


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PhDs Awarded in Math and Statistics (2002–2006)—All Institutions

13

All Underrepresented Minorities n = 196



Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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PhDs Awarded in Physical Sciences (2002–2006)—All Institutions

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All Underrepresented Minorities

n = 807



Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



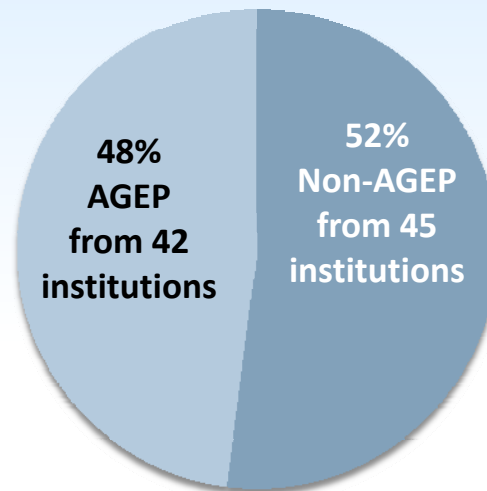
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PhDs Awarded to American Indians or Alaskan Natives In Any STEM Discipline (2002–2006)—All Institutions

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Number of Institutions Awarding PhDs	Number of AGEP Institutions Awarding PhDs	% AGEP	Number of PhDs Awarded	Number of PhDs Awarded by AGEP Institutions	% AGEP
87	42	48%	139	67	48%

PhDs Awarded (n = 139)



Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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Institutional Level Data

Top 20 Institutions Awarding PhDs to Underrepresented Minorities



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Top 20 Institutions Awarding PhDs to Underrepresented Minorities

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- 269 Institutions awarded 3,998 PhDs to URMs in any STEM discipline (2002–2006)
- The Top 20 awarded 1,296 (32%) PhDs to URMs in any STEM discipline (2002–2006)



Percent of Top 20 Institutions that are AGEP (2002–2006)

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Discipline	Top 20 Producers of All Underrepresented Minority PhDs (% AGEP)	Top 20 Producers of Black PhDs (% AGEP)	Top 20 Producers of Hispanic PhDs (% AGEP)
Any STEM Discipline	85%	77%	81%
Engineering	71%	68%	71%
Math and Statistics	77%	89%	88%
Physical Sciences	82%	67%	81%

* All institutions awarding the same amount of PhDs as the 20th ranked institution are included in the top 20. Minimum of three PhDs awarded.

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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Student Level Data

Top 20 Institutions Awarding PhDs to Underrepresented Minorities



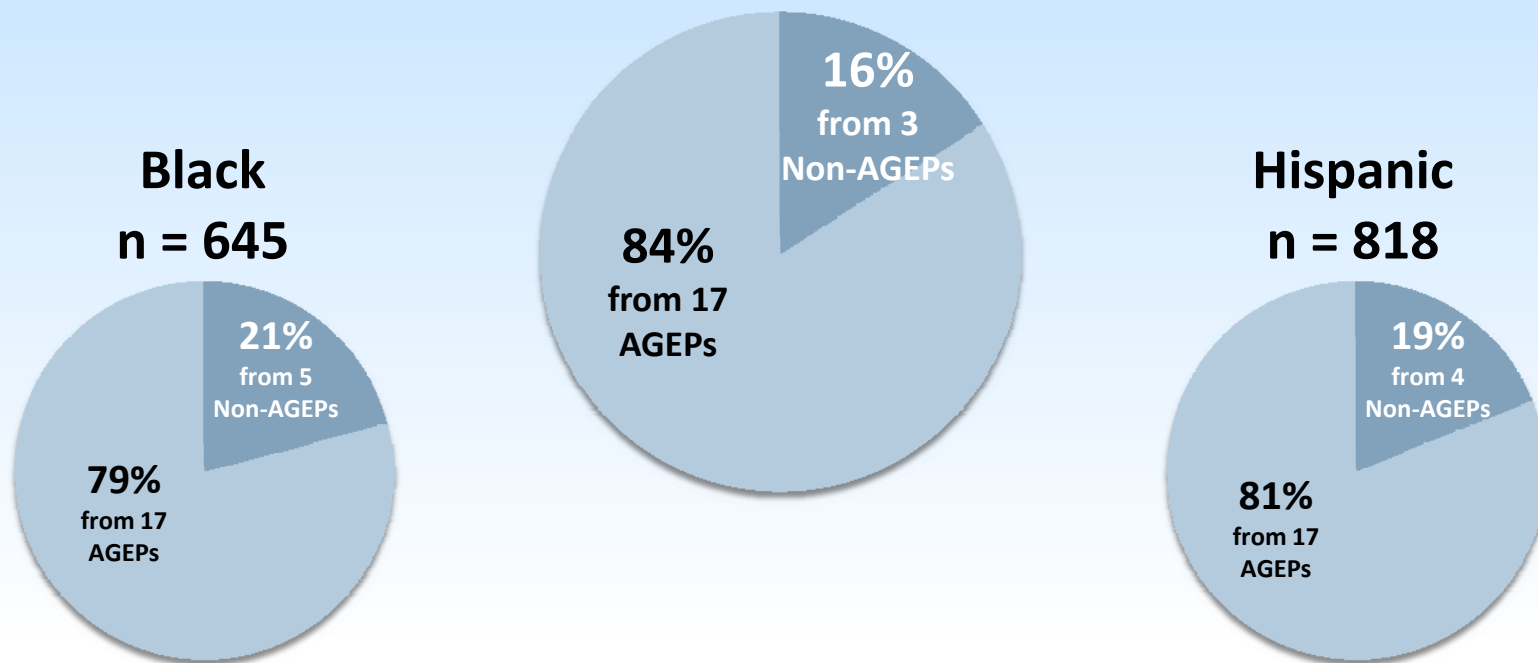
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PhDs Awarded In Any STEM Discipline (2002–2006)—Top 20 Institutions

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All Underrepresented Minorities

n = 1296



* All institutions awarding the same amount of PhDs as the 20th ranked institution are included in the top 20. Minimum of three PhDs awarded.

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



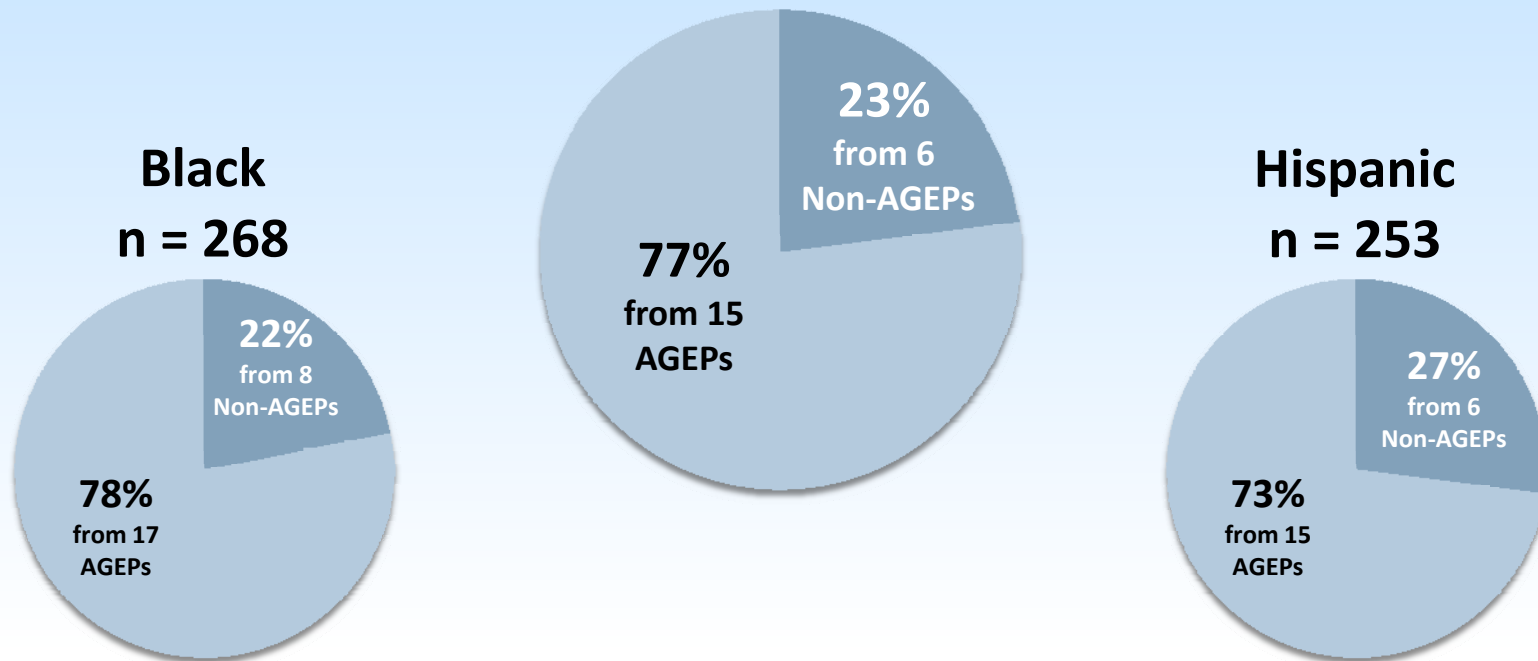
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PhDs Awarded in Engineering (2002–2006)—Top 20 Institutions

21

All Underrepresented Minorities

n = 469



* All institutions awarding the same amount of PhDs as the 20th ranked institution are included in the top 20. Minimum of three PhDs awarded.

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



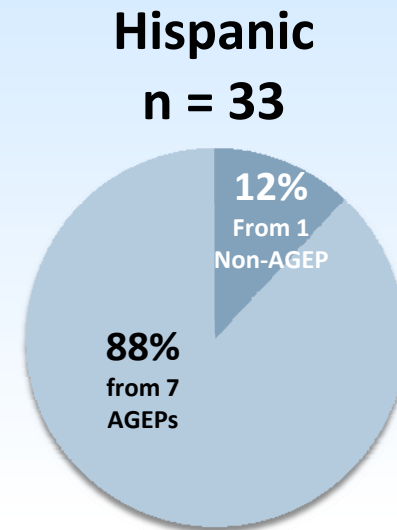
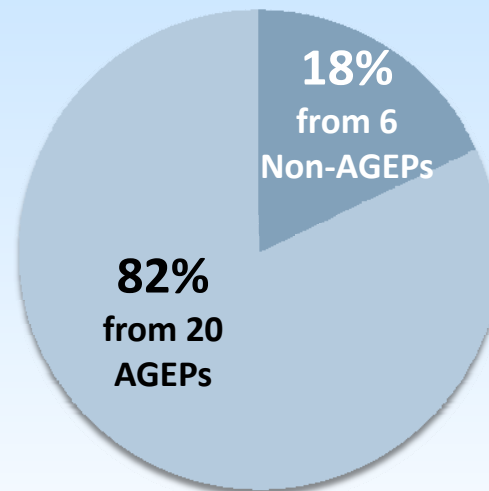
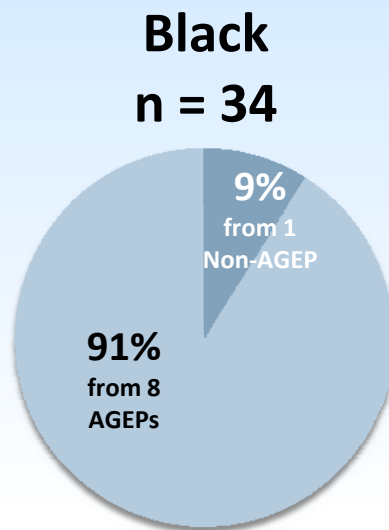
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PhDs Awarded in Math and Statistics (2002–2006)—Top 20 Institutions

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All Underrepresented Minorities

n = 117



* All institutions awarding the same amount of PhDs as the 20th ranked institution are included in the top 20. Minimum of three PhDs awarded.

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



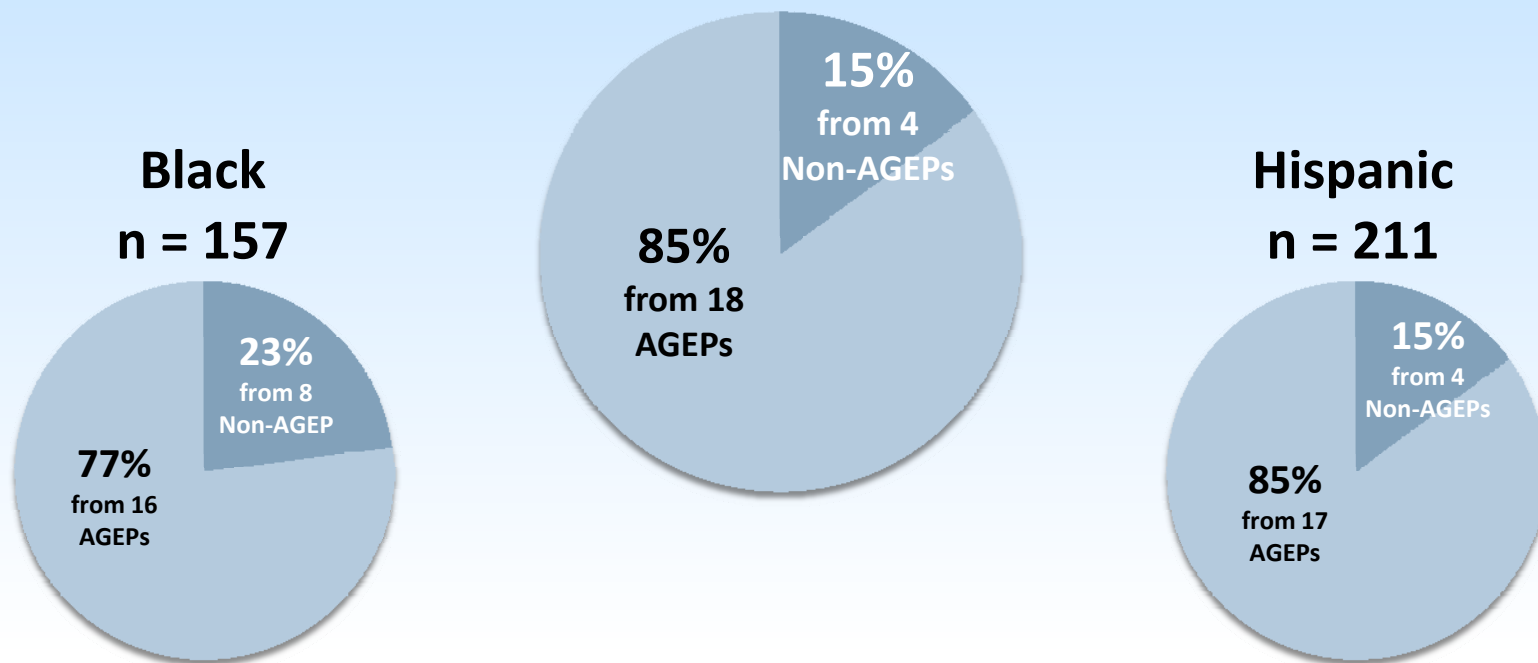
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PhDs Awarded in Physical Sciences (2002–2006)—Top 20 Institutions

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All Underrepresented Minorities

n = 343



* All institutions awarding the same amount of PhDs as the 20th ranked institution are included in the top 20. Minimum of three PhDs awarded.

Source: NSF Survey of Earned Doctorates/Doctorate Records File and AGEP.us



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Research Questions—Student Level

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3. Between 1990 and 2006, what are trends in STEM PhD recipients' racial/ethnic, gender, and marital status compositions nationally?

How do these trends vary...

- ▣ Between AGEP and non-AGEP institutions?
- ▣ Within AGEP, between the pre-AGEP and post-AGEP periods?

Data Source: Survey of Earned Doctorates (public and private use data)



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Research Questions—Student Level (cont.)

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4. In terms of “time to completion” for the STEM PhD degree:
 - ▣ How do URM students as a group and, as discrete groups, differ from non-URM students (white and Asians) within AGEP institutions?
 - ▣ Among the AGEP schools, do differences in time to completion change between pre- and post-AGEP years?
 - ▣ How do URM students as a group and, as discrete groups, in AGEP institutions differ from the same URM students in non-AGEP institutions?

Data Source: Survey of Earned Doctorates (public and private use data)



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Research Questions—Student Level (cont.)

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5. What are the trends in career plans and choice of employment for persons who earned doctorates in the STEM disciplines?
 - ▣ In AGEP and non-AGEP institutions?
 - ▣ Between URM PhDs and non-URM PhDs?

Data Source: Survey of Earned Doctorates and Survey of Doctoral Recipients (public and private use data)



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Comparison Group Considerations

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- Compare non-AGEP institutions to AGEP institutions over time
- Compare non-URM PhD recipients to URM PhD recipients in AGEP institutions over time
- Compare URM PhD recipients to URM PhD recipients in non-AGEP institutions over time



Challenges in Forming Comparison Groups

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- AGEP institutions and students not randomly assigned
- Study will use student background & academic characteristics in the SED/SDR to identify comparable non-URM students in AGEP institutions and URM students in non-AGEP institutions



Qualitative Considerations

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1. What explains the variation in trends among AGEP alliances, institutions, and departments?
2. How do socio-historical and contextual factors influence application and completion trends?



Qualitative Data Collection

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- Site visits to a sample of AGEP-supported alliances Spring and Fall 2009
 - Across geographical regions
 - Across institution type (MSI, Research 1, urban, rural)
 - Spring 2009 site visits to include:

Howard/UTEP AGEP

Howard University (4/21)

University of Texas at El Paso (4/8)

FACES

Emory University (5/12)

Georgia Institute of Technology (5/11)

Morehouse College (5/13)

Spelman College (5/14)

University of California AGEP

UC Berkeley (5/5)

UC Davis (5/6)

UC Irvine (5/7)

UC Los Angeles (5/8)

UC Riverside (5/6)



Qualitative Data Collection (cont.)

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- Interviews and focus groups with AGEP stakeholders such as students, faculty and administrators
- Questions about perception of programs and practices that can be attributed to AGEP.
- Data used to describe patterns in practices across different institutions and different alliances.
 - Can rates of admission, retention, and completion can be attributed to organizational, institutional and/or social features at the different alliances, institutions and departments?



Surveys

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Starting in November 2009 we will survey

- Faculty members in STEM departments at AGEP institutions
- Graduate students in STEM departments at AGEP institutions
- Former AGEP students



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Surveys (cont.)

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Successful implementation of the survey will require:

- Contact information from AGEP participating schools on current STEM doctoral candidates
- Contact information for program graduates

