Dr. Ambika Mathur
Associate Provost and Dean of
the Graduate School
Why Diversity in the Biomedical Research Workforce?

U.S. population: 40% underrepresented (UR) racial and ethnic groups
U.S. college-age population: 39% UR, 11% ADA-defined disabilities

36.5% of African American freshmen express a desire to graduate with a degree in a biomedical field, in reality only 8.6% of those students actually do

• Yet only 17% of UR population hold bachelor’s degrees
• And only 11% of UR population hold doctoral degrees
• And only 7% of ADA-defined people hold doctoral degrees

We are losing the contributions and diversity of perspectives of a large segment of our population that would otherwise advance our biomedical research enterprise considerably
Wayne State University  
(Detroit: 82.7% African-American)

Student Enrollment

<table>
<thead>
<tr>
<th>Enrollment Type</th>
<th>Count</th>
<th>UR Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Enrollment</td>
<td>27,298</td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>17,280</td>
<td>26%</td>
</tr>
<tr>
<td>Six-year graduation rate overall</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Six-year graduation rate UR</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>7,710</td>
<td>18%</td>
</tr>
</tbody>
</table>
Training Programs to Develop Diversity in Biomedical Workforce Research

- K-12
  - Pre-Freshman
  - Under-Graduate
    - Combined Undergrad Masters (3+2)
      - Wayne Med Direct
      - ReBUILDetroit (NIH)
    - Masters
      - PhD
        - MD/PhD
        - MD/Dual
      - MD
    - Postdoc
      - Postdoc to Faculty Transition Program

- Biomedical Research Careers
  - Alliance for Graduate Education and the Professoriate (NSF)
  - Broadening Experiences in Scientific Training (NIH)
  - Understanding PhD Career Pathways (NIH, CGS)
  - King Chavez Park (State of Michigan)
  - Postdoc to Faculty Transition Program
ReBUILDetroit Training Model (NIH grant)

UG Major

• Didactic Courses in Research Methodology
• Research Training
  • In class
  • In research setting
• Professional Skills Development
• Responsible Conduct of Research

Concentration

BUILD Research Scholar Program

UG Degree

"Accelerated Pipeline"

"3+2" UG + Master's Degree

PhD Programs

Careers in NIH-supported Biomedical Areas

Biomedical Research Careers

UG
UDM
HFC
WSU
ReBUILDetroit WSU Scholars

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Scholars</td>
<td>43</td>
</tr>
<tr>
<td>Male</td>
<td>29%</td>
</tr>
<tr>
<td>Female</td>
<td>71%</td>
</tr>
<tr>
<td>UR</td>
<td>85%</td>
</tr>
<tr>
<td>First Generation</td>
<td>22%</td>
</tr>
<tr>
<td>Pell-grant Eligible</td>
<td>31%</td>
</tr>
</tbody>
</table>

- **Average GPA:** 3.55
- **Six-year graduation anticipated rate:** 100% (compared with 20% for all other WSU UR)
Xavier Walker, Junior
• Biology Major, Asian Studies Minor
• Research Focus: Aquatic Biology
• Plans to pursue PhD in Biology
• Co-authored scientific publication as freshman

Limi Sharif, Senior
• Biology Major, Health Psychology Minor
• Research Focus: Neuroscience
• Developed Campus Social Entrepreneurship Program
• Conducting summer research at Johns Hopkins University

Leena Abbas, Senior
• Nutrition Major, Biology Minor
• Research Focus: Epidemiology
• Conducting summer research at New York University
• Plans to pursue PhD in Epidemiology
Wayne Med Direct Scholars

Number of Scholars | 20
Male | 40%
Female | 60%
UR | 40%

- Average GPA: 3.85
- Six-year anticipated graduation: 100%
Holistic Review of PhD admissions

• No correlation of standardized test scores with academic milestones
• No correlation of standardized test scores with career outcomes

Consequently, we are moving towards a rubric that evaluates students “holistically” using a portfolio to assess a variety of factors

- Experience
- “Distance travelled” (SES, first generation, Pell-grant recipients as UG, type of school attended, research exposure)
- Letters of recommendation
- Personal statement that addresses grit, resilience, persistence
- Scores
- Personal interview
15-year PhD Alumni Career Outcomes (UR groups at WSU)
Talking careers with our current PhD students!

Jaron Lockett
WSU PhD graduate

National Institutes of Health (NIH)
- 2004-07: National Cancer Institute predoctoral training fellowship
- 2007-09: Postdoctoral Fellow, National Institute on Aging’s (NIA) Intramural Research Program
- 2009-12: Scientific Recruiter / Associate Training Director, National Institute on Aging’s Intramural Research Program, NIH
- 2012-14: Management Intern, NIH
- 2014-15: Program Analyst, National Institute for General Medical Sciences, NIH
- 2015 - present: Scientific Program Analyst, National Institute on Aging, NIH
Angulique Y. Outlaw
WSU PhD graduate

Associate Professor in the Department of Family Medicine and Public Health Sciences

- Director of Prevention Programming (Horizons Project/Wayne State University Prevention)
- Community-Based Participatory Researcher
- Research Interests: (1) Primary HIV prevention for at-risk sexual minority youth (ages 13-24); (2) Linkage and retention in care for youth living with HIV; and (3) Medication adherence for youth living with HIV
- Received funding from the city of Detroit, the state of Michigan, and federal entities (NIH, HRSA, CDC, OMH)
- Received NIH Diversity Supplement to promote career development
- Lead for the National Youth Community Advisor Board for Adolescent Medicine Trials Network for HIV/AIDS Interventions (ATN) (NIH-funded)
- Mentoring of undergraduate and graduate students from WSU and other Michigan universities

And an amazing mentor to our ReBUILDetroit Scholars!
Postdoc to Faculty Transition Program

- September 2018
- Recent UR PhD graduates
- Interested in academic careers in urban health equity research
- Accelerated 3-year postdoctoral training
- Program milestones
- Guaranteed faculty positions at WSU
- First cohort: 100% African-American women
So how do we nurture the talent?

- K-12 programs to spark early interest in science
- Reduce reliance on standardized scores alone and replace with holistic review of admissions
- The pipeline needs several entry (and reasonable exit) points
- The pipeline should not be “leaky”; we must develop sustainable programs that provide targeted funding and opportunities to sustain pursuit of scientific research
- Recognize that all biomedical careers are important
- Prepare a diverse cohort of trainees to support our commitment to health equity
Everyone has a fair and just opportunity to be healthier. Removing obstacles to health, such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

Through its statewide network of 5 regional centers, Michigan AHEC:

**Prepares**
- Underrepresented and disadvantaged students to access good jobs and quality education in healthcare careers
  - 60% of pipeline program participants are underrepresented or disadvantage students
  - Over 12,000 students participated in AHEC activities.

**Promotes**
- Clinical training opportunities for healthcare students in the rural and underserved communities
  - Health profession students in 8 disciplines participated in community based training supported by MI-AHEC and provided over 37,500 hours of care in underserved communities
  - 2,700

**Provides**
- Cultural competency training to combat discrimination.
  - 450 participants in continuing education programs for health professionals where topics included cultural competency and/or discrimination elimination training.

**Community Partnerships**

Michigan AHEC’s regional centers are locally supported by Community Advisory Boards and funded by United States Health Resources and Services Administration (HRSA), Wayne State University, local foundations, academic institutions, associations and non-profits.

For more information, visit miahec.wayne.edu
Fausto Varela  
WSU PhD graduate

Founded *Science in Color*

- 2013: Initiative for Maximizing Student Development NIH training fellowship
- 2014: King-Chavez-Parks Future Faculty Fellowship
- 2016: Carl Storm Underrepresented Minority Fellowship (CSURM) to attend the Gordon Research Conference
- 2017-19: F31 Ruth L. Kirschstein National Research Service Award for Individual Predoctoral Fellows, National Cancer Institute, NIH
- 2017: Founded *Science in Color*, organization dedicated to highlighting the successes, struggles, and narratives of underrepresented populations in the sciences

*And our own alumni are dedicated to increasing representation of UR students in the sciences!*