The University of Maryland Baltimore CURE program integrates academics, mentorship, family, and community into STEM education in underserved West Baltimore middle schools

Robin Saunders, Ed.D. and Heather Ezelle, Ph.D.
Disclosures

• Drs. Ezelle and Saunders declare that they have no conflicts of interest regarding the material in this presentation.
Learning Objectives

• Identify the four components of the holistic strategy used by UMB CURE to promote scholar interest in STEM and healthcare careers.

• Identify two aspects of the rationale for training underserved minorities to become healthcare professionals as a strategy to alleviate healthcare disparities and inequity.
The NCI’s CURE Program

• The Continuing Umbrella of Research Experiences (CURE) is a program of the National Cancer Institute
  – Aimed at increasing diversity in the cancer and cancer health disparities research workforce
  – Identifies and supports promising candidates from high school through junior investigator levels

• Despite the successes of this program, minority representation in science and healthcare fields remains low, necessitating innovative expansions of CURE programming.
UMB CURE: A Middle School Pilot Program

• First NCI CURE program to begin with middle school students
  • Scholars will remain in UMB CURE for all three years of middle school
• A joint venture between the University of Maryland, Baltimore and the University of Maryland Marlene and Stewart Greenebaum Cancer Center
• Holistic approach to scholar education utilizes UMB and community resources to address family, school, and community issues.
  • introduce hands-on activities to enhance STEM curriculum and engage scholar interest
  • improve the home learning environment by assisting families with social services, counseling, and job training and placement
  • provide role models and educational and emotional support through mentoring
  • leverage UMB and its partners citywide to broaden scholar opportunities through diverse resources and support
Working to prevent the middle school decline

- Engage students at an early stage in their education
- Inspire interest in science/healthcare to increase the pool of students who pursue careers in these fields

Data are from the Baltimore Neighborhood Indicators Alliance, University of Baltimore, 2012.

Baltimore City standardized test data
Scholar Programming

- **After school**
  - Tuesday/Thursday programming at each partner school to supplement and enhance material learned in class.

- **Saturday**
  - Tutoring with ABAE program at School of Pharmacy
  - mentor-scholar outings and activities

- **Summer**
  - Six-week summer camp held on UMB campus (prevent the “summer slide”)
Our Scholars

- Partnered with three middle schools in West Baltimore selected for their commitment, internal leadership, and strong student/parent engagement
  - Franklin Square Elementary/Middle School – 100% FARM-eligible
  - Green Street Academy – 95% FARM-eligible
  - Southwest Baltimore Charter School – 85% FARM-eligible

- Scholars selected by interest in science/learning, commitment to the program, and letters of recommendation. Admission is **NOT** performance-based.
Mentoring

- 5:1 mentor to scholar ratio provides full and flexible coverage for all program components
- Scholars pick their mentors
- Mentors attend scholar home visits to meet the families, build trust, and identify areas of needed support
- Mentors take scholars on outings such as the National Aquarium, movies, concerts, basketball games, and ice skating in order to help build their relationship.

<table>
<thead>
<tr>
<th>University Affiliation</th>
<th>Mentors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>36</td>
</tr>
<tr>
<td>Dental</td>
<td>14</td>
</tr>
<tr>
<td>Graduate School</td>
<td>13</td>
</tr>
<tr>
<td>Social Work</td>
<td>5</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>6</td>
</tr>
<tr>
<td>Faculty/Staff</td>
<td>16</td>
</tr>
</tbody>
</table>
Supporting Our Scholars and Families

- The UMB Community Engagement Center
  - Provides job training and placement services, parenting support, fresh food market, and exercise classes.
- Geographic Management of Cancer Health Disparities Program (NCI/CRCHD)
- UMB Schools – dental services, social work, law clinic
- Community assistance through the Advisory Board
- Home visits – household needs, furniture, clothing, eviction
Evaluation

- Scholars will be evaluated on academic progress, career aspirations, and hope
  - Grades, attendance records, surveys and focus groups will be used to measure these metrics
  - Scholars will be tracked through college and beyond to evaluate outcomes

- Parents and guardians will meet in focus groups and be surveyed to evaluate their needs, stress, resiliency, and strengths as they receive support from the program

- Mentoring will be evaluated through focus groups and use of the *Mentors Efficacy Scale*
Preliminary Results – at UMB CURE

- **Admission/Retention**
  - Cohort I admitted 41 scholars and retained 93% (38)

- **Attendance**
  - 85% for weekday sessions
  - 100% Saturday participation

- **Mentor Retention** – 85%
Preliminary Results – in the classroom

• **Attitude and Behavior**
  • Improved classroom participation, study habits, and enthusiasm. Creation of a “CURE culture” in schools

• **Academics (limited data)**
  • At SBCS, UMB CURE scholars improved their math diagnostic scores 22% more than the average BCPSS 6th grade student

• **Attendance**
  – On average, UMB CURE scholars have a higher attendance rate and lower chronic absentee rate compared to all BCPSS students
Our Future

• Funding for 5 new cohorts

• Establishment of the high school component of UMB CURE
  – 2017 R25 submission
  – Saturday and summer curriculum
  – Utilize Baltimore City health science high schools

• Programs such as CURE, the Maryland Guaranteed Access Grant, and components of our pipeline will instill in the scholars the belief that college is feasible and prevent “opting out”
**UMB CURE** is the foundational component of a Baltimore-based minority STEM/healthcare education pipeline.

**Continuum of Mentoring Programs**

- **UMB CURE**
  - Grades 6-8 (P30)

- **UMB CURE-HS**
  - Grades 9-12 (in preparation)

- **UMBC/Meyerhoff**

- **TU/UMB Bridges**

- **UMGCC/NSIP**

- **UMB PREP**

- **TU/M.S.**

- **UMB/M.D/Ph.D.**

- **Biomedical Workforce**

- **UMBB/CURE**

- **UMB PROMISE**

- **MSU/ASCEND**

- Undergraduate institutions/minority-focused program (private, R25, U54)

- Undergraduate internship in cancer research (R25) (one of many at UMB)

- Post-bacc training for minority students on the biomedical science Ph.D. track (R25)

- M.S. degree at TU or other institutions

- Bridges to the Doctorate (TU-UMSOM; R25)

- Ph.D. degree at UMB or other institutions

- TU/M.S.

- UMB/M.D/Ph.D.
Acknowledgements

• Financial support
  • Supplement to NCI P30CA134274 awarded to Kevin J. Cullen M.D.,
    Director, University of Maryland Marlene and Stewart Greenebaum
    Cancer Center
  • Kaiser Permanente
  • UMB Foundation donors
• Advisory Board
• UMB Community Engagement Center
• UMB School of Pharmacy ABAE tutoring program
• NCI Center to Reduce Cancer Health Disparities and GMaP
• Our amazing scholars, mentors, families, teachers, staff, and community
  supporters
References


