SUCCESSFUL TRANSITION FROM HIGH SCHOOL TO POSTSECONDARY: TARGETING POLICY AND PRACTICE TO PREVENT THE NEED FOR REMEDIAL COURSEWORK

Angela K. Henneberger, Susan Klumpner, Mathew Uretsky, & Michael E. Woolley
Maryland Longitudinal Data System Center
University of Maryland, Baltimore
Society for Research on Adolescence
March 31, 2016

https://mldscenter.maryland.gov/
INTRODUCTION

- A college-ready student should graduate high school and enter college with the expectation of passing an introductory credit-bearing course.
- Under-prepared students need to take non-credit bearing courses (remedial coursework) prior to enrolling in credit-bearing courses.
- Nationally, about 20% of students entering college report taking remedial courses (Sparks & Malkus, 2013).
- Indicates a mismatch in high school academic preparation and college academic expectations.
INTRODUCTION (2)

- Remedial coursework is costly and time-consuming (Knepler et al., 2014).
- 30% of students do not go on to take the credit-bearing course (Jones et al., 2012).
- Students requiring remediation take 4-8 months longer to graduate (Complete College American, 2012).
- Minority students and low SES students are more likely to need remediation (Attewell et al., 2006).
- Examining high school predictors enables determination of early identification of risk for remedial coursework.
RESEARCH QUESTIONS

- What are the overall rates of assessment to need remedial coursework in math, English, and reading?
- What are the associations between demographic characteristics, high school attendance, and high school assessment scores and likelihood of assessment to need remedial coursework?
POPULATION (HIGH SCHOOL)

- Data are from the Maryland Longitudinal Data System (MLDS)
- 2012-2013 12th grade cohort
- \( N = 63,896 \) students in 269 high schools
  - 50% Female
  - 36% Black; 49% White; 15% Other
  - 9% Hispanic
  - 33% FARMs
  - 2.5% ELL
  - 11.5% Special Education


**Population (College)**

- \( N = 30,452 \) (48%) enrolled in a Maryland postsecondary institution in the following academic year (2013-2014)
  - 53% Female
  - 32% Black; 50% White; 17% Other
  - 9% Hispanic
  - 27% FARMs
  - 2.3% ELL
  - 7% Special Education


MEASURES: REMEDIAL COURSEWORK

- Remedial assessments used were from academic year 2013-2014
- Math, English, and Reading assessments administered to first time undergraduates
- Coded 0/1 (0 = remediation not needed; 1 = either assessed to need remedial coursework or took remedial coursework)
- 39% needed remediation in math; 19% in English; 18% in reading
- 42% needed remediation in at least 1 subject; 21% in 2 or more subjects
Measures: High School Attendance

- Number of five-day school week equivalents a student attended during the 2012-2013 academic year
  - Calculated a ratio of days attended/days enrolled
  - Used ratio to calculate the number of weeks a student would have attended if he/she were enrolled the entire school year (36 weeks)
- Mean weeks attended = 33.69 (SD = 2.29)
- Mean weeks absent = 2.31 (SD = 2.29)
Measures: State High School Assessments

- Algebra and English assessments are included
- Created an indicator of the number of times the student failed the HSA
- 80% of students had 0 failed Algebra attempts
  - Range = 0-13 failed attempts
- 83% of students had 0 failed English attempts
  - Range = 0-10 failed attempts
ANALYSES

- Multi-level model (2 levels)
  - Level 1 = individual student \((N = 30,452)\)
  - Level 2 = high school \((N = 269)\)

- Binary event as outcome
  - 0 = Not assessed to need remediation in college
  - 1 = Assessed to need remediation in college
RESULTS: PREDICTING REMEDIAL COURSEWORK IN MATH (LEVEL 1 MODEL)
**Results: Predicting Remedial Coursework in Math (Level 1 Model)**

<table>
<thead>
<tr>
<th></th>
<th>Est (SE)</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.96 (0.22)**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.06 (0.03) *</td>
<td>1.06</td>
</tr>
<tr>
<td>Black</td>
<td>0.48 (0.04)**</td>
<td>1.61</td>
</tr>
<tr>
<td>Other</td>
<td>-0.16 (0.05)**</td>
<td>0.86</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.59 (0.05)**</td>
<td>1.81</td>
</tr>
<tr>
<td>FARMs</td>
<td>0.25 (0.03)**</td>
<td>1.28</td>
</tr>
<tr>
<td>ELL</td>
<td>-1.24 (0.10)**</td>
<td>0.29</td>
</tr>
<tr>
<td>Special Ed</td>
<td>0.58 (0.06)**</td>
<td>1.79</td>
</tr>
<tr>
<td>Attendance</td>
<td>-0.06 (0.01)**</td>
<td>0.95</td>
</tr>
<tr>
<td>HSA</td>
<td>1.02 (0.04)**</td>
<td>2.77</td>
</tr>
</tbody>
</table>

**p < .001
**RESULTS: PREDICTING REMEDIAL COURSEWORK IN ENGLISH (LEVEL 1 MODEL)**

<table>
<thead>
<tr>
<th></th>
<th>Est (SE)</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.78 (0.25)**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.09 (0.03)**</td>
<td>1.10</td>
</tr>
<tr>
<td>Black</td>
<td>0.45 (0.05)**</td>
<td>1.57</td>
</tr>
<tr>
<td>Other</td>
<td>-0.01 (0.06)</td>
<td>0.99</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.48 (0.06)**</td>
<td>1.62</td>
</tr>
<tr>
<td>FARMs</td>
<td>0.32 (0.04)**</td>
<td>1.38</td>
</tr>
<tr>
<td>ELL</td>
<td>-1.02 (0.12)**</td>
<td>0.36</td>
</tr>
<tr>
<td>Special Ed</td>
<td>0.89 (0.06)**</td>
<td>2.42</td>
</tr>
<tr>
<td>Attendance</td>
<td>-0.05 (0.01)**</td>
<td>0.96</td>
</tr>
<tr>
<td>HSA</td>
<td>1.77 (0.04)**</td>
<td>5.88</td>
</tr>
</tbody>
</table>

**p < .001
RESULTS: PREDICTING REMEDIAL COURSEWORK IN READING (LEVEL 1 MODEL)

<table>
<thead>
<tr>
<th></th>
<th>Est (SE)</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2.28 (0.27)**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.26 (0.04)**</td>
<td>1.29</td>
</tr>
<tr>
<td>Black</td>
<td>0.64 (0.05)**</td>
<td>1.90</td>
</tr>
<tr>
<td>Other</td>
<td>0.08 (0.06)</td>
<td>1.08</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.48 (0.07)**</td>
<td>1.62</td>
</tr>
<tr>
<td>FARMs</td>
<td>0.27 (0.04)**</td>
<td>1.32</td>
</tr>
<tr>
<td>ELL</td>
<td>-0.97 (0.12)**</td>
<td>0.38</td>
</tr>
<tr>
<td>Special Ed</td>
<td>0.87 (0.06)**</td>
<td>2.38</td>
</tr>
<tr>
<td>Attendance</td>
<td>-0.01 (0.01)**</td>
<td>0.99</td>
</tr>
<tr>
<td>HSA</td>
<td>1.70 (0.04)**</td>
<td>5.49</td>
</tr>
</tbody>
</table>

** p < .001
SUMMARY OF RESULTS

- 20-30% of variability in needing remedial coursework was accounted for by high school
- Black and Hispanic students were more likely to need remedial coursework
- Students eligible for FARMs were slightly more likely to need remedial coursework
- ELL students were less likely and special ed students were more likely to need remedial coursework
- Students who failed the HSA were 2-6x more likely to need remedial coursework
DISCUSSION

- High school factors substantially impact whether a student is assessed to need remedial coursework upon entering college.
- Findings suggest race, ethnicity, and SES disparities in assessed need for remedial coursework.
- Current general education and special education services are not adequately preparing students for entry level college coursework.
- Finding that ELL students were less likely to need remedial coursework was unexpected. It is possible that the highest achieving ELL students enrolled in college.
POLICY IMPLICATIONS AND CHALLENGES

- Greater focus on college readiness is needed at the state, district, and high school levels.
- College selectivity and expansion of college access likely play a role.
- More federal, state, and local funding (or re-allocation of current resources) and programmatic supports are needed to prepare high school students for college.
- Identification of early risk factors for being under-prepared enables targeted services in high school. However, under-resourced high schools must be able to implement such assessment and services.
Contact:

Angela K. Henneberger, Ph.D.
University of Maryland, Baltimore
School of Social Work
ahenneberger@ssw.umd.edu
ACKNOWLEDGEMENT

We are grateful for the data, technical, and research support provided by the MLDS Center and its agency partners. The views and opinions expressed are those of the authors and do not necessarily represent the views of the MLDS Center or its agency partners.

The MLDS Center is an independent agency of the State of Maryland. The mission of the Center is to develop and maintain the Maryland Longitudinal Data System in order to provide analyses, produce relevant information, and inform choices to improve student and workforce outcomes in the State of Maryland.