MHEC
MARYLAND HIGHER EDUCATION COMMISSION

Remediation in Maryland Higher Education

Part 1: What is Remediation, and Why Does It Matter?

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Remediation in Maryland Higher Education

The State of Maryland has always prided itself on being a leader in higher education. In 2012, the Career and College Readiness and College Completion Act (CCRCCA) set an ambitious goal: that 55% of Marylanders would have at least one degree by 2025.

Reaching this goal requires increasing college access and completion across a wide variety of demographic groups. A key component of this is ensuring that all students are prepared to enroll succeed in higher education.

This study is designed to examine the impact of college-level remediation on students' success at the postsecondary level. To that end, this series of briefs will specifically focus on students assessed to need remediation in college assessment *after* a student has completed high school and enrolled in a Maryland public college or university, and examine the effects of remediation on their path through college.

Specifically, this series of briefs will address the following key policy issues:

- What is college-level remediation, and why does it matter to policymakers?
- What are the demographic characteristics of students assessed to need remediation?
- Do students who are assessed to need remediation complete remedial courses? Do they subsequently progress to credit-bearing courses in the associated subjects?
- How do student outcomes – including first-year college outcomes, persistence, and graduation – compare across three population groups:
    1. Students who enter deemed "college-ready" by the college or university;
    2. Students who are assessed to need and complete remedial coursework; and
    3. Students who are assessed to need and fail to complete remedial coursework?

This study will expand on prior work performed by the Maryland Higher Education Commission to further explore the impacts of college-level remediation on postsecondary success and completion.

Career and College Readiness and College Completion Act

K-12 and Postsecondary Requirements

It is important to note that another focus of the legislation was an attempt to address many of the perceived barriers to student success, and particularly to ensure that students are prepared to enroll directly in credit-bearing, college-level coursework when they enroll in higher education. To that end, there are a number of requirements at both the K-12 and postsecondary levels focusing on ensuring students are college-ready.

At the postsecondary level:

- Public institutions must encourage any students assessed to be unprepared for college-level coursework to enroll in remedial courses as soon as possible in their postsecondary career.
- Public institutions are required to develop degree pathways for students that include credit-bearing coursework and English within the first 24 hours of courses.
- Degree pathways must require any students taking remedial courses in math, English, or reading to enroll in any associated credit-bearing coursework either concurrently with the remedial course or the semester immediately following

At the K-12 level:

- Students must be tested no later than the 11th grade to assess their level of college readiness in algebra, English, and several other subjects.
- Students found to be deficient in either or both disciplines will be required to enroll in "transition courses or other opportunities" aligned with the common core state curriculum to ensure that they are achieve college readiness by the end of the 12th grade.
- Students must be reassessed following completion of the courses to determine their college readiness.
- Beginning with students entering in the 2014-2015 school year, students must enroll in a math course in every year that they attend high school.

While there are requirements in CCRCCA that have impacts at both the secondary and postsecondary levels, this series of briefs will focus specifically on remedial education in Maryland's public colleges and universities.

REMEDIAL EDUCATION IN MARYLAND HIGHER EDUCATION

PART 1:
WHAT IS REMEDIAL EDUCATION, AND WHY DOES IT MATTER?

A substantial percentage of students entering postsecondary education each year are found to lack essential skills – primarily in math, English, or reading – that are critical to prepare them to succeed in higher education; this trend has stayed relatively constant over the past 25 years despite ongoing demographic shifts in enrollments. [1] Remedial education – also called developmental education or remediation – is designed to bridge this skills gap and prepare students for college-level work. [i] The need for the existence of remediation at the postsecondary level alone is a matter of significant debate within higher education. Further, concerns regarding the impact of remediation on student success are also prominent subjects in this debate.

This brief represents Part 1 of a series that will examine a number of topics related to remediation in Maryland's higher education system. This brief includes a discussion of a number of policy concerns connected to remediation, as well as a number of national, state, and institutional initiatives currently underway that have been designed to increase student success. Future briefs contained in this series will provide data analyses surrounding the actual impacts of remedial education for Maryland students and institutions. This will include analysis of who is assessed to need remediation, who enrolls in and completes both remedial and credit-bearing courses, an examination of first-year outcomes, and persistence and completion.[ii]

Key takeaways from Part 1 of this series:

- Data show that a substantial number of students enrolling in postsecondary education require college-level remedial work before institutions believe they are prepared to succeed in credit-bearing coursework, despite growing numbers of institutional and statewide policies and initiatives attempting to address these deficiencies at the high school level.
- There remain significant and ongoing debates regarding the necessity of remedial education. These debates include whether the ongoing need for developmental education primarily represents a failure of the K-12 educational system or whether the availability of remedial education provides a valuable contribution to encouraging student success.
- Much of the data indicate that students who are assessed to need remediation succeed at far lower rates than their counterparts who are considered college-ready. However, there are also data suggesting that the failure to *complete* remedial work a student is assessed to need may represent the most substantial barrier to student success.[iii]

[1] See endnotes for further information and sources that are discussed throughout this report.

- Institutions and organizations across the country and throughout the state of Maryland continue to engage in efforts to reform remediation in ways that might increase its efficacy and best encourage student success.

WHAT ARE THE COSTS AND BENEFITS OF REMEDIATION?

There is significant debate regarding the value of remedial education, largely driven by the question of whether remediation provides a valuable service to students or represents a failure of the K-12 education system. Some argue that it provides the opportunity to access higher education for students who may otherwise lack the preparation necessary to obtain a postsecondary credential. Additionally, students may have embarked on a different academic path than they originally intended, such as a student who planned to major in the liberal arts and ended their math studies at algebra who, upon enrolling in college, decided to pursue a major in a natural or physical science requiring calculus or beyond. Thus remediation may not be simply a regurgitation of what students should have been expected to know, but potentially an opportunity for learning skills that would rightly not have been developed before.[iv] In the case of adult students, they may be returning to college after a break in their educational careers and need refreshers in skills that may have been learned during their high school career.[v]

On the other hand, substantial policy discussion regarding remediation surrounds its cost, to students, states, and institutions.[vi] Many argue that the topics students are learning in developmental courses should have been covered during their K-12 careers, meaning that both students and taxpayers may be paying double for students to learn foundational concepts in core subjects.[vii] Enrolling in remedial coursework may pose significant costs to students financially and personally, in terms of both the tuition they must pay for courses that garner them no college credits and the time that those courses consume.[viii] There also remains substantial concern among educators and policymakers regarding whether the assignment to remediation may impact a student's chance of success. If students perceive remediation as a barrier to completion in and of itself, there is a possibility they may choose not to continue pursuing postsecondary education. Some also argue that providing remedial education may require a shuffling of institutional priorities; e.g., institutions may be spending money, faculty and staff time, and additional resources providing remedial instruction that could have been allocated elsewhere.

As noted above, there is an argument made by many – including policy makers, institutions, and advocacy groups– that the need for remedial work indicates a major impediment to student success. Data do show that many students who are assessed to need remediation are not successful in higher education.[ix]

However, there are data currently reported by Maryland community colleges as part of the accountability process, and reported in the Degree Progress Analysis (DPA), which show that the

assessment to need remediation may not necessarily represent a predictor of student success. The DPA examines student outcomes disaggregated into three groups based upon their developmental education needs – 1) students entering as college ready, 2) students requiring remedial work and completing the entire prescribed sequences, and 3) students requiring developmental work who fail to complete one or more required courses.

Based on over a decade of institutional submissions, the data show that while students who need remediation are overall slightly less successful than students entering as college ready, those students who need remediation and complete it at Maryland community colleges are consistently much more likely to graduate or transfer than their counterparts who fail to complete assigned remedial coursework. [x] Therefore, the success borne out by developmental completers as shown in the DPA may be indicative of the effectiveness of remediation, or may simply be indicative of fundamental differences between the two populations. [xi] It is important to keep in mind that determining the impact of any specific intervention is far from definitive, and separating programmatic effects from underlying student characteristics such as motivation and student confidence is challenging. That said, the DPA shows that the biggest barrier to student success may not be the assignment to remediation but the failure to complete it. This series of briefs is designed to more closely examine the impact that requiring remediation might have on student success.

METHODS AND LIMITATIONS

While the previous section indicated one important limitation of this type of analysis – the difficulty of ascribing student success or failure to one type of intervention – there are also a number of limitations imposed by the data. This series will attempt to address these limitations as more comprehensive student-level data become available.

Historically, the data collected by the Maryland Higher Education Commission (MHEC) included only remedial assessment data on recent high school graduates. However, in 2012, MHEC, in conjunction with Maryland colleges and universities, implemented a series of new data collections that provide more thorough information regarding student enrollment and completion. This report series will include analysis of these more comprehensive data. This includes two very significant improvements over past reporting:

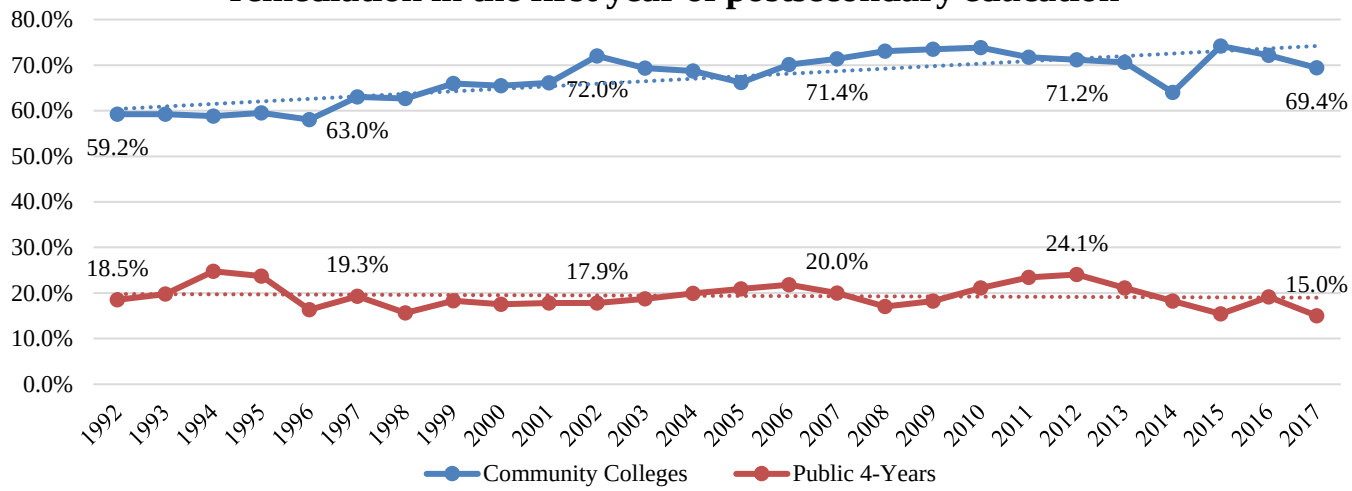
1. These analyses will include information on all first-year students, not solely constricted to recent high school graduates. This is particularly valuable because it allows for analysis of students MHEC has never had the ability to report on - students not directly out of high school. This will also enable more precise reporting on the differences between what have often been considered "traditional" students and "non-traditional" students.

2. As noted above, prior to 2013, MHEC solely had data concerning a student's assessment to need remedial education. Current data allow for the investigation into student outcomes to a degree never before available. This and forthcoming reports will extend analysis past student assessment to examine student outcomes specifically tied to remediation. This will include enrollment in and completion of developmental work (throughput completion) for students assessed to need remediation, and enrollment in and completion of associated credit-bearing coursework for both students assessed to need remediation and students assessed by the institution to be college ready at the time of initial enrollment.[xii] First-year outcomes that have proven to be important indicators of a student's eventual success, including credit accumulation and first-year GPA, will also be reviewed for both groups of students. As more data become available, MHEC will have the ability to more fully understand student activity beyond the first year and track students further along their postsecondary careers.

THE STATUS OF REMEDIATION IN THE STATE OF MARYLAND

There is a common misperception that students needing remedial work when enrolling in college is a recent phenomenon. However, historical data show that this is not the case.[xiii] As Figure 1 (see p. 5) shows, in 1992 nearly one-fifth (18.5%) of students at Maryland public four-year institutions and nearly three-fifths (59.2%) of students at Maryland community colleges who were recent Maryland high school graduates were assessed to need remedial work before enrolling in college-level courses. The percentage of students at public four-year colleges and universities who required remediation has overall remained fairly steady, with a slight decline over the past 25 years. Among students entering four-year institutions in 2017, 15.0% were assessed to need remedial work. On the other hand, while it has fluctuated over time, there has been an increase in the need for remediation at community colleges; as of 2017, over two-thirds (69.4%) of students entering Maryland community colleges were assessed as unprepared for credit-bearing coursework. It is impossible to tell from the data whether these trends are driven by changes in actual student readiness and/or an effect of alternative drivers of change such as shifting measures of assessment. In the case of both community college and four-year public institutions, however, the data indicate that the need for remediation has been a persistent issue over the past 25 years.

Figure 1: Percentage of Maryland high school students requiring remediation in the first year of postsecondary education



Note: Due to data availability, figures portrayed in this chart represent only recent Maryland high school graduates. As noted above, future briefs in this series will be more comprehensive in scope.
Source: Maryland Higher Education Commission, High School Graduate System

In an effort to understand more about the status of developmental education at Maryland public institutions, in 1996 MHEC conducted a study of remedial education at public institutions throughout the state. This study was intended to provide information regarding a number of policy questions surrounding institutional missions, academic and admission standards, equitable access to postsecondary education, the impact of requiring remediation on retention and graduation rates, funding for and costs of higher education, and the effect of remediation on workforce preparation. While this analysis provided valuable information regarding remedial activities at institutions, the data limitations noted previously affected the utility of these analyses. Additionally, the relevancy of these data may be limited by the fact that the policy landscape surrounding remediation has changed significantly in the past 25 years. Institutions have undertaken a number of initiatives designed to address college readiness, and it is important to understand how these may impact student success.

In addition, as previously noted, in 2010 the Maryland legislature tasked MHEC with conducting an investigation into the costs of remedial education, to students, institutions, and the state.[xiv] The resulting report also included discussion of best practices regarding developmental education, many of which served as foundations for subsequent reform.

Current Initiatives

Amidst ongoing concerns regarding student preparation for college and the workforce, the Maryland General Assembly signed into law the College and Career Readiness and College Completion Act (CCRCCA) in 2013. CCRCCA, in part, established a requirement that Maryland public high school students take assessments in both math and English by the end of 11th grade to

determine their readiness for college and careers. In addition to initiatives designed to promote student readiness for higher education in high school, this legislation created a requirement that institutions develop degree pathways for all degree-seeking students – including both recent high school graduates and all other students – that require that all students take credit-bearing courses in English and math within the first 24 credits. Additionally, it is required that all students enrolling in developmental courses in college then enroll in the associated credit-bearing course either concurrently or in the semester immediately following completion of the remedial course.[xv]

The substantial need for remedial courses across all segments and sectors of higher education in Maryland poses significant concerns, but the need is particularly pressing at community colleges, as previously cited data show. By virtue of being open-access institutions, community colleges are designed to meet students where they are academically at the time of entrance and prepare them for success. However, community colleges are working extensively with the Maryland State Department of Education and local education agencies to help ensure students are prepared for college by the time they leave high school.

A particularly important component of this is the Memorandum of Understanding (MOU) between the Maryland Association of Community Colleges and the Public-School Superintendents Association of Maryland, which established common benchmarks for college readiness.[xvi] This also established a multiple-measure standard for assessing proficiency; rather than relying solely on placement test scores to determine a student's readiness for credit-bearing coursework, other indicators such as a student's high school GPA or other standardized test scores are incorporated into an institution's assessment.

While the need for remediation at community colleges is substantial, public four-year colleges and universities are no stranger to the need to work with students entering unprepared for credit-bearing coursework. [xvii] Many institutions see developmental education as a critical element to ensure access to postsecondary education.[xviii] In part to address concerns that students not taking mathematics courses in their senior year of high school were experiencing learning loss that contributed to them requiring remedial work in college, in 2009 the University System of Maryland (USM) adopted an academic policy requiring incoming freshmen to have completed four years of high school math. Leaving unchanged the requirement that students have completed a sequence of courses including Algebra I, Algebra II, and Geometry, this established a requirement that students who had completed these courses prior to their senior year enroll in an "algebra-intensive" course their senior year. This policy went into effect with the students entering the ninth grade in 2011. Because of the relative newness of this policy, it is likely too early to attribute any changes in college readiness to this specific change; however, more long-term analysis might shed light on any impact this policy may have had on student readiness and subsequent success in higher education.

In addition to requiring math during the senior year of high school, USM is undertaking a significant effort to redesign math remediation itself that will impact both recent high school graduates and those who may have taken a break during their educational careers. Positing that preparing students for the math course they will actually need to be successful in their major, rather than a generic remedial course that would prepare them for all college-level math courses, will help increase student success, the USM undertook an initiative to develop such a curriculum.

The First in the World Maryland Mathematics Reform Initiative is a collaborative effort between five USM institutions and seven Maryland community colleges working together to develop and implement mathematics pathways courses that are relevant to a student's career path but also academically rigorous. Of particular note is that these courses will enable students to take courses specifically designed to prepare them for success in either algebra or statistics, rather than assuming college algebra is necessary for all students requiring developmental work. This is designed to reduce disconnect between the skills acquired in developmental courses and the skills required to be successful in credit-bearing coursework relevant to their chosen major. Pilot courses were launched at participating institutions beginning in 2016, and they are being evaluated for dissemination to other Maryland public institutions.[xix] Unlike many of the CCRCCA reforms, which focused primarily on traditional-age students, this initiative has the potential to have substantial impacts on non-traditional students as well, particularly given that many adult students will have had an extended break since their last formal math course.[xx]

Finally, there has been significant interest in implementing broader remediation reform, particularly in the utilization of co-requisite remediation. This type of model seeks to ensure student success in credit-bearing coursework by having them enroll directly into the college-level course while receiving additional academic support.[xxi] Institutions across the country are increasingly adopting this model for part or all of their developmental offerings, and many institutions throughout the state either have implemented or are in the process of implementing this delivery model. The *2017-2021 Maryland State Plan for Postsecondary Education* specifically urges Maryland institutions to consider whether this might increase student success.[xxii]

Historically, the central focus of policies tied to remedial education was on fixing the entire problem of remediation by ensuring the students entering college directly from high school were entering prepared for success in credit-bearing coursework. However, as the various current initiatives show, the landscape of remedial education in Maryland continues to undergo substantial transformation.

There is increased recognition that the issues surrounding preparation are not solely concentrated among recent high school graduates, and that reforms affecting non-traditional students remain paramount. Additionally, defining what "college-ready" means is increasingly becoming a focus for policymakers and educators, both in terms of how to assess readiness and what students need to be prepared for in order to be considered successful. Ultimately, the

combination of these initiatives are intended to address the fundamental problem that lays behind the existence of developmental education – how to prepare students for success in college-level work and to ensure success throughout their college career.

SUMMARY AND NEXT STEPS FOR RESEARCH

Remedial education continues to be a significant area of policy concern. In addition to the financial costs, there are substantial concerns regarding whether remedial education may present an impediment to student success.

As noted before, this brief is Part 1 of a series of reports regarding college-level remediation. Upcoming research will more closely examine the remedial landscape at Maryland's colleges and universities, including identifying students who required remediation and their outcomes, both short- and long-term. This research is designed to provide timely data on the status of remedial activities in the state, and provide context regarding policy questions of substantial importance.

Part 2 of this series will include an examination of populations of students assessed to need remedial education when enrolling in a college or university for the first time. As previously noted, this will include analysis of first-time entrants, including those not enrolling directly out of high school

Upcoming parts of this series will review first-year college student outcomes for students based on remedial status. The first analyses will examine enrollment in and completion of remedial work (as applicable), and subsequent enrollment in and completion of credit-bearing coursework. Further parts of this series will build upon these data to examine broader first-year academic outcomes for students, including first-year GPA and credit outcomes.

Long-term persistence and completion outcomes will be examined as data become available.[xxiii]

ENDNOTES

[i] Some in the higher education community have argued that there should be a distinction between "remedial" education - e.g., coursework designed to compensate for skills lacking that they already should have obtained - and "developmental" coursework - designed to help students develop understanding in areas that they had not previously studied. However, there is no consensus regarding this, and the data do not provide a mechanism to distinguish the two. Consequently, throughout these analyses, “remediation” and "developmental" and "remedial” education/courses/sequences will be used interchangeably.

[ii] This series is designed to focus specifically on students who are assessed to need remedial work when entering higher education, and their outcomes at the collegiate level. While there are ongoing efforts to improve student readiness at the elementary and secondary levels, this study is limited in scope to assess the impact of an assigned intervention – remediation – on student success.

[iii] In “Remedial Coursetaking at U.S. Public 2- and 4-Year Institutions: Scope, Experiences, and Outcomes” (2016), National Center for Education Statistics, (NCES), the authors find that remedial completers achieved more successful outcomes than their counterparts who were assessed to need remediation and failed to complete any or all of the remedial sequence to which they were assigned.

[iv] Henry B. Reiff, a participant in the Maryland K-16 Partnership for Teaching and Learning in the mid-1990s, wrote a 1998 *Baltimore Sun* editorial arguing against the elimination of remedial education. His central argument was that institutions should provide the necessary preparation for students who may not have been on a “college prep” track and provide the opportunity for students – particularly those from historically underrepresented populations – to be successful in higher education. “Courses serve useful purpose Maryland follows national norm with catch-up instruction; Debating remedial education: Two views on the value of providing basics for underprepared college students” Accessible via https://www.baltimoresun.com/news/bs-xpm-1998-06-07-1998158009-story.html+&cd=1&hl=en&ct=clnk&gl=us

[v] Institute for Higher Education Policy: What It Is, What It Costs, What’s At Stake” (1998). Accessible via http://www.ihep.org/sites/default/files/uploads/docs/pubs/collegeremediation.pdf.

[vi] In part due to these cost concerns, the 2010 Maryland Joint Chairmen’s Report charged MHEC, the Maryland Association of Community Colleges, the University System of Maryland, and Morgan State University with examining the costs of remedial instruction at Maryland public colleges and universities. The resulting report, *The Costs of Remedial Education*, (2011) utilized a survey to examine the cost of developmental education to students and the amount of tuition and fees and state support devoted to developmental instruction.

[vii] The 2011 MHEC report on costs of remediation examined the amount of education and general funding expenditures that might be attributed to developmental education; although not all of this money would be derived from public funds, a substantial portion of institutional funding comes from either state or federal monies. The U.S. Department of Education study “Developmental Education and Strategies for Reform”(2017) also highlights the fact that students who enroll in remedial courses accumulate federal student debt, and that students who take out loans and do not graduate are three times more likely to default on their student loans

[viii] “Four-Year Myth: Make College More Affordable. Restore the Promise of Graduating on Time.” (2014), Complete College America.

[ix] Jimenez, et al, "Remedial Education: the Cost of Catching Up", Center for American Progress (2016) "Remediation: Higher Education's Bridge to Nowhere (2012), Complete College America.
[x] See Appendix A, Degree Progress Analysis, for historical data. Additionally, the MHEC *2019 Community College Retention, Graduation, and Transfer Report* contains further discussion of the methodology used in this analysis and disaggregated outcome data.
[xi] NCES's 2016 report on remedial coursetaking provides additional discussion regarding the fact that correlation does not equal causation; underlying factors such as motivation, engagement, etc. may have important, yet immeasurable effects on student success.
[xii] For example, Part 3 of this series will examine whether a student assessed to need remedial coursework in math enrolled in and completed courses to prepare them for credit-bearing work, then enrolled in and completed a credit-bearing math course.
[xiii] Due to the limited availability of historical data, these figures include remedial assessment for recent Maryland high school graduates only. Upcoming briefs will examine a more broad population, including students of all age groups and students entering from out-of-state.
[xiv] MHEC, (2011) "The Costs of Developmental Education".
[xv] "College and Career Readiness and College Completion Act of 2013", Senate Bill 740.
[xvi] Maryland Association of Community Colleges and Public-School Superintendents Association of Maryland (2019). "Revisions to the Memorandum of Understanding between Maryland Association of Community Colleges and Public-School Superintendents Association of Maryland."
[xvii] It is important to note that not all four-year colleges and universities incorporate developmental education into their curricula; Salisbury University and St. Mary's College of Maryland do not offer any remedial coursework. Additionally, not all four-year institutions offer developmental courses in all subjects.
[xviii] A number of institutions, particularly community colleges, refer to efforts to address the needs of students enrolled in developmental education as one way to increase success among diverse populations, particularly underrepresented minority and first-generation students, in their annual Cultural Diversity Report Narratives. MHEC, "Report on Institutional Programs of Cultural Diversity: MSAR #8751, Volume 2" (2018). Accessible via http://dlslibrary.state.md.us/publications/Exec/MHEC/ED11-406(d)(2)_2018.pdf.
[xix] The University System of Maryland, "First in the World Mathematics Reform Initiative [FITW MMRI] Project Overview" (2016). Accessible via https://dcmathpathways.org/sites/default/files/2016-08/First%20in%20the%20World%20Maryland%20Mathematics%20Reform%20Initiative%20%28FITW%20MMRI%29%20Project%20Overview.pdf
[xx] In the article "Math Anxiety, Math Self-Concept, and Math Self-Efficacy in Adult Learners Compared to Traditional Undergraduate Students," Molly Jameson and Brooke Fusco find that for adult students, returning to school after a break in their formal education may contribute to higher levels of anxiety regarding their math skills as well as lower levels of self-confidence regarding their abilities.
[xxi] A February 2019 *Chronicle of Higher Education* report, "The End of the Remedial Course", discusses a number of different strategies institutions have used to implement co-requisite remediation, from offering companion credit-bearing courses alongside a developmental supplement to peer extra tutoring, peer study groups, or computer lab work. Accessible via https://www.chronicle.com/interactives/Trend19-Remediation-Main.

[xxii]The State Plan focuses on the potential for co-requisite remediation to increase the chances student success, and both the Complete College America analysis discussed in "Corequisite remediation: Spanning the Completion Divide" (2016) and the aforementioned *Chronicle of Higher Education* report examine the implementation of co-requisite remediation across the country. Maryland Higher Education Commission, (2017) *2017-2021 Maryland State Plan for Postsecondary Education: Student Success with Less Debt*.

[xxiii] It is expected that these would be available beginning in 2022 for community colleges (four-year outcomes for the fall 2017 cohort) and 2024 for four-year public colleges and universities (six-year graduation rates for the fall 2017 cohort).

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