Developmental math is an obstacle for community college students

- The California Community Colleges (CCC) system is large and diverse
  - Educates almost half of the state’s undergraduates
  - High numbers of historically underrepresented students enroll
  - Critical to the production of bachelor’s degrees

- Equity is a major concern in developmental (remedial) math
  - 65% of incoming students enroll but few complete transfer-level math—49% of students one level below transfer and only 8% of those four levels below
  - Historically underrepresented students are disproportionately represented

- Community colleges are experimenting with alternative pathways to transfer-level math, as well as other reforms
  - Revising assessment and placement procedures
  - Exploring alternative curricular approaches
Two key reforms aim to shorten the path to transfer-level math

- **Statistics pathway**
  - Provides accelerated pathway to transfer level math for students in liberal arts and humanities majors
  - Aims to better align with transfer-level statistics

- **Compressed math pathway**
  - Accelerates pathway to transfer math by combines two developmental math courses into a single course
  - Aims to streamline content by reducing time spent on review and eliminating redundancy

- Reforms only reach a small share of students
Comparing traditional math and statistics pathways

**Traditional pathway**

- Arithmetic
- Pre-algebra
- Elementary algebra
- Intermediate algebra (AA/AS degree level)
- Transfer-level math

**Statistics pathway**

- Arithmetic
- Pre-algebra (22 colleges)
- Pre-statistics (34 colleges)

No prerequisite (7 colleges)

CSU/UC transferable level

Sequence course
Prerequisite
Students in statistics pathways are much more likely to complete a transfer-level course.
Outcomes improve for a broad range of students, but equity gaps remain

![Bar chart showing outcomes in transfer-level math for different groups and pathways.](chart.png)
Comparing traditional and compressed math pathways

Traditional pathway:
- Transfer-level math
- Intermediate algebra
- Elementary algebra
- Pre-algebra
- Arithmetic

Compressed pathway:
- Transfer-level math
- Intermediate algebra
- Elementary algebra
- Pre-algebra
- Arithmetic

CSU/UC transferable level
AA/AS degree level
Compressed elementary and intermediate algebra (17 colleges)
Compressed arithmetic and pre-algebra (27 colleges)

Sequence course
Traditional sequence course
The compressed algebra pathway has a modest impact

<table>
<thead>
<tr>
<th>Enrolled</th>
<th>Completed</th>
<th>Enrolled</th>
<th>Completed</th>
<th>Enrolled</th>
<th>Completed</th>
<th>Earned a degree, certificate, or transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning algebra or compressed algebra</td>
<td>Intermediate algebra</td>
<td>Transfer-level math</td>
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<td></td>
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<tr>
<td>100</td>
<td>59</td>
<td>51</td>
<td>66</td>
<td>43</td>
<td>28</td>
<td>15, 13</td>
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</tbody>
</table>

- **Compressed algebra pathway**
- **Traditional math pathway**
Outcomes improve for a broad range of students, but equity gaps have not narrowed

- Share of students completing transfer-level math (%)
  - Traditional math pathway
  - Compressed algebra pathway

<table>
<thead>
<tr>
<th>Group</th>
<th>Traditional</th>
<th>Compressed</th>
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</thead>
<tbody>
<tr>
<td>African American</td>
<td>6</td>
<td>13</td>
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<tr>
<td>Latino</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Asian American</td>
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<td>25</td>
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<tr>
<td>White</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Low-income</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Not low-income</td>
<td>10</td>
<td>23</td>
</tr>
</tbody>
</table>
Students in compressed arithmetic and pre-algebra pathways have poor outcomes

- **Traditional math pathway**
  - Start in traditional or compressed math: 100%
  - Completed developmental math: 17%
  - Enrolled in transfer math: 8%
  - Completed transfer math: 5%
  - Earned a degree, certificate, or transferred: 5%

- **Compressed arithmetic-pre-algebra pathway**
  - Start in traditional or compressed math: 100%
  - Completed developmental math: 87%
  - Enrolled in transfer math: 63%
  - Completed transfer math: 51%
  - Earned a degree, certificate, or transferred: 28%
Developmental math reforms improve overall outcomes but have not closed gaps between student groups

- Longstanding gaps between students overall and students in underrepresented groups have not narrowed
  - Race/ethnicity, gender, and low-income status

- Community colleges have begun to consider the equity implications of developmental education
  - Partly in response to student equity funding

- Colleges have begun to address equity gaps
  - Integrating student supports
  - Professional development
  - Reforming assessment and placement
Policy recommendations

- Expand access to statistics and compressed algebra pathways
- Consider curricular reform in compressed algebra
- Consider eliminating lowest developmental math levels
- Integrate developmental math reforms and guided pathways to support student success beyond developmental education
- Encourage innovations and monitor their impact
  - Evaluate outcomes as colleges implement and expand math reforms
  - Assess whether interventions help to close equity gaps
Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.