## Supplemental Digital Appendix 1

### U.S. Top Research Medical Schools and Medical Student Research Requirements

<table>
<thead>
<tr>
<th>Rank</th>
<th>Medical School</th>
<th>Medical Student Research Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Harvard Medical School</td>
<td>“…a scholarly project must be completed prior to graduation…”</td>
</tr>
<tr>
<td>2</td>
<td>Stanford University School of Medicine</td>
<td>“…Scholarly Concentration program is a required, structured program of study in the Medical Student Curriculum that provides students with faculty-mentored scholarly experiences…students do one to four quarters of full-time research.”</td>
</tr>
<tr>
<td>3</td>
<td>Johns Hopkins School of Medicine</td>
<td>“The Scholarly Concentration program … provides the infrastructure and mentoring necessary for students to produce a scholarly project…”</td>
</tr>
<tr>
<td>3</td>
<td>University of California, San Francisco School of Medicine</td>
<td>“30 weeks of dedicated project time … where students will pair with a … faculty mentor, to conduct scholarship relevant to the topic of their choice.”</td>
</tr>
<tr>
<td>5</td>
<td>Perelman School of Medicine at the University of Pennsylvania</td>
<td>“Every student engages in a mentored scholarly project conducted longitudinally throughout the four-year curriculum. Completion and presentation of the scholarly project is due in the spring of the senior year and is a requirement for graduation.”</td>
</tr>
<tr>
<td>6</td>
<td>Washington University School of Medicine</td>
<td>No medical student research requirement.</td>
</tr>
<tr>
<td>7</td>
<td>Columbia University College of Physicians and Surgeons</td>
<td>“Students have four to ten months of protected time … to finish a scholarly project, which may be completed in continuous or divided blocks. All students are required to complete a scholarly project…”</td>
</tr>
<tr>
<td>8</td>
<td>Duke University School of Medicine</td>
<td>“…structured time for students to conduct a hypothesis-driven research project under the direction of a faculty member… will work virtually full time on their projects with no other commitments except occasional seminars or workshops relevant to their work.”</td>
</tr>
<tr>
<td>8</td>
<td>University of Washington School of Medicine</td>
<td>“During summer after their first year, students complete an Independent Investigative Inquiry (III) project in one of five areas.” “1. Data-gathering/hypothesis-driven inquiry. 2. Critical review of the literature…3. Experience-driven inquiry…4. Special simulation selective…5. Promoting community health in developing countries…”</td>
</tr>
<tr>
<td>8</td>
<td>Yale School of Medicine</td>
<td>“…a required thesis to promote scientific inquiry… dissertations presented (must) be based on original investigation either in the laboratory or in the clinic.”9,10</td>
</tr>
<tr>
<td>11</td>
<td>New York University School of Medicine</td>
<td>“Concentration … the student will develop a research plan that will result in the preparation and submission of a scholarly product agreed upon by student and mentor.”11</td>
</tr>
<tr>
<td>11</td>
<td>University of Chicago Pritzker School of Medicine</td>
<td>“A requirement for a scholarly project for all medical students”12</td>
</tr>
<tr>
<td>11</td>
<td>University of Michigan Medical School</td>
<td>“(Students) select a research mentor based on (an) area of interest and identify a project to be completed as the Path of Excellence capstone requirement.”13</td>
</tr>
<tr>
<td>14</td>
<td>Davis Geffen School of Medicine at UCLA</td>
<td>No medical student research requirement.</td>
</tr>
<tr>
<td>15</td>
<td>Vanderbilt University School of Medicine</td>
<td>“A four-year Inquiry experience with 3-6 months of protected research time during the third and fourth years.”14</td>
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<tr>
<td>16</td>
<td>University of Pittsburgh School of Medicine</td>
<td>“Every student engages in a mentored scholarly project conducted longitudinally throughout the four-year curriculum. Completion and presentation of the scholarly project is due in the spring of the senior year and is a requirement for graduation.”15</td>
</tr>
<tr>
<td>17</td>
<td>Northwestern University Feinberg School of Medicine</td>
<td>“The mission of the Area of Scholarly Concentration … is to train students to perform a highly mentored project which culminates with the writing of a thesis.”16</td>
</tr>
<tr>
<td>18</td>
<td>Weill Cornell Medical College</td>
<td>“…the Scholarly Project component … is devised to educate our medical students in how to think analytically and creatively, how to synthesize and critically evaluate the medical literature, how to form clear hypotheses and then obtain, analyze or interpret data to support or refute those hypotheses, and mechanically how to conduct and report scientific investigation…. should result in a work product that might be suitable for publication and presented at a local, regional or national meeting.”17,18</td>
</tr>
<tr>
<td>18</td>
<td>University of California, San Diego School of Medicine</td>
<td>“Students also complete an Independent Study Project…. The project involves original, independent, and scholarly activity by the student…”19</td>
</tr>
<tr>
<td>20</td>
<td>Baylor College of Medicine</td>
<td>No medical student research requirement.</td>
</tr>
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</table>

a U.S. News and World Report 2017 Rankings. Top Medical Schools: Research.20
References for Supplemental Digital Appendix 1


Supplemental Digital Appendix 2

Study Cohort Subgroups, 1,120 Yale Medical Students Graduating 2003–2015, From a Study of Gender Disparities and Medical Student Research Recognition

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Not Nominated for Honors</th>
<th>Nominated for Honors</th>
<th>Honors</th>
<th>Highest Honors</th>
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<tbody>
<tr>
<td><strong>No. (%)</strong></td>
<td>821 (73.3)</td>
<td>299 (26.7)</td>
<td>189 (16.9)</td>
<td>55 (4.9)</td>
</tr>
<tr>
<td><strong>Female (%)</strong></td>
<td>426 (51.9)</td>
<td>144 (48.2)</td>
<td>88 (46.6)</td>
<td>17 (30.9)</td>
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<tr>
<td><strong>URIM (%)</strong></td>
<td>158 (19.2)</td>
<td>31 (10.4)</td>
<td>16 (8.5)</td>
<td>2 (3.6)</td>
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<tr>
<td><strong>Age, years (median, IQR)</strong></td>
<td>27.8 (26.9, 29.0)</td>
<td>27.8 (26.9, 28.8)</td>
<td>27.7 (27.0, 28.7)</td>
<td>28.0 (27.3, 29.5)</td>
</tr>
<tr>
<td><strong>Female Thesis Mentor (%)</strong></td>
<td>197 (24.0)</td>
<td>81 (27.1)</td>
<td>49 (25.9)</td>
<td>15 (27.3)</td>
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<tr>
<td><strong>Successful Mentor (%)</strong></td>
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<tr>
<td>0-2 Honors Theses</td>
<td>750 (91.4)</td>
<td>245 (81.9)</td>
<td>144 (76.2)</td>
<td>37 (67.3)</td>
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<td>3+ Honors Theses</td>
<td>71 (8.6)</td>
<td>54 (18.1)</td>
<td>45 (23.8)</td>
<td>18 (32.7)</td>
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<tr>
<td><strong>Medical Education Duration and Research Funding (%)</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>4 years</td>
<td>320 (39.0)</td>
<td>91 (30.4)</td>
<td>52 (27.5)</td>
<td>6 (10.9)</td>
</tr>
<tr>
<td>5 years, MD ± other degree, 5th year with no or partial funding</td>
<td>337 (41.1)</td>
<td>88 (29.4)</td>
<td>53 (28.0)</td>
<td>17 (30.9)</td>
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<tr>
<td>5 years, MD ± other degree, 5th year with full funding</td>
<td>84 (10.2)</td>
<td>57 (19.1)</td>
<td>38 (20.1)</td>
<td>12 (21.8)</td>
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<tr>
<td>5 years, MD-MHS program, 5th year with full funding</td>
<td>80 (9.7)</td>
<td>63 (21.1)</td>
<td>46 (24.3)</td>
<td>20 (36.4)</td>
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<tr>
<td><strong>Medical Education Program (%)</strong></td>
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<tr>
<td>MD</td>
<td>663 (80.8)</td>
<td>222 (74.3)</td>
<td>135 (71.4)</td>
<td>33 (60.0)</td>
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<tr>
<td>MD-MHS</td>
<td>80 (9.7)</td>
<td>63 (21.1)</td>
<td>46 (24.3)</td>
<td>20 (36.7)</td>
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<td>MD-MBA</td>
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<td>5 (1.7)</td>
<td>3 (1.6)</td>
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<td>MD-MPH</td>
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<td>MD-other</td>
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<td>1 (1.8)</td>
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<tr>
<td><strong>Year of Graduation (%)</strong></td>
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<td>2003 – 2006</td>
<td>259 (31.6)</td>
<td>95 (31.8)</td>
<td>53 (28.0)</td>
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<td>2007 – 2009</td>
<td>187 (22.8)</td>
<td>59 (19.7)</td>
<td>44 (23.3)</td>
<td>12 (21.8)</td>
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<td>2010 – 2012</td>
<td>195 (23.8)</td>
<td>67 (22.4)</td>
<td>42 (22.2)</td>
<td>14 (25.5)</td>
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<td>2013 – 2015</td>
<td>180 (21.9)</td>
<td>78 (26.1)</td>
<td>50 (26.5)</td>
<td>13 (23.6)</td>
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<tr>
<td><strong>Type of Thesis (%)</strong></td>
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<tr>
<td>Clinical</td>
<td>420 (51.2)</td>
<td>124 (41.5)</td>
<td>69 (36.5)</td>
<td>17 (30.9)</td>
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<tr>
<td>Laboratory</td>
<td>289 (35.2)</td>
<td>139 (46.5)</td>
<td>102 (54.0)</td>
<td>34 (61.8)</td>
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<tr>
<td>Humanities</td>
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<td>36 (12.0)</td>
<td>18 (9.5)</td>
<td>4 (7.3)</td>
</tr>
<tr>
<td>Laboratory Thesisa (%)</td>
<td>289 (35.2)</td>
<td>139 (46.5)</td>
<td>102 (54.0)</td>
<td>34 (61.8)</td>
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<td>-------------------------</td>
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<td><strong>Sponsoring Department (%)</strong></td>
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<tr>
<td>Internal Medicine</td>
<td>172 (21.1)</td>
<td>70 (23.4)</td>
<td>59 (31.2)</td>
<td>16 (29.1)</td>
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<tr>
<td>Surgery</td>
<td>116 (14.1)</td>
<td>27 (9.0)</td>
<td>18 (9.5)</td>
<td>8 (14.6)</td>
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<tr>
<td>Pediatrics</td>
<td>77 (9.4)</td>
<td>35 (11.7)</td>
<td>19 (10.1)</td>
<td>8 (14.6)</td>
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<tr>
<td>Orthopedics and Rehabilitation</td>
<td>45 (5.5)</td>
<td>11 (3.7)</td>
<td>7 (3.7)</td>
<td>2 (3.6)</td>
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<tr>
<td>Dermatology</td>
<td>44 (5.4)</td>
<td>11 (3.7)</td>
<td>7 (3.7)</td>
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<tr>
<td>Obstetrics, Gynecology, and Reproductive Services</td>
<td>36 (4.4)</td>
<td>13 (4.4)</td>
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<td>Psychiatry</td>
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<td>Ophthalmology and Visual Science</td>
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<td>Diagnostic Radiology</td>
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<td>Epidemiology and Public Health</td>
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<td>Neurology</td>
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<td>Anesthesiology</td>
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<td>Neurosurgery</td>
<td>25 (3.1)</td>
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<td>Yale Child Study Center</td>
<td>13 (1.6)</td>
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<td>Therapeutic Radiology</td>
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<td>Biomedical Sciences b</td>
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<td>5 (2.7)</td>
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<td>Biomedical Engineering</td>
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<td>Urology</td>
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<table>
<thead>
<tr>
<th>Sponsoring Department (%)a</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Internal Medicine</td>
<td>173 (21.1)</td>
<td>70 (23.4)</td>
<td>59 (31.2)</td>
<td>16 (29.1)</td>
</tr>
<tr>
<td>Surgery &amp; Surgical Subspecialties</td>
<td>220 (26.8)</td>
<td>67 (22.4)</td>
<td>40 (21.2)</td>
<td>12 (21.8)</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>77 (9.4)</td>
<td>35 (11.7)</td>
<td>19 (10.1)</td>
<td>8 (14.6)</td>
</tr>
<tr>
<td>Other</td>
<td>351 (42.3)</td>
<td>127 (42.5)</td>
<td>71 (37.6)</td>
<td>19 (34.6)</td>
</tr>
</tbody>
</table>

Abbreviations: URM = Underrepresented in medicine; IQR = Interquartile range; MD = Medical Doctor; MHS = Masters of Health Science; MBA = Masters of Business Administration; MPH = Masters of Public Health.

a Collapsed version of variable used in multivariate models.

b Cell Biology; Cellular and Developmental Biology; Cellular and Molecular Physiology; Cellular Neuroscience, Neurodegeneration and Repair; Genetics; Immunobiology; Interdepartmental Neuroscience Program; Molecular Biology and Biophysics; Molecular, Cellular and Developmental Biology.