NCMRR Support of Career-Development

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NCMRR’s Commitment to Training and Career Development
NCMRR’s Training Mandate

- 1990 Legislature (PL 101-613) – “The general purpose of the Center is the conduct and support of research and research training”

- 1993 Research Plan – “Training of Medical Rehabilitation Scientists”

- 2016 NIH Rehabilitation Research Plan – Theme: Building Research Capacity and Infrastructure

- Goal – Train independent (future R01) researchers
  - How can we make rehabilitation researchers competitive at NIH?
  - How is NCMRR fulfilling this mission?
Research Awards

Career Stage

‘Informal’ Training and Career Development on RPGs and Supplements

Pre-Bac
- Pre-Bac Institutional Training Grant (T34)

GRADUATE/MEDICAL STUDENT
- Predoctoral Institutional Training Grant (T32)
- Predoctoral Individual NRSA (F31)
- Predoctoral Individual MD/PhD NRSA (F30)
- Postdoctoral Institutional Training (T32)
- Postdoctoral Individual NRSA (F32)

POST DOCTORAL
- NIH Pathway to Independence (PI) Award (K99/R00)
- Mentored Research Scientist Development Award (K01)
- Mentored Clinical Scientist Development Award (K08)
- Mentored Patient-Oriented RCDA (K23)
- Mentored Quantitative RCDA (K25)

EARLY CAREER
- Independent Scientist Award (K02)
- Midcareer Investigator Award in Patient-Oriented Research (K24)

MIDDLE CAREER
- Senior Scientist Award (K05)

SENIOR
NCMRR devotes more than twice the average % of budget on training compared to NIH overall
How Does NCMRR Funding for Rehabilitation Training Compare to That of Other NIH Institutes?

RCDC Rehabilitation Training Awards

RCDC Rehabilitation Training Dollars

2016, 2017, 2018
NCMRR Distribution Across Training and Career-Development Mechanisms (FY19):
NICHD Career Development: Shifting Balance Between K12 Networks and Individual K Awards
**Individuals** Supported by Career Stage and Mechanism across the NICHD (1990-2014)

<table>
<thead>
<tr>
<th>Year</th>
<th>pre-doc F</th>
<th>pre-doc T</th>
<th>post-doc F</th>
<th>post-doc T</th>
<th>K12</th>
<th>indiv K</th>
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<td>121</td>
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<td>2010</td>
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<td>57</td>
<td>439</td>
<td>288</td>
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<tr>
<td>2014</td>
<td>338</td>
<td>60</td>
<td>354</td>
<td>338</td>
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**Note:** Data are numbers of individuals who have been supported by these training programs. For T32 or K12 programs, this number may be higher or lower than the number of “slots” actually awarded.
NICHD Commits Far Greater Proportion of Funds to Institutional Programs vs. Individual F and K Awards

<table>
<thead>
<tr>
<th>Institute</th>
<th>F</th>
<th>Indiv K</th>
<th>T32</th>
<th>K12</th>
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<tr>
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<td>24.0</td>
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<td>NCI</td>
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<td>36.3</td>
<td>10.9</td>
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<td>NIMH</td>
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<td>60.5</td>
<td>28.9</td>
<td>0.0</td>
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<tr>
<td>NIDA</td>
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<td>52.3</td>
<td>31.2</td>
<td>6.8</td>
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<tr>
<td>NIDDK</td>
<td>9.3</td>
<td>52.9</td>
<td>33.5</td>
<td>4.4</td>
</tr>
<tr>
<td>NIAMS</td>
<td>8.9</td>
<td>55.9</td>
<td>35.2</td>
<td>0.0</td>
</tr>
<tr>
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<td>40.7</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>NICHD</td>
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<td>20.4</td>
<td>35.4</td>
<td>38.3</td>
</tr>
<tr>
<td>NHLBI</td>
<td>6.8</td>
<td>34.7</td>
<td>47.8</td>
<td>11.2</td>
</tr>
<tr>
<td>NIGMS</td>
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</table>

Legend:
- F: Institutional Programs
- Indiv K: Individual F Awards
- T32: Individual K Awards (K24, K25, K26)
- K12: Individual K Awards (K08, K09, K10)
NICHD Training Review Implementation Plan

• Maintain overall training commitments (approx. 6%)

• Realign NICHD’s training programs consistent with:
  • NICHD Training Review (2015)
  • NIH Biomedical Workforce (BMW) recommendations
  • NIH Physician-scientist Workforce (PSW) recommendations
Training Review Recommendations

NRSA Programs

• ICs must support all Fellowship mechanisms: F30, F31-Parent, F31-Diversity, F32 Postdoc

• Increase success rates for individual fellowships (had fallen to 10% for F31 and F32)

• Increase relative proportion of individual fellowships vs institutional training grants (T32)

Career Development Awards

• Increase K08 / K23 salary contribution from $75,000 to $100,000 (+FY2017)

• Increase success rates for individual career development awards

• Increase success rates for K99-R00 program as bridge to independence

• Increase relative proportion of individual K awards vs institutional K12s
CONCLUSIONS AND RELEVANCE  Physician-scholars are more likely to apply for and receive a National Institutes of Health research grant if they are trained on an individual career development award, with or without an institutional training award. Based on the data, the NICHD intends to provide a greater proportion of its career development fund allocation to individual awards. The NICHD recognizes the importance of institutional awards and will continue to support them. The NICHD remains committed to training and intends to maintain its investment in training and career development awards going forward.
NICHD K12 Slots vs. Individual K awards

- **NCMRR** is ~6.7% of the extramural budget but about 17% of the K12 slots and individual Ks.
- In 2017, the salary per K award increased 25% so there is not a one-to-one transition from K12 slots to individual Ks.
NCMRR Support of K12 Career-Development Networks
NCMRR National Networks for Career Development (K12)

- Physiatrists (Doctors of PM&R): 1995-2018
- Physical/Occupational Therapist Doctorates (two programs): 2007-present
- Rehab Bioengineers: 2012-present
- NeuroRehab Clinicians: 2017-present

NCMRR model:
- Competitive selection process for scholars
- Provide 2-3 yrs salary – but encourage fiscal independence
- Broader career support through year 5 and beyond
NCMRR Analysis – K12 Scholar Application and Funding Rates

Application and Funding Rates for K12 Scholars

Application and Funding Rates for K12 Scholars with Individual K Awards

### Time to Submit Application per K12 Program

<table>
<thead>
<tr>
<th></th>
<th>Total Scholars</th>
<th>% First 5-year Applicants</th>
<th>Total Never Applicants</th>
<th>% Never Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSTP</td>
<td>48</td>
<td>15%</td>
<td>24</td>
<td>50%</td>
</tr>
<tr>
<td>CORRT</td>
<td>28</td>
<td>54%</td>
<td>10</td>
<td>36%</td>
</tr>
<tr>
<td>RRCD</td>
<td>34</td>
<td>38%</td>
<td>15</td>
<td>44%</td>
</tr>
<tr>
<td>IREK12</td>
<td>9</td>
<td>67%</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>119</strong></td>
<td><strong>34%</strong></td>
<td><strong>51</strong></td>
<td><strong>43%</strong></td>
</tr>
</tbody>
</table>

#### Years to R01 or Equivalent Application

![Years to R01 or Equivalent Application](image.png)

- **RMSTP (n=48)**
- **CORRT (n=28)**
- **RRCD (n=34)**
- **IREK12 (n=9)**
K12 Scholars: Impact of Going on to Additional Individual K Awards

• Worked in conjunction with OSPRA – Appropriate comparators are very difficult to find.

**NICHD Physician-Scientists** on K12 Programs (N=257)

**NCMRR RMSTP** K12 Program (N=48)

Data for any R mechanism at NIH, excluding R13 and R25
In Anticipation of Ending the K12 Programs, Other Opportunities for Career Development were Developed

- NCMRR Early Career Researcher Program (R03) (PAR 20-042)
- Research Education Programs (R25)
  - Training in Grantsmanship for Rehabilitation Research (TIGRR) with active participation from NIH and other funding agencies
  - Rehabilitation Medicine Scientist Training Program (for physiatrists)
  - Short Course training for team-based bioengineers
- NCMRR staff participation in Early Career Workshops at national meetings (e.g., AAP, ACRM, APTA, AOTA)
- Highlighting opportunities through the NCMRR Newsletter
- In addition to K01, K08, and K23 career development mechanisms currently available to many (not all) rehabilitation researchers
Discussion