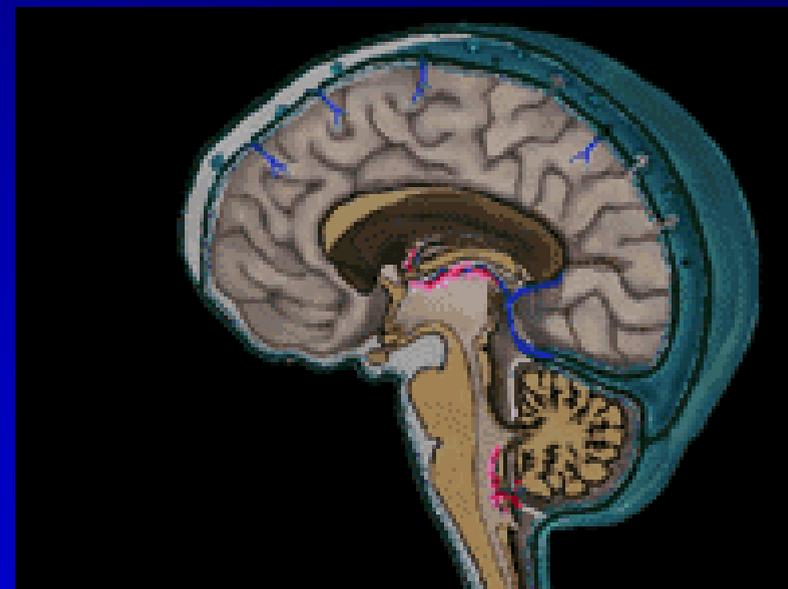
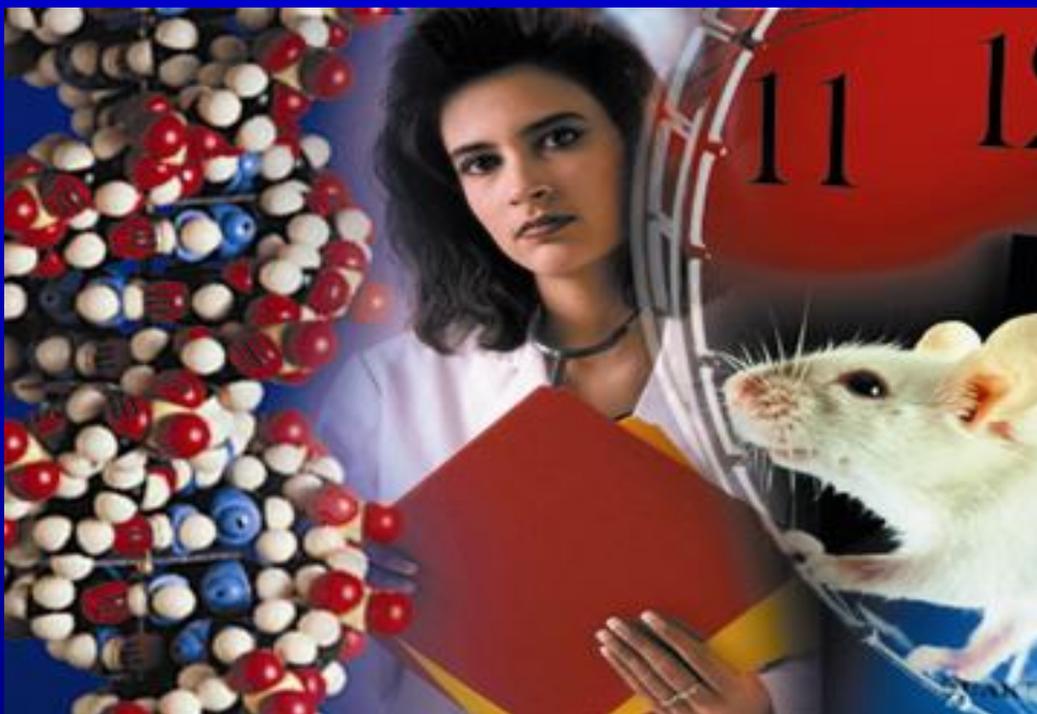


NICHD Training Review

NICHD Council, September 18, 2015



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NIH

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Purpose and Scope of the Training Review

- **Overall Objective: Broad review of NICHD's formal training programs**
- **Overarching Questions**
- **Scope of Training Review**
 - Individual NRSA Fellowships (F30, Diversity-F31, Parent F31, F32)
 - Institutional Training Grants (T32)
 - Individual Career Development Awards (K01, K08, K23, K24, K25, K99-R00)
 - Institutional Career Development Awards (K12 programs)
 - T15 / R25 Grants for Short Courses

Format of the Review

- **Task Force:** Representative Council members, NICHD staff, outside experts
- **Activities:**
 - 6 Task Force meetings (May – September): Policies, data, recommendations
 - NICHD Extramural Staff meetings, TPC, and informal discussions
 - Preparation of written report (on Council web site)
 - Report to September Council
- **Key Topics:**
 - Administration, Management, Peer Review of Training Programs
 - Training Programs & Mechanisms: Purpose, eligibility, policies
 - Funding Commitments: by mechanism, career stage, discipline (OSPAC)
 - Outcomes of fellows / trainees: positions, applications, grants (OSPAC)

Training Review Task Force Members

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Melissa Gilliam, MD, MPH (NICHD Council Member)
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Stephen A. Petrill, Ph.D. (NICHD Council Member)
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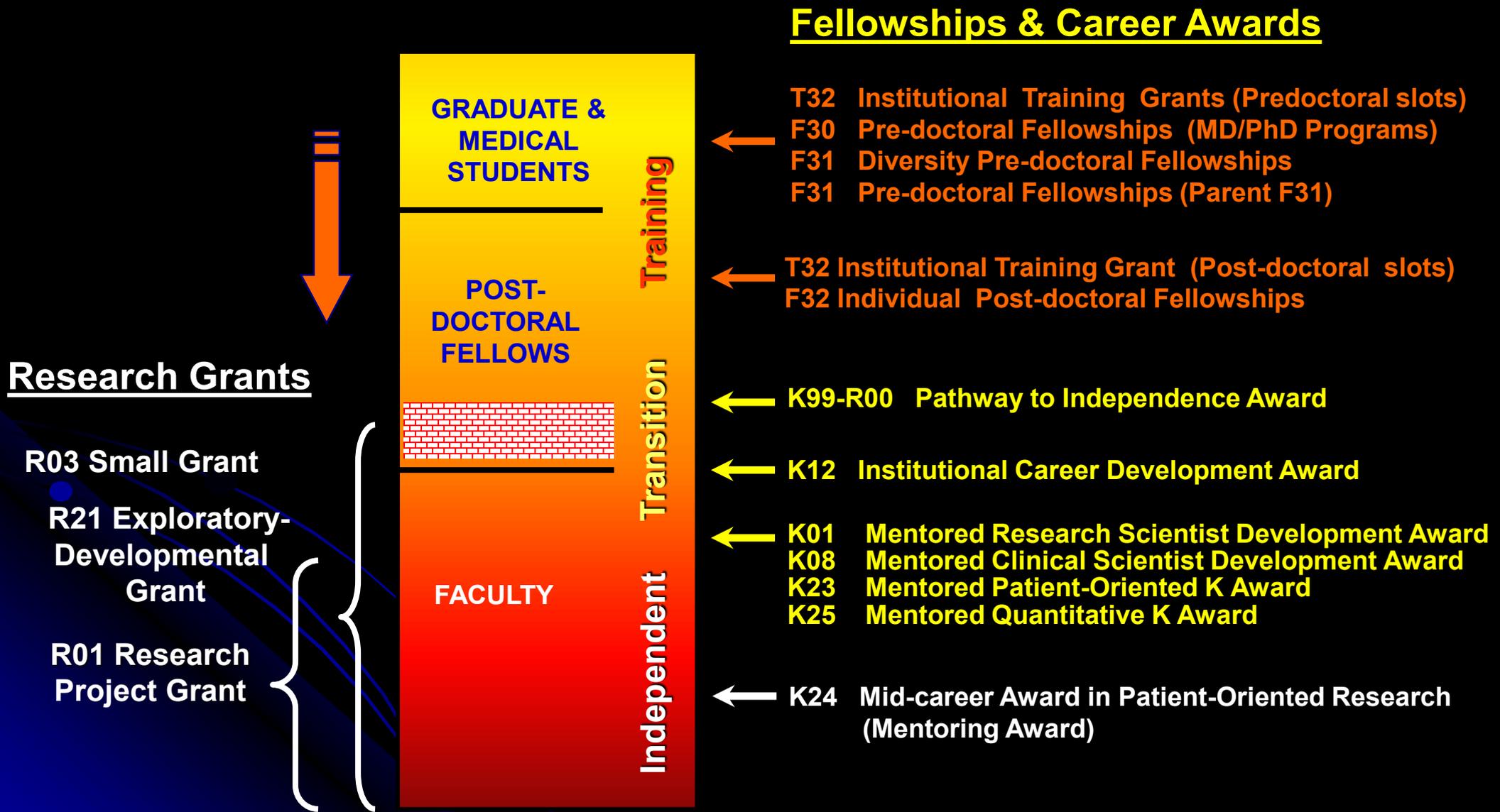
George R. Saade, M.D. (NICHD Council Member)
Professor and Chief, Dept. of Obstetrics and Gynecology, Univ. of Texas Medical Branch, Galveston

Jennifer Sutton, M.S., Research Training Policy and Evaluation Officer, Office of Extramural Programs, OER – NIH

Dennis A. Twombly, Ph.D., Extramural Training Officer, Deputy Director, Office of Extramural Policy, NICHD

NICHD Office of Science Policy, Analysis, and Communication (OSPAC)
Dr. Sarah Glavin, Dr. Jennifer Guimond and Data Analysis team

Research Training and Career Development



Fellowships & Career Awards

T32 Institutional Training Grants (Predoctoral slots)
 F30 Pre-doctoral Fellowships (MD/PhD Programs)
 F31 Diversity Pre-doctoral Fellowships
 F31 Pre-doctoral Fellowships (Parent F31)

T32 Institutional Training Grant (Post-doctoral slots)
 F32 Individual Post-doctoral Fellowships

K99-R00 Pathway to Independence Award

K12 Institutional Career Development Award

K01 Mentored Research Scientist Development Award
 K08 Mentored Clinical Scientist Development Award
 K23 Mentored Patient-Oriented K Award
 K25 Mentored Quantitative K Award

K24 Mid-career Award in Patient-Oriented Research (Mentoring Award)

Research Grants

R03 Small Grant
 R21 Exploratory-Developmental Grant
 R01 Research Project Grant

GRADUATE & MEDICAL STUDENTS

POST-DOCTORAL FELLOWS

FACULTY

Training

Transition

Independent

Overarching Questions (#1)

- *Is the amount of funding NICHD commits to training awards the right amount?
Are the allocations an appropriate percentage of the NICHD budget?
How have these allocations evolved over time?*
- NICHD spends 5 - 7% of extramural budget on all training mechanisms
- In FY2014, NICHD supported 1,232 trainees at a cost of \$74M
- Training budget is comparable to ICs of similar size (eg, NIMH, NIDA, NIDDK)
- Training budget rose rapidly during doubling years, reached a peak in 2003
- Budget declined by ~30% over past 10 years (in inflation-adjusted dollars)

Task Force Observations & Recommendations:

- Training is critical to attract and retain excellent new scientists
- If possible, NICHD should increase funding to offset recent declines
- Impending fiscal pressures warrant NICHD action

Overarching Questions (#2)

➤ *Is NICHD supporting the correct ratio of awards at different career stages, i.e., predoc / postdoc fellow / early faculty? Has this ratio changed over time?*

- NICHD supports research training from predoctoral through early faculty stages
 - Clinical trainees: F30 for MD/PhD programs; T32, F32, K99-R00 for fellows; K12, K08, K23 for final year fellowship through Assistant Professor
 - PhD & non-clinical trainees: F31 predoc; T32 and F32 postdoc; K99-R00 postdoc; K01, K25 early faculty; *limited or no alternatives after 4th yr postdoc*
- Over past 20 years, number of awards at career (K) stage have more than doubled; predoctoral and postdoctoral awards have decreased by 25 - 40%

2014: Grad / Med = 377 (31%); Fellowship = 313 (25%); Career = 542 (44%)

- Allocate more resources for fellowship stage
- Allocate more resources for late-stage postdoc and early faculty levels for those with PhD and other non-clinical degrees

Overarching Questions (#3)

➤ *Are there appropriate levels of commitment to the different training mechanisms ?
Are some mechanisms over- or underutilized?*

- NICHD spends far more on institutional programs (T32 and K12) than on individual awards (F and K); other ICs place more emphasis on individual awards
- 75-80% of NICHD's overall training resources are in T32 and K12 programs
- K08 + K23 for physician-scientists now constitute 63% of individual K portfolio
- K01 + K99 combined constitute 27% of the individual K portfolio
- K24 awards support a large proportion of salary for well-funded investigators with limited additional impact on mentoring
 - NICHD should rebalance the training portfolio
 - Shift some funds from institutional programs to individual awards
 - Increase funding for K99-R00 program as a bridge to independence
 - Reduce K24 mid-career awards or limit to certain focus areas

Overarching Questions (#4)

- *Are the allocations to the fields supported by NICHD training appropriate for the NICHD mission, and are the types of training mechanisms appropriate for those fields? How does the current distribution compare with what NICHD has done in the past?*
- In general, NICHD does not target specific disciplines; most T32 programs, individual fellowships and career awards are submitted in response to Parent FOAs.
- Funding strictly by pay line can shift portfolio in unintended directions (fields/disciplines)
- K12 programs are solicited & funded via RFA with set-aside funds
- Fields with most funding: pediatrics > behavior > reproductive sciences > rehab
- Fields with least funding: pregnancy / perinatol > develop biol > pharmacol > IDD
 - Conduct regular portfolio analysis and re-balance to fit NICHD needs
 - Conduct more detailed analysis of T32 and K12 portfolios to determine which subject areas are over-represented or overlapping
 - Use RFA or PAR to target specific fields only if well-justified
 - Base R25 funding decisions on programmatic need rather than strictly by pay line

Overarching Questions (#5)

- *How do we define success of NICHD training programs? Are NICHD training programs successful?*
- Goal of Training Programs: Develop next generation of scientists; provide workforce
- Success defined as continuing in research-related career (academia, industry, gov't)
- Key measures: employment type, grant applications, funded grants, publications
- Percent of Trainees remaining in research careers:
 - Predocs: 76%
 - Postdocs: T32 (68%); F32 (84%)
 - K awardees: Individual K (82%); K12 (83%)
- Grant outcomes show that some programs are more successful than others
 - Use tiered / multi-faceted formula for gauging “success”
 - Identify and scale back those institutional programs that are less successful or not filling slots
 - Conduct more detailed analysis of outcomes for postdocs and career awardees to assess the effect of combined programs (eg, T32 + F32; K12 + K)

Overarching Questions (#6)

- *Are there training/workforce needs that have already been addressed or that still need to be addressed by our portfolio of training awards?*
 - Training funds are becoming tighter, success rates lower (F31P & F32, SR=10%)
 - Low success rates for training and RPGs are highly discouraging
 - Limited funds must be leveraged across mechanisms, constituencies, and disciplines
 - Success rates for **renewal** T32 (45%) and K12 (65%) are far higher than for **new** T32 (17%) and **new** K12 (21%) applications
 - Existing commitments to ongoing institutional programs limit opportunities to cultivate scientists in novel or emerging areas
 - Funding strictly by pay line prevents proactive portfolio planning
 - Address imbalance in success rates for new vs renewal T32 and K12
 - Adopt strategies to enable more flexibility in selecting training awards by IC needs
 - RFAs or PARs are best used to promote areas where needs are justified
 - Develop new approaches for bridging to independence

Overarching Questions (#7)

- *Are there fiscal pressures or other factors in the near future that have potential to impact our mix of training programs?*
- Biomedical Workforce recommendation: All ICs should sponsor all mechanisms; NICHD joined Parent F30 (dual degree) and Parent F31 (predoc) in FY2014.
 - F30 and Parent F31 are reducing awards and SR for F32 postdoc and Diversity F31.
- Physician-Scientist Workforce recommendations:
 - Increase relative proportion of individual vs institutional awards.
 - Increase K08 / K23 salaries to \$100,000, and research expenses to \$50,000. Number of awards will decrease by 40%, SR will decrease from 30% to 17%.
- K99-R00 applications are increasing each year; success rates are down to 15% (NIH has a target of 30% success rate).
 - Give priority to F32 and Diversity F31 fellowship applications (vs F30 and Parent F31)
 - Preserve K08 / K23 success rates and awards by reducing K12 and K24 funding
 - Commit more funds to K99-R00 program

Discussion

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