Scientific Management Review Board

Working Group on the NIH Grant Review, Award, and Management Process

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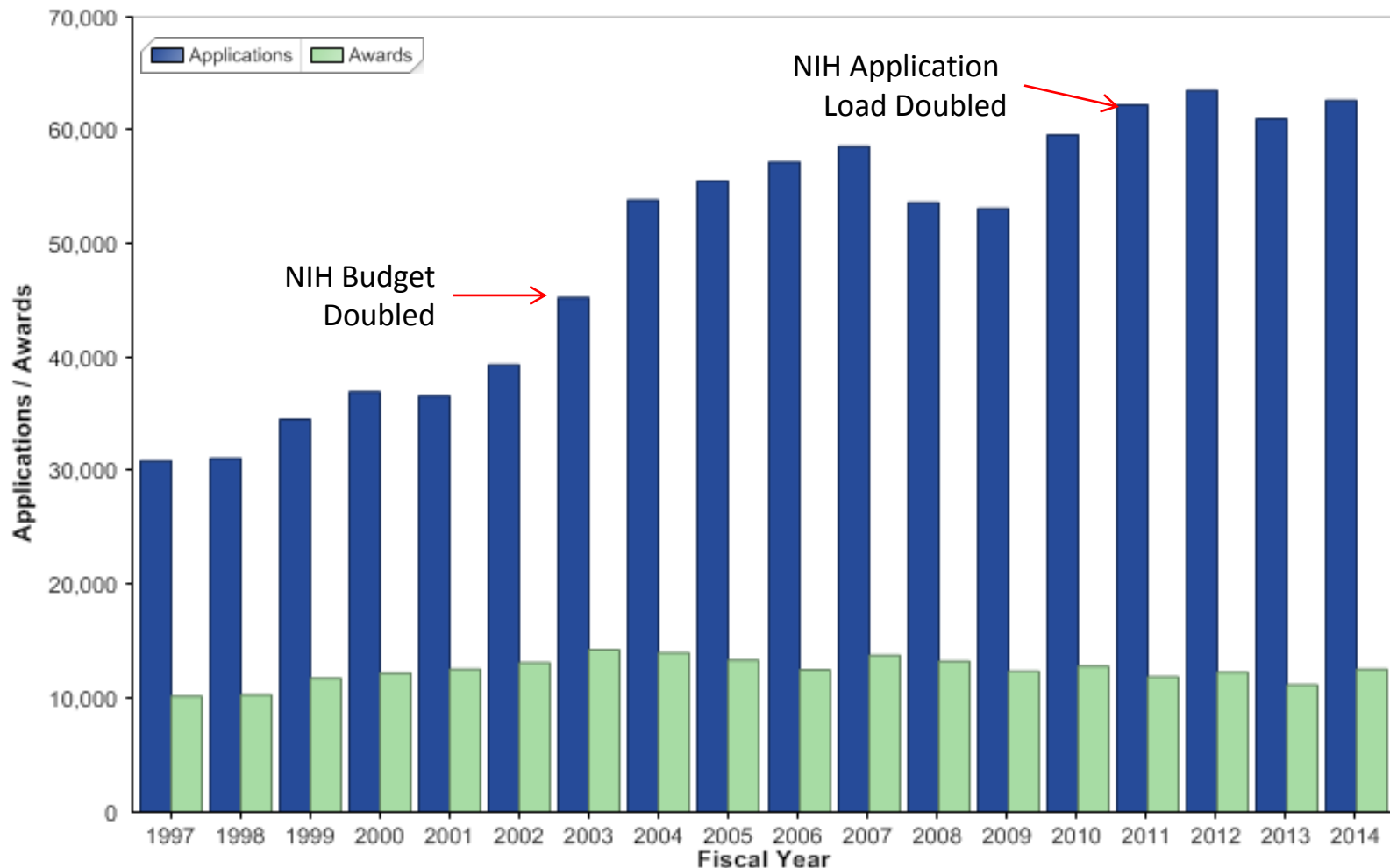
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SMRB Working Group

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Increasing Applications... Same Number of Awards

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More Applications Driven by More Applicants

- Applications: 31,000 in 1998 → 62,000 in 2014

- Individual applicants: 19,000 in 1998 → 32,000 in 2011

- PIs over 65 as % of NIH direct costs : 5% in 1998 → 12% in 2014

- NIH-wide grant success rates: 25% in 1998 → 15% in 2014

Challenges to Address

- The number of applications received by NIH continues to rise, increasing the burden on the peer review system

In addition to:

- Time from application to award for any grant may take more than a year

- Budgetary uncertainty makes it difficult to make award decisions early in the year, often resulting in a bottleneck at the end of the FY

- Investigators spend a significant amount of time applying for grants to fund research projects, leaving less time to conduct research

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Charge to SMRB

- NIH requests that the SMRB recommend ways to further optimize the process of reviewing, awarding, and managing grants in a way that maximizes the time researchers can devote to research while still maintaining proper oversight

- In addressing this charge, the SMRB should consider:

  1. How NIH could streamline the grant-making process and shorten the time from application to allocation of funds

  2. How administrative requirements on applicants and their institutions, scientific reviewers, Council members, and NIH staff could be reduced while maintaining a high-quality review and management process

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Principles for Streamlining NIH's Grant-Making Process

- Recommendations should not compromise the quality of peer review

- WG members were mindful of follow-on effects:
  - Decreasing burden at one step might increase burden at another step
  - Speeding up the process could create a new bottleneck
  - Many potential solutions could have unintended consequences

- Actions that could increase administrative burden on investigators were weighed particularly carefully

- Recommendations that might disadvantage any subpopulation of applicants were not adopted

Grant Cycle: Opportunities for Improvement
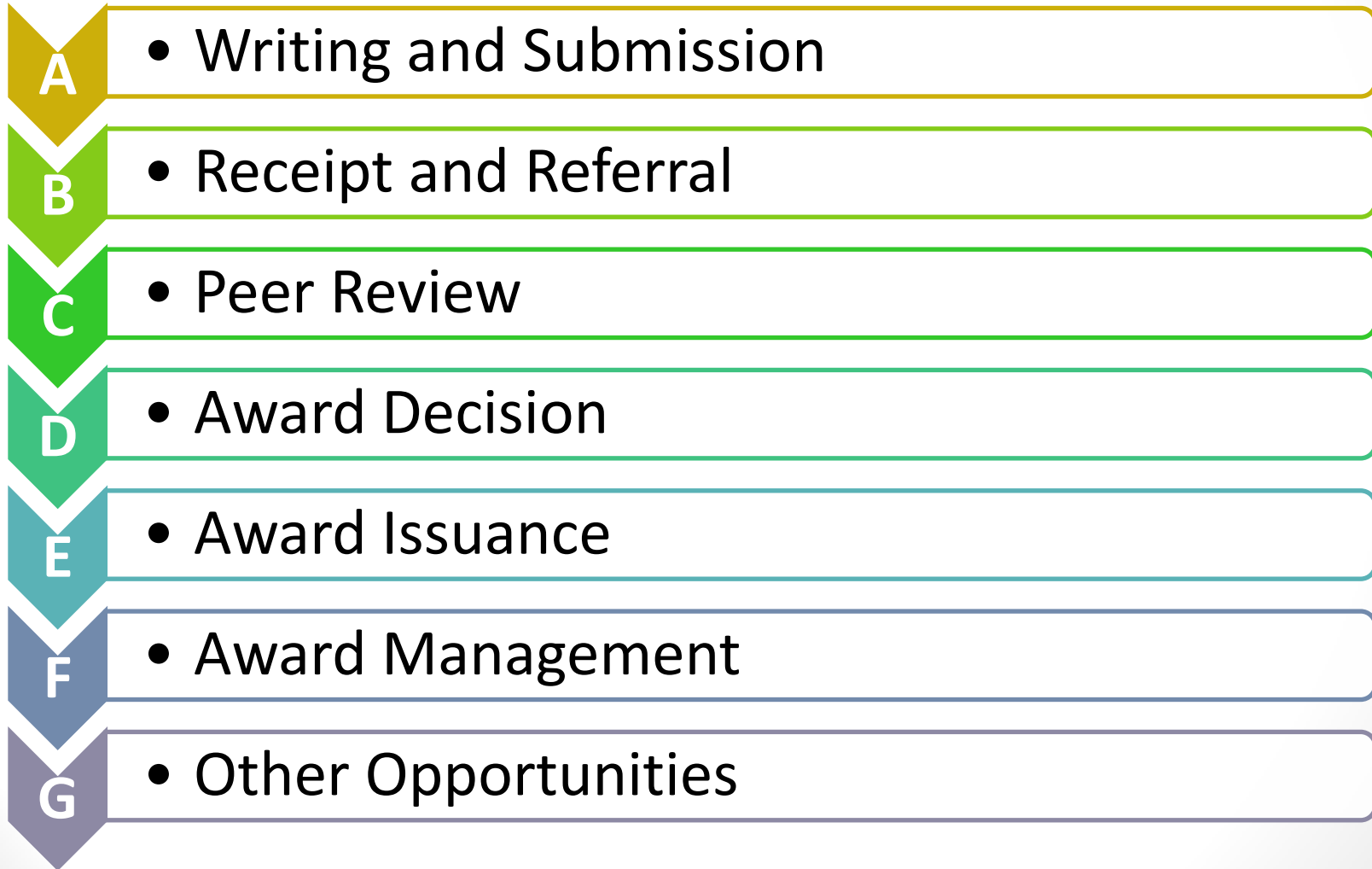
A
- Writing and Submission

B
- Receipt and Referral

C
- Peer Review

D
- Award Decision

E
- Award Issuance

F
- Award Management

G
- Other Opportunities

A) Writing and Submission

- Estimated that each NIH extramural scientist:
  - Submits 1.4 grant applications per year
  - Spends 20% of their time writing grant apps/progress reports, at the expense of research time

- This time burden, combined with historically low success rates, creates a discouraging atmosphere

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Improve the Function of *Grants.gov*

- NIH one of 26 federal agencies that use *Grants.gov*
- Applicants find the system cumbersome and not compatible with institution's software/databases

- WG supportive of OER's (NIH Office of Extramural Research) ongoing efforts with *Grants.gov*. Noted OER's development/implementation of the **Application Submission System & Interface for Submission Tracking (ASSIST) represented a major improvement in the grant submission process**

Implement a Pre-Application Process

- Pre-application: Applicants submit a brief summary prior to submitting full application
  - Summary reviewed; meritorious ideas encouraged to submit full app
- Aim: Alleviate the burden on:
  1. Applicants whose full application is not likely to be funded
  2. Reviewers (fewer full applications to review)
- NIH has employed a limited pre-application mechanism

Recommendation: NIH should **pilot test an expanded pre-application process** in which potential applicants voluntarily submit brief summaries of proposed projects. Those applicants with projects deemed most promising will be encouraged to submit a full application

Fund Investigators, Not Projects

- Current initiatives:
  - HHMI Investigator and Early Career Scientist programs
  - NIEHS Outstanding New Environmental Scientist Program
  - NIGMS Maximizing Investigators' Research Award
- Key themes of successful initiatives:
  - Funding based on overall research program (not specific projects)
  - Limited administrative burden
  - Long-term support

- The WG endorsed NIH's efforts in this area and urged the **further development of similar programs**

Encourage Grantee Institutions to Provide Greater Input to Researchers Preparing Grant Applications

- Institutions have vested interest in improving application quality
- Many programs at institutions/professional societies to help PIs, particularly early career scientists

- The WG discussed ways that these programs could become even more widespread, and they agreed that **sharing best practices** would be beneficial to the entire academic biomedical research community
- The WG noted that **sharing and interaction is best at the institutional level and that there was not a specific role for NIH in this area**

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B) Receipt and Referral

- NIH receives ~84,000 apps/year

- Applications compliant with NIH policies are assigned to an NIH IC and Review Group

- Receipt and referral takes ~2 weeks on average

- Very few referrals are contested

- Quick and efficient; **WG did not see a need for recommendations for this stage of the process**

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C) Peer Review

- NIH review is a two-step process:
    1. Peer review panel: Scientific merit assessed
    2. IC Advisory Council: public health impact and program priorities also considered

- Peer review faces growing challenges as the number of applications steadily increases

Increasing the Pool of Potential Reviewers

- Many PIs not engaged in peer review process (other NIH commitments, lack of time, etc.)
- Narrow range of disciplines tapped

Recommendation: The pool of reviewers that NIH draws upon to conduct its peer review should be deepened by **continually encouraging NIH grantees to participate** in the process. In addition, the pool of reviewers should reflect the diversity that NIH strives for within the scientific workforce. Therefore, **NIH should increase the diversity of expertise** called upon to participate in peer review and should carefully integrate more early stage investigators in the review process

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Streamlining and Improving Upon Peer Review Meetings

- Time/travel burden on reviewers for face-to-face meetings
- Center for Scientific Review (CSR) and many ICs already using virtual meetings
- May work for groups that have met repeatedly in-person
- NIH prohibited from providing food/beverages during review meetings

- WG affirmed the value of in-person peer review meetings, but **strongly encourages NIH to explore options to increase the number of virtual meetings** to alleviate time and travel burdens on reviewers
- **WG encourages rule makers to modify policies to allow modest refreshments** to facilitate efficient use of reviewers' time and energy and allow uninterrupted, rigorous discussion

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Modifying the Review Cycle

- NIH staff has little time to prepare awards for applications reviewed in the third (September Council) cycle

- Time from application to award can be >1 year for this cycle due to budget uncertainty and other factors

- WG considered effect of **reducing the number of grant cycles to two per year,** and decided that this was **unlikely to decrease the number of applications received**, resulting in greater burden for the two remaining cycles

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Implement a Continuous Submission Policy for All Grantees

- Continuous receipt
  - Allows PIs to spread application efforts over time and alleviates pressure from deadlines
  - May smooth administrative workflow for research institutions
  - But may end up prolonging time from application to award
- Currently available to peer review committee and IC Advisory Council members
- NSF pilot study found continuous submission decreased number of applications

Recommendation: NIH should consider **pilot testing an expanded continuous submission policy**

Strategically Increase NIH Review Staff to Handle Large Volume of Applications

- ↑ workload on NIH review staff due to ↑ application volume, while timeline for peer review remained constant

- Additional staff might improve efficiency or alleviate bottlenecks

Recommendation: NIH should **ensure that review staff have the necessary tools and procedures to maximize efficiency** as well as consider **augmenting review staff to handle the increased volume of grant applications** when a specific need is identified.

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D) Award Decision

- Budget timing affects funding decisions by IC Directors
  - IC directors retain applications from earlier cycles while awaiting budget appropriations
  - Awards tend to be given out in larger volumes later in the year

- **WG identified the following 3 recommendations as most directly addressing the charge and thus higher priority**

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Fast-track Awards for High Priority Applications

- Most ICs already fast-track some applications

- Percent of fast-tracked applications varies between ICs

- Fast-tracking hindered by absence of a final budget

- Continuing resolutions limit the amount of funds that can be obligated at a particular point in the year

Recommendation: NIH should strive to **fast-track awards for high priority, top scoring applications** to the greatest possible extent.

Sharing Best Practices for Strategies to Reduce Time to Award

- Time from summary statement to award varies between ICs

- Potential venues already exist for sharing best practices among ICs

- Not all best practices will work at all ICs

Recommendation: NIH ICs should **share best practices** for reducing time to award.

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Provide Partial Funding of Some Grants While Awaiting Final NIH Budget Appropriations

- 2 stage process, where practical:
  - Quickly provide partial funding earlier in the year to high-scoring grants to allow retention of staff
  - Provide full funding later in the year once budget is finalized
- Not workable for all types of projects/mechanisms
- Could double NIH admin burden-grants mgmt. processes twice

Recommendation: Provide partial funding to promising applications early in the FY to allow for the continuation or initiation of a research program, with full funding contingent on a final NIH budget.

E) Award Issuance

- Several steps required before awards issued:
  - "Just-in-time" procedures (e.g., other sources of funding, IRB and IACUC approvals)
  - Budget negotiations: NIH developing software for grants management which could aid the process of budget negotiations

Recommendation: NIH should **evaluate its just-in-time procedures to identify potential mechanisms to enhance efficiencies including modifying existing procedures**

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F) Award Management

- Faculty spend ~42% of research time on administrative activities, rather than actual research activities

- NIH streamlining award management process to ↓ burden. For example:

  - Federal-wide Research Performance Progress Report (RPPR) system implemented (Fall 2012)

  - Making it easier to charge reasonable costs to direct costs

  - Automatic no cost extensions under appropriate conditions

  - Online submission of non-competing awards through eSNAP (Electronic Streamlined Non-Competing Award Process)

- The WG encourages NIH to continue to **pursue efforts to relieve administrative burden**

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G) Other Opportunities

A • Writing and Submission
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E • Award Issuance
F • Award Management
G • Other Opportunities

- Fresh opinions from outside NIH could help find inefficiencies or redundancies in the system
- Should focus their efforts on a single, limited aspect of the process, (e.g., just-in-time procedures or pre-application checklists)

Recommendation: Consult **outside efficiency experts** to review **specifically targeted** administrative aspects of the granting process and identify potential efficiencies and improved policies and procedures

Recommendation: Prize competitions (small, competitive, non-grant awards) should be considered as a mechanism to generate innovative ideas to improve the grant process

Other Opportunities: Modifying NIH Budget Authority

- **Multi-year spending authority** could speed award decision timeline
  - IC directors could fund current-year grants with prior-year appropriations—more flexibility in the absence of a final budget
  - Could alleviate end-of-year workload caused by attempting to spend the budget by a hard deadline
- **Stable, predictable funding** in general (including multi-year *appropriations*) could improve the timing of funding decisions
  - Requires legislative authority to change
- The WG **encourages NIH to convey the impact of delayed funding** on advancing the nation's medical research priorities to motivate decision-makers to consider solutions to achieve an expanded timeline for NIH spending authority

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Recommendations

1. NIH should strive to fast-track awards for high priority, top scoring applications to the greatest possible extent.

2. NIH ICs should share best practices for reducing time to award.

3. In instances where such funding is practical, NIH ICs should provide partial funding early in the FY to promising applications to allow for the continuation or initiation of a research program, with more complete funding to follow when the IC budget for the FY has been determined. NIH should seek solutions to apply this two-step process with minimal administrative burden.

4. NIH should pilot test an expanded pre-application process in which potential applicants voluntarily submit brief summaries of proposed projects. Those applicants with projects deemed most promising will be encouraged to submit a full application.

5. The pool of reviewers that NIH draws upon to conduct its peer review should be deepened by continually encouraging NIH grantees to participate in the process. In addition, the pool of reviewers should reflect the diversity that NIH strives for within the scientific workforce. Therefore, NIH should increase the diversity of expertise called upon to participate in peer review and should carefully integrate more early stage investigators in the review process.

Recommendations (cont'd)

6. NIH should consider pilot testing an expanded continuous submission policy.

7. NIH should ensure that review staff have the necessary tools and procedures to maximize efficiency as well as consider augmenting review staff to handle the increased volume of grant applications when a specific need is identified.

8. NIH should evaluate its just-in-time procedures to identify potential mechanisms to enhance efficiencies including modifying existing procedures.

9. NIH should consult outside efficiency experts to review specifically targeted administrative aspects of the granting process and identify potential efficiencies and improved policies and procedures.

10. Prize competitions should be considered as a mechanism to generate innovative ideas to improve the grant process.

Discussion and Vote