

Summary of Feedback Collected for the EIA Program (February – June, 2011)

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Overview of the NIH Director's Early Independence Awards

Recent trends have demonstrated an increase in the length of the traditional scientific training period with a concomitant increase in the time it takes for scientists to establish independent research careers. In response, the National Institute of Health (NIH) Common Fund launched the Early Independence Award (EIA) program to provide a mechanism for exceptional, early career scientists to omit traditional post-doctoral training and move into temporary, independent academic positions at U.S. institutions directly upon completion of their graduate degrees (Ph.D., M.D., or equivalent).

The NIH Director's EIA program provides an opportunity for exceptional junior scientists, who have already established a record of innovation and research productivity, to launch an independent research program. It is also an opportunity for research intensive institutions to invigorate their research departments by recruiting outstanding, early career scientists.

The Funding Opportunity Announcement (FOA) was issued on October 6, 2010 (RFA-RM-10-019) and letters of intent were due December 21, 2010. The application was due January 21, 2011. Awards are expected to be announced in September 2011.

Eligibility

At the time of application, the individual either (1) must have received a terminal doctoral degree or completed medical residency within the preceding 12 months or (2) must complete all the requirements for a doctoral degree or complete a medical residency within the following 12 months.

General Requirements

For the EIA program, the junior scientist and the institution applied together for the award. In the application, the prospective Program Director/Principal Investigator (PD/PI) and institution were required to provide the following:

Early Independence PI:

- Evidence of exceptional scientific creativity and productivity;
- A research plan in a scientific area relevant to the NIH mission for which the investigator has demonstrated expertise;
- Strong letters of recommendation from current and previous scientific mentors offering a detailed assessment of the prospects for a successful early transition to research independence achievements as a graduate student and the potential for future scientific contributions;

Grantee Institution:

- Plans for full integration of the Early Independence PI into the scientific community at the institution and evidence that the institution and existing faculty are committed to his/her success;
- Evidence that the proposed research project will complement existing scholarly activities at the institution and will enhance the research capabilities of the institution;
- Evidence that the Early Independence PI will be appointed into an independent research position.
- A detailed description of the laboratory space to be provided to the Early Independence PI and the availability of research support staff;
- A detailed description of the availability of the equipment, supplies and shared resources required by the Early Independence PI, and a plan for guaranteeing access to those resources;
- Description of career enhancement opportunities available to the Early Independence PI, equivalent to those offered to assistant professors;
- Evidence that the Early Independence PIs will have the necessary Institutional commitment to conduct full-time, independent research, excepting the minimal clinical commitments required for clinician researchers and minimal, optional teaching commitments;
- Description of opportunities for the Early Independence PIs to apply for additional research funding without being required to do so.

EXECUTIVE SUMMARY

Six data collection methods were used to gather ongoing feedback that could be used to make adjustments to the program and to any subsequent Request for Applications (RFAs). This approach allowed us to gather opinions from diverse stakeholders throughout the NIH EIA process starting from submission of the grant application through the two-stage review.

The purpose of this report is to summarize the major findings and list the recommendations provided by the respondents. The information is organized by the six data collection efforts.

Request for Information (RFI: NOT-RM-11-011). Input was sought from members of the scientific community at academic and non-academic institutions and other interested parties. It was opened from March 2nd to March 31st, 2011. The RFI was accessed at www.NIH-EIAprogram.com.

Website for Stage 1 Reviewers. Mail reviewers were invited to share their experience with reviewing the EIA grant applications. The website was open from April 4th to April 25th, 2011. The URL address was www.NIH-DP5reviewersEIAcomments.com.

Customer Satisfaction Survey for Applicants (Junior Scientists) (OMB# 0925-0476). The survey for junior scientists had two versions: one for applicants who will receive Ph.D. degrees or complete medical residencies within 12 months following the application submission date, and another for applicants who have received their Ph.D. degrees or completed medical residencies within the 12 months preceding the application submission date. Data collection began on April 27th and closed on May 16th, 2011. The URL address was <http://ApplicantsSurvey.NIH-EIAProgram.com>.

Customer Satisfaction Survey for Host Institution Officials (OMB# 0925-0476). The signing officials of the NIH application were asked to serve as the point-of-contact and coordinate the completion of the survey at their institution. The invitation email explained to host institution officials that some of the survey questions might require them to seek information from other offices within their institution involved in the recruitment and selection of the EIA junior scientists. Data collection began on April 26th and closed on May 26th, 2011. The URL address was <http://Host-InstitutionsSurvey.NIH-EIAProgram.com>.

Feedback Form for Editorial Board Reviewers. Editorial board reviewers were invited to provide feedback on the NIH review process for the EIA program. The feedback forms were collected at the end of the second day of the special emphasis panel meeting held in Bethesda, Maryland on June 14, 2011.

Website for Finalists. Finalists were invited to share their experience with the interview. The interviews were held in Bethesda, Maryland, on June 13th and 14th, 2011. The website was open from June 15th to June 27th. The URL address was <http://interview.nih-eiaprogram.com/>.

REQUEST FOR INFORMATION (RFI)

The RFI consisted of nine items. Respondents were asked to comment on recruitment activities, selection process for junior scientist candidates, advantages and disadvantages of junior scientists staying with their current institution, strategies for seeking a host institution, comparison with similar programs, program features that should be maintained, barriers and challenges, and suggestions for improvement. Thirty individuals provided comments on the RFI, including junior scientists, officials and faculty of host institutions, and NIH principal investigators. Five identified themselves as EIA applicants, three junior scientists and two faculty members from host institutions.

Respondents provided feedback, and responses were analyzed to determine general impressions of the individuals. Fourteen of the 30 respondents were either supportive or had neutral views of the program, and 16 were non-supportive. Reasons provided by supporters of the program included the need for new Ph.D.s to have the opportunity to have an expedited path to independence. Reasons provided by those who were non-supportive of the program included concerns with the premise of skipping post-doctoral training and the belief that recent graduates were not ready for independence.

Major Highlights of Responses

- Factors that may prevent institutions from applying include administrative barriers, eligibility issues, lack of knowledge of the EIA program, and a short timeframe to respond to the RFA. The administrative factors include barriers associated with creating the EIA position, providing physical space, and allowing a person without a faculty position to apply for grants.
- Most of the institutions recruited internally. The recruitment challenges are resistance to hiring junior faculty, limited timeframe to respond to the RFA, and institution's lack of knowledge of the program. Potential recruitment activities mentioned included word-of-mouth, broadcast email, dedicated EIA website and announcements at institution, and reaching out to colleagues for outstanding protégés.
- The institutional process reported by EIA applicants to select candidates varied. Candidates that were either nominated or participated in an institution-wide internal competition were requested to submit curriculum vitae, letters of support, and a project description. One respondent indicated that candidates were asked to provide an abridged "facilities and resources" section of the RFA. Non-applicants proposed an internal committee to identify and select the best candidate.
- The major advantages for candidates staying and applying with their current institution are knowledge of existing resources including human capital, existing networks, the time saved in seeking out and being accepted by another institution, use of time saved to pursue some post-doctoral work, and the current institution's knowledge and experience with candidates.

- The disadvantages of applying with current institution are limited diversity of experience, unclear independence from mentor, lack of clarity on how to transfer award, low starting salary, and others' unfavorable perception of candidate staying at current institution. Two respondents indicated that they believed the present application process is structured to favor candidates staying at their current doctoral institutions. Both agreed that this is not ideal.
- The challenges for candidates seeking a host institution different from their current institution are insufficient time to respond to the RFA, lack of knowledge of the host institution, inadequate mechanisms for integrating the junior scientist into the institution's structure, and candidate's difficulty in specifying his/her individual accomplishments separate from current mentor.
- Janelia was the only program that respondent felt had a premise comparable to the EIA program. In contrast, the biggest drawback to the EIA program is that the candidate's role and actual support would be somewhat unclear.
- The biggest challenge mentioned by respondents was fitting the EIA appointment into the structure of existing position descriptions. Supporters of the program must get buy-in and obtain approval from the department and institution to create a non-permanent, non-tenure-track position.

Summary of Suggestions With Broad Support

- **Timeline:** The timeframe from RFA announcement to the deadline for letters of intent and application should be extended, but the length of time for notification of grant award should be compressed.
- **Eligibility:** The eligibility requirements for individuals applying for the EIA program should be extended to include individuals who have completed clinical fellowships. The timeframe post degree should be extended beyond 12 months. Include a fixed metric for publications as eligibility criteria.
- **Portability of the EIA Award:** NIH should note in the RFA or Frequently Asked Questions the process for investigators to transfer the award to another institution if they choose to do so.
- **Size and Number of Awards:** The number of total awards and awards per institution should be increased.

WEBSITE FOR STAGE 1 REVIEWERS

Mail reviewers were asked to comment on 12 items and their responses were organized into themes. Twenty-three percent of reviewers¹ (63 of 272) provided comments on the review process.

Major Highlights of Responses

Orientation Materials Sent to Reviewers

- Forty-four percent of reviewers (27 of 61) felt the orientation materials they received were helpful or very helpful. Thirty-six percent (22 of 61) believed the materials were satisfactory, and ten percent (6 of 61) felt they needed more information.
- Reviewers who felt the materials were helpful described the materials as comprehensive and clear, and commented that the PowerPoint presentation was quite helpful.
- Reviewers requesting more information wanted additional guidance for items such as NIH's goals for the EIA program, and assessing the relative weight of the application and letters of references.

Application Materials

- Seventy-eight percent (47 of 60) believed the materials provided allowed them to assess the qualifications and potential of the applicant. Of the 47, 19 reviewers further stated that the materials were very helpful or adequate.
- Some reviewers provided comments on qualifications of applicants and letters of reference. Reviewers noted that assessing qualifications was difficult since applicants generally do not have experience or publications, and the reviewers were unsure of the qualifications for an ideal candidate in the EIA program. Comments about letters of reference varied with no overriding themes identified, but notable suggestions included establishing a standard set of questions to be addressed in the letters, or developing a checklist for references to complete with scales to eliminate interpretation.

Adequacy of the Bulleted Critique Template

- Ninety-three percent of reviewers (57 of 61) commented on the bulleted critique template. Ninety-five percent (54 of 57) felt the bulleted critique was adequate to formulate concise and evaluative comments.

¹ The response rate was lower than desired. A group invitation email was sent to all reviewers, but individual survey reminders could not be sent and respondents could not be tracked due to OMB restrictions.

- Several reviewers preferred this bulleted format to the former NIH open-ended paragraph format, though some considered the bulleted format restrictive since it did not allow space for reviewers to provide additional advice and encouragement to applicants.
- Two reviewers suggested tailoring the template specifically for the EIA program, and one reviewer requested clarification if a brief summary was needed for the second level review.

Most Important Review Criteria

- Ninety percent of reviewers (52 of 58) listed specific criteria as the most important. Forty-five of the 52 listed one criterion or a combination of the five NIH review criteria they felt were most important in their reviews. The most frequently cited criteria were *Approach* (28 of 52), followed by *Significance* (19 of 52).
- In addition to the five NIH review criteria, seven reviewers cited other factors as most important, including *Curriculum Vitae*, *Letters of Reference*, *Publications*, and *Productivity*.

Least Important Review Criteria

- Twenty-seven percent of reviewers (14 of 51) felt that all five criteria were important.
- Forty-nine percent of reviewers (25 of 51) listed one of the five NIH review criteria as least important. The top three items ranked *least* important were, in order: *Innovation* (11 of 25), *Environment* (8 of 25), and *Approach* (3 of 25).
- In addition to the five NIH review criteria, 7 reviewers also felt other factors were least important, including *Letters of Reference*, *Budget*, *Preliminary Data*, and *Proposed Project*.
- The remaining reviewers provided general comments.

Overall Impact Score and Criteria Scores

- Fifty-six percent of reviewers (31 of 55) commented on the overall impact score and criteria scores. Ninety-six percent (30 of 31) felt the scores captured their evaluations. The other reviewers only provided general comments and their opinions of the scores could not be determined.
- The most prominent themes identified were: Difficulty providing a rating without being able to calibrate with other reviewer's scores; and challenges knowing how to weigh each criterion when assigning an overall impact score.

Emphasis on Investigator and Institutional Support and Commitment

- Fifty-six reviewers commented on the emphasis on investigator and institutional support. Some reviewers provided opinions regarding the effect of the emphasis on their overall evaluation, which were then categorized based on the importance to their review. Other reviewers provided general comments, but their opinion of the emphasis could not be determined.

- Seventy-nine percent of commenters (34 of 43) felt the emphasis was important or very important to their evaluation, nine percent (4 of 43) felt the emphasis was moderately important, and 12% (5 of 43) felt it was not important.
- The majority of those providing comments felt the emphasis was appropriate because without adequate institutional support and commitment, the applicants would not be successful in accomplishing their goals. Several reviewers felt the emphasis made sense but was not a substitute for good scientific ideas and studies.
- A few reviewers shared the measures they used to assess institutional support and commitment. For example, if the institution did not plan to hire the applicant for a tenure track or only agreed to accept the applicant if funded, it indicated the institution did not view the applicant as exceptional. Also, if the section contained boiler-plate text not addressing the specific proposed project, it did not represent adequate support.

Appropriateness of the Number of Applications Assigned

- Fifty-eight reviewers commented on the appropriateness of the number of applications they were assigned. Sixty-four percent (37 of 58) felt the number of applications assigned to them were appropriate. Fourteen percent (8 of 58) felt it would have been helpful to have more applications, and one reviewer wanted fewer applications. Several commenters felt that reviewing fewer applications was problematic because it did not allow them to view the qualifications of different applicants and calibrate scores.
- Thirty-five reviewers provided their actual review load. Twenty-nine reviewed one application, four reviewed two applications, and two reviewed three applications.

Time Commitment to Review Applications

- Fifty-seven reviewers commented on the time commitment required to review applications. Seventy-two percent (41 of 57) provided comments. The comments varied, and 22 reviewers commented on the appropriateness of the commitment. Sixty-eight percent (15 of 22) felt the time required was appropriate, eighteen percent (4 of 22) thought the time commitment was substantial, and fourteen percent (3 of 22) felt it was small.
- Eleven commented on the time required for the EIA program compared to reviewing other NIH grants. Six noted the review time was comparable with other reviews. Five compared their effort with the R01 reviews; two indicated it was the same, one considered it more arduous, and two indicated it was less arduous.
- Twenty-two reviewers provided their actual time commitment to review each application. Four took 2 to 3 days, eight took 1 day, four took 4 to 6 hours, and six took 2 to 4 hours.

Letters of References

- Fifty-one percent of reviewer (30 of 59) felt the letters of reference were helpful or very helpful. Five percent (3 of 59) felt they were moderately helpful, and 41 percent (24 of 59) felt they were not helpful.
- Sixty-nine percent of reviewers (41 of 59) provided comments. Thirteen noted that the letters would be most helpful if they balanced both the strengths and weaknesses of the applicants. Reviewers commented that the letters were too laudatory – only noting the positive aspects of the applicant, and therefore were not an effective tool to assess the true qualifications of the applicant.
- Another theme was the source of the letters in determining their usefulness. Eight reviewers indicated that the letters were written by people who would benefit from the candidate being funded, such as mentors and faculty who could offset the burden of funding the applicant from other sources. Letters from external sources may be of more value for this reason. Reviewers also felt the letters were valuable in evaluating institutional support.

Suggestions to Improve EIA Review

- Fifty-two respondents commented on the EIA review process, and 13 of 14 who rated the process characterized it as appropriate.
- Sixty percent (31 of 52) provided suggestions. Thirteen of those reviewers suggested having access to other reviews, and some specifically suggested allowing the rating to be adjusted after seeing the comments from reviewers of other candidates. Nine respondents provided suggestions for the review criteria and process, such as revising the template to emphasize the potential of the research and the researcher, and providing guidance on weighing criteria factors.
- Five reviewers suggested providing more information, such as guidance on an ideal EIA candidate and how this program should be reviewed differently than other programs (such as R01).

Suggestions to Improve EIA Program

- Fifty-four reviewers provided either suggestions or comments on the EIA program. Forty-one (22 of 54) provided suggestions.
- Five respondents suggested increasing the number of awards, even if the amount of funding had to be lowered. Three reviewers suggested decreasing the period of the award from five years to two-to-three years.
- Seven respondents suggested changing the eligibility requirements, but there was no consensus in the comments. Some wanted to require a minimum number of post-doctoral training before applying, while another respondent suggested opening the program to investigators for five years after receiving their Ph.D.
- Eligibility requirements should be made clear in materials provided to reviewers.

- Eight respondents provided comments non-supportive of the EIA program in its current form, including questioning the need for the program and opining that a post-doctoral training is vital for investigators and that the EIA funds could be invested elsewhere. Six expressed that the current program was adequate.

Summary of Suggestions With Broad Support

- **EIA Program Goals:** Provide additional guidance on the intent and goals of the EIA program, and characteristics of the ideal candidate.
- **Review process:** Consider providing options to stage 1 reviewers with only one application to calibrate their scores with other reviewers. Also, provide guidance on how this program should be reviewed differently than other programs, such as R01.
- **Weighing Review Criteria:** Provide additional guidance on weighing each of the five NIH review criteria and determining the overall impact score. For example, if more emphasis should be assigned to approach, the orientation materials should explicitly state that reviewers must place more weight on that factor. Also, clarify to reviewers that the “Facilities and Other Resources” section should be considered as an aspect of the “Environment” criterion.
- **Institutional Support and Commitment:** Provide guidance and specific examples on assessing the adequacy of institutional support and commitment. For example, the section should contain text specifically addressing the proposed project, as opposed to boiler-plate information.
- **Letters of References:** Include a standard set of questions to address in the letters of reference, or provide a checklist with a rating scale to alleviate misinterpretations. Require letters of reference to also discuss potential weaknesses of applicants, so reviewers have a better understanding of their potential. Require more information about the applicant’s previous history such as training and mentoring in the letters of reference. Also, require letters from people other than mentors and collaborators, because they might have a self-interest in the applicant being funded.
- **Structured Critique Template:** Consider creating samples of well-written critiques to distribute to reviewers.

CUSTOMER SATISFACTION SURVEY FOR APPLICANTS (JUNIOR SCIENTISTS)

The customer satisfaction survey consisted of 15 questions. A total of 84 junior scientists participated in the survey, and two groups of respondents were identified: applicants expected to complete their Ph.D. degrees or medical residencies within 12 months following the application submission date (35%; 29 of 84) and applicants who received their Ph.D. degrees or completed medical residency during the 12 months preceding application submission date (65%, 55 of 84). The response rate was 79 percent (84 of 107).

Major Highlights of Responses

Knowledge of the EIA Program

- Applicants learned about the EIA program in different ways, and some became aware through more than one source. Fifty percent of respondents (42 of 84) learned about the program from a faculty mentor, 38 percent (32 of 84) cited their institution's listserve or Facebook, and 19 percent (16 of 84) listed Dr. Collins' article in *Nature*.

Application Submission with a Host Institution: Current versus Other Institution

- *All respondents.* Eighty-six percent (72 of 84) applied for the EIA program with their current institution, and 14 percent (12 of 84) applied with a different institution.
- *Applicants completing their Ph.D. degrees or medical residencies.* Seventy-two percent of respondents (21 of 29) applied only with their current institution, 17 percent (5 of 29) applied only with a different institution, and 11 percent (3 of 29) applied with a different institution as well as their current one.
- *Applicants who received their Ph.D. degrees or completed medical residencies.* Ninety-three percent of respondents (51 of 55) only sought support through their current institution, one sought support through two other institutions in addition to his/her current institution, and five percent (3 of 55) only sought support through other institutions.

Degree Status and Position/Appointment at the Time of NIH Grant Application

- *Applicants completing their Ph.D. degrees or medical residencies.* Ninety-three percent (27 of 29) will complete their Ph.D. degrees, and two will complete their medical residencies.
- *Applicants who received their Ph.D. degrees or completed medical residencies.*
 - Eighty-five percent (47 of 55) received their Ph.D. degrees, and 15 percent (8 of 55) completed their medical residencies.

- Ninety-six percent (53 of 55) listed their current positions: post-doctoral (27 respondents), faculty (21 respondents), researcher (4 respondents), and one was appointed as a fellow (no information was available to determine the type of fellowship).

Most Important Factors When Seeking Institutional Support

- *Applicants completing their Ph.D. degrees or medical residencies.* The top four factors respondents ranked as high priority when seeking institutional support were: *access to collaborators* (83%, n=24 of 29), *scientific fit with own research* (79%, n=23 of 29), *clear understanding of support* (76%, n=22 of 29), and *confirmed appointment* (55%, n=16 of 29).
- *Applicants who received their Ph.D. degrees or completed medical residencies.* The top four factors respondents ranked as high priority when seeking institutional support were: *scientific fit with own research* (96%, n=53 of 55), *access to collaborators* (87%, n=48 of 55), *clear understanding of support* (69%, n=38 of 55), and *confirmed appointment* (69%, n=37 of 54).

Most Important Factors When Seeking Support Only From Current Institution

- *Applicants completing their degrees and those who received their degrees.* The most important factors respondents considered in their decision to stay at their current institution were: *beneficial to research goals*, *resources provided met research needs*, and *existing access to collaborators*.

Strategies Used to Seek Institutions Other Than Current One

- *Applicants completing their degrees and those who received their degrees.* The strategies cited included: querying departments, faculty, and former advisors to gauge interest and discuss research; contacting an institution where the applicant had already been offered a position; targeting institutions with open positions; and obtaining sponsorship by current mentor.

Difficulties Due to the Time Between Release of RFA and Application Submission

- Nineteen percent of respondents (13 of 69) did not experience any problems, and 81 percent (56 of 69) reported challenges.
- Thirty-two percent of respondents (18 of 56) reported that they had limited time to develop the NIH proposal due to the delays in the internal selection process at their institutions and faced administrative difficulty handling the NIH grant application for this novel program.
- Other challenges reported – ranked based on number of occurrences – included: writing and preparing the NIH grant application; finding and securing support from collaborators; understanding Early Independent PI's position and eligibility requirements (e.g., due to graduation

dates); generating preliminary data for the proposed research project; and lack of time to seek other institutions.

Institution Selection Process and Challenges

- Fifty-five percent of respondents (40 of 73) described the process for identifying candidates, and three noted that they did not undergo a selection process.
- The majority of respondents completing their degree participated in a competition (7 of 12), while the majority of those who had completed their degrees were selected either because of self-advocacy (10 of 31), competition (9 of 31), or nomination (8 of 31).
- The most common items requested by the institutions were: a short proposal (20 of 42), a curriculum vitae (10 of 42), and an abstract (10 of 42). Twelve of 27 respondents noted that the items submitted to their institutions were reviewed by a committee.
- Sixty-six percent of respondents (18 of 27) described different levels of the review and approval process: seven reported a one-level review (reviewed/approved by specific office or individual); eight reported a two-level review (department and university level via review committee and interview); and three respondents reported a three-level review (department, college, and university).
- Twenty-five percent of respondents (18 of 73) listed challenges. Challenges reported – ranked based on number of occurrences – included: difficulty writing a brief proposal for the institution, limited time to develop the NIH grant proposal due to delays in obtaining institution approval to proceed, and administrative hurdles processing the NIH grant application for this novel program.

Challenges in Preparing the NIH Grant Application

- Twenty-eight percent of respondents (18 of 64) had no challenges with many noting it was a good experience and they had strong support in their institution.
- Seventy-two percent of respondents (46 of 64) reported challenges. Challenges reported – ranked based on number of occurrences – included: gathering institutional support (including securing laboratory space), getting assistance writing the grant application (since the format was unfamiliar and online NIH samples were outdated), deciding how much information and what level of detail to include in the application, and preparing a budget.

Other Positions for which Applicants have Applied

- *Applicants completing their Ph.D. degrees or medical residencies.*
 - Forty-five percent (13 of 29) reported that they had not applied to a position other than the EIA program, and 55 percent (16 of 29) had applied to other positions.

- Twelve of the 16 respondents who applied to other positions listed the following: post-doctoral (8 respondents), both post-doctoral and faculty (2 respondents), junior faculty (1 respondent), and researcher (1 respondent).
- *Applicants who received their Ph.D. degrees or completed medical residencies.*
 - Sixty-four percent (35 of 55) reported that they had not applied to a position other than the EIA program, and 35 percent (19 of 55) had applied to other positions.
 - Sixteen of the 19 respondents who applied to other positions listed the following: post-doctoral (6 respondents), faculty (6 respondents), fellowship for early independence/career (1 respondent), post-doctoral and faculty (1 respondent), industry (1 respondent), and other (1 respondent).

Advantages of “Skipping” the Post-Doctoral or Clinical Fellowship

- Ninety-five percent of respondents (23 of 24) commented on the advantages. The advantages cited included: the ability to immediately launch their career (including freedom to pursue their own research agenda), and aligning responsibilities commensurate with their experience.
- Forty-six percent of respondents (11 of 24) commented on the disadvantages. The disadvantages cited included: missing an opportunity to gain valuable research experience, and lack of mentorship.

Suggestions for Improving the Current Method to Connect Host Institutions and Candidates

- Eighteen percent of respondents (8 of 45) felt no improvement was necessary.
- Suggestions to improve the process included: creating a centralized database to connect candidates with institutions (12 respondents); increasing the timeline from announcement to award (9 respondents); and increasing awareness of the EIA program within institutions (8 respondents).

Suggestions of Alternative Methods for Matching Host Institutions and Candidates

- Thirty-three percent of respondents (16 of 48) supported giving the EIA awards directly to institutions; 29 percent (14 of 48) felt NIH should match early investigators with institutions; and 25 percent (12 of 48) favored the current method of candidates and institutions selecting each other.
- Of the remaining six respondents: four felt awarding the grants to institutions was not the best method and two did not favor having the NIH match applicants with host institutions.

Suggestions for Improving the EIA Program

- Twenty percent of respondents (12 of 60) had favorable comments about the EIA program.
- Suggestions for improving the program included: increasing the number of awards (23 respondents); clarifying or changing the eligibility requirements (12 respondents); increasing the time between the release of the RFA and the deadline to submit the NIH grant application (11 respondents); shorten the duration of the review process (8 respondents); providing more information about the review process (4 respondents); decreasing the size of the award (3 respondents); and increasing the size of the award (3 respondents).

CUSTOMER SATISFACTION SURVEY FOR HOST INSTITUTION OFFICIALS

The customer satisfaction survey consisted of 14 questions. Twenty-five host institutions officials participated in the survey, resulting in the response rate of 28 percent (25 of 89).

Major Highlights of Responses

Knowledge of the EIA Program

- Host institutions learned about the EIA program in different ways, and some became aware through more than one source. Of the 25 respondents, 15 learned about the EIA program from an NIH-sponsored listserv or notice, 13 cited the NIH website, and 7 listed the NIH news release.

Recruitment of Potential Candidates by Institutions

- Twenty-eight percent of respondents (5 of 18) contacted individuals in leadership positions, including department heads and deans to propose potential candidates.
- Twelve respondents reported a variety of recruitment strategies including: contacting selected candidates deemed eligible, making a broad announcement, notifying faculty and researchers, and hosting an internal competition.
- One respondent reported that a potential candidate brought the announcement to the institution's attention.

Number of Internal and External Candidates

- The total number of candidates at host institutions ranged from one to eight. Forty-two percent of the institutions (8 of 19) had only one candidate for the EIA program.
- Seventy-nine percent (15 of 19) had only internal candidates, three had both internal and external candidates, and one had only external candidates.

- The number of candidates at institutions that only had internal applicants ranged from one to seven. Half (9 of 18) reported only one internal candidate.
- The number of candidates at institutions that had external applicants ranged from one to four. Half (2 of 4) reported two external candidates.

Institution's Selection Criteria

- Fifteen respondents listed their institutions' criteria for selecting candidates and one indicated no criteria were used. Respondents listed more than one criterion. *Research/scientific area* was the most frequently cited criterion (6 respondents), followed by *recommendations* and *publications*, (each cited by 5 respondents). *Institutional priorities* and *references* were each listed by four respondents.

Institution's Selection Process

- Thirty-five percent of respondents (6 of 17) noted there was no selection process for the institution since there was only one candidate. The remaining 11 respondents cited: review committee (6 respondents); limited submission procedures (3 respondents); and internal process (2 respondents).
- Some respondents (4 of 17) noted challenges related to the selection process including understanding eligibility requirements and finding eligible candidates.

Changes to Recruitment and Selection Process

- Ninety-one percent of respondents (21 of 23) noted that their institution is not considering changes to the recruitment and selection process. Changes being considered by the other two were recruiting beyond internal graduate students, and enlisting another office within the institution to aid with recruitment and selection.

Potential Challenges of the EIA Position/Appointment

- The majority of respondents (8 of 13) anticipated no challenge with the position/appointment at their institution. Three anticipated challenges. The challenges reported were resistance from those who felt the candidate should complete post-doctoral training, and the inability to secure future grant funding for the position.

Plans for Candidates Not Receiving the NIH Award

- The majority of respondents (8 of 13) indicated their institutions would assist the candidates who will not receive the award by aiding them in finding additional funding and by

continued support and mentoring. Three respondents noted candidates can either apply for institutional funds as independent fellows or pursue the traditional post-doctoral track. Two institutions did not have plans to assist candidates not awarded EIA funding.

Challenges in Preparing the NIH Grant Application

- The majority of respondents (7 of 12) found no challenges in preparing the application.
- The challenges cited included: preparing the institutional commitment section, identifying a lead department since the candidate was co-mentored by two, and differentiating between the candidate and the host institution sections of the application.

Support for More Than Two Early Independent Principal Investigators

- The majority of respondents (9 of 14) noted their institution would support more than two Early Independent Principal Investigators. Five respondents reported that it was a possibility, and two elaborated. Optimal circumstances to support more than two EIA candidates included: the area of research and integration into existing faculty.

Suggestions for Improving the Current Method to Connect Host Institutions and Candidates

- Of seven respondents, two felt no changes were needed to the current method of connecting institutions with candidates, two indicated they were unsure, and the remaining three provided suggestions.
- Suggestions for improvement included: creating a centralized database and/or website, and extending the application submission timeline to allow more opportunity for seeking external candidates.
- One respondent noted that institutions' unfamiliarity with external candidates is an obstacle to accepting their applications, as is making a commitment to them before the award is granted.

Suggestions of Alternative Methods for Matching Host Institutions and Candidates

- The majority of respondents (5 of 7) suggested granting the awards to the institutions so they can recruit suitable candidates. One suggested maintaining the current system, and one suggested using other existing grant mechanisms.

Suggestions for Improving the EIA Program

- Three respondents felt no improvements were needed, and one commented that any recommendations to change the size and number of awards before the review committee meeting would be premature.
- Suggestions included: granting awards to institutions so that they can recruit suitable candidates (5 respondents); extending the application submission period (2 respondents); creating a centralized database to connect host institutions with potential candidates (2 respondents); clarifying eligibility requirements (2 respondents); clarifying the award's target market (1 respondent); allowing M.D.s/Ph.D.s to apply after they have completed their Ph.D. degree (1 respondent); and expanding eligibility to allow candidates to apply within 24 months of receiving degree (1 respondent).

FEEDBACK FORM FOR EDITORIAL BOARD REVIEWERS

The feedback form consisted of 12 items. The number of respondents was 12, resulting in a response rate of 80 percent (12 of 15).

Major Highlights of Responses

Orientation Materials

- All 12 respondents commented on the orientation materials. Of the 12, nine respondents felt the orientation materials prepared them either very well or well to review the applications, one felt the materials were helpful but insufficient, and the opinions of the other two were general and could not be characterized.

Quality of the Stage 1 Reviews

- All 12 respondents commented on the quality of stage 1 reviews and the responses of nine were categorized. Three felt the stage 1 reviews were high quality, three felt the reviews were useful, and three felt the review were mixed (some reviews were thorough and others were not). The other three respondents only provided general comments and their opinions about the quality could not be categorized.
- The reviewers felt there were gaps with the Stage 1 reviews with one respondent noting that some less qualified applicants were invited to interviews.

Materials Used from Applications

- All 12 respondents commented on the materials they used from applications to assess the qualifications and potential of the investigators, institutional support, and the project. Stage 1 reviews were the most prevalent cited and were included in the responses of 10 of the 12

respondents. Letters of references were included in six respondents' responses, application in four, sections of the application were in three, and institutional support letters were in two. Three respondents used all documents including the stage 1 reviews, while the other nine used selected sections of the application.

Appropriateness of the Number of Applications Assigned

- All 12 respondents commented on the number of applications assigned and their comments were categorized as reasonable and too many. Six of the 12 respondents felt the number assigned was reasonable and the other six felt they were assigned too many.

Time Commitment to Score Applications

- All 12 respondents commented on the time commitment to score applications. Eight respondents felt the time commitment was reasonable, two felt the time commitment was high, and two had general comments. One noted the time commitment was better than regular study section, and the other noted he/she did not have time to score the applications.

Format of the Interview

- All 12 respondents commented on the format of the interview. Seven felt the format was excellent and two felt the format was adequate. The other three respondents only provided general comments and their opinions about the format of the interview could not be characterized.
- Five of the 12 noted that the five minutes allotted to the investigator's presentation was brief and two of them suggested increasing the presentation time to ten minutes. One respondent noted that the 15 minutes allotted for questions and answers was important and revealing.

Value of Having Institution's Official Present During the Interview

- Eleven respondents opined on having an institution's official present at the interview. Of the 11, nine respondents felt that it would not be helpful to have the institution's official present for future reviews, one felt that it would be helpful, and one noted that he/she did not have any opinion.

Success of the Two-Stage Review Process

- All 12 respondents commented on how successful the Stage 1 review and editorial board review process has been in identifying strong investigators for the EIA program. Seven felt the review process worked well, two characterized the process as adequate, and the opinions of the remaining three could not be categorized.
- Three of the 12 respondents noted that a few less qualified candidates passed through the review and were interviewed. Two hoped that the quality of applicants increases with future

EIA announcements. One respondent noted that the Stage 1 reviewers did not use the NIH EIA criteria or weigh those criteria appropriately.

Suggestions to Improve the Two-Stage Review Process

- Eleven respondents provided suggestions to improve the two-stage review process. Two of the 11 indicated that no improvement was needed.
- The following recommendations for the composition of reviewers were provided. In addition to reviewers with expertise in the proposed research area, also include reviewers with expertise in other areas in the Stage 1 review. Assign applications based on the background of editorial board members in the Stage 2 review. Include more Medical Doctors on the editorial board review. Finally, involve higher quality scientists and physicians in Stages 1 and 2 of the review process.
- The following recommendations for the review guidance were provided: give the scores for all applications to the editorial board members prior to the teleconference, use the same rating scheme for stages 1 and 2 of the review process, improve the guidance for scoring for the interview meeting, and improve guidance for next year's review process based on this year's experience.
- The following recommendations for the time allotment for reviews were provided: increase the time between stages 1 and 2 of the review process to allow editorial board members to select a better group of finalists, and increase the time for editorial board members to review the complete application or limit the number of applications assigned.

Most Important Review Criteria

- All 12 respondents commented on the review criteria they considered to be the most important for the EIA program. Two felt that all five NIH review criteria were equally important, nine listed one or some combination of the five NIH review criteria, and one listed two NIH review criteria plus impact. The three most common criteria cited were *investigators* listed by eight respondents, *environment* listed by seven respondents, and *innovation* by five respondents.

Least Important Review Criteria

- Eleven respondents commented on the review criteria they considered to be the least important. Eight of the 11 respondents listed one or some combination of the five NIH review criteria as the least important, and one respondent listed another factor, budget. The two most common criteria cited as least important are *significance* listed by five respondents, and *innovation* listed by three respondents.
- Two respondents felt that all NIH review criteria were equally important. Another respondent felt that the NIH criteria of *significance*, *approach*, *investigators*, and *environment* were important, and added impact as another important factor.

Suggestions to Improve EIA Program

- Eleven respondents provided suggestions to improve the EIA program. Two respondents noted that no improvement was needed.
- The following recommendations were provided: increase awareness of the program, ask some editorial board members to serve on future panels, involve higher quality reviewers for stages 1 and 2 of the review process, and improve the guidance related to criteria and scoring.

Summary of Suggestions With Broad Support

- ***Review Guidance: Criteria and Scoring***
 - *Guidance for Stage 1 reviewers:* Five respondents suggested requiring Stage 1 reviewers to be more thorough and critical in their critiques, especially when they review applications in their own field. In addition, inform reviewers which criteria should be weighed more heavily when reviewing applications and explain how the EIA reviews differ from R01 reviews. This will ensure that more weight is given to the candidate and environment than the proposed approach.
 - *Guidance for Stage 2 reviewers:* Six respondents suggested clarifying guidance for the Stage 2 reviews. Reviewers suggested clarifying the following items in the orientation material: criteria to weigh more heavily, the scoring of applications, and expectations for the young investigators. Inform editorial board members that the Stage 1 reviews are not binding and instruct them on how to incorporate Stage 1 reviews into Stage 2. Use scenarios to provide guidance on how to weigh criteria, for example, how should the applicant be rated if the candidate and environment are excellent, but the project is flawed. Provide examples on how the 1-9 scoring scale applies to the EIA program. One suggestion is to define the attributes that would correspond to different ratings in the scale (e.g., what would characterize a “1” through “9” score for each NIH criterion). Finally, consider providing all scores and applications from the Stage 1 reviews to the editorial board prior to the teleconference to select the finalists for the interview.
- ***Composition of Reviewers***

Six respondents provided suggestion about the composition of reviewers.

 - *Stage 1 reviews:* Select reviewers with more diverse experience and not just expertise in the specific area being proposed. For example, choose reviewers with different expertise and “don’t just choose nanotechnologists to review nanotechnologists, etc.”
 - *Stage 2 reviews:* Have more editorial board reviewers with content expertise in niche areas, assign proposals to editorial board members based on background, include more Medical Doctors on the editorial board, and ask some board reviewers to serve again for continuity.

- o *Stages 1 and 2 of reviews:* Involve higher quality scientists/physicians in both stages of review.
- ***Investigator's Presentation:*** Increase the time for investigator's presentation to 10 minutes. Five of the 12 respondents noted that the investigator's presentation was brief, and two suggested increasing presentation time to 10 minutes.
- ***Increase Program Awareness:*** Four of the 12 respondents suggested increasing program awareness to recruit a better pool of applicants. For example, upload video clips of awardees on YouTube and the NIH website, and develop a video to describe the expectations for the applicant and the application.

WEBSITE FOR FINALISTS

Finalists were invited to provide feedback on the interview portion of the review process. They were asked to: characterize their relationship with the institution they were applying with, report their degree status at the time of submitting the NIH application, and describe their current position and plans. Finalists were also asked to comment on four items and provide suggestions. The response rate was 56 percent (14 of 25).

Major Highlights of Responses

Respondents' Background Characteristics

- Of the 14 finalists, 13 reported that the institution with which they applied for the NIH EIA program was their current institution, and one applied with an institution different from his/her current institution.
- Of the 14 finalists, 10 received their Ph.D. degrees and one completed his/her medical residency within the 12 months prior to the NIH application submission date. These 11 finalists had a position/appointment and they did not indicate that they applied to any other program or fellowship.
- Of the 14 finalists, three will complete all the requirements for a Ph.D. degree within the 12 months following the NIH application submission date. Two have applied only to the EIA program, and one has applied for a post-doctoral position in addition to applying for the EIA program.

Interview Guidance

- Eight finalists felt the interview guidance was helpful or very helpful in assisting them to prepare for the interview and three felt the guidance was not helpful or they did not receive it.
- Eight finalists noted that they were unclear about the panel's expectations. Two respondents were unclear about the purpose and importance of the interview in the overall review

process. In general, finalists were surprised that the panel did not focus on all three areas² listed in the NIH interview guidance.

Interview's Length and Format

- Six finalists felt that the five minutes allotted for the presentation was a sufficient amount of time for a succinct summary and five felt it was too short.
- Four finalists felt that the 15 minutes allotted for the question and answer portion of the interview was sufficient. Two finalists felt the question and answer discussion was the most important portion of the interview, and one felt the questions were appropriately balanced between science and career.

Consistency of the Panel's Questions in Regards to the Finalists' Expectations and the RFA

- Ten finalists felt the questions were consistent with their expectations for the interview.
- Favorable comments about the panel's questions included: gaining knowledge of the funding process, understanding expectations of young investigators, and exposure to panel members with different expertise who are knowledgeable of the finalist's proposed research area.
- Unfavorable comments included: panel's lack of familiarity with the content of the applications and the EIA award mechanism, little emphasis on the science of the grant, lack of specific questions related to the proposed project, and doubt of the necessity of the interview when answers via email would have been sufficient.
- Three finalists felt the discussion will help them in the future. One finalist commented that he/she will be better prepared for similar question and answer sessions. The second finalist noted that the experience will be helpful when he/she applies for funding in the future.

Overall Impression of the In-person Interview as Part of the Review Process

- Five finalists were appreciative of the opportunity to appear in person. The reasons cited included: chance for panelists to distinguish between candidates who are knowledgeable of their project versus those who need mentors; importance for the EIA selection process; and opportunity to clarify proposals (since resubmission of the EIA grant application is not an option) and justify high-risk sections of the application.
- Two finalists had unfavorable comments. Items cited included: interview lengthened the review process, interview's purpose was unclear, and panelists' lack of greeting and unfriendly demeanor rendered the interview intimidating.

² Applicants were asked to prepare their presentation and discussion around the following aspects: (1) The training and accomplishments that point to the readiness and potential for an independent career; (2) The institutional commitment, mentoring structure, and collaborative arrangements that will support a successful independent career; and (3) Evidence that the proposed project will develop into an independent research program that will have an impact to the field.

Summary of Suggestions With Broad Support

- **Room Layout:** Five finalists made suggestions about the layout of the room. The interview should occur in a smaller, more intimate setting to provide an opportunity for close interaction between finalists and panelists during the discussion.
- **Interview Length:** Five finalists noted that the time allotted for the investigator's presentation was too short. Three specifically suggested increasing the time; of those three, two suggested increasing the time to 10 minutes.
- **Interview Guidance:** Six finalists suggested providing more explicit instructions for the interview so panelists' expectations are clear. The guidance should include: interview purpose, applicants' qualification and areas of expertise to be assessed, and the expected technical breadth of the PowerPoint presentation.