

AHC STRATEGIC PLANNING PROCESS

PHASE II – REPORT ON DEFINING QUESTION NO. 3:

HOW WILL WE ACHIEVE A TOP RANK IN RESEARCH PERFORMANCE?

Committee No. 3 – Top Ranked Research

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I. Executive Summary

The AHC has a history of excellence in many disciplines including cardiovascular disease, cancer, immunology, neuroscience, and infectious disease. However, the AHC is losing ground to competing institutions in the research arena. Several factors contribute to this loss of standing. Teaching, patient care, and administrative activities are competing with research efforts for the already over-committed time of our faculty members. The AHC faculty is not growing as fast as the faculties of competing institutions, and may be losing its ability to retain top researchers. Faculty attrition is a concern to many departments in both maintaining research excellence and in attracting new talent. Poor communication between the colleges of the AHC and administrative barriers limit interdisciplinary efforts. The current reward system lacks incentives for research productivity and must focus more on quality. The major recommendation of this committee is that the AHC identify, hire, retain, and protect the research time of the best and brightest faculty members, and then provide an administrative structure that facilitates their success in research.

The following solutions are recommended.

- Identify new funds to be used to protect the research time of top investigators who are being distracted from research by competing responsibilities, and increase the size of the faculty by hiring additional high-quality researchers.
- Develop an objective system to measure research quality and use it to make decisions about promotion and tenure, post-tenure review, and investigators to be hired and/or supported by the aforementioned funding mechanism.
- Create an Office of Research Facilitation to promote intercollegiate communication, interdisciplinary research projects, and funding opportunities.

Committee No. 4 Report

II. Introduction.

The colleges of the AHC were ranked on average in the 29th percentile in NIH funding in 1999. The Medical School (which accounted for 70% of NIH research funding to the AHC in 1999) has lost ground in NIH funding over the last 17 years; dropping from 15th in 1982 to 27th in 1999 (go to <http://silk.nih.gov/public/cbz2zoz.@www.awards.ranking.htm> for details). The National Research Council ranking of the University of Minnesota's biomedical graduate programs dropped from the 20s in 1983 to the mid 30s in 1995 (go to http://www.ibr.wustl.edu/nrc_rankings/view.cgi for details). The AHC faculty does not have a National Academy member, and only one Howard Hughes Medical Institute investigator, who was recently recruited from another institution. Together, these indicators suggest that the AHC is being outpaced by competing institutions, and is in danger of dropping out the top one-third of biomedical research institutions. It is critical that current problems be identified and addressed if the AHC is to correct this situation and take advantage of recent improvements in the funding situation at the NIH.

II. Current problems and recommended solutions.

A. Protecting time for research and increasing the size of the faculty.

There was a clear sense among the committee members that attention to other activities is eroding the time that certain faculty members can devote to research. Clinical investigators are under pressure to devote time to clinical care or teaching because their department does not have enough staff, or because they are expected to recover their salary from clinical activities. In some colleges, staffing shortages or idiosyncratic departmental policies are creating very heavy teaching or administrative loads for certain faculty members. Due to a lack of state funding for their core mission, Public Health faculty members are spending too much time scrambling for external funds to cover teaching and administrative activities.

1. Protecting time.

It is recommended that the AHC create a funding mechanism to protect the time of faculty members who wish to focus on research, but are being distracted by other responsibilities. Investigators from any AHC college would be free to apply. Successful awardees would receive funds for any purpose related to their research mission, and the awardee's department would receive additional funds to free up the awardee's time for research. For example, if the award went to a clinical researcher, the department could use its allotment to hire another clinician or nurse practitioner. Applicants would submit information required for the research quality assessment analysis described below, and a statement describing the departmental plan that would be used to free up their time for research activities. The funding decision would be made by a panel of top AHC scientists based on the quality of the applicant's past scholarship (measured by the research quality assessment tool) and their time utilization plan. Support would have to be renewed every 5-7 years based on productivity.

2. New Hiring.

It is equally important that new faculty are hired by the AHC colleges. Current AHC faculty members are well funded per capita. However, attrition and hiring freezes have created a situation in which the AHC has fewer faculty members than competing institutions, for example, the University of Michigan. This is a great disadvantage because the NIH rankings are based on total dollars, and thus favor larger faculties. New hiring is also important because many departments are top-heavy and likely to be depleted in the near future by retirements. It is recommended that the AHC promote the hiring of high-quality faculty members. The colleges and departments should identify the areas in which hiring should occur, and carry out the searches. The role of the AHC should be to provide funds to supplement the amount and duration of start-up packages to attract premier candidates from the departmental searches. The AHC should only support candidates who score highly in the research quality assessment formula described below. The hope will be that the enhanced funding provided by the AHC will be attractive to the best candidates who we may currently be losing to other institutions.

Recruiting top candidates will also depend on the availability of high quality research space and core facilities. The AHC is currently ~200,000 ft² short of research space, and this shortage will not be completely relieved by completion of the new Molecular and Cellular Biology Building in 2002. In addition, many of the current research and core facilities in the AHC colleges are outdated and in need of renovation. It is recommended that AHC funds should be used to ensure that high-quality research space and equipment is available to facilitate the recruitment of top candidates.

B. Research environment

It is essential that the AHC colleges produce a culture that values excellence. The facts that so few AHC faculty members are in the NAS or HHMI, and that AHC rankings in NIH funding are falling are evidence that research excellence is currently not being achieved.

1. Research Quality Assessment Tool.

An important step in achieving excellence will be the ability to identify it. The quantity of publications and the amount of grant money are currently used in the AHC colleges to make decisions about promotion and tenure, retention, space allocation, and hiring. This committee strongly recommends that metrics of quality rather than quantity be used for these purposes. Publications are worthless if they are never read or fail to influence the field in a positive way. It has been estimated that 50% of the scientific literature is never quoted by anyone other than the authors. Reliance on total grant dollars as a measure of quality is also limited by inherent differences in the costs related to one kind of research versus another. This committee believes that the best indicator of quality research is external peer recognition. One indicator of external peer recognition for scientific papers is citation in the publications of peers. Citation rates for individual papers can now be easily determined on the Internet. By valuing citation rates over publication rates, the AHC will be valuing

publications that are influential, not just in print. In addition, the AHC must pay attention to citation rates because the National Research Council uses them to rank the scholarly output of graduate programs. The best indicator of peer recognition for grant submissions is funding itself. Competitive renewal is a good indicator that progress was made on the project proposed in the original grant.

It is recommended that the AHC invest in the development of a research quality assessment tool. A committee of top AHC researchers should be charged with the task of developing this tool, and given resources to evaluate it. Parameters such as the number of peer-reviewed grants (not the dollar amounts), the number of peer-reviewed grants that have been competitively renewed, and the citation rate of the publications of the individual/program in question should be evaluated as measures of quality.

Once the research quality assessment tool has been developed and validated by the committee, it should be used to identify the internal candidates to be supported by the time protection program described above, and to evaluate the external candidates as part of the new hiring program. It is also recommended that an annual monetary award be given to an AHC investigator based solely on the research quality assessment tool. Not only could the award improve morale by rewarding excellence, it would also serve to publicize and promote acceptance of the new objective criteria used in the tool.

2. Incentives

The AHC should also attempt to create consistent incentives for research productivity in all of the colleges. The AHC should encourage all of the colleges to use information from the research quality assessment tool in decisions concerning promotion and tenure and post-tenure review. By focusing on metrics of quality, the AHC is more likely to promote, retain, and hire researchers who are leading their fields. A higher quality faculty should be more competitive at obtaining research grants in the long run. The AHC should also produce a financial incentive system to be used in all colleges to reward high productivity. One way to do this would be to allow well-funded investigators to supplement their salaries from their grant funds for the period of the grant.

3. Mentoring

A higher quality AHC faculty could be achieved by a mentoring system for junior faculty members. The AHC should consider developing a formalized and mandatory mentoring program in which junior faculty members are assigned a mentor from the senior faculty. It would also be beneficial to provide additional training in communications and research technology to mid-career faculty members. Financial rewards could be given to faculty members who offer courses in emerging technologies, to be taken by other faculty members.

C. Facilitating research

Many committee members felt that communication between the colleges is poor, that too few intercollegiate research projects are ongoing, and that many administrative barriers hinder research performance.

1. Office of Research Facilitation

All of these problems could be addressed by creation of an AHC Office of Research Facilitation. The duties of this office would be to create a unified, searchable database containing information on all AHC faculty members, including research topics, major techniques used, and major equipment owned. In addition, the office would track grant opportunities from all major biomedical funding agencies and make these opportunities known to relevant AHC faculty members. The office would also help investigators prepare grant applications and navigate the regulatory maze. The office would be proactive and its leaders should benefit financially if AHC grant income increases. It is recommended that the leader of the office have at least a master's degree in a science-related field.

The current AHC grant program that is designed to encourage intercollegiate research efforts should be continued. However, if no new funds are available, the time protection and new hiring plan described above should have priority.

IV. Conclusion

The plan described here is based on the assumption that best way to improve our research ranking is to hire and retain the "best and brightest" faculty members in all of the AHC colleges. It also assumes that these individuals should be identified with an objective tool that measures the quality of their scholarly output.

The committee believes that the AHC should leave the job of identifying programmatic areas in which faculty should be hired or protected, to the colleges and departments. These entities are in the best position to identify the strengths and weakness of their fields and make predictions about emerging areas. The AHC's role should be to promote a quality research faculty and ensure that the infrastructure is optimal for cutting-edge research.

Implementation of these recommendations will require substantial investment of new funds. It is unreasonable to expect that significant improvement in our rankings can be achieved by simply placing higher expectations on the faculty or reorganizing it into different groups. Events at Emory University indicate the magnitude of the investment that will be required. Emory invested \$200 million in recent years to hire new faculty members and improve its biomedical research space. This investment paid off, as Emory faculty members produced a 71% increase in total NIH grant dollars between 1996 and 1999, and moved past the University of Minnesota into 24th place in the rankings. The AHC is now in a unique position to make a similar investment because of the availability of new funds from the Capital Campaign, the tobacco settlement, and the upcoming biennial request to the state legislature.